
Revised Appendix Q

Existing Building Evaluation





Los Angeles County Department of Public Works

Los Angeles County Museum of Art Building Evaluation

Ahmanson | Hammer | Bing | Art of the Americas

September 16, 2014

OWEN

811 Wilshire Boulevard, Suite 1050
Los Angeles, CA 90017
Tel: 213.873.4700



September 16, 2014

Mr. Sabir Umerani, SE, Design Manager
Los Angeles County Department of Public Works
Architectural Engineering Division
900 S. Fremont Ave, 8th Floor
Alhambra, CA 91803

Subject: Building Evaluation Services
Contract PW 13611 – Project No. A320MABA
For LACMA Buildings AHM, HAM, LBC, and AOA
5905 Wilshire Blvd, Los Angeles, CA

Dear Sabir:

Attached herein is the Report for the physical building evaluation for the AHM, HAM, LBC, and AOA Buildings of the Los Angeles Museum of Art (LACMA) provided under my direction.

Owen Group, Inc

Steven Hooper, RA
Principal



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1.0 Executive Summary



Task

In July of 2014, LACDPW authorized OWEN Group, Inc. to conduct a building evaluation of four buildings on the LACMA campus: The Ahmanson Building, Hammer Building, Bing Center, and Art of the Americas Building.

Objective

The primary objective of this building evaluation is to identify the overall condition of the structure and systems of the facility; identify repair, replacement and refurbishment requirements; and develop the costs of refurbishment and replacement.

History

The buildings included in this assessment include the original buildings of the site. The museum complex is approximately 388,000 square feet with nearly 121,000 square feet of gallery space.

The Ahmanson building was built in 1965 with an addition built and occupied in 1982. It is a 170,000 s.f. four (4) story building steel & concrete building with a penthouse. The Ahmanson building features strong holdings in German Expressionism and important paintings and sculptures by Picasso.

The Hammer building was built and occupied in 1965. It is a 69,000 s.f. three (3) story building. The Hammer building manages a complex group of art holdings, including a 45,000-piece graphic arts trove and has one of the largest French collections outside of Paris.

The Bing Center was built and occupied in 1965. It is a 59,000 s.f. four (4) story building with a mezzanine and an auditorium with over 500 seats.

Art of the Americas was built and occupied in 1990. It is a 90,000 s.f. four (4) story building with a penthouse.

Approach / Methodology

The assessment teams reviewed available existing as built construction and report documents, and then performed a visual, non-intrusive assessment of the facility to identify major repair, refurbishment, and replacement items. Based on visual observations and discussions with facility maintenance staff, the assessors determined what deficiencies existed and the general conditions of key building systems. A written description of the facility, including an overview of the facility's construction, building systems and general condition, was then developed.

The final report was prepared compiling all of the information described above. Deficiencies were prioritized to assign a relative level of importance and assist in determining an appropriate refurbishment cost.

1.0 Executive Summary

Cost Analysis

Cost Analysis summaries are presented below followed by a summary of key findings that are the primary basis of the replacement and refurbishment costs.

Replacement costs are based upon costs for construction of building type similar to that of the existing buildings, incorporating current general standards for construction to current code requirements and accepted general programmatic characteristics for this building type. Replacement costs include general contractor and soft cost allowances equivalent to those of refurbishment.

Replacement Cost Analysis

Replacement Cost analysis to replicate the building and facility square footage and function

Case Study #1

Replacement costs based upon 1984 bid result for "Arts of the Americas" (Note 1)

Replicate

Total Cost

Ahmanson	170,000	SF	\$670.51	\$ 113,985,850	\$ 180,000,000
Hammer	69,000	SF	\$607.41	\$ 41,910,971	\$ 66,000,000
Bing	59,000	SF	\$696.97	\$ 41,120,974	\$ 65,000,000
Art of the Americas (1)	90,000	SF	\$630.96	\$ 56,786,118	\$ 90,000,000
Common/Support					Incl.
Site & Infrastructure					Incl.
TOTAL	388,000	SF	\$654.13	\$ 253,803,913	\$ 401,000,000

Note:1

Soft Cost

30% \$196.24

Replacement Cost \$/SF in 2014

\$850.37

Escalation at 4% for 5 years

22% \$184.24

Replacement Cost \$/SF in 2019

\$1,034.61

Demolition Cost

Total Cost

Replacement Cost in 2019

388,000	SF		\$401,000,000	\$17,400,000	\$418,400,000
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158%

Case Study #2

Replacement costs based upon 2008 and 2010 bid result for "Resnick/BCAP" (Note 2)

Replicate

Total Cost

Ahmanson	170,000	SF	\$1,065.85	\$ 181,194,257	\$ 220,000,000
Hammer	69,000	SF	\$1,065.85	\$ 73,543,551	\$ 89,000,000
Bing	59,000	SF	\$1,065.85	\$ 62,885,066	\$ 77,000,000
Art of the Americas (1)	90,000	SF	\$1,065.85	\$ 95,926,371	\$ 117,000,000
Common/Support					Incl.
Site & Infrastructure					Incl.
TOTAL	388,000	SF	\$1,065.85	\$ 413,549,246	\$ 503,000,000

Note:2

Soft Cost

Included

Replacement Cost \$/SF in 2014

\$1,065.85

Escalation at 4% for 5 years

22% \$230.92

Replacement Cost \$/SF in 2019

\$1,296.77

Demolition Cost

Total Cost

Replacement Cost in 2019

388,000	SF		\$503,000,000	\$17,400,000	\$520,400,000
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122%

Note:

1. Cost/per SF are based on 1984 bid result for "Art of the Americas" with added Soft Cost & Escalation

2. Average Cost/per SF are based on 2008 and 2010 bid results for "Resnick/BCAP"

with 10% cost decrease adjustment for building size and the added Cost for Escalation

Refurbishment Cost Analysis

Refurbishment costs include allowances for general contractor, general conditions, and mark up and fee, along with a 30% "soft" costs factor for engineering design, project management, construction management, city and plan check fees and inspection and testing costs.

Refurbishment Cost by Discipline		Direct Costs	Total Project Cost	\$/SF	%
1000	Architectural Elements	\$ 31,900,000	\$ 48,200,000	\$ 124.23	19.6%
2000	Accessibility	\$ 1,900,000	\$ 2,800,000	\$ 7.22	1.1%
3000	Civil Engineering	\$ 2,600,000	\$ 4,400,000	\$ 11.34	1.8%
4000	Misc: Elevators and Abatement	\$ 4,000,000	\$ 7,600,000	\$ 19.59	3.1%
5000	Structural	\$ 23,100,000	\$ 38,100,000	\$ 98.20	15.5%
6000	Mechanical Elements	\$ 47,000,000	\$ 68,400,000	\$ 176.29	27.8%
7000	Fire Protection	\$ 5,500,000	\$ 9,700,000	\$ 25.00	3.9%
8000	Plumbing Elements	\$ 4,700,000	\$ 7,600,000	\$ 19.59	3.1%
9000	Electrical Elements	\$ 37,200,000	\$ 59,200,000	\$ 152.58	24.1%
TOTAL		\$157,900,000	\$ 246,000,000	\$ 634	
			Building Area 388,000 GSF		

Refurbishment Cost by Discipline		Priority 1 (Yr 1)	Priority 2 (Yrs 2-5)	Priority 3 (Yrs 6 - 10)	Priority 4 (Yrs 10 +)
1000	Architectural Elements	\$ 2,606,000	\$ 35,765,000	\$ 9,803,000	\$ -
2000	Accessibility	\$ -	\$ 2,650,000	\$ 79,000	\$ -
3000	Civil Engineering	\$ -	\$ 798,000	\$ 3,501,000	\$ -
4000	Misc: Elevators and Abatement	\$ -	\$ 4,127,000	\$ 1,663,000	\$ 1,820,000
5000	Structural	\$ 150,000	\$ 27,526,000	\$ -	\$ 10,385,000
6000	Mechanical Elements	\$ 4,666,000	\$ 63,696,000	\$ -	\$ 82,000
7000	Fire Protection	\$ -	\$ -	\$ 9,729,000	\$ -
8000	Plumbing Elements	\$ 914,000	\$ 2,891,000	\$ 3,857,000	\$ -
9000	Electrical Elements	\$ 3,510,000	\$ 36,181,000	\$ 4,931,000	\$ 14,565,000
TOTAL		\$ 11,846,000	\$ 173,634,000	\$ 33,563,000	\$ 26,852,000

KEY FINDINGS

The Ahmanson Building (AHM), Hammer Building (Ham), and Bing Center (Bing) were constructed over 45 years ago and Art of the Americas building was constructed in 1985. Many of the building systems and components are past their expected useful life and have experienced some failures.

Architectural components

Most of the architectural elements of the buildings date from the original construction and require repair and replacement to restore proper function and to restore aesthetics and appearance. Throughout the complex, the exterior marble veneer is detaching from the walls in many areas. The carpets, flooring and ceilings are aging and need replacement. Due to the age of the buildings, most of the handrails and railings throughout are non-code compliant and require replacement and exit doors require new hardware and new exit signs are required to comply with current codes. Roofing, flashing, and water proofing are in poor condition and need replacement.

Ahmanson: There is water intrusion from exterior roof storm drains that results in flooding. The concrete slab has large cracks. Many pipes penetrate fire rated walls without the proper fire caulking.

Hammer: The Level 1 corridor has extensive water intrusion damage below the Plaza Level.

Bing Center: The balconies have developed numerous cracks and require repair. Elevator doors, cabs and controls require modernization.

Art of the Americas: The Level 1 corridor has extensive water intrusion damage below the Plaza Level. Many pipes penetrate fire rated walls without the proper fire caulking. Elevator doors, cabs and controls require modernization.

Plaza Level and metal Canopies: Column encasements are cracking and spalling in several locations. Column based have developed cracks and rust stains. Gutters and downspouts are in poor condition and require extensive repair and water proofing.

Water intrusion issues

Significant water intrusion through the plaza to the lower levels causes issues. The roofs on all buildings are in poor condition and need replacement.

Skylight gutter systems have failed causing significant rusting.

KEY FINDINGS (Cont.)**ADA accessibility**

Some accessibility renovations have been made in the building restroom facilities, but a wide range of improvements are required.

Civil / Site utilities

Underground site sewer and water piping systems are at end of their design lives and should be replaced.

Vertical Transportation / Elevator systems

Elevator equipment is aging and requires modernization.

Structural

Some of the AHM and Ham buildings concrete shear walls have developed significant cracking from seismic events that require repair. Additional cracks of lesser magnitude are apparent at similar walls and in concrete balcony enclosure and structural steel column cladding.

Some degree of structural strengthening is recommended for all four buildings.

Mechanical systems

Boilers and air handling units are old and obsolete. Air handling systems and HVAC controls are mostly technologically obsolescent and need substantial upgrading. Air distribution needs to be significantly upgraded to include tighter zone control for the different art/exhibit requirements.

Steam humidification systems are mostly non-operational and prone to significant leaking. The steam distribution systems should be eliminated altogether and the heating hot water (HHW) system completely modernized. HHW piping is also prone to leaking.

LACMA will realize significant energy savings benefits with a complete mechanical system modernization.

Fire Protection

Addition of a full fire sprinkler system in all buildings is recommended in conjunction with duct and piping systems work to meet current design standards and to provide enhanced protection for the structure, contents, and personnel.

KEY FINDINGS (Cont.)**Plumbing systems**

Domestic cold water and hot water systems date to the original construction and are in concealed areas above exhibit spaces. Domestic hot water system valves and piping are in poor condition. Leaks are reported as an issue. Domestic hot and cold water piping systems need to be removed and replaced to provide routing that does not potentially compromise exhibits.

Current plumbing fixtures use low water use type, however replacement to ultra-low water use per current standards is recommended.

There is no grease interceptor in the sanitary sewer line for the kitchen area which results frequent clogging of the site sewer line. A grease interceptor needs to be installed per current code requirements.

Electrical and electrical distribution systems

Substations have passed their useful lives and should be replaced to provide reliable power system for the buildings and compliant access and working clearances. Distribution panels and switchboards have passed their useful lives and are not in reliable functioning condition.

The emergency generation system has passed its useful life and should be replaced to provide reliable emergency power system for the buildings.

All lighting fixtures and controls are aging or dated and should be replaced to current standards for energy efficiency and installed per compliance to Title 24, Part 6 Code. Replace all fixtures throughout the building with new energy saving LED lighting fixtures.

Abatement

Asbestos insulation was observed on the steam supply and steam condensate return piping. Asbestos abatement is recommended for any piping system refurbishment. Due to the age of the building, a lead based paint assessment is recommended.

RECOMMENDATION

In light of the age of three of the buildings and major issues and deficiencies in all systems; including structural issues in all buildings, Owen Group recommends the County replace the existing buildings. While the Art of the Americas Building is 30 years old versus the three buildings at 49 years old, many of its systems will be approaching their end of expected lives within 15 years. Replacement provides for a building that can support the program needs of the Museum without compromise, and provide for improved structural and energy performance.

2.0 Introduction

2.1 Background/History

The Los Angeles County Museum of Art (LACMA) is the largest art museum in the western United States. LACMA attracts nearly a million visitors annually and holds more than 120,000 works spanning the history of art from ancient times to the present. In addition to art exhibits, the museum features film and concert series.

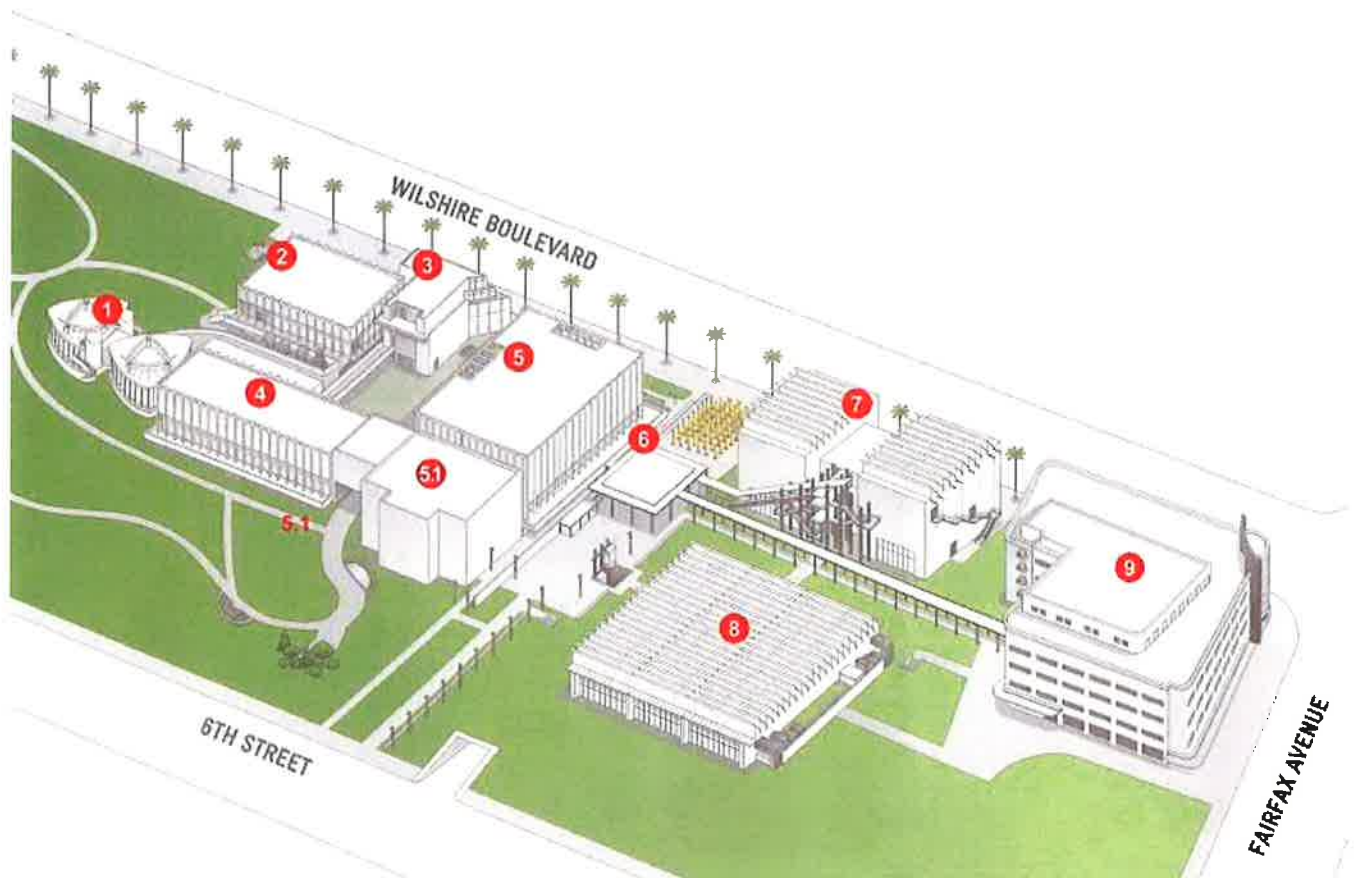
The Los Angeles County Museum of Art was part of the Los Angeles Museum of History, Science and Art, founded in 1910, in Exhibition Park near the University of Southern California. LACMA was established as a museum in 1961, and moved to this new location on Wilshire Boulevard as an independent, art-focused institution, and the largest new museum to be built in the United States in 1965.

The Ahmanson Building, Bing Center, and Lytton Gallery (renamed The Frances and Armand Hammer Building) were built in 1965. The Ahmanson Extension was added in 1982. The museum expanded in 1986 by building the 115,000-square foot, Robert O. Anderson Building for 20th-century art, which was renamed The Art of the Americas Building in 2007. The expansion provided a partially roofed central entry court and a plaza bounded by the museum's four central buildings. These are the buildings included in this assessment.

In 1988, the Pavilion for Japanese Art opened at the east end of campus. The museum acquired the May Company department store building in 1994 at the corner of Wilshire and Fairfax, now known as LACMA West. Most recently, the western half of the campus was revitalized and expanded to include the Renzo Piano Building Workshop, the Broad Contemporary Art Museum, BP Grand Entrance, the underground parking garage opened in 2008; the Lynda and Stewart Resnick Exhibition Pavilion opened in 2010; and Ray's restaurant and Stark Bar opened in 2011.

LACMA is located in Hancock Park on over 20 acres at 5905 Wilshire Blvd, Los Angeles, CA 90036, and is adjacent to the George C. Page Museum and La Brea Tar Pits.

*A Map of the campus is displayed on the next page.



LACMA Facility Buildings and Spaces

1. Pavilion for Japanese Art, (Japanese Art). Built and occupied in 1988.

* 2. Bing Center, (Brown Auditorium, Theater, Café, Management Offices, Restrooms, Conference Room) with a Mechanical Penthouse. Built and occupied in 1965.

* 3. Art of the Americas Building (AOA), (Art Rental, Sales Gallery, Exhibitions, Administrative/Staff Offices, Restrooms, Storage, Electrical Rooms) with a Mechanical Penthouse. Built and occupied in 1988-1990.

* 4. Hammer Building, (Ticket Office, Gift Store, Café, Galleries, Staff Offices, Art Center, Storage, Mechanical and Electrical Rooms). Built and occupied in 1965.

* 5. Ahmanson Building, (Art Store, Galleries, Exhibitions, Restrooms) with a Mechanical Penthouse. Built and occupied in 1965.

* 5.1 Ahmanson Building Addition, (Galleries, Loading Dock). Built and occupied in 1982.

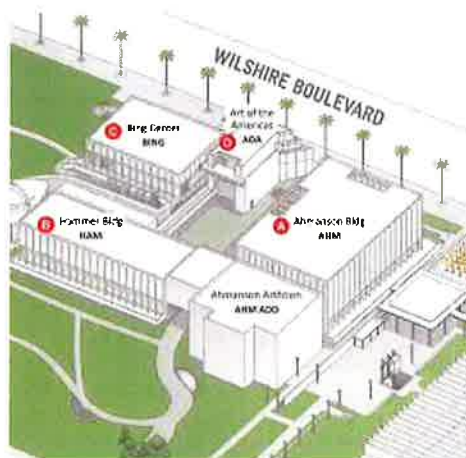
6. BP Grand Entrance, (Café, Bar, Ticket Office). Built and occupied in 2008.

7. Board Contemporary Art Museum, (Art Exhibitions). Built and occupied in 2008.

8. Resnick Pavilion, (Special Exhibitions). Built and occupied in 2010.

9. LACMA West, (Closed for Renovation). Acquired in 1994.

** Buildings included in this evaluation.*



LACMA Building Evaluation Subject Buildings

- A** Ahmanson Building (AHM)
- B** Hammer Center (HAM)
- C** Bing Center (BING)
- D** Art of the Americas (AOA)

2.2 Purpose

At the request of Los Angeles County Department of Public Works and in accordance with our task order project number A320MABA, contract number PW 13611, dated July 2, 2014; Owen Group has conducted a visual inspection of four buildings at LACMA, located at 5905 Wilshire Blvd, Los Angeles, California. This evaluation report has been prepared to identify and describe the extent of upgrades necessary (i.e. repairs /upgrades /replacements) for certain architectural, structural, mechanical, electrical, plumbing, fire & life safety, equipment, systems, and components of four of the LACMA buildings:

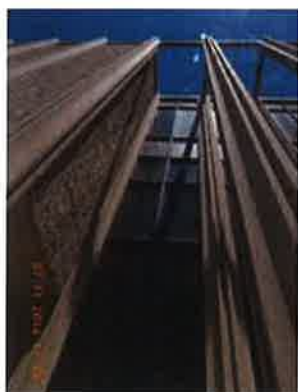
- **Ahmanson Building – Building A**
Built and occupied in 1965 with the addition built and occupied in 1982.
Gross Area: approx. 170,000 s.f.
Four (4)-story steel & concrete building with a penthouse.
- **Hammer Building – Building B**
Built and occupied in 1965
Gross Area: approx. 69,000 s.f.
Three (3)-story steel & concrete building.
- **Bing Center – Building C**
Built and occupied in 1965
Gross Area: approx. 59,000 s.f.
Two-(2) story building with a mezzanine and an auditorium
- **Art of the Americas Building – Building D**
Built and occupied in 1990
Gross Area: approx. 90,000 s.f.
Four (4)-story steel framing building with a penthouse

The report presents findings, recommendations and cost analysis based upon general system categories (disciplines).

Discipline Summary Table

Disciplines	Descriptions
Architectural	Architectural Components
Water Intrusion	Waterproofing & Water Damages
Accessibility	Path of Egress, Railings, Signage, Facilities Accessibility (Restrooms, Public Arcas)
Civil / Site Utilities	Utilities and site features
Vertical Transport	Elevator Systems
Structural	Structural Systems
Mechanical	Heating, Ventilating and Air Conditioning Systems
Fire Protection	Fire Sprinkler Systems
Plumbing	Plumbing Systems
Electrical	Electrical Systems Power, Lighting, Life Safety & Communications
Abatement	Hazardous Building Material Removal

2.3 Scope



The scope of this assessment consisted of a visual survey of the readily accessible building systems and reviews of relevant drawings reports and records. During the visual survey, building management and maintenance personnel were available to describe and show the assessment team many of the issues with the facility.

Items evaluated:

- Architectural components
- Water intrusion issues
- ADA accessibility
- Civil / Site utilities
- Vertical transport / elevator systems
- Structural systems
- Heating, ventilation, and air conditioning systems
- Fire Protection and life safety systems
- Plumbing systems
- Electrical and electrical distribution systems

This assessment was performed with a view toward identifying deferred maintenance repair and refurbishment items system upgrades that, in Owen Group's expert opinion, will require immediate attention, should be addressed in 2-5 years, in 6-10 years, or within 20 years.

**2.3 Scope
(cont.)****Cost Analysis:**

Owen Group retained Lenax Construction Services Inc. to provide refurbishment cost analysis.

Estimate costs are based on information obtained from several industry accepted data-base sources, such as R.S. Means, BNI Building News, Lee Saylor and National Estimator (Craftsman).

The above referenced sources are used as a basis, along with the estimator's professional and historical knowledge and judgment, to adjust for the specific project type (in this case, repair and replacement), location, complexity and size, and other unique or special characteristics and circumstances.

Additionally, for this Replacement Cost Estimate, research of recently completed similar projects (Local and National) was performed and available cost data was obtained.

Cost estimates were completed for the repair, replacement, and refurbishment projects recommended. All costs represented in this report reflect current-year U.S. dollars. Costs generated in this report are built on identified deficiencies with replacement of materials or components in-kind unless industry standard requires change of material or component type.

For Refurbishment and Replacement Estimates the cost represented in these cost estimate reflect current-year U.S. dollars. 4% annual escalation is applied explained below:

- a) For the Replacement Estimate, an assumed 4% annual escalation for 5 years was applied.
- b) For the Refurbishment Cost Estimate:
 - Priority 1 – year 1
 - Priority 2 - year 2 through year 5 (escalation through year 3 is applied at annual 4%)
 - Priority 3 - year 6 through year 10 (escalation through year 8 is applied at annual 4%)
 - Priority 4 - year 10+ (escalation through year 12 is applied at annual 4%)

The "Soft" Cost Allowance was included in the cost analysis at 30%.

Refurbishment costs include a 20% contingency scope.

The project cost analysis "soft" costs for refurbishment and replacement include allowance for design, construction management, permitting and inspection. Other indirect "soft" costs such as temporary space rental, art relocation and storage etc. along with costs associated with fundraising and financing are not included.

**2.3 Scope
(cont.)****Limitations:**

The scope of this assessment completed was visual in nature and not intended to be destructive to gain access to hidden conditions. Destructive testing was not performed. We have documented the type and extent of visually apparent defects in order to perform the condition assessment.

Material testing of the building components and calculations were not performed to determine adequacy of the facilities original design. "Walk-through" observations were made by a trained professional, but there may have been defects that were not readily accessible, not visible, or inadvertently overlooked. Other problems over time may develop that were not evident at the time of this assessment.

This evaluation does not include lead-in-water, indoor air quality, PCB's, radon, mold, air-borne toxins, or any other hazardous materials. In addition this assessment does not include identification of underground soils, identification, or quantification of underground contaminants.

Opinions of costs of repairs or replacements are approximations only and should not be interpreted as bids or offers to perform work. Actual costs can be affected by the extent of work done as one project, the quality of contractor, the quality of materials chosen, and the specific work conditions.

3.0 Methodology

3.1 General Methodology

The primary objective of this assessment is to survey and observe each facility and note physical or operational deficiencies. The following describes the process performed for the Owen team.

The assessment teams are comprised of design professionals, typically an architect and an engineer. For each building, the teams collected much of the facility's historical information prior to visiting the facility. This research included a review of existing drawings and a review of previous renovations.

The assessment teams performed a visual, non-intrusive assessment of the facility to identify major repair, replacement, and capital improvement items. The assessment teams performed a walk thru survey of the property during the week of July 8, 2014, in order to identify deficiencies based on safety, damage/wear-out, component renewal codes/standards, environmental improvements, and energy conservation. Based on visual observations and discussions with facility maintenance staff, the assessors determined what deficiencies existed and the general conditions of key building systems. A written description of the facility, including an overview of the facility's construction, building systems, and general condition, was then developed.

The LACMA Facilities Director and staff were extremely helpful in coordinating facility access to perform the site surveys, providing record drawings and reports, and being able to answer questions regarding facility history and operational concerns. All of this information has been incorporated into this report where appropriate.

The final report was prepared, compiling all of the information described above. Deficiencies were prioritized to assign a relative level of importance and to assist in determining an appropriate level of funding across all buildings.

3.2 Prioritization of Work

This report contains the results of a building evaluation of four buildings for the LACMA complex. As part of this assessment, specific site and building related issues deficiencies were identified, categorized, and grouped into eleven major systems. A cost analysis for each deficiency was prepared, including “soft costs” that account for design and engineering professional fees, contingencies, escalation, and administrative expenses.

All deficiencies were prioritized to assign a relative level of importance and assist in determining an appropriate level of funding across all buildings.

Replacement Priority (Lifecycle scheduling)

Priority 1	•Deficiencies that have a direct impact on the health and safety of the building occupants or violates enforceable building, mechanical or electrical codes.
Priority 2	•Deficiencies that impact the building integrity and if not corrected will cause further damage and in turn affect the health and safety of the building occupants.
Priority 3	•Deficiency corrections that must be performed to maintain or restore the building systems integrity, reliability and performance.
Priority 4	•Deficiency corrections performed to improve the building systems integrity, reliability and performance.

Evaluation Condition Definitions

Throughout the report, these terms were used to describe the condition of items within the building systems:

Excellent: Only normal scheduled maintenance required.

Good: Some minor repairs needed. System normally functions as intended.

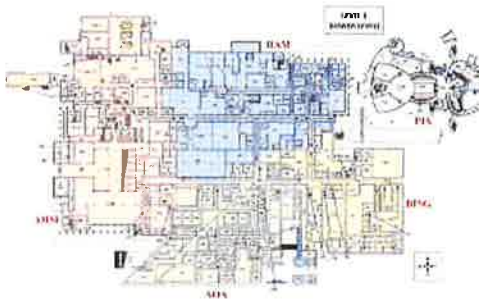
Fair: More minor repairs and some infrequent larger repairs required. System occasionally unable to function as intended.

Poor: Significant repairs required. Excessive wear and tear clearly visible. Obsolete. System not fully functional as intended. Repair parts not easily obtainable. Does not meet all codes.

3.3 Evaluation Team

Steve Hooper	Project Manager	CA Registered Architect	PE, RA	C14957
		CA Registered Electrical Engineer		E15584
Sean Maghsodi	Architect	CA Registered Architect	RA, LEED GA	C26614
Jon Rose	CAsp	California Certified Access Specialist		CAsp 204
		Minnesota - Certified Building Official - Accessibility Specialist		#AS650330
		Texas - Registered Accessibility Specialist		#1304
		Certified Accessibility Specialist/Plans Examiner Certified by the ICC- International Code Council		#8164968
Ken Jewell	Lead Civil	CA Civil Engineer	PE	C66491
Touraj Eimani	Lead Structural Engineer	California Registered Structural Engineer	Ph.d, SE	S4302
		California Registered Civil Engineer		C50632
Eugene Buick ABBAE Inc.	Principal and COO	BS & MS Civil Engineering California Civil Engineer Hawaii Civil Engineer		
Richard Henrikson	MEP Principal	CA Registered Professional Mechanical Engineer	PE, LEED	M22095
		CA Registered Professional Civil Engineer	AP	C33092
Craig Newton	Mechanical	General Contractor License B-1	CxA, LEED AP BD+C, CEM	
		Certified Energy Manager LEED Accredited Professional BD+C		
Saman Parsi	Senior Electrical Engineer	CA Registered Electrical Engineer	PE	E19332
George Elkin Lenax Construction Services Inc.	Senior Cost Estimator	Certified Professional Estimator - CPE	CPE	
		American Society of Professional Estimators General Building Contractor B license CA 1982		

3.4 Assessment Detail Reports



This report is structured to provide readily understood summaries of existing building systems, their conditions, and recommendations for the extent and time period (life cycle) of refurbishment needed to return the buildings to a good level of function and serviceability.

Assessment reports for each discipline with detailed documentation of the field data gathered, representative photographs, and cost analysis. This project consists of the evaluation of four buildings, and it is not the intent to provide an independent report for each individual building. Therefore, deficiencies that span all buildings are presented and discussed only once.

This report is organized by discipline/system narrative (Section 4), describing the existing conditions and recommendations for refurbishment. Section 5 includes the refurbishment cost analysis by [1] discipline, [2] by building, and [3] combined. The exhibits include the costs, building area tabulations, representative photos, geotechnical hazard exhibit, and references. The appendices include key maps, photos, and a building evaluation matrix, which are cross referenced with each other for quick and easy reference.

Each of the reports and evaluation matrix reference LACMA-provided Key Plans for the campus buildings, which include room numbers by building. These room numbers are utilized for reference in the evaluation and report.

The data collection and management was performed using ePlan, which is an online facilities assessment application.

4.0 Systems

Note: Parenthesized alphanumerics (A001) indicate identification number for related photographic documentation found in Exhibit 4

4.1 Architecture

• Existing System Description

Building A - Ahmanson

The existing four-level building with Type 1 construction was built in 1965. (A001, A003) There are four levels of galleries, offices, exit corridors, stairs, elevators, restrooms, storage rooms, art store, mechanical/electrical/plumbing rooms and skylights with rooftop mechanical equipment serving the building.

The Ahmanson Building Addition is a three-level building with Type 1 construction added in 1982 to the existing building, and includes gallery spaces and storage rooms, including a loading dock and rooftop mechanical equipment.

Building B - Hammer

The existing three-level building with Type 1 construction was built in 1965. (A001, A004) There are three levels of galleries, offices, exit corridors, stairs, elevators, escalators, balcony, laboratories, construction room, security room, storage rooms, gift shop and ticket booth with rooftop mechanical penthouse serving the building.

A new bridge with Type 1 construction was added to the building connecting to the Ahmanson Building in 1982, expanding the gallery spaces, storage rooms, mechanical equipment and a passageway underneath to access the garden area along 6th Street.

Building C – Bing Center

The existing three-level building with Type 1 construction was built in 1965. (A001, A005) There are three levels of galleries, offices, storage rooms, exit corridors, stairs, elevators, Brown Auditorium, Bing Theater, research library, storage rooms, cafe, patio, balcony and electrical rooms with rooftop mechanical equipment serving the building.

Building D – Art of the Americas

The existing four-level building with Type 1 construction was built in 1985. (A002, A006) There are four levels of galleries, offices, exit corridors, stairs, elevators, escalators, balcony, laboratories, construction room, security room, storage rooms, gift shop and ticket-booth with rooftop mechanical penthouse serving the building.

Skylights

A main architectural feature is the skylight structure at the main entrance between Buildings “D” and “C”, and above the plaza area between Buildings “D” and “B”. The skylight system is covered with a “Kalwall” translucent panel system supported by full height columns with marble finish. (A008)

4.1 Architecture (Cont.)

• Condition and Refurbishment

Please Refer To:

- Exhibit 1: General Cost summary
- Exhibit 4: Representative Photos
- Appendix A: Eplan Report
- Appendix B: Building Evaluation Matrix
- Appendix C: Photo Log

Floors: Carpet in non-gallery areas is in fair condition and should be replaced in 2 to 5 years for aesthetic and wear considerations.

Ceilings - standard acoustic: Ceilings in non-gallery areas are in fair condition in many areas. Ceiling tile should be replaced in 2 to 5 years for aesthetic considerations.

Ceilings - concealed spline: Concealed spline ceilings in many lobby areas and some gallery areas are in fair condition due to continuing maintenance access. Concealed spline ceilings should be replaced in conjunction with piping and/or duct replacement.

Exit doors: In all four buildings, exit doors require new finish hardware and illuminate exit signs.

Exit stairs, bridge and balcony guardrails: In all four buildings, both interior and exterior existing stairs, bridge, and balcony guardrails do not comply with the current code and require modification to install horizontal intermediate railings with maximum 4" openings.

Building A - Ahmanson

Interior Evaluation:

There is a water leak from one of the exterior storm drains into Level-1 back of the house causing problems. (A009) The staff has excavated a small trench with a sump pit and a pump to remove water intrusion during rainy seasons. Also refer to water intrusion and civil sections for discussion.

Several mechanical pipes penetrate through exit corridors fire rated walls without a proper fire caulking application. (A010)

Loading dock concrete stairs and ramp railings do not comply with the current code requirements. (A011) Also refer to the accessibility section for more discussion.

Repair concrete slab with larger than hairline size cracks in diagonal patterns throughout corridors and utility rooms.

4.1 Architecture (Cont.)**Exterior Evaluation:**

Concrete column encasements are cracked and spalling in several locations. (A012, A020)

Walls sectional marble veneer is detaching in many areas due to seismic activities and movement. (A013)

Balconies concrete slabs have developed numerous cracks. (A014)

Roofing, flashing and waterproofing are in poor condition and at the end of their expected lives. (A015)

Loading dock hollow metal doors, finish hardware, and mechanical louvers are in poor condition. (A016)

Cement plaster walls have extensive stain marks over a few large areas. (A017)

Building B – Hammer**Interior Evaluation:**

The Level-1 exit corridor has extensive water intrusion and rust damage in a few locations caused by the Plaza level above concrete pavers and stairs seismic movements, numerous cracks and lack of proper waterproofing. (A018)

Exit corridor 149 has old and damaged asbestos floor tiles, which require remediation.

Exterior Evaluation:

Level-2 plaza concrete pavers, stairs, and sealant with waterproofing are in poor condition. This situation has caused significant damage to the lower level at several locations and requires immediate extensive repair. (A019)

Concrete column encasements are cracked and spalling in several locations. (A020. Also refer to the structural section for more discussion)

Walls sectional marble veneer is detaching in many areas due to seismic activities and movement. (A013)

Mechanical louvers located above the gift shop are damaged and need to be replaced. (A021)

Roofing, flashing and waterproofing are in poor condition and are at the end of their expected lives. (A015) Also see water intrusion section for more discussion.)

4.1 Architecture (Cont.)

Building C – Bing Center

Interior Evaluation:

Elevator doors, cabs, controls, corridor carpeting, paint, and finishes are old, in fair condition, and require refurbishment throughout. (A022)

Exterior Evaluation:

Concrete column encasements are cracked and spalling in several locations. (A012, A020)

Walls sectional marble veneer is detaching in many areas due to seismic activities and movement. (A013)

Balconies concrete slabs have developed numerous cracks. (A014)

There are cracks on the balcony cement plaster soffits. Roofing, flashing parapet coping, and waterproofing are in poor condition, and are at the end of their expected lives. (A023)

Building D – Art of the Americas

Interior Evaluation:

The Level-1 exit corridor has extensive water intrusion and rust damage in a few locations from the above Plaza level concrete pavers and stairs due to seismic movements with numerous cracks and lack of proper waterproofing. (A018) Also refer to the water intrusion section for more discussion.

It was observed that mechanical piping penetrates through the Level-1 exit corridors fire rated walls without a proper fire caulking application. (A010)

The Level-1 staff exit corridor is interrupted with two steps and requires a ramp in order to comply with the current building code.

The Levels 2, 3, and 4 elevator doors, cabs, controls, corridor carpeting, paint, and finishes are old and require complete refurbishment. (A022)

4.1 Architecture (Cont.)

Building D – Art of the Americas

Exterior Evaluation:

Level-2 plaza area concrete pavers, stairs, sealant and waterproofing are in poor condition, and this situation has caused significant damage in the lower level at several locations and require extensive repair. (A019)

Wilshire Boulevard main entrance canopy column concrete bases, including ceramic tiles cladding, have developed numerous cracks and rust stain marks. (A024)

Water fountain marble tiles have developed extensive efflorescence stain marks all around. (A025)

Level-3 bridge carpeting and metal framing paint are in poor condition.

Concrete column encasements are cracked and spalling in several locations. (A012, A020)

Walls glass blocks are broken and cracked at several locations. (A026)

Porcelain/metal panels are damaged with rust spots all around the building. (A027)

The Wilshire Boulevard main entrance metal canopy with translucent Kalwall panels is in poor condition and needs extensive maintenance. (A028)

Gutters and downspouts have been neglected and severely rusted at several locations. Also see the water intrusion section for more discussion.

There are several rooftop skylights in poor condition, which require extensive repair, glazing, frames, flashing and waterproofing. (A028)

Roofing, flashing, parapet coping, waterproofing, and mechanical louvers are in poor condition and are at the end of their lives. (A015) Also see the water intrusion section for more discussion.

Conclusion and Recommendation

Many of the architectural elements of the buildings date from the original construction and require repair or replacement to restore proper function or to improve aesthetics and appearance.

Cracking column encasements and delaminating marble veneer could pose a hazard and should be inspected and repaired to a safe condition as soon as possible.

4.2 Water Intrusion

- Existing System Description

Owen Group retained Allana Buick & Bers for a limited water intrusion evaluation and condition assessment. ABBAE executed a visual walkthrough to survey the subject property's material physical deficiencies and provide preliminary general repair recommendations for the following building components:

- 1) Roofing
- 2) Wall Cladding
- 3) Plaza Waterproofing and Expansion Joints
- 4) Skylights and Related Glazing
- 5) Windows/Glazing

Buildings "A" (Ahmanson), "B" (Hammer), and "C" (Bing), with the exception of the Building "A" north side addition, were constructed in 1965. The majority of these roofs, including the Building "A" addition is "gravel over built-up roofing." The penthouse upper roof on Building "A" around the skylights consists of sprayed polyurethane foam with coating. There are a few other small areas on Buildings "A" and "B" that have modified roofing. At the first and second levels, most of the exterior finishes are curtain wall/storefront glazing and stucco with a few small patches of marble veneer inlay. The third and fourth levels are mainly exposed full height cast-in-place decorative concrete columns with stone veneer panels inlay between columns. There are a few full height glass curtain walls. The penthouse mechanical room and most of the Building "A" expansion have a stucco finish. Skylights exist on the Building "A" high roof.

Building "D" (Art of the Americas) was added to the complex in 1986. Its roof is "gravel over EPDM". Skylights are incorporated with a skylight penthouse in the middle section of the roof. One side of the penthouse has a combination of clear glass and translucent "kalwall" panels. The other side was finished with metal roof panels. There are also three (3) pop up roof areas with sloped skylights. Most of the exterior skin was finished with porcelain metal panels. The northeast angle wall is full height glass block. The south wall facing Wilshire Boulevard has a combination of stone cladding and glass blocks.

The Second Level Plaza has concrete pavers over an outdated cold tar waterproofing membrane. There are also expansion joints installed between buildings. Guard rails around the plaza are decorative concrete with continuous concrete cap with caulk joints.

A main architectural feature is the skylight structure at the main entrance between Buildings "D" and "C", and above the plaza area between Buildings "D" and "B". The skylight system is covered with a "Kalwall" translucent panel system, supported by full height columns with marble finish.

4.2 Water Intrusion (Cont.)

No destructive testing, leak testing, or moisture scans with the use of moisture testing equipment was performed. ABBAE recommends performing additional testing and investigations to further confirm preliminary opinions and findings, including but not limited to performing roofing and waterproofing test cuts, podium/expansion leak testing, window/glazing spray testing, sealant adhesion tests, etc.

• Condition and Refurbishment

Please Refer To:

- Exhibit 1: General Cost summary
- Exhibit 4: Representative Photos
- Appendix A: Eplan Report
- Appendix B: Building Evaluation Matrix
- Appendix C: Photo Log

Roofing: Most of the building roof system is a cold-tar pitch system, which is no longer in standard use. The building roof systems are in poor condition and are at the end of expected lives. Roofing, coping, and all related roof flashing should be replaced on all buildings in the near term. (WI-001 thru WI-006)

Wall Cladding: There are numerous areas of rust on the porcelain metal panel system, particularly at the top of the panels where there is a flat eyebrow panel that caps the top of the porcelain panels. One particular area of panels, adjacent to the Art of the Americas building, has rust running down the face of the panels that appears to originate at the horizontal caulk joints. There are also signs of enamel on steel failing at many locations with the curved porcelain metal panel. The metal panel system should be replaced, but mainly at the top of the panels. The panel to panel sealant needs to be removed and replaced with a compatible silicone sealant. Areas of rust need to be addressed and a compatible primer and paint finish needs to be applied to prevent further spot degradation of the panels. (WI-007 thru WI-009)

Skylights: The integral gutter systems for the skylights at the entrance area have failed, and intruding water is damaging the skylight substructure. Skylights at the roof areas on Building "A" and Building "D" are also in poor condition. Temporary refurbishment should be made immediately and the full extent of damage to substructure should be assessed. Skylights should be replaced with units meeting current structural standards immediately or in the near term dependent upon results of detailed assessment. (WI-010 thru WI-012)

Plaza pavers waterproofing: Water leaks to lower level areas from the plaza are reported to be a continuing problem. The waterproofing system is a cold-tar patch membrane, similar to the roofing system, and is an outdated system at the end of its expected useful life. The waterproofing system should be refurbished immediately or in the near term to mitigate the water intrusion issues to the lower level. All expansion joints should have the cover plates removed and inspected for effectiveness. All concrete rail caulk joints at the guard rail have to be inspected, recaulked, or replaced. (WI-013, WI-014)

4.2 Water Intrusion (Cont.)

Windows/Glazing: The majority of the windows/gazing for the curtain wall and storefront system are in fair condition. The system should have at least ten (10) more years of expected life. The full height curtain wall and storefront on the first level at the south side of Building "A" facing Wilshire Boulevard looks to be fading in color on all the frame system. There are signs of leakage at glass to frame and frame to frame. It is recommended to replace the system. The 15-foot high storefront, facing the courtyard entry walkway on Building "C", shows a heavy pitting on the vertical mullions. Replacement is recommended in the near term.

Conclusion and Recommendation

Water intrusion is a major issue throughout all of the buildings, stemming from the failure of the plaza paver waterproofing system. Roofing systems are obsolete and at the end of their expected useful lives. They should be replaced in the near term. Skylights require repair or replacement.

4.3 Accessibility

• Existing System Description

The buildings included in this survey were built prior to the Americans with Disabilities Act (ADA), which was not established and enforced until the early 1990s. As such, most of the ADA components in these buildings were either added or remodeled in different stages in recent years. The elements that were updated are therefore more selective than comprehensive. This approach is generally acceptable by code because it is completed as the percentage of the value of the remodel. As a result, there are different areas in this building complex that do not meet the ADA requirements.

• Condition and Refurbishment

Please Refer To:

- Exhibit 1: General Cost summary
- Exhibit 4: Representative Photos
- Appendix A: Eplan Report
- Appendix B: Building Evaluation Matrix
- Appendix C: Photo Log

Restrooms: Many of the existing restrooms have been remodeled to provide greater accessibility dimensions that meet current requirements. Corrections are needed to some fixtures and dispensers. Corrections are needed to some elements, including additional ambulatory stall, grab bar heights, accessories heights and type, clear knee space, toilet location in respect to adjacent wall, counter heights, partition door arrangement, door hardware, and other similar items. (AC-001, AC-002)

Drinking fountains: Drinking fountains at several locations are not code compliant. Modifications required include adding signage and barrier rails and replacing existing units with Hi/Lo ADA units for facility update. (AC-003)

Interior Stairs: Handrails have several deficiencies; grip size, connections to supports, and handrail extension length. The handrails should be replaced in the near term. (AC-005)

Interior Stairs: Guardrails (at 42" above treads in addition to handrails) are not installed. This should be modified immediately to provide fall protection. They should be replaced in the near term in conjunction with handrail modifications. (AC-005)

Exterior stairs and AHM grand stair: Handrail extensions and gripping surfaces are not compliant. Stair treads lack required visual warning stripes. These should be modified immediately. (AC-004)

AHM grand stair: Atrium guard walls are not compliant for height. A metal railing should be provided as needed to increase the height to a minimum 42". These should be modified immediately to provide fall protection.

Ramps: The handrails of the ramp at the Wilshire Boulevard entrance do not meet ADA requirements. The handrails of the ramp at the Wilshire Boulevard entrance need to be modified to meet ADA requirements.

Elevators: Control panel buttons and emergency phones are not compliant for height. Control panel buttons and emergency phones should be modified in the near term. (AC-009)

4.3 Accessibility (Cont.)

Signage: Room I.D. signs and directional signage is lacking or non-compliant throughout the facility. A sign package should be created for the facility and installed in the near term. (AC-008)

Accessible seating and assistive listening device: At Building C (Bing Center), both the theater and the DC Brown auditorium accessible seating and semi-ambulatory seating do not meet current code. Also, assistive listening devices are not available. The existing accessible seating needs to be modified and semi-ambulatory seating needs to be added for the facility. Assistive listening devices need to be made available with related signage.

ADA counter height: Sales and service counters should be modified for wheelchair access. (AC-006)

ADA lockers and bench: ADA lockers and benches need to be modified at the employee locker areas to meet current code.

ADA hardware: Not all door hardware meets current code and therefore should be replaced or adjusted. All round knobs should be replaced with compliant hardware. Door closers and exit devices should be adjusted to meet ADA requirements. Some doors require additional hardware.

Because these buildings were constructed prior to any significant ADA implementation, there are significant accessibility issues. Therefore, with any major renovations, ADA upgrades should also be addressed.

Conclusion and Recommendation

Accessibility improvements should be undertaken in the near term to bring the building into full compliance and to provide improved safety at atrium guard walls and stair landing guard rails.

4.4 Civil Engineering

• Existing System Description

Site sanitary sewer system: Site sewer flows from the existing buildings north to an 8-inch site sewer main (private), which flows to the east, to a public sewer line in the old Ogden Drive alignment. The plans indicate the pipe is cast iron (CI), and based on discussions with the staff, this pipe dates back to the original construction. Staff has said that this pipe no longer has a straight slope and has “dips” due to settlement. Staff also indicates that frequent cleaning of this pipe is required because there are no grease interceptors for the kitchens and food preparation areas.

Site fire and water underground piping: Based on discussions with the staff, the site fire main is regularly hydro-dynamically pressure tested and remains operational. The plans indicate the piping for both the fire and domestic water is cast iron (CI) and this pipe dates back to the original construction. There have not been any reports of water line leaks or breaks at this time. (C-001, C-002)

Site storm drainage system: Record drawings for the site storm drain and the City storm drain system are incomplete; however, it appears that site drainage flows to an onsite 30-inch RCP pipe that flows north to Wilshire Blvd. Staff did not indicate that site drainage is a problem; i.e. there is no site flooding. There is a water intrusion problem in the Ahmanson Building (Building A) due to a broken roof drain pipe.

City of Los Angeles facilities: Ogden Drive was abandoned with the 2008 expansion, and the public 8-inch sewer line and the 96-inch Los Angeles County truck storm drain pipes were relocated as part of the expansion. Domestic water and fire service come from Wilshire Boulevard. C-003)

Building expansion to the west will be limited because no building structures can be built over City easements.

• Condition and Refurbishment

Please Refer To:

- Exhibit 1: General Cost summary
- Exhibit 4: Representative Photos
- Appendix A: Eplan Report
- Appendix B: Building Evaluation Matrix

Site sanitary sewer system: The sewer line needs to be removed and replaced - approximately 750 linear feet of 8” sanitary sewer. The original site sewer is ductile iron (DI). PVC should be an acceptable replacement. Eight (8) clean outs, spaced at 100’ on center (O.C.) maximum, are required. Removal of the existing sewer piping is recommended due to long term maintenance and potential erosion concerns. A grease interceptor is needed due to the kitchen functions.

Site fire and water underground piping: Site water and fire utilities are recommended to be removed and replaced because they are at the end of their expected lives. There is approximately 200 linear feet of 6” site domestic water line (PVC) and approximately 80 linear feet of 6” fire line (ductile iron). The 6” double detector check valve should be removed and replaced. Based on increased demand requirements, the fire main piping may need to up-sized. Refer to the fire protection section of this report.

4.4 Civil Engineering (Cont.)

Site Storm Drainage System: Roof drain piping should be repaired where the water intrusion is occurring. Refer to the water intrusion section of this report for more details. The site storm drain does not appear to need replacement. A video inspection of site storm drainage system is recommended.

• Environmental

Please Refer To:

- Exhibit 1: General Cost summary
- Exhibit 4: Representative Photos
- Exhibit 5: Geotechnical Hazards
- Appendix A: Eplan Report
- Appendix B: Building Evaluation Matrix

The following information is based on our review of Initial Study for Ogden Drive Vacation (LACMA Improvement Project), prepared for the City of Los Angeles Department of Public Works March 2005.

Methane Gas: The facility is in a City of Los Angeles designated Methane Zone. According to the Los Angeles Municipal Code, prior to new construction in a Methane Zone, a methane survey is required to evaluate methane levels that could pose a safety concern at the site. New structures constructed in a Methane Zone or Methane Buffer Zone are required to control methane intrusion into buildings by design and installation of methane mitigation measures. Typical methane mitigation measures include, but are not limited to, vapor barriers, sub-slab venting systems, methane detection and alarm systems, and building venting systems activated by the detection of methane. Additions to existing non-conforming buildings in a Methane Zone or Methane Buffer Zone may also require methane mitigation measures dependent on the size of the addition.

Existing buildings in a Methane Zone or Methane Buffer Zone, constructed prior to methane mitigation requirements in the Los Angeles Municipal Code, are not required to upgrade to current methane standards. However, it is recommended that a methane hazard evaluation be performed for all building projects, including modifications and renovations, to verify that plans do not increase the risk of methane hazards for the facility.

Conclusion and Recommendation

The underground piping systems (water, fire, and sewer) date back to the original construction and should be replaced. A methane hazard evaluation should be performed for all building projects, including modifications and renovations.

4.5 Vertical Transportation

• Existing System Description

Ahmanson Building: The Ahmanson Building has three passenger elevators, a freight elevator, and two service lifts. The passenger and freight elevators are located in a common bank near the center of the building. The elevators are Otis traction type and date from original construction. Elevator #1 – 40 horsepower (HP) freight – State # 40592. Elevators #2,#3,#4 – 35 HP passenger – State #40544, 40575, 44310. The four traction elevators have stops at all floors.(A30)

Conveyance lifts State # 081501 and # 165635 are single flight that serve the art storage rooms on the 4th Floor and the Loading Dock area.

Hammer Building: The Hammer Building has a freight elevator and a passenger elevator located on the south side of the building in the Lobby Area. The elevators are hydraulic type and date from original construction. Elevator #5 – 30 HP freight – State # 40580. Elevator #6 – 30 HP passenger – State # 40591. (A-31)

The Hammer Building also is served by a pair of escalators connecting the Plaza level to the Third Floor exterior lobby entrance. State # 73315. The escalators were not a part of the original building construction, but pre-date the Art of Americas construction. (A-32)

Bing Center: The Bing Center has a single passenger elevator installed with the Art of Americas building construction. The single flight hydraulic elevator is located at the south west corner of the building connects the Wilshire Street plaza level (First Level) to the Plaza level. This elevator was installed as a part of the Art of Americas building construction. State # 085079, 30 HP. (A-33.)

Art of the Americas: The Art of the Americas Building has a passenger and freight elevator located at the northeast corner of the building, common to the south side of the Plaza. The elevators were installed with the building construction. AOA Elevator #1 – freight - 50 HP hydraulic – State # 84823. AOA Elevator #2 – passenger - 30 HP traction – State # 085075. The elevators have stops on all three floors of the building.(A-34)

• Condition and Refurbishment

Please Refer To:

- Exhibit 1: General Cost summary
- Exhibit 4: Representative Photos
- Appendix A: Eplan Report
- Appendix B: Building Evaluation Matrix
- Appendix C: Photo Log

Ahmanson Building: The elevator equipment and cabs are now over 45 years old and show their age. The passenger elevator cabs doors and interiors have been re-finished to curb graffiti damage but have not had a major refurbishment. Elevator #4 (third passenger elevator) was out of service at the time of the assessment field survey awaiting parts availability. Controls are old style relay-logic.(A-35) (A-36)

4.5 Vertical Trans. (Cont)

Hammer Building: The elevator equipment and cabs are now over 45 years old and show their age. The passenger elevator system has been actively maintained with a hydraulics pump system and cylinder refurbishment in 2012, but the freight elevator is out of service and indicated as red-tagged by the State. Controls are old style relay-logic

Bing Center and Art of the Americas: .At 25 years age, the Bing and AOA elevators do not have as many issues as those of the older buildings. The elevator systems have been actively maintained with a hydraulic controls replacement for both hydraulic elevators within the last two years. The cab finishes are dated, but do not show the wear and damage of the cabs in Ahmanson and Hammer. Controls are old style relay-logic. (A-37)

Conclusion and Recommendation

The elevators in this facility have reached the age that various modernizations of the equipment should be considered to maximize their performance and maintain reliable operation. The equipment in the older buildings have reached the time when renewable parts are becoming obsolete and unavailable.

A complete modernization (controls, fixtures, door equipment, cab upgrades, hoistway doors and related hardware, hoistway equipment and communication features) is recommended for the Ahmanson and Bing elevators, and the AOA traction elevator.

The escalators appear to be well maintained but are over 25 years old. Refurbishment should be planned within the next 10 years.

Hydraulic systems relay logic controls should be replaced with current technology microprocessor-based systems.

A complete elevator technical survey is recommended to determine the comprehensive scope of refurbishment required.

Elevator operation buttons in the older elevators do not meet current ADA codes, and should be updated in the near term to provide for accessibility.

4.6 Structural

- Existing System Description

Ahmanson Building: The Ahmanson Building is a four-story steel and concrete building (three-story over the main plaza) with a penthouse. The building was designed based on the UBC-1961 code, and was built in 1965 (drawings dated 1962). The structural system includes 4-1/2-inch thick reinforced concrete slabs with #4 bars at 9-inch spacing, supported by steel beams and columns. Record drawings show that the building is supported by a three-foot thick concrete mat foundation. The mat footing is reinforced by #7 bars at 18-inch spacing at top and bottom.

The lateral-force-resisting system is primarily cast-in-place (CIP) 11-inch thick reinforced concrete shear walls. The walls are located at each corner of the building, and also around the main elevator/stair well. Several walls are set back below the plaza level creating a discontinued shear wall system.

Central Plant: The Central Plant is a single-story masonry system building with steel framing at the roof and open penthouse.

Hammer Building: The Hammer Building is a three-story concrete and steel building (two levels above the main plaza). The structural system is very similar to the Ahmanson Building, meaning 4-1/2-inch thick reinforced concrete slabs over steel framing. The lateral-force resisting system also includes 10-inch thick CIP walls. A 1-inch wide seismic gap at the plaza level that runs along east-west direction (gridline-20) separates this building from the original plaza structure.

Hammer Bridge : A three story concrete and steel building (two levels above the main plaza). The bridge creates a passage/breeze way at the plaza level to give access from plaza to the park on the north side of the site via an original ramp structure. This building was not a part of original construction and had been added to the complex in a later time. The provided record drawings for the site do not include any structural set for this building. The job walk revealed that the bridge is most likely seismically separated from the Original Hammer building through concealed cover plates. The façade over the passage way is fully covered with light blue color store-front glazing system.

Bing Center: The Bing Center is a two-story building with a mezzanine and an auditorium over the main plaza level. The roof structure includes steel trusses and a flexible diaphragm. The lateral-load resisting system is similar to the Ahmanson Building, including 10-inch thick CIP shear walls.

Art of the Americas: The Art of the Americas Building is a four-story steel frame building with a penthouse, designed in 1984. The gravity system primarily includes a 3-1/4-inch thick concrete deck over a 3-inch deep metal deck resting on steel beams and columns. The lateral-force-resisting system is primarily concentric intermediate steel braces on higher levels and CIP reinforced concrete walls below plaza level.

4.6 Structural (Cont.)

The 1984 construction also includes a connecting steel pedestrian bridge to the Hammer Building at the 3rd level that connects to a 2-story portal structure which butts against the Hammer Building (Ticketing booths). Limited independent lateral movement is provided at its connections to the existing adjacent buildings (Hammer Building and Bing Center).

Grand Entrance canopy: An addition that covers the grand entrance to the plaza (between the Bing Center and the Art of the Americas Building) was constructed along with the Art of the Americas Building in the late 1980s. It consists of up to 45 feet tall inverted cantilevered steel columns with tile claddings and translucent covers.

• Existing Conditions & Potential Deficiencies (Cont.)

Please Refer To:

- Exhibit 1: General Cost summary
- Exhibit 4: Representative Photos
- Appendix A: Eplan Report
- Appendix B: Building Evaluation Matrix
- Appendix C: Photo Log

Lateral-System: Shear Walls:

Ahmanson Building: Three of the corner walls (northwest corner near the loading dock, and the two on the south facing Wilshire Boulevard) appear to have been damaged in the past. Evidence of multiple diagonal cracks above and below plaza levels was noted in these walls (S-003)(S-004)(S-005). It appeared that these were repaired after a ground shaking event in the past but, since the south walls were covered with plaster, we could not determine how the repair had been done. The northwest wall, located in the first floor near DWP transformer room, was exposed and had been apparently injected with epoxy. (S-002) The damage can be mostly associated with torsional response of the building under earthquake forces due to eccentric layout of the shear walls. A majority of corner columns do not continue down below the plaza level, creating discontinued shear walls system with high flexibility above the plaza.

The lateral force-resisting system at the penthouse (on the roof of the Ahmanson Building) cannot be identified. There were no frame or braces but it could have been supported by cantilevered steel columns.

Hammer Building: There is an interior shear wall, located at Stair-10 on the west end of the building and near gridline-48. This showed some cracking/repair at the third above level. The corner walls are discontinued and shifted at the plaza level, similar to the condition in the Ahmanson Building.

Columns:

Several columns were found cracked and spalled. These were mostly located in the Hammer Building and some in the Ahmanson Building. (S-006)(S-007)

Beams:

Beams were primarily covered and concealed with ceiling or/and cladding.

4.6 Structural (Cont.)

Foundations:

Record drawings indicate the entire footing includes a 3- to 6-foot thick mat foundation. Several large-size cracks were observed north of Ahmanson Building and also east of the Bing Center. (S-001) These could have resulted from seismic forces and/or differential settlement. Further soil and geotechnical studies may be warranted.

Connections:

Record drawings did not include a separate structural detail booklet referred to in the structural plans. Additionally, most structural connections are concealed by ceiling, cladding, wall finishes, or similar and could not be visually observed.

At the Hammer Building, where a new added canopy was connected to the roof, some deformation in side plates and connecting bolts was observed. These deformations may have been caused by seismic events in the past. (S-008)

Commonly Observed Deficiencies

Concrete structures are generally heavy and, as such, are often subject to higher seismically induced forces.

The primary lateral-force-resisting systems in concrete structures are cast-in-place shear walls and/or moment frames.

Shear walls are the most common systems for lateral support of concrete structures. The walls act as inverted cantilevered columns, leading to development of maximum forces near their support right above the foundation level. This is a contributing factor in commonly observed vulnerability at the lower levels.

Reinforced concrete shear walls often have limited ductility, especially those commonly found in older buildings. These older constructed shear walls often develop plastic hinges deficiency right above the foundation. Creation of plastic hinges in shear walls is often recognized by development of diagonal cracking within the shear walls.

When cracking includes repetitive and larger than hairline cracks with a diagonal pattern, the strength and remaining capacity in resisting future earthquakes is considerably reduced. While proper repair of these cracks can regain some of the lost strength, it generally cannot restore the full original capacity before cracking. The common repair method for such partial restoration of the original capacity includes pressure injection of viscous epoxy into the cracks.

4.6 Structural (Cont.)

Mechanical equipment: Many of the air handling units, chillers, pumps, condensers, etc., were not properly restrained against lateral movement. (S-0011)

Pipes and utility lines: Observations indicated pipes and utility lines are generally not adequately braced against seismic loading. (S-0012)

Ceiling: Generally have not been accessed to verify their lateral bracing, if any. At the Bing Auditorium, the ceiling and catwalk were reasonably supported by the bottom chord of roof steel trusses. (S-0012)

Cladding: Columns cladding on flag-pole type canopy columns appear to be intact. Some spalling is evident in approximately 5% of the cladding segment. (S-010)

• Structural Refurbishment

Please Refer To:

- Exhibit 1: General Cost summary
- Exhibit 4: Representative Photos
- Appendix A: Eplan Report
- Appendix B: Building Evaluation Matrix
- Appendix C: Photo Log

Viable Alternatives for Restoring Vulnerable/Damaged Concrete Structures:

Shear walls that have been repaired with epoxy injection have a reduced capacity from the original condition, and have a high probability of sustaining additional, and often escalating, damage under the same or higher seismic loads in the future. Below are common and conventional approaches for mitigating damage from seismic forces beyond the epoxy injection.

A common strengthening approach of damaged walls includes thickening of the repaired wall by placing shotcrete/gunite over the face of those walls. While this could restore and further increase the original capacity of the walls, its effectiveness is often limited by the capacity of the existing footing that supports the wall. This is why the thickened schemes will usually be accompanied by strengthening of the existing footings below.

For a majority of concrete structures, the shear wall layout and its distribution within the building is generally a considerable factor in expected probable damage/failure of any specific wall under major seismic activity. The non-symmetrical and offset distribution of walls generally causes torsional characteristics, which can disturb a uniform force distribution among the walls and significantly contribute to more seismic loads in certain walls.

The most effective strengthening strategies that can positively address a vulnerability (manifested by damaged shear walls) are the ones that, not only restore the diminished strength of the existing walls, but also include adding new concrete shear walls. This is imperative to help reducing the seismic force demand on previously damaged walls by removing/reducing the torsional response.

4.6 Structural (Cont.)

This will often require adding new footings, unless a robust mat-type foundation exists.

The most effective strengthening strategies that can positively address a vulnerability (manifested by damaged shear walls) are the ones that, not only restore the diminished strength of the existing walls, but also include adding new concrete shear walls. This is imperative to help reducing the seismic force demand on previously damaged walls by removing/reducing the torsional response.

This will often require adding new footings, unless a robust mat-type foundation exists.

Viable Strengthening Strategy for Ahmanson Building

Based on our cursory observation of the building and the available data, it appears that at least three corner walls are damaged. We recommend some level of strengthening beyond the repair work that is already done. As a minimum, this may need to include adding 4-inch thick shotcrete over every damaged/repared wall. The footings supporting these walls may or may not need any strengthening.

Given the existing distribution of the shear walls, a torsional response is likely. Additional shear walls, strategically located in plan and at certain levels, can significantly reduce the torsional effects.

Recommendation for Structural Refurbishment

Ahmanson Building: The layout of existing shear walls on the upper levels appears to point to dominant torsional response that is often undesirable. Furthermore, many of the existing walls do not stack at the plaza (2nd level), increasing the earthquake load demand on certain walls that resembles a discontinued system. Based on past experience by the industry, buildings with torsional and vertical irregularities, are often more vulnerable to earthquakes.

Furthermore, the recent field observation that was limited to visual and accessible areas, indicated evidence of previous damage and repair. In the presence of some of collected evidence that suggests several walls might have been damaged in the past, it is rational to assume that their original extra capacity to withstand future and probably stronger earthquakes has somewhat diminished.

The review of the additions, (Art of the Americas Building and the Hammer Bridge in the late 1980's,) suggests that some added mass and/or redistribution of lateral forces might have been caused. The plaza building

4.6 Structural (Cont.)

used to be laterally self-supported. However, as a result of the addition of Arts of America building, a portion of the original plaza was demolished and replaced with a new plaza deck. New plaza deck was intentionally connected to the surrounding buildings at plaza level, including the original plaza building in north, the Ahmanson building in east, and Bing building on its west. The drilled-in grouted dowels (No. 6 at 12-in spacing) were added along all three sides as shown on details 8, 9, and 11 on S501 of AoA structural set.

With reference to the above specific concerns, it is our opinion that some level of structural upgrade may be warranted.

The structural upgrade can include a range of viable options from thickening of the existing walls by placing shotcrete/gunite or adding new concrete walls below the plaza level.

Hammer Building: The layout of existing shear walls above the plaza does not necessarily match the configurations of the walls below this level. The lateral-force-resisting system is then not fully continued. Minor cracking in some the walls has been noted in our recent site visits. Some level of improvement, in form of adding new walls or strengthening/thickening of existing walls below the plaza level, is recommended.

Bing Center: Some cracking in the mat foundation has been noted in our recent site visits. Also revealed was the added mass and redistribution of forces that might have resulted from connecting the Art of the Americas Building in 1988 to the existing building. These could have been triggered by differential settlements or changes in walls locations as part of remodeling or both.

Original Plaza Deck: The recent job walk has not indicated any evidence of major damage. However, the addition of the Art of the Americas Building in the late 1980's, has added loads to this structure beyond its original design and has also resulted in some level of force redistribution under seismic loads, since the two building are not fully connected at the plaza level. The original seismic expansion on the north side of the structure, where it butts against the Hammer Building, is only 1-inch wide. This limited gap is not probably enough to positively eliminate the risk of the buildings pounding against each other should a major seismic event occur in the future.

Art of the Americas Building: This is primarily a steel structure built in the late 1980's, and, as such, it is expected to perform rather reasonably in the event of major seismic activities in the future. The steel brace system, however, lacks the ductility of the special detailing that is demanded in recent code requirements.

4.6 Structural (Cont.)

As noted previously, this addition has linked several existing buildings into one massive structure. This has potentially altered the lateral force distribution within the system. However, in the absence of any significant visual damage, we cannot foresee the need for any major structural upgrade, unless a future overall structural evaluation of the linked system points otherwise.

Based on common practice, however, we recommend some alteration and improvement in the joints, where the high canopy connects to the roof of the Hammer Building and the Bing Center. This work should be undertaken in the near term.

- **Applicable Code Requirements**

Recommendation for Future Studies

Due to the age of the building, type of construction, and deficiencies observed, it is recommended that further studies be performed. Studies should include an evaluation of the existing structure, utilizing guidelines, such as ASCE-31, to determine the adequacy of the existing walls and to identify the extent of strengthening required.

4.7 Mechanical

• Existing System Description

Overview: This section discusses the existing mechanical systems, which include the:

- central steam boiler system
- central chiller system
- LACMA East distribution piping for steam, condensate return, chilled water supply (CHWS), chilled water return (CHWR), heating hot water supply (HHWS), and heating hot water return (HHWR)
- Air handling systems
- HVAC controls

Central Steam Boiler System: Two Kewanee steam boilers are located in the fourth floor mezzanine level of the Ahmanson Building. (M-001) They were installed in the original 1965 construction. They generate 12 psig steam. In 2003, the steam boilers' burners were retrofitted with Cleaver Brooks Profire burners to meet SCAQMD air quality requirements. One steam boiler was running the entire time we were in the boiler room. The second boiler cycled on and off. The outside temperature was over 90 degrees.

There are also two Patterson Kelly boilers (labeled B-A1 and B-A2) that were installed in 2006. Each of these is rated at 2,000,000 Btuh input.

There were no chemical log books for the steam system to review.

Steam is provided throughout the campus to steam humidifiers at the buildings. (M-003, M-004, M-005) The main steam piping is 6", with a 2" condensate return. The steam humidifiers are generally shut off and are non-operational.

In addition, steam is provided for space heating. This is accomplished in a steam-to-heating hot water (HHW) heat exchanger. (M002) The HHW is piped throughout the campus in HHW piping to various heating coils (M-004, M-006). The secondary heating hot water pumps have variable frequency drives (VFDs). The steam-to-HHW heat exchanger that was observed is ceiling-mounted and there is no way to remove the heating bundle without removing the entire heat exchanger. The HHW system was set at 130 degrees.

Finally, steam is provided for domestic hot water (DHW) heating. This is accomplished in a steam-to-DHW heat exchanger. (M-007)

Central Chiller System: Space cooling is provided from a central chiller/cooling tower system, located in the Ahmanson Addition central chiller plant (M-010, M-011, M-012). Three chillers are located in the central chiller plant. Each chiller is 500 tons and uses R-134a refrigerant. Three cooling tower cells are part of the central chiller plant. Each cooling tower cell is rated to cool 1,200 gpm of condenser water from 95°F to 85°F at a 74.3°F wet bulb temperature.

4.7 Mechanical (Cont.)

Condenser water pumps P-4, P-5 and P-10 each have a VFD that was installed in 2010.

The original Ahmanson Building chiller plant is abandoned in place. (M-017) The existing cooling tower and reciprocating chiller rack are abandoned. Chilled water is now provided by relatively new piping from the main Ahmanson Addition Building central chiller plant described above.

LACMA East Distribution Piping: The central steam boiler plant and the central chiller plant serve the buildings of the LACMA East campus. These are:

1. Pavilion for Japanese Art, (Japanese Art). Built and occupied in 1988.
2. Bing Center, (Brown Auditorium, Theater, Café, Management Offices, Restrooms, Conference Room). Built and occupied in 1965.
3. Art of the Americas Building (AOA), (Art Rental, Sales Gallery, Exhibitions, Administrative/Staff Offices, Restrooms, Storage, Electrical Rooms). Built and occupied in 1988-1990.
4. Hammer Building, (Ticket Office, Gift Store, Café, Galleries, Staff Offices, Art Center, Storage, Mechanical and Electrical Rooms). Built and occupied in 1965.
5. Ahmanson Building, (Art Store, Galleries, Exhibitions, Restrooms) with a Mechanical Penthouse. Built and occupies in 1965.
6. Ahmanson Building Addition, (Galleries, Loading Dock). Built and occupied in 1982.

Chilled water, heating hot water, and steam piping extends through the buildings to air handling units and humidification equipment on building roofs. The Pavilion for Japanese Art is also served by these central systems. The original piping is still in service and the system has been added onto over the life of the buildings.

The piping mains head east from the Ahmanson Building Addition central chiller plant and the Ahmanson Building central steam boiler plant as 8" CHWS, 8" CHWR, 6" HHWS, 6" HHWR, 6" Steam, and 2" Condensate Return. These then branch off as smaller pipes to the various buildings served.

Steam and condensate return distribution piping is 1980's vintage, which serve the Ahmanson Building, Art of the Americas Building and Pavilion for Japanese Art.

4.7 Mechanical (Cont.)

The heating hot water distribution pipe mains are 1965 vintage, as are the pipe branches serving the Ahmanson Building, Hammer Building, and Bing Center. Extensions to the HHW distribution piping in the 1980's were made to the Ahmanson Building Addition and the Art of the Americas Building. The HHW piping is distributed throughout the buildings and runs through the exhibition spaces. Leaks in the HHW piping have caused damage in the exhibition spaces. (M-006)

There are two chilled water distribution pipe mains. The 1965 vintage CHW pipe mains and the 1980's vintage CHW pipe mains associated with the central chiller plant installed at that time. The CHW pipe branches to the Ahmanson Building, the Hammer Building, and the Bing Center are 1965 vintage. The CHW pipe branches to the Art of the Americas Building, the Pavilion for Japanese Art, and the Ahmanson Building Addition are 1980's vintage. (M-009)

Air Handling Systems: Most air handling systems are old style, constant air volume (CAV), terminal reheat systems. Air distribution ductwork runs from the air handling units down through the building in vertical chases. The air distribution duct system and zone dampers date from the original building construction. (M-013, M-014)

Some of the air handling units (AHU) do not have any outside air because outside air dampers are broken and/or disconnected and are generally in the closed position. This can cause indoor air quality (IAQ) concerns. There are no automatic economizers on the air handling units.

The original design of the air handling systems was to have a water spray pump in each cooling coil section for humidity control. These are all disconnected.

The air handling units for the Ahmanson Building, the Hammer Building, and the Bing Center are original and date from 1965. No AHU replacements have been done.

The air handling units from the Ahmanson Building Addition and the Art of the Americas Building are also original and date from the 1980's. No AHU replacements have been done.

The general design of the air distribution systems is that the air handling unit cools the air, and then at the main air trunks, there is a reheat coil system that has one control valve, no matter how many zones the trunk serves. The pneumatic room sensors control the air flow by-pass dampers. There is no way to control humidity in each control space (each zone).

4.7 Mechanical (Cont.)

In general, all of the pre-filters were very dirty, and, in some cases, have fallen from the air handling units.

HVAC Controls: The existing control system is mostly pneumatic controls for both fluid and air control. Most of the existing pneumatic dampers are non-operational. Existing duct systems are generally zoned to serve "quadrants," floor by floor; therefore area control is not possible.

Most zone-level controls (thermostats, air terminal units, reheat coils) are pneumatic and are not connected to the energy management system (EMS).

The existing EMS is old and obsolete. Air handling units control valves and dampers have pneumatic actuators that are connected to the EMS via electro/pneumatic (E/P) transducers.

• Condition and Refurbishment

Please Refer To:

- Exhibit 1: General Cost summary
- Exhibit 4: Representative Photos
- Appendix A: Eplan Report
- Appendix B: Building Evaluation Matrix
- Appendix C: Photo Log

Central Steam Boiler System: The existing steam boiler system is old and obsolete - in age, condition, and technology. Additionally, further retrofit will not be possible to meet more stringent SCAQMD requirements expected in 5 years. (M-001)

The existing steam humidification systems are mostly non-operational and are prone to leaking. (M-004, M-005) The steam humidification also adds heat to the air, which inefficiently puts more "load" on the central chiller plant. The steam humidification should be eliminated, and replaced with non-heat humidifiers, such as ultrasonic or other type humidifiers. In so doing, the existing campus-wide steam piping and condensate return piping can be abandoned in place.

Furthermore, the steam boilers themselves should be replaced with HHW boilers. Such new HHW boilers could be the highly energy-efficient pulse boilers (such as Patterson Kelly (PK) boilers) with up to 92% AFUE efficiency. They would be compliant with SCAQMD air emissions regulations. They should be selectively sized with multiple boilers to minimize SCAQMD permitting requirements and to maximize reliability.

The steam-to-HHW exchangers should be eliminated altogether. The new HHW boilers would generate HHW directly for the existing HHW hydronic loop that pumps HHW throughout the campus to heating coils for space heating.

4.7 Mechanical (Cont.)

Finally, the steam-to-DHW heat exchangers should be eliminated as well. (M-007). In their place, double wall, plate-and-frame heat exchangers should be provided to allow HHW to heat DHW. The annular space between each heat exchanger's two shells should be vented, thereby allowing any leak to be easily identified. This is a code requirement to minimize cross contamination between the HHW and DHW. Heat exchangers should be the double-wall, multiple gasketed, corrugated, Type 316 stainless steel plate type, assembled in an expandable, rigid support frame. The double-wall, atmospherically-vented feature protects the potability of the domestic water. The vented space should be piped to a floor sink. Double-wall, plate-and-frame heat exchangers should be as manufactured by Alfa Laval, ITT Standard Plateflow, Armstrong, or Vicarb.

Central Chiller System: There are no visible issues associated with the central chillers. (M-010, M 011, M-012) 10 to 15 years of additional life can be expected. No system capacity redundancy is available. It is recommended to replace the chillers along with system re-design to provide capacity redundancy in 6 to 10 years, or within the air handling system refurbishment.

There are no visible issues associated with the chilled water pumps. 10 to 15 years of additional life can be expected.

The cooling towers are in poor condition. (M-010) Cooling Tower #3 (CT-3) has a bad tower fan gear box and the fan was not able to run. This results in high condenser water supply temperatures to the chillers. Later in the day, we observed Chiller #2 to be surging, likely due to the high condenser water supply temperatures. CT-3 has a variable frequency drive (VFD) on the cooling tower fan. If the gear box was not designed for a VFD, there might be oil lubrication problems inside the gear box when running at low speeds. CT-3 (1/3 of the total cooling tower capacity) is not functioning, causing significantly reduced and inadequate cooling capacity for the four buildings.

Significant algae build-up was found on and in the cooling tower basin. (M-011) There was a lot of standing water on the roof around the cooling towers. We reviewed the chemical log books and there were no records for the water treatment of the closed loop HHW and CHW systems. There was a note on the CHW chemical feed pot that was dated 09/30/13, and the pot feeder valves were still open.

The cooling tower conductivity is tracking at its set-point, but that set point is very low (1,800). This low set point is causing the system to use more chemicals and more water. Immediate repairs are needed. 10 years of additional life can be expected if the repairs are implemented. It is recommended to replace the cooling towers with system re-design to provide capacity redundancy in 6 to 10 years.

4.7 Mechanical (Cont.)

LACMA East Distribution Piping: The existing campus-wide steam piping and condensate return piping should be abandoned in place. This is based on the recommendation above to eliminate the LACMA East steam system altogether.

The main lines of the campus-wide chilled water (CHW) and heating hot water (HHW) piping, as well as the branch piping to the Ahmanson Building, Hammer Building, and Bing Center, is nearly 50 years old, dating to the original 1965 construction. This piping is beyond its expected life and should be replaced. (M-004)

Parallel CHW mains, as well as the branch piping to the Ahmanson Building Addition, the Art of the Americas Building, and the Pavilion for Japanese Art are 30 years old, dating to the 1980's construction. This piping is near the end of its expected life.

The campus-wide CHW and HHW piping distribution systems should be replaced. (M-009) However, their current configurations are confused and unclear. This is due to the various expansion and extensions to the systems over time to accommodate growth on the campus. A number of riser-base connections do not have shutoff valves. Consequently, the entire distribution system must be taken out of service whenever a single valve or coil needs maintenance or repair. This prospect leads to deferred maintenance and accelerated aging of the distribution systems.

Prior to the design of the new CHW and HHW distribution systems, a comprehensive study should be undertaken to identify the necessary and proper configurations and components for these CHW and HHW distribution systems to effectively and efficiently serve the LACMA East campus. The parallel sets of CHW mains should be combined. Proper valving should be incorporated.

In addition, the study should determine the most appropriate routing of the CHW and HHW piping runs. In most modern museum refurbishments, piping is more properly routed in corridors and risers are located well away from the art storage, art movement, and art display areas of the buildings.

Air Handling Units: The existing air handling systems are old and obsolete - in age, condition, and technology. (M-013, M-014) All air handling units (AHUs) are in poor condition. Air handling units and humidifiers are past their expected useful lives. The AHUs and their air handling systems are mostly based on obsolete constant air volume (CAV) terminal reheat technology. Furthermore, the air handling systems are not economized. In addition, outdated pneumatic controls are used. This is especially true of the 50-year-old air handling units in the 1965 construction of the Ahmanson Building, the Hammer Building, and the Bing Center.

4.7 Mechanical (Cont.)

However, even the 30-year-old air handling units of the Ahmanson Building Addition and the Art of the Americas Building are near the end of their expected lives and are technologically obsolete.

The air handling units, the air terminal units, and the controls all need to be replaced in the near term. Replacements AHUs should be modern and energy efficient customized air handling units (such as Temtrol, United Metal Products, or equal) with direct digital controls (DDC) connected to a new energy management system (EMS) (see more below).

Air Distribution: There are not enough zones within the buildings, and the corresponding areas all receive the same temperature/humidity of air. There needs to be tighter zone control for different art/exhibit requirements.

Existing CAV air terminal units and existing reheat coils should all be removed. They should be replaced with new pressure-independent, VAV air terminal units with reheat coils. It is recommended to replace air distribution system components with system re-design in the near term to maintain proper temperature and humidity regulation to exhibit rooms and areas.

HVAC Controls System: The existing HVAC control system is mostly pneumatic controls for both fluid and air control. Most of the existing pneumatic dampers are non-operational. Existing duct systems are generally zoned to serve "quadrants," floor by floor; therefore area control is not possible.

Most zone-level controls (thermostats, air terminal units, reheat coils) are pneumatic and are not connected to the energy management system (EMS).

The existing HVAC controls and the EMS are old and obsolete. Air handling units control valves and dampers have pneumatic actuators that are connected to the EMS via electro/pneumatic (E/P) transducers.

Existing pneumatic controls piping and other controls system components date from the original construction. Some individual units have been retrofitted to limited direct digital control (DDC). Controls systems air compressors were noted as running for extended periods. The likely cause is leakage in the air piping.

The pneumatic controls should be replaced with DDC controls. The new DDC controls should be connected into a new modern energy management system (EMS).

The new EMS should consist of PC-based workstations and controllers of modular design, providing distributed processing capability, and allowing future expansion of both input/output points and processing/control functions.

4.7 Mechanical (Cont.)**Conclusion and Recommendation**

Major HVAC system repair and refurbishment should be undertaken in the near term to correct the identified mechanical system deficiencies and provide reliable systems to meet the capacity and functional needs of the museum facility.

4.8 Fire Protection

• Existing System Description

Overview: The building fire protection systems consist of standpipes and hose cabinets in stairwells and main corridors, typical for building construction of the period. The general designs of all four of these buildings do not have a fire sprinkler system except the Plaza area.

Ahmanson Building: The Ahmanson Building has fire hose cabinets throughout each floor on the corridor way and has a dry standpipe (DSP) in the stairwell with hose connections at each stair landing. There is no fire sprinkler system in the Ahmanson Building. (FP-002, FP-003)

On the low roof of the Ahmanson Building, where the cooling towers are, there is an existing DSP hose connection. There is no fire sprinkler system for the Chiller Room. The fire hose cabinet is already provided there and is still in good condition. There is no fire sprinkler system for the Boiler Room in the penthouse. However, it does have a fire hose cabinet right near the entrance door. There is no sign of leaking water.

Hammer Building: The Hammer Building has fire hose cabinets throughout the building in corridor areas. (FP-002) There is a wet standpipe (WSP) hose connection on the roof next to the stairway. The Hammer Building does not have a fire sprinkler system, nor a fire hose cabinet in the penthouse.

Bing Center: The Bing Center has a limited fire sprinkler system on the first floor in the corridor of office areas only. The post indicator valve (PIV) and fire department connection (FDC) for the fire sprinkler system is from Wilshire Boulevard. Also refer to the Civil section for site utilities. There is a WSP with hose connections on the roof. (FP-001)

Art of the Americas Building: The Art of the Americas Building has six dry hose connections (FDC) outside the building near the main entrance from Wilshire Boulevard. There is no fire sprinkler system for the Art of the Americas Building. There is a fire hose cabinet in the penthouse, which is in good condition. (FP-002) There is a WSP with hose connections on the roof.

Plaza Area: The Plaza Area has a high roof with a fire sprinkler system to cover the main entrance and the plaza between the Hammer Building and the Art of the Americas Building and between the Hammer Building and the Bing Center. (FP-004) The main fire water supply for the fire sprinkler system in the Plaza Area extends from the Bing Center.

• **Condition and Refurbishment**

Please Refer To:

- Exhibit 1: General Cost summary
- Exhibit 4: Representative Photos
- Appendix A: Eplan Report
- Appendix B: Building Evaluation Matrix
- Appendix C: Photo Log

Fire Protection System: Addition of a full fire sprinkler system in all buildings is recommended in conjunction with duct and piping systems work to meet current design standards and provide enhanced protection for the structure, contents, and personnel. Exhibit areas should be provided with double interlock pre-action systems to meet current design practice for museums.

The installation of a fire pump, enlarged site fire loop, and double detector check valve is anticipated with the installation of the fire sprinkler system.

In addition, the following deficiencies were noted:

The fire hose cabinet in the Ahmanson Building Chiller Room needs to be relocated because it does not have a clear access path to it. (FP-002)

The existing wet standpipe (WSP) hose connection on the roof of the Bing Center needs to be fixed. Water is leaking from this WSP. (FP-005)

An existing wet standpipe (WSP) hose connection near the air handling unit on the roof of the Bing Center needs to be relocated. (FP-006) There is no clear path to access this WSP.

Fire sprinkler systems need to be installed into the existing buildings. This will require a significant increase in system demand requirements.

Conclusion and Recommendation

The fire protection system should be upgraded in conjunction with the HVAC system work to provide systems meeting current standards and providing enhanced protection the buildings and art holdings.

4.9 Plumbing

- **Existing System Description**

Overview: The plumbing systems and piping date from the original construction of the buildings.

Water service is provided from the City of Los Angeles from the water main in Wilshire Boulevard to the water meter outside of the south side of the Bing Center.

Ahmanson Building: The main gas meter is outside the Ahmanson Building at the loading dock. (P-001) There is one 6" medium pressure gas line that goes up and connects to the Boiler Room in the penthouse of the Ahmanson Building. There is a gas regulator prior to the gas line connection to the boilers. The gas pipe system is in good working condition. (P-002)

The domestic cold water supply pipe routes to the Ahmanson Building in the ceiling space of the first floor from the Hammer Building (which comes through the Bing Center).

The domestic hot water (DHW) for the Ahmanson Building, the Hammer Building, the Art of the Americas Building, and the Bing Center is generated in steam-to-DHW heat exchangers in the steam boiler plant in the 4th floor penthouse of the Ahmanson Building. This is a recirculating DHW system. The DHW supply (DHWS) piping from the steam boiler plant drops down to the first floor ceiling space of the Ahmanson Building where it is then distributed throughout the Ahmanson Building. DHW return (DHWR) follows the same path in reverse back to the steam boiler plant. Also refer to the mechanical section for more discussion.

The overflow storm drains consist of overflow drain pipes extended 2 inches above the roof. These need domes installed over them to act as strainers. (P-007 through P-009)

Hammer Building: The domestic cold water supply pipe routes to the Hammer Building in the ceiling space of the first floor from the Bing Center.

The domestic hot water (DHW) for the Ahmanson Building, the Hammer Building, the Art of the Americas Building, and the Bing Center is generated in steam-to-DHW heat exchangers in the steam boiler plant in the 4th floor penthouse of the Ahmanson Building. This is a recirculating DHW system. The DHW supply (DHWS) piping extends to the first floor ceiling space of the Hammer Building from the first floor ceiling space of the Ahmanson Building. From there, it is distributed throughout the Hammer Building. DHW return (DHWR) follows the same path in reverse back to the steam boiler plant. Also refer to the mechanical section for more discussion.

4.9 Plumbing (Cont.)

The existing storm drains on the roof are generally in good condition. However, the overflow storm drains consist of overflow drain pipes extended 2 inches above the roof. These need domes installed over them to act as strainers. (P-007 through P-009)

Bing Center: There is a 2½" low pressure gas pipe that routes from the main gas meter outside the Ahmanson Building at the loading dock to the Bing Center. It is in good working condition. (P-002)

The domestic cold water supply pipe routes to the Bing Center in the ceiling space from the main water meter.

The main 1" domestic cold water supply to the air handling units and soft water tanks does have a pressure reducing valve and backflow preventer. They are in good condition. (P-003)

The domestic hot water (DHW) for the Ahmanson Building, the Hammer Building, the Art of the Americas Building, and the Bing Center is generated in steam-to-DHW heat exchangers in the steam boiler plant in the 4th floor penthouse of the Ahmanson Building. This is a recirculating DHW system. The DHW supply (DHWS) piping extends to the first floor ceiling space of the Bing Center from the first floor ceiling space of the Hammer Building. From there, it is distributed throughout the Bing Center. DHW return (DHWR) follows the same path in reverse back to the steam boiler plant. Also refer to the mechanical section for more discussion.

The existing storm drains on the roof are generally in good condition. However, the overflow storm drains consist of overflow drain pipes extended 2 inches above the roof. These need domes installed over them to act as strainers. (P-007 through P-009)

The condensate pump is inside the floor sink in the Fan Room. This floor sink tends to get clogged. (P-004, P-005)

4.9 Plumbing (Cont.)

Art of the Americas Building: The domestic cold water supply pipe routes to the Art of the Americas Building in the ceiling space of the first floor from the Hammer Building (which comes through the Bing Center).

The main 1½" domestic cold water supply to the air handling units and soft water tanks does have a pressure reducing valve and backflow preventer. They are in good condition.

The domestic hot water (DHW) for the Ahmanson Building, the Hammer Building, the Art of the Americas Building, and the Bing Center is generated in steam-to-DHW heat exchangers in the steam boiler plant in the 4th floor penthouse of the Ahmanson Building. This is a recirculating DHW system. The DHW supply (DHWS) piping extends to the first floor ceiling space of the Art of the Americas Building from the first floor ceiling space of the Hammer Building. From there, it is distributed throughout the Art of the Americas Building. DHW return (DHWR) follows the same path in reverse back to the steam boiler plant.

The existing storm drains on the roof are generally in good condition.

Condition and Refurbishment

Please Refer To:

- Exhibit 1: General Cost summary
- Exhibit 4: Representative Photos
- Appendix A: Eplan Report
- Appendix B: Building Evaluation Matrix
- Appendix C: Photo Log

Overview for Domestic Cold Water: The domestic cold water system piping is copper, dating from the original construction of the buildings. Some domestic cold water main distribution piping is run in concealed ceiling areas over the exhibit spaces. The piping in the three older (1965) buildings (Ahmanson Building, Hammer Building, and Bing Center) is at the end of its expected useful life. The domestic cold water piping should be replaced with system re-design in conjunction with heating hot water piping replacement. (P-003)

Overview for Plumbing Fixtures: The majority of the existing plumbing fixtures are in good condition. These fixtures are the low water use type (1.6 gallon per flush). Replacement with ultra-low water use per current standards is recommended in 6 to 10 years for water conservation.

Overview for Domestic Hot-Water Piping: Domestic hot water system valves and piping are in poor condition. Domestic hot water system piping runs in concealed ceiling areas over exhibit areas. Leaks are reported as an issue. The domestic hot water piping should be replaced with system re-design in the near term to provide routing in the building that does not potentially compromise exhibits.

4.9 Plumbing (Cont.)

Ahmanson Building: An existing $\frac{3}{4}$ " PVC condensate drain line from the boilers feedwater tank needs to be repaired and to change the slope downward to the funnel drain not back to the water tank.

An existing combination 3" storm drain and overflow drain pipe inside the Ahmanson Building Mechanical Room for Air Handling Unit #1 need to be repaired. The water is leaking from the flange. (P-007 through P-009)

In the Ahmanson Building, an existing roof drain dome is broken and needs to be replaced with a new roof drain dome.

For all overflow storm drains in the Ahmanson Building, a new overflow drain dome needs to be installed over the overflow drains to act as strainers.

Hammer Building: For all overflow storm drains in the Hammer Building, a new overflow drain dome needs to be installed over the overflow drains to act as strainers. (P-007 through P-009)

Bing Center: For all overflow storm drains in the Bing Center, a new overflow drain dome needs to be installed over the overflow drains to act as strainers. (P-007 through P-009)

The condensate pump is inside the floor sink in the Fan Room. This floor sink tends to get clogged. It needs to be replaced with a new floor sink.

No grease interceptor is provided for the waste from the kitchen area in the Bing Center. A grease interceptor should be provided to comply with code requirements (CPC-2013, Section 1014.1) and to meet State and City requirements.

Conclusion and Recommendation

In conjunction with the modernization of the mechanical systems, plumbing systems need to be modernized and rerouted to mitigate leaking systems and to meet museum exhibition requirements.

4.10 Electrical

- Existing System Description

Ahmanson Building

Normal Power Systems

The primary electrical service for all the LACMA East buildings is supplied by LADWP, via a 12 KV utility vault located adjacent to the main electrical room on the first floor of the Ahmanson Building.

The primary electrical service supplied to the Ahmanson Building is supplied by LADWP, via a 12KV utility vault located adjacent to the main electrical room on the first floor of the Ahmanson Building. (E-001) The 12KV overhead bus duct is connected to the indoor 500 KVA, 4160V unit substation "T-1" with the main primary disconnect switch and utility metering, 4160V distribution with (5) five fuse disconnect switches connected to other buildings, and a 4160V-208/120V, 3 phase transformer including all associated low voltage distributions and panelboards. (E-002)

A 500KVA, 4160V-120/208V, 3 phase indoor unit substation "T-2" with a main disconnect switch is located on the third floor mezzanine electrical room fed through a tap box including all associated low voltage distributions and panelboards. (E-003)

Two (2) 750KVA, 4160V-480V, 3 phase indoor unit substation with (1) one main disconnect switch and 4160V manual transfer switch connected to transformers "T-3" and "T-3A" for alternate use, including all associated low voltage distributions, panelboards and motor control center located at the roof penthouse mezzanine level electrical room. (E-004)

Ahmanson Building Addition

The primary electrical service supplied to the building is by LADWP, via a 12KV utility vault located adjacent to the electrical room on the first floor of the Ahmanson Building. (E-005) The 12KV overhead bus duct is connected to the indoor 2000KVA, 4160V unit substation "TTR-1" with the main primary disconnect switch and utility metering, 4160V distribution with (2) two fuse disconnect switches connected to other buildings and a 4160V-480v, 3 phase oil filled transformer, including all associated low voltage distributions, panelboards and motor control centers. (E-006)

A 750KVA, 4160V-480V, 3 phase indoor unit substation "TTR-2" with a main disconnect switch, including all associated low voltage distributions, panelboards and motor control center located at the roof penthouse electrical room. (E-006)

Hammer Building

The primary electrical service supplied to the Hammer Building is a 4160V feeder from the main unit substation distribution load interrupter switch located at the Ahmanson Building, first floor electrical room. This feeder is connected to (2) two unit substations "T-4" and "T-5" via feeder tap box "T-4" is a 225KVA, 4160V-480V unit substation with the main primary disconnect switch and utility metering. "T-5" is 400KVA, 4160V-120/208V distribution with all associated low voltage distributions, panelboards and motor control centers. (E-007)

A 4160V feeder via tap box located at the first floor electrical room is connected to a 225KVA, 4160V-120/208V, 3 phase indoor unit substation "T-6" with a main disconnect, including all associated low voltage distributions, panelboards and motor control center located at the third floor electrical room.

Bing Center

The primary electrical service supplied to the Bing Center is a 4160V feeder from the main unit substation distribution load interrupter switch located at the Ahmanson Building, first floor electrical room. This feeder is connected to a unit substation "T-7" via feeder tap box. (E-008) "T-7" is a 300KVA, 4160V-208/120V wye unit substation and a main primary disconnect switch with all associated low voltage distributions and panelboards.

A 4160V feeder via tap box, located at the first floor electrical room, is connected to 400KVA, 4160V-208/120V, 3 phase indoor unit substation "T-8" with a main disconnect, including all associated low voltage distributions, panelboards and motor control center located at the third floor mezzanine level electrical room. (E001 through E-004)

Art of the Americas Building

The primary electrical service supplied to the Art of the Americas Building is a 4160V feeder from the main unit substation distribution load interrupter switch located at the Ahmanson Addition Building, first floor electrical room. (E-009) This feeder is connected to a 500KVA 4160V-120/208V oil type unit substation "T-A" with a main load break switch. Oil type unit substation "T-B" is a 500KVA 4160V-480/277V with all associated low voltage distributions, panelboards and motor control centers located at the roof penthouse. (Refer the photo E014)

There are (2) two switchboards located on the first floor electrical room. Switchboard "S" is 208V/120V, 3 phase, 4 wire with all associated distribution panels and panelboards throughout the building. Switchboard "SS" is 480V, 3 phase feeding all elevators, exhaust fans and pumps including fire pump "FP-1" and "FP-2".(E-009)

4.10 Electrical (Cont.)**Emergency Power Systems**

The emergency power for LACMA East buildings is provided from emergency generators dating from the original construction.

Ahmanson Emergency Generator: The indoor unit emergency motor generator set "G-1" is 82KW, 120V/208V, 3 phase, 4 wire, located at the first floor Generator Room, with a 20 gallon fuel tank capacity, transfer switch, power emergency distribution board and panelboards, feeding the Ahmanson Building, the Hammer Building, and the Bing Center, with only one single transfer switch and one remote non-digital controls annunciator panel located in the corridor in this building. (E-011)

Ahmanson Addition Emergency Generator: The indoor unit emergency motor generator set "G-2" is 50KW, 480V/277V, 3 phase, 4 wire with a 50 gallon fuel tank capacity, transfer switch, associated panelboards with remote non-digital controls annunciator panel located on the roof level Generator Room. (E-012)

Art of the Americas Emergency Generator: The indoor unit emergency motor generator set "G-3" is 150KW, 480V/277V, 3 phase, 4 wire with a 50 gallon fuel tank capacity, automatic transfer switch, emergency distribution panels and motor control center with remote non-digital controls annunciator panel located on the lower level Electrical Room. (Refer to photo E010)

Lighting Systems – All Buildings

The existing lighting fixtures in Offices, Automation Center, Men's/ Women's Toilets, Corridors, Shipping & Receiving areas, Elevator Lobbies, Storage, Mechanical & Electrical Rooms and all other general areas consist of: (E-014, E-015):

- incandescent recessed down lights
- fluorescent strips
- industrial fluorescent fixtures with T12 lamps
- indirect strip fluorescent
- 1' x 1' surface incandescent ceiling-mounted fixtures with lens
- pendant incandescent RLM with reflector
- industrial wall-mounted fixtures, surface, and recessed

Exterior lighting fixtures consist of:

- surface-mounted special fixtures
- incandescent
- HID
- canopy outdoor surface or recessed canopy light fixtures
- outdoor shoe box HID 1000w fixtures with lens

4.10 Electrical (Cont.)

Special areas such as the Book Stores and Cafeterias within the building have incandescent track lighting, recessed and surface-mounted incandescent downlights, and incandescent chandeliers throughout the building.

Gallery Areas consist of incandescent PAR 30 or 40 cylinder track lights, including MR16 spot lights and round recessed incandescent downlights controlled by wall switches and time clocks.

Atrium area lighting consists of cylinder wall-mounted incandescent fixtures located at each corner, mounted at approximately 25'-0" high. The Atrium has a skylight with a luminous ceiling and 8'-0" long industrial type T12 fluorescent lamps.

Stairwell and path of egress lighting consist of wall-mounted wrap around 1'x4' fluorescent fixtures with T12 lamps, 1' x 1' square surface-mounted incandescent fixtures with lens and 1' x 4' recessed fluorescent fixtures.

All light fixtures are controlled via wall toggle switches, dimmer switches, occupancy sensors and time clocks.

Power Receptacle Outlets – All Buildings

Most of the power receptacle outlets are recessed in walls, and were installed when the buildings were constructed, including all branch circuits wiring. Some power outlets, especially in the kitchen, electrical and mechanical rooms, are smoked evidence of short circuits. Also, some outlets do not have cover plates with exposed wires. (E-013)

Telephone Communications and Data (Computers) Network Systems – All Buildings

The main telephone VOIP (Voice over Internet Protocol) systems consist of two (2) components - one current hi-tech Shoiotel system, using Cat -5 cabling; and another old PBX (NEC) systems controls, using RJ6 cabling. These components are in the Main Telephone/Data Room. These are connected to the main UPS. Main services are with AT&T and Zayo (LAN) or content companies. Data systems consist of a main terminal cabinet (MDF) and subcabinets (LDF), including fiber and Cat-5 cabling, which are used throughout the buildings. (E-016, E-017)

4.10 Electrical (Cont.)**Security Intrusion Detection Cameras (CCTV), Fire Alarm, and Public Address Equipment and Systems – All Buildings:**

There are main security, fire alarm, and public address systems control panels in the Security Command Center Room, located on first level of the Bing Center. This consists of a P2000 Johnsons Controls Security Management system. Also, CCTV cameras and other intrusion detection devices are installed throughout the buildings and integrated with fire alarm and public address systems. There is an addressable Edwards EST3 fire alarm control panel, including smoke detectors and manual pull stations throughout the buildings. Also there is a public address and building evacuation system with ceiling-mounted speakers throughout the buildings, all integrated with security systems. (E-018)

Audio/Visual and Systems (Bing Center)

Large Auditorium: There is an audio/visual system with equipment located in the Bing Center Auditorium projector room. There are three projector cameras made by Strong International running the 35 mm and 70 mm historical vintage films, and a fourth projector for 6 mm regular videos. Also, there is an audio Dolby sound system with amplifiers and all the equipment serving speakers and microphones in the Auditorium.

Brown Auditorium: There are existing audio/visual systems and equipment, including speakers and microphones. The system and its equipment are outdated system and do not meet the modern requirements for audio/visual sounds and performance.

• Condition and Refurbishment

Please Refer To:

- Exhibit 1: General Cost summary
- Exhibit 4: Representative Photos
- Appendix A: Eplan Report
- Appendix B: Building Evaluation Matrix
- Appendix C: Photo Log

Service and Distribution Substations: Service and distribution power is provided with 4,160 volt substations located in electrical rooms in each building. The substations date from the original construction and have exceeded their expected useful lives. The substations in the Ahmanson Building (AHM), the Hammer Building (HAM) and the Bing Center (BING) are in poor condition. The substations in the Art of the Americas Building (AOA) are in fair condition. Several existing 4,160 volt power distribution cables have failed in recent years and have been replaced as critical work. Many electrical rooms do not provide full prescribed working clearances at equipment. The substations should be replaced with system re-design in the near term to provide reliable power system for the buildings and compliant access and working clearances.

Emergency Power - Generators: Emergency power is provided for the buildings with small diesel-fueled 120 / 208 volt generators located in dedicated generator rooms in AHM, the AHM Addition, and AOA. The emergency generators date from the original construction and have exceeded expected useful lives. The emergency generators should be replaced with system re-design in the near term to provide reliable emergency power system for the buildings.

4.10 Electrical (Cont.)

Distribution Switchboards and Panelboards: With the exception of a few maintenance upgrades, the distribution switchboards and panelboards date from the original construction and have exceeded their expected useful lives. The distribution switchboards and panelboards should be replaced with system re-design in the near term to provide reliable and maintainable power system for the buildings.

Life Safety Exit Signs and Egress Lighting: Various stairwells and path of egress do not have adequate lighting. Illuminated exit signs are not installed at all needed locations. Life safety exit signs and egress lighting should be replaced with system re-design in the near term in conjunction with generator / emergency power system work.

Lighting Systems: Lighting in non-gallery areas is in fair condition. A majority of fixtures are incandescent or old fluorescent systems, which are not energy efficient and require high levels of maintenance. Lighting fixtures are controlled with wall toggle switches, dimmer switches, occupancy sensors and time clocks. Lighting systems should be replaced with system re-design in the near term to provide energy efficient, maintainable systems meeting current standards.

Fire Alarm System: The fire alarm system, including the building paging system, has been recently refurbished and upgraded.

Audio/Visual and Local Public Address Sound Systems (Bing Center): All four projectors in the large auditorium are approximately 50 years old, and the replacement parts and hardware are no longer available. Also, the existing audio amplifiers, mixers, and other components, including the speakers and microphones, are very old.

All four projectors in the Large Auditorium should be removed and replaced with new digital Visual systems DCP (Digital Cinema Package). The public address (PA) sound system should be replaced as well.

Conclusion and Recommendation

All electrical systems, including substations and 5KV feeder wiring switchboards, panelboards, emergency power, lighting, audio and video need to be modernized. This modernization will bring the systems up to current code and provide energy savings and reliability.

4.11 Abatement

• Existing System Description

Hazardous Material: Due to the age of existing buildings within the project property, asbestos-containing materials (ACM) and lead-based paints (LBP) may have been used in some of the building materials, since the use of ACM and LPB was not regulated until 1979.

• Condition and Refurbishment

Please Refer To:

- Exhibit 1: General Cost summary
- Exhibit 4: Representative Photos
- Appendix A: Eplan Report
- Appendix B: Building Evaluation Matrix
- Appendix C: Photo Log

Asbestos insulation was observed on the steam supply and steam condensate return piping. This asbestos insulation should be abated in conjunction with piping systems refurbishment.

Asbestos insulation was reported on the fire proofing structural steel beams.

The floor tiles in many service areas are the old style 9"x9" squares. Facilities staff reported that it had been sealed under two past abatement projects. Numerous tiles are chipped. The floor tiles should be fully replaced and abated in the near term.

It is recommended that a lead based paint (LBP) Assessment be performed to determine the extent of LBP throughout the facility.

Note: This building evaluation was performed to visually observe the museum referenced building's interior/exterior components and systems. It is not for the purpose of the hazardous materials survey and abatement procedures. According to our interview with the museum staff, it is a known fact that asbestos materials had been used throughout the buildings construction in 1965, and therefore it must be removed and/or encapsulated during the project repair and renovation.

5.0 Cost Analysis

Lenax Construction Services Inc. was retained by the Owen Group for Cost Assessment and Analysis for this Building Evaluation.

Please Refer To:

- Exhibit 1: General Cost summary
- Exhibit 2: Elemental Cost summary

Refer to the Executive Summary for Cost Analysis process and parameters, and Exhibits 1 and 2 for detailed cost reports.

Chart A: Total costs for refurbishment by discipline

Refurbishment Cost by Discipline		Direct Costs	Total Project Cost	\$/SF	%
1000	Architectural Elements	\$ 31,900,000	\$ 48,200,000	\$ 124.23	19.6%
2000	Accessibility	\$ 1,900,000	\$ 2,800,000	\$ 7.22	1.1%
3000	Civil Engineering	\$ 2,600,000	\$ 4,400,000	\$ 11.34	1.8%
4000	Misc: Elevators and Abatement	\$ 4,000,000	\$ 7,600,000	\$ 19.59	3.1%
5000	Structural	\$ 23,100,000	\$ 38,100,000	\$ 98.20	15.5%
6000	Mechanical Elements	\$ 47,000,000	\$ 68,400,000	\$ 176.29	27.8%
7000	Fire Protection	\$ 5,500,000	\$ 9,700,000	\$ 25.00	3.9%
8000	Plumbing Elements	\$ 4,700,000	\$ 7,600,000	\$ 19.59	3.1%
9000	Electrical Elements	\$ 37,200,000	\$ 59,200,000	\$ 152.58	24.1%
	TOTAL	\$157,900,000	\$ 246,000,000	\$ 634	
			Building Area 388,000 GSF		

*includes 30% soft cost allowance, GC cost & fee, escalation to the midpoint of the priority year

Chart B: Total costs for refurbishment by discipline and priority

Refurbishment Cost by Discipline		Priority 1 (Yr 1)	Priority 2 (Yrs 2-5)	Priority 3 (Yrs 6 - 10)	Priority 4 (Yrs 10 +)
1000	Architectural Elements	\$ 2,606,000	\$ 35,765,000	\$ 9,803,000	\$ -
2000	Accessibility	\$ -	\$ 2,650,000	\$ 79,000	\$ -
3000	Civil Engineering	\$ -	\$ 798,000	\$ 3,501,000	\$ -
4000	Misc: Elevators and Abatement	\$ -	\$ 4,127,000	\$ 1,663,000	\$ 1,820,000
5000	Structural	\$ 150,000	\$ 27,526,000	\$ -	\$ 10,385,000
6000	Mechanical Elements	\$ 4,666,000	\$ 63,696,000	\$ -	\$ 82,000
7000	Fire Protection	\$ -	\$ -	\$ 9,729,000	\$ -
8000	Plumbing Elements	\$ 914,000	\$ 2,891,000	\$ 3,857,000	\$ -
9000	Electrical Elements	\$ 3,510,000	\$ 36,181,000	\$ 4,931,000	\$ 14,565,000
	TOTAL	\$ 11,846,000	\$ 173,634,000	\$ 33,563,000	\$ 26,852,000

*includes 30% soft cost allowance, GC cost & fee, escalation to the midpoint of the priority year

5.0 Cost Analysis (cont.)

Chart C: Replacement Cost Summary

Replacement Cost analysis to replicate the building and facility square footage and function

Case Study #1

Replacement costs based upon 1984 bid result for "Arts of the Americas" (Note 1)

Replicate Total Cost

Ahmanson	170,000	SF	\$670.51	\$ 113,985,850	\$ 180,000,000
Hammer	69,000	SF	\$607.41	\$ 41,910,971	\$ 66,000,000
Bing	59,000	SF	\$696.97	\$ 41,120,974	\$ 65,000,000
Art of the Americas (1)	90,000	SF	\$630.96	\$ 56,786,118	\$ 90,000,000
Common/Support					Incl.
Site & Infrastructure					Incl.
TOTAL	388,000	SF	\$654.13	\$ 253,803,913	\$ 401,000,000

Note:1

Soft Cost	30%	\$196.24
Replacement Cost \$/SF in 2014		\$850.37
Escalation at 4% for 5 years	22%	\$184.24
Replacement Cost \$/SF in 2019		\$1,034.61

Replacement Cost in 2019

388,000	SF	\$401,000,000
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158%

Case Study #2

Replacement costs based upon 2008 and 2010 bid result for "Resnick/BCAP" (Note 2)

Replicate Total Cost

Ahmanson	170,000	SF	\$1,065.85	\$ 181,194,257	\$ 220,000,000
Hammer	69,000	SF	\$1,065.85	\$ 73,543,551	\$ 89,000,000
Bing	59,000	SF	\$1,065.85	\$ 62,885,066	\$ 77,000,000
Art of the Americas (1)	90,000	SF	\$1,065.85	\$ 95,926,371	\$ 117,000,000
Common/Support					Incl.
Site & Infrastructure					Incl.
TOTAL	388,000	SF	\$1,065.85	\$ 413,549,246	\$ 503,000,000

Note:2

Soft Cost	Included	
Replacement Cost \$/SF in 2014		\$1,065.85
Escalation at 4% for 5 years	22%	\$230.92
Replacement Cost \$/SF in 2019		\$1,296.77

Replacement Cost in 2019

388,000	SF	\$503,000,000
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122%

Note:

1. Cost/per SF are based on 1984 bid result for "Art of the Americas" with added Soft Cost & Escalation
2. Average Cost/per SF are based on 2008 and 2010 bid results for "Resnick/BCAP" with 10% cost decrease adjustment for building size and the added Cost for Escalation

General Cost Summary By Discipline: "A" Ahmanson Building

170,000 SF

EXHIBIT 1.A - General Cost Summary

Item #	Uniformat	Discipline / Item Description	Quantity	Unit Cost	Direct Costs	GC Fee	Collateral Work Gen. Conditions Contingency	Design/Engineering, Construction Management, Plan Check, Testing	Sub-total Current Costs	Priority 1 (Yr 1)	Priority 2 (Yrs 2-5)	Priority 3 (Yrs 6 - 10)	Priority 4 (Yrs 10 +)
1000	C, B & D	Architectural Elements						30%					
1050.00	C1030.90	Replace damaged interior doors	170,000 SF	\$ 1.50	\$ 255,000	\$ 403,920	\$ 121,176	\$ 525,096	\$ 525,096	\$	\$ 590,662		
1051.00	C1030.90	Replace interior door hardware	170,000 SF	\$ 1.00	\$ 170,000	\$ 269,280	\$ 80,784	\$ 350,064	\$ 350,064	\$	\$ 393,774		
1010.00	C2030.75	Replace carpet	1,950 SF	\$ 5.00	\$ 9,750	\$ 15,444	\$ 4,633	\$ 20,077	\$ 20,077	\$	\$ 22,584		
1110.00	B1010.20	Repair concrete floors in corridors and utility rooms	21,950 SF	\$ 10.00	\$ 219,500	\$ 347,688	\$ 104,306	\$ 451,994	\$ 451,994	\$	\$ 508,432		
1110.00	C1010.90	Repair penetration in Fire Wall	3,650 SF	\$ 30.00	\$ 109,500	\$ 173,448	\$ 52,034	\$ 225,482	\$ 225,482	\$	\$ 234,502		
1140.00	C1070.10	Repair acoustical ceilings	19,200 SF	\$ 8.00	\$ 153,600	\$ 243,302	\$ 72,991	\$ 316,293	\$ 316,293				
1141.00	C1070.20	Replace concealed spine ceilings	39,515 SF	\$ 20.00	\$ 790,300	\$ 1,251,835	\$ 375,551	\$ 1,627,386	\$ 1,627,386				
1210.00	B2010.20	Repair exterior plaster	34,000 SF	\$ 15.00	\$ 510,000	\$ 807,840	\$ 242,352	\$ 1,050,192	\$ 1,050,192				
1211.00	B2010.10	Repair water damaged Walls / Columns	42,000 SF	\$ 60.00	\$ 2,520,000	\$ 3,991,680	\$ 1,197,504	\$ 5,189,184	\$ 5,189,184	\$	\$ 4,669,701		
1212.00	B2010.10	Repair / Replace Ext. Stone Veneer (Marble)	17,000 SF	\$ 25.00	\$ 425,000	\$ 673,200	\$ 201,960	\$ 875,160	\$ 875,160				
1213.00	B2020.90	Replace Ext. broken glass blocks.	8,500 SF	\$ 50.00	\$ 425,000	\$ 673,200	\$ 201,960	\$ 875,160	\$ 875,160	\$	\$ 1,023,813	\$ 1,197,717	
1214.00	B2010.10	Repair / Replace column cladding 20 65-ft Tall	6,500 SF	\$ 85.00	\$ 552,500	\$ 875,160	\$ 262,548	\$ 1,137,708	\$ 1,137,708				
1220.00	B2050.90	Replace exterior door hardware	170,000 SF	\$ 1.00	\$ 170,000	\$ 269,280	\$ 80,784	\$ 350,064	\$ 350,064	\$	\$ 479,087		
1221.00	B2050.90	Replace damaged doors	85,000 SF	\$ 1.00	\$ 85,000	\$ 134,640	\$ 40,392	\$ 175,032	\$ 175,032	\$	\$ 239,543		
1220.00	B2020.90	Repair Glazing & Gaskets	4,450 SF	\$ 20.00	\$ 89,000	\$ 140,976	\$ 42,293	\$ 181,269	\$ 181,269	\$	\$ 250,816		
1220.00	B2010.10	Remove rust spots from Porcelain metal panel backing and repair porcelain finish in 50 to 60 locations	430 SF	\$ 140.00	\$ 60,200	\$ 95,357	\$ 28,607	\$ 123,964	\$ 123,964				
1500.00	C1080.10	Replace loading dock stairs and rails to current code requirements	520 SF	\$ 100.00	\$ 52,000	\$ 82,368	\$ 24,710	\$ 107,078	\$ 107,078	\$	\$ 120,449		
1510.00	B1080.50	Upgrade Railing to Code Compliant at Stairs	325 LF	\$ 300.00	\$ 97,500	\$ 154,440	\$ 46,332	\$ 200,772	\$ 200,772	\$	\$ 225,841		
1511.00	B2080.50	Upgrade Railing to Code Compliant at Balcony	430 LF	\$ 250.00	\$ 107,500	\$ 170,280	\$ 51,084	\$ 221,364	\$ 221,364	\$	\$ 249,004		
1810.00	B3010.50	Replace roof	41,300 SF	\$ 20.00	\$ 826,000	\$ 1,308,384	\$ 392,515	\$ 1,700,899	\$ 1,700,899	\$	\$ 1,913,280		
1820.00	B3060.10	Replace skylights	5,149 SF	\$ 120.00	\$ 617,880	\$ 978,722	\$ 293,617	\$ 1,272,338	\$ 1,272,338	\$	\$ 1,431,208		
TOTAL					\$ 48.50	\$ 13,060,444		\$ 16,978,578	\$ 16,978,578	\$ 1,550,495	\$ 15,500,883	\$ 2,336,816	\$ -
2000	C, B & D	Accessibility			Direct Costs	GC Fee	Collateral Work Gen. Conditions Contingency	Design/Engineering, Construction Management, Plan Check, Testing	Sub-total Current Costs	Priority 1 (Yr 1)	Priority 2 (Yrs 2-5)	Priority 3 (Yrs 6 - 10)	Priority 4 (Yrs 10 +)
2100.00	C1090.20	Install sign package throughout the facility	170,000 SF	\$ 0.50	\$ 85,000	\$ 134,640	\$ 40,392	\$ 175,032	\$ 175,032	\$	\$ 196,887		
2210.00	D2010.60	Upgrade Single Use Restrooms	8 EA	\$ 15,000.00	\$ 120,000	\$ 190,080	\$ 57,024	\$ 247,104	\$ 247,104	\$	\$ 277,958		
2400.00	B1080.10	Install compliant Stair Landing Barrier	4 STAIR	\$ 14,000.00	\$ 56,000	\$ 88,704	\$ 26,611	\$ 115,315	\$ 115,315	\$	\$ 129,714		
2410.00	C1090.10	Replace Stair Handrails	4 STAIR	\$ 30,000.00	\$ 120,000	\$ 190,080	\$ 57,024	\$ 247,104	\$ 247,104	\$	\$ 277,958		
2610.00	D2010.60	Upgrade Drinking Fountains	8 EA	\$ 4,000.00	\$ 32,000	\$ 50,688	\$ 15,206	\$ 65,894	\$ 65,894	\$	\$ 74,122		
2620.00	E2010.30	Lower counter height	1 EA	\$ 20,000.00	\$ 20,000	\$ 31,680	\$ 9,504	\$ 41,184	\$ 41,184	\$	\$ 46,326		
2630.00	E2050.30	Provide Accessible Seating in Theatre	SEAT	\$ 500.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$	\$ -		
TOTAL					\$ -	\$ 685,872		\$ 891,634	\$ 891,634	\$ -	\$ 1,002,967	\$ -	\$ -
3000		Civil Engineering			Direct Costs	GC Fee	Collateral Work Gen. Conditions Contingency	Design/Engineering, Construction Management, Plan Check, Testing	Sub-total Current Costs	Priority 1 (Yr 1)	Priority 2 (Yrs 2-5)	Priority 3 (Yrs 6 - 10)	Priority 4 (Yrs 10 +)
TOTAL					\$ -	\$ -		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
4000	D10 & F20	Miscellaneous Building Elements			Direct Costs	GC Fee	Collateral Work Gen. Conditions Contingency	Design/Engineering, Construction Management, Plan Check, Testing	Sub-total Current Costs	Priority 1 (Yr 1)	Priority 2 (Yrs 2-5)	Priority 3 (Yrs 6 - 10)	Priority 4 (Yrs 10 +)
4010.00	D1010.10	Replace elevator drives	5 EA	\$ 30,000.00	\$ 150,000	\$ 237,600	\$ 71,280	\$ 308,880	\$ 308,880	\$	\$ 347,448		
4020.00	D1010.10	Refurbish elevator cabs	5 EA	\$ 20,000.00	\$ 100,000	\$ 158,400	\$ 47,520	\$ 205,920	\$ 205,920	\$	\$ 231,632		

5000	B10	Structural		Collateral Work Gen. Conditions Contingency	GC Fee	Direct Costs	Design/Engineering, Construction Management, Plan Check, Testing	Sub-total Current Costs	Priority 1 (Yr 1)	Priority 2 (Yrs 2-5)	Priority 3 (Yrs 6 - 10)	Priority 4 (Yrs 10 +)
5110.00	B1010.30	Repair balcony concrete slabs	5,270 SF	\$	\$	25.00	\$	62,608	\$	\$	\$	\$
5140.00	B1010.10	Seismic Retrofit for 1965 Buildings	69,000 SF	\$	\$	28.00	\$	918,086	\$	\$	\$	\$
5240.00	B2010.10	Shotcrete Reinforcement at (E) damaged / repaired shear walls	69,000 SF	\$	\$	9.00	\$	295,099	\$	\$	\$	\$
TOTAL												
				\$	\$	4,043,952	\$	5,257,138	\$	\$	\$	\$
6000	D30	Mechanical Elements		Collateral Work Gen. Conditions Contingency	GC Fee	Direct Costs	Design/Engineering, Construction Management, Plan Check, Testing	Sub-total Current Costs	Priority 1 (Yr 1)	Priority 2 (Yrs 2-5)	Priority 3 (Yrs 6 - 10)	Priority 4 (Yrs 10 +)
6310.00	D3050.50	Air handling unit replacements	69,000 CFM	\$	\$	10.00	\$	327,888	\$	\$	\$	\$
6240.00	D3050.10	CHW piping leaks and insulation repair	55,200 SF	\$	\$	10.00	\$	262,310	\$	\$	\$	\$
6140.00	D3050.10	HHW piping leaks and insulation repair	55,200 SF	\$	\$	15.00	\$	393,466	\$	\$	\$	\$
6220.00	D3030.70	Computer room air conditioning	15 TNS	\$	\$	5,000.00	\$	118,800	\$	\$	\$	\$
6221.00	D3030.70	Telephone room air conditioning	10 TNS	\$	\$	3,000.00	\$	47,520	\$	\$	\$	\$
6250.00	D3050.90	Control valves replacements	69,000 SF	\$	\$	2.50	\$	81,972	\$	\$	\$	\$
6520.00	D3050.90	EMS connections for AHUs	69,000 SF	\$	\$	1.50	\$	109,500	\$	\$	\$	\$
6510.00	D3050.90	EMS system upgrade	69,000 SF	\$	\$	6.50	\$	163,944	\$	\$	\$	\$
6350.00	D3050.10	New DDC VAV double duct mixing boxes and thermostats	20 EA	\$	\$	3,000.00	\$	28,512	\$	\$	\$	\$
6360.00	D3050.50	New DDC VAV single duct reheat coil terminal air units and thermostats	45 EA	\$	\$	2,000.00	\$	142,560	\$	\$	\$	\$
6720.00	D3050.50	Exhaust fan replacement/exhaust duct cleaning	69,000 SF	\$	\$	0.20	\$	21,859	\$	\$	\$	\$
6740.00	D3050.50	Air humidifiers replacements	69,000 CFM	\$	\$	2.50	\$	172,500	\$	\$	\$	\$
6360.00	D3060.00	Galvanized sheet metal ductwork clean and reconfigure	55,200 LBS	\$	\$	15.00	\$	828,000	\$	\$	\$	\$
6230.00	D3030.70	Condenser water pumps replacements with VFDs	1 LS	\$	\$	20,000.00	\$	31,680	\$	\$	\$	\$
6150.00	D3020.10	HHW heat exchangers	1 LS	\$	\$	40,000.00	\$	63,360	\$	\$	\$	\$
TOTAL												
				\$	\$	59,77	\$	6,532,099	\$	\$	\$	\$
7000.00	D40	Fire Protection		Collateral Work Gen. Conditions Contingency	GC Fee	Direct Costs	Design/Engineering, Construction Management, Plan Check, Testing	Sub-total Current Costs	Priority 1 (Yr 1)	Priority 2 (Yrs 2-5)	Priority 3 (Yrs 6 - 10)	Priority 4 (Yrs 10 +)
7010.00	D4010.10	Provide Full Coverage Fire Sprinkler System	69,000 SF	\$	\$	8.00	\$	874,368	\$	\$	\$	\$
7020.00	D4010.10	Replace fire pump	EA	\$	\$	100,000.00	\$	262,310	\$	\$	\$	\$
TOTAL												
				\$	\$	8.00	\$	1,136,678	\$	\$	\$	\$
8000	D20	Plumbing Elements		Collateral Work Gen. Conditions Contingency	GC Fee	Direct Costs	Design/Engineering, Construction Management, Plan Check, Testing	Sub-total Current Costs	Priority 1 (Yr 1)	Priority 2 (Yrs 2-5)	Priority 3 (Yrs 6 - 10)	Priority 4 (Yrs 10 +)
8110.00	D2010.40	Replace 100% of DCW system in a floor by floor basis	69,000 SF	\$	\$	3.00	\$	327,888	\$	\$	\$	\$
8140.00	D2010.20	Replace the two domestic hot water heat exchangers	1 EA	\$	\$	25,000.00	\$	39,600	\$	\$	\$	\$
8210.00	D2020.30	Replace 10% of W & V system in a floor by floor basis	69,000 SF	\$	\$	0.70	\$	76,507	\$	\$	\$	\$
8210.00	D2010.40	Replace 100% of DHW system in a floor by floor basis	69,000 SF	\$	\$	2.50	\$	172,500	\$	\$	\$	\$
8290.00	D2020.30	Install grease interceptor in both kitchens	1 LS	\$	\$	30,000.00	\$	47,520	\$	\$	\$	\$
8310.00	D2030.20	Replace 10% storm drain system	69,000 SF	\$	\$	0.40	\$	43,718	\$	\$	\$	\$
8320.00	D2030.30	Repipe overflow drains to separate piping systems	69,000 SF	\$	\$	0.30	\$	32,789	\$	\$	\$	\$
TOTAL												
				\$	\$	7.70	\$	841,262	\$	\$	\$	\$

9000	D50	Electrical Elements	Collateral Work Gen. Conditions Contingency GC Fee	Design/Engineering, Construction Management, Plan Check, Testing 30%	Direct Costs	Sub-total Current Costs	Priority 1 (Yr 1)	Priority 2 (Yrs 2-5)	Priority 3 (Yrs 6 - 10)	Priority 4 (Yrs 10 +)	
9110.00	D5020.10	switchgear replacement	\$	\$	4.00	\$ 276,000	\$	437,184	\$	568,339	
9120.00	D5020.30	Switchboards and panelboards replacement	\$	\$	2.00	\$ 138,000	\$	218,592	\$	284,170	
9130.00	D5030.10	Power circuitry	\$	\$	1.50	\$ 103,500	\$	163,944	\$	213,127	
Power distribution - plumbing rework / shielding to protect											
9160.00	D5030.90	electrical equipment	\$	\$	2.50	\$ 172,500	\$	273,240	\$	355,212	
Power distribution - upgrade emergency power system (main distribution)											
9170.00	D5010.10	distribution	\$	\$	3.00	\$ 207,000	\$	327,888	\$	426,254	
9210.00	D5040.00	Lighting - controls / fixture upgrades	\$	\$	30.00	\$ 2,070,000	\$	3,278,880	\$	4,262,544	
9310.00	D6010.00	Data system / network - cabling renovation at IDF cabinets	\$	\$	10.00	\$ 690,000	\$	1,093,960	\$	1,420,848	
9390.00	D6060.10	Audio/visual	\$	\$	0.50	\$ 34,500	\$	54,648	\$	71,042	
9410.00	D7030.10	CCTV camera (video surveillance)	\$	\$	6.00	\$ 414,000	\$	655,776	\$	852,509	
TOTAL					\$	59,50	\$	6,503,112	\$	8,454,046	
					\$		\$	812,725	\$	5,993,478	
					\$		\$	1,020,878	\$	2,502,306	
Item #	UniFormat	Totals By discipline	Collateral Work Gen. Conditions Contingency GC Fee	Design/Engineering, Construction Management, Plan Check, Testing 30%	Direct Costs	Sub-total Current Costs	Priority 1 (Yr 1)	Priority 2 (Yrs 2-5)	Priority 3 (Yrs 6 - 10)	Priority 4 (Yrs 10 +)	
1000	C,B & D	Architectural Elements	\$	\$	4,823,834	\$	6,270,985	\$	5,500,681	\$	1,020,173
2000	C,B & D	Accessibility	\$	\$	243,144	\$	316,087	\$	355,555	\$	-
3000	Civil Engineering		\$	\$	-	\$	-	\$	-	\$	-
4000	D10 & F20	Miscellaneous Building Elements	\$	\$	858,370	\$	1,115,880	\$	1,188,620	\$	81,022
5000	B10	Structural	\$	\$	4,043,952	\$	5,257,138	\$	6,218,740	\$	-
6000	D30	Mechanical Elements	\$	\$	6,532,099	\$	8,491,729	\$	8,672,997	\$	-
7000	D40	Fire Protection	\$	\$	874,368	\$	1,136,678	\$	-	\$	1,555,623
8000	D20	Plumbing Elements	\$	\$	841,262	\$	1,093,641	\$	509,011	\$	663,535
9000	D50	Electrical Elements	\$	\$	6,503,112	\$	8,454,046	\$	812,725	\$	5,993,478
TOTAL					\$	32,136,184	\$	2,448,883	\$	4,341,231	
Total per SF					\$	\$358.26	\$	28,439,081	\$	2,502,306	

General Cost Summary By Discipline: "C" Bing Center

EXHIBIT 1.C - General Cost Summary

59,000 SF

Item #	Uniformat	Discipline / Item Description										
			Collateral Work		Design/Engineering, Construction		Sub-total		Priority 1	Priority 2	Priority 3	Priority 4
			Gen. Conditions	Contingency	Plan Check, Testing	Management, 30%	Current Costs		(Yr 1)	(Yrs 2-5)	(Yrs 6 - 10)	(Yrs 10 +)
1000	C,B & D	Architectural Elements	Direct Costs		GC Fee		Sub-total					
1050.00	C1030.90	Replace damaged interior doors	59,000	SF	\$	140,184	\$	182,239		\$	204,994	
1051.00	C1030.90	Replace interior door hardware	59,000	SF	\$	93,456	\$	121,493		\$	136,663	
1010.00	C2030.75	Replace carpet	9,000	SF	\$	71,280	\$	92,664		\$	104,234	
1110.00	B1010.20	Repair concrete floors in corridors and utility rooms	4,550	SF	\$	72,072	\$	93,694		\$	105,393	
1110.00	C1010.90	Repair penetration in Fire Wall	2,000	SF	\$	95,040	\$	123,552		\$		
1140.00	C1070.10	Replace acoustical ceilings	13,675	SF	\$	173,290	\$	225,276		\$	253,405	
1141.00	C1070.20	Replace concealed spline ceilings	2,975	SF	\$	94,248	\$	122,522		\$	137,821	
1210.00	B2010.20	Repair Exterior Plaster	11,800	SF	\$	280,368	\$	364,478		\$	409,989	
1210.00	B3080.20	Repair Exterior Plaster Soffit at Balcony	7,360	SF	\$	349,747	\$	454,671		\$	511,443	
1211.00	B2010.10	Repair water damaged Walls / Columns	5,900	SF	\$	233,640	\$	303,732		\$	273,326	
1212.00	B2010.10	Repair / Replace Ext. Stone Veneer (Marble)	13,200	SF	\$	1,254,528	\$	376,358		\$	2,231,981	
1213.00	B2020.90	Replace Ext. broken glass blocks.	2,950	SF	\$	233,640	\$	303,732		\$	415,678	
1214.00	B2010.10	Repair / Replace column cladding 12 40-ft Tall	2,400	SF	\$	323,136	\$	96,941		\$	378,023	
1220.00	B2050.90	Replace door hardware	59,000	SF	\$	93,456	\$	121,493		\$	166,271	
1221.00	B2050.90	Replace damaged doors	29,500	SF	\$	46,728	\$	14,018		\$	83,136	
1220.00	B2020.90	Repair Glazing & Gaskets	3,450	SF	\$	109,296	\$	32,789		\$	194,453	
1510.00	B1080.50	Upgrade Railing to Code Compliant	180	LF	\$	85,536	\$	25,661		\$	125,081	
1511.00	B2080.50	Upgrade Railing to Code Compliant at Balcony	420	LF	\$	166,320	\$	49,896		\$	243,214	
1810.00	B3010.50	Replace roof	15,000	SF	\$	475,200	\$	142,560		\$	694,896	
TOTAL			\$ 45.99		\$ 4,391,165		\$ 5,708,514		\$ 279,046	\$ 3,578,483	\$ 3,091,519	\$ -
2000	C,B & D	Accessibility	Direct Costs		GC Fee		Sub-total		Priority 1	Priority 2	Priority 3	Priority 4
									(Yr 1)	(Yrs 2-5)	(Yrs 6 - 10)	(Yrs 10 +)
2100.00	C1090.20	Instal sign package throughout the facility	59,000	SF	\$	46,728	\$	60,746		\$	68,331	
2210.00	D2010.60	Upgrade Single Use Restrooms	6	EA	\$	142,560	\$	185,328		\$	208,469	
2400.00	B1080.10	Install compliant Stair Landing Barrier	3	STAIR	\$	66,528	\$	19,958		\$	97,285	
2410.00	C1090.10	Replace Stair Handrails	3	STAIR	\$	142,560	\$	42,768		\$	208,469	
2610.00	D2010.60	Upgrade Drinking Fountains	3	EA	\$	19,008	\$	24,710		\$	27,796	
2630.00	E2050.30	Provide Accessible Seating in Theatre	50	SEAT	\$	39,600	\$	11,880		\$	57,908	
TOTAL			\$		\$ 456,984		\$ 594,079		\$ -	\$ 668,258	\$ -	\$ -
3000	Civil Engineering		Direct Costs		GC Fee		Sub-total		Priority 1	Priority 2	Priority 3	Priority 4
									(Yr 1)	(Yrs 2-5)	(Yrs 6 - 10)	(Yrs 10 +)
3110.00		Replace site storm drain piping	-	LF	\$	-	\$	-		\$	-	
3020.00		Repair perimeter planters	-	LF	\$	-	\$	-		\$	-	
3010.00		Replace damaged walks	-	SF	\$	-	\$	-		\$	-	
3400.00		Replace Fire Line Piping (80 LF, 6")	-	LF	\$	-	\$	-		\$	-	
3200.00		Replace Domestic Water Line (200 LF, 6")	-	LF	\$	-	\$	-		\$	-	
3300.00		Replace Sanitation Line (750 LF, 8")	-	LF	\$	-	\$	-		\$	-	
TOTAL			\$		\$ -		\$ -		\$ -	\$ -	\$ -	\$ -

4000	D10 & F20	Miscellaneous Building Elements	Collateral Work Gen. Conditions Contingency GC Fee	Design/Engineering, Construction Management, Plan Check, Testing 30%	Sub-total Current Costs	Priority 1 (Yr 1)	Priority 2 (Yrs 2-5)	Priority 3 (Yrs 6 - 10)	Priority 4 (Yrs 10 +)
4010.00	D1010.10	Replace elevator drives	1 EA	\$ 30,000.00	\$ 47,520	\$ 14,256	\$ 61,776		\$ 98,905
4020.00	D1010.10	Refurbish elevator cabs	1 EA	\$ 20,000.00	\$ 31,680	\$ 9,504	\$ 41,184		\$ 65,937
4030.00	D1010.10	Replace controls to be access compliant	1 EA	\$ 8,000.00	\$ 12,672	\$ 3,802	\$ 16,474		\$ 26,375
4040.00	D1010.10	Replace elevator rails	1 EA	\$ 36,000.00	\$ 57,024	\$ 17,107	\$ 74,131		\$ 118,686
4100.00	F2010.20	Abate floor tile	4,670 SF	\$ 5.00	\$ 36,986	\$ 11,096	\$ 48,082		\$ 65,804
4200.00	F2010.20	Abate steam piping insulation	590 LF	\$ 15.00	\$ 8,850	\$ 4,206	\$ 18,224	\$ 20,499	
4421.00	F2010.20	Abate hot water piping insulation	1,180 LF	\$ 10.00	\$ 11,800	\$ 18,691	\$ 5,607	\$ 27,333	
4430.00	F2010.20	Abate structural steel beam and column fire proofing	590 TON	\$ 300.00	\$ 177,000	\$ 280,368	\$ 84,110	\$ 409,989	
		TOTAL		\$ 498,960	\$ 648,648	\$ -	\$ 457,821	\$ 65,804	\$ 309,903
5000	B10	Structural	Collateral Work Gen. Conditions Contingency GC Fee	Design/Engineering, Construction Management, Plan Check, Testing 30%	Sub-total Current Costs	Priority 1 (Yr 1)	Priority 2 (Yrs 2-5)	Priority 3 (Yrs 6 - 10)	Priority 4 (Yrs 10 +)
5110.00	B1010.30	Repair balcony concrete slabs	7,360 SF	\$ 25.00	\$ 184,000	\$ 291,456	\$ 87,437	\$ 378,893	
5140.00	B1010.10	Seismic Retrofit for 1965 Buildings	59,000 SF	\$ 28.00	\$ 1,652,000	\$ 2,616,768	\$ 785,030	\$ 3,401,798	
5240.00	B2010.10	Shotcrete Reinforcement at (E) damaged / repaired shear walls	59,000 SF	\$ 9.00	\$ 531,000	\$ 841,104	\$ 252,331	\$ 1,093,435	
		TOTAL		\$ 3,457,872	\$ 4,495,234	\$ -	\$ 5,482,729	\$ -	\$ -
6000	D30	Mechanical Elements	Collateral Work Gen. Conditions Contingency GC Fee	Design/Engineering, Construction Management, Plan Check, Testing 30%	Sub-total Current Costs	Priority 1 (Yr 1)	Priority 2 (Yrs 2-5)	Priority 3 (Yrs 6 - 10)	Priority 4 (Yrs 10 +)
6310.00	D3050.50	Air handling unit replacements	59,000 CFM	\$ 10.00	\$ 590,000	\$ 934,560	\$ 280,368	\$ 1,214,928	
6240.00	D3050.10	CHW piping leaks and insulation repair	47,200 SF	\$ 10.00	\$ 472,000	\$ 747,648	\$ 224,294	\$ 971,942	
6140.00	D3050.10	HHW piping leaks and insulation repair	47,200 SF	\$ 15.00	\$ 708,000	\$ 1,121,472	\$ 336,442	\$ 1,457,914	
6220.00	D3030.70	Computer room air conditioning	10 TNS	\$ 5,000.00	\$ 50,000	\$ 79,200	\$ 23,760	\$ 102,960	
6221.00	D3030.70	Telephone room air conditioning	5 TNS	\$ 3,000.00	\$ 15,000	\$ 23,760	\$ 7,128	\$ 30,888	
6250.00	D3050.90	Control valves replacements	59,000 SF	\$ 2.50	\$ 147,500	\$ 233,640	\$ 70,092	\$ 303,732	
6320.00	D3050.90	EMS connections for AHUs	59,000 SF	\$ 1.50	\$ 88,500	\$ 140,184	\$ 42,055	\$ 182,239	
6510.00	D3050.90	EMS system upgrade	59,000 SF	\$ 6.50	\$ 383,500	\$ 607,464	\$ 182,239	\$ 789,703	
6350.00	D3050.10	New DDC VAV double duct mixing boxes and thermostats	10 EA	\$ 3,000.00	\$ 30,000	\$ 47,520	\$ 14,256	\$ 61,776	
6360.00	D3050.50	New DDC VAV single duct reheat coil terminal air units and thermostats	35 EA	\$ 2,000.00	\$ 70,000	\$ 110,880	\$ 33,264	\$ 144,144	
6720.00	D3050.50	Exhaust fan replacement/exhaust duct cleaning	59,000 SF	\$ 0.20	\$ 11,800	\$ 18,691	\$ 5,607	\$ 24,299	
6740.00	D3050.50	Air humidifiers replacements	59,000 CFM	\$ 2.50	\$ 147,500	\$ 233,640	\$ 70,092	\$ 303,732	
6360.00	D3060.00	Galvanized sheet metal ductwork clean and reconfigure	47,200 LBS	\$ 15.00	\$ 708,000	\$ 1,121,472	\$ 336,442	\$ 1,457,914	
6230.00	D3030.70	Condenser water pumps replacements with VFDs	1 LS	\$ 15,000.00	\$ 15,000	\$ 23,760	\$ 7,128	\$ 30,888	
6150.00	D3020.10	HHW heat exchangers	1 LS	\$ 30,000.00	\$ 30,000	\$ 47,520	\$ 14,256	\$ 61,776	
		TOTAL		\$ 58,76	\$ 5,491,411	\$ 694,939	\$ 7,278,572	\$ -	\$ -
7000.00	D40	Fire Protection	Collateral Work Gen. Conditions Contingency GC Fee	Design/Engineering, Construction Management, Plan Check, Testing 30%	Sub-total Current Costs	Priority 1 (Yr 1)	Priority 2 (Yrs 2-5)	Priority 3 (Yrs 6 - 10)	Priority 4 (Yrs 10 +)
7010.00	D4010.10	Provide Full Coverage Fire Sprinkler System	59,000 SF	\$ 8.00	\$ 472,000	\$ 747,648	\$ 224,294	\$ 971,942	
7020.00	D4010.10	Replace fire pump	EA	\$ 100,000.00	\$ -	\$ -	\$ -	\$ -	
		TOTAL		\$ 8.00	\$ 747,648	\$ -	\$ -	\$ 1,330,170	\$ -
8000	D20	Plumbing Elements	Collateral Work Gen. Conditions Contingency GC Fee	Design/Engineering, Construction Management, Plan Check, Testing 30%	Sub-total Current Costs	Priority 1 (Yr 1)	Priority 2 (Yrs 2-5)	Priority 3 (Yrs 6 - 10)	Priority 4 (Yrs 10 +)
8110.00	D2010.40	Replace 100% of DCW system in a floor by floor basis	59,000 SF	\$ 3.00	\$ 177,000	\$ 280,368	\$ 84,110	\$ 364,478	
						\$ 75,812	\$ 204,994	\$ 149,644	

8140.00	D2010.20	Replace the two domestic hot water heat exchangers	1 EA	\$	15,000.00	\$	15,000	\$	23,760	\$	7,128	\$	30,888			\$	42,272
8210.00	D2020.30	Replace 100% of W & V system in a floor by floor basis	59,000 SF	\$	0.70	\$	41,300	\$	65,419	\$	19,626	\$	85,045			\$	116,390
8210.00	D2010.40	Replace 100% of DHW system in a floor by floor basis	59,000 SF	\$	2.50	\$	147,500	\$	233,640	\$	70,092	\$	303,732			\$	124,703
8290.00	D2020.30	Install grease interceptor in both kitchens	1 LS	\$	50,000	\$	50,000	\$	79,200	\$	23,760	\$	102,960			\$	
8310.00	D2030.20	Replace 10% storm drain system	59,000 SF	\$	0.40	\$	23,600	\$	37,382	\$	11,215	\$	48,597			\$	66,509
8320.00	D2030.30	Repipe overflow drains to separate piping systems	59,000 SF	\$	0.30	\$	17,700	\$	28,037	\$	8,411	\$	36,448			\$	49,881
TOTAL				\$		\$	8.00	\$	747,806	\$	972,148	\$	136,988	\$	491,639	\$	549,400
9000	D50	Electrical Elements															
9110.00	D5020.10	replacement	59,000 SF	\$	4.00	\$	236,000	\$	373,824	\$	112,147	\$	485,971			\$	546,652
9120.00	D5020.30	Switchboards and panelboards replacement	59,000 SF	\$	2.00	\$	118,000	\$	186,912	\$	56,074	\$	242,986			\$	273,326
9130.00	D5030.10	Power circuitry	59,000 SF	\$	1.50	\$	88,500	\$	140,184	\$	42,055	\$	182,239			\$	204,994
9160.00	D5030.90	Power distribution - plumbing rework / shielding to protect electrical equipment	59,000 SF	\$	2.50	\$	147,500	\$	233,640	\$	70,092	\$	303,732			\$	
9170.00	D5010.10	Power distribution - upgrade emergency power system (main distribution)	59,000 SF	\$	3.00	\$	177,000	\$	280,368	\$	84,110	\$	364,478			\$	
9210.00	D5040.00	Lighting - controls / fixture upgrades	59,000 SF	\$	30.00	\$	1,770,000	\$	2,803,680	\$	841,104	\$	3,644,784			\$	4,059,886
9310.00	D6010.00	Data system / network - cabling renovation at IDF cabinets	59,000 SF	\$	10.00	\$	590,000	\$	934,560	\$	280,368	\$	1,214,928			\$	683,314
9390.00	D6060.10	Audio/visual	59,000 SF	\$	0.50	\$	29,500	\$	46,728	\$	14,018	\$	60,746			\$	68,331
9410.00	D7030.10	CCTV camera (video surveillance)	59,000 SF	\$	6.00	\$	354,000	\$	560,736	\$	168,221	\$	728,957			\$	1,167,083
TOTAL				\$		\$	59.50	\$	5,560,632	\$	7,228,822	\$	694,939	\$	5,876,504	\$	2,139,653
Item #	UniFormat	Totals By discipline															
1000	C1030.90	Architectural Elements	59,000 SF	\$	4,391,165	\$		\$	5,708,514	\$	279,046	\$	3,578,483	\$	3,091,519	\$	-
2000	CJB & D	Accessibility	59,000 SF	\$	456,984	\$		\$	594,079	\$	-	\$	668,258	\$	-	\$	-
3000		Civil Engineering	59,000 SF	\$		\$		\$		\$	-	\$	-	\$	-	\$	-
4000	D10 & F20	Miscellaneous Building Elements	59,000 SF	\$	498,960	\$		\$	648,648	\$	-	\$	457,821	\$	65,804	\$	309,903
5000	B10	Structural	59,000 SF	\$	3,457,872	\$		\$	4,495,234	\$	-	\$	5,482,729	\$	-	\$	-
6000	D30	Mechanical Elements	59,000 SF	\$	5,491,411	\$		\$	7,138,835	\$	694,939	\$	7,278,572	\$	-	\$	-
7000	D40	Fire Protection	59,000 SF	\$	747,648	\$		\$	971,942	\$	-	\$	1,330,170	\$	-	\$	-
8000	D20	Plumbing Elements	59,000 SF	\$	747,806	\$		\$	972,148	\$	138,988	\$	491,639	\$	549,400	\$	-
9000	D50	Electrical Elements	59,000 SF	\$	5,560,632	\$		\$	7,228,822	\$	694,939	\$	5,876,504	\$	-	\$	2,139,653
TOTAL				\$		\$		\$	21,352,478	\$	1,807,912	\$	23,894,006	\$	5,036,893	\$	2,449,556
Total per SF								\$	361.91			\$	470.48				

General Cost Summary By Discipline: "D" Art of the Americas Building

90,000 SF

Item #	Uniformat	Discipline / Item Description	Collateral Work Gen. Conditions Contingency	Design/Engineering, Construction Management, Plan Check, Testing	Sub-total Current Costs	Priority 1 (Yr 1)	Priority 2 (Yrs 2-5)	Priority 3 (Yrs 6 - 10)	Priority 4 (Yrs 10 +)
1000	C.B & D	Architectural Elements	Direct Costs	30%					
1050.00	C1030.90	Replace damaged interior doors	90,000 SF	\$	1.50 \$	135,000 \$	213,840 \$	277,992 \$	312,703 \$
1051.00	C1030.90	Replace interior door hardware	90,000 SF	\$	1.00 \$	90,000 \$	142,560 \$	42,768 \$	185,328 \$
1010.00	C2030.75	Replace carpet	311,300 SF	\$	5.00 \$	156,500 \$	247,896 \$	74,369 \$	362,504 \$
1110.00	B1010.20	Repair concrete floors in corridors and utility rooms	7,650 SF	\$	10.00 \$	76,500 \$	121,176 \$	36,353 \$	157,529 \$
1110.00	C1010.90	Repair penetration in Fire Wall	1,800 SF	\$	30.00 \$	54,000 \$	85,536 \$	25,661 \$	111,197 \$
1140.00	C1070.10	Replace acoustical ceilings	17,925 SF	\$	8.00 \$	143,400 \$	227,146 \$	68,144 \$	295,289 \$
1141.00	C1070.20	Replace concealed spline ceilings	22,610 SF	\$	20.00 \$	452,200 \$	716,285 \$	214,885 \$	931,170 \$
1210.00	B2010.20	Repair Exterior Plaster	18,000 SF	\$	15.00 \$	270,000 \$	427,680 \$	128,304 \$	555,984 \$
1211.00	B2010.10	Repair water damaged Walls / Columns	9,000 SF	\$	25.00 \$	225,000 \$	356,400 \$	106,920 \$	463,320 \$
1212.00	B2010.10	Repair / Replace Ext. Stone Veneer	- SF	\$	60.00 \$	- \$	- \$	- \$	- \$
1213.00	B2020.90	Repair / Replace broken glass blocks.	4,500 SF	\$	50.00 \$	225,000 \$	356,400 \$	106,920 \$	463,320 \$
1214.00	B2010.10	Repair / Replace column cladding	- SF	\$	85.00 \$	- \$	- \$	- \$	- \$
1220.00	B2050.90	Replace door hardware	90,000 SF	\$	1.00 \$	90,000 \$	142,560 \$	42,768 \$	185,328 \$
1221.00	B2050.90	Replace damaged doors	45,000 SF	\$	1.00 \$	45,000 \$	71,280 \$	21,384 \$	92,664 \$
1220.00	B2020.90	Repair Glazing & Gaskets	4,500 SF	\$	20.00 \$	90,000 \$	142,560 \$	42,768 \$	185,328 \$
1220.00	B2010.10	Remove rust spots from Porcelain metal panel backing and repair porcelain finish in 50 to 60 locations	3,360 SF	\$	140.00 \$	470,400 \$	745,114 \$	223,534 \$	968,648 \$
1510.00	B2080.50	Upgrade Railing to Code Compliant	100 LF	\$	300.00 \$	30,000 \$	47,520 \$	14,256 \$	61,776 \$
1810.00	B3010.50	Replace roof	21,000 SF	\$	20.00 \$	420,000 \$	665,280 \$	199,584 \$	864,864 \$
TOTAL					\$	33.03 \$	4,709,232 \$	6,122,002 \$	115,645 \$
2000	C.B & D	Accessibility	Direct Costs	30%					
2100.00	C1090.20	Install sign package throughout the facility	90,000 SF	\$	0.50 \$	45,000 \$	71,280 \$	21,384 \$	92,664 \$
2210.00	D2010.60	Upgrade Single Use Restrooms	8 EA	\$	15,000.00 \$	120,000 \$	190,080 \$	57,024 \$	247,104 \$
2400.00	B1080.10	Install compliant Stair Landing Barrier	2 STAIR	\$	14,000.00 \$	28,000 \$	44,352 \$	13,306 \$	57,658 \$
2410.00	C1090.10	Replace Stair Handrails	2 STAIR	\$	30,000.00 \$	60,000 \$	95,040 \$	28,512 \$	123,552 \$
2610.00	D2010.60	Upgrade Drinking Fountains	4 EA	\$	4,000.00 \$	16,000 \$	25,344 \$	7,603 \$	32,947 \$
TOTAL					\$	426,096 \$	553,925 \$	623,090 \$	1,325,661 \$
3000		Civil Engineering	Direct Costs	30%					
TOTAL					\$	- \$	- \$	- \$	- \$
4000	D10 & F20	Miscellaneous Building Elements	Direct Costs	30%					
4010.00	D1010.10	Replace elevator drives	2 EA	\$	30,000.00 \$	60,000 \$	95,040 \$	28,512 \$	123,552 \$
4020.00	D1010.10	Refurbish elevator cabs	2 EA	\$	20,000.00 \$	40,000 \$	63,360 \$	19,008 \$	82,368 \$
4030.00	D1010.10	Replace controls to be access compliant	2 EA	\$	8,000.00 \$	16,000 \$	25,344 \$	7,603 \$	32,947 \$
4040.00	D1010.10	Replace elevator rails	2 EA	\$	36,000.00 \$	72,000 \$	114,048 \$	34,214 \$	148,262 \$
4410.00	F2010.20	Abate floor tile	10,325 SF	\$	5.00 \$	51,625 \$	81,774 \$	24,532 \$	106,306 \$
4420.00	F2010.20	Abate steam piping insulation	900 LF	\$	15.00 \$	13,500 \$	21,384 \$	6,415 \$	27,799 \$
4421.00	F2010.20	Abate hot water piping insulation	1,800 LF	\$	10.00 \$	18,000 \$	28,512 \$	8,554 \$	37,066 \$
4430.00	F2010.20	Abate structural steel beam and column fire proofing	900 TON	\$	300.00 \$	270,000 \$	427,680 \$	128,304 \$	555,984 \$
TOTAL					\$	857,142 \$	1,114,285 \$	72,964 \$	1,509,955 \$

5000	B10	Structural				Direct Costs	Collateral Work Gen. Conditions Contingency GC Fee	Design/Engineering, Construction Management, Plan Check, Testing	Sub-total Current Costs	Priority 1 (Yr 1)	Priority 2 (Yrs 2-5)	Priority 3 (Yrs 6 - 10)	Priority 4 (Yrs 10 +)	
5140.00	B1010.10	Seismic Retrofit -Upgrade Structural Steel Joints	90,000	SF	\$	35.00	\$	4,989,600	\$	1,496,880	\$	150,000	\$	10,385,063
5240.00	B2010.10	Shotcrete Reinforcement at (E) damaged / repaired shear	-	SF	\$	3.00	\$	-	\$	-	\$	-	\$	-
TOTAL														
6000	D30	Mechanical Elements												
6310.00	D3050.50	Air handling unit replacements	90,000	CFM	\$	10.00	\$	1,425,600	\$	427,680	\$	385,482	\$	1,667,750
6240.00	D3050.10	CHW piping leaks and insulation repair	72,000	SF	\$	10.00	\$	1,140,480	\$	342,144	\$	308,386	\$	1,334,200
6140.00	D3050.10	HHW piping leaks and insulation repair	72,000	SF	\$	15.00	\$	1,080,000	\$	313,216	\$	462,579	\$	2,001,300
6220.00	D3030.70	Computer room air conditioning	40	TNS	\$	5,000.00	\$	316,800	\$	95,040	\$	411,840	\$	463,264
6221.00	D3030.70	Telephone room air conditioning	10	TNS	\$	3,000.00	\$	47,520	\$	14,256	\$	61,776	\$	69,490
6250.00	D3050.90	Control valves replacements	90,000	SF	\$	2.50	\$	356,400	\$	106,920	\$	463,320	\$	521,172
6520.00	D3050.90	EMS connections for AHUs	90,000	SF	\$	1.50	\$	135,000	\$	277,992	\$	312,703	\$	312,703
6510.00	D3050.90	EMS system upgrade	90,000	SF	\$	6.50	\$	585,000	\$	277,992	\$	1,355,047	\$	1,355,047
6350.00	D3050.10	New DDC VAV double duct mixing boxes and thermostats	50	EA	\$	3,000.00	\$	237,600	\$	71,280	\$	347,448	\$	347,448
6360.00	D3050.50	thermostats	100	EA	\$	2,000.00	\$	316,800	\$	95,040	\$	411,840	\$	463,264
6720.00	D3050.50	Exhaust fan replacement/exhaust duct cleaning	90,000	SF	\$	0.20	\$	18,000	\$	8,554	\$	37,066	\$	41,694
6740.00	D3050.50	Air humidifiers replacements	90,000	CFM	\$	2.50	\$	356,400	\$	106,920	\$	463,320	\$	521,172
6360.00	D3060.00	Galvanized sheet metal ductwork clean and reconfigure	72,000	LBS	\$	15.00	\$	1,080,000	\$	313,216	\$	2,223,936	\$	2,501,626
6230.00	D3030.70	Condenser water pumps replacements with VFDs	1	LS	\$	50,000.00	\$	50,000	\$	23,760	\$	102,960	\$	115,816
6150.00	D3020.10	HHW heat exchangers	1	LS	\$	100,000.00	\$	158,400	\$	47,520	\$	205,920	\$	231,692
TOTAL														
\$ 63.31 \$ 9,025,632 \$ 11,733,322 \$ 1,156,447 \$ 11,947,578 \$ - \$														
7000.00	D40	Fire Protection												
7010.00	D4010.10	Provide Full Coverage Fire Sprinkler System	90,000	SF	\$	8.00	\$	1,140,480	\$	342,144	\$	1,951,032	\$	1,951,032
7020.00	D4010.10	Replace fire pump	1	EA	\$	150,000.00	\$	237,600	\$	71,280	\$	406,465	\$	406,465
TOTAL														
\$ 9.67 \$ 1,378,080 \$ 1,791,504 \$ - \$ 2,357,497 \$ - \$														
8000	D20	Plumbing Elements												
8110.00	D2010.40	Replace 100% of DCW system in a floor by floor basis	90,000	SF	\$	3.00	\$	270,000	\$	555,984	\$	312,703	\$	228,271
8140.00	D2010.20	Replace the two domestic hot water heat exchangers	2	EA	\$	15,000.00	\$	47,520	\$	14,256	\$	84,545	\$	84,545
8210.00	D2020.30	Replace 10% of W & V system in a floor by floor basis	90,000	SF	\$	0.70	\$	63,000	\$	29,938	\$	177,544	\$	177,544
8210.00	D2010.40	Replace 100% of DHW system in a floor by floor basis	90,000	SF	\$	2.50	\$	356,400	\$	106,920	\$	260,586	\$	190,226
8290.00	D2020.30	Install grease interceptor in both kitchens	1	LS	\$	40,000	\$	40,000	\$	19,008	\$	112,726	\$	112,726
8310.00	D2030.20	Replace 10% storm drain system	90,000	SF	\$	0.40	\$	36,000	\$	17,107	\$	101,454	\$	101,454
8320.00	D2030.30	Repipe overflow drains to separate piping systems	90,000	SF	\$	0.30	\$	27,000	\$	12,830	\$	76,090	\$	76,090
TOTAL														
\$ 7.68 \$ 1,094,544 \$ 1,422,907 \$ 212,015 \$ 573,289 \$ 970,855 \$														
9000	D50	Electrical Elements												
9110.00	D5020.10	replacement	90,000	SF	\$	4.00	\$	360,000	\$	171,072	\$	833,875	\$	833,875
9120.00	D5020.30	Switchboards and panelboards replacement	90,000	SF	\$	2.00	\$	180,000	\$	85,536	\$	370,656	\$	416,938
9130.00	D5030.10	Power circuitry	90,000	SF	\$	1.50	\$	135,000	\$	64,152	\$	312,703	\$	312,703
9160.00	D5030.90	Power distribution - plumbing rework / shielding to protect electrical equipment	90,000	SF	\$	2.50	\$	225,000	\$	106,920	\$	463,320	\$	521,172

[illegible]

General Cost Summary By Discipline: Totals and Common Elements Deck

Item #	Unit/Format	Discipline / Item Description	55720	GSF	55720	SF	Direct Costs	Collateral Work Gen. Conditions Contingency GC Fee	Design/Engineering, Construction Management, Plan Check, Testing 30%	Sub-total Current Costs	Priority 1 (Yr 1)	Priority 2 (Yrs 2-5)	Priority 3 (Yrs 6 - 10)	Priority 4 (Yrs 10 +)
1000	G20, B30	Architectural Elements												
1210.00		Repair Exterior Plaster	55,720	SF	20%	SF	\$	\$	\$	\$	\$	\$	\$	\$
1211.00		Repair water damaged Walls / Columns	55,720	SF	10%	SF	\$	\$	\$	\$	\$	\$	\$	\$
1310.00	G2030.10	Remove existing waterproofing & Repair concrete floors at Courtyard	33,200	SF	100%	SF	\$	\$	\$	\$	\$	\$	\$	\$
1510.00	G2030.30	Upgrade Railing to Code Compliant at Grand Entry	600	LF	100%	LF	\$	\$	\$	\$	\$	\$	\$	\$
1511.00	G2030.30	Upgrade Stair, Grand Entry	3,420	SF	100%	SF	\$	\$	\$	\$	\$	\$	\$	\$
1610.00	G2030.10	Remove and Install New Pavers at Courtyard and Balcony	52,300	SF	100%	SF	\$	\$	\$	\$	\$	\$	\$	\$
1820.00	G2060.40	Repair metal canopy rusted framing, clean Kaiwall panels and paint metal framing members at Courtyard	15,785	SF	100%	SF	\$	\$	\$	\$	\$	\$	\$	\$
1830.00	B3040.90	Install New Waterproofing system at Courtyard & Balcony	52,300	SF	100%	SF	\$	\$	\$	\$	\$	\$	\$	\$
		TOTAL					\$5,64	\$4,910,440		\$	\$	\$	\$	\$
2000	G20	Accessibility												
2100.00	G2060.30	Install sign package throughout the facility	55,720	SF	100%	SF	\$	\$	\$	\$	\$	\$	\$	\$
		TOTAL					\$	\$4,130		\$	\$	\$	\$	\$
3000	G20, G30	Civil Engineering												
3110.00	G3030.40	Replace site storm drain piping	55,720	SF	100%	SF	\$	\$	\$	\$	\$	\$	\$	\$
3020.00	G2065.25	Repair perimeter planters	1,700	LF	100%	LF	\$	\$	\$	\$	\$	\$	\$	\$
3010.00	G2030.00	Replace damaged walks	55,720	SF	25%	SF	\$	\$	\$	\$	\$	\$	\$	\$
3400.00	G3010.30	Replace Fire Line Piping (80 Lf, 6")	80	LF	100%	LF	\$	\$	\$	\$	\$	\$	\$	\$
3400.00	G3010.30	Replace Fire Double Detector Check Valve (6")	1	EA	100%	EA	\$	\$	\$	\$	\$	\$	\$	\$
3200.00	G3020.10	Replace Domestic Water Line (200 Lf, 6")	200	LF	100%	LF	\$	\$	\$	\$	\$	\$	\$	\$
3300.00	G3020.30	Replace Sanitation Line (750 Lf, 8")	750	LF	100%	LF	\$	\$	\$	\$	\$	\$	\$	\$
3300.00	G3020.50	Replace Clean outs	8	EA	100%	EA	\$	\$	\$	\$	\$	\$	\$	\$
		TOTAL					\$	\$2,569,565		\$	\$	\$	\$	\$
4000	D10	Miscellaneous Building Elements												
4050.00	D1010.30	Repair Escalators	2	EA	100%	EA	\$	\$	\$	\$	\$	\$	\$	\$
		TOTAL					\$	\$		\$	\$	\$	\$	\$
5000	B10	Structural												
5140.00	B1010.90	Remove and Install New Seismic Joints	1,275	LF	100%	LF	\$	\$	\$	\$	\$	\$	\$	\$
		TOTAL					\$	\$65,880		\$	\$	\$	\$	\$

Replacement Cost Summary

Replacement Cost analysis to replicate the building and facility square footage and function

Case Study #1

Replacement costs based upon 1984 bid result for "Arts of the Americas" (Note 1)

					Replicate Total Cost
Ahmanson	170,000	SF	\$670.51	\$ 113,985,850	\$ 180,000,000
Hammer	69,000	SF	\$607.41	\$ 41,910,971	\$ 66,000,000
Bing	59,000	SF	\$696.97	\$ 41,120,974	\$ 65,000,000
Art of the Americas (1)	90,000	SF	\$630.96	\$ 56,786,118	\$ 90,000,000
Common/Support					Incl.
Site & Infrastructure					Incl.
TOTAL	388,000	SF	\$654.13	\$ 253,803,913	\$ 401,000,000

Note:1

Soft Cost

30% \$196.24

Replacement Cost \$/SF in 2014

\$850.37

Escalation at 4% for 5 years

22% \$184.24

Replacement Cost \$/SF in 2019

\$1,034.61

Demolition Cost

Total Cost

Replacement Cost in 2019

388,000	SF		\$401,000,000	\$17,400,000	\$418,400,000
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158%

Case Study #2

Replacement costs based upon 2008 and 2010 bid result for "Resnick/BCAP" (Note 2)

					Replicate Total Cost
Ahmanson	170,000	SF	\$1,065.85	\$ 181,194,257	\$ 220,000,000
Hammer	69,000	SF	\$1,065.85	\$ 73,543,551	\$ 89,000,000
Bing	59,000	SF	\$1,065.85	\$ 62,885,066	\$ 77,000,000
Art of the Americas (1)	90,000	SF	\$1,065.85	\$ 95,926,371	\$ 117,000,000
Common/Support					Incl.
Site & Infrastructure					Incl.
TOTAL	388,000	SF	\$1,065.85	\$ 413,549,246	\$ 503,000,000

Note:2

Soft Cost

Included

Replacement Cost \$/SF in 2014

\$1,065.85

Escalation at 4% for 5 years

22% \$230.92

Replacement Cost \$/SF in 2019

\$1,296.77

Demolition Cost

Total Cost

Replacement Cost in 2019

388,000	SF		\$503,000,000	\$17,400,000	\$520,400,000
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122%

Note:

1. Cost/per SF are based on 1984 bid result for "Art of the Americas" with added Soft Cost & Escalation

2. Average Cost/per SF are based on 2008 and 2010 bid results for "Resnick/BCAP"

with 10% cost decrease adjustment for building size and the added Cost for Escalation

EXHIBIT 1 G - Demolition Costs

ROM ESTIMATE BUILDING DEMOLITION COST - EXECUTIVE SUMMARY												
ELEMENT	TITLE/DESCRIPTION	AREA	Percentage	Building A	Building B	Building C	Building D	SUBTOTAL	SITE	\$/SF	TOTAL	\$/SF
A	SUBSTRUCTURE							380,000	55,720	SF		SF
B	SHELL											
C	INTERIORS											
D	SERVICES											
E	EQUIPMENT & FURNISHINGS											
F	SPECIAL CONSTRUCTION & DEMOLITION											
F10	SPECIAL CONSTRUCTION ASBESTOS ABETMENT	380,000 SF		\$630,836	\$256,045	\$218,937	\$318,750	\$7,474,545 \$1,424,569			\$7,474,545 \$1,424,569	\$19.67 \$3.75
F20	SELECTIVE BUILDING DEMOLITION BUILDING DEMOLITION	380,000 SF		\$2,533,573	\$1,028,333	\$879,299	\$1,608,771	\$6,049,976			\$6,049,976	\$15.92
G	SITWORK								\$1,099,675	\$19.74	\$1,099,675	\$2.89
1	SUB-TOTAL DIRECT COST			\$3,164,409	\$1,284,378	\$1,098,236	\$1,927,521	\$7,474,545	\$1,099,675	\$19.74	\$8,574,220	\$22.56
DIRECT-COST ADJUSTMENTS												
	DESIGN SCOPE CONTINGENCY		20.0%	\$632,882	\$256,876	\$219,647	\$385,504	\$1,494,909	\$219,935	\$3.95	\$1,714,844	\$4.51
	SUB-TOTAL			\$3,797,291	\$1,541,254	\$1,317,883	\$2,313,025	\$8,969,454	\$1,319,610	\$23.68	\$10,289,064	\$27.08
2	SUBTOTAL ADJUSTED DIRECT COST			\$3,797,291	\$1,541,254	\$1,317,883	\$2,313,025	\$8,969,454	\$1,319,610	\$23.68	\$10,289,064	\$27.08
GC MARK-UPS												
	GC's, GEN REQUIREMENTS, & INDIRECTS		10.0%	\$379,729	\$154,125	\$131,788	\$231,303	\$896,945	\$131,961	\$2.37	\$1,028,906	\$2.71
	SUB-TOTAL			\$4,177,021	\$1,695,379	\$1,449,672	\$2,544,328	\$9,866,399	\$1,451,571	\$26.05	\$11,317,970	\$29.78
	GC PROFIT		6.0%	\$250,621	\$101,723	\$86,980	\$152,660	\$591,984	\$87,094	\$1.56	\$679,078	\$1.79
	SUB-TOTAL BOND		3%	\$4,427,642	\$1,797,102	\$1,536,652	\$2,696,987	\$10,458,383	\$1,538,665	\$27.61	\$11,997,048	\$31.57
				\$129,108	\$52,403	\$44,808	\$78,643	\$304,961	\$44,867	\$0.81	\$349,828	\$0.92
3	TOTAL CONSTRUCTION COST			\$4,556,750	\$1,849,504	\$1,581,460	\$2,775,630	\$10,763,344	\$1,583,532	\$28.42	\$12,346,876	\$32.49
	SOFT COST - ALLOWANCE		30.00%	\$1,367,024.88	\$554,851.27	\$474,438.05	\$832,689.08	\$3,229,003.27	\$475,060	\$8.53	\$3,704,063	\$9.75
4	TOTAL CONSTRUCTION COST w/Escalation			\$5,923,774	\$2,404,356	\$2,055,898	\$3,608,319	\$13,992,348	\$2,058,592	\$36.95	\$16,050,939	\$42.24
	ESCALATION 2 years @4%		8.16%	\$483,380.00	\$196,195.41	\$167,761.29	\$294,438.86	\$1,141,775.56	\$167,981.07	\$3.01	\$1,309,757	\$3.45
5	TOTAL DEMOLITION BUDGET			\$6,407,154	\$2,600,551	\$2,223,659	\$3,902,758	\$15,134,123	\$2,226,573	\$39.96	\$17,360,696	\$45.69

1	SUB-TOTAL DIRECT COST										\$5,108,995	\$91.69	\$110,611,563	\$291.08
DIRECT-COST ADJUSTMENTS														
DESIGN SCOPE CONTINGENCY														
	20.0%	\$10,037,551	\$3,462,338	\$3,006,102	\$4,300,368	\$294,155				\$1,031,799	\$18.34	\$22,122,313	\$58.22	
		\$60,225,304	\$20,774,028	\$18,036,612	\$25,802,205	\$1,764,932				\$6,130,794	\$110.03	\$132,733,875	\$349.30	
2	SUBTOTAL ADJUSTED DIRECT COST										\$6,130,794	\$110.03	\$132,733,875	\$349.30
GC MARK-UPS														
GC's, GEN REQUIREMENTS, & INDIRECTS														
	10.0%	\$6,022,530	\$2,077,403	\$1,803,661	\$2,580,221	\$176,493				\$613,079	\$11.00	\$13,773,388	\$34.93	
		\$66,247,834	\$22,851,431	\$19,840,273	\$28,382,426	\$1,941,426				\$6,743,874	\$121.03	\$146,007,263	\$384.23	
GC PROFIT														
	6.0%	\$3,974,870	\$1,371,086	\$1,190,416	\$1,702,646	\$116,486				\$404,632	\$7.26	\$8,760,436	\$23.05	
		\$70,222,704	\$24,222,517	\$21,030,690	\$30,085,371	\$2,057,911				\$7,148,506	\$128.29	\$154,787,698	\$407.28	
BOND														
	3%	\$2,047,659	\$706,316	\$613,244	\$877,274	\$60,008				\$208,447	\$3.74	\$4,512,949	\$11.88	
3	TOTAL CONSTRUCTION COST										\$7,356,953	\$132.03	\$159,280,647	\$419.16
SOFT COST - ALLOWANCE														
	30.00%	\$21,681,108.88	\$7,478,649.94	\$6,493,180.20	\$9,288,793.62	\$635,375.65				\$2,207,086	\$39.61	\$47,784,194	\$125.75	
4	TOTAL CONSTRUCTION COST w/Escalation										\$9,564,039	\$171.64	\$207,064,841	\$544.91
ESCALATION														
	18.75%	\$15,100,612	\$5,324,015	\$4,991,249	\$10,950,192	\$550,841				\$1,913,441	\$34.34	\$38,830,351	\$102.19	
5	TOTAL REFURBISHING BUDGET										\$11,477,480	\$205.98	\$245,895,192	\$647.09



EXHIBIT 2 A - Unifomat Replacement Cost Summary

UNIFORMAT REPLACEMENT COST SUMMARY - A. AHMANSON BUILDING								
ELEMENT	NUMBER	TITLE/DESCRIPTION	AREA	UNIT	COST	TOTAL COST	SUBTOTAL	\$/SF SITE
							170,000	SF 63,700
A		SUBSTRUCTURE						
A10		FOUNDATIONS	49,000	SF				
A20		BASEMENT CONSTRUCTION	49,000	SF				
B		SHELL					\$14,531,363	\$85.48
B10		SUPERSTRUCTURE	170,000	SF			\$5,821,475	\$34.24
B1010.20		Repair concrete floors in corridors and utility rooms			\$241,450			
B1080.50		Upgrade Railing to Code Compliant at Stairs			\$107,250			
B1080.10		Install compliant Stair Landing Barrier			\$61,600			
B1010.30		Repair balcony concrete slabs			\$175,175			
B1010.10		Seismic Retrofit for 1965 Buildings			\$5,236,000			
B20		EXTERIOR ENCLOSURE	88,000	SF			\$7,121,620	\$41.89
B2010.20		Repair Exterior Plaster			\$561,000			
B2010.10		Repair water damaged Walls / Columns			\$467,500			
B2010.10		Repair / Replace Ext. Stone Veneer (Marble)			\$2,772,000			
B2020.90		Replace Ext. broken glass blocks.			\$467,500			
B2010.10		Repair / Replace column cladding 20 65-ft Tall			\$607,750			
B2050.90		Replace Exterior door hardware			\$187,000			
B2050.90		Replace damaged doors			\$93,500			
B2020.90		Repair Glazing & Gaskets			\$97,900			
B2010.10		Remove rust spots from Porcelain metal panel backing and			\$66,220			
B2080.50		Upgrade Railing to Code Compliant at Balcony			\$118,250			
B2010.10		Shotcrete Reinforcement at (E) damaged / repaired shear			\$1,683,000			
B30		ROOFING	41,300	SF			\$1,588,268	\$9.34
B3010.50		Replace roof			\$908,600			
B3060.10		Replace skylights			\$679,668			
C		INTERIORS					\$1,919,665	\$11.29
C10		INTERIOR CONSTRUCTION	170,000	SF			\$1,851,740	\$10.89
C1030.90		Replace damaged interior doors			\$280,500			
C1030.90		Replace interior door hardware			\$187,000			
C1010.90		Repair penetration in Fire Wall			\$120,450			
C1070.10		Repair acoustical ceilings			\$168,960			
C1070.20		Replace concealed spline ceilings			\$869,330			
C1090.10		Replace Stair Handrails			\$132,000			
C1090.20		Install sign package throughout the facility			\$93,500			
C20		STAIRS	170,000	SF			\$57,200	\$0.34
C1080.10		Replace loading dock stairs and rails to current code requirements			\$57,200			
C30		INTERIOR FINISHES	170,000	SF			\$10,725	\$0.06
C2030.75		Replace carpet			\$10,725			
D		SERVICES					\$32,993,400	\$194.08
D10		CONVEYING	5	EA	\$103,400		\$517,000	\$3.04
D1010.10		Replace elevator drives			\$165,000			
D1010.10		Refurbish elevator cabs			\$110,000			
D1010.10		Replace controls to be access compliant			\$44,000			
D1010.10		Replace elevator rails			\$198,000			
D20		PLUMBING	170,000	SF			\$1,578,500	\$9.29
D2010.60		Upgrade Single Use Restrooms			\$132,000			
D2010.60		Upgrade Drinking Fountains			\$35,200			
D2010.40		Replace 100% of DCW system in a floor by floor basis			\$561,000			
D2010.20		Replace the two domestic hot water heat exchangers			\$66,000			
D2020.30		Replace 10% of W & V system in a floor by floor basis			\$130,900			
D2010.40		Replace 100% of DHW system in a floor by floor basis			\$467,500			
D2020.30		Install grease interceptor in both kitchens			\$55,000			
D2030.20		Replace 10% storm drain system			\$74,800			
D2030.30		Repipe overflow drains to separate piping systems			\$56,100			
D30		HVAC	170,000	SF			\$18,055,400	\$106.21
D3050.50		Air handling unit replacements			\$1,870,000			
D3050.10		CHW piping leaks and insulation repair			\$1,496,000			
D3050.10		HHW piping leaks and insulation repair			\$2,244,000			
D3030.70		Computer room air conditioning			\$220,000			
D3030.70		Telephone room air conditioning			\$33,000			
D3050.90		Control valves replacements			\$467,500			
D3050.90		EMS connections for AHUs			\$280,500			
D3050.90		EMS system upgrade			\$1,215,500			
D3030.10		Replace Cooling Tower			\$495,000			
D3030.10		Replace chillers			\$5,500,000			
D3050.30		Replace steam boilers			\$935,000			

	D3050.10	New DDC VAV double duct mixing boxes and thermostats		\$165,000		
	D3050.50	New DDC VAV single duct reheat coil terminal air units and		\$220,000		
	D3050.50	Exhaust fan replacement/exhaust duct cleaning		\$37,400		
	D3050.50	Air humidifiers replacements		\$467,500		
	D3060.00	Galvanized sheet metal ductwork clean and reconfigure		\$2,244,000		
	D3030.70	Condenser water pumps replacements with VFDs		\$55,000		
	D3020.10	HHW heat exchangers		\$110,000		
D40	FIRE PROTECTION	170,000	SF		\$1,716,000	\$10.09
	D4010.10	Provide Full Coverage Fire Sprinkler System		\$1,496,000		
	D4010.10	Replace fire pump		\$220,000		
D50	ELECTRICAL	170,000	SF		\$11,126,500	\$65.45
	D5020.10	Power distribution - 1965 construction normal power switchgear replacement		\$748,000		
	D5020.30	Switchboards and panelboards replacement		\$374,000		
	D5030.10	Power circuitry		\$280,500		
	D5030.90	Power distribution - plumbing rework / shielding to protect electrical equipment		\$467,500		
	D5010.10	Power distribution - upgrade emergency power system		\$561,000		
	D5040.00	Lighting - controls / fixture upgrades		\$5,610,000		
	D6010.00	Data system / network - cabling renovation at IDF cabinets		\$1,870,000		
	D6060.10	Audio/visual		\$93,500		
	D7030.10	CCTV camera (video surveillance)		\$1,122,000		
E	EQUIPMENT & FURNISHINGS				\$22,000	\$0.13
E10	EQUIPMENT	170,000	SF			
E20	FURNISHINGS	170,000	SF		\$22,000	\$0.13
	E2010.30	Lower counter height		\$22,000		
	E2050.30	Provide Accessible Seating in Theatre				
F	SPECIAL CONSTRUCTION & DEMOLITION				\$721,325	\$4.24
F10	SPECIAL CONSTRUCTION	170,000	SF			
F20	SELECTIVE BUILDING DEMOLITION	170,000	SF		\$721,325	\$4.24
	F2010.20	Abate floor tile		\$94,875		
	F2010.20	Abate steam piping insulation		\$28,050		
	F2010.20	Abate hot water piping insulation		\$37,400		
	F2010.20	Abate structural steel beam and column fire proofing		\$561,000		
G	SITework					
G10	SITE PREPARATION	63,700	SF			
G20	SITE IMPROVEMENTS	63,700	SF			
G30	SITE MECHANICAL UTILITIES	63,700	SF			
G40	SITE ELECTRICAL UTILITIES	63,700	SF			
G90	OTHER SITE CONSTRUCTION	63,700	SF			
1	SUB-TOTAL DIRECT COST			\$50,187,753	\$50,187,753	\$295.22
DIRECT-COST ADJUSTMENTS						
	DESIGN SCOPE CONTINGENCY	20.0%			\$10,037,551	\$59.04
	SUB-TOTAL				\$60,225,304	\$354.27
2	SUBTOTAL ADJUSTED DIRECT COST				\$60,225,304	\$354.27
GC MARK-UPS						
	GC's, GEN REQUIREMENTS, & INDIRECTS	10.0%			\$6,022,530	\$35.43
	SUB-TOTAL				\$66,247,834	\$389.69
	GC PROFIT	6.0%			\$3,974,870	\$23.38
	SUB-TOTAL				\$70,222,704	\$413.07
	BOND	3%			\$2,047,659	\$12.05
3	TOTAL CONSTRUCTION COST				\$72,270,363	\$425.12
	SOFT COST - ALLOWANCE	30.00%			\$21,681,108.88	\$127.54
4	TOTAL CONSTRUCTION COST w/Escalation				\$93,951,472	\$552.66
	ESCALATION	16.07%			\$15,100,612.18	\$88.83
5	TOTAL REFURBISHING BUDGET				\$109,052,084	\$641.48

UNIFORMAT REPLACEMENT COST SUMMARY - B. HAMMER BUILDING

ELEMENT	NUMBER	TITLE/DESCRIPTION	AREA	UNIT COST	TOTAL COST	SUBTOTAL	\$/SF	SITE
						69,000	SF	48,100
A		SUBSTRUCTURE						
A10		FOUNDATIONS	37,000	SF				
A20		BASEMENT CONSTRUCTION	37,000	SF				
B		SHELL				\$5,687,825	\$82.43	
B10		SUPERSTRUCTURE	69,000	SF		\$2,342,725	\$33.95	
	B1010.20	Repair concrete floors in corridors and utility rooms			\$41,800			
	B1080.10	Install compliant Stair Landing Barrier			\$30,800			
	B1010.30	Repair balcony concrete slabs			\$144,925			
	B1010.10	Seismic Retrofit for 1965 Buildings			\$2,125,200			
B20		EXTERIOR ENCLOSURE	54,000	SF		\$2,927,100	\$42.42	
	B2010.20	Repair Exterior Plaster			\$227,700			
	B2010.10	Repair water damaged Walls / Columns			\$189,750			
	B2010.10	Repair / Replace Ext. Stone Veneer (Marble)			\$910,800			
	B2020.90	Replace Ext. broken glass blocks.			\$189,750			
	B2010.10	Repair / Replace column cladding 20 40-ft Tall			\$374,000			
	B2050.90	Replace door hardware			\$75,900			
	B2050.90	Replace damaged doors			\$37,950			
	B2020.90	Repair Glazing & Gaskets			\$94,600			
	B2080.50	Upgrade Railing to Code Compliant at Balcony			\$143,550			
	B2010.10	Shotcrete Reinforcement at (E) damaged / repaired shear walls			\$683,100			
B30		ROOFING	19,000	SF		\$418,000	\$6.06	
	B3010.50	Replace roof			\$418,000			
C		INTERIORS				\$750,035	\$10.87	
C10		INTERIOR CONSTRUCTION	69,000	SF		\$718,410	\$10.41	
	C1030.90	Replace damaged interior doors			\$113,850			
	C1030.90	Replace interior door hardware			\$75,900			
	C1010.90	Repair penetration in Fire Wall			\$82,500			
	C1070.10	Repair acoustical ceilings			\$101,200			
	C1070.20	Replace concealed spline ceilings			\$241,010			
	C1090.10	Replace Stair Handrails			\$66,000			
	C1090.20	Instal sign package throughout the facility			\$37,950			
C20		STAIRS	69,000	SF				
C30		INTERIOR FINISHES	69,000	SF		\$31,625	\$0.46	
	C2030.75	Replace carpet			\$31,625			
D		SERVICES				\$10,587,940	\$153.45	
D10		CONVEYING	3	EA	\$103,400	\$310,200	\$4.50	
	D1010.10	Replace elevator drives			\$99,000			
	D1010.10	Refurbish elevator cabs			\$66,000			
	D1010.10	Replace controls to be access compliant			\$26,400			
	D1010.10	Replace elevator rails			\$118,800			
D20		PLUMBING	69,000	SF		\$618,310	\$8.96	
	D2010.60	Upgrade Single Use Restrooms			\$16,500			
	D2010.60	Upgrade Drinking Fountains			\$17,600			
	D2010.40	Replace 100% of DCW system in a floor by floor basis			\$227,700			
	D2010.20	Replace the two domestic hot water heat exchangers			\$27,500			
	D2020.30	Replace 10% of W & V system in a floor by floor basis			\$53,130			
	D2010.40	Replace 100% of DHW system in a floor by floor basis			\$189,750			
	D2020.30	Install grease interceptor in both kitchens			\$33,000			
	D2030.20	Replace 10% storm drain system			\$30,360			
	D2030.30	Repipe overflow drains to separate piping systems			\$22,770			
D30		HVAC	69,000	SF		\$4,536,180	\$65.74	
	D3050.50	Air handling unit replacements			\$759,000			
	D3050.10	CHW piping leaks and insulation repair			\$607,200			
	D3050.10	HHW piping leaks and insulation repair			\$910,800			
	D3030.70	Computer room air conditioning			\$82,500			
	D3030.70	Telephone room air conditioning			\$33,000			
	D3050.90	Control valves replacements			\$189,750			
	D3050.90	EMS connections for AHUs			\$113,850			
	D3050.90	EMS system upgrade			\$493,350			
	D3050.10	New DDC VAV double duct mixing boxes and thermostats			\$66,000			
	D3050.50	New DDC VAV single duct reheat coil terminal air units and			\$99,000			
	D3050.50	Exhaust fan replacement/exhaust duct cleaning			\$15,180			
	D3050.50	Air humidifiers replacements			\$189,750			
	D3060.00	Galvanized sheet metal ductwork clean and reconfigure			\$910,800			
	D3030.70	Condenser water pumps replacements with VFDs			\$22,000			
	D3020.10	HHW heat exchangers			\$44,000			

D40	FIRE PROTECTION	69,000	SF		\$607,200	\$8.80
D4010.10	Provide Full Coverage Fire Sprinkler System				\$607,200	
D50	ELECTRICAL	69,000	SF		\$4,516,050	\$65.45
D5020.10	Power distribution - 1965 construction normal power switchgear replacement				\$303,600	
D5020.30	Switchboards and panelboards replacement				\$151,800	
D5030.10	Power circuitry				\$113,850	
D5030.90	Power distribution - plumbing rework / shielding to protect electrical equipment				\$189,750	
D5010.10	Power distribution - upgrade emergency power system (main distribution)				\$227,700	
D5040.00	Lighting - controls / fixture upgrades				\$2,277,000	
D6010.00	Data system / network - cabling renovation at IDF cabinets				\$759,000	
D6060.10	Audio/visual				\$37,950	
D7030.10	CCTV camera (video surveillance)				\$455,400	
E	EQUIPMENT & FURNISHINGS					
E10	EQUIPMENT	69,000	SF			
E20	FURNISHINGS	69,000	SF			
F	SPECIAL CONSTRUCTION & DEMOLITION				\$285,890	\$4.14
F10	SPECIAL CONSTRUCTION	69,000	SF			
F20	SELECTIVE BUILDING DEMOLITION	69,000	SF		\$285,890	\$4.14
F2010.20	Abate floor tile				\$31,625	
F2010.20	Abate steam piping insulation				\$11,385	
F2010.20	Abate hot water piping insulation				\$15,180	
F2010.20	Abate structural steel beam and column fire proofing				\$227,700	
G	SITework					
G10	SITE PREPARATION	48,100	SF			
G20	SITE IMPROVEMENTS	48,100	SF			
G30	SITE MECHANICAL UTILITIES	48,100	SF			
G40	SITE ELECTRICAL UTILITIES	48,100	SF			
G90	OTHER SITE CONSTRUCTION	48,100	SF			
1	SUB-TOTAL DIRECT COST				\$17,311,690	\$250.89
DIRECT-COST ADJUSTMENTS						
	DESIGN SCOPE CONTINGENCY		20.0%		\$3,462,338	\$50.18
	SUB-TOTAL				\$20,774,028	\$301.07
2	SUBTOTAL ADJUSTED DIRECT COST				\$20,774,028	\$301.07
GC MARK-UPS						
	GC's, GEN REQUIREMENTS, & INDIRECTS		10.0%		\$2,077,403	\$30.11
	SUB-TOTAL				\$22,851,431	\$331.18
	GC PROFIT		6.0%		\$1,371,086	\$19.87
	SUB-TOTAL				\$24,222,517	\$351.05
	BOND		3%		\$706,316	\$10.24
3	TOTAL CONSTRUCTION COST				\$24,928,833	\$361.29
	SOFT COST - ALLOWANCE		30.00%		\$7,478,649.94	\$108.39
4	TOTAL CONSTRUCTION COST w/Escalation				\$32,407,483	\$469.67
	ESCALATION		16.43%		\$5,324,014.53	\$77.16
5	TOTAL REFURBISHING BUDGET				\$37,731,498	\$546.83

UNIFORMAT REPLACEMENT COST SUMMARY - C. BING CENTER

ELEMENT	NUMBER	TITLE/DESCRIPTION	AREA	UNIT COST	TOTAL COST	SUBTOTAL	\$/SF	SITE
						59,000	SF	40,300
A		SUBSTRUCTURE						
A10		FOUNDATIONS	31,000 SF					
A20		BASEMENT CONSTRUCTION	31,000 SF					
B		SHELL				5,235,780	\$88.74	
B10		SUPERSTRUCTURE	59,000 SF			\$2,175,250	\$36.87	
	B1010.20	Repair concrete floors in corridors and utility rooms			\$50,050			
	B1080.50	Upgrade Railing to Code Compliant			\$59,400			
	B1080.10	Install compliant Stair Landing Barrier			\$46,200			
	B1010.30	Repair balcony concrete slabs			\$202,400			
	B1010.10	Seismic Retrofit for 1965 Buildings			\$1,817,200			
B20		EXTERIOR ENCLOSURE	42,000 SF			\$2,487,650	\$42.16	
	B2010.20	Repair Exterior Plaster			\$194,700			
	B2010.10	Repair water damaged Walls / Columns			\$162,250			
	B2010.10	Repair / Replace Ext. Stone Veneer (Marble)			\$871,200			
	B2020.90	Replace Ext. broken glass blocks.			\$162,250			
	B2010.10	Repair / Replace column cladding 12 40-ft Tall			\$224,400			
	B2050.90	Replace door hardware			\$64,900			
	B2050.90	Replace damaged doors			\$32,450			
	B2020.90	Repair Glazing & Gaskets			\$75,900			
	B2080.50	Upgrade Railing to Code Compliant at Balcony			\$115,500			
	B2010.10	Shotcrete Reinforcement at (E) damaged / repaired shear walls			\$584,100			
B30		ROOFING	15,000 SF			\$572,880	\$9.71	
	B3010.50	Replace roof			\$330,000			
	B3080.20	Repair Exterior Plaster Soffit at Balcony			\$242,880			
C		INTERIORS				554,490	\$10.08	
C10		INTERIOR CONSTRUCTION	59,000 SF			\$545,490	\$9.25	
	C1030.90	Replace damaged interior doors			\$97,350			
	C1030.90	Replace interior door hardware			\$64,900			
	C1010.90	Repair penetration in Fire Wall			\$66,000			
	C1070.10	Replace acoustical ceilings			\$120,340			
	C1070.20	Replace concealed spline ceilings			\$65,450			
	C1090.10	Replace Stair Handrails			\$99,000			
	C1090.20	Instal sign packagethroughout the facility			\$32,450			
C20		STAIRS	59,000 SF					
C30		INTERIOR FINISHES	59,000 SF			\$49,500	\$0.84	
	C2030.75	Replace carpet			\$49,500			
D		SERVICES				8,929,140	\$151.34	
D10		CONVEYING	1 EA	\$103,400		\$103,400	\$1.75	
	D1010.10	Replace elevator drives			\$33,000			
	D1010.10	Refurbish elevator cabs			\$22,000			
	D1010.10	Replace controls to be access compliant			\$8,800			
	D1010.10	Replace elevator rails			\$39,600			
D20		PLUMBING	59,000 SF			\$631,510	\$10.70	
	D2010.60	Upgrade Single Use Restrooms			\$99,000			
	D2010.60	Upgrade Drinking Fountains			\$13,200			
	D2010.40	Replace 100% of DCW system in a floor by floor basis			\$194,700			
	D2010.20	Replace the two domestic hot water heat exchangers			\$16,500			
	D2020.30	Replace 10% of W & V system in a floor by floor basis			\$45,430			
	D2010.40	Replace 100% of DHW system in a floor by floor basis			\$162,250			
	D2020.30	Install grease interceptor in both kitchens			\$55,000			
	D2030.20	Replace 10% storm drain system			\$25,960			
	D2030.30	Repipe overflow drains to separate piping systems			\$19,470			
D30		HVAC	59,000 SF			\$3,813,480	\$64.64	
	D3050.50	Air handling unit replacements			\$649,000			
	D3050.10	CHW piping leaks and insulation repair			\$519,200			
	D3050.10	HHW piping leaks and insulation repair			\$778,800			
	D3030.70	Computer room air conditioning			\$55,000			
	D3030.70	Telephone room air conditioning			\$16,500			
	D3050.90	Control valves replacements			\$162,250			

	D3050.90	EMS connections for AHUs		\$97,350		
	D3050.90	EMS system upgrade		\$421,850		
	D3050.10	New DDC VAV double duct mixing boxes and thermostats		\$33,000		
	D3050.50	New DDC VAV single duct reheat coil terminal air units and		\$77,000		
	D3050.50	Exhaust fan replacement/exhaust duct cleaning		\$12,980		
	D3050.50	Air humidifiers replacements		\$162,250		
	D3060.00	Galvanized sheet metal ductwork clean and reconfigure		\$778,800		
	D3030.70	Condenser water pumps replacements with VFDs		\$16,500		
	D3020.10	HHW heat exchangers		\$33,000		
D40		FIRE PROTECTION	59,000 SF		\$519,200	\$8.80
	D4010.10	Provide Full Coverage Fire Sprinkler System		\$519,200		
D50		ELECTRICAL	59,000 SF		\$3,861,550	\$65.45
	D5020.10	Power distribution - 1965 construction normal power switchgear replacement		\$259,600		
	D5020.30	Switchboards and panelboards replacement		\$129,800		
	D5030.10	Power circuitry		\$97,350		
	D5030.90	Power distribution - plumbing rework / shielding to protect		\$162,250		
	D5010.10	Power distribution - upgrade emergency power system		\$194,700		
	D5040.00	Lighting - controls / fixture upgrades		\$1,947,000		
	D6010.00	Data system / network - cabling renovation at IDF cabinets		\$649,000		
	D6060.10	Audio/visual		\$32,450		
	D7030.10	CCTV camera (video surveillance)		\$389,400		
E		EQUIPMENT & FURNISHINGS			\$27,500	\$0.47
E10		EQUIPMENT	59,000 SF			
E20		FURNISHINGS	59,000 SF		\$27,500	\$0.47
	E2050.30	Provide Accessible Seating in Theatre		\$27,500		
F		SPECIAL CONSTRUCTION & DEMOLITION			\$243,100	\$4.12
F10		SPECIAL CONSTRUCTION	59,000 SF			
F20		SELECTIVE BUILDING DEMOLITION	59,000 SF		\$243,100	\$4.12
	F2010.20	Abate floor tile		\$25,685		
	F2010.20	Abate steam piping insulation		\$9,735		
	F2010.20	Abate hot water piping insulation		\$12,980		
	F2010.20	Abate structural steel beam and column fire proofing		\$194,700		
G		SITework				
G10		SITE PREPARATION	40,300 SF			
G20		SITE IMPROVEMENTS	40,300 SF			
G30		SITE MECHANICAL UTILITIES	40,300 SF			
G40		SITE ELECTRICAL UTILITIES	40,300 SF			
G90		OTHER SITE CONSTRUCTION	40,300 SF			
1		SUB-TOTAL DIRECT COST		\$15,030,510	\$15,030,510	\$254.75
DIRECT-COST ADJUSTMENTS						
		DESIGN SCOPE CONTINGENCY	20.0%		\$3,006,102	\$50.95
		SUB-TOTAL			\$18,036,612	\$305.71
2		SUBTOTAL ADJUSTED DIRECT COST			\$18,036,612	\$305.71
GC MARK-UPS						
		GC's, GEN REQUIREMENTS, & INDIRECTS	10.0%		\$1,803,661	\$30.57
		SUB-TOTAL			\$19,840,273	\$336.28
		GC PROFIT	6.0%		\$1,190,416	\$20.18
		SUB-TOTAL			\$21,030,690	\$356.45
		BOND	3%		\$613,244	\$10.39
3		TOTAL CONSTRUCTION COST			\$21,643,934	\$366.85
		SOFT COST - ALLOWANCE	30.00%		\$6,493,180	\$110.05
4		TOTAL CONSTRUCTION COST w/Escalation			\$28,137,114	\$476.90
		ESCALATION	17.74%		\$4,991,249	\$84.60
5		TOTAL REFURBISHING BUDGET			\$33,128,364	\$561.50

UNIFORMAT REPLACEMENT COST SUMMARY - D. ART OF THE AMERICAS BUILDING

ELEMENT	NUMBER	TITLE/DESCRIPTION	AREA	UNIT COST	TOTAL COST	SUBTOTAL	\$/SF	SITE
						90,000	SF	40,300
A		SUBSTRUCTURE						
A10		FOUNDATIONS	31,000	SF				
A20		BASEMENT CONSTRUCTION	31,000	SF				
B		SHELL				\$5,631,890	\$62.58	
B10		SUPERSTRUCTURE	90,000	SF		\$3,579,950	\$39.78	
	B1010.20	Repair concrete floors in corridors and utility rooms			\$84,150			
	B1080.10	Install compliant Stair Landing Barrier			\$30,800			
	B1010.10	Seismic Retrofit -Upgrade Structural Steel Joints			\$3,465,000			
B20		EXTERIOR ENCLOSURE	59,200	SF		\$1,589,940	\$17.67	
	B2010.20	Repair Exterior Plaster			\$297,000			
	B2010.10	Repair water damaged Walls / Columns			\$247,500			
	B2010.10	Repair / Replace Ext. Stone Veneer						
	B2020.90	Replace Ext. broken glass blocks.			\$247,500			
	B2010.10	Repair / Replace column cladding						
	B2050.90	Replace door hardware			\$99,000			
	B2050.90	Replace damaged doors			\$49,500			
	B2020.90	Repair Glazing & Gaskets			\$99,000			
	B2010.10	Remove rust spots from Porcelain metal panel backing and			\$517,440			
	B2080.50	Upgrade Railing to Code Compliant			\$33,000			
B30		ROOFING	21,000	SF		\$462,000	\$5.13	
	B3010.50	Replace roof			\$462,000			
C		INTERIORS				\$1,249,710	\$13.89	
C10		INTERIOR CONSTRUCTION	90,000	SF		\$1,077,560	\$11.97	
	C1030.90	Replace damaged interior doors			\$148,500			
	C1030.90	Replace interior door hardware			\$99,000			
	C1010.90	Repair penetration in Fire Wall			\$59,400			
	C1070.10	Replace acoustical ceilings			\$157,740			
	C1070.20	Replace concealed spline ceilings			\$497,420			
	C1090.10	Replace Stair Handrails			\$66,000			
	C1090.20	Instal sign package throughout the facility			\$49,500			
C20		STAIRS	90,000	SF				
C30		INTERIOR FINISHES	90,000	SF		\$172,150	\$1.91	
	C2030.75	Replace carpet			\$172,150			
D		SERVICES				\$14,231,800	\$158.13	
D10		CONVEYING	2	EA	\$103,400	\$206,800	\$2.30	
	D1010.10	Replace elevator drives			\$66,000			
	D1010.10	Refurbish elevator cabs			\$44,000			
	D1010.10	Replace controls to be access compliant			\$17,600			
	D1010.10	Replace elevator rails			\$79,200			
D20		PLUMBING	90,000	SF		\$909,700	\$10.11	
	D2010.60	Upgrade Single Use Restrooms			\$132,000			
	D2010.60	Upgrade Drinking Fountains			\$17,600			
	D2010.40	Replace 100% of DCW system in a floor by floor basis			\$297,000			
	D2010.20	Replace the two domestic hot water heat exchangers			\$33,000			
	D2020.30	Replace 10% of W & V system in a floor by floor basis			\$69,300			
	D2010.40	Replace 100% of DHW system in a floor by floor basis			\$247,500			
	D2020.30	Install grease interceptor in both kitchens			\$44,000			
	D2030.20	Replace 10% storm drain system			\$39,600			
	D2030.30	Repipe overflow drains to separate piping systems			\$29,700			
D30		HVAC	90,000	SF		\$6,267,800	\$69.64	
	D3050.50	Air handling unit replacements			\$990,000			
	D3050.10	CHW piping leaks and insulation repair			\$792,000			
	D3050.10	HHW piping leaks and insulation repair			\$1,188,000			
	D3030.70	Computer room air conditioning			\$220,000			
	D3030.70	Telephone room air conditioning			\$33,000			
	D3050.90	Control valves replacements			\$247,500			
	D3050.90	EMS connections for AHUs			\$148,500			
	D3050.90	EMS system upgrade			\$643,500			
	D3050.10	New DDC VAV double duct mixing boxes and thermostats			\$165,000			
	D3050.50	New DDC VAV single duct reheat coil terminal air units and			\$220,000			
	D3050.50	Exhaust fan replacement/exhaust duct cleaning			\$19,800			

	D3050.50	Air humidifiers replacements		\$247,500		
	D3060.00	Galvanized sheet metal ductwork clean and reconfigure		\$1,188,000		
	D3030.70	Condenser water pumps replacements with VFDs		\$55,000		
	D3020.10	HHW heat exchangers		\$110,000		
D40		FIRE PROTECTION	90,000 SF		\$957,000	\$10.63
	D4010.10	Provide Full Coverage Fire Sprinkler System		\$792,000		
	D4010.10	Replace fire pump		\$165,000		
D50		ELECTRICAL	90,000 SF		\$5,890,500	\$65.45
	D5020.10	Power distribution - normal power switchgear replacement		\$396,000		
	D5020.30	Switchboards and panelboards replacement		\$198,000		
	D5030.10	Power circuitry		\$148,500		
	D5030.90	Power distribution - plumbing rework / shielding to protect		\$247,500		
	D5010.10	Power distribution - upgrade emergency power system		\$297,000		
	D5040.00	Lighting - controls / fixture upgrades		\$2,970,000		
	D6010.00	Data system / network - cabling renovation at IDF cabinets		\$990,000		
	D6060.10	Audio/visual		\$49,500		
	D7030.10	CCTV camera (video surveillance)		\$594,000		
E		EQUIPMENT & FURNISHINGS				
E10		EQUIPMENT	90,000 SF			
E20		FURNISHINGS	90,000 SF			
F		SPECIAL CONSTRUCTION & DEMOLITION			\$388,438	\$4.32
F10		SPECIAL CONSTRUCTION	90,000 SF			
F20		SELECTIVE BUILDING DEMOLITION	90,000 SF		\$388,438	\$4.32
	F2010.20	Abate floor tile		\$56,788		
	F2010.20	Abate steam piping insulation		\$14,850		
	F2010.20	Abate hot water piping insulation		\$19,800		
	F2010.20	Abate structural steel beam and column fire proofing		\$297,000		
G		SITework				
G10		SITE PREPARATION	40,300 SF			
G20		SITE IMPROVEMENTS	40,300 SF			
G30		SITE MECHANICAL UTILITIES	40,300 SF			
G40		SITE ELECTRICAL UTILITIES	40,300 SF			
G90		OTHER SITE CONSTRUCTION	40,300 SF			
1		SUB-TOTAL DIRECT COST		\$21,501,838	\$21,501,838	\$238.91
DIRECT-COST ADJUSTMENTS						
		DESIGN SCOPE CONTINGENCY	20.0%	\$4,300,368	\$47.78	
		SUB-TOTAL		\$25,802,205	\$286.69	
2		SUBTOTAL ADJUSTED DIRECT COST		\$25,802,205	\$286.69	
GC MARK-UPS						
		GC's, GEN REQUIREMENTS, & INDIRECTS	10.0%	\$2,580,221	\$28.67	
		SUB-TOTAL		\$28,382,426	\$315.36	
		GC PROFIT	6.0%	\$1,702,946	\$18.92	
		SUB-TOTAL		\$30,085,371	\$334.28	
		BOND	3%	\$877,274	\$9.75	
3		TOTAL CONSTRUCTION COST		\$30,962,645	\$344.03	
		SOFT COST - ALLOWANCE	30.00%	\$9,288,794	\$103.21	
4		TOTAL CONSTRUCTION COST w/Escalation		\$40,251,439	\$447.24	
		ESCALATION	27.20%	\$10,950,192	\$121.67	
5		TOTAL REFURBISHING BUDGET		\$51,201,631	\$568.91	

UNIFORMAT REPLACEMENT COST SUMMARY - E. DECK AND COURT YARD											
ELEMENT	NUMBER	TITLE/DESCRIPTION	AREA	UNIT COST	TOTAL COST	SUBTOTAL	\$/SF	SITE	\$/SF	TOTAL	\$/SF
						\$5,720	SF	\$5,720	SF		
A		SUBSTRUCTURE									
A10		FOUNDATIONS	55,720 SF								
A20		BASEMENT CONSTRUCTION	55,720 SF								
B		SHELL				\$996,050	\$17.88			\$996,050	\$17.88
B10		SUPERSTRUCTURE	55,720 SF			\$420,750	\$7.55			\$420,750	\$7.55
B1010.90		Remove and Install New Seismic Joints		\$420,750							
B20		EXTERIOR ENCLOSURE	55,720 SF								
B30		ROOFING	55,720 SF			\$575,300	\$10.32			\$575,300	\$10.32
B3040.90		Install New Waterproofing system at Courtyard & Balcony		\$575,300							
C		INTERIORS									
C10		INTERIOR CONSTRUCTION	55,720 SF								
C20		STAIRS	55,720 SF								
C30		INTERIOR FINISHES	55,720 SF								
D		SERVICES				\$474,727	\$8.52			\$474,727	\$8.52
D10		CONVEYING	2 EA	\$220,000		\$440,000	\$7.90			\$440,000	\$7.90
D1010.30		Repair Escalators		\$440,000							
D20		PLUMBING	55,720 SF								
D30		HVAC	55,720 SF								
D40		FIRE PROTECTION	55,720 SF			\$34,727	\$0.62			\$34,727	\$0.62
D4010.10		Check Fire Sprinkler System at Courtyard Skylights		\$34,727							
D50		ELECTRICAL	55,720 SF								
E		EQUIPMENT & FURNISHINGS									
E10		EQUIPMENT	55,720 SF								
E20		FURNISHINGS	55,720 SF								
F		SPECIAL CONSTRUCTION & DEMOLITION									
F10		SPECIAL CONSTRUCTION	55,720 SF								
F20		SELECTIVE BUILDING DEMOLITION	55,720 SF								
G		SITework						\$5,108,995	\$91.69	\$5,108,995	\$91.69
G10		SITE PREPARATION	55,720 SF								
G20		SITE IMPROVEMENTS	55,720 SF					\$3,265,334	\$58.60	\$3,265,334	\$58.60
G2030.10		Remove existing waterproofing & Repair concrete floors at Courtyard					\$ 255,640				
G2030.30		Upgrade Railing to Code Compliant at Grand Entry					\$ 231,000				
G2030.30		Upgrade Stair Grand Entry					\$ 188,100				
G2030.10		Remove and Install New Pavers at Courtyard and Balcony					\$ 1,725,900				
G2060.40		Repair metal canopy rusted framing, clean Kalwall panels and paint metal framing members at Courtyard					\$ 434,088				
G2060.30		Install sign package throughout the facility					\$ 30,646				
G2065.25		Repair perimeter planters					\$ 93,500				
G2030.00		Replace damaged walks					\$ 306,460				
G30		SITE MECHANICAL UTILITIES	55,720 SF					\$1,402,848	\$25.18	\$1,402,848	\$25.18
G3030.40		Replace site storm drain piping					\$ 306,460				
G3010.30		Replace Fire Line Piping (80 LF, 6")					\$ 61,600				
G3010.30		Replace Fire Double Detector Check Valve (6")					\$ 11,000				
G3010.10		Replace Domestic Water Line (200 LF, 6")					\$ 154,000				
G3020.30		Replace Sanitation Line (750 LF, 8")					\$ 825,000				
G3020.50		Replace Clean outs					\$ 26,400				
G3030.40		Repipe overflow drains to separate piping systems					\$ 18,388				
G40		SITE ELECTRICAL UTILITIES	55,720 SF					\$440,814	\$7.91	\$440,814	\$7.91
G4010.50		Power circuitry					\$ 91,938				
G4010.50		Power distribution - upgrade emergency power system (main distribution)					\$ 61,292				
G4050.90		Lighting - controls / fixture upgrades					\$ 122,584				
D5030.00		Fire Alarm System					\$ 165,000				
G90		OTHER SITE CONSTRUCTION	55,720 SF								
1		SUB-TOTAL DIRECT COST			\$1,470,777	\$1,470,777	\$26.40	\$5,108,995	\$91.69	\$6,579,772	\$118.09
DIRECT-COST ADJUSTMENTS											
		DESIGN SCOPE CONTINGENCY	20.0%		\$294,155	\$5.28		\$1,021,799	\$18.34	\$1,315,954	\$23.62
		SUB-TOTAL			\$1,764,932	\$31.68		\$6,130,794	\$110.03	\$7,895,727	\$141.70
2		SUBTOTAL ADJUSTED DIRECT COST			\$1,764,932	\$31.68		\$6,130,794	\$110.03	\$7,895,727	\$141.70
GC MARK-UPS											
		GC's, GEN REQUIREMENTS, & INDIRECTS	10.0%		\$176,493	\$3.17		\$613,079	\$11.00	\$789,573	\$14.17
		SUB-TOTAL			\$1,941,426	\$34.84		\$6,743,874	\$121.03	\$8,685,299	\$155.87
		GC PROFIT	6.0%		\$116,486	\$2.09		\$404,632	\$7.26	\$521,118	\$9.35
		SUB-TOTAL			\$2,057,911	\$36.93		\$7,148,506	\$128.29	\$9,206,417	\$165.23
		BOND	3%		\$60,008	\$1.08		\$208,447	\$3.74	\$268,455	\$4.82
3		TOTAL CONSTRUCTION COST			\$2,117,919	\$38.01		\$7,356,953	\$132.03	\$9,474,872	\$170.04
		SOFT COST - ALLOWANCE	30.00%		\$635,375.65	\$11.40		\$2,207,086	\$39.61	\$2,842,461	\$51.01
4		TOTAL CONSTRUCTION COST w/Escalation			\$2,753,294	\$49.41		\$9,564,039	\$171.64	\$12,317,333	\$221.06
		ESCALATION	20.01%		\$550,841.30	\$9.89		\$1,913,441	\$34.34	\$2,464,283	\$44.23
5		TOTAL REFURBISHING BUDGET			\$3,304,136	\$59.30		\$11,477,480	\$205.98	\$14,781,616	\$265.28

6.0 Exhibits

EXHIBIT 1: GENERAL COST SUMMARY
EXHIBIT 1.A: AHMANSON BUILDING
EXHIBIT 1.B: HAMMER BUILDING
EXHIBIT 1.C: BING CENTER
EXHIBIT 1.D: ART OF AMERICA BUILDING
EXHIBIT 1.E: TOTALS AND COMMON ELEMENTS
EXHIBIT 1.F: REPLACEMENT COSTS
EXHIBIT 1.G: DEMOLITION COSTS

EXHIBIT 2: UNIFORMAT REPLACEMENT COST SUMMARY

EXHIBIT 3: BUILDING AREA TABULATIONS

EXHIBIT 4: REPRESENTATIVE PHOTOS

EXHIBIT 5: GEOTECHNICAL HAZARDS

EXHIBIT 6: REFERENCE DOCUMENTS

7.0 Appendices

APPENDIX A: EPLAN REPORT

APPENDIX B: BUILDING EVALUATION MATRIX

APPENDIX C: PHOTO LOG

APPENDIX D: KEY PLANS



Exhibit 3 - Building Area Tabulations

AHMANSON BUILDING (AHM) (1965)

Des.	Level	Owen Gross Areas	Owen Tabulated Areas (Approx.)	Gallery	Office	Conservation Lab	Research Lab	Stairs	Lobby	Elevator Lobby	Exit Corridor
A	Level 1	49,000	41,500	9,500	1,300	-	-	1,100	-	150	5,200
A	Level 2	41,000	29,500	21,500	-	-	-	35	-	-	350
A	Level 3	39,000	28,000	26,000	-	-	-	-	-	-	800
A	Level 4	32,000	24,500	12,500	650	-	-	-	-	-	100
A	Penthouse	9,300	9,300	-	-	-	-	-	-	-	-
Total		170,000	133,000	69,500	1,950	-	-	1,135	-	150	6,450

HAMMER BUILDING (HAM) (1965)

B	Level 1	37,000	30,500	-	5,100	8,600	2,200	-	-	100	4,300
B	Level 2	13,000	11,000	7,700	-	-	-	-	-	300	-
B	Level 3	19,000	15,000	12,000	650	-	-	-	-	30	100
Total		69,000	56,500	19,700	5,750	8,600	2,200	-	-	430	4,400

BING CENTER (LBC) (1965)

C	Level 1	31,000	24,500	-	8,500	-	-	150	-	-	2,300
C	Level 2	13,000	9,900	-	-	-	-	-	900	-	950
C	Level 3	15,000	7,900	-	500	-	-	475	-	-	225
Total		59,000	42,500	-	9,000	-	-	625	900	-	3,475

ART OF THE AMERICAS BUILDING (AOA) (1988)

D	Level 1	31,000	22,500	-	7,600	-	-	350	-	200	3,000
D	Level 2	19,000	13,500	11,500	-	-	-	-	1,300	45	-
D	Level 3	19,000	13,500	8,300	-	-	-	-	1,300	-	-
D	Level 4	21,000	14,500	11,500	-	-	-	-	1,500	-	150
Total		90,000	64,000	31,300	7,600	-	-	350	4,100	245	3,150
Grand Total		388,000	296,000	121,000	24,500	8,600	2,200	2,100	5,000	850	17,500

AHMANSON BUILDING (AHM) (1965)

Corridor	Men Restroom	Women Restroom	Maintenance	Loading Dock Shipping / Receiving	Storage / Archive	Cat Walk	Construction Room	Eq. Room	Unspecified	Theater	Library	Projection Room	Brown Auditorium
1,300	375	550	1,800	4,100	9,800	-	-	5,400	-	-	-	-	-
7,100	150	325	-	-	125	-	-	-	-	-	-	-	-
1,000	-	-	-	-	400	-	-	-	-	-	-	-	-
1,400	175	-	5,200	-	4,600	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	4,700	4,600	-	-	-	-
10,800	700	875	7,000	4,100	14,925	-	-	10,100	4,600	-	-	-	-

HAMMER BUILDING (HAM) (1965)

550	15	125	475	-	7,900	-	1,000	-	-	-	-	-	-
-	-	-	20	-	350	-	-	-	-	-	-	-	-
800	-	-	-	-	1,000	-	-	-	-	-	-	-	-
1,350	15	125	495	-	9,250	-	1,000	-	-	-	-	-	-

BING CENTER (LBC) (1965)

700	100	300	225	-	1,600	-	-	-	-	-	4,200	-	6,500
-	-	-	-	-	90	-	-	-	-	5,600	-	-	-
500	-	150	175	-	1,100	3,000	-	1,500	-	-	-	225	-
1,200	100	450	400	-	2,790	3,000	-	1,500	-	5,600	4,200	225	6,500

ART OF THE AMERICAS BUILDING (AOA) (1988)

6,900	-	-	550	-	4,100	-	-	-	-	-	-	-	-
275	-	-	-	-	375	-	-	-	-	-	-	-	-
-	-	-	15	-	750	-	-	-	-	-	-	-	-
-	200	-	25	-	425	-	-	-	-	-	-	-	-
7,175	200	-	590	-	5,650	-	-	-	-	-	-	-	-

20,500 1,000 1,500 8,500 4,100 32,500 3,000 1,000 11,500 4,600 5,600 4,200 225 6,500



Los Angeles
County Museum of
Art (aerial view),
1965. Photo ©
Museum
Associates/LACMA.

Photo from LACMA
website.

LACMA – Site History

A-001



Los Angeles
County Museum of
Art – Google Earth

LACMA - Overview

A-002

EXHIBIT 4 – Representative Photos



Overview, Ahmanson Building A-003

AHM, East Side

Overview of Ahmanson building from the East side.



Overview, Hammer Building A-004

HAM, North Side

Overview of the Hammer building from the North side.



Overview, Bing Theatre A-005

BING, South Side

Overview of the Bing Theatre from the South side.

EXHIBIT 4 – Representative Photos



Overview, Art of the Americas Building A-006

AOA, West Side

Overview of Art of Americas building from the West side.



General Balcony A-007

Typical Balcony Rails

Picture of the typical balcony rails at the podium level.



General - Skylights A-008

Typical skylights

Picture of the typical skylight system install over the patio area.

EXHIBIT 4 – Representative Photos



Sump pump

A-009

A roof drain leak is causing continuous flooding problems. A sump pump has been installed to mitigate the issues.



Pipe penetrations at fire rated walls

A-010

Several mechanical pipes penetrate through fire rated walls without the proper fire caulking.



Cracks in Concrete Slab

A-011

Cracks in Concrete Slab

Diagonal cracks in the concrete slab found throughout corridors and utility rooms.

EXHIBIT 4 – Representative Photos

Damaged Column

The concrete is spalling at the columns.



Spalling Column A-012

Deteriorated Column Enclosure

Marble cladding is falling off of building.



Deteriorated Column Enclosure A-013

Cracks in Concrete Slab

Balcony concrete slabs have developed numerous cracks



Cracks in Balcony Slab A-014

EXHIBIT 4 – Representative Photos



Roof Flashing

A-015

Roofing flashing and water proofing are in poor condition



Loading dock doors

A-016

Loading dock metal doors are in poor condition



Exterior Walls

A-017

Extensive staining on exterior walls

EXHIBIT 4 – Representative Photos

Extensive water intrusion and rust damage has been a continuing problem from the plaza level.



Water intrusion and rust damage A-018

Level 2 Plaza pavers and water proofing are in poor condition. This situation has caused significant damages to the lower level.



Loading dock doors A-019

Concrete column encasements are cracked and spalling.



Concrete columns A-020

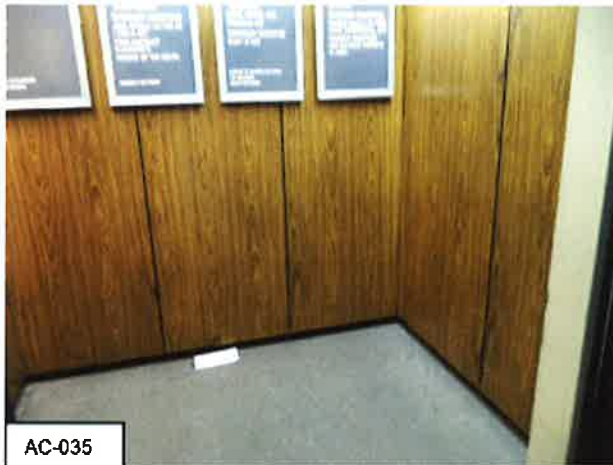
EXHIBIT 4 – Representative Photos

Mechanical louvers located above the gift shop are damaged and need to be replaced.



Roof Flashing A-021

Elevator doors, cabs, controls, corridor carpeting, paint and finishes are old in fair condition and require refurbishment throughout.



Loading dock doors A-022

There are cracks on the balcony cement plaster soffits.



Balcony Cement Plaster – cracking A-023

EXHIBIT 4 – Representative Photos



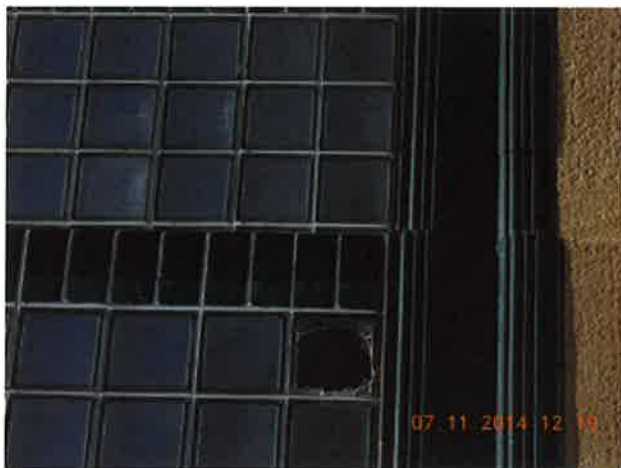
Column Base –
stains and cracking A-024

Wilshire Boulevard main entrance canopy column concrete bases including ceramic tiles cladding have developed numerous cracks and rust stain marks.



Water Fountain A-025

Water fountain marble tiles have developed extensive efflorescence stain marks all around.



Water Fountain A-026

Walls glass blocks are broken and cracked at several locations.

EXHIBIT 4 – Representative Photos



Porcelain/metal panels

A-027

Porcelain/metal panels are damaged with rust spots all around the building.



Skylight panels

A-028

Wilshire Boulevard main entrance metal canopy with translucent Kalwall panels are in poor condition and need extensive maintenance.



Skylight panels

A-029

There are several rooftop skylights in poor condition and require extensive repair, glazing, frames, flashing and waterproofing.

EXHIBIT 4 – Representative Photos

Original Equipment Elevators



Ahmanson Building Elevator

A-30

Original Equipment Elevators



Hammer Building Elevator

A-031

Original Equipment Escalators



Hammer Building Escalators

A-032

EXHIBIT 4 – Representative Photos



Bing Center Elevator

A-033

Original Equipment Elevator



Art of the Americas Elevator

A-034

Original Equipment Freight Elevator



Ahmanson Building Elevator Cab

A-035

Original Equipment Elevator

Finishes are old and damaged

EXHIBIT 4 – Representative Photos

Obsolete Relay-Logic Elevator Controls



Ahmanson Building

A-036

Upgraded Hydraulic Controls



Art of the Americas Elevator Hydraulics

A-037

Obsolete Relay-Logic Elevator Controls



Art of the Americas

A-038

EXHIBIT 4 – Representative Photos



Roofing

WI-001

This picture shows the overall Ahmanson building penthouse roof with the Sprayed Polyurethane Foam with Coating.



Roofing

WI-002

This picture shows a close up of one of numerous large blisters in foam, split and fractured blisters, degraded coating. Ahmanson Bldg Penthouse

This is a Sprayed Polyurethane Foam with Coating.



This picture shows the building roof system which is a cold-tar pitch system and is no longer in standard use.

Roofing, flashing and waterproofing are in poor condition and at the end of expected life.

Roofing should be replaced on all buildings in the near term.

EXHIBIT 4 – Representative Photos

Roofing

WI-003



Degraded sealant at flashings, degraded sealant at surface mounted counter flashing, roof cement repairs at base flashings

Roofing

WI-004



Severe grease contamination on roof system over cafe

Roofing

WI-005



Degraded sealant at flashings, degraded sealant at surface mounted counter flashing, roof cement repairs at base flashings

Roofing should be replaced on all buildings in the near term.

Roofing

WI-006

EXHIBIT 4 – Representative Photos



Wall Cladding

WI-007

Degraded sealant in wall cladding - both concrete/stone and metal panels



Wall Cladding

WI-008

Degraded sealant in wall cladding - both concrete/stone and metal panels



There are numerous areas of rust, particularly at the top of the panels where there is a flat eyebrow panel that caps the top of the porcelain panels.

Wall Cladding

WI-009



The integral gutter systems for the skylights have failed, and intruding water is damaging the skylight substructure.

This picture shows column base tiles have cracks, water and rust stain marks.

Rust Stains from Column – Sky lights

WI-010



This picture shows the deterioration of the skylight gutter wells.

Skylight – gutter well

WI-011



Translucent polycarbonate panels with internal grids.

Rust at areas below gutters on steel framing and columns. Rust on wall panels at joint below some of the gutter sections.

Skylight Panels

WI-012

EXHIBIT 4 – Representative Photos

Water Damage in lower levels

WI-013

This picture shows the water damage in the lower levels due to the water leaking from the plaza level.

The waterproofing system of plaza is a cold-tar patch membrane and is outdated and no longer used as construction methods and beyond the end of expected useful life.



Plaza Level – Leaking Water

WI-014

This picture shows plastic tarps used to collect the intruding water.

Water leaks to lower level areas from the plaza are reported to be a continuing problem.



Sump Pump

WI-015

This picture shows a sump pump the staff installed in the Ahmanson building floor slab.

Flooding continues to be a problem most likely due to a broken roof drain downspout in the exterior planter.

EXHIBIT 4 – Representative Photos

Restrooms

AC-001

Many of the existing restrooms have been remodeled to provide greater accessibility dimensions that meet current requirements.

Corrections are needed to some fixtures and dispensers. Corrections are needed to some elements including additional ambulatory stall, grab bar heights, accessories heights and type, clear knee space, toilet location in respect to adjacent wall, counter heights, partition door arrangement, door hardware, and other similar items.

This picture shows counter heights that are not accessible.



Restrooms

AC-002

This picture shows partition panels side stiles are 6" when 4" max is specified.

Modification to the partition panels required to provide side stiles at the accessible stall which are 4" max in width.



Drinking Fountains

AC-003

Drinking fountains at several locations are not code complaint. Modification require including adding signage and barrier rails, replace existing units with Hi/Lo ADA units for facility update.

EXHIBIT 4 – Representative Photos



Stairs - Handrails

AC-004

This picture shows handrails do not provide the required level extensions at the top and bottom.



Stairs - Handrails

AC-005

This picture shows non-conforming handrails

Diameter - Gripping surface not compliant.

Guards not provided at open sides of stair.

Level extensions are not conforming



Ticket Counter

AC-006

Not all counters are compliant for height.
Height varies due to ground surface slope.

EXHIBIT 4 – Representative Photos

There are locations of broken concrete and joint gaps that are not compliant.



Restrooms

AC-007



Restrooms

AC-008

Each exit access door from an interior room or area to a corridor or hallway shall be identified by a tactile exit sign with the words "EXIT ROUTE."



Elevators

AC-009

Elevators are not ADA compliant

Buttons and Emergency phones are not compliant for height.

Handrails are not provided at the back wall

EXHIBIT 4 – Representative Photos



Domestic Water and Fire

C-001

The domestic water and fire services are from LADWP from Wilshire Blvd.

This picture shows the vaults for a dual 2-inch meters which are manifolded together to a 6-inch water line. There is also the Post Indicator Valve (PIV) for the fire service.

Current health codes and water district requirements have above ground backflow prevention for all water services.

The current backflow preventers are either buried or do not exist and most likely do not meet current requirements.



Fire Department Connection (FDC)

C-002

The fire department connection is a dry standpipe on the AOA Building adjacent to Wilshire Blvd



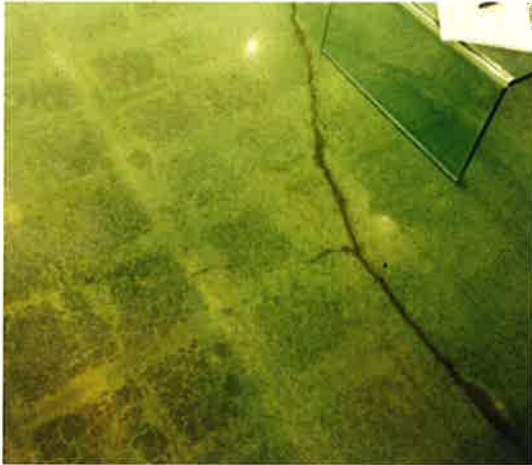
City Sewer and Storm Drain

C-003

The City's sanitary sewer and storm drain lines were relocated through this easement when Ogden was abandoned in the last expansion project.

Any building structures over this easement are generally not allowed.

EXHIBIT 4 – Representative Photos

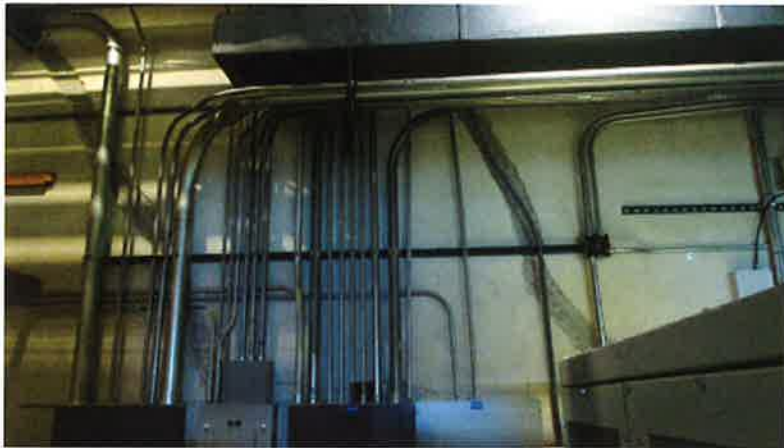


Footing Cracks

S-001

Cracks in Mat Foundation

Several cracks were observed in the mat foundation of the Ahmanson Building.



Major Seismic Crack & Repair

S-002

Major Seismic Crack & Repair, Shear Wall, Transformer Room

Seismic cracks observed in the walls adjacent to the Transformer Room of the Ahmanson Building.



Shear Wall Crack Repair (Lvl 1)

S-003

Shear Wall Crack Repairs, 1st Floor Ahmanson

Several diagonal cracks and repairs were observed in the walls at the corner of the Ahmanson Building 1st Floor.

EXHIBIT 4 – Representative Photos



Shear Wall Crack Repair (Lvl 2)

S-004

Shear Wall Crack Repairs, 2nd Floor
Ahmanson

Several diagonal cracks and repairs were observed in the walls at the corner of the Ahmanson building 2nd floor.



External Shell Cracks

S-005

Cracks in the External Shell, 2nd Floor,
Ahmanson Extension

Several cracks in the external shell of the Ahmanson extension were observed at the 2nd floor.



Cracked Column Cladding

S-006

Cracked Column Cladding, Hammer

Several cracks were observed in the column cladding of the Hammer building.

EXHIBIT 4 – Representative Photos



Cracked Column

S-007

Spalling Column, Hammer, 2nd Level, North

Columns show signs of cracking



Displaced Canopy Connection

S-008

Displaced Canopy Connection, Hammer

Bent / displaced bolts were observed at the canopy connection at the roof of the Hammer building.



Cracks in Roof Slabs & Pads

S-009

Roof Slab Cracking

Cracks were observe in the pads and slab at the main roof of the Ahmanson building.

EXHIBIT 4 – Representative Photos

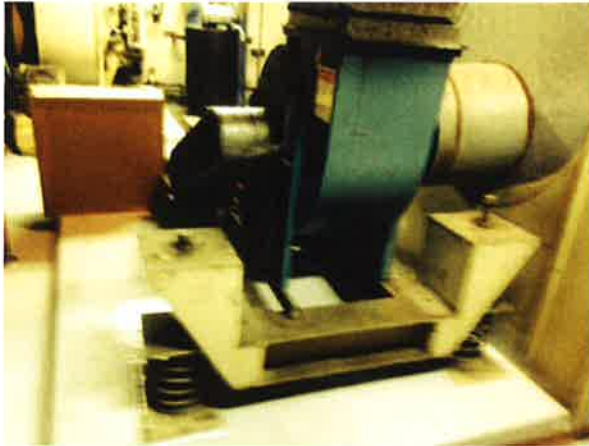


Partial Column Support

S-010

Partially supported 40 ft Column

Heavily clad, 40 ft columns were observed supporting the canopy.

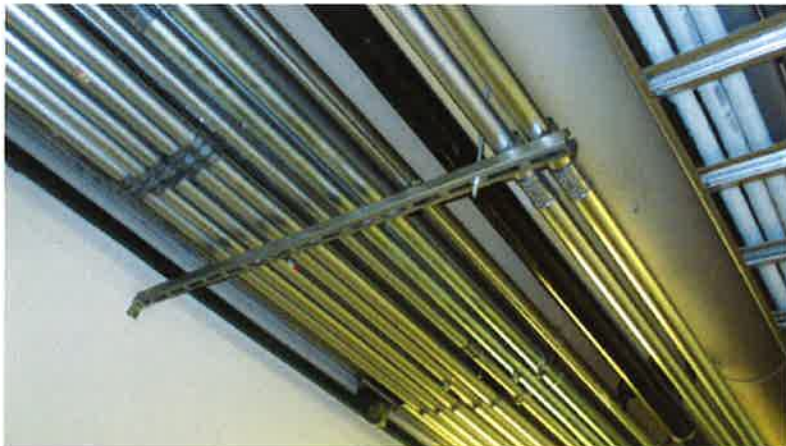


Unrestrained Mechanical Equipment

S-011

Unrestrained Mechanical Equipment

Several isolated equipment was observed without lateral restrains.



Unbraced Utility Pipes

S-012

Unbraced Utility Pipes

Several utility pipes, ducts, and raceways were observed without lateral bracing.

EXHIBIT 4 – Representative Photos

Steam Boiler

M-001

Steam Boilers: These have been retrofitted to meet current AQMD air quality requirements.

However, further retrofit will not be possible to meet more stringent AQMD requirements expected in 5 years.

Heating Hot Water (HHW)
Heat exchangers

M-002

This picture shows a steam to heating hot water heat exchanger that is ceiling mounted.

These are in fair condition.

There is not a way to remove the heating bundle, without removing the entire heat exchanger.

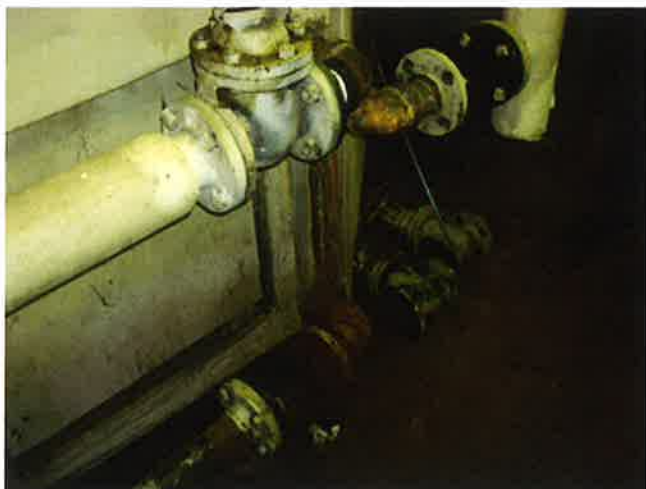


Steam Humidifiers

M-003

This picture shows an electric humidifier shut off and non-operational.

EXHIBIT 4 – Representative Photos



HHW piping disconnect

M-004

This picture shows the HHW piping in poor condition and is disconnected from the steam humidifier unit.



HHW Piping

M-005

This picture shows a steam humidifier that is shut off and non-operational.



HHW Piping

M-006

HHW Piping: Water leaking from HHW water piping.

This picture shows water being captured by a tarp and drain hose.

EXHIBIT 4 – Representative Photos

This picture shows a steam-to-DHW heat exchanger in fair condition.



Electrical Distribution Equipment M-007



Condensate piping M-008

Condensate Water supply and return piping is in fair condition



CHW piping - insulation M-009

Chilled water distribution piping: Insulation is in poor condition

EXHIBIT 4 – Representative Photos



Cooling Tower

M-010

Cooling Towers: This picture shows the cooling towers on the Ahmanson Addition central plant.

These cooling towers are in poor condition



Cooling Towers – standing water

M-011

Cooling Towers: Algae build up on and in the tower basin.

There was a lot of standing water on the roof around the towers

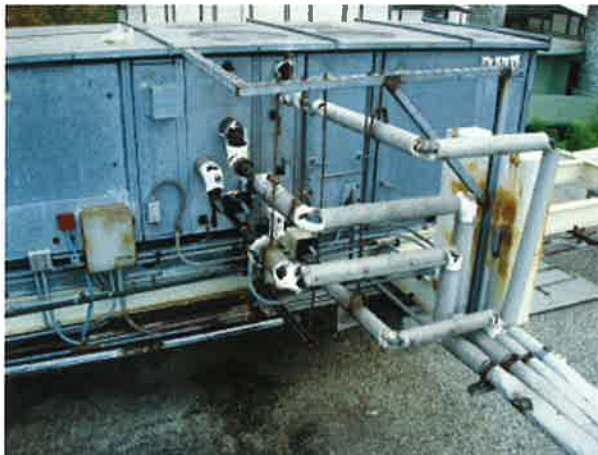


Cooling Towers – standing water

M-012

Cooling Towers: This picture shows that there is a lot of standing water on the roof around the cooling tower due to poor drains and drain lines.

EXHIBIT 4 – Representative Photos



Air Handlers

M-013

Air Handling Units: The existing air handling systems are old and obsolete - in age, condition, and technology. All air handling units (AHUs) are in poor condition and are past their expected useful lives.



07.28.2014 11:27

Air Handlers

M-014

Air Handling Units: This picture shows an air handler unit on the Bing Building.



Air Dampers – non-operational

M-015

Air Handlers: All of the outside air dampers (there are no economizer systems) are stuck in the closed position.

EXHIBIT 4 – Representative Photos

Air Handler Units: Return fan motor and fan wheel are not aligned and is not operational.



Air Handler return air fan

M-016



Evaporator cooler – non-operational

M-017

This picture shows a non-operational evaporator cooler.

EXHIBIT 4 – Representative Photos



Dry stand pipe on roof

FP-001

There is no fire sprinkler system in these buildings.

This picture shows a dry stand pipe (D.S.P) on roof.



Fire Hoes Cabinet

FP-002

This picture shows a fire hose cabinet that is in fair good condition.

There are several Fire Hose Cabinets that need to relocate because they do not have clear access path to it.



Stairway fire hose connection

FP-003

There is a 2 1/2" fire hose connection at each landing in each stairway in Building A

All buildings need a sprinkler system installed with any major renovation.

EXHIBIT 4 – Representative Photos



Skylight fire sprinkler system

FP-004

The only existing sprinkler system is in the skylights.

All buildings need a sprinkler system installed with any major renovation.



Leaking wet standpipe

FP-005

Water is leaking from this wet standpipe fire hose connection on Building C.



Hose connection
standpipe

FP-006

This standpipe needs to be relocated.

There is no clear path to here.

EXHIBIT 4 – Representative Photos



Main gas service

P-001

The main gas meter is at the loading dock of the Ahmanson Bldg loading dock



Medium pressure gas piping

P-002

Medium pressure gas supply to existing boilers are in good condition



Water supply to boilers

P-003

Water Supply piping to boilers

EXHIBIT 4 – Representative Photos

This drain pipe is leaking



Drain pipe

P-004

Existing floor sink need to be replaced and the drain pipe from this floor sink needs to be fixed and un-clogged.



Clogged Floor Sink Drain

P-005

Condensate pipe sloping in the wrong direction.



Condensate piping

P-006

EXHIBIT 4 – Representative Photos

Roof Drains

P-007

An existing roof drain dome is broken and need to replace with new on Building A
New overflow storm drain with 2" water
dame need to install right at above of all
existing overflow storm drain pipes.



Roof Drains

P-008

Over flow storm drains need to be installed
2" above finished roof right at the existing
drain pipes. Building B.



Roof drains

P-009

The existing storm drains on roof of Building
C are in good condition. However, a new
overflow storm drain with 2" water dome
need to install right at above of all existing
overflow storm drain pipes up 2" above
finish roof

EXHIBIT 4 – Representative Photos

Electrical Service and meter

E-001

The primary electrical service supplied to the building is by LADWP, via a 12Kv utility vault located adjacent to the electrical room on the first floor.

Ahmanson Building Electrical meter panel



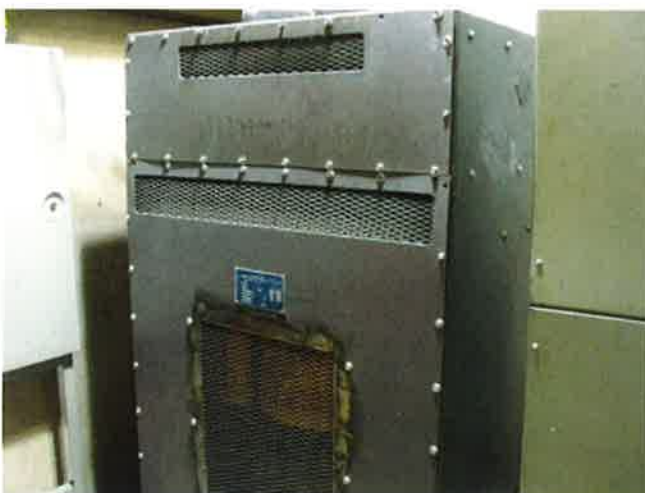
Building - Substation - -T-1

E-002

Sub-stations: The substations are 50 years old. Replacement parts are no longer available and need be replaced with new as recommended.

Various transformers have overheated and recently been replaced. Some are running high above their temperature rating and being cooled by fans. Many unit substations and distributions in the electrical rooms are violating the working clearance per the electrical code and emergency access doors.

This picture shows a 500KVA, 4160V.-120/208v, 3 phase indoor unit substation "T-1" in the Ahmanson Building



Building A - Sub-Station - T-2

E-003

This picture shows a 500KVA, 4160V.-120/208v, 3 phase indoor unit substation "T-2" in the Ahmanson Building

This picture also shows the limited safe working space between the equipment.

EXHIBIT 4 – Representative Photos

Building A - Sub-Station - T-3

E-004

This picture shows one of the two (2) 750KVA, 4160V.-480v, 3 phase indoor unit substation "T-3" located at the roof penthouse mezzanine level electrical room.



Ahmanson Addition – Electrical Service and Meter

E-005

Sub-stations: This picture shows the electrical meter along with the indoor 2000KVA, 4160V unit substation "TTR-1" with the main primary disconnect switch and utility metering, 4160V distribution with (2) two fuse disconnect switches connected to other buildings and a 4160V-480v, 3 phase oil filled transformer, including all associated low voltage distributions, panelboards and motor control centers.



Ahmanson Addition - Sub-Station – TTR-2

E-006

This picture shows the 750KVA, 4160-480v, 3 phase indoor unit substation "TTR-2" with a main disconnect switch, including all associated low voltage distributions, panelboards and motor control center located at the roof penthouse electrical room.

EXHIBIT 4 – Representative Photos

Building B - Substation T-4 and T-5 E-007

This picture shows one of the two unit substations "T-4"

"T-4" is a 225KVA, 4160V-480V unit substation with the main primary disconnect switch and utility metering. "T-5" is 400KVA, 4160V-120/208V distribution with all associated low voltage distributions, panelboards and motor control centers.



Building C - Substation T-7 E-008

Sub-stations: This picture shows unit substation "T-7" is a 300KVA, 4160V-208/120V wye unit substation in the Bing Building.



Building D - Substation T-8 E-009

This picture shows the 500KVA 4160V-120/208V oil type unit substation "T-A" with a main load break switch. Oil type unit substation "T-B" is a 500KVA 4160-480/277V.

EXHIBIT 4 – Representative Photos

Indoor Emergency Generator – Building D E-010

Emergency Power - Generators:

Emergency power is provided for the buildings with small diesel fueled generators which date from the original construction and have exceeded expected useful life.

Replace with system re-design in near term to provide reliable emergency power system for the buildings.

This picture shows emergency Generator G-3, 150 kw.



Indoor Emergency Generator - Ahmanson E-011

This picture shows emergency generator set "G-1" 82KW-120/208V, 3 Phase, 4 wire, located at the first floor Generator Room with a 20 gallon fuel tank capacity.



Outdoor Emergency Generator – Ahmanson addition E-012

This emergency generator set and transfer switch including all associated distribution panels and remote annunciator control panels are 30 years old and there is no future expansion power capacity.

This picture show the emergency generator G-2, 50 kw.

EXHIBIT 4 – Representative Photos

Electrical Distribution Equipment

E-013

Many power outlets, especially in the kitchen, electrical and mechanical rooms, are smoked indicating evidence of short circuits.

Also, as shown in this picture, many outlets do not have cover plates with exposed wires.



Light fixture

E-014

Various stairwell and path of egress lighting do not have adequate lighting levels and illuminated exit signs throughout the building.



Light fixture

E-015

A majority of fixtures are incandescent or old fluorescent systems which are not energy efficient and require high levels of maintenance.

Replace with system redesign in near term to provide energy efficient, maintainable systems meeting current standards.

EXHIBIT 4 – Representative Photos

Electrical Distribution Equipment

E-016

The main telephone VOIP (Voice over Internet) system consists of two (2) components - one current hi-tech Shoiotel system, using Cat -5 cabling; and another old PBX (NEC) systems controls, using RJ6 cabling.

Data systems consist of a main terminal cabinet (MDF) and subcabinets (LDF), including fiber and Cat-5 cabling.

Main services are with AT&T and Zayo (LAN) or Content companies.



PBX Systems

E-017

This picture shows old telephone PBX systems which are old and not current.



Security Systems

E-018

Security systems were installed nearly 7 years ago. Fire alarm and public address systems were installed in June of 2013. There are no deficiencies reported (by the main director of central security personnel).

- Partial As-Builts for 1965 Design for:
 - Ahmanson Building
 - Hammer Building
 - Bing Theatre[Missing Structural Detail Booklet Referenced in Structural Plans]
- Complete As Builts for 1984, Design for
 - Art of the Americas Buiding
- Ove Aurup & Partners California Ltd., “Los Angeles County Museum of Art, Central Plant Feasibility Study, Feasibility Report,” September 26, 2003.
- Charles E. Pound, PE, Sr. VP of Metcalf & Eddy, Letter to Gerard P. Smith, Finance and Operations Officer, George C. Page Museum La Brea Discoveries, Natural History Museum of Los Angeles County. “Suggestions for Oily Water Management at the George C. Page Museum,” dated March 16, 2001.
- Law/Crandall, “Final Report Geotechnical Inspection Services Additions to Hancock Park,” Project 70144-8-201, dated January 20, 2000.
- The City of Los Angeles Department of Public Works Bureau of Engineering, “Initial Study for Ogden Drive Vacation (LACMA Improvement Project),” dated March 2005.



Exhibit 3 - Building Area Tabulations

AHMANSON BUILDING (AHM) (1965)

Café	Retail Store	Ticket Booth	Patio	Bridge
-	800	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	800	-	-	-

HAMMER BUILDING (HAM) (1965)

-	-	-	-	-
700	1,500	250	-	-
-	-	-	275	-
700	1,500	250	275	-

BING CENTER (LBC) (1965)

-	-	-	-	-
2,200	-	-	200	-
-	-	-	-	-
2,200	-	-	200	-

ART OF THE AMERICAS BUILDING (AOA) (1988)

-	-	-	-	-
-	-	-	-	-
-	-	-	2,500	800
-	-	-	800	-
-	-	-	3,300	800
2,900	2,300	250	3,800	800

Geotechnical Hazard Summary

Attached are the current Quadrangle Maps (Fault Hazard, Liquefaction & Earthquake Hazard), and are consistent with the following information is based on our review of a Report of Preliminary Geotechnical Recommendations prepared by URS Corporation in November 2003 for the separately entitled BCAM building at LACMA.

Seismicity: No known active faults cross the project site, and the site is not located in an Alquist-Priolo Fault Study Zone. The nearest active seismic sources are the Hollywood Fault located approximately 2 miles to the northwest, the Newport-Inglewood Fault approximately 2.5 miles to the southwest, and the Verdugo Fault approximately 9 miles to the northeast; the potentially active Santa Monica Fault is located approximately 1.3 miles to the northwest.²⁰ Similar to other development throughout the City of Los Angeles, the project would be subject to seismic risks such as severe seismic shaking in case of a seismic event. No known active faults cross the project site, however faults in the region are capable of considerable seismic activity.

Liquefaction: Liquefaction is a form of earthquake-induced ground failure that occurs primarily in relatively shallow, loose, granular, water-saturated soils. Groundwater has been encountered in the past as shallow as 4 to 6.5 feet; borings in 2003 found groundwater at depths of 30 to 42 feet, with perched groundwater at 16 to 20 feet.

Despite the potential for relatively shallow groundwater levels, the on-site soils have a low susceptibility for liquefaction, and the potential for liquefaction is considered remote. With adherence to applicable safety requirements, the existing buildings should not expose people or structures to substantial adverse effects associated with seismic-related ground failure, including liquefaction.

Land sliding: The project site and nearby properties area are generally flat. Available geologic maps of the project area, including the State of California Seismic Hazard Zones Map and the City's Parcel Profile Report, do not indicate past or potential landslides on the project site.

Expansive Soil: Expansive soils are typically associated with fine-grained clayey soils that have the potential to shrink and swell with repeated cycles of wetting and drying. Based on the geotechnical studies conducted throughout the LACMA Campus and the presence of tar-impregnated soils, the potential for soil expansion is considered low.

Attachments:

- Fault Hazard Map, Hollywood Quadrangle
- Liquefaction & Earthquake Induced Landslide Map, Hollywood Quadrangle







Los Angeles County
Department of Public Works

*Los Angeles County Museum of Art
Building Evaluation*

Ahmanson | Hammer | Bing | Art of the Americas

Report Appendices

September 16, 2014



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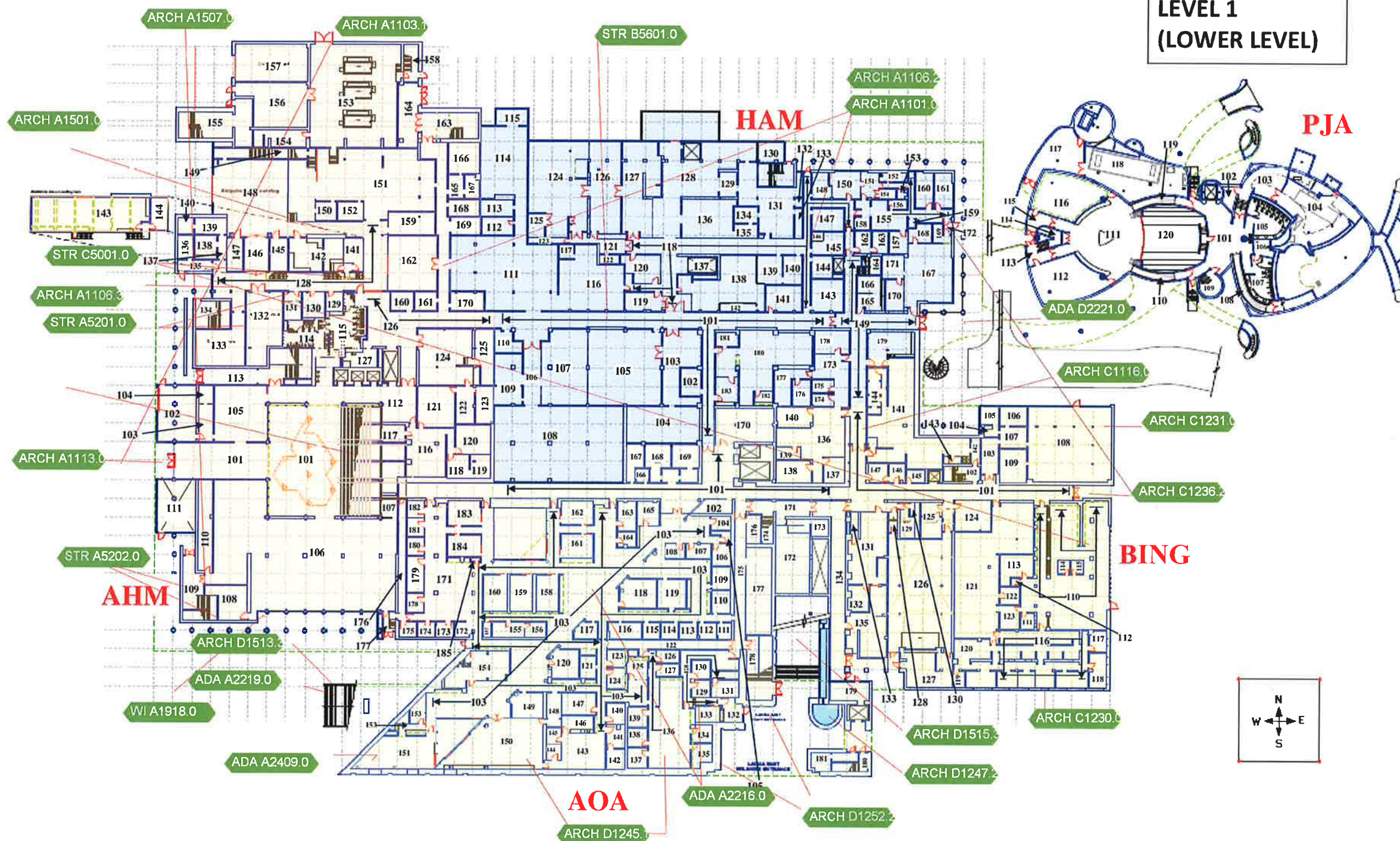




Assessment Report

Project: 0813.2103.051- LACMA
Drawing: 1- Group 1 Level 1
Description:
Phase: Final Submittal
Report Date: 09-15-14

LEVEL 1 (LOWER LEVEL)



Los Angeles County Museum of Art
Ahmanson Hammer
Bing Art of the Americas

Building Evaluation

- A1101 Asbestos floor tiles
- A1103.1 water leak and rust
- A1103.2 water leak and rust
- A1103.3 water leak and rust
- A1103.4 water leak and rust
- A1104 Mechanical piping
- A1105 Concrete pad
- A1106.1 Mechanical piping
- A1106.2 Mechanical piping
- A1106.3 Mechanical piping
- A1106.4 Openings
- A1107 Asbestos ceiling
- A1108 water leak and
- A1109 Concrete slab
- A1110.1 Openings
- A1110.2 Openings
- A1111 Framing, tiles and light fixture
- A1112 Plumbing fixtures
- A1113 Finish Hardware
- A1208 Cement plaster
- A1213 Cement plaster
- A1221 concrete column
- A1223 concrete columns
- A1501 Railings
- A1502 Railings
- A1503 Railings
- A1504 Railings
- A1505 Shaft wall
- A1506 Railings
- A1507 Railings
- A1508.1 Railings
- A1508.2 Railings
- A1918 Center glazed storefront, anodized finish, 12'-0" tall, 6 each column to column like at the 2nd floor.
- A5201 Repaired diagonal cracks in walls at the transformer room
- A5202 Repaired diagonal cracks in walls at the corner walls
- A2601 Handrails
- A2002 Power Door Push
- A2201 Lavatory Counter
- A2202 Dispensers
- A2203 Stall Doors
- A2204 Coat Hooks
- A2205 WC

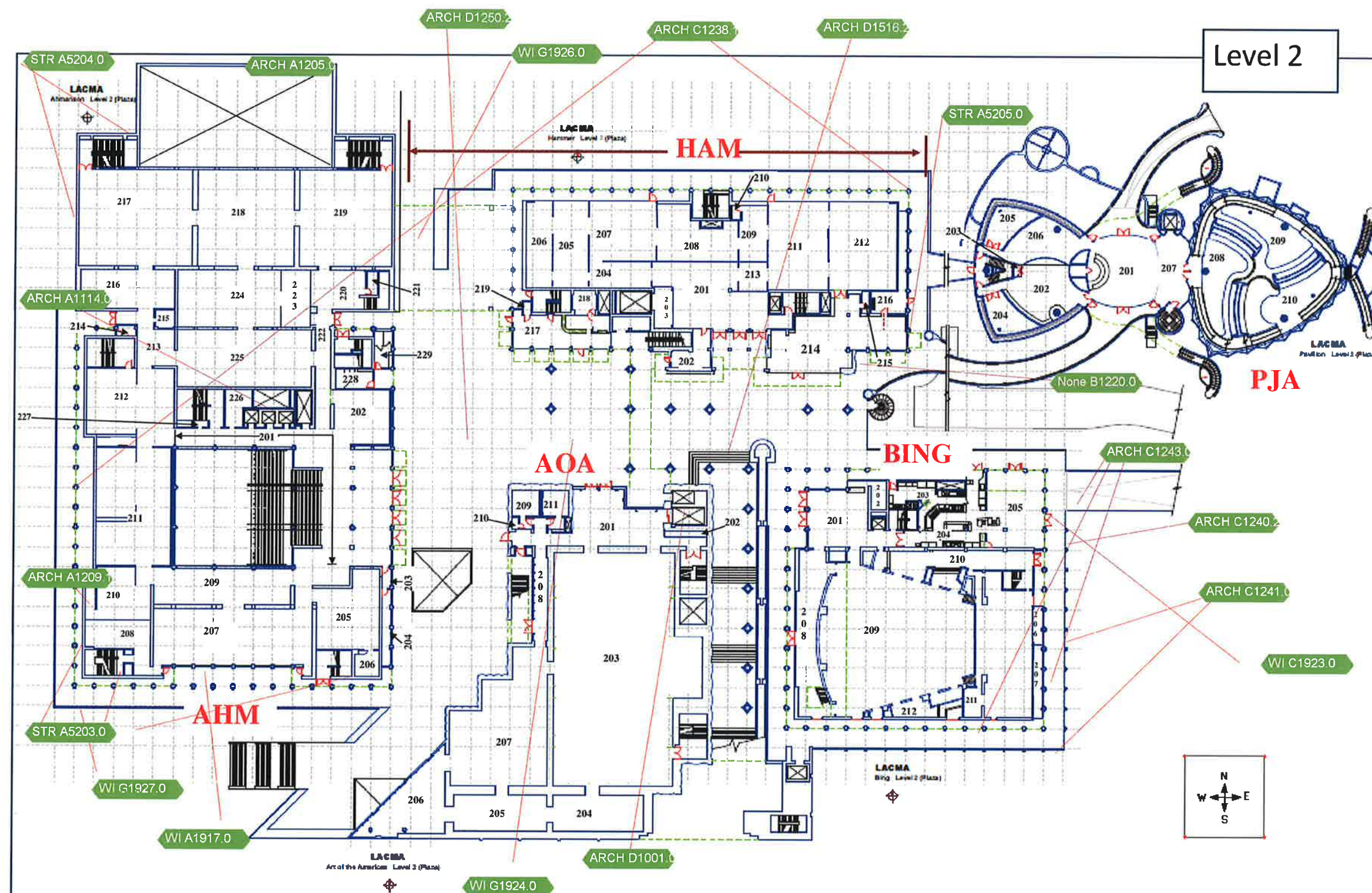
APPENDIX A A-1 of 11

ePA Assessment Report

Project: 0813.2103.051- LACMA
Drawing: 1- Group 1 Level 2
Description:
Phase: Final Submittal
Report Date: 09-15-14

- A1114 Doors, cabin, controls, railings and signage
- A1115 Interior wall wood panels and signage
- A1201 concrete columns cracks and spalling
- A1202 Stone veneer
- A1203 Curtainwall glazing and gaskets
- A1204 Cement plaster and
- A1205 Hollow metal doors and louvers
- A1206 Concrete pavers and
- A1209.1 Stone veneer
- A1209.2 Stone veneer
- A1214.1 Path of egress
- A1214.2 Path of egress
- A1250.1 Concrete pavers
- A1917 6 each full height curtain walls. Anodized aluminum storefront type framing. Tubular horizontals and verticals with applied stops. Same system as Bing Center Lobby Entry. Very faded finish. Large (1 1/4") perimeter caulk
- A5203 Repaired diagonal cracks in shear walls at the south
- A5204 Cracks in external
- A5205 cracks in column cladding at Hammer
- B1220 Metal louvers
- B1229 Metal canopy with
- C1234 cement plaster
- C1235 concrete pavers and
- C1236.1 Plaster soffit
- C1238.1 concrete column
- C1238.2 concrete column
- C1240.1 concrete slab
- C1240.2 concrete railings
- C1241 Gaps
- C1242.1 cement plaster / concrete columns
- C1242.2 cement plaster / concrete columns
- C1243 concrete slab
- C1923 coal tar pitch water proofing system with concrete topping

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Los Angeles County Museum of Art
Ahmanson Hammer
Bing Art of the Americas

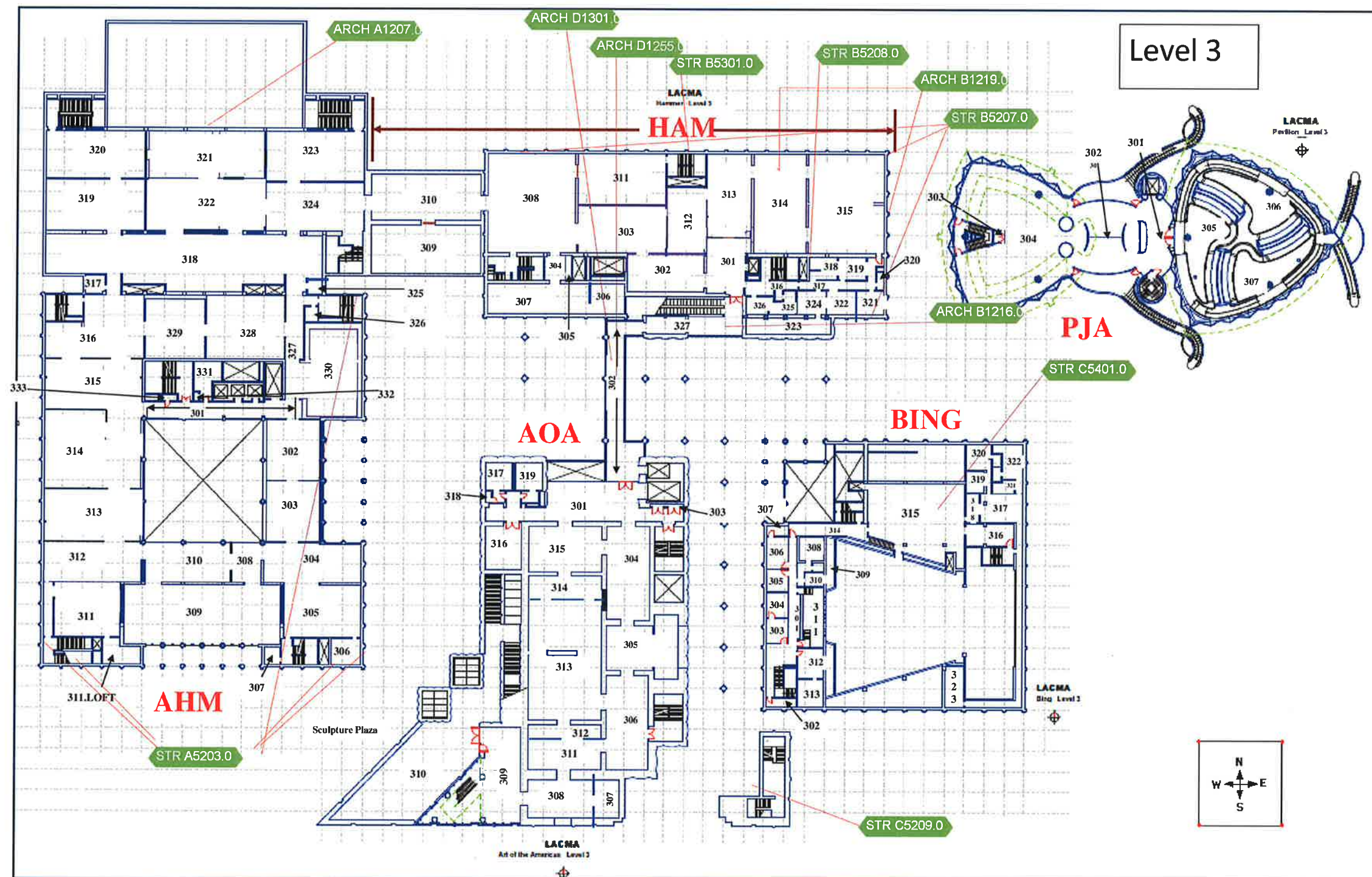
Building Evaluation



Assessment Report

Project: 0813.2103.051- LACMA
Drawing: 1- Group 1 Level 3
Description:
Phase: Final Submittal
Report Date: 09-15-14

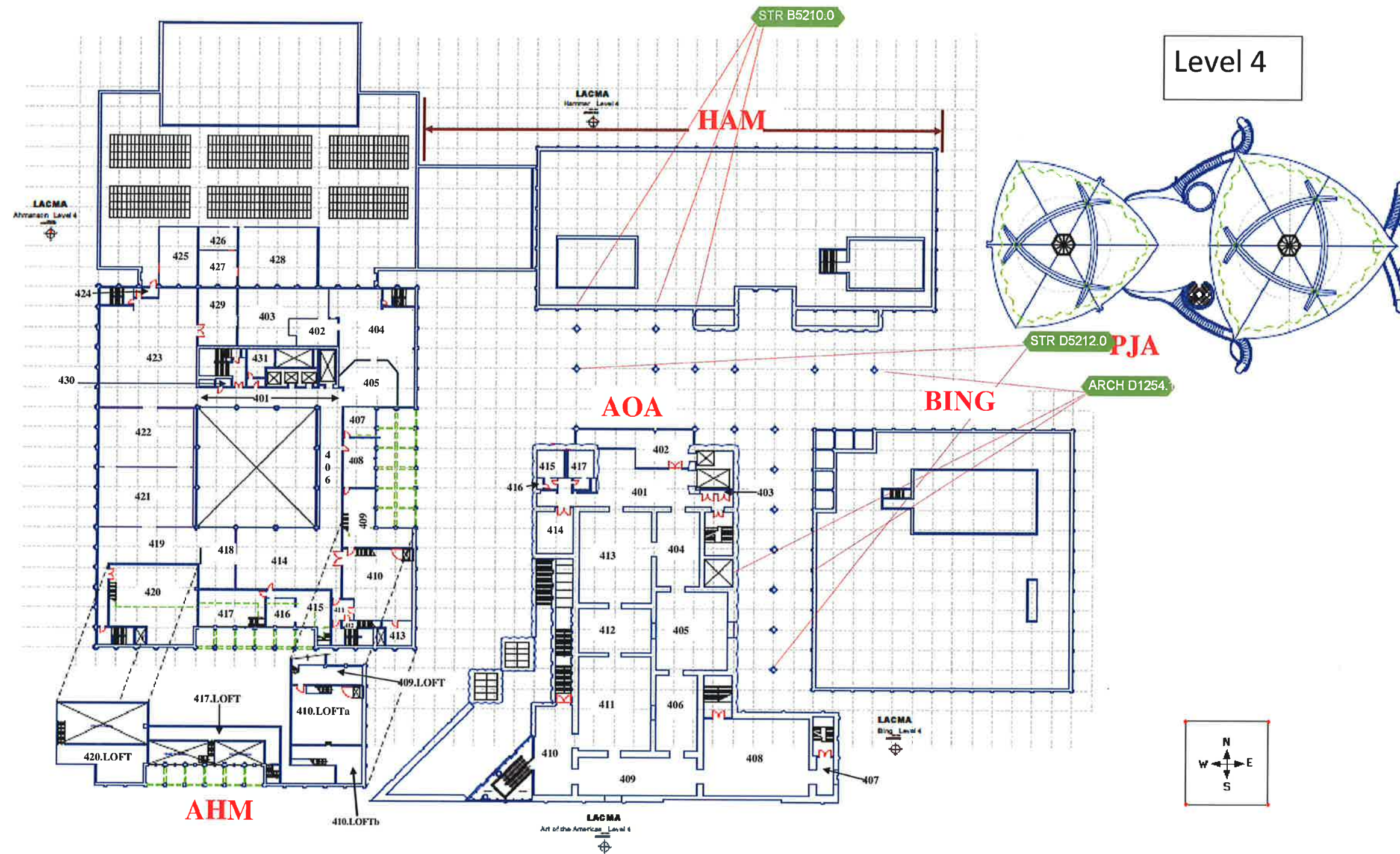
- A1207 Cement plaster mold
- A1226 Cracks and
- A5203 Repaired diagonal cracks in shear walls at the south curtainwall glazing &
- B1215 Railings
- B1217.1 Cracks and spalling
- B1217.2 Cracks and spalling
- B1218 Cracks and
- B1219 Stone veneer
- B1224 Cracks and spalling
- B1225 Cracks and spalling
- B5207 Discontinued shear walls at the corners of Hammer
- B5208 Cracks in the shear
- B5301 Spalled/cracked column in hammer
- C5209 Arts of the Americas Building significant diaphragm opening and discontinuity
- C5401 Not sufficiently retrained pump and mechanical equipment
- D1253 Mullions
- D1255 Carpet / Paint
- D1301 Railings
- D1302 Metal guardrails



Los Angeles County Museum of Art
Ahmanson Hammer
Bing Art of the Americas

Building Evaluation

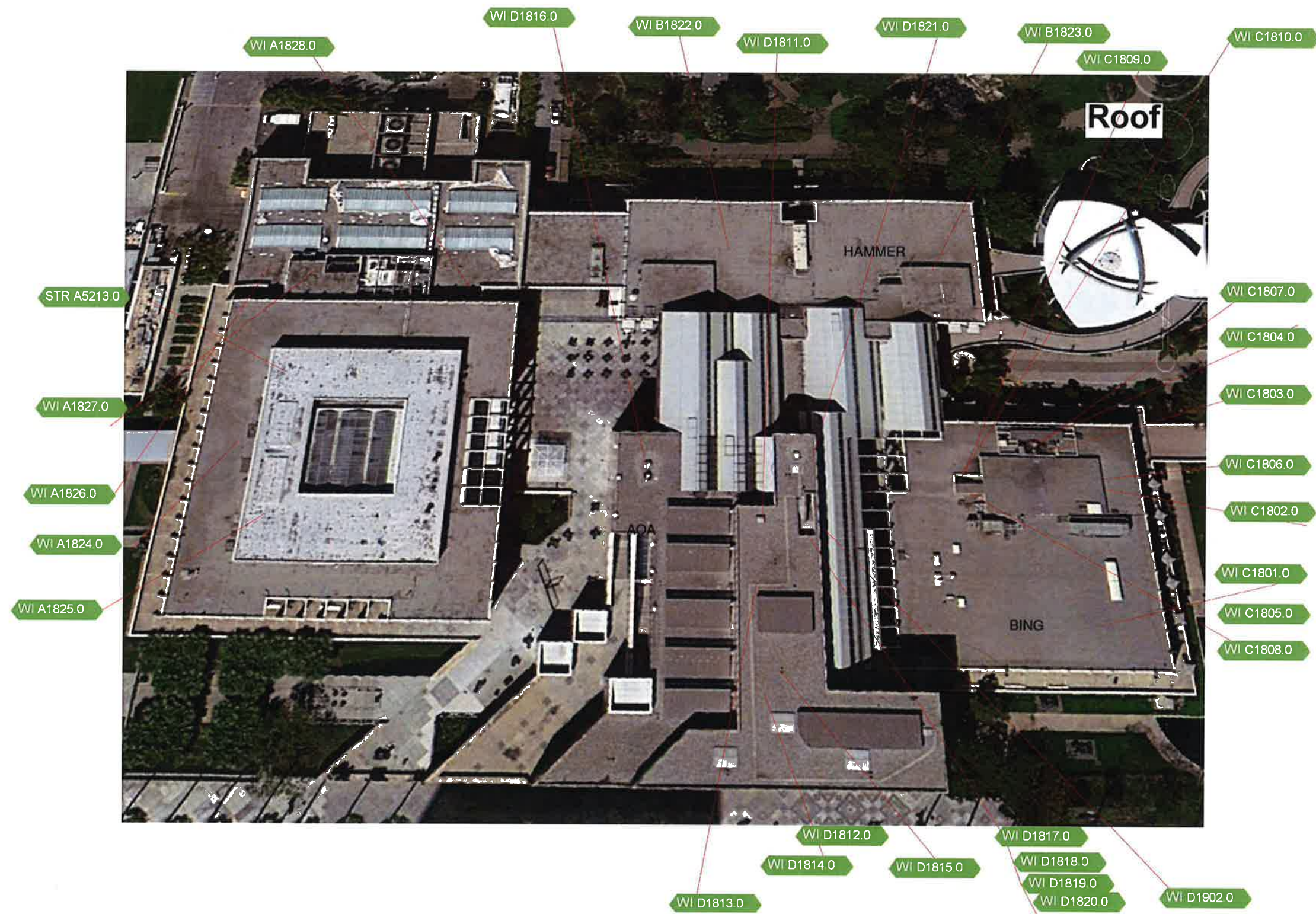
APPENDIX A A-3 of 11



- B6210** Displaced/deformed connection of new steel canopy to the roof at hammer
- D1254.1** Metal canopy with Kalwall panels and
- D1254.2** Metal canopy with Kalwall panels and
- D1254.3** Metal canopy with Kalwall panels and
- D1254.4** Metal canopy with Kalwall panels and
- D5212** Partially supported 40-ft tall columns with heavy cladding

Los Angeles County Museum of Art
 Ahmanson Hammer
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Building Evaluation



Assessment Report

Project: 0813.2103.05i- LACMA
 Drawing: 1- Group 1 Roof
 Description:
 Phase: Final Submittal
 Report Date: 09-15-14

- A1401.1 roofing, sheet metal flashing and
- A1402.2 Roofing, sheet metal flashing and
- A1824 Gravel Surfaced Built-Up (coal tar)
- A1825 Sprayed Polyurethane Foam with Coating (small area with modified roofing)
- A1826 Gravel Surfaced Built-Up (coal tar) (Urethane deck coating in equipment areas) (Lower rear roof appeared to be Ballasted thermoplastic membrane - not
- A1827 Gravel Surfaced Built-Up (coal tar) (Urethane deck coating in equipment areas) (Lower rear roof appeared to be Ballasted thermoplastic membrane - not
- A1828 Stucco wall
- A5213 Undefined lateral system at PH
- A5211 Cracks in the pad and slab at the main roof slab in
- B1822 Gravel Surfaced Built-Up (some areas with coal tar) (small area with unsurfaced modified
- B1823 Stucco wall
- C1403.1 Roofing, sheet metal flashing and
- C1403.2 Roofing, sheet metal flashing and
- C1404 CalOSHA Tie backs
- C1405 Roofing, sheet metal flashing and
- C1511 Railings, exit door finish hardware and
- C1512 Roofing, flashing and waterproofing
- C1801 Gravel surfaced Built-Up roof
- C1802 Gravel surfaced Built-Up roof
- C1803 Gravel surfaced Built-Up roof
- C1804 Gravel surfaced

Los Angeles County Museum of Art
 Ahmanson Hammer
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Building Evaluation

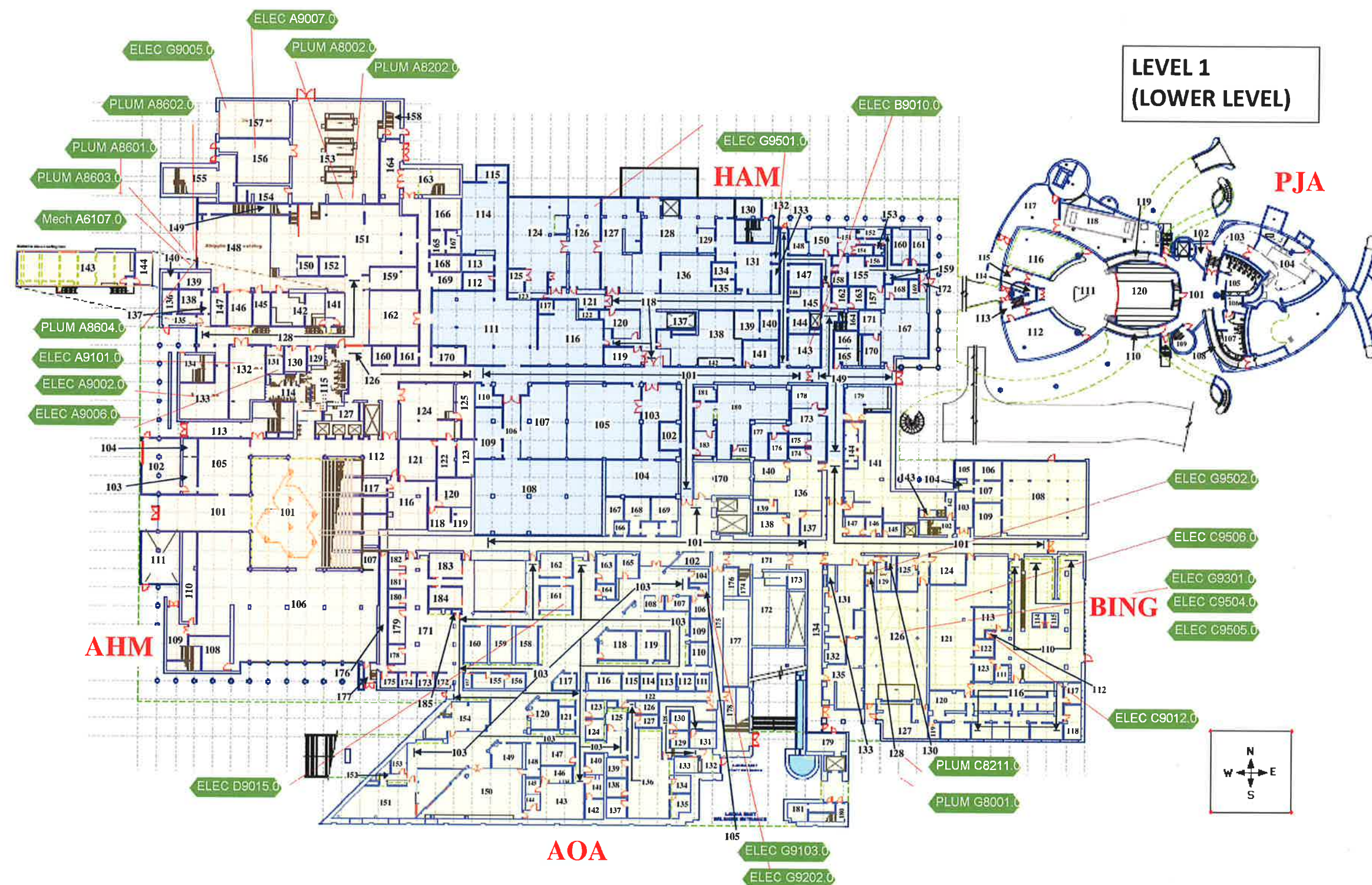


Assessment Report

Project: 0813.2103.051- LACMA
Drawing: 1- Group 2 Level 1
Description:
Phase: Final Submittal
Report Date: 09-15-14

- A0002 2 1/2" water supply to chiller with pressure reducing valve and strainers
A8201 1 1/2" wet stand pipe near cooling
A8202 There is no Fire Sprinkler for chiller room but it does have Fire Hose
A8403 Roof & Overflow
A8601 Gas Meter
A8602 Natural gas pipes
A8603 Natural gas pipes
A8604 Natural gas pipes
A9002 Substation T-1
A9006 Emergency Generator G-1, 82 kw and Auto-Transfer Sw.
A9007 Substation T TR-1
A6130 Humidifiers
A6131 Duct Re-Heat
A6132 OSA Dampers
A6106 VFDs
A6107 Boiler-1
A6108 Boiler-A1
A6109 Steam Heat Exchange
A6110 Steam to heating hot water heat exchanger
A6111 Steam to heating hot water heat exchanger
A6112 Control Panel Boxes
A6113 Control Panel Boxes
A9101 Emergency Generator G-3, 150 kw and Auto- Transfer Sw.
B8209 Building B does not have fire sprinkler system but it does have fire hose cabinet at all corridors for each
B9010 Substation T-4 and
C6126 VFDs
C6127 VFDs
C6128 Humidifier
C6129 Humidifier
C8004 1" water supply to softener tank with pressure reducing
C8211 Fire Hose Connection & Post Indicated
C9012 Substation T-7
C9504 Audio Visual Systems

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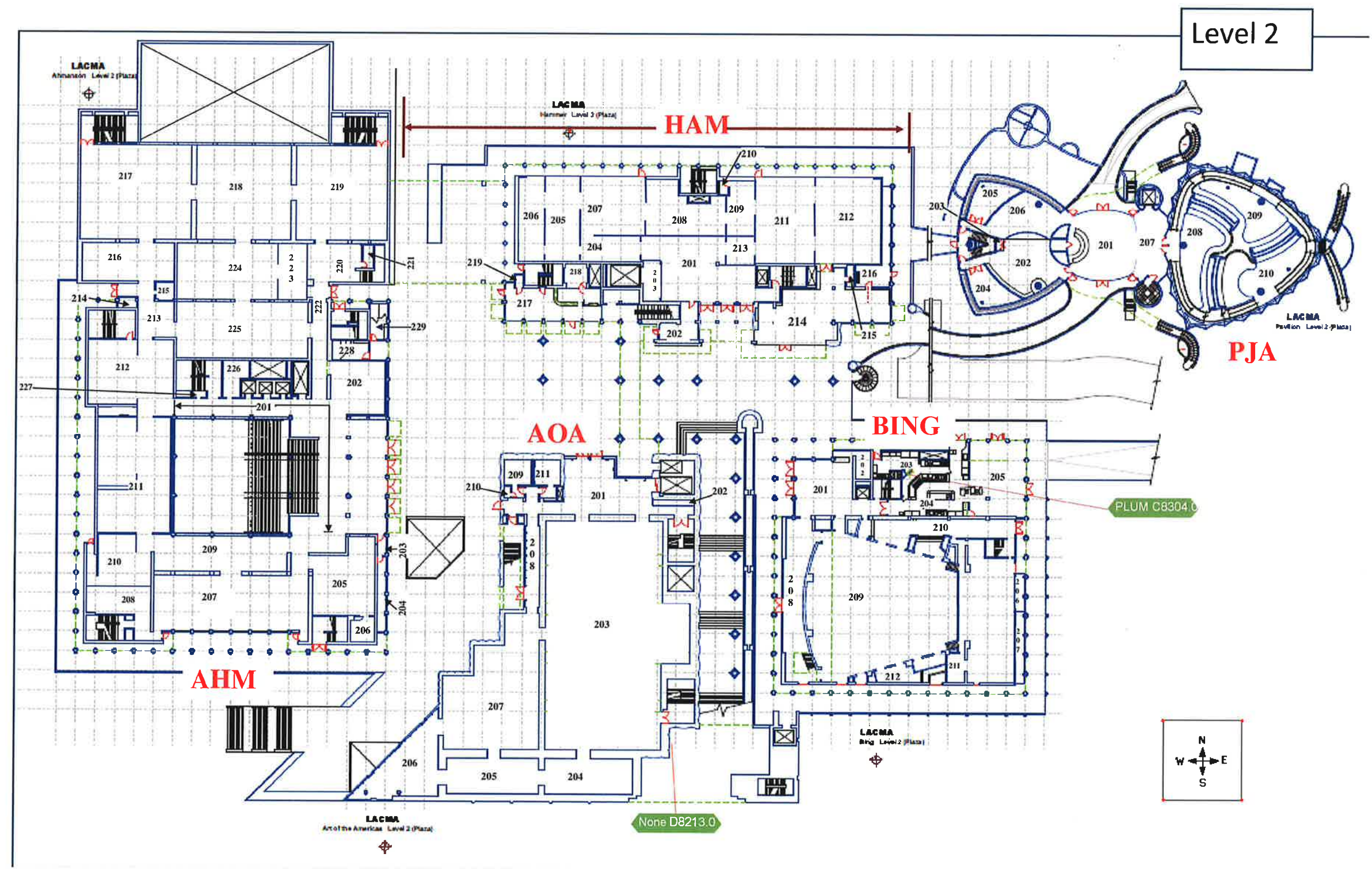
Los Angeles County Museum of Art
Ahmanson Hammer
Bing Art of the Americas

Building Evaluation

- C8304

All kitchen equipment drainage
- D8213

Dry Standpipe

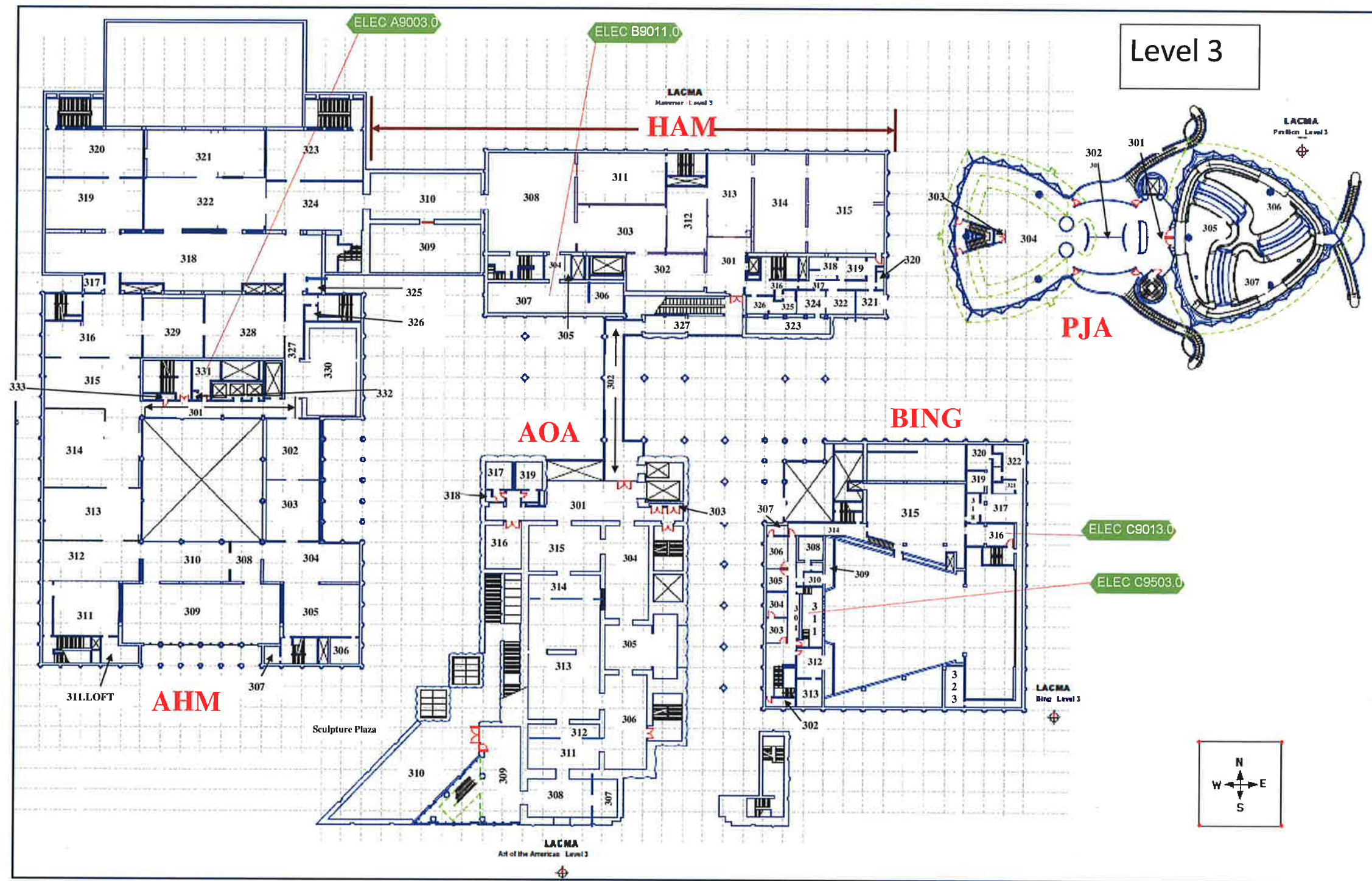


Los Angeles County Museum of Art

Ahmanson Hammer

Bing Art of the Americas

Building Evaluation



ePA Assessment Report

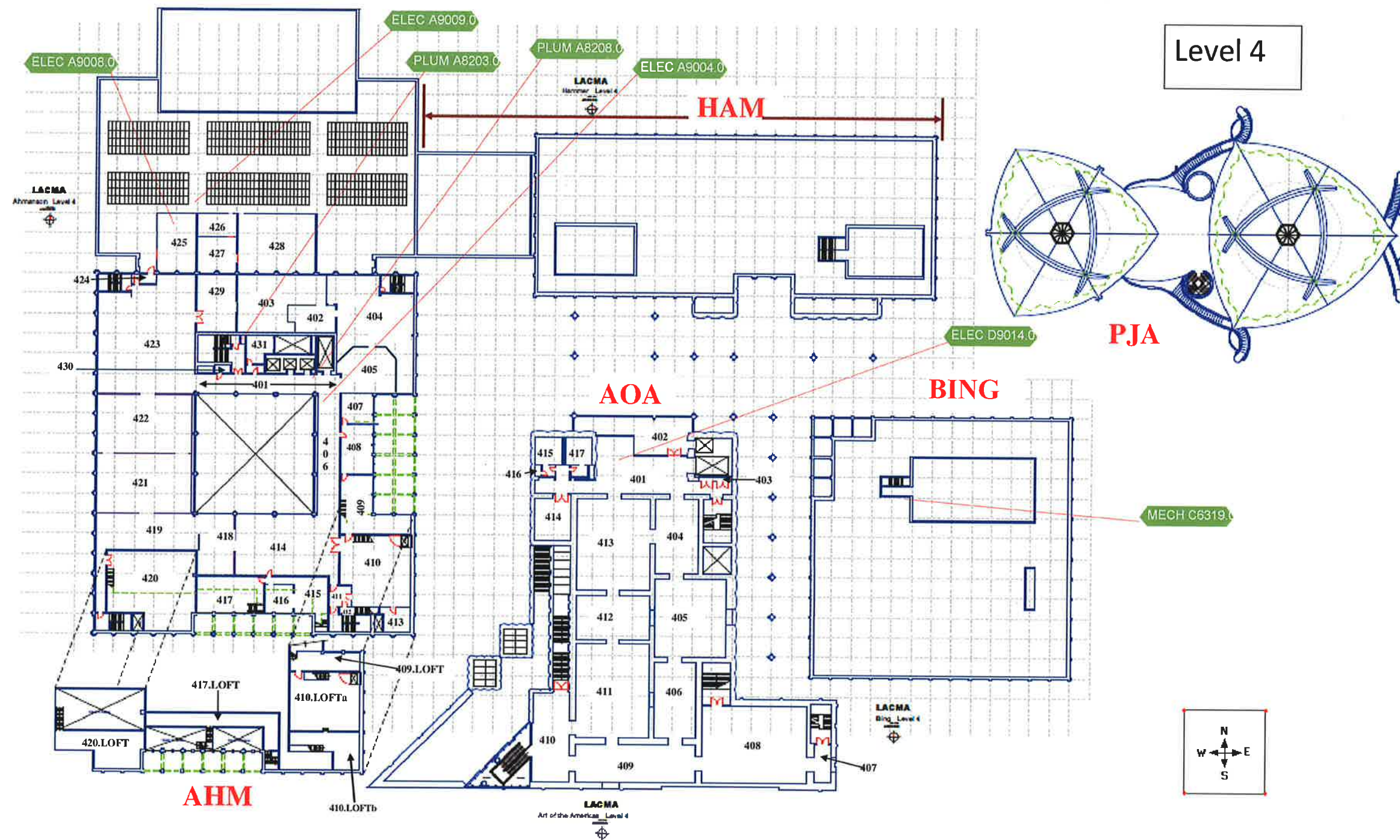
Project: 0813.2103.051- LACMA
Drawing: 1- Group 2 Level 3
Description:
Phase: Final Submittal
Report Date: 09-15-14

- A9003 Substation T-2
- B9011 Substation T-6 and Motor Control Center
- C9013 Substation T-8 and Motor Control Center
- C9503 Audio Visual Systems

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Bing Art of the Americas

Building Evaluation

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ePA Assessment Report

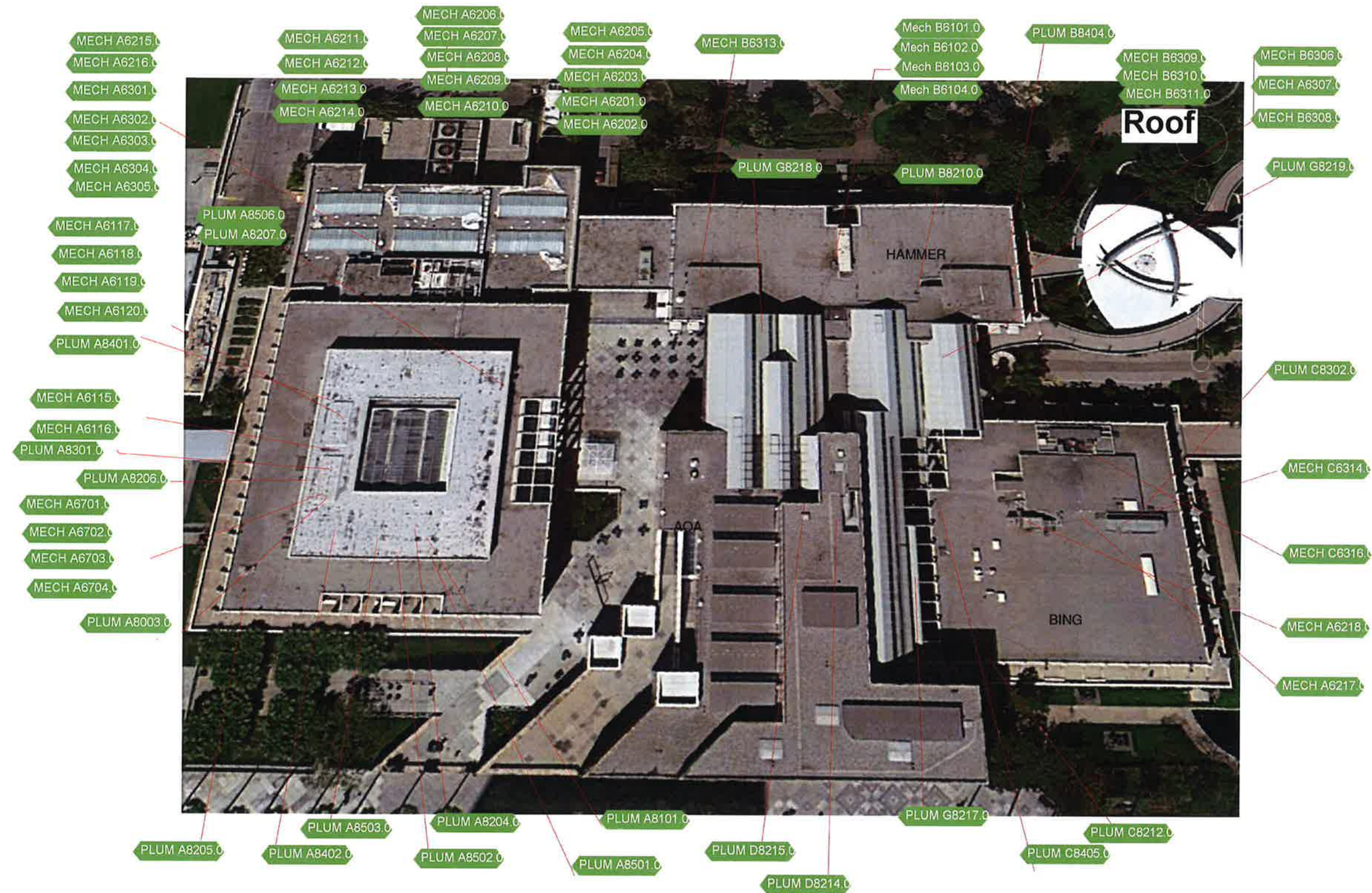
Project: 0813.2103.051- LACMA
Drawing: 1- Group 2 Level 4
Description:
Phase: Final Submittal
Report Date: 09-15-14

- A8203 2 1/2" fire hose connection at each landing stairway of each floor
- A8208 Building A does not have fire sprinkler system but it does have fire hose cabinet at all corridors for each
- A9004 Substation T-3 &
- A9008 Substation TTR-2 &
- A9009 Emergency Generator G-2, 50 kw and Auto-Transfer Sw.
- B6121 Condensate pipe
- B6122 Condensate pipe
- B6123 Condensate pipe
- B6124 Heating hot water
- C6125 IIIW Pipes
- C6317 CWH Control Valve
- C6318 CWH Control Valve
- C6319 2 way control valve
- C6320 2 way control valve
- C6321 Return fan motor
- C6322 Return fan motor
- C6323 HHW Pipes
- C6324 HHW Pipes
- C6707 Control Panel for Units on roof
- C6708 Controls Panel for Units on roof
- D9014 Substation T-A & T-B, Motor Control Center MCC-A & MCC-E

Los Angeles County Museum of Art
Ahmanson Hammer
Bing Art of the Americas

Building Evaluation

APPENDIX A A-9 of 11



Assessment Report

Project: 0813.2103.051- LACMA
Drawing: 1- Group 2 Roof
Description:
Phase: Final Submittal
Report Date: 09-15-14

- A8003 2" water supply to Air Handling with pressure reducing valve and strainers
- A8101 2" water supply to boiler with pressure reducing valve and
- A8204 There is no Fire Sprinkler for this Boiler room but it does have Fire Hose
- A8205 4" Wet Stand Pipe on
- A8206 4" Wet Stand Pipe on the penthouse exterior wall
- A8207 2" Wet Stand Pipe on the penthouse exterior wall
- A8301 Flood inside Penthouse-Air Handling room
- A8401 There is no Fire Sprinkler for this Boiler room but it does have Fire Hose
- A8402 Feed water tank condensate pipe
- A8501 Medium gas up from floor below to Boiler room with gas regulator and connect to existing Boilers # 1
- A8502 Medium gas with gas regulator and connect to existing Boilers # AH-3
- A8503 Medium gas up from floor below to Boiler room with gas regulator and connect to existing Boilers # 2
- A8506 Medium gas with gas regulator and connect to existing Boilers # AH-4
- A6115 Steam Rejecter
- A6116 Air Handling Unit
- A6117 OSA Damper for
- A6118 OSA Damper for
- A6119 OSA Damper for
- A6120 OSA Damper for
- A6201 Cooling Towers
- A6202 Condensate Water
- A6203 Condensate Water
- A6204 Cooling Tower Basin

Los Angeles County Museum of Art
Ahmanson Hammer
Bing Art of the Americas

Building Evaluation

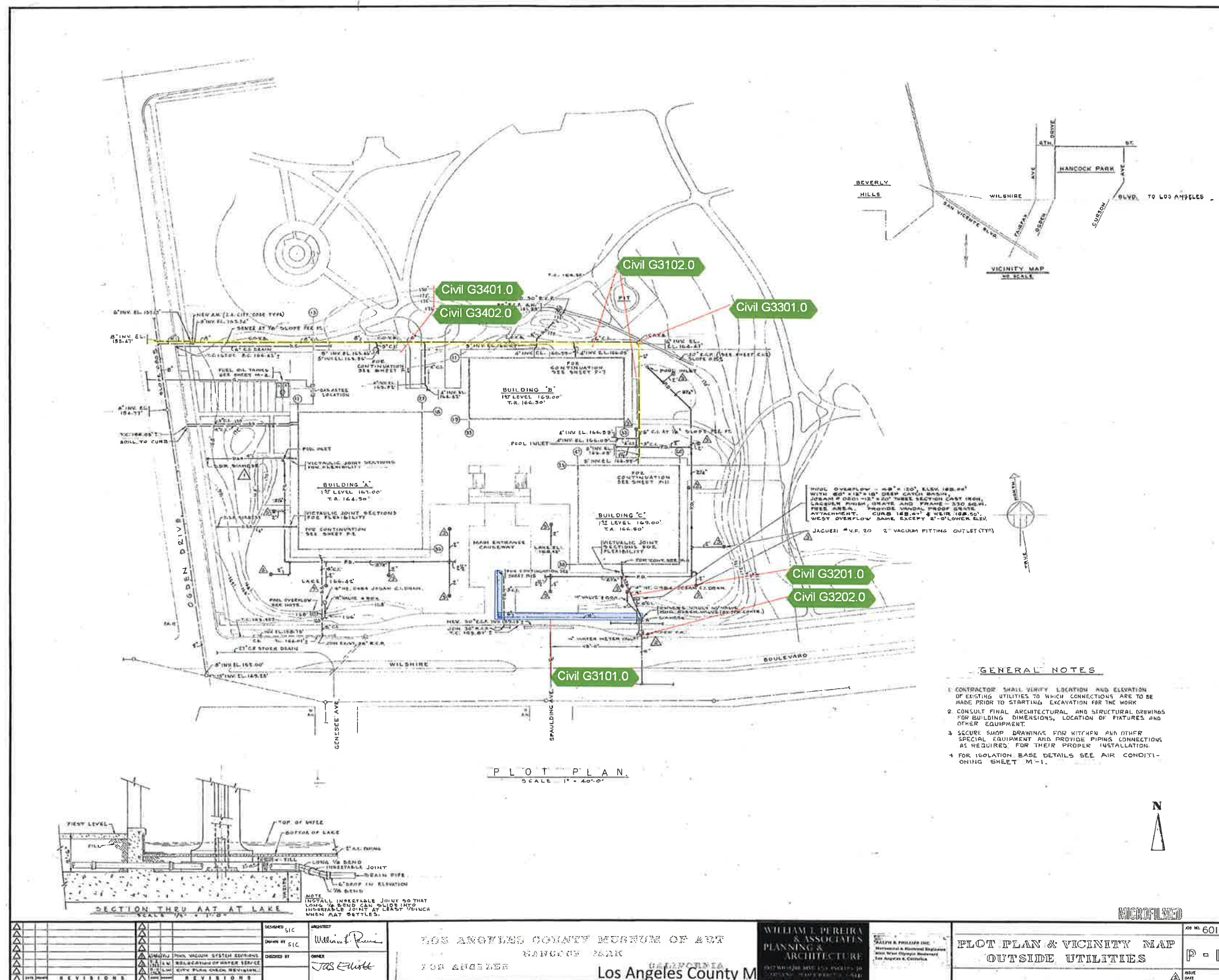
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Assessment Report

Project: 0813.2103.051- LACMA
Drawing: 1- Site
Description:
Phase: Final Submittal
Report Date: 09-15-14

- G3101 Site underground domestic water
- G3102 Grease Interceptor
- G3201 Site fire line
- G3202 Double detector check assembly
- G3301 Site Sanitary Sewer
- G3401 Roof Drain
- G3402 Site drainage



LACMA Building Evaluation Matrix

A/E Comment No.	System	Floor	Building	Title	Item	Condition	Recommendation	Priority 1 (Immediate)	Priority 2 (2-5 years)	Priority 3 (5-10 Years)	Priority 4 (10+ Years)
1101	Architectural	1	A	Exit corridor asbestos floor tiles	Asbestos floor tiles	Poor condition	Remove and replace			X	
1102	Architectural	1	A	Exit corridor	Not code complaint	Trip hazard	Demolish and remove		X		
1103	Architectural	1	A	Exit corridor column	Water leak and rust damage	Poor condition	Repair, replace and paint			X	
1103	Architectural	1	A	Exit corridor column	Water leak and rust damage	Poor condition	Repair, replace and paint			X	
1103	Architectural	1	A	Exit corridor column	Water leak and rust damage	Poor condition	Repair, replace and paint			X	
1103	Architectural	1	A	Exit corridor walls	Water leak and rust damage	Poor condition	Repair, replace and paint			X	
1104	Architectural	1	A	Exit corridor rated walls	Mechanical piping penetrations	Not code complaint, CBC 2013	Apply fire caulking	X			
1105	Architectural	1	A	Concrete house keeping pad	Concrete pad	Poor condition	Repair and paint		X		
1106	Architectural	1	A	Exit corridor rated walls	Mechanical piping penetrations	Not code complaint, CBC 2013	Apply fire caulking	X			
1106	Architectural	1	A	Exit corridor rated walls	Mechanical piping penetrations	Not code complaint, CBC 2013	Apply fire caulking	X			
1106	Architectural	1	A	Exit corridor rated walls	Mechanical piping penetrations	Not code complaint, CBC 2013	Apply fire caulking	X			
1106	Architectural	1	A	Exit corridor rated walls	Openings	Not code complaint, CBC 2013	Repair and paint	X			
1107.0	Architectural	1	A	Exit corridor suspended ceiling tiles	Asbestos ceiling tiles	Not code complaint, CBC 2013	Replace entire suspended ceiling system with acoustical tiles and install new light fixtures			X	
1108.0	Architectural	1	A	Water damage from adjacent walls	Water leak and damage	Poor condition	Demolish and remove partial wall to repair and waterproof			X	
1109.0	Architectural	1	A	Exit corridor floor concrete slab	Concrete slab	Poor condition	Repair and seal		X		
1110.1	Architectural	1	A	Exit corridor rated walls	Openings	Not code complaint, CBC 2013	Repair and paint	X			
1110.2	Architectural	1	A	Exit corridor rated walls	Openings	Not code complaint, CBC 2013	Repair and paint	X			
1111.0	Architectural	1	A	Exit corridor suspended ceiling	Framing, tiles and light fixture	Poor condition	Replace entire suspended ceiling system with acoustical tiles and install new light fixtures		X		
1112.0	Architectural	1	A	Men's Restroom	Plumbing fixtures	Not code complaint, CBC 2013	Replace restroom entire plumbing fixture per ADA code, CBC 2013		X		
1113	Architectural	1	A	Exit doors	Finish Hardware	Not code complaint, CBC 2013	Modify finish hardware		X		

LACMA Building Evaluation Matrix

A/E Comment No.	System	Floor	Building	Title	Item	Condition	Recommendation	Priority 1 (Immediate)	Priority 2 (2-5 years)	Priority 3 (5-10 Years)	Priority 4 (10+ Years)
1114	Architectural	2	A	Passenger Elevator	Doors, cabin, controls, railings and signage	Poor condition	Repair and refurbish elevator doors, cabin, railings, controls and signage			X	
1115	Architectural	2	A	Exit corridor	Interior wall wood panels and signage	Poor condition	Repair wall wood panels and install additional signage		X		
1201	Architectural	2	A	Ext. east elevation	Concrete columns cracks and spalling	Poor condition	Repair and paint	X			
1202	Architectural	2	A	Ext. east elevation	Stone veneer	Ext. walls stone veneer has settled and moved slightly	Check stone veneer in every section to repair and secure properly	X (Repair)	X		
1203	Architectural	2	A	Ext. east elevation	Curtain wall glazing and gaskets	Fair condition	Repair and seal			X	
1204	Architectural		A	Ext. south elevation	Cement plaster and sealant	Fair condition	Repair, clean and seal			X	
1205	Architectural	1	A	Ext. west elevation	Hollow metal doors and louvers	Poor condition	Replace, seal and paint		X	X	
1206	Architectural	2	A	Plaza concrete pavers	Concrete pavers and waterproofing	Plaza concrete pavers are cracked and leak water in several locations	Demolish and remove concrete pavers to repair waterproofing and cast in place concrete pavers		X		
1207	Architectural	3	A	Ext. north elevation	Cement plaster mold	Poor condition	Clean, seal and paint		X		
1208	Architectural	1	A	Ext. north elevation	Cement plaster cracks	Fair condition	Repair and paint	X (Repair)	X		
1209	Architectural	2	A	Ext. elevation	Stone veneer	Ext. walls stone veneer has settled and moved slightly	Check stone veneer in every section to repair and secure properly	X (Repair)	X		
1209	Architectural	2	A	Ext. elevation	Stone veneer	Ext. walls stone veneer has settled and moved slightly	Check stone veneer in every section to repair and secure properly		X		
1213	Architectural	1	A	Ext. north elevation	Cement plaster cracks	Fair condition	Repair and paint		X		
1214	Architectural	2	A	Ext. exit doors path of egress	Path of egress	Not code complaint, CBC 2013	Repair and surface concrete slab		X		
1214	Architectural	2	A	Ext. exit doors path of egress	Path of egress	Not code complaint, CBC 2013	Repair and surface concrete slab		X		
1401	Architectural	5	A	Roofing, sheet metal flashing and waterproofing	Roofing, sheet metal flashing and waterproofing	Roofing, sheet metal flashing with waterproofing are old and in a poor condition	Replace roofing, sheet metal flashing and waterproofing		X		
1402	Architectural	5	A	Roofing, sheet metal flashing and waterproofing	Roofing, sheet metal flashing and waterproofing	Roofing, sheet metal flashing with waterproofing are old and in a poor condition	Replace roofing, sheet metal flashing and waterproofing		X		
1501	Architectural	1	A	Loading dock ramp railings	Railings	Not code complaint, CBC 2013	Modify handrails		X		
1502	Architectural	1	A	Interior concrete stairs railings	Railings	Not code complaint, CBC 2013	install guardrails		X		
1503	Architectural	1	A	Interior metal stairs railings	Railings	Not code complaint, CBC 2013	Modify handrails		X		

LACMA Building Evaluation Matrix

A/E Comment No.	System	Floor	Building	Title	Item	Condition	Recommendation	Priority 1 (Immediate)	Priority 2 (2-5 years)	Priority 3 (5-10 Years)	Priority 4 (10+ Years)
1504	Architectural	1	A	Exit corridor stair railings	Railings	Not code complaint, CBC 2013	Remove existing railings and install new guardrails		X		
1505	Architectural	1	A	Exit stairs shaft wall	Shaft wall	Not code complaint, CBC 2013	Repair and paint		X		
1506	Architectural	1	A	Exit stair railings	Railings	Not code complaint, CBC 2013	Remove existing railings and install new guardrails		X		
1507	Architectural	1	A	Main stair railings	Railings	Not code complaint, CBC 2013	Modify railings		X		
1508	Architectural	1	A	Main stair railings	Railings	Not code complaint, CBC 2013	Modify railings		X		
1508	Architectural	1	A	Main stair railings	Railings	Not code complaint, CBC 2013	Install new intermediate handrails			X	
1215	Architectural	3	B	Ext. south elevation	Curtain wall glazing & gaskets	Fair condition	Repair and seal		X		
1216	Architectural	3	B	Ext. balcony	Railings	Do not comply with current code, CBC 2013	Install intermediate horizontal railings		X		
1217	Architectural	3	B	Ext. concrete column	Cracks and spalling	Poor condition	Repair and paint		X		
1217	Architectural	3	B	Ext. concrete column	Cracks and spalling	Poor condition	Repair and paint		X		
1218	Architectural	3	B	Ext. plaster soffit / Kalwall	Cracks and maintenance	Fair condition	Repair, clean and paint		X		
1219	Architectural	3	B	Ext. east elevation	Stone veneer	Ext. walls stone veneer has settled and moved slightly	Check stone veneer in every section to repair and secure properly		X		
1220	Architectural	2	B	Ext. mechanical louvers	Metal louvers	Poor condition	Replace			X	
1221	Architectural	1	B	Ext. concrete columns	Concrete column	There are cracks and spalling on several columns	Repair concrete cracks and spalling		X		
1222	Architectural	1	B	Ext. south elevation	Cement plaster	Poor condition	Repair and paint		X		
1223	Architectural	1	B	Ext. south elevation	Concrete columns	Poor condition	Repair and paint		X		
1224	Architectural	3	B	Ext. concrete column	Cracks and spalling	Poor condition	Repair and paint		X		
1225	Architectural	3	B	Ext. concrete balcony	Cracks and spalling	Fair condition	Repair and paint		X		
1226	Architectural	3	B	Ext. plaster soffit	Cracks and maintenance	Poor condition	Repair and paint		X		
1227	Architectural	1	B	Ext. north elevation	Cracks and spalling	Poor condition	Repair and paint		X		

LACMA Building Evaluation Matrix

A/E Comment No.	System	Floor	Building	Title	Item	Condition	Recommendation	Priority 1 (Immediate)	Priority 2 (2-5 years)	Priority 3 (5-10 Years)	Priority 4 (10+ Years)
1228	Architectural	1	B	Ext. south elevation	Cracks and spalling	Poor condition	Repair and paint		X		
1229	Architectural	2	B	Ticket Office	Metal canopy with Kalwall	Fair condition	Repair, clean and seal		X		
1509	Architectural	1	B	Ext. concrete stairs and railings	Railings	Not code complaint, CBC 2013	Remove existing railings and install new guardrails		X		
1510	Architectural	1	B	Ext. concrete stairs and railings	Railings	Not code complaint, CBC 2013	Remove existing railings and install new guardrails		X		
1510	Architectural	1	B	Ext. concrete stairs and railings	Railings	Not code complaint, CBC 2013	Remove existing railings and install new guardrails		X		
1116	Architectural	1	C	Exit corridor suspended ceiling tiles	Ceiling tiles	the suspended ceiling and tiles are the original system and very old	Replace entire suspended ceiling system with new LED light fixtures			X	
1117	Architectural	1	C	Exit corridor carpet and paint	finishes	the exit corridor carpeting is very old	Replace exit corridor carpeting with wall base and paint		X		
1230	Architectural	1	C	Ext. south-east elevations	Stone veneer	Ext. walls stone veneer has settled and moved slightly	Check stone veneer in every section to repair and secure properly	X (Repair)	X		
1231	Architectural	1	C	Ext. walls	Cement plaster	Walls cement plaster has cracks in many locations	Repair cement plaster cracks and paint		X		
1232	Architectural	1	C	Ext. aluminum storefront glazing and gaskets	Glazing and gaskets	Aluminum storefront glazing requires maintenance and cleaning	Repair weather stripping gaskets and apply sealant			X	
1232	Architectural	1	C	Ext. aluminum storefront glazing and gaskets	Glazing and gaskets	Aluminum storefront glazing requires maintenance and cleaning	Repair weather stripping gaskets and apply sealant			X	
1233	Architectural	1	C	Ext. aluminum louvers	Mechanical louvers	Mechanical aluminum louvers require paint and sealant	Apply paint and sealant		X		
1234	Architectural	2	C	Ext. balcony	Cement plaster	Walls cement plaster has cracks in many locations	Repair cement plaster cracks and paint		X		
1235	Architectural	2	C	Plaza concrete pavers	Concrete pavers and waterproofing	Plaza concrete pavers are cracked and leak water in several locations	Demolish and remove concrete pavers to repair waterproofing and cast in place concrete pavers		X		
1236	Architectural	2	C	Ext. plaster soffit and recessed light fixtures	Plaster soffit	There are cracks and large gaps between light fixtures and openings	Repair cracks and seal openings		X		
1236	Architectural	1	C	Ext. plaster soffit and recessed light fixture	Plaster soffit	There are cracks and large gaps between light fixtures and openings	Repair cracks and seal openings		X		
1237	Architectural	1	C	Ext. plaster soffit cracks and water damage	Plaster soffit	There are cracks and water damage	Repair cracks and paint		X		
1238	Architectural	2	C	Ext. concrete column	Concrete column	There are cracks and spalling on several columns	Repair concrete cracks and spalling		X		
1238	Architectural	2	C	Ext. concrete column	Concrete column	There are cracks and spalling on several columns	Repair concrete cracks and spalling		X		
1239	Architectural	1	C	Exit doors finish hardware and signage	Finish hardware and sign	Poor condition	Replace doors finish hardware, threshold and signage		X		

<div>OWEN</div> <div>LACMA Building Evaluation Matrix</div>											
A/E Comment No.	System	Floor	Building	Title	Item	Condition	Recommendation	Priority 1 (Immediate)	Priority 2 (2-5 years)	Priority 3 (5-10 Years)	Priority 4 (10+ Years)
1240	Architectural	2	C	Ext. concrete balcony	Concrete slab	There are cracks and spalling in several locations	Repair concrete cracks, spalling and paint		X		
1240	Architectural	2	C	Ext. concrete balcony	Concrete railings	There are cracks and spalling in several locations	Repair concrete cracks, spalling and paint		X		
1241	Architectural	2	C	Ext. plaster soffit recessed light fixture	Gaps	There are cracks and large gaps between light fixtures and openings	Repair cracks and seal gaps		X		
1242	Architectural	2	C	Ext. north elevation	Cement plaster / concrete columns	Poor condition	Repair and paint		X		
1242	Architectural	2	C	Ext. north elevation	Cement plaster / concrete columns	Poor condition	Repair and paint		X		
1243	Architectural	2	C	Ext. balcony	Concrete slab	Poor condition	Repair cracks		X		
1403	Architectural	5	C	Roofing, sheet metal flashing and waterproofing	Roofing, sheet metal flashing and waterproofing	Roofing, sheet metal flashing with waterproofing are old and in a poor condition	Replace roofing, sheet metal flashing and waterproofing		X		
1403	Architectural	5	C	Roofing and sheet metal flashing	Roofing, sheet metal flashing and waterproofing	Roofing, sheet metal flashing with waterproofing are old and in a poor condition	Replace roofing, sheet metal flashing and waterproofing		X		
1404	Architectural	5	C	Rooftop tie backs and fall protection	Cal OSHA Tie backs	Missing	Install rooftop tie backs and fall protection system				
1405	Architectural	5	C	Roofing and sheet metal flashing	Roofing, sheet metal flashing and waterproofing	Poor condition	Replace roofing, sheet metal flashing and waterproofing		X		
1511	Architectural	5	C	Rooftop exit stairs	Railings, exit door finish hardware and signage	Not code complaint, CBC 2013	Replace railings, finish hardware and signage		X		
1512	Architectural	5	C	Rooftop exit stairs	Roofing, flashing and waterproofing	Poor condition	Replace roofing, flashing and waterproofing		X		
1244	Architectural	2	D	Exterior glass exit doors	Finish Hardware and sign	Poor condition	Replace exterior double exit doors finish hardware including a new one piece ADA threshold		X		
1001	Architectural	2	D	Passenger Elevator	Doors, cabin, controls, railings and signage	Poor condition	Repair and refurbish elevator doors, cabin, railings, controls and signage			X	
1245	Architectural	1	D	Wilshire Blvd. Façade	Ext. walls stone cladding	Fair condition	Restore stone cladding and seal		X		
1245	Architectural	1	D	Wilshire Blvd. Façade	Glass blocks	Glass blocks are broken in several locations	Remove broken glass blocks and replace them to match existing		X		
1245	Architectural	1	D	Wilshire Blvd. Façade	Glass blocks	Glass blocks are broken in several locations	Remove broken glass blocks and replace them to match existing		X		
1245	Architectural	1	D	Wilshire Blvd. Façade	Glass blocks	Glass blocks are broken in several locations	Remove broken glass blocks and replace them to match existing		X		
1246	Architectural	1	D	Wilshire Blvd. Façade	Glass blocks	Glass blocks are broken in several locations	Remove broken glass blocks and replace them to match existing		X		
1246	Architectural	1	D	Wilshire Blvd. Façade	Glass blocks	Glass blocks are broken in several locations	Remove broken glass blocks and replace them to match existing		X		

LACMA Building Evaluation Matrix

A/E Comment No.	System	Floor	Building	Title	Item	Condition	Recommendation	Priority 1 (Immediate)	Priority 2 (2-5 years)	Priority 3 (5-10 Years)	Priority 4 (10+ Years)
1246	Architectural	1	D	Wilshire Blvd. Façade	Glass blocks	Glass blocks are broken in several locations	Remove broken glass blocks and replace them to match existing		X		
1246	Architectural	1	D	Ext. column Stone Base	Column stone base	Several column locations with defects	Repair and remove water and rust stain marks		X		
1247	Architectural	1	D	Main entry Fountain	Fountain stone veneer	Several stone locations with defects	Repair and remove water stain marks		X		
1247	Architectural	1	D	Main entry Fountain	Fountain stone veneer	Several stone locations with defects	Repair and remove water stain marks		X		
1248	Architectural	1	D	Ext. column Stone Base	Column stone base	Column stone base are stained and cracked	Repair and remove water and rust stain marks		X		
1248	Architectural	1	D	Ext. column Stone Base	Column stone base	Exterior column stone base are stained and cracked	Repair and remove water and rust stain marks		X		
1248	Architectural	1	D	Ext. column Stone Base	Column stone base	Exterior column stone base are stained and cracked	Repair and remove water and rust stain marks		X		
1249	Architectural	1	D	Ext. column tiles	Column tiles	Ext. column tiles have cracks, water and rust stain marks	Repair and remove water and rust stain marks		X		
1249	Architectural	1	D	Ext. column tiles	Column tiles	Ext. column tiles have cracks, water and rust stain marks	Repair cracks and remove water and rust stain marks		X		
1249	Architectural	1	D	Ext. column tiles	Column tiles	Ext. column tiles have cracks, water and rust stain marks	Repair cracks and remove water and rust stain marks		X		
1250	Architectural	2	D	Plaza concrete pavers	Concrete pavers	Plaza concrete pavers are cracked and leak water in several locations	Demolish and remove concrete pavers to repair waterproofing and cast in place concrete pavers		X		
1250	Architectural	2	D	Plaza concrete pavers	Concrete pavers and waterproofing	Plaza concrete pavers are cracked and leak water in several locations	Demolish and remove concrete pavers to repair waterproofing and cast in place concrete pavers		X		
1250	Architectural	2	D	Plaza concrete pavers	Concrete pavers and waterproofing	Plaza concrete pavers are cracked and leak water in several locations	Demolish and remove concrete pavers to repair waterproofing and cast in place concrete pavers		X		
1250	Architectural	2	D	Plaza concrete pavers	Concrete pavers and waterproofing	Plaza concrete pavers are cracked and leak water in several locations	Demolish and remove concrete pavers to repair waterproofing and cast in place concrete pavers		X		
1251	Architectural	2	D	Plaza concrete pavers	Concrete pavers and waterproofing	Plaza concrete pavers are cracked and leak water in several locations	Demolish and remove concrete pavers to repair waterproofing and cast in place concrete pavers		X		
1251	Architectural	2	D	Plaza concrete pavers	Concrete pavers and waterproofing	Plaza concrete pavers are cracked and leak water in several locations	Demolish and remove concrete pavers to repair waterproofing and cast in place concrete pavers		X		
1251	Architectural	2	D	Main entry concrete pavers	Concrete pavers and waterproofing	Concrete pavers are cracked and leak water in several locations	Demolish and remove concrete pavers to repair waterproofing and cast in place concrete pavers		X		
1252	Architectural	1	D	Ext. porcelain / metal panels	Panels	Porcelain metal panels are damaged and rusted in several locations	Remove damaged panels to repair, remove rust and reinstall		X		
1252	Architectural	1	D	Ext. porcelain / metal panels	Panels	Porcelain metal panels are damaged and rusted in several locations	Remove damaged panels to repair, remove rust and reinstall		X		
1252	Architectural	1	D	Ext. porcelain / metal panels	Panels	Porcelain metal panels are damaged and rusted in several locations	Remove damaged panels to repair, remove rust and reinstall		X		

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1253	Architectural	3	D	Ext. curtain wall mullions	Mullions	Aluminum mullions are displaced with lose gaskets	Repair curtain wall mullions and gaskets		X		
1254	Architectural	4	D	Ext. metal canopy and Kalwall	Metal canopy with Kalwall panels and flashing	Metal canopy with Kalwall panels and flashing are rusted and show sign of determination	Repair rusted metal framing, damaged Kalwall panels, gutters and flashings			X	
1254	Architectural	4	D	Ext. metal canopy and Kalwall	Metal canopy with Kalwall panels and flashing	Metal canopy with Kalwall panels and flashing are rusted and show sign of determination	Repair rusted metal framing, damaged Kalwall panels, gutters and flashings		X		
1254	Architectural	4	D	Ext. metal canopy and Kalwall	Metal canopy with Kalwall panels and flashing	Metal canopy with Kalwall panels and flashing are rusted and show sign of determination	Repair rusted metal framing, damaged Kalwall panels, gutters and flashings		X		
1254	Architectural	4	D	Ext. metal canopy and Kalwall	Metal canopy with Kalwall panels and flashing	Metal canopy with Kalwall panels and flashing are rusted and show sign of determination	Repair rusted steel framing, damaged Kalwall panels, gutters and flashings		X		
1255	Architectural	3	D	Ext. balcony and bridge	Carpet / Paint	Poor condition	Install new carpet and apply paint, Remove stain marks from steel column ceramic tiles		X		
1256	Architectural	1	D	Ext. west elevation	Waterproofing and flashing	Poor condition	Repair exterior wall waterproofing and flashing		X		
1256	Architectural	1	D	Ext. west elevation	Waterproofing and flashing	Poor condition	Repair exterior wall waterproofing and flashing		X		
1301	Architectural	3	D	Ext. balcony and bridge	Railings	Not code complaint, CBC 2013	Install intermediate metal railings to maintain maximum 4" openings		X		
1302	Architectural	3	D	Ext. balcony and bridge	Metal guardrails	Not code complaint, CBC 2013	Install intermediate metal railings to maintain maximum 4" openings		X		
1406	Architectural	5	D	Rooftop skylight	Skylight	Poor condition	Repair and seal		X		
1406	Architectural	5	D	Rooftop skylight	Skylight	Poor condition	Repair and seal		X		
1513	Architectural	1	D	Ext. exit concrete stairs	Railings	Not code complaint, CBC 2013	Retrofit metal guardrails and handrails to comply with the current code		X		
1513	Architectural	1	D	Ext. exit concrete stairs	Railings	Not code complaint, CBC 2013	Retrofit metal guardrails and handrails to comply with the current code		X		
1513	Architectural	1	D	Ext. exit concrete stairs	Railings	Not code complaint, CBC 2013	Retrofit metal guardrails and handrails to comply with the current code		X		
1514	Architectural	2	D	Plaza planter guardrails	Railings	Not code complaint, CBC 2013	Retrofit metal guardrails and handrails to comply with the current code		X		
1515	Architectural	1	D	Ext. concrete stairs	Concrete stairs	Concrete stairs are rusted and cracked	Repair exposed steel rebar and concrete stairs		X		
1515	Architectural	1	D	Ext. concrete stairs	Concrete stairs	Concrete stairs are rusted and cracked	Repair exposed steel rebar and concrete stairs		X		
1515	Architectural	1	D	Ext. concrete stairs	Railings	Stairs are missing wall mounted metal handrails	Install wall mounted metal handrails, per CBC 2013		X		
1516	Architectural	2	D	Plaza concrete stairs	Concrete stairs	Plaza concrete stairs are cracked and leak water in several locations	Demolish and remove concrete stairs to repair waterproofing and cast in place concrete stairs		X		

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1516	Architectural	2	D	Plaza concrete stairs	Concrete stairs	Plaza concrete stairs are cracked and leak water in several locations	Demolish and remove concrete stairs to repair waterproofing and cast in place concrete stairs		X		
1801	Water Intrusion	4	C	Roofing on the Bing building	Gravel Surfaced Built-Up roof	Degraded sealant at flashings	Remaining Serviceable Life 4-5 years		X		
1802	Water Intrusion	4	C	Roofing on the Bing building	Gravel Surfaced Built-Up roof	Degraded sealant at surface mounted counter flashing	Remaining Serviceable Life 4-5 years		X		
1803	Water Intrusion	4	C	Roofing on the Bing building	Gravel Surfaced Built-Up roof	Bent/deflected equipment pan flashings	Remaining Serviceable Life 4-5 years		X		
1804	Water Intrusion	4	C	Roofing on the Bing building	Gravel Surfaced Built-Up roof	Roof cement repairs at base flashings	Remaining Serviceable Life 4-5 years		X		
1805	Water Intrusion	4	C	Roofing on the Bing building	Gravel Surfaced Built-Up roof	Bent/damaged duct supports	Remaining Serviceable Life 4-5 years		X		
1806	Water Intrusion	4	C	Roofing on the Bing building	Gravel Surfaced Built-Up roof	Degraded/split roof cement repairs at edge of elevated roof	Remaining Serviceable Life 4-5 years		X		
1807	Water Intrusion	4	C	Roofing on the Bing building	Gravel Surfaced Built-Up roof	Severe grease contamination on roof system over cafe	Remaining Serviceable Life 4-5 years		X		
1808	Water Intrusion	4	C	Roofing on the Bing building	Gravel Surfaced Built-Up roof	Unsealed penetrations in plaster wall, gravel embedment was poor to fair with light flood coat	Remaining Serviceable Life 4-5 years		X		
1809	Water Intrusion	4	C	Roofing on the Bing building	Gravel Surfaced Built-Up roof	Cracked concrete at roof access stair well with exposed coal tar bitumen running out, evidence of large leak under roof access stairs.	Remaining Serviceable Life 4-5 years		X		
1810	Water Intrusion	4	C	Roofing on the Bing building	Gravel Surfaced Built-Up roof	Evidence of large leak under roof access stairs.	Remaining Serviceable Life 4-5 years		X		
1811	Water Intrusion	5	D	Roofing on the Art of America's building	Ballasted EPDM roof	Shrinkage of base flashing (pulling away in angle), degraded flashing application over securement strip (exposed fasteners)	Recommend Immediate Replacement Remaining Serviceable Life	X			
1812	Water Intrusion	5	D	Roofing on the Art of America's building	Ballasted EPDM roof	Degraded sealant at flashings	Recommend Immediate Replacement Remaining Serviceable Life	X			
1813	Water Intrusion	5	D	Roofing on the Art of America's building	Ballasted EPDM roof	Open corners and transitions in coping metal	Recommend Immediate Replacement Remaining Serviceable Life	X			
1814	Water Intrusion	5	D	Roofing on the Art of America's building	Ballasted EPDM roof	Numerous slices, cuts and patches in field and base flashings	Recommend Immediate Replacement Remaining Serviceable Life	X			
1815	Water Intrusion	5	D	Roofing on the Art of America's building	Ballasted EPDM roof	Degraded sealant at penetrations in base flashing	Recommend Immediate Replacement Remaining Serviceable Life	X			
1816	Water Intrusion	5	D	Roofing on the Art of America's building	Ballasted EPDM roof	Improper roof cement repairs at penetrations and base flashings (degraded membrane), damaged drain strainer domes	Recommend Immediate Replacement Remaining Serviceable Life	X			
1817	Water Intrusion	5	D	Roof stairwell and deck on the Art of America's building	Stairwell & Urethane deck coating	Roof access stair wells with urethane deck coating in poor condition	Recommend Immediate Replacement Remaining Serviceable Life	X			
1818	Water Intrusion	5	D	Roof stairwell on the Art of America's building	Stairwell handrail	Detached stair railing	Recommend Immediate Replacement Remaining Serviceable Life	X			
1819	Water Intrusion	5	D	Roof stairwell on the Art of America's building	Stairwell light	Damaged light	Recommend Immediate Replacement Remaining Serviceable Life	X			

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1820	Water Intrusion	5	D	Roof stairwell on the Art of America's building	Stairwell door	No sealant around hollow metal door frame	Recommend Immediate Replacement Remaining Serviceable Life	X			
1821	Water Intrusion	5	D	Wall cladding on the Art of America's building	Concrete/stone & porcelain metal panels	Degraded sealant in wall cladding - both concrete/stone and metal panels	Recommend Immediate Replacement Remaining Serviceable Life	X			
1822	Water Intrusion	4	B	Roof on the Hammer building	Gravel Surfaced Built-Up (some areas with coal tar) (small area with unsurfaced	Lumps of coal tar accumulated above gravel aggregate, evidence of ponding water (some standing water during investigation), low and	Recommend Immediate Replacement Remaining Serviceable Life	X			
1823	Water Intrusion	4	B	Upper roof wall on the Hammer building	Stucco wall	Cracks plaster wall covering of elevated roof areas, cracked concrete at roof access stair well - exposed coal tar bitumen running out,	Recommend Immediate Replacement Remaining Serviceable Life	X			
1824	Water Intrusion	5	A	Roof on the Ahmanson building	Gravel Surfaced Built-Up (coal tar)	Lumps of coal tar accumulated above gravel aggregate, degraded sealant at flashings, degraded sealant at surface mounted counter	Remaining Serviceable Life 3-4 years		X		
1825	Water Intrusion	5	A	Upper roof on the Ahmanson building	Sprayed Polyurethane Foam with Coating (small area with modified	Numerous large blisters in foam, split and fractured blisters, degraded coating	Recommend Immediate Replacement Remaining Serviceable Life	X			
1826	Water Intrusion	5	A	Roof on the Ahmanson North Expansion	Gravel Surfaced Built-Up (coal tar) (Urethane deck coating in	Lumps of coal tar accumulated above gravel aggregate, urethane deck coating was noted in equipment areas, fair condition with evidence of	Remaining Serviceable Life 4-5 years		X		
1827	Water Intrusion	5	A	Roof on the Ahmanson North Expansion	Gravel Surfaced Built-Up (coal tar) (Urethane deck coating in	Degraded pitch pan filler material, degraded sealant at flashings, cracks plaster wall covering of elevated roof areas	Remaining Serviceable Life 4-5 years		X		
1828	Water Intrusion	5	A	Roof penthouse wall on the Ahmanson North Expansion	Stucco wall	Cracks plaster wall covering of elevated roof areas	Remaining Serviceable Life 4-5 years		X		
1901	Water Intrusion	5	D	Exterior wall - porcelain metal panel system	The metal panel system appears to be porcelain enamel on steel.	There are numerous areas of rust, particularly at the top of the panels where there is a flat eyebrow panel that caps the top of the porcelain	The panel system should have 20+ years of life once the panel to panel joints have been resealed and assuming the removal of rust and				X
1902	Water Intrusion	5	D	Skylight Panel System	The skylight system is a Kalwall type translucent panel system with aluminum battens screw	Translucent polycarbonate panels with internal grids. Rust at areas below gutters on steel framing and columns. Rust on wall panels at	The gutter system has failed and requires replacement. Rust was observed on the metal structures below the gutter liner. The				X
1903	Water Intrusion	2	A	Storefront system	1/2" clear tempered glass walls with stainless steel clad storefront at head and jambs.	Prior wet sealing at time of installation, fair condition, no evidence of leak	Life Span: 10+ YEARS				X
1904	Water Intrusion	1	A	Storefront system	1/2" clear tempered glass doors	Evidence of leakage, previous efforts to prevent water intrusion at door bottom	Life Span: 10+ YEARS (not including				X
1905	Water Intrusion	2	C	Storefront system	Part of storefront is the same system as the Bing Building Café	Caulking in fair condition, needs re-caulking, no evidence of leak	Life Span: 10+ YEARS				X
1906	Water Intrusion	2	G	Storefront system	Part of the newer portion of the storefront is 1/2" clear monolithic tempered glass in concealed	Prior wet sealing at time of installation, fair condition, no evidence of leak	Life Span: 10+ YEARS				X
1907	Water Intrusion	2	G	Storefront system	Anodized aluminum doors and storefront. Storefront construction tube and applied	Caulking in fair condition, needs re-caulking, no evidence of leak	Life Span: 10+ YEARS				X
1908	Water Intrusion	2	G	Storefront/ curtain wall system	Set back from courtyard. 3/4" glass doors at 9'-4" tall and 18" transoms above and 3'-0"	Prior wet sealing at time of installation, fair condition, no evidence of leak	Life Span: 10+ YEARS				X
1909	Water Intrusion	2	G	Curtain wall system	Twin span curtain wall with vertical butt joints. Clear and spandrel glass. Curtain wall	Prior wet sealing at time of installation, fair condition, no evidence of leak	Life Span: 10+ YEARS				X
1910	Water Intrusion	2	B	Curtain wall system	1/2" full height glass, column to column, no fins. Kalwall type canopies over each opening.	Prior wet sealing at time of installation, fair condition, no evidence of leak	Life Span: 10+ YEARS				X
1911	Water Intrusion	2	G	curtain wall system	Clear anodized curtain wall with clear insulating glass. Framed at horizontals and verticals.	Fair condition, no evidence of leak	Life Span: 10+ YEARS				X

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1912	Water Intrusion	2	B	curtain wall system	Stainless steel clad curtain wall with obscure glass. Stainless steel parapets and soffits.	Fair condition, no evidence of leak	Life Span: 10+ YEARS				X
1913	Water Intrusion	5	D	Sloped curtain wall/skylight	Sloped glazing over glass block wall. On exterior of the sloped wall there are randomly placed	Placement of studs on outside of slope suggests effort to fix or divert water, removal of studs, inspect weather seals at framing and	Life Span: 10+ YEARS				X
1914	Water Intrusion	1	A	curtain wall system	3/4" clear and obscure glass walls (obscure at Donor Wall) with Kalwall type canopies at	Prior wet sealing at time of installation, fair condition, no evidence of leak	Life Span: 10+ YEARS				X
1915	Water Intrusion	2	A	curtain wall system	Same curtain wall system as adjacent to Plaza Studio. Stainless steel clad horizontal	Fair condition, no evidence of leak	Life Span: 10+ YEARS				X
1916	Water Intrusion	4	D	curtain wall system	Continuation of lower curtain wall. See description of Art of the America's curtain wall	Prior wet sealing at time of installation, fair condition, no evidence of leak	Life Span: 10+ YEARS				X
1917	Water Intrusion	1	A	curtain wall system	6 each full height curtain walls. Anodized aluminum storefront type framing. Tubular	Glazing Gaskets not visible, framing finish in fair condition but color faded, evidence of Leakage on wet glazed at glass to frame and frame to	Wet seal may be required, replacement in 3-5 years, anodized finish will continue to fade				X
1918	Water Intrusion	1	A	storefront system	Center glazed storefront, anodized finish, 12'-0" tall, 6 each column to column like at	Vertical members are heavily pitted, like they were struck by buckshot, pitting is down to bare aluminum, pitting won't affect the structural	System is set back so water intrusion not likely		X		
1919	Water Intrusion	1	C	storefront system	Same system as Bing Center Lobby. Anodized aluminum storefront with applied stops.	Heavy pitting on vertical mullions like 1st floor Ahmanson Building above. Not quite as bad as Ahmanson Building, Glazing Gaskets not	Life Span: 10+ YEARS		X		
1920	Water Intrusion	1	G	zipper wall system	4 sided zipper wall system facing Calder pond.	Fair condition, no evidence of leak	Life Span: 10+ YEARS				X
1921	Water Intrusion	1	G	Curtain wall system	Continuation of Plaza Studio curtain wall.	fair condition, no evidence of leak	Life Span: 10+ YEARS				X
1923	Water Intrusion	1	C	Plaza walkway system	Coal tar pitch water proofing system with concrete topping slab	Coal tar pitch oozes up through cracks in the concrete topping slab, cracks in topping slab, existing deck might not be sloped, further study	needs immediate replacement, 1-2 years remaining service	X			
1924	Water Intrusion	2	G	plaza walkway system	Waterproofing unknown - likely bituminous such as hot rubberized asphalt, concrete	Leaks between Hammer Building and AOA in long hallway. Efflorescence on soffits on back side of Hammer Building under podium.	5-10 years remaining serviceable life with repairs		X		
1925	Water Intrusion	2	A	plaza walkway system	Coal tar pitch water proofing system with concrete topping slab	Leak Stains Observed on Mid-Height of Parapet above the ground level statue area, Coal Tar Pitch oozes up through cracks, Existing deck	needs immediate replacement, 1-2 years remaining service			X	
1926	Water Intrusion	2	G	plaza walkway system	Unknown	Daylight observed below one expansion joint on rear side of Hammer Building - possible leak. Expansion Joint cover near Ahmanson is	5-10 years remaining serviceable life with repairs		X		
1927	Water Intrusion	2	G	plaza walkway system	Concrete rail abutments	Some Rail Abutments exhibit cracks at the joining section	Replace the cracked abutments			X	
2101	Accessibility	1	G	Permanent Room I.D. Signs	Tactile wall signs having raised text and Grade 2 Braille	Throughout the facility, permanent room identification with Braille is not provided at permanent rooms.	Create a room sign package for the facility.		X		
2102	Accessibility	1	A	Directional Signage	Site Signage	Directional signage is greatly lacking and/or missing at decision points in the path of travel, resulting in the need for steps to be retraced.	Create a site directional sign package for the facility.		X		
2103	Accessibility	1	B	Site Directory	Site directory not provided.	A site directory is required to indicate the various building, path of travel, elevator locations, box offices and restrooms	Create and place a directory at site entry points and at the central courtyard.		X		
2401	Accessibility	1	B	Visual Warning Stripes	All stairways	Stair treads throughout the facility lack the required visual warning stripes.	Interior stairs shall have the upper approach and lower tread marked by a stripe providing clear visual contrast. Exterior stairs shall have the		X		
2402	Accessibility	1	G	Stair Handrails - Entrance	Handrail extensions	Handrails do not provide the required level extensions at the top and bottom.	Modify all handrails.		X		

<div> <div>OWEN</div> <div>LACMA Building Evaluation Matrix</div> </div>											
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2403	Accessibility	1	G	Stair Handrails - Entrance	Handrails missing at both sides	Handrails are not provided at the far left and far right sides of the entrance stairs.	Provide compliant handrails.		X		
2701	Accessibility	1	G	Service Counter	Counter Height	Counter is not accessible at 41" high, located at the employee/visitors entrance office at Wilshire.	Lower counter to meet compliance.		X		
2501	Accessibility	1	G	Automatic Door Closers	Door Closer Adjustment	Doors having closers, throughout the facility require excessive force to open and/or close too fast.	Adjust all door closers throughout the facility.		X		
2301	Accessibility	1	G	Ramp Handrails	Handrail extensions	The ramp handrails at the Wilshire entrance fails to provide the required level extensions.	Modify handrails to provide a level extension, a minimum 12" in length before turning down.		X		
2404	Accessibility	1	G	All Stairwells	Guards	Guard rails are not provided at the open sides of stairs.	Modify railing to include guards, a minimum 42" high above the nosing of the treads at the open sides of all stairwells.		X		
2405	Accessibility	1	A	All Stairwells	Tactile Floor Signs	The required tactile floor signs are not provided at each level of all stairwells.	Create a sign package for all stairwells. Signs shall have Raised text and Grade 2 Braille		X		
2406	Accessibility	1	A	All Stairwells	Floor Directory Signage	Directory signs at each floor do not provide Braille.	Provide new signs with Braille.		X		
2702	Accessibility	1	A	Employee Lockers	Bench	The required bench is not provided at employee locker areas - various locations.	Provide a compliant bench at each locker area.		X		
2106	Accessibility	1	A	Restroom Signs	Door Signs & Wall Signs	Door signs at restrooms throughout the facility fail to provide the required visual contrast with the color of the doors. The required tactile wall	Replace all geometric door signs as needed. New signs shall provide visual contrast, either light-on-dark or dark-on-light. Add the tactile		X		
2201	Accessibility	1	A	Restrooms - AHM	Lavatory Counter	Counter height is not accessible.	At a minimum, provide one lowered lavatory counter space, a minimum 36" wide at a height not greater than 34".		X		
2202	Accessibility	1	A	Restrooms - AHM	Dispensers	Dispensers too high	Lower a minimum one of each dispenser to 40" max.		X		
2203	Accessibility	1	A	Restrooms - AHM	Stall Doors	Stall doors are not self-closing	Replace hinges.		X		
2204	Accessibility	1	G	Restrooms - AHM	Coat Hooks	Coat hooks at stall doors are not within reach	Provide an additional coat hook no higher than 48".		X		
2205	Accessibility	1	A	Women's Restroom - AHM	WC	WC location not accessible.	Relocate WC to compliant location.		X		
2206	Accessibility	1	A	Women's Restroom - AHM	Grab Bar	Grab bar spacing above flush valve is insufficient.	Raise grab bar to provide 1-1/2" space minimum.		X		
2207	Accessibility	1	G	Women's Restroom - AHM	Stall Partition	Partition door not properly located opposite the WC.	Re-configure partition panels. Door hinge side to have a 4" max side stile.		X		
2208	Accessibility	1	G	All Women's Restrooms	Sanitary Napkin Dispenser	Dispenser operating controls are not compliant - requiring tight grasping and twisting of the wrist	Remove and replace dispensers with ADA models.		X		
2001	Accessibility	1	A	Central courtyard	Concrete joints	Concrete joint spacing not compliant at areas where joint filler is missing.	Refill joints as needed		X		
2703	Accessibility	1	A	Box Office	Counters	Not all Counters are compliant for height. Height waivers due to ground surface slope.	Lower counters or modify grade below counters.		X		
2407	Accessibility	1	A	Stairwell - Hammer	Grip surface interruption	Handrails are not compliant. Connection is improperly made at the side of rails.	Modify handrails. Connections shall be from below the rails, min 1-1/2"		X		
2704	Accessibility	1	A	Drinking Fountains - Hammer	Protrusion	Drinking fountains protrude into the path of travel	Provide barrier rails		X		

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2209	Accessibility	1	A	AHM Restrooms	Ambulatory stall	Where 6 or more stalls are provided, the required ambulatory stall is not provided.	Create an ambulatory stall when six or more stalls are provided.		X		
2210	Accessibility	1	A	AHM Restrooms	Accessible Stalls	Partition panels side stile s found to be 6" when 4" max is specified.	Modify partition panels as needed to provide side stiles at the accessible stall which are 4" max in width.		X		
2211	Accessibility	1	A	Lavatories	Knee & Toe Space	Plumbing beneath cover protrudes into knee & toe space.	Re-plumb as needed to provide clear space.		X		
2212	Accessibility	1	D	All Restrooms	Baby Changing Tables	Baby changing tables, by design, cannot meet CA codes for both accessory height and knee space at the same time.	Remove all baby changing tables.		X		
2213	Accessibility	1	D	Men's Restroom - AHM	Grab Bars	Grab bars at the accessible stall are not compliant for location.	Re-set grab bars.		X		
2601	Accessibility	1	C	Elevators - AHM	Handrails	Handrails are not provided at the back wall.	Install handrails.		X		
2705	Accessibility	1	C	AHM - Elevators	Control Panels	Buttons and Emergency phones are not compliant for height.	Upgrade all control panels.		X		
2002	Accessibility	1	C	AHM Entrance	Power Door Push Plate	One activator plate provided, Two are required..	Install toe push plate.		X		
2214	Accessibility	1	C	AHM - Restroom Signage	Tactile Wall Signs	Tactile wall signs at restroom doors no not include Braille Descriptors.	Remove & replace wall signs at all restrooms		X		
2215	Accessibility	1	A	AHM - Restrooms	Lavatory Rim Height	Rim height is greater than 34"	Lower all counters as needed to provide a lavatory rim height not greater than 34".		X		
2216	Accessibility	1	G	AHM - Men's Restroom	Door Pull at stall door	First Floor stall door is missing the required U-Pull handle.	Provide U-Pull handle at stall door.		X		
2217	Accessibility	1	G	AHM - Men's Restroom	WC Location	First floor WC not compliant for distance from side wall.	Move waste line to compliant location and patch floor.		X		
2218	Accessibility	1	G	AHM - Both Restrooms	Grab Bars & Dispensers	First floor Grab bars & dispensers are not compliant for location.	Reset grab bars and stall dispensers to compliant location and patch tiles.		X		
2408	Accessibility	1	G	AHM Galleries	Stair Handrails	Handrail diameter - Gripping surface not compliant.	Replace handrails.		X		
2706	Accessibility	1	G	AHM - Drinking Fountain	First Level drinking fountain not accessible & Location is a Protrusion Hazard	Barrier Rails & Signage.	Install barrier rails at both sides. Add directional sign to indicate location of nearest accessible Fountain(s).		X		
2219	Accessibility	1	G	AHM - Restrooms 2nd Level	Signage	Restrooms are not accessible.	Provide directional signage indicating location of nearest accessible restrooms.		X		
2409	Accessibility	1	G	AHM - Atrium Grand Stair	Visual Warning Stripes	Stair treads lack the required visual warning stripes.	Interior stairs shall have the upper approach and lower tread marked by a stripe providing clear visual contrast.		X		
2707	Accessibility	1	B	AHM - Atrium Guard Wall	Height of Guard	Guard wall is not compliant for height.	Provide metal railing (or similar) as needed to increase height to 42" minimum.		X		
2410	Accessibility	1	A	AHM - Atrium Grand Stair	Handrails	Handrail extensions fail to project level a minimum 12 inches.	Modify all top and bottom handrails.		X		
2104	Accessibility	1	A	Signage	Tactile Exit Signs	Each exit access door from an interior room or area to a corridor or hallway shall be identified by a tactile exit sign with the words "EXIT"	Create an exit sign package for the facility.		X		

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A/E Comment No.	System	Floor	Building	Title	Item	Condition	Recommendation	Priority 1 (Immediate)	Priority 2 (2-5 years)	Priority 3 (5-10 Years)	Priority 4 (10+ Years)
2411	Accessibility	1	A	AHM - Stairwells	Handrails	Handrail diameter - Gripping surface not compliant.	Replace handrails		X		
2412	Accessibility	1	A	AHM - Grand Stair	Handrails	Handrail configuration leads to a column. This is a trap condition and requires re-tracing of steps.	Provide barrier rail at bottom		X		
2708	Accessibility	1	A	Fire Strobe - First level corridor at Employee Break Rm.	Height	Strobe appliance too low	Raise strobe		X		
2709	Accessibility	1	G	First level Administration Office	Drinking Fountain	Drinking Fountain not accessible.	Provide new Hi-Lo accessible fountain		X		
2413	Accessibility	1	C	First Level Staff Entrance	Stair handrails	Handrail missing. Existing handrail not compliant.	Provide new handrails at both sides of stair.		X		
2710	Accessibility	1	G	Hammer - Escalator	Warning Stripe	Yellow warning stripe is worn	Re-stripe paint		X		
2220	Accessibility	1	G	AOA - Restrooms (See 33)	Stall Doors	Stall doors are not self-closing. Coat hooks too high.	Adjust or replace hinges. Add lower coat hooks		X		
2221	Accessibility	1	A	AOA - Women's Restroom	Door Clearance	14" strike-side clearance found/ 18" minimum is required.	Reverse swing of door.		X		
2711	Accessibility	1	B	Bing - Theater	Accessible Seating	Wheelchair and semi-ambulatory seating not provided.	Modify seating		X		
2712	Accessibility	1	G	Bing - Theater	Assistive listening system	Permanently installed assistive listening system not provided.	Provide listening system in theater and signage at lobby.		X		
2003	Accessibility	1	G	Bing - Theater	Stage Access	Accessible access not provided.	Add ramp or platform lift.		X		
2713	Accessibility	1	G	Bing - Theater Lobby	Drinking Fountain	Drinking fountain is not accessible.	Remove fixture. Provide new Hi/Lo drinking fountain at an accessible location.		X		
2414	Accessibility	1	B	Bing - Stairwell	Handrails & Guards	Handrail gripping surface not-conforming. Guards not provided at open sides of stair.	Replace handrails. Install guards at open sides.		X		
2105	Accessibility	1	A	Signage	Floor Level Signs	Braille signs not provided at each floor level, in all stairwells.	Provide tactile floor level signs.		X		
2222	Accessibility	1	A	Bing - Lwr Level Women's Restroom	Dispensers & Lavatories	Dispensers & Lavatories are too high	Lower a minimum of one of each dispenser and one lavatory.		X		
2223	Accessibility	1	A	Bing - Lwr Level Women's Restroom	Stall Door	Door not self-closing. U-pull handle missing.	Adjust or replace self-closing hinges. Add U-pull handle beneath latch.		X		
2224	Accessibility	1	G	Bing - Lwr Level Women's Restroom	Toilet paper dispenser	Dispenser not located within 36" of back wall.	Relocate dispenser.		X		
2714	Accessibility	1	G	Bing - DC Brown Auditorium	Accessible Seating	Removable armrests not provided at aisle seats.	Modify seats as needed to conform.		X		
2502	Accessibility	1	B	First Level - Security Office	Door Hardware	Round door knob is not compliant.	Replace knob with lever lockset.		X		
2225	Accessibility	1	C	Bing - Lwr Level Men's Restroom	Signage	Restroom is not accessible.	Provide signage indicating the location of the nearest accessible restroom.		X		

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2715	Accessibility	1	C	Bing - Lobby	Coat Check Counter	Counter is not accessible.	Lower counter to a maximum 34".		X		
2004	Accessibility	1	C	Bing - Exterior	Broken Concrete	Broken concrete within the path of travel.	Repair damaged concrete to provide a smooth and continuous surface.		X		
2602	Accessibility	1	C	Hammer - Elev	Elevator signal lantern.	Elevator missing hall or in-car signal lantern.	Provide signaling devices.		X		
2226	Accessibility	1	C	Men's Restroom - AHM	Maneuvering space at door	Wheelchair maneuvering space not provided at door	Reconfigure restroom and entrance.		X		
3101	Civil	1	Site	Site domestic water line	Site underground domestic water piping	Site water and fire utility piping are 50 years old. Per staff interview, there is not a history of line leakage at this time. Therefore, replacement	Remove and replace approx. 200 LF 6" site domestic water line. - PVC should be an acceptable replacement.			X	
3102	Civil	1	Site	Site Sanitary Sewer	Grease Interceptor	Based on the interview with the staff the sewer line needs to be cleaned out frequently due to a kitchen/food preparation area and there is not a	Refer to plumbing section for grease interceptor recommendations.			X	
3201	Civil	1	Site	Site fire main	Site fire line piping	Site water and fire utility piping are 50 years old; however, per staff interview the site fire has been recently hydro-tested and passed.	Remove and replace approx. 80 LF 6" fire line (cast iron). - There may be a possibility that the installed			X	
3202	Civil	1	Site	Site fire main	Double detector check assembly	If the site fire main needs to be upsized and/or replaced the double detector check assembly will also need to be replaced.	Remove and replace double detector check assembly. - There may be a possibility that the installed			X	
3301	Civil	1	Site	Site Sanitary Sewer	Site Sanitary Sewer Line	Based on the interview with the staff the sewer line needs to be replaced due to line settlement where there are dips in the line.	- Remove and replace approx. 750 LF 8" sanitary sewer. - The original site sewer is CI. PVC should be			X	
3401	Civil	1	Site	Roof Drain	Roof Drain	Staff indicated that a broken storm drain line is the main contributor to the water intrusion in this location.	Remove and replace the broken sections of the roof drain and site storm drain where the intrusion is occurring. Refer to water intrusion			X	
3402	Civil	1	Site	Site Storm drain	Site drainage	Staff did not indicate that site drainage is a problem.	Other than the roof drain where the intrusion is occurring (item #6 above), we do not recommend site storm drain to be replaced.			X	
5001	Structural	1	A	Footing cracks	Footing cracks	Cracks in Mat footing	Requires complete seismic study to determine if it can withstand future seismic activity		X		
5201	Structural	1	A	Seismic Crack Repair	Seismic Crack Repair	Repaired diagonal Cracks in walls at the transformer room	Requires complete seismic study to determine if it can withstand future seismic activity		X		
5202	Structural	1	A	Seismic Crack Repair	Seismic Crack Repair	Repaired diagonal Cracks in walls at the corner walls	Requires complete seismic study to determine if it can withstand future seismic activity		X		
5203	Structural	2	A	Shear wall crack repairs	Shear wall crack repairs	Repaired diagonal cracks in shear walls at the south corners	Requires complete seismic study to determine if it can withstand future seismic activity		X		
5204	Structural	2	A	External shell cracks	External shell cracks	Cracks in external shell	Requires complete seismic study to determine if it can withstand future seismic activity		X		
5205	Structural	2	B	Column cladding cracks	Column cladding cracks	Cracks in column cladding at Hammer	Requires complete seismic study to determine if it can withstand future seismic activity		X		
5206	Structural	3	A	Shear wall deficiencies	Shear wall deficiencies	Discontinued shear walls at the corners of Ahmanson	Connect shear walls across the corners of the Ahmanson building		X		
5207	Structural	3	B	Shear wall deficiencies	Shear wall deficiencies	Discontinued shear walls at the corners of Hammer	Connect shear walls across the corners of the Hammer building		X		
5208	Structural	3	G	Cracked shear walls	Cracked shear walls	Cracks in the shear wall	Requires complete seismic study to determine if it can withstand future seismic activity		X		

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5209	Structural	3	D	AOA Diaphragm discontinuity	AOA Diaphragm discontinuity	Arts of the Americas Building significant diaphragm opening and discontinuity	Connect AOA diaphragm		X		
5210	Structural	4	B	Displaced canopy connection	Displaced canopy connection	Displaced/deformed connection of new steel canopy to the roof at hammer	Replace the steel canopy connectors		X		
5211	Structural	4	A	Roof Slab cracking	Roof Slab cracking	Cracks in the pad and slab at the main roof slab in Amhanson	Requires complete seismic study to determine if it can withstand future seismic activity		X		
5212	Structural	4	G	Partial column support	Partial column support	Partially supported 40-ft tall columns with heavy cladding	Requires complete seismic study to determine if it can withstand future seismic activity		X		
5213	Structural	5	A	Lateral system	Lateral system	Undefined lateral system at PH	Complete seismic study to determine condition of the lateral system		X		
5301	Structural	3	B	Spalling Columns	Spalling Columns	Spalled/cracked column in hammer	replace Spalling Columns		X		
5401	Structural	3	A	Equipment restraint deficiencies	Equipment restraint deficiencies	Not sufficiently restrained pump and mechanical equipment	Add required restraints to equipment		X		
5601	Structural	1	A	Utility pipes	Utility pipes	Unbraced utility pipes hung overhead	Brace utility pipes		X		
6103	Mechanical	5	A	AH-1 on Roof Level	CHWS&CHWR	Insulation condition is bad	Need to replace	X			
6114	Mechanical	5	A	Air Handling Room at Penthouse Level	Steam Rejecter System	not operational	Need to replace		X		
6115	Mechanical	5	A	Air Handling Room at Penthouse Level	Steam Rejecter System	not operational	Need to replace		X		
6117	Mechanical	5	A	Out side air damper on roof	OSA Damper for AH-1&2	Broken Motor and Non operate Damper	Need to replace motor and damper		X		
6118	Mechanical	5	A	Out side air damper on roof	OSA Damper for AH-1&2	Damper is stuck in the closed position	Need to replace motor and damper		X		
6119	Mechanical	5	A	Out side air damper on roof	OSA Damper for AH-3&4	Damper is stuck in the closed position	Need to replace motor and damper		X		
6120	Mechanical	5	A	Out side air damper on roof	OSA Damper for AH-3&4	Damper is stuck in the closed position	Need to replace motor and damper		X		
6121	Mechanical	4	B	AH-1 on Roof Level	Condensate pipe	Condensate line is disconnected and drain onto the roof.	Need to reconnect condensate pipe		X		
6122	Mechanical	4	B	AH-1 on Roof Level	Condensate pipe	Condensate line is disconnected and drain onto the roof.	Need to reconnect condensate pipe		X		
6123	Mechanical	4	B	AH-1 on Roof Level	Condensate pipe	Condensate line is disconnected and drain onto the roof.	Need to reconnect condensate pipe		X		
6124	Mechanical	4	B	AH-2 on Roof Level	Heating hot water	Not in good condition	Need to replace		X		
6125	Mechanical	4	C	HHW pipe in Air Handling Units Room	HHW Pipes	Water leaking above units	Need to replace		X		

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6126	Mechanical	1	C	VDF for Units in AH Room	VFDs	One VFD is disconnect, the rest has no number	Reconnect and label.		X		
6127	Mechanical	1	C	VFD for Units in AH Room	VFDs	No Label	Label VFDs		X		
6128	Mechanical	1	C	Humidifier for AH-3 serves lower level	Humidifier	Disconnect	Replace Humidifier for AH-3		X		
6129	Mechanical	1	C	Humidifier for AH-3 serves lower level	Humidifier	Pipes disconnect	Reconnect or replace pipes		X		
6130	Mechanical	1	D	Humidifier for AH-1 &2	Humidifiers	Humidifiers for AH-1&2 are shut-off	Need to turn on or replace humidifiers if not operational		X		
6131	Mechanical	1	D	Duct Re-Heat for Ah-1&2	Duct Re-Heat	Disconnect	Reconnect or replace if not operational		X		
6132	Mechanical	1	D	OSA Dampers for AH-1&2	OSA Dampers	Dampers are closed 100%	Need to open OSA Dampers for AH-1&2		X		
6133	Mechanical	1	D	Control Panel for AH-3	Control Panel for AH-3 to serve Computer Room	Good and a temporary in room cooling evaporator to serve as a supplement system	Suggest to have a proper supplement system to serve this computer are space		X		
6201	Mechanical	5	A	Cooling Towers on Roof	Cooling Towers	Fiberglass coating with a lot of algae built up on	Need to resurface and chemical treatment		X		
6204	Mechanical	5	A	Cooling Towers on Roof	Cooling Tower Basin	Fiberglass coating with a lot of algae built up on	Need to resurface and chemical treatment		X		
6205	Mechanical	5	A	Cooling Towers on Roof	Cooling Tower Drain	A lot of water on the roof, algae built up in the tower basin	Need take care of this issue		X		
6208	Mechanical	5	A	Cooling Towers on Roof	Cooling Tower Drain	A lot of water on the roof, algae built up in the tower basin	Need take care of this issue		X		
6209	Mechanical	5	A	Cooling Towers on Roof	Cooling Tower Drains.	A lot of water on the roof, algae built up in the tower basin	Need take care of this issue		X		
6211	Mechanical	5	A	Cooling Towers on Roof	Cooling Tower Frame	Fiberglass coating with a lot of algae built up on	Need to resurface		X		
6212	Mechanical	5	A	Cooling Towers on Roof	Cooling Tower Frame	Fiberglass coating with a lot of algae built up on	Need to resurface		X		
6216	Mechanical	5	A	Chiller Room	Chiller Control Panel	Chiller-1 has 56% load, Chiller-2 has 64% load	Need to control Chiller Liquid Temperature and Condenser Liquid Temperature in proper way.		X		
6217	Mechanical	5	A	Chiller Room	Cooling Tower-3 Fan Gear Box	Not Running	Need to replace		X		
6224	Mechanical	5	C	Evaporator Cooler on roof	Rooftop Evaporator Cooler	not operational	Need to replace		X		
6301	Mechanical	5	A	Louver on roof	Outside air louver	Rusty Condition	Need to replace		X		
6302	Mechanical	5	A	Louver on roof	Outside air louver	Rusty Condition	Need to replace		X		

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6303	Mechanical	5	A	Louver on roof	Outside air louver	Rusty Condition	Need to replace		X		
6304	Mechanical	5	A	Steam Humidifier on Roof	Steam Humidifiers	Shut off and non-operate	Need to replace		X		
6305	Mechanical	5	A	Fire Smoke Detector for S-16 on roof	Fire Smoke Detector	not operational	Need to replace		X		
6306	Mechanical	5	B	HHW Pipe for S-8	HHW Pipe Disconnection	Disconnect	Need to replace		X		
6307	Mechanical	5	B	HHW Pipe for S-8	HHW Pipe Disconnection	Disconnect	Need to replace		X		
6308	Mechanical	5	B	HHW Coils for S-8	HHW Coils are Leaking and Disconnect	Leaking and disconnect	Need to replace		X		
6309	Mechanical	5	B	Humidifier for S-8	Humidifier	not operational	Need to replace		X		
6310	Mechanical	5	B	OSA Damper for S-8	OSA Damper	Not operate and in closed position	Need to replace motor		X		
6311	Mechanical	5	B	OSA Damper for S-8	OSA Damper	not operational and in closed position	Need to replace motor		X		
6312	Mechanical	5	B	OSA Damper for S-7&8 on roof level	OSA Damper	Closed position and not operational. No Outside air	Need to replace motor		X		
6313	Mechanical	5	B	OSA Damper for S-7&8 on roof level	OSA Damper	Closed position and not operational. No outside air	Need to replace motor		X		
6314	Mechanical	5	C	OSA Filters of S-2&4 on roof	OSA Filters	Missing	Need to replace		X		
6315	Mechanical	5	C	OSA Filters of S-2&4 on roof	OSA Filters	Missing	Need to replace		X		
6316	Mechanical	5	C	HHWS&R, CHWS&R to S-2	HHWS&R, CHWS&R	Condition is Ok	Suggest to replace.		X		
6317	Mechanical	4	C	CHW Control Valve for S-1&4	CWH Control Valve	Weather proof is missing	Need to replace.		X		
6318	Mechanical	4	C	CHW Control Valve for S-1&4	CWH Control Valve	Weather proof is missing	Need to replace		X		
6319	Mechanical	4	C	2 way control valve for S-1&4	2 way control valve	Missing insulation	Need to replace		X		
6320	Mechanical	4	C	2 way control valve for S-1&4	2 way control valve	Missing insulation	Need to replace		X		
6321	Mechanical	4	C	Return fan for S-1 on roof	Return fan motor	not operational, fan motor and fan wheel are not aligned	Need to replace		X		
6322	Mechanical	4	C	Return fan for S-1	Return fan motor	not operational, fan motor and fan wheel are not aligned	Need to replace		X		

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6323	Mechanical	4	C	HHW Pipes	HHW Pipes	Disconnect and abandon	Need to replace		X		
6324	Mechanical	4	C	HHW Pipe	HHW Pipes	Water leaking above units	Need to replace		X		
6801	Mechanical	5	A	Electric humidifier on roof	Electric humidifier for S-16	not operational	Need to replace		X		
8101	Plumbing	5	A	Water supply to Boilers	2" water supply to boiler with pressure reducing valve and strainers	Water pipes are in good condition	Water copper pipes are not leaking but need to clean all corrosions from previous water leaking. It will help to prevent further damage to the			X	
8201	Plumbing	1	A	Fire water	1 1/2" Wet stand pipe near cooling towers	This 1 1/2" Wet stand pipe in good condition	Need to repaint in order to prevent corrosion	X			
8202	Plumbing	1	A	Fire Hose Cabinet	There is no Fire Sprinkler for Chiller room but it does have Fire Hose Cabinet	Fire Hose Cabinet is in good condition	Fire Hose Cabinet need to relocate because there is no clear pathway to access this F.H.C			X	
8205	Plumbing	5	A	Fire water	4" Wet Stand Pipe on roof	Fire water pipe is in good condition	Need to repaint to prevent corrosion	X			
8212	Plumbing	4	C	Fire water	2" Wet Stand Pipe on roof	Water is leaking from Fire hose connection valve	An existing 2" fire hose connection on roof of building C needs to be fix in order to stop water leaking from the valve	X			
8301	Plumbing	5	A	Floor Sink	Flood inside Penthouse-Air Handling room	Floor sink get clogged and cause flood inside Air Handling room	Existing floor sink need to replace and the drain pipe from this floor sink need to fix and remove the clogged		X		
8302	Plumbing	4	C	Fire water	2" Wet Stand Pipe on roof	2" Wet Stand Pipe Hose connection is in good shape and need to relocate	An Existing Wet Stand Pipe (W.S.P) hose connection near Air Handling Unit on the roof needs to relocate. There is no clear pathway to		X		
8303	Plumbing	2	C	Floor Sink	Condensate Pump inside the Floor sink	An existing condensing pump is inside the floor sink. This floor sink may get clogged. Need to fix and replace with new floor sink	Existing floor sink need to replace and the drain pipe from this floor sink need to fix and remove the clogged		X		
8304	Plumbing	2	C	Grease interceptor	All Kitchen equipment drainage	All kitchen equipment do not have grease interceptor	Grease Interceptor need to be provided for all Kitchen Equipment per CPC-2013 section 1014.1PC-2013 section 1014.1		X		
8401	Plumbing	5	A	Storm Drain	There is no Fire Sprinkler for this Boiler room but it does have Fire Hose Cabinet	An existing combination 3" storm drain & overflow drain pipes inside Air Handling Unit S1 is leaking from the flange	Existing storm drain pipe below roof need to repair to stop water leaking		X		
8402	Plumbing	5	A	Condensate Pipe	Feed water tank condensate pipe	An existing 3/4" PVC condensate has a wrong slope direction	An existing 3/4" PVC condensate drain line from boilers feed water tank need to fix and change the slope downward to the funnel drain not back		X		
8403	Plumbing	5	A	Storm Drain	Roof & Overflow Drain	Roof drain strainer is broken. All overflow storm drains do not comply with current code	An existing roof drain strainer is broken and need to replace with new. New overflow storm drain with 2" water dame need to install right at		X		
8404	Plumbing	4	B	Storm Drain	Roof & Overflow Drain	All overflow storm drains do not comply with current code	New overflow storm drain with 2" water dame need to install right at above of all existing overflow storm drain pipe		X		
8405	Plumbing	4	C	Storm Drain	Roof & Overflow Drain	All overflow storm drains do not comply with current code	New overflow storm drain with 2" water dame need to install right at above of all existing overflow storm drain pipe		X		
9002	Electrical	2	A	Unit Substation	Substation T-1	This type of substation should be replaced every 20 years, this is currently 50 years old and passed its useful life and reported over heating.	Replace this substation T-1, with new including all associated distribution boards.		X		
9003	Electrical	3	A	Unit Substation	Substation T-2	This type of substation should be replaced every 20 years, this is currently 50 years old and passed its useful life and reported over heating.	Replace this substation T-2, with new including all associated distribution boards.		X		
9004	Electrical	5	A	Unit Substation	Substation T-3 & T-3A	This type of substation should be replaced every 20 years, this is currently 50 years old and passed its useful life and reported over heating.	Replace this substation T-3, with new including all associated distribution boards. Do not replace T-3A		X		

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9005	Electrical	All	G	Power receptacle outlets	Power receptacle outlets	The Power receptacle outlets are in average condition. Some areas and in the kitchen especially show signs of smoke damage	The faceplates should be removed to check for further damage, if damage is found the outlets should be replaced.		X		
9006	Electrical	1	A	Generator	Emergency Generator G-1, 82 kw and Auto- Transfer Sw.	This generator is reported in poor working condition, and it is 50 years old, including ATS & Distribution board	Generator set shall be replaced with new G-1, including ATS& Distribution Board		X		
9007	Electrical	1	A	Unit Substation	Substation T TR-1	This type of substation should be replaced every 20 years, this is currently 30 years old and passed its useful life. Also reported over	Replace this substation TTR-1, with new including all associated distribution boards.		X		
9008	Electrical	5	A	Unit Substation	Substation TTR-2 & MCC-A	This type of substation should be replaced every 20 years, this is currently 30 years old and passed its useful life. Also reported over	Replace this substation TTR-2, with new including all associated distribution boards and MCC-A		X		
9009	Electrical	5	A	Generator	Emergency Generator G-2, 50 kw and Auto- Transfer Sw.	This generator is reported in poor working condition, and it is 30 years old, including ATS & Distribution board	Generator set shall be replaced with new G-2, including ATS& Distribution Board		X		
9010	Electrical	1	B	Unit Substation	Substation T-4 and T-5	This type of substation should be replaced every 20 years, this is currently 50 years old and passed its useful life and reported over heating.	Replace this substation T-4 and T-5, with new including all associated distribution boards.		X		
9011	Electrical	3	B	Unit Substation	Substation T-6 and Motor Control Center MCC-D	This type of substation should be replaced every 20 years, this is currently 50 years old and passed its useful life and reported over heating.	Replace this substation T-6 with new including all associated distribution boards. MCC-D to remain as is.		X		
9012	Electrical	1	C	Unit Substation	Substation T-7	This type of substation should be replaced every 20 years, this is currently 50 years old and passed its useful life. Reported over heating.	Replace this substation T-7 with new including all associated distribution boards.		X		
9013	Electrical	3	C	Unit Substation	Substation T-8 and Motor Control Center MCC-C	This substation is only 4 years old and good condition. MCC-C is currently 50 years old and passed its useful life.	This substation T-8 is in good condition and to remain as is. Replace MCC-C with new.		X		
9014	Electrical	5	D	Unit Substation	Substation T-A & T-B ,Motor Control Center MCC-A & MCC-E	This oil type of substation should be replaced every 20 years, this is currently 30 years old and passed its useful life.	Replace only the oil type Transformers T-A & T-B with new. MCC-A & MCC-E, to remain as is.		X		
9015	Electrical	1	D	Switchboards & Distribution Boards	Switchboards S & SS & Distribution Boards	This Switchboards currently are 30 years old, reported in good condition.	These Switchboards are to remain as is.		X		
9101	Electrical	1	A	Generator	Emergency Generator G-3, 150 kw and Auto- Transfer Sw.	This generator is reported in Goods working condition and is 30 years old including ATS.	Generator set G-3, including ATS shall remain as is, with routine maintenance.		X		
9103	Electrical	All	G	Power receptacle outlets	Power receptacle outlets	The Power receptacle outlets are in average condition. Some areas and in the kitchen especially show signs of smoke damage	The faceplates should be removed to check for further damage, if damage is found the outlets should be replaced.		X		
9202	Electrical	All	G	Lighting	Interior & exterior lighting - general office areas, men's/women's, lobbies,	Consist of incandescent, fluorescent & wall lights, including controls are inefficient, and do not meet the current codes requirements.	All lighting in these areas shall be replaced with new LED"S as required, including the controls		X		
9301	Electrical	All	G	Lighting	Special lighting in Auditoriums and Libraries, also Special lighting in Galleries, stairways	Consist of down lights incandescent, fluorescent & track lights, including controls are inefficient, and do not meet the current codes	All lighting in these areas shall be replaced with new LED"S as required, including the controls, and provide with new exit and egress lights		X		
9501	Electrical	All	G	Telephone Communications and Data (computers)	Telephone/Data Systems	There are (2)telephone systems, one HI-TECH (VOIP) and the Old PBX(NEC) Systems. DATA systems are current HI-TECH, with (LAN) at&t	Replace the old PBX with new HI-TECH (VOIP)Systems		X		
9502	Electrical	All	G	Security, Fire Alarm & P.A.	Security, Fire Alarm & P.A. Systems	This Security Management Systems was installed 7 years ago and reported to be in good conditions. Also the F.A. & integrated P.A.	This Security, Fire Life Safety &P.A. Systems have an annual service management . There to remain as is.		X		
9503	Electrical	1	C	Audio Visual Systems	Audio Visual Systems	There are (3) ventage 35mm&70mm Projectors in this room, including a 4th one for 6mm. Also an Audio Dolby sound systems equipment.	Replace the (3) old ventage projectors with new Digital Visual systems, also with new HI-TECH (Audio)Systems including new speakers and			X	
9504	Electrical	1	C	Audio Visual Systems (Brown Auditorium)	Audio Visual Systems	All Audio/Visual systems, speakers and Microphones are out dated.	Replace All Audio/Visual systems, speakers and Microphones with new Audio/Visual systems.			X	
9505	Electrical	1	C	Audio Visual Systems (Research Library)	Audio Visual Systems	All Audio/Visual systems, speakers and Microphones are installed at Feb. 2014	Audio/Visual systems are current and to remain as is.			X	

LACMA Building Evaluation Matrix

A/E Comment No.	System	Floor	Building	Title	Item	Condition	Recommendation	Priority 1 (Immediate)	Priority 2 (2-5 years)	Priority 3 (5-10 Years)	Priority 4 (10+ Years)
9506	Electrical	1	C	Audio Visual Systems (German Rifkind Library)	Audio Visual Systems	There are no Audio/ Visual systems in this Library.	Provide new Audio/Visual systems similar to exiting one located in Research Library.			X	



Project: LACMA



Picture 1

Comment #: A1101



Picture 2

Comment #: A1102

Picture 1: Comment# A1101
Drawing #: Group 1 Level 1
Bldg:
Item: Exit corridor asbestos floor tiles
Discipline: A Building

Picture 2: Comment# A1102
Bldg:
Drawing #: Group 1 Level 1
Discipline: A Building
Item: Exit corridor



Picture 3

Comment #: A1103.1



Picture 4:

Comment #: A1103.2

Picture 3: Comment# A1103.1
Bldg:
Drawing #: Group 1 Level 1
Discipline: A Building
Item: Exit corridor column

Picture 4: Comment# A1103.2
Bldg:
Drawing #: Group 1 Level 1
Discipline: A Building
Item: Exit corridor column



Picture 1

Comment #: A1103.3



Picture 2

Comment #: A1103.4



Picture 3:

Comment #: A1104



Picture 4

Comment #: A1105



Project: LACMA

Picture 1: Comment# A1103.3
Drawing #: Group 1 Level 1
Bldg:
Item: Exit corridor column
Discipline: A Building

Picture 2: Comment# A1103.4
Bldg:
Drawing #: Group 1 Level 1
Discipline: A Building
Item: Exit corridor walls

Picture 3: Comment# A1104
Bldg:
Drawing #: Group 1 Level 1
Discipline: A Building
Item: Exit corridor rated walls

Picture 4: Comment# A1105
Bldg:
Drawing #: Group 1 Level 1
Discipline: A Building
Item: Concrete house keeping pad



Picture 1

Comment #: A1106.1



Picture 2

Comment #: A1106.2



Picture 3

Comment #: A1106.3



Picture 4

Comment #: A1106.4



Project: LACMA

Picture 1: Comment# A1106.1
Drawing #: Group 1 Level 1
Bldg:
Item: Exit corridor rated walls
Discipline: A Building

Picture 2: Comment# A1106.2
Bldg:
Drawing #: Group 1 Level 1
Discipline: A Building
Item: Exit corridor rated walls

Picture 3: Comment# A1106.3
Bldg:
Drawing #: Group 1 Level 1
Discipline: A Building
Item: Exit corridor rated walls

Picture 4: Comment# A1106.4
Bldg:
Drawing #: Group 1 Level 1
Discipline: A Building
Item: Exit corridor rated walls



Picture 1

Comment #: A1107



Picture 2

Comment #: A1108



Picture 3

Comment #: A1109



Picture 4

Comment #: A1110.1



Project: LACMA

Picture 1: Comment# A1107
Drawing #: Group 1 Level 1
Bldg:
Item: Exit corridor suspended ceiling
Discipline: A Building

Picture 2: Comment# A1108
Bldg:
Drawing #: Group 1 Level 1
Discipline: A Building
Item: Water damage from adjacent \

Picture 3: Comment# A1109
Bldg:
Drawing #: Group 1 Level 1
Discipline: A Building
Item: Exit corridor floor concrete slat

Picture 4: Comment# A1110.1
Bldg:
Drawing #: Group 1 Level 1
Discipline: A Building
Item: Exit corridor rated walls



Picture 1:

Comment #: A1110.2



Picture 2

Comment #: A1111



Picture 3

Comment #: A1112



Picture 4:

Comment #: A1113



Project: LACMA

Picture 1: Comment# A1110.2
Drawing #: Group 1 Level 1
Bldg:
Item: Exit corridor rated walls
Discipline: A Building

Picture 2: Comment# A1111
Bldg:
Drawing #: Group 1 Level 1
Discipline: A Building
Item: Exit corridor suspended ceiling

Picture 3: Comment# A1112
Bldg:
Drawing #: Group 1 Level 1
Discipline: A Building
Item: Men's Restroom

Picture 4: Comment# A1113
Bldg:
Drawing #: Group 1 Level 1
Discipline: A Building
Item: Exit doors



Picture 1

Comment #: A1114



Picture 2

Comment #: A1115



Project: LACMA

Picture 1: Comment# A1114
Drawing #: Group 1 Level 2
Bldg:
Item: Passenger Elevator
Discipline: A Building

Picture 2: Comment# A1115
Bldg:
Drawing #: Group 1 Level 2
Discipline: A Building
Item: Exit corridor



Picture 3:

Comment #: A1201



Picture 4

Comment #: A1202

Picture 3: Comment# A1201
Bldg:
Drawing #: Group 1 Level 2
Discipline: A Building
Item: Ext. east elevation

Picture 4: Comment# A1202
Bldg:
Drawing #: Group 1 Level 2
Discipline: A Building
Item: Ext. east elevation



Picture 1 Comment #: A1203



Picture 2 Comment #: A1204



Picture 3 Comment #: A1205



Picture 4 Comment #: A1206



Project: LACMA

Picture 1: Comment# A1203
Drawing #: Group 1 Level 2
Bldg:
Item: Ext. east elevation
Discipline: A Building

Picture 2: Comment# A1204
Bldg:
Drawing #: Group 1 Level 1
Discipline: A Building
Item: Ext. south elevation

Picture 3: Comment# A1205
Bldg:
Drawing #: Group 1 Level 1
Discipline: A Building
Item: Ext. west elevation

Picture 4: Comment# A1206
Bldg:
Drawing #: Group 1 Level 2
Discipline: A Building
Item: Plaza concrete pavers

Los Angeles County Museum of Art
Ahmanson Hammer
Bing Art of the Americas

Building Evaluation

Comment# A1203. Comment# A1204.
Comment# A1205. Comment# A1206.

APPENDIX C

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Picture 1

Comment #: A1207



Picture 2

Comment #: A1208



Picture 3:

Comment #: A1209.1



Picture 4

Comment #: A1209.2



Project: LACMA

Picture 1: Comment# A1207
Drawing #: Group 1 Level 3
Bldg:
Item: Ext. north elevation
Discipline: A Building

Picture 2: Comment# A1208
Bldg:
Drawing #: Group 1 Level 1
Discipline: A Building
Item: Ext. north elevation

Picture 3: Comment# A1209.1
Bldg:
Drawing #: Group 1 Level 2
Discipline: A Building
Item: Ext. elevation

Picture 4: Comment# A1209.2
Bldg:
Drawing #: Group 1 Level 2
Discipline: A Building
Item: Ext. elevation

Los Angeles County Museum of Art
Ahmanson Hammer
Bing Art of the Americas

Building Evaluation

Comment# A1207. Comment# A1208.
Comment# A1209. Comment# A1209.

APPENDIX C

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Picture 1:

Comment #: A1213



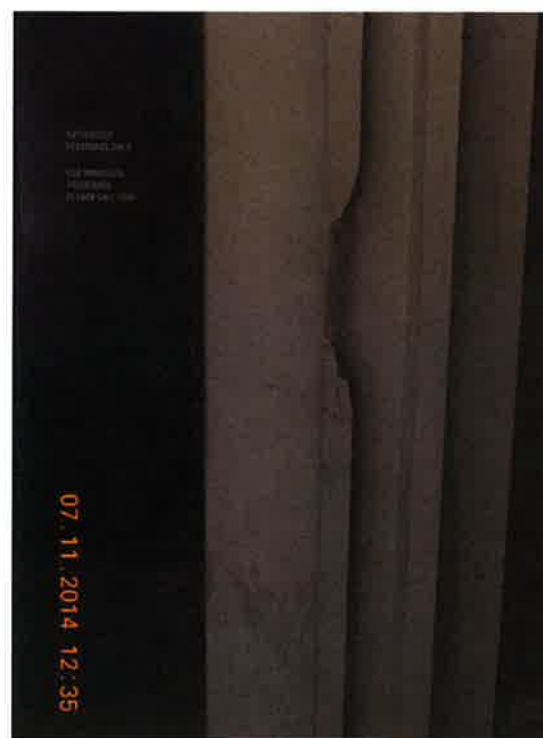
Picture 2:

Comment #: A1214.1



Picture 3

Comment #: A1214.2



Picture 4

Comment #: A1221



Project: LACMA

Picture 1: Comment# A1213
Drawing #: Group 1 Level 1
Bldg:
Item: Ext. north elevation
Discipline: A Building

Picture 2: Comment# A1214.1
Bldg:
Drawing #: Group 1 Level 2
Discipline: A Building
Item: Ext. exit doors path of egress

Picture 3: Comment# A1214.2
Bldg:
Drawing #: Group 1 Level 2
Discipline: A Building
Item: Ext. exit doors path of egress

Picture 4: Comment# A1221
Bldg:
Drawing #: Group 1 Level 1
Discipline: A Building
Item: Ext. concrete columns

Los Angeles County Museum of Art
Ahmanson Hammer
Bing Art of the Americas

Building Evaluation

Comment# A1213. Comment# A1214.
Comment# A1214. Comment# A1221.

APPENDIX C

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Picture 1

Comment #: A1223



Picture 2

Comment #: A1226



Picture 3

Comment #: A1401.1



Picture 4

Comment #: A1402.2



Project: LACMA

Picture 1: Comment# A1223
Drawing #: Group 1 Level 1
Bldg:
Item: Ext. south elevation
Discipline: A Building

Picture 2: Comment# A1226
Bldg:
Drawing #: Group 1 Level 3
Discipline: A Building
Item: Ext. plaster soffit

Picture 3: Comment# A1401.1
Bldg:
Drawing #: Group 1 Roof
Discipline: A Building
Item: Roofing, sheet metal flashing &

Picture 4: Comment# A1402.2
Bldg:
Drawing #: Group 1 Roof
Discipline: A Building
Item: Roofing, sheet metal flashing ;

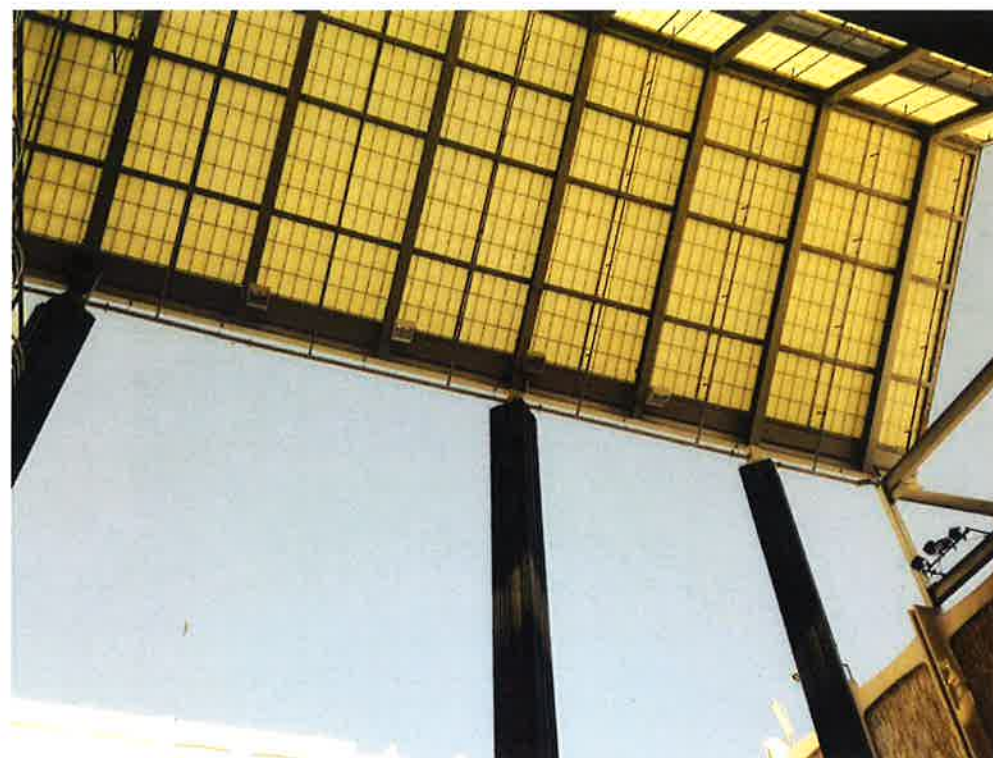


Project: LACMA



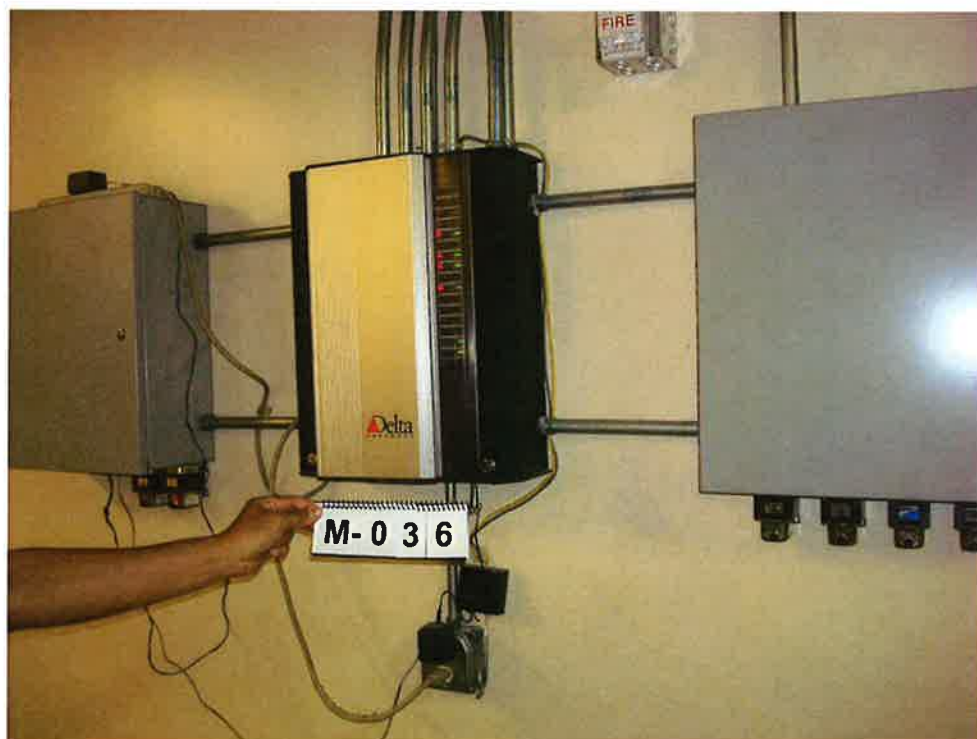
Picture 1

Comment #: D2221



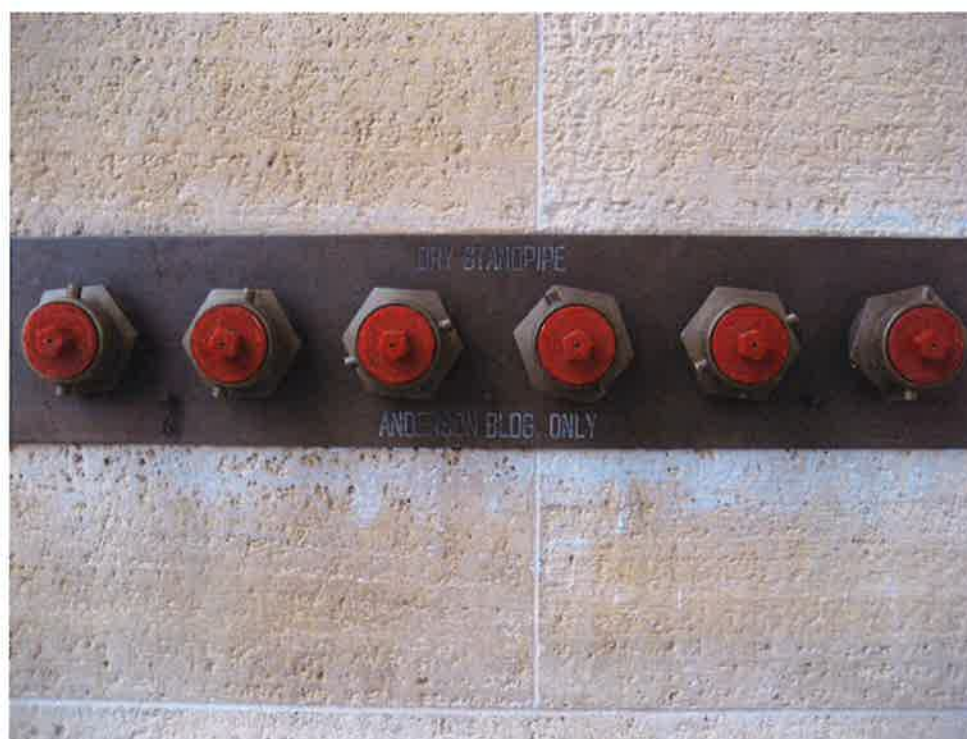
Picture 2:

Comment #: D5212



Picture 3:

Comment #: D6133



Picture 4

Comment #: D8005

Picture 1: Comment# D2221
Drawing #: Group 1 Level 1
Bldg:
Item: AOA - Women's Restroom
Discipline: D AOA

Picture 2: Comment# D5212
Bldg:
Drawing #: Group 1 Level 4
Discipline: D AOA
Item: Partial column support

Picture 3: Comment# D6133
Bldg:
Drawing #: Group 2 Level 1
Discipline: D AOA
Item: Control Panel for AH-3

Picture 4: Comment# D8005
Bldg:
Drawing #: Group 2 Level 1
Discipline: D AOA
Item: Water supply to Softener tank



Picture 1

Comment #: D8213



Picture 2

Comment #: D8214



Picture 3

Comment #: D8215



Picture 4:

Comment #: D9014



Project: LACMA

Picture 1: Comment# D8213
Drawing #: Group 2 Level 1
Bldg:
Item: Fire water
Discipline: D AOA

Picture 2: Comment# D8214
Bldg:
Drawing #: Group 2 Level 1
Discipline: D AOA
Item: Fire water

Picture 3: Comment# D8215
Bldg:
Drawing #: Group 2 Level 1
Discipline: D AOA
Item: Fire water

Picture 4: Comment# D9014
Bldg:
Drawing #: Group 2 Level 4
Discipline: D AOA
Item: Unit Substation



Project: LACMA



Picture 1:

Comment #: D9015



Picture 2

Comment #: G1924

Picture 1: Comment# D9015
Drawing #: Group 2 Level 1
Bldg:
Item: Switchboards & Distribution
Discipline: D AOA

Picture 2: Comment# G1924
Bldg:
Drawing #: Group 2 Level 2
Discipline: G Common
Item: plaza walkway system



Picture 3

Comment #: G1926



Picture 4

Comment #: G1927

Picture 3: Comment# G1926
Bldg:
Drawing #: Group 2 Level 2
Discipline: G Common
Item: plaza walkway system

Picture 4: Comment# G1927
Bldg:
Drawing #: Group 2 Level 2
Discipline: G Common
Item: plaza walkway system

Los Angeles County Museum of Art
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Bing Art of the Americas

Building Evaluation

Comment# D9015. Comment# G1924.
Comment# G1926. Comment# G1927.

APPENDIX C

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Project: LACMA



Picture 1

Comment #: G2001



Picture 2

Comment #: G2101

Picture 1: Comment# G2001
Drawing #: Group 1 Level 1
Bldg:
Item: Central courtyard
Discipline: G Common

Picture 2: Comment# G2101
Bldg:
Drawing #: Group 1 Level 1
Discipline: G Common
Item: Permanent Room I.D. Signs



Picture 3

Comment #: G2102



Picture 4

Comment #: G2103

Picture 3: Comment# G2102
Bldg:
Drawing #: Group 1 Level 1
Discipline: G Common
Item: Directional Signage

Picture 4: Comment# G2103
Bldg:
Drawing #: Group 1 Level 1
Discipline: G Common
Item: Site Directory

Los Angeles County Museum of Art
Ahmanson Hammer
Bing Art of the Americas

Building Evaluation

Comment# G2001. Comment# G2101.
Comment# G2102. Comment# G2103.

APPENDIX C

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Picture 1 Comment #: G2104



Picture 2 : Comment #: G2105



Picture 3 Comment #: G2106



Picture 4 Comment #: G2208



Project: LACMA

Picture 1: Comment# G2104
Drawing #: Group 1 Level 1
Bldg:
Item: Signage
Discipline: G Common

Picture 2: Comment# G2105
Bldg:
Drawing #: Group 1 Level 1
Discipline: G Common
Item: Signage

Picture 3: Comment# G2106
Bldg:
Drawing #: Group 1 Level 1
Discipline: G Common
Item: Restroom Signs

Picture 4: Comment# G2208
Bldg:
Drawing #: Group 1 Level 1
Discipline: G Common
Item: All Women's Restrooms

Los Angeles County Museum of Art
Ahmanson Hammer
Bing Art of the Americas

Building Evaluation

Comment# G2104. Comment# G2105.
Comment# G2106. Comment# G2208.

APPENDIX C

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Picture 1 Comment #: G2211



Picture 2 Comment #: G2212



Picture 3 Comment #: G2301



Picture 4: Comment #: G2401



Project: LACMA

Picture 1: Comment# G2211
Drawing #: Group 1 Level 1
Bldg:
Item: Lavatories
Discipline: G Common

Picture 2: Comment# G2212
Bldg:
Drawing #: Group 1 Level 1
Discipline: G Common
Item: All Restrooms

Picture 3: Comment# G2301
Bldg:
Drawing #: Group 1 Level 1
Discipline: G Common
Item: Ramp Handrails

Picture 4: Comment# G2401
Bldg:
Drawing #: Group 1 Level 1
Discipline: G Common
Item: Visual Warning Stripes



Picture 1 Comment #: G2402



Picture 2 Comment #: G2403



Picture 3 Comment #: G2404



Picture 4 Comment #: G2405



Project: LACMA

Picture 1: Comment# G2402
Drawing #: Group 1 Level 1
Bldg:
Item: Stair Handrails - Entrance
Discipline: G Common

Picture 2: Comment# G2403
Bldg:
Drawing #: Group 1 Level 1
Discipline: G Common
Item: Stair Handrails - Entrance

Picture 3: Comment# G2404
Bldg:
Drawing #: Group 1 Level 1
Discipline: G Common
Item: All Stairwells

Picture 4: Comment# G2405
Bldg:
Drawing #: Group 1 Level 1
Discipline: G Common
Item: All Stairwells



Picture 1: Comment #: G2406



Picture 2: Comment #: G2413



Picture 3: Comment #: G2501



Picture 4: Comment #: G2502



Project: LACMA

Picture 1: Comment# G2406
Drawing #: Group 1 Level 1
Bldg:
Item: All Stairwells
Discipline: G Common

Picture 2: Comment# G2413
Bldg:
Drawing #: Group 1 Level 1
Discipline: G Common
Item: First Level Staff Entrance

Picture 3: Comment# G2501
Bldg:
Drawing #: Group 1 Level 1
Discipline: G Common
Item: Automatic Door Closers

Picture 4: Comment# G2502
Bldg:
Drawing #: Group 1 Level 1
Discipline: G Common
Item: First Level - Security Office

Los Angeles County Museum of Art
Ahmanson Hammer
Bing Art of the Americas

Building Evaluation

Comment# G2406. Comment# G2413.
Comment# G2501. Comment# G2502.

APPENDIX C
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Picture 1 Comment #: G2701



Picture 2 Comment #: G2702



Picture 3 Comment #: G2703



Picture 4 Comment #: G2708



Project: LACMA

Picture 1: Comment# G2701
Drawing #: Group 1 Level 1
Bldg:
Item: Service Counter
Discipline: G Common

Picture 2: Comment# G2702
Bldg:
Drawing #: Group 1 Level 1
Discipline: G Common
Item: Employee Lockers

Picture 3: Comment# G2703
Bldg:
Drawing #: Group 1 Level 1
Discipline: G Common
Item: Box Office

Picture 4: Comment# G2708
Bldg:
Drawing #: Group 1 Level 1
Discipline: G Common
Item: Fire Strobe - First level corridc

Los Angeles County Museum of Art
Ahmanson Hammer
Bing Art of the Americas

Building Evaluation

Comment# G2701. Comment# G2702.
Comment# G2703. Comment# G2708.

APPENDIX C
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Picture 1: Comment #: G2709



Picture 2 Comment #: G8001



Picture 3: Comment #: G8216



Picture 4 Comment #: G8217



Project: LACMA

Picture 1: Comment# G2709
Drawing #: Group 1 Level 1
Bldg:
Item: First level Administration Office
Discipline: G Common

Picture 2: Comment# G8001
Bldg:
Drawing #: Group 2 Level 1
Discipline: G Common
Item: Main Water Meters location

Picture 3: Comment# G8216
Bldg:
Drawing #: Group 2 Level 1
Discipline: G Common
Item: Fire Sprinkler

Picture 4: Comment# G8217
Bldg:
Drawing #: Group 2 Level 1
Discipline: G Common
Item: Fire Sprinkler



Picture 1 Comment #: G8218



Picture 2 Comment #: G8219



Picture 3 Comment #: G9005



Picture 4 Comment #: G9103



Project: LACMA

Picture 1: Comment# G8218
Drawing #: Group 2 Level 1
Bldg:
Item: Fire Sprinkler
Discipline: G Common

Picture 2: Comment# G8219
Bldg:
Drawing #: Group 2 Level 1
Discipline: G Common
Item: Fire Sprinkler

Picture 3: Comment# G9005
Bldg:
Drawing #: Group 2 Level 1
Discipline: G Common
Item: Power receptacle outlets

Picture 4: Comment# G9103
Bldg:
Drawing #: Group 2 Level 1
Discipline: G Common
Item: Power receptacle outlets



Picture 1

Comment #: G9202



Picture 2

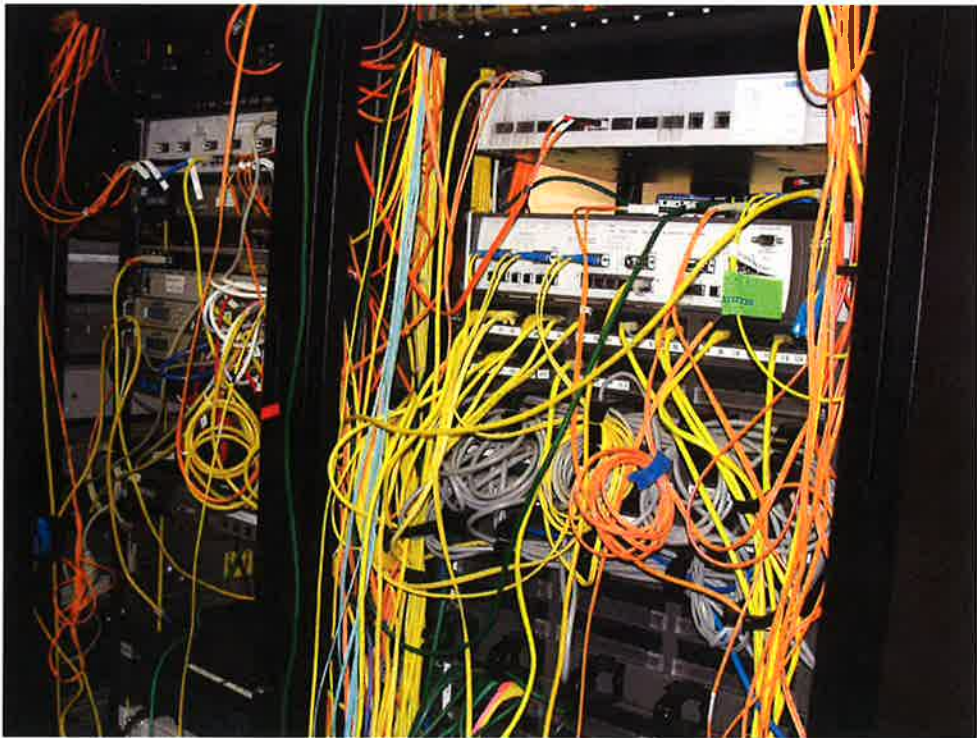
Comment #: G9301



Project: LACMA

Picture 1: Comment# G9202
Drawing #: Group 2 Level 1
Bldg:
Item: Lighting
Discipline: G Common

Picture 2: Comment# G9301
Bldg:
Drawing #: Group 2 Level 1
Discipline: G Common
Item: Lighting



Picture 3:

Comment #: G9501



Picture 4

Comment #: G9502

Picture 3: Comment# G9501
Bldg:
Drawing #: Group 2 Level 1
Discipline: G Common
Item: Telephone Communications a

Picture 4: Comment# G9502
Bldg:
Drawing #: Group 2 Level 1
Discipline: G Common
Item: Security,Fire Alarm & P.A.



Project: LACMA



Picture 1:

Comment #: A1501



Picture 2:

Comment #: A1502



Picture 3:

Comment #: A1503



Picture 4:

Comment #: A1504

Picture 1: Comment# A1501
Drawing #: Group 1 Level 1
Bldg:
Item: Loading dock ramp railings
Discipline: A Building

Picture 2: Comment# A1502
Bldg:
Drawing #: Group 1 Level 1
Discipline: A Building
Item: Interior concrete stairs railings

Picture 3: Comment# A1503
Bldg:
Drawing #: Group 1 Level 1
Discipline: A Building
Item: Interior metal stairs railings

Picture 4: Comment# A1504
Bldg:
Drawing #: Group 1 Level 1
Discipline: A Building
Item: Exit corridor stair railings



Picture 1

Comment #: A1505



Picture 2

Comment #: A1506



Picture 3

Comment #: A1507



Picture 4

Comment #: A1508.1



Project: LACMA

Picture 1: Comment# A1505
Drawing #: Group 1 Level 1
Bldg:
Item: Exit stairs shaft wall
Discipline: A Building

Picture 2: Comment# A1506
Bldg:
Drawing #: Group 1 Level 1
Discipline: A Building
Item: Exit stair railings

Picture 3: Comment# A1507
Bldg:
Drawing #: Group 1 Level 1
Discipline: A Building
Item: Main stair railings

Picture 4: Comment# A1508.1
Bldg:
Drawing #: Group 1 Level 1
Discipline: A Building
Item: Main stair railings



Picture 1

Comment #: A1508.2



Picture 2

Comment #: A1824



Picture 3

Comment #: A1825



Picture 4:

Comment #: A1826



Project: LACMA

Picture 1: Comment# A1508.2
Drawing #: Group 1 Level 1
Bldg:
Item: Main stair railings
Discipline: A Building

Picture 2: Comment# A1824
Bldg:
Drawing #: Group 2 Roof
Discipline: A Building
Item: Roof on the Ahmanson buildin

Picture 3: Comment# A1825
Bldg:
Drawing #: Group 2 Roof
Discipline: A Building
Item: Upper roof on the Ahmanson

Picture 4: Comment# A1826
Bldg:
Drawing #: Group 2 Roof
Discipline: A Building
Item: Roof on the Ahmanson North



Picture 1 Comment #: A1827



Picture 2: Comment #: A1828



Picture 3 Comment #: A1917



Picture 4 Comment #: A1918



Project: LACMA

Picture 1: Comment# A1827
Drawing #: Group 2 Roof
Bldg:
Item: Roof on the Ahmanson North
Discipline: A Building

Picture 2: Comment# A1828
Bldg:
Drawing #: Group 2 Roof
Discipline: A Building
Item: Roof penthouse wall on the

Picture 3: Comment# A1917
Bldg:
Drawing #: Group 2 Level 2
Discipline: A Building
Item: curtain wall system

Picture 4: Comment# A1918
Bldg:
Drawing #: Group 2 Level 1
Discipline: A Building
Item: storefront system



Picture 1 Comment #: A2002



Picture 2 Comment #: A2201



Picture 3 Comment #: A2202



Picture 4 Comment #: A2203



Project: LACMA

Picture 1: Comment# A2002
Drawing #: Group 1 Level 1
Bldg:
Item: AHM Entrance
Discipline: A Building

Picture 2: Comment# A2201
Bldg:
Drawing #: Group 1 Level 1
Discipline: A Building
Item: Restrooms - AHM

Picture 3: Comment# A2202
Bldg:
Drawing #: Group 1 Level 1
Discipline: A Building
Item: Restrooms - AHM

Picture 4: Comment# A2203
Bldg:
Drawing #: Group 1 Level 1
Discipline: A Building
Item: Restrooms - AHM



Project: LACMA



Picture 1

Comment #: A2204



Picture 2

Comment #: A2205



Picture 3:

Comment #: A2206



Picture 4

Comment #: A2207

Picture 1: Comment# A2204
Drawing #: Group 1 Level 1
Bldg:
Item: Restrooms - AHM
Discipline: A Building

Picture 2: Comment# A2205
Bldg:
Drawing #: Group 1 Level 1
Discipline: A Building
Item: Women's Restroom - AHM

Picture 3: Comment# A2206
Bldg:
Drawing #: Group 1 Level 1
Discipline: A Building
Item: Women's Restroom - AHM

Picture 4: Comment# A2207
Bldg:
Drawing #: Group 1 Level 1
Discipline: A Building
Item: Women's Restroom - AHM



Project: LACMA



Picture 1

Comment #: A2209



Picture 2

Comment #: A2210

Picture 1: Comment# A2209
Drawing #: Group 1 Level 1
Bldg:
Item: AHM Restrooms
Discipline: A Building

Picture 2: Comment# A2210
Bldg:
Drawing #: Group 1 Level 1
Discipline: A Building
Item: AHM Restrooms



Picture 3

Comment #: A2213



Picture 4:

Comment #: A2214

Picture 3: Comment# A2213
Bldg:
Drawing #: Group 1 Level 1
Discipline: A Building
Item: Men's Restroom - AHM

Picture 4: Comment# A2214
Bldg:
Drawing #: Group 1 Level 1
Discipline: A Building
Item: AHM - Restroom Signage



Picture 1 Comment #: A2215



Picture 2 Comment #: A2216



Picture 3 Comment #: A2217



Picture 4 Comment #: A2218



Project: LACMA

Picture 1: Comment# A2215
Drawing #: Group 1 Level 1
Bldg:
Item: AHM - Restrooms
Discipline: A Building

Picture 2: Comment# A2216
Bldg:
Drawing #: Group 1 Level 1
Discipline: A Building
Item: AHM - Men's Restroom

Picture 3: Comment# A2217
Bldg:
Drawing #: Group 1 Level 1
Discipline: A Building
Item: AHM - Men's Restroom

Picture 4: Comment# A2218
Bldg:
Drawing #: Group 1 Level 1
Discipline: A Building
Item: AHM - Both Restrooms



Picture 1 Comment #: A2219



Picture 2 Comment #: A2226



Picture 3 Comment #: A2408



Picture 4 Comment #: A2409



Project: LACMA

Picture 1: Comment# A2219
Drawing #: Group 1 Level 1
Bldg:
Item: AHM - Restrooms 2nd Level
Discipline: A Building

Picture 2: Comment# A2226
Bldg:
Drawing #: Group 1 Level 1
Discipline: A Building
Item: Men's Restroom - AHM

Picture 3: Comment# A2408
Bldg:
Drawing #: Group 1 Level 1
Discipline: A Building
Item: AHM Galleries

Picture 4: Comment# A2409
Bldg:
Drawing #: Group 1 Level 1
Discipline: A Building
Item: AHM - Atrium Grand Stair

Los Angeles County Museum of Art
Ahmanson Hammer
Bing Art of the Americas

Building Evaluation

Comment# A2219. Comment# A2226.
Comment# A2408. Comment# A2409.

APPENDIX C
C-31 of 102



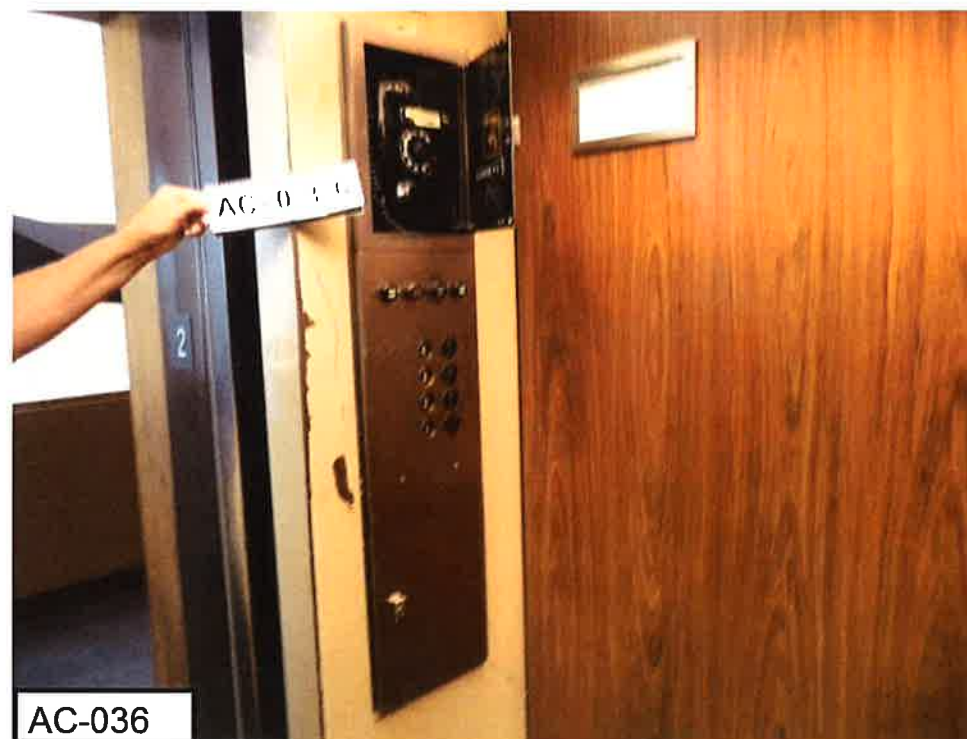
Picture 1 Comment #: A2410



Picture 2 Comment #: A2411



Picture 3 Comment #: A2412



Picture 4 Comment #: A2705



Project: LACMA

Picture 1: Comment# A2410
Drawing #: Group 1 Level 1
Bldg:
Item: AHM - Atrium Grand Stair
Discipline: A Building

Picture 2: Comment# A2411
Bldg:
Drawing #: Group 1 Level 1
Discipline: A Building
Item: AHM - Stairwells

Picture 3: Comment# A2412
Bldg:
Drawing #: Group 1 Level 1
Discipline: A Building
Item: AHM - Grand Stair

Picture 4: Comment# A2705
Bldg:
Drawing #: Group 1 Level 1
Discipline: A Building
Item: AHM - Elevators

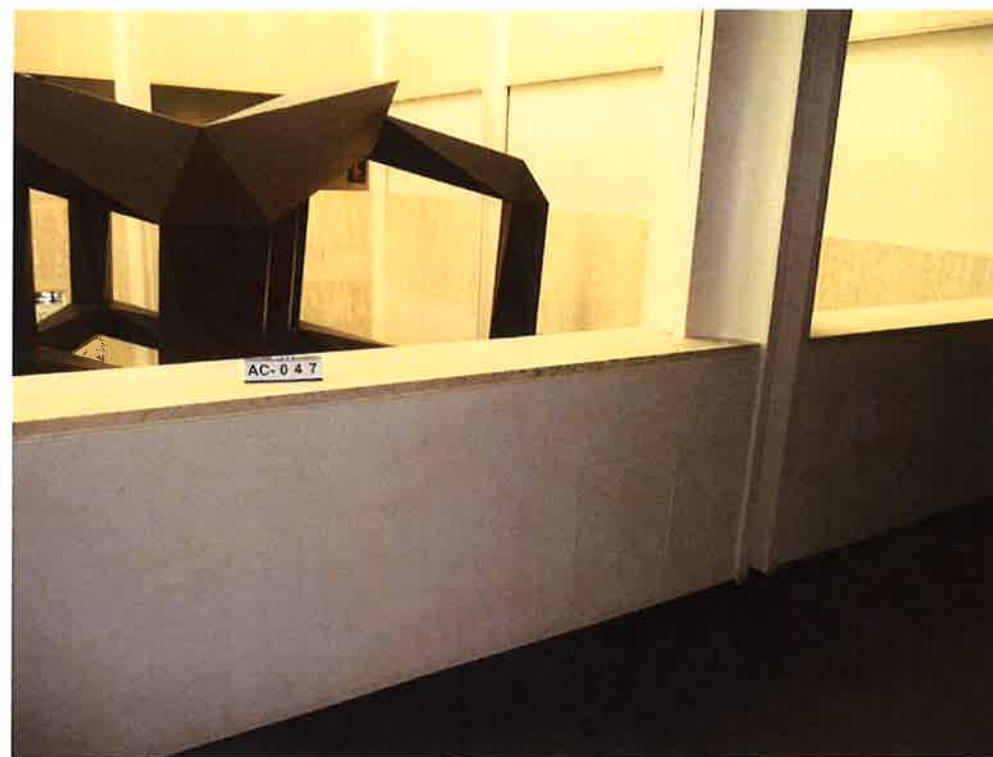


Project: LACMA



Picture 1

Comment #: A2706

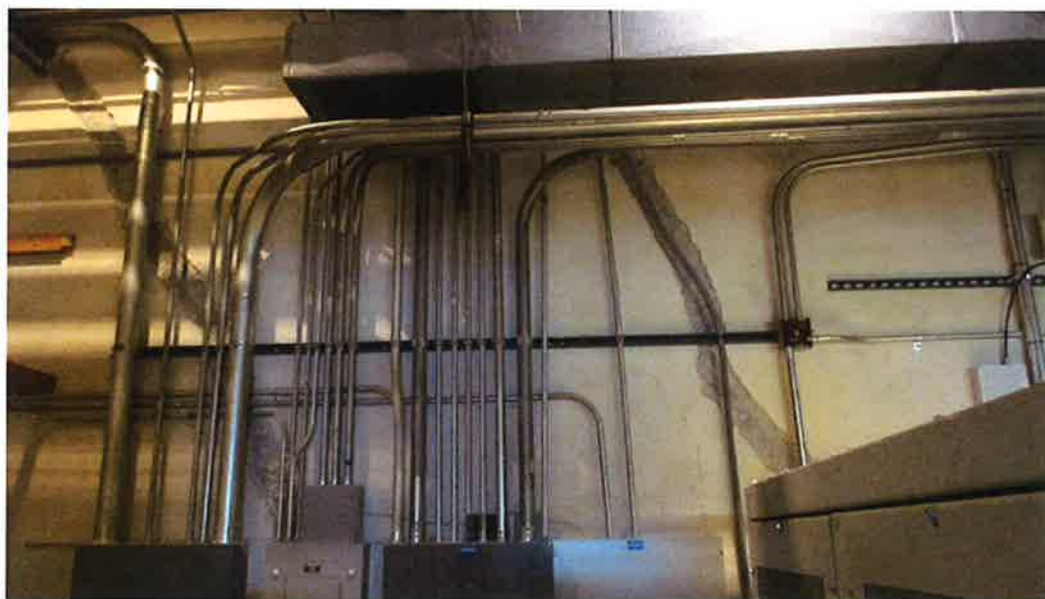


Picture 2

Comment #: A2707

Picture 1: Comment# A2706
Drawing #: Group 1 Level 1
Bldg:
Item: AHM - Drinking Fountain
Discipline: A Building

Picture 2: Comment# A2707
Bldg:
Drawing #: Group 1 Level 1
Discipline: A Building
Item: AHM - Atrium Guard Wall



Picture 3

Comment #: A5201



Picture 4

Comment #: A5202

Picture 3: Comment# A5201
Bldg:
Drawing #: Group 1 Level 1
Discipline: A Building
Item: Seismic Crack Repair

Picture 4: Comment# A5202
Bldg:
Drawing #: Group 1 Level 1
Discipline: A Building
Item: Seismic Crack Repair



Picture 1 Comment #: A5203



Picture 2 Comment #: A5204



Picture 3: Comment #: A5205



Picture 4 Comment #: A5211



Project: LACMA

Picture 1: Comment# A5203
Drawing #: Group 1 Level 2
Bldg:
Item: Shear wall crack repairs
Discipline: A Building

Picture 2: Comment# A5204
Bldg:
Drawing #: Group 1 Level 2
Discipline: A Building
Item: External shell cracks

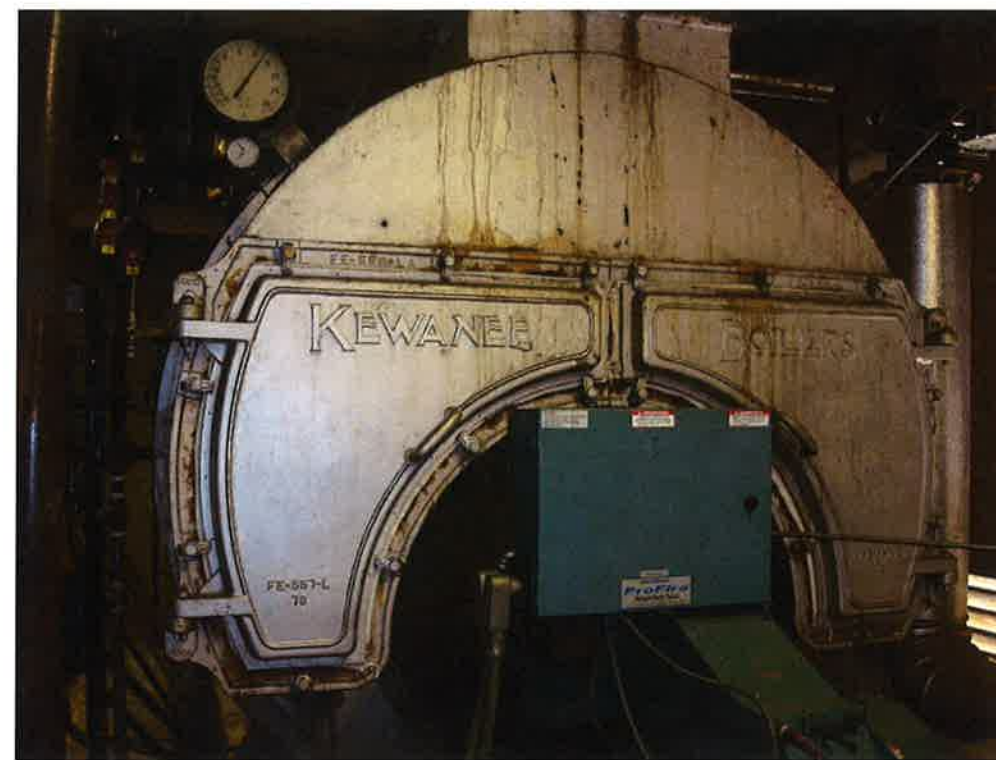
Picture 3: Comment# A5205
Bldg:
Drawing #: Group 1 Level 2
Discipline: A Building
Item: Column cladding cracks

Picture 4: Comment# A5211
Bldg:
Drawing #: Group 1 Roof
Discipline: A Building
Item: Roof Slab cracking



Picture 1

Comment #: A6106



Picture 2

Comment #: A6107



Picture 3

Comment #: A6108



Picture 4

Comment #: A6109



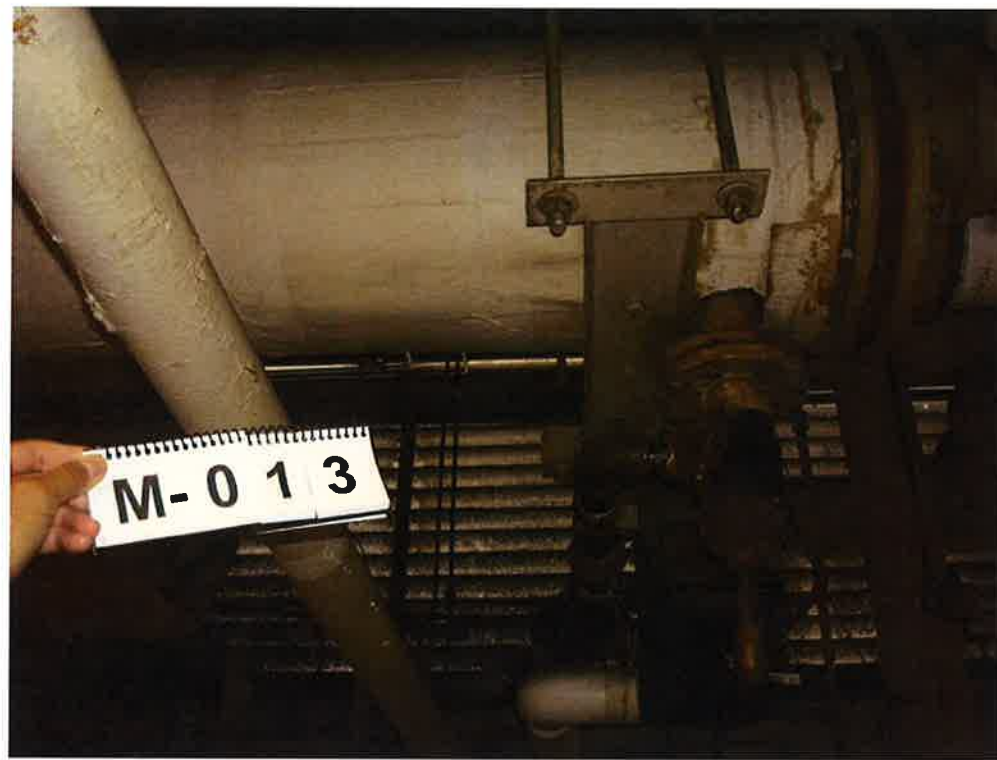
Project: LACMA

Picture 1: Comment# A6106
Drawing #: Group 2 Level 1
Bldg:
Item: Boiler Room
Discipline: A Building

Picture 2: Comment# A6107
Bldg:
Drawing #: Group 2 Level 1
Discipline: A Building
Item: Boiler Room

Picture 3: Comment# A6108
Bldg:
Drawing #: Group 2 Level 1
Discipline: A Building
Item: Boiler Room

Picture 4: Comment# A6109
Bldg:
Drawing #: Group 2 Level 1
Discipline: A Building
Item: Boiler Room



Picture 1

Comment #: A6110



Picture 2:

Comment #: A6111



Picture 3

Comment #: A6112



Picture 4

Comment #: A6113



Project: LACMA

Picture 1: Comment# A6110
Drawing #: Group 2 Level 1
Bldg:
Item: Boiler Room
Discipline: A Building

Picture 2: Comment# A6111
Bldg:
Drawing #: Group 2 Level 1
Discipline: A Building
Item: Boiler Room

Picture 3: Comment# A6112
Bldg:
Drawing #: Group 2 Level 1
Discipline: A Building
Item: Boiler Room

Picture 4: Comment# A6113
Bldg:
Drawing #: Group 2 Level 1
Discipline: A Building
Item: Boiler Room



Picture 1
Comment #: A6114



Picture 2
Comment #: A6115



Picture 3
Comment #: A6116



Picture 4
Comment #: A6117



Project: LACMA

Picture 1: Comment# A6114
Drawing #: Group 2 Roof
Bldg:
Item: Air Handling Room at Penthou
Discipline: A Building

Picture 2: Comment# A6115
Bldg:
Drawing #: Group 2 Roof
Discipline: A Building
Item: Air Handling Room at Penthou

Picture 3: Comment# A6116
Bldg:
Drawing #: Group 2 Roof
Discipline: A Building
Item: Air Handling Room at Penthou

Picture 4: Comment# A6117
Bldg:
Drawing #: Group 2 Roof
Discipline: A Building
Item: Out side air damper on roof



Picture 1

Comment #: A6118



Picture 2:

Comment #: A6119



Picture 3

Comment #: A6120



Picture 4:

Comment #: A6201



Project: LACMA

Picture 1: Comment# A6118
Drawing #: Group 2 Roof
Bldg:
Item: Out side air damper on roof
Discipline: A Building

Picture 2: Comment# A6119
Bldg:
Drawing #: Group 2 Roof
Discipline: A Building
Item: Out side air damper on roof

Picture 3: Comment# A6120
Bldg:
Drawing #: Group 2 Roof
Discipline: A Building
Item: Out side air damper on roof

Picture 4: Comment# A6201
Bldg:
Drawing #: Group 2 Roof
Discipline: A Building
Item: Cooling Towers on Roof



Picture 1

Comment #: A6202



Picture 2

Comment #: A6203



Picture 3

Comment #: A6204



Picture 4

Comment #: A6205



Project: LACMA

Picture 1: Comment# A6202
Drawing #: Group 2 Roof
Bldg:
Item: Cooling Towers on Roof
Discipline: A Building

Picture 2: Comment# A6203
Bldg:
Drawing #: Group 2 Roof
Discipline: A Building
Item: Cooling Towers on Roof

Picture 3: Comment# A6204
Bldg:
Drawing #: Group 2 Roof
Discipline: A Building
Item: Cooling Towers on Roof

Picture 4: Comment# A6205
Bldg:
Drawing #: Group 2 Roof
Discipline: A Building
Item: Cooling Towers on Roof



Picture 1: Comment #: A6206



Picture 2: Comment #: A6207



Picture 3: Comment #: A6208



Picture 4: Comment #: A6209



Project: LACMA

Picture 1: Comment# A6206
Drawing #: Group 2 Roof
Bldg:
Item: Cooling Towers on Roof
Discipline: A Building

Picture 2: Comment# A6207
Bldg:
Drawing #: Group 2 Roof
Discipline: A Building
Item: Cooling Towers on Roof

Picture 3: Comment# A6208
Bldg:
Drawing #: Group 2 Roof
Discipline: A Building
Item: Cooling Towers on Roof

Picture 4: Comment# A6209
Bldg:
Drawing #: Group 2 Roof
Discipline: A Building
Item: Cooling Towers on Roof



Picture 1

Comment #: A6210



Picture 2

: Comment #: A6211



Picture 3:

Comment #: A6212



Picture 4

Comment #: A6213



Project: LACMA

Picture 1: Comment# A6210
Drawing #: Group 2 Roof
Bldg:
Item: Cooling Towers on Roof
Discipline: A Building

Picture 2: Comment# A6211
Bldg:
Drawing #: Group 2 Roof
Discipline: A Building
Item: Cooling Towers on Roof

Picture 3: Comment# A6212
Bldg:
Drawing #: Group 2 Roof
Discipline: A Building
Item: Cooling Towers on Roof

Picture 4: Comment# A6213
Bldg:
Drawing #: Group 2 Roof
Discipline: A Building
Item: Cooling Towers on Roof



Project: LACMA



Picture 1

Comment #: A6214



Picture 2

Comment #: A6215



Picture 3

Comment #: A6216



Picture 4

Comment #: A6217

Picture 1: Comment# A6214
Drawing #: Group 2 Roof
Bldg:
Item: Cooling Towers on Roof
Discipline: A Building

Picture 2: Comment# A6215
Bldg:
Drawing #: Group 2 Roof
Discipline: A Building
Item: Chiller Room

Picture 3: Comment# A6216
Bldg:
Drawing #: Group 2 Roof
Discipline: A Building
Item: Chiller Room

Picture 4: Comment# A6217
Bldg:
Drawing #: Group 2 Roof
Discipline: A Building
Item: Chiller Room



Picture 1

Comment #: A6218



Picture 2

Comment #: A6219



Picture 3

Comment #: A6220



Picture 4

Comment #: A6221



Project: LACMA

Picture 1: Comment# A6218
Drawing #: Group 2 Roof
Bldg:
Item: Chiller Room
Discipline: A Building

Picture 2: Comment# A6219
Bldg:
Drawing #: Group 2 Roof
Discipline: A Building
Item: Chiller Room

Picture 3: Comment# A6220
Bldg:
Drawing #: Group 2 Roof
Discipline: A Building
Item: Chiller Room

Picture 4: Comment# A6221
Bldg:
Drawing #: Group 2 Roof
Discipline: A Building
Item: Chiller Room



Project: LACMA



Picture 1:

Comment #: A6222



Picture 2

Comment #: A6223

Picture 1: Comment# A6222
Drawing #: Group 2 Roof
Bldg:
Item: Chiller Room
Discipline: A Building

Picture 2: Comment# A6223
Bldg:
Drawing #: Group 2 Roof
Discipline: A Building
Item: Chiller Room



Picture 3

Comment #: A6224



Picture 4

Comment #: A6301

Picture 3: Comment# A6224
Bldg:
Drawing #: Group 2 Roof
Discipline: A Building
Item: Evaporator Cooler on roof

Picture 4: Comment# A6301
Bldg:
Drawing #: Group 2 Roof
Discipline: A Building
Item: Louver on roof



Project: LACMA



Picture 1

Comment #: A6302



Picture 2

Comment #: A6303

Picture 1: Comment# A6302
Drawing #: Group 2 Roof
Bldg:
Item: Louver on roof
Discipline: A Building

Picture 2: Comment# A6303
Bldg:
Drawing #: Group 2 Roof
Discipline: A Building
Item: Louver on roof



Picture 3:

Comment #: A6304



Picture 4

Comment #: A6305

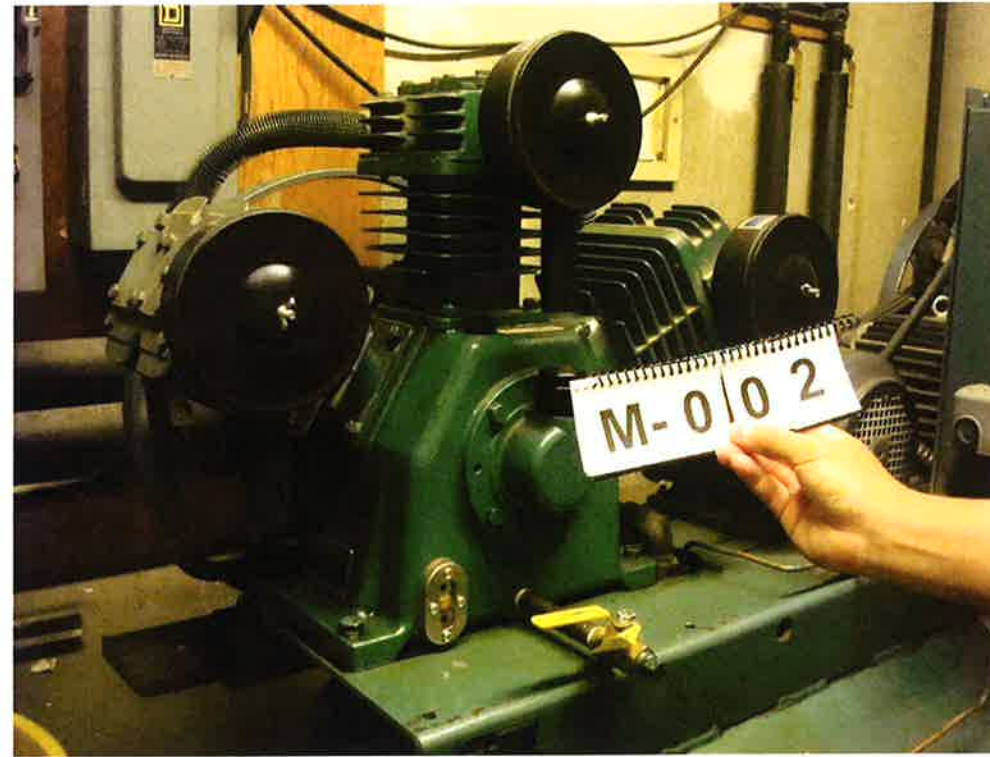
Picture 3: Comment# A6304
Bldg:
Drawing #: Group 2 Roof
Discipline: A Building
Item: Steam Humidifier on Roof

Picture 4: Comment# A6305
Bldg:
Drawing #: Group 2 Roof
Discipline: A Building
Item: Fire Smoke Detector for S-16



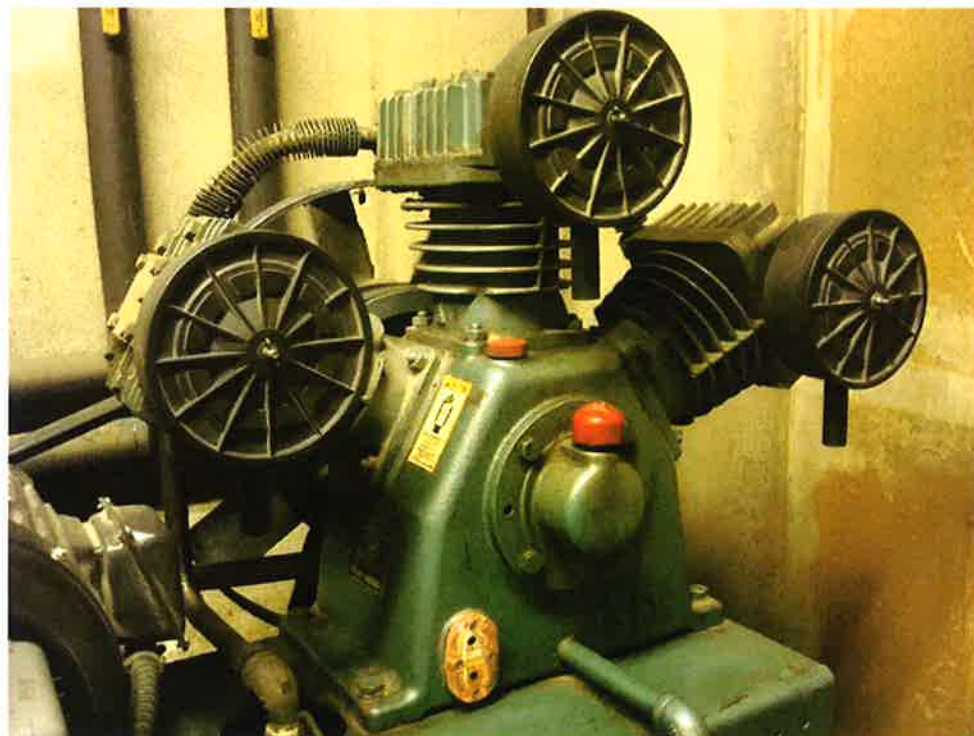
Picture 1

Comment #: A6307



Picture 2

Comment #: A6701



Picture 3

Comment #: A6702



Picture 4

Comment #: A6703



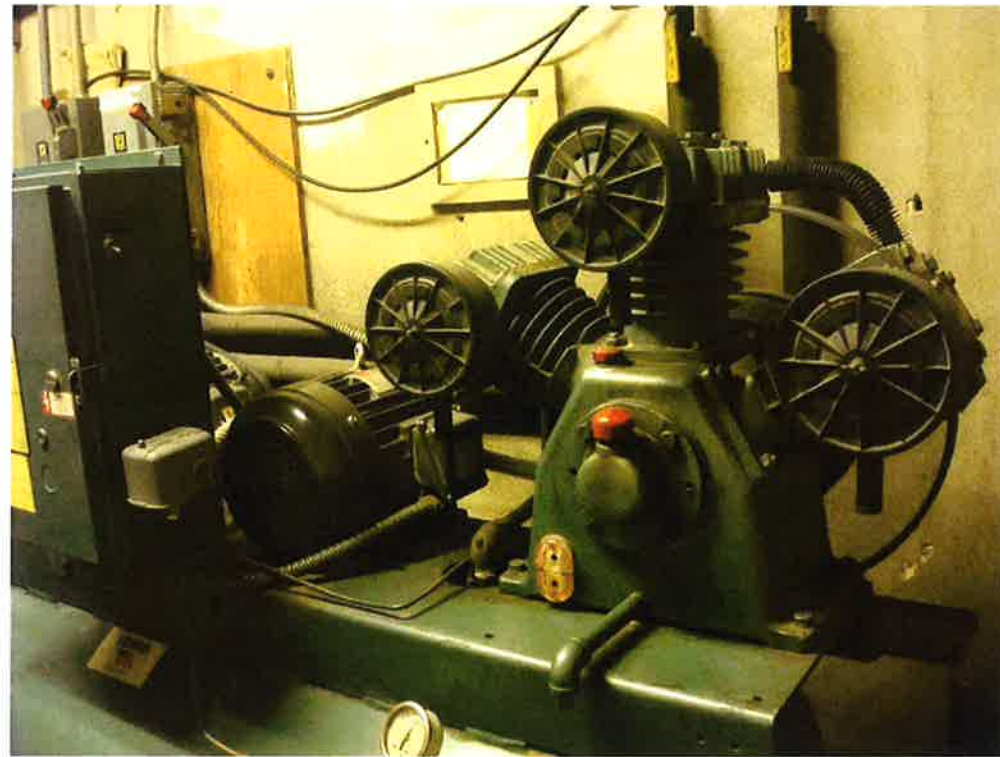
Project: LACMA

Picture 1: Comment# A6307
Drawing #: Group 2 Roof
Bldg:
Item: HHW Pipe for S-8
Discipline: A Building

Picture 2: Comment# A6701
Bldg:
Drawing #: Group 2 Roof
Discipline: A Building
Item: Control Air Compressor in

Picture 3: Comment# A6702
Bldg:
Drawing #: Group 2 Roof
Discipline: A Building
Item: Control Air Compressor in

Picture 4: Comment# A6703
Bldg:
Drawing #: Group 2 Roof
Discipline: A Building
Item: Control Air Compressor in



Picture 1

Comment #: A6704



Picture 2:

Comment #: A6705



Picture 3

Comment #: A6706



Picture 4

Comment #: A6801



Project: LACMA

Picture 1: Comment# A6704
Drawing #: Group 2 Roof
Bldg:
Item: Control Air Compressor in
Discipline: A Building

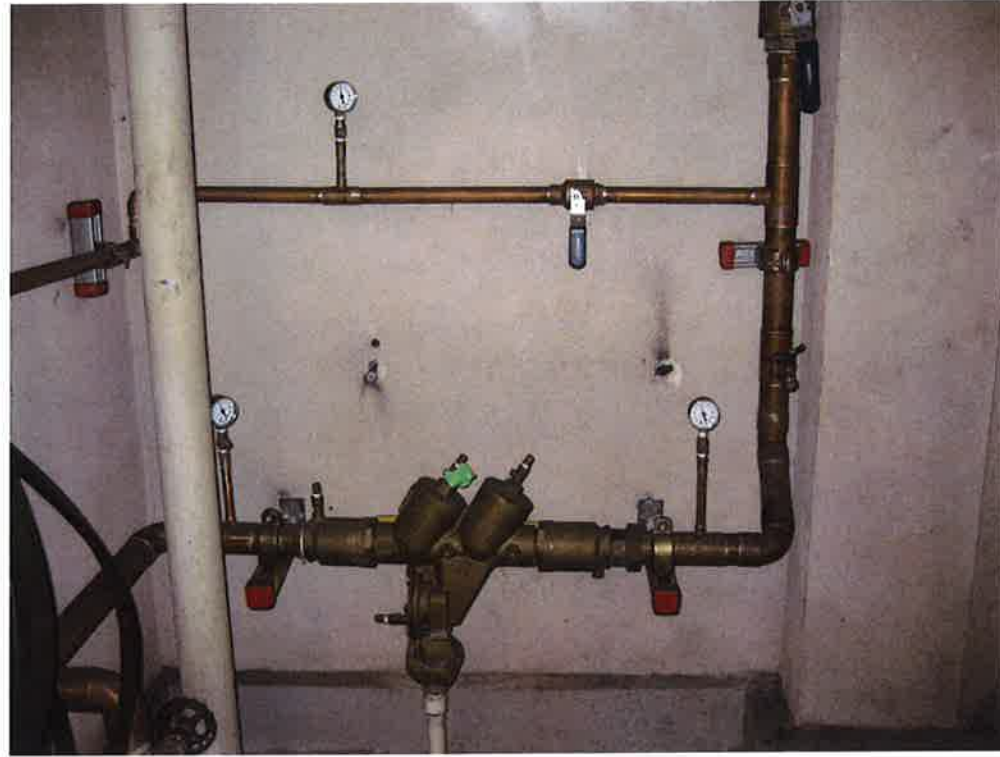
Picture 2: Comment# A6705
Bldg:
Drawing #: Group 2 Roof
Discipline: A Building
Item: 18

Picture 3: Comment# A6706
Bldg:
Drawing #: Group 2 Roof
Discipline: A Building
Item: 18

Picture 4: Comment# A6801
Bldg:
Drawing #: Group 2 Roof
Discipline: A Building
Item: Electric humidifier on roof



Picture 1 Comment #: A8002



Picture 2: Comment #: A8003



Picture 3 Comment #: A8101



Picture 4 Comment #: A8201



Project: LACMA

Picture 1: Comment# A8002
Drawing #: Group 2 Level 1
Bldg:
Item: Water supply to Chillers
Discipline: A Building

Picture 2: Comment# A8003
Bldg:
Drawing #: Group 2 Level 1
Discipline: A Building
Item: Water supply to Air Handling

Picture 3: Comment# A8101
Bldg:
Drawing #: Group 2 Level 1
Discipline: A Building
Item: Water supply to Boilers

Picture 4: Comment# A8201
Bldg:
Drawing #: Group 2 Level 1
Discipline: A Building
Item: Fire water



Project: LACMA



Picture 1: Comment #: A8202



Picture 2: Comment #: A8203

Picture 1: Comment# A8202
Drawing #: Group 2 Level 1
Bldg:
Item: Fire Hose Cabinet
Discipline: A Building

Picture 2: Comment# A8203
Bldg:
Drawing #: Group 2 Level 1
Discipline: A Building
Item: Fire Hose Connection



Picture 3: Comment #: A8204



Picture 4: Comment #: A8205

Picture 3: Comment# A8204
Bldg:
Drawing #: Group 2 Level 1
Discipline: A Building
Item: Fire Hose Cabinet

Picture 4: Comment# A8205
Bldg:
Drawing #: Group 2 Level 1
Discipline: A Building
Item: Fire water

Los Angeles County Museum of Art
Ahmanson Hammer
Bing Art of the Americas

Building Evaluation

Comment# A8202. Comment# A8203.
Comment# A8204. Comment# A8205.

APPENDIX C

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Picture 1

Comment #: A8206



Picture 2

Comment #: A8207



Picture 3

Comment #: A8208



Picture 4:

Comment #: A8301



Project: LACMA

Picture 1: Comment# A8206
Drawing #: Group 2 Level 1
Bldg:
Item: Fire water
Discipline: A Building

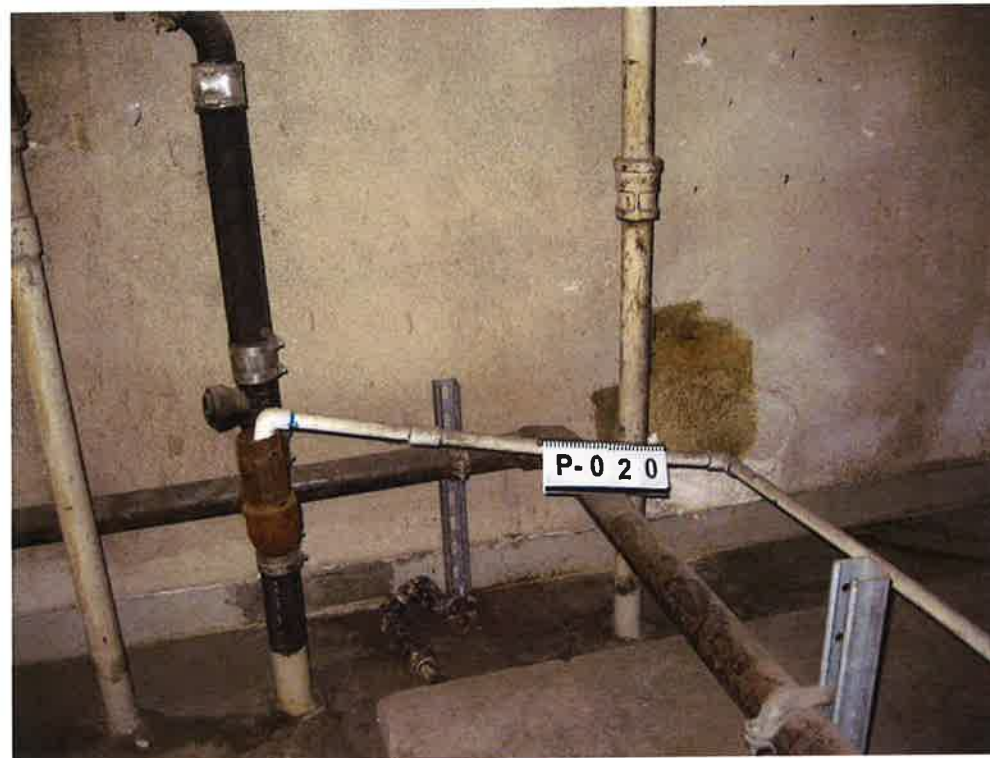
Picture 2: Comment# A8207
Bldg:
Drawing #: Group 2 Level 1
Discipline: A Building
Item: Fire water

Picture 3: Comment# A8208
Bldg:
Drawing #: Group 2 Level 1
Discipline: A Building
Item: General

Picture 4: Comment# A8301
Bldg:
Drawing #: Group 2 Level 1
Discipline: A Building
Item: Floor Sink



Picture 1 Comment #: A8401



Picture 2 Comment #: A8402



Picture 3 Comment #: A8403



Picture 4 Comment #: A8501



Project: LACMA

Picture 1: Comment# A8401
Drawing #: Group 2 Level 1
Bldg:
Item: Storm Drain
Discipline: A Building

Picture 2: Comment# A8402
Bldg:
Drawing #: Group 2 Level 1
Discipline: A Building
Item: Condensate Pipe

Picture 3: Comment# A8403
Bldg:
Drawing #: Group 2 Level 1
Discipline: A Building
Item: Storm Drain

Picture 4: Comment# A8501
Bldg:
Drawing #: Group 2 Level 1
Discipline: A Building
Item: Gas supply to Boilers



Picture 1 Comment #: A8502



Picture 2 Comment #: A8503



Picture 3 Comment #: A8506



Picture 4 Comment #: A8601



Project: LACMA

Picture 1: Comment# A8502
Drawing #: Group 2 Level 1
Bldg:
Item: Gas supply to Boilers
Discipline: A Building

Picture 2: Comment# A8503
Bldg:
Drawing #: Group 2 Level 1
Discipline: A Building
Item: Gas supply to Boilers

Picture 3: Comment# A8506
Bldg:
Drawing #: Group 2 Level 1
Discipline: A Building
Item: Gas supply to Boilers

Picture 4: Comment# A8601
Bldg:
Drawing #: Group 2 Level 1
Discipline: A Building
Item: Main Gas Meter location



Picture 1 Comment #: A8602



Picture 2: Comment #: A8603



Picture 3: Comment #: A8604



Picture 4 Comment #: A9002



Project: LACMA

Picture 1: Comment# A8602
Drawing #: Group 2 Level 1
Bldg:
Item: Three main gas line enter the
Discipline: A Building

Picture 2: Comment# A8603
Bldg:
Drawing #: Group 2 Level 1
Discipline: A Building
Item: Overall view of gas meter

Picture 3: Comment# A8604
Bldg:
Drawing #: Group 2 Level 1
Discipline: A Building
Item: Line size earthquake shut-off

Picture 4: Comment# A9002
Bldg:
Drawing #: Group 2 Level 1
Discipline: A Building
Item: Unit Substation



Picture 1
Comment #: A9003



Picture 2:
Comment #: A9004



Picture 3
Comment #: A9006



Picture 4
Comment #: A9007

Picture 1: Comment# A9003
Drawing #: Group 2 Level 3
Bldg:
Item: Unit Substation
Discipline: A Building

Picture 2: Comment# A9004
Bldg:
Drawing #: Group 2 Level 4
Discipline: A Building
Item: Unit Substation

Picture 3: Comment# A9006
Bldg:
Drawing #: Group 2 Level 1
Discipline: A Building
Item: Generator

Picture 4: Comment# A9007
Bldg:
Drawing #: Group 2 Level 1
Discipline: A Building
Item: Unit Substation



Picture 1

Comment #: A9008



Picture 2:

Comment #: A9009



Picture 3:

Comment #: A9101



Picture 4

Comment #: B1215



Project: LACMA

Picture 1: Comment# A9008
Drawing #: Group 2 Level 4
Bldg:
Item: Unit Substation
Discipline: A Building

Picture 2: Comment# A9009
Bldg:
Drawing #: Group 2 Level 4
Discipline: A Building
Item: Generator

Picture 3: Comment# A9101
Bldg:
Drawing #: Group 2 Level 1
Discipline: A Building
Item: Generator

Picture 4: Comment# B1215
Bldg:
Drawing #: Group 1 Level 3
Discipline: B Hammer
Item: Ext. south elevation

Los Angeles County Museum of Art
Ahmanson Hammer
Bing Art of the Americas

Building Evaluation

Comment# A9008. Comment# A9009.
Comment# A9101. Comment# B1215.

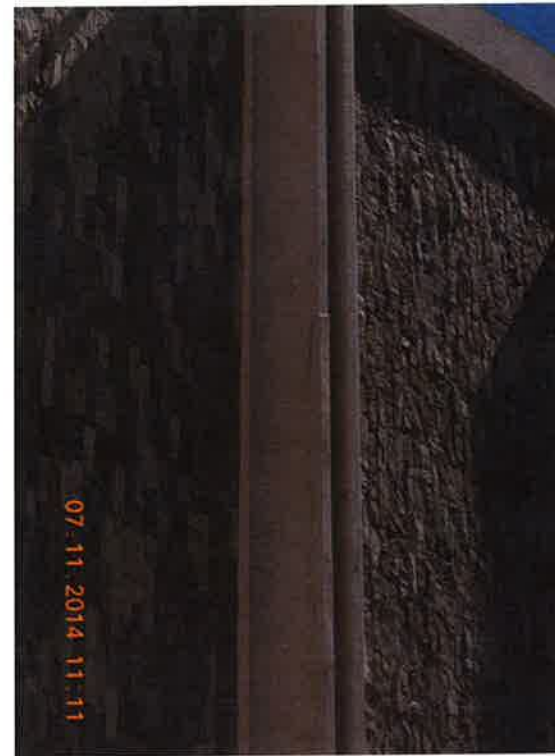
APPENDIX C

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Picture 1:

Comment #: B1216



Picture 2:

Comment #: B1217.1



Picture 3

Comment #: B1217.2



Picture 4

Comment #: B1218



Project: LACMA

Picture 1: Comment# B1216
Drawing #: Group 1 Level 3
Bldg:
Item: Ext. balcony
Discipline: B Hammer

Picture 2: Comment# B1217.1
Bldg:
Drawing #: Group 1 Level 3
Discipline: B Hammer
Item: Ext. concrete column

Picture 3: Comment# B1217.2
Bldg:
Drawing #: Group 1 Level 3
Discipline: B Hammer
Item: Ext. concrete column

Picture 4: Comment# B1218
Bldg:
Drawing #: Group 1 Level 3
Discipline: B Hammer
Item: Ext. plaster soffit / Kalwall

Los Angeles County Museum of Art
Ahmanson Hammer
Bing Art of the Americas

Building Evaluation

Comment# B1216. Comment# B1217.
Comment# B1217. Comment# B1218.

APPENDIX C

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Picture 1

Comment #: B1219



Picture 2

Comment #: B1220



Picture 3

Comment #: B1222



Picture 4

Comment #: B1224



Project: LACMA

Picture 1: Comment# B1219
Drawing #: Group 1 Level 3
Bldg:
Item: Ext. east elevation
Discipline: B Hammer

Picture 2: Comment# B1220
Bldg:
Drawing #: Group 1 Level 2
Discipline: B Hammer
Item: Ext. mechanical louvers

Picture 3: Comment# B1222
Bldg:
Drawing #: Group 1 Level 1
Discipline: B Hammer
Item: Ext. south elevation

Picture 4: Comment# B1224
Bldg:
Drawing #: Group 1 Level 3
Discipline: B Hammer
Item: Ext. concrete column

Los Angeles County Museum of Art
Ahmanson Hammer
Bing Art of the Americas

Building Evaluation

Comment# B1219. Comment# B1220.
Comment# B1222. Comment# B1224.

APPENDIX C

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Picture 1 Comment #: B1225



Picture 2 Comment #: B1227



Picture 3: Comment #: B1228



Picture 4 Comment #: B1229



Project: LACMA

Picture 1: Comment# B1225
Drawing #: Group 1 Level 3
Bldg:
Item: Ext. concrete balcony
Discipline: B Hammer

Picture 2: Comment# B1227
Bldg:
Drawing #: Group 1 Level 1
Discipline: B Hammer
Item: Ext. north elevation

Picture 3: Comment# B1228
Bldg:
Drawing #: Group 1 Level 1
Discipline: B Hammer
Item: Ext. south elevation

Picture 4: Comment# B1229
Bldg:
Drawing #: Group 1 Level 2
Discipline: B Hammer
Item: Ticket Office

Los Angeles County Museum of Art
Ahmanson Hammer
Bing Art of the Americas

Building Evaluation

Comment# B1225. Comment# B1227.
Comment# B1228. Comment# B1229.

APPENDIX C

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Picture 1

Comment #: B1509



Picture 2

Comment #: B1510.1



Picture 3:

Comment #: B1510.2



Picture 4

Comment #: B1822



Project: LACMA

Picture 1: Comment# B1509
Drawing #: Group 1 Level 1
Bldg:
Item: Ext. concrete stairs and railings
Discipline: B Hammer

Picture 2: Comment# B1510.1
Bldg:
Drawing #: Group 1 Level 1
Discipline: B Hammer
Item: Ext. concrete stairs and railing

Picture 3: Comment# B1510.2
Bldg:
Drawing #: Group 1 Level 1
Discipline: B Hammer
Item: Ext. concrete stairs and railing

Picture 4: Comment# B1822
Bldg:
Drawing #: Group 2 Level 4
Discipline: B Hammer
Item: Roof on the Hammer building



Picture 1 Comment #: B1823



Picture 2: Comment #: B2003



Picture 3: Comment #: B2004



Picture 4 Comment #: B2407



Project: LACMA

Picture 1: Comment# B1823
Drawing #: Group 2 Level 4
Bldg:
Item: Upper roof wall on the Hamme
Discipline: B Hammer

Picture 2: Comment# B2003
Bldg:
Drawing #: Group 1 Level 1
Discipline: B Hammer
Item: Bing - Theater

Picture 3: Comment# B2004
Bldg:
Drawing #: Group 1 Level 1
Discipline: B Hammer
Item: Bing - Exterior

Picture 4: Comment# B2407
Bldg:
Drawing #: Group 1 Level 1
Discipline: B Hammer
Item: Stairwell - Hammer



Picture 1: Comment #: B2602



Picture 2 Comment #: B2704



Picture 3 Comment #: B2710



Picture 4 Comment #: B5210



Project: LACMA

Picture 1: Comment# B2602
Drawing #: Group 1 Level 1
Bldg:
Item: Hammer - Elev
Discipline: B Hammer

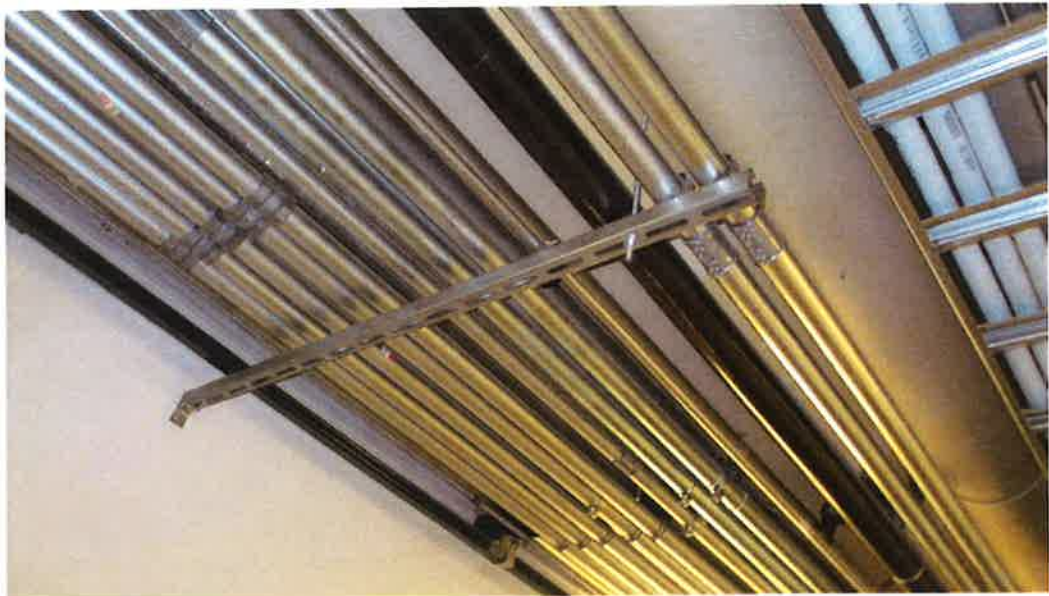
Picture 2: Comment# B2704
Bldg:
Drawing #: Group 1 Level 1
Discipline: B Hammer
Item: Drinking Fountains - Hammer

Picture 3: Comment# B2710
Bldg:
Drawing #: Group 1 Level 1
Discipline: B Hammer
Item: Hammer - Escalator

Picture 4: Comment# B5210
Bldg:
Drawing #: Group 1 Level 4
Discipline: B Hammer
Item: Displaced canopy connection



Picture 1 Comment #: B5301



Picture 2 Comment #: B5601



Picture 3 Comment #: B6101



Picture 4 Comment #: B6102



Project: LACMA

Picture 1: Comment# B5301
Drawing #: Group 1 Level 3
Bldg:
Item: Spalling Columns
Discipline: B Hammer

Picture 2: Comment# B5601
Bldg:
Drawing #: Group 1 Level 1
Discipline: B Hammer
Item: Utility pipes

Picture 3: Comment# B6101
Bldg:
Drawing #: Group 2 Roof
Discipline: B Hammer
Item: AH-1 on Roof Level

Picture 4: Comment# B6102
Bldg:
Drawing #: Group 2 Roof
Discipline: B Hammer
Item: AH-1 on Roof Level



Picture 1

Comment #: B6103



Picture 2

Comment #: B6104



Project: LACMA

Picture 1: Comment# B6103
Drawing #: Group 2 Roof
Bldg:
Item: AH-1 on Roof Level
Discipline: B Hammer

Picture 2: Comment# B6104
Bldg:
Drawing #: Group 2 Roof
Discipline: B Hammer
Item: AH-1 on Roof Level



Picture 3

Comment #: B6105



Picture 4

Comment #: B6121

Picture 3: Comment# B6105
Bldg:
Drawing #: Group 2 Roof
Discipline: B Hammer
Item: AH-1 on Roof Level

Picture 4: Comment# B6121
Bldg:
Drawing #: Group 2 Level 4
Discipline: B Hammer
Item: AH-1 on Roof Level



Picture 1

Comment #: B6122



Picture 2

Comment #: B6123



Picture 3:

Comment #: B6124



Picture 4

Comment #: B6306



Project: LACMA

Picture 1: Comment# B6122
Drawing #: Group 2 Level 4
Bldg:
Item: AH-1 on Roof Level
Discipline: B Hammer

Picture 2: Comment# B6123
Bldg:
Drawing #: Group 2 Level 4
Discipline: B Hammer
Item: AH-1 on Roof Level

Picture 3: Comment# B6124
Bldg:
Drawing #: Group 2 Level 4
Discipline: B Hammer
Item: AH-2 on Roof Level

Picture 4: Comment# B6306
Bldg:
Drawing #: Group 2 Roof
Discipline: B Hammer
Item: HHW Pipe for S-8



Picture 1

Comment #: B6308



Picture 2

Comment #: B6309



Picture 3

Comment #: B6310



Picture 4

Comment #: B6311



Project: LACMA

Picture 1: Comment# B6308
Drawing #: Group 2 Roof
Bldg:
Item: HHW Coils for S-8
Discipline: B Hammer

Picture 2: Comment# B6309
Bldg:
Drawing #: Group 2 Roof
Discipline: B Hammer
Item: Humidifier for S-8

Picture 3: Comment# B6310
Bldg:
Drawing #: Group 2 Roof
Discipline: B Hammer
Item: OSA Damper for S-8

Picture 4: Comment# B6311
Bldg:
Drawing #: Group 2 Roof
Discipline: B Hammer
Item: OSA Damper for S-8



Picture 1: Comment #: B6312



Picture 2 Comment #: B6313



Picture 3: Comment #: B8209



Picture 4 Comment #: B8210



Project: LACMA

Picture 1: Comment# B6312
Drawing #: Group 2 Roof
Bldg:
Item: OSA Damper for S-7&8 on roof
Discipline: B Hammer

Picture 2: Comment# B6313
Bldg:
Drawing #: Group 2 Roof
Discipline: B Hammer
Item: OSA Damper for S-7&8 on roof

Picture 3: Comment# B8209
Bldg:
Drawing #: Group 2 Level 1
Discipline: B Hammer
Item: General

Picture 4: Comment# B8210
Bldg:
Drawing #: Group 2 Level 1
Discipline: B Hammer
Item: Fire water

Los Angeles County Museum of Art
Ahmanson Hammer
Bing Art of the Americas

Building Evaluation

Comment# B6312. Comment# B6313.
Comment# B8209. Comment# B8210.

APPENDIX C

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Picture 1: Comment #: B8404



Picture 2: Comment #: B9010



Picture 3: Comment #: B9011



Picture 4: Comment #: C2222



Project: LACMA

Picture 1: Comment# B8404
Drawing #: Group 2 Level 1
Bldg:
Item: Storm Drain
Discipline: B Hammer

Picture 2: Comment# B9010
Bldg:
Drawing #: Group 2 Level 1
Discipline: B Hammer
Item: Unit Substation

Picture 3: Comment# B9011
Bldg:
Drawing #: Group 2 Level 3
Discipline: B Hammer
Item: Unit Substation

Picture 4: Comment# C2222
Bldg:
Drawing #: Group 1 Level 1
Discipline: C Platform
Item: Bing - Lwr Level Women's

Los Angeles County Museum of Art
Ahmanson Hammer
Bing Art of the Americas

Building Evaluation

Comment# B8404. Comment# B9010.
Comment# B9011. Comment# C2222.

APPENDIX C
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Project: LACMA



Picture 1

Comment #: C1116



Picture 2

Comment #: C1117

Picture 1: Comment# C1116
Drawing #: Group 1 Level 1
Bldg:
Item: Exit corridor suspended ceiling
Discipline: C Bing

Picture 2: Comment# C1117
Bldg:
Drawing #: Group 1 Level 1
Discipline: C Bing
Item: Exit corridor carpet and paint



Picture 3:

Comment #: C1230



Picture 4:

Comment #: C1231

Picture 3: Comment# C1230
Bldg:
Drawing #: Group 1 Level 1
Discipline: C Bing
Item: Ext. south-east elevations

Picture 4: Comment# C1231
Bldg:
Drawing #: Group 1 Level 1
Discipline: C Bing
Item: Ext. walls

Los Angeles County Museum of Art
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Bing Art of the Americas

Building Evaluation

Comment# C1116. Comment# C1117.
Comment# C1230. Comment# C1231.

APPENDIX C

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Project: LACMA



Picture 1 Comment #: C1232.1



Picture 2 Comment #: C1232.2

Picture 1: Comment# C1232.1
Drawing #: Group 1 Level 1
Bldg:
Item: Ext. aluminum storefront glazing
Discipline: C Bing

Picture 2: Comment# C1232.2
Bldg:
Drawing #: Group 1 Level 1
Discipline: C Bing
Item: Ext. aluminum storefront glazing



Picture 3 Comment #: C1233



Picture 4 Comment #: C1234

Picture 3: Comment# C1233
Bldg:
Drawing #: Group 1 Level 1
Discipline: C Bing
Item: Ext. aluminum louvers

Picture 4: Comment# C1234
Bldg:
Drawing #: Group 1 Level 2
Discipline: C Bing
Item: Ext. balcony

Los Angeles County Museum of Art
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Bing Art of the Americas

Building Evaluation

Comment# C1232. Comment# C1232.
Comment# C1233. Comment# C1234.

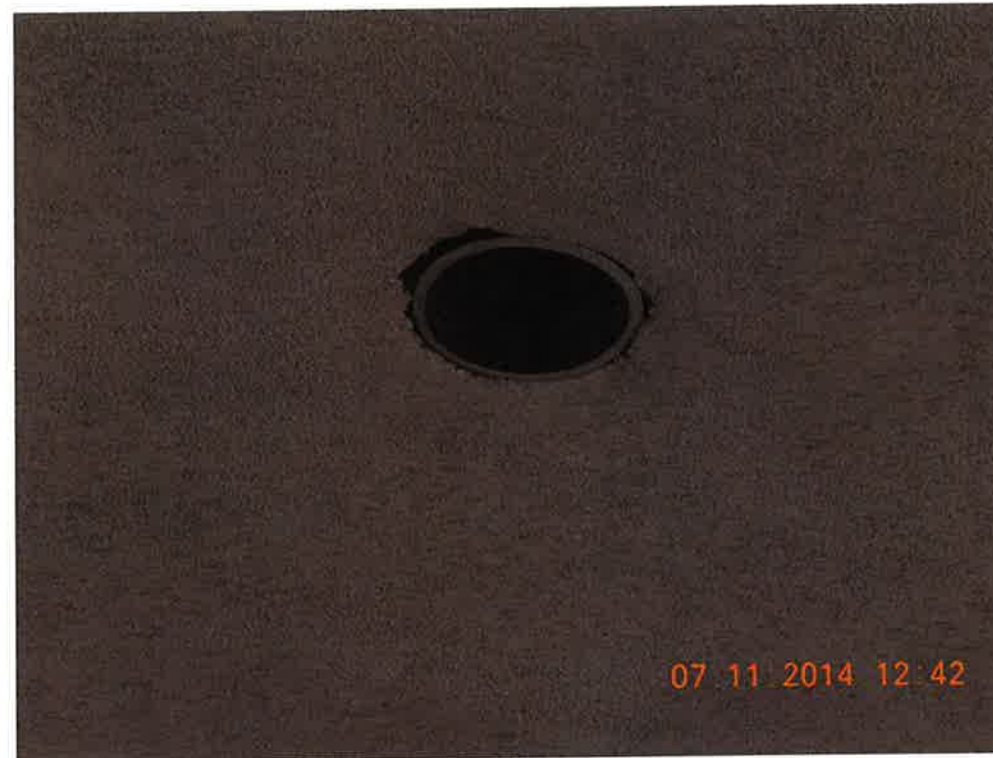
APPENDIX C

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Picture 1

Comment #: C1235



Picture 2

Comment #: C1236.1



Picture 3

Comment #: C1236.2



Picture 4:

Comment #: C1237



Project: LACMA

Picture 1: Comment# C1235
Drawing #: Group 1 Level 2
Bldg:
Item: Plaza concrete pavers
Discipline: C Bing

Picture 2: Comment# C1236.1
Bldg:
Drawing #: Group 1 Level 2
Discipline: C Bing
Item: Ext. plaster soffit and recessed

Picture 3: Comment# C1236.2
Bldg:
Drawing #: Group 1 Level 1
Discipline: C Bing
Item: Ext. plaster soffit and recessed

Picture 4: Comment# C1237
Bldg:
Drawing #: Group 1 Level 1
Discipline: C Bing
Item: Ext. plaster soffit cracks and w

Los Angeles County Museum of Art
Ahmanson Hammer
Bing Art of the Americas

Building Evaluation

Comment# C1235. Comment# C1236.
Comment# C1236. Comment# C1237.

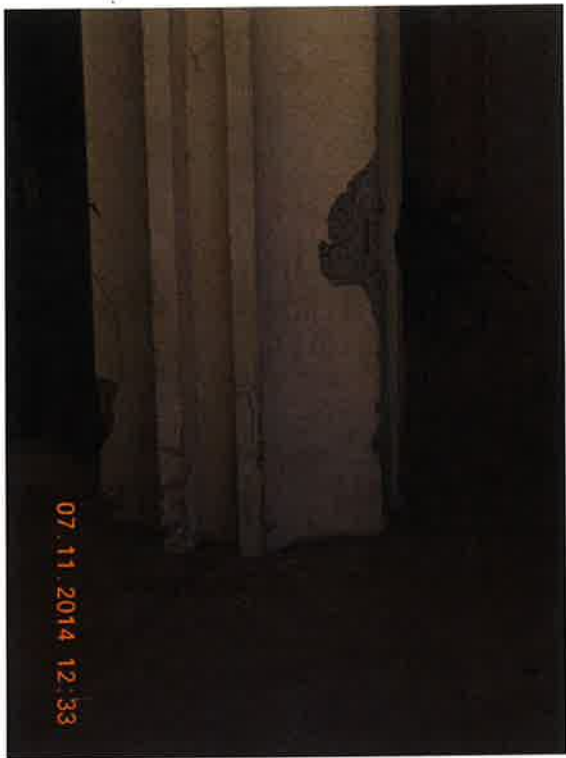
APPENDIX C

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Picture 1

Comment #: C1238.1



Picture 2:

Comment #: C1238.2



Picture 3

Comment #: C1239



Picture 4

Comment #: C1240.1



Project: LACMA

Picture 1: Comment# C1238.1
Drawing #: Group 1 Level 2
Bldg:
Item: Ext. concrete column
Discipline: C Bing

Picture 2: Comment# C1238.2
Bldg:
Drawing #: Group 1 Level 2
Discipline: C Bing
Item: Ext. concrete column

Picture 3: Comment# C1239
Bldg:
Drawing #: Group 1 Level 1
Discipline: C Bing
Item: Exit doors finish hardware and

Picture 4: Comment# C1240.1
Bldg:
Drawing #: Group 1 Level 2
Discipline: C Bing
Item: Ext. concrete balcony



Picture 1:

Comment #: C1240.2



Picture 2:

Comment #: C1241



Project: LACMA

Picture 1: Comment# C1240.2
Drawing #: Group 1 Level 2
Bldg:
Item: Ext. concrete balcony
Discipline: C Bing

Picture 2: Comment# C1241
Bldg:
Drawing #: Group 1 Level 2
Discipline: C Bing
Item: Ext. plaster soffit recessed ligh



Picture 3

Comment #: C1242.1



Picture 4:

Comment #: C1242.2

Picture 3: Comment# C1242.1
Bldg:
Drawing #: Group 1 Level 2
Discipline: C Bing
Item: Ext. north elevation

Picture 4: Comment# C1242.2
Bldg:
Drawing #: Group 1 Level 2
Discipline: C Bing
Item: Ext. north elevation



Picture 1

Comment #: C1243



Picture 2

Comment #: C1403.1



Picture 3

Comment #: C1403.2



Picture 4

Comment #: C1404



Project: LACMA

Picture 1: Comment# C1243
Drawing #: Group 1 Level 2
Bldg:
Item: Ext. balcony
Discipline: C Bing

Picture 2: Comment# C1403.1
Bldg:
Drawing #: Group 1 Roof
Discipline: C Bing
Item: Roofing, sheet metal flashing &

Picture 3: Comment# C1403.2
Bldg:
Drawing #: Group 1 Roof
Discipline: C Bing
Item: Roofing and sheet metal flashi

Picture 4: Comment# C1404
Bldg:
Drawing #: Group 1 Roof
Discipline: C Bing
Item: Rooftop tie backs and fall

Los Angeles County Museum of Art
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Bing Art of the Americas

Building Evaluation

Comment# C1243. Comment# C1403.
Comment# C1403. Comment# C1404.

APPENDIX C

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Picture 1

Comment #: C1405



Picture 2:

Comment #: C1511



Picture 3

Comment #: C1512



Picture 4

Comment #: C1801



Project: LACMA

Picture 1: Comment# C1405
Drawing #: Group 1 Roof
Bldg:
Item: Roofing and sheet metal flashi
Discipline: C Bing

Picture 2: Comment# C1511
Bldg:
Drawing #: Group 1 Roof
Discipline: C Bing
Item: Rooftop exit stairs

Picture 3: Comment# C1512
Bldg:
Drawing #: Group 1 Roof
Discipline: C Bing
Item: Rooftop exit stairs

Picture 4: Comment# C1801
Bldg:
Drawing #: Group 2 Level 4
Discipline: C Bing
Item: Roofing on the Bing building



Picture 1 Comment #: C1802



Picture 2 Comment #: C1803



Picture 3: Comment #: C1804



Picture 4 Comment #: C1805



Project: LACMA

Picture 1: Comment# C1802
Drawing #: Group 2 Level 4
Bldg:
Item: Roofing on the Bing building
Discipline: C Bing

Picture 2: Comment# C1803
Bldg:
Drawing #: Group 2 Level 4
Discipline: C Bing
Item: Roofing on the Bing building

Picture 3: Comment# C1804
Bldg:
Drawing #: Group 2 Level 4
Discipline: C Bing
Item: Roofing on the Bing building

Picture 4: Comment# C1805
Bldg:
Drawing #: Group 2 Level 4
Discipline: C Bing
Item: Roofing on the Bing building



Picture 1 Comment #: C1806



Picture 2: Comment #: C1807



Picture 3: Comment #: C1808



Picture 4 Comment #: C1809



Project: LACMA

Picture 1: Comment# C1806
Drawing #: Group 2 Level 4
Bldg:
Item: Roofing on the Bing building
Discipline: C Bing

Picture 2: Comment# C1807
Bldg:
Drawing #: Group 2 Level 4
Discipline: C Bing
Item: Roofing on the Bing building

Picture 3: Comment# C1808
Bldg:
Drawing #: Group 2 Level 4
Discipline: C Bing
Item: Roofing on the Bing building

Picture 4: Comment# C1809
Bldg:
Drawing #: Group 2 Level 4
Discipline: C Bing
Item: Roofing on the Bing building



Picture 1 Comment #: C1810



Picture 2: Comment #: C1923



Picture 3 Comment #: C2223



Picture 4: Comment #: C2224



Project: LACMA

Picture 1: Comment# C1810
Drawing #: Group 2 Level 4
Bldg:
Item: Roofing on the Bing building
Discipline: C Bing

Picture 2: Comment# C1923
Bldg:
Drawing #: Group 2 Level 2
Discipline: C Bing
Item: Plaza walkway system

Picture 3: Comment# C2223
Bldg:
Drawing #: Group 1 Level 1
Discipline: C Bing
Item: Bing - Lwr Level Women's

Picture 4: Comment# C2224
Bldg:
Drawing #: Group 1 Level 1
Discipline: C Bing
Item: Bing - Lwr Level Women's



Picture 1 Comment #: C2225



Picture 2 Comment #: C2414



Picture 3 Comment #: C2711



Picture 4 : Comment #: C2712



Project: LACMA

Picture 1: Comment# C2225
Drawing #: Group 1 Level 1
Bldg:
Item: Bing - Lwr Level Men's Restroc
Discipline: C Bing

Picture 2: Comment# C2414
Bldg:
Drawing #: Group 1 Level 1
Discipline: C Bing
Item: Bing - Stairwell

Picture 3: Comment# C2711
Bldg:
Drawing #: Group 1 Level 1
Discipline: C Bing
Item: Bing - Theater

Picture 4: Comment# C2712
Bldg:
Drawing #: Group 1 Level 1
Discipline: C Bing
Item: Bing - Theater



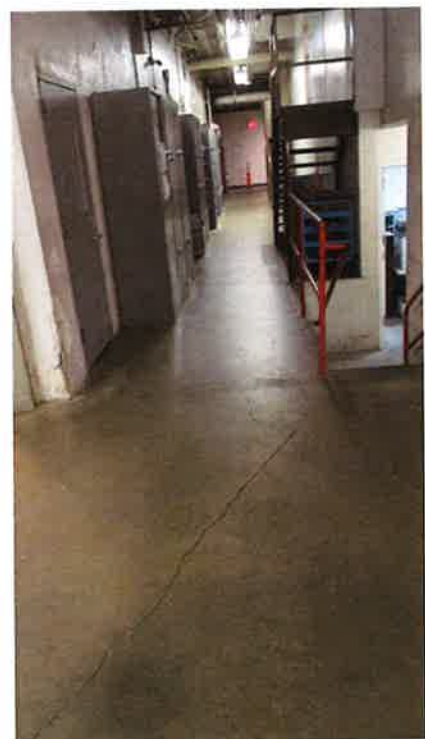
Picture 1: Comment #: C2713



Picture 2: Comment #: C2714



Picture 3: Comment #: C2715



Picture 4: Comment #: C5001



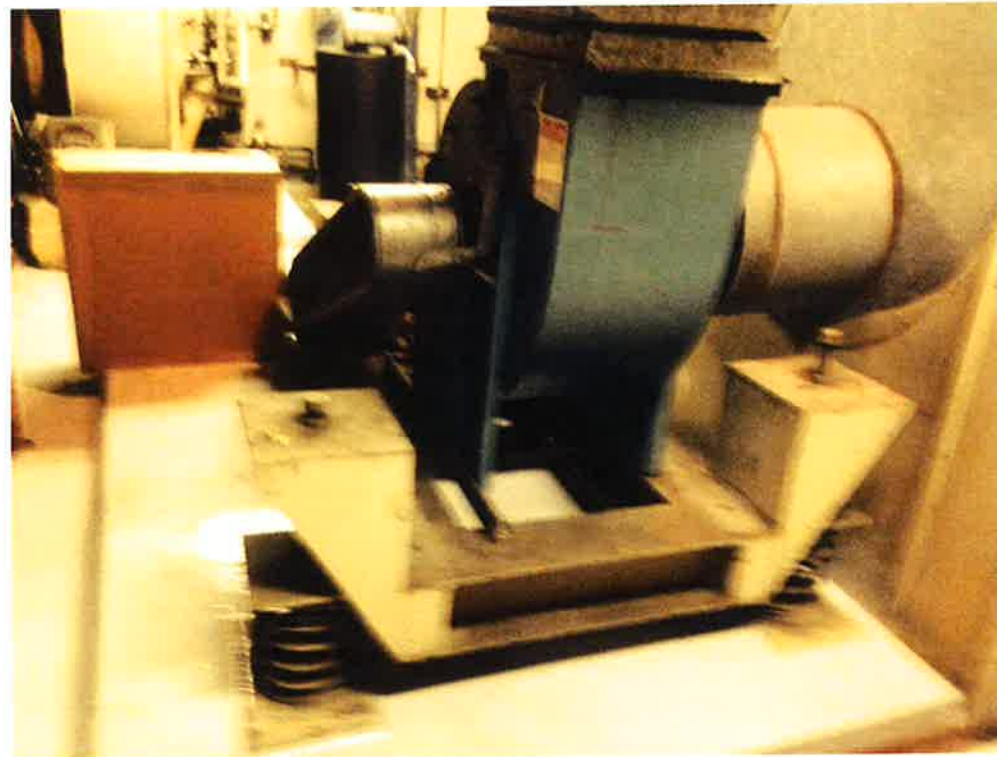
Project: LACMA

Picture 1: Comment# C2713
Drawing #: Group 1 Level 1
Bldg:
Item: Bing - Theater Lobby
Discipline: C Bing

Picture 2: Comment# C2714
Bldg:
Drawing #: Group 1 Level 1
Discipline: C Bing
Item: Bing - DC Brown Auditorium

Picture 3: Comment# C2715
Bldg:
Drawing #: Group 1 Level 1
Discipline: C Bing
Item: Bing - Lobby

Picture 4: Comment# C5001
Bldg: ALL
Drawing #: Group 1 Level 1
Discipline: C Bing
Item: Footing cracks



Picture 1 Comment #: C5401



Picture 2: Comment #: C6125



Picture 3 Comment #: C6126



Picture 4: Comment #: C6127



Project: LACMA

Picture 1: Comment# C5401
Drawing #: Group 1 Level 3
Bldg:
Item: Equipment restraint deficiency
Discipline: C Bing

Picture 2: Comment# C6125
Bldg:
Drawing #: Group 2 Level 4
Discipline: C Bing
Item: HHW pipe in Air Handling Unit

Picture 3: Comment# C6126
Bldg:
Drawing #: Group 2 Level 1
Discipline: C Bing
Item: VDF for Units in AH Room

Picture 4: Comment# C6127
Bldg:
Drawing #: Group 2 Level 1
Discipline: C Bing
Item: VFD for Units in AH Room

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Building Evaluation

Comment# C5401. Comment# C6125.
Comment# C6126. Comment# C6127.

APPENDIX C

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Picture 1

Comment #: C6128



Picture 2

: Comment #: C6129



Picture 3

Comment #: C6314



Picture 4

Comment #: C6315



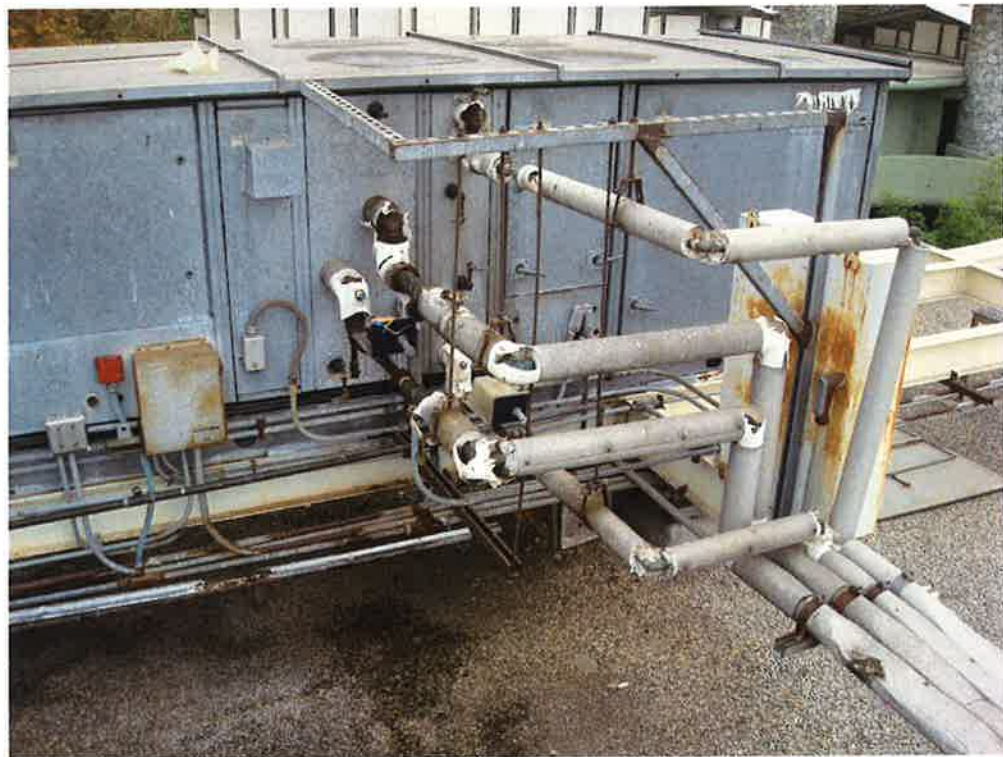
Project: LACMA

Picture 1: Comment# C6128
Drawing #: Group 2 Level 1
Bldg:
Item: Humidifier for AH-3 serves low
Discipline: C Bing

Picture 2: Comment# C6129
Bldg:
Drawing #: Group 2 Level 1
Discipline: C Bing
Item: Humidifier for AH-3 serves low

Picture 3: Comment# C6314
Bldg:
Drawing #: Group 2 Roof
Discipline: C Bing
Item: OSA Filters of S-2&4 on roof

Picture 4: Comment# C6315
Bldg:
Drawing #: Group 2 Roof
Discipline: C Bing
Item: OSA Filters of S-2&4 on roof



Picture 1

Comment #: C6316



Picture 2

Comment #: C6317



Picture 3

Comment #: C6318



Picture 4:

Comment #: C6319



Project: LACMA

Picture 1: Comment# C6316
Drawing #: Group 2 Roof
Bldg:
Item: HHWS&R, CHWS&R to S-2
Discipline: C Bing

Picture 2: Comment# C6317
Bldg:
Drawing #: Group 2 Level 4
Discipline: C Bing
Item: CHW Control Valve for S-1&4

Picture 3: Comment# C6318
Bldg:
Drawing #: Group 2 Level 4
Discipline: C Bing
Item: CHW Control Valve for S-1&4

Picture 4: Comment# C6319
Bldg:
Drawing #: Group 2 Level 4
Discipline: C Bing
Item: 2 way control valve for S-1&4



Picture 1:

Comment #: C6320



Picture 2

Comment #: C6321



Picture 3

Comment #: C6322



Picture 4

Comment #: C6323



Project: LACMA

Picture 1: Comment# C6320
Drawing #: Group 2 Level 4
Bldg:
Item: 2 way control valve for S-1&4
Discipline: C Bing

Picture 2: Comment# C6321
Bldg:
Drawing #: Group 2 Level 4
Discipline: C Bing
Item: Return fan for S-1 on roof

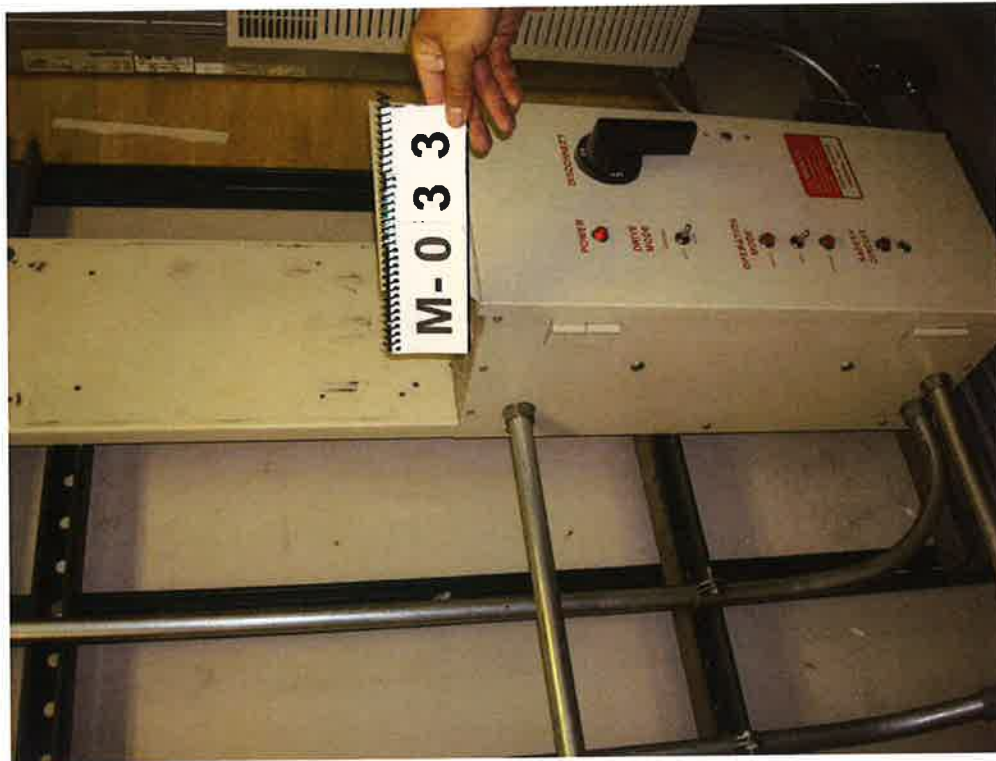
Picture 3: Comment# C6322
Bldg:
Drawing #: Group 2 Level 4
Discipline: C Bing
Item: Return fan for S-1

Picture 4: Comment# C6323
Bldg:
Drawing #: Group 2 Level 4
Discipline: C Bing
Item: HHW Pipes



Picture 1

Comment #: C6324



Picture 2

Comment #: C6707



Picture 3

Comment #: C6708



Picture 4

Comment #: C8004



Project: LACMA

Picture 1: Comment# C6324
Drawing #: Group 2 Level 4
Bldg:
Item: HHW Pipe
Discipline: C Bing

Picture 2: Comment# C6707
Bldg:
Drawing #: Group 2 Level 4
Discipline: C Bing
Item: Control Panel for Units on roof

Picture 3: Comment# C6708
Bldg:
Drawing #: Group 2 Level 4
Discipline: C Bing
Item: Controls Panel for Units on roc

Picture 4: Comment# C8004
Bldg:
Drawing #: Group 2 Level 1
Discipline: C Bing
Item: Water supply to Softener tank



Picture 1 Comment #: C8211



Picture 2 Comment #: C8212



Picture 3 Comment #: C8302



Picture 4 : Comment #: C8405



Project: LACMA

Picture 1: Comment# C8211
Drawing #: Group 2 Level 1
Bldg:
Item: Fire sprinkler System
Discipline: C Bing

Picture 2: Comment# C8212
Bldg:
Drawing #: Group 2 Level 1
Discipline: C Bing
Item: Fire water

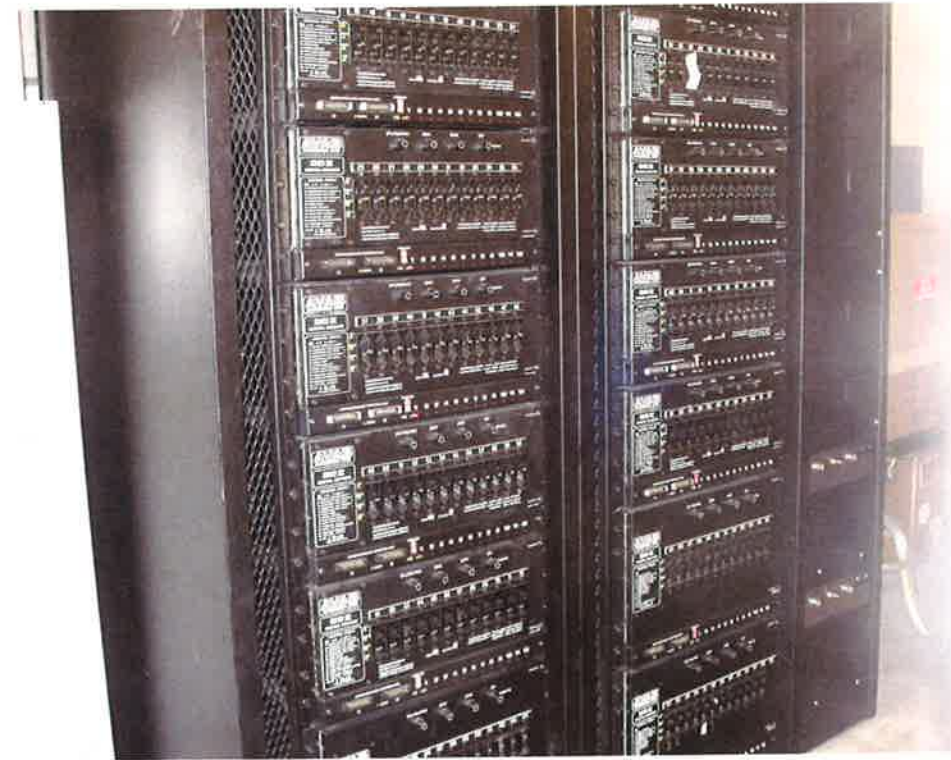
Picture 3: Comment# C8302
Bldg:
Drawing #: Group 2 Level 1
Discipline: C Bing
Item: Fire water

Picture 4: Comment# C8405
Bldg:
Drawing #: Group 2 Level 1
Discipline: C Bing
Item: Storm Drain



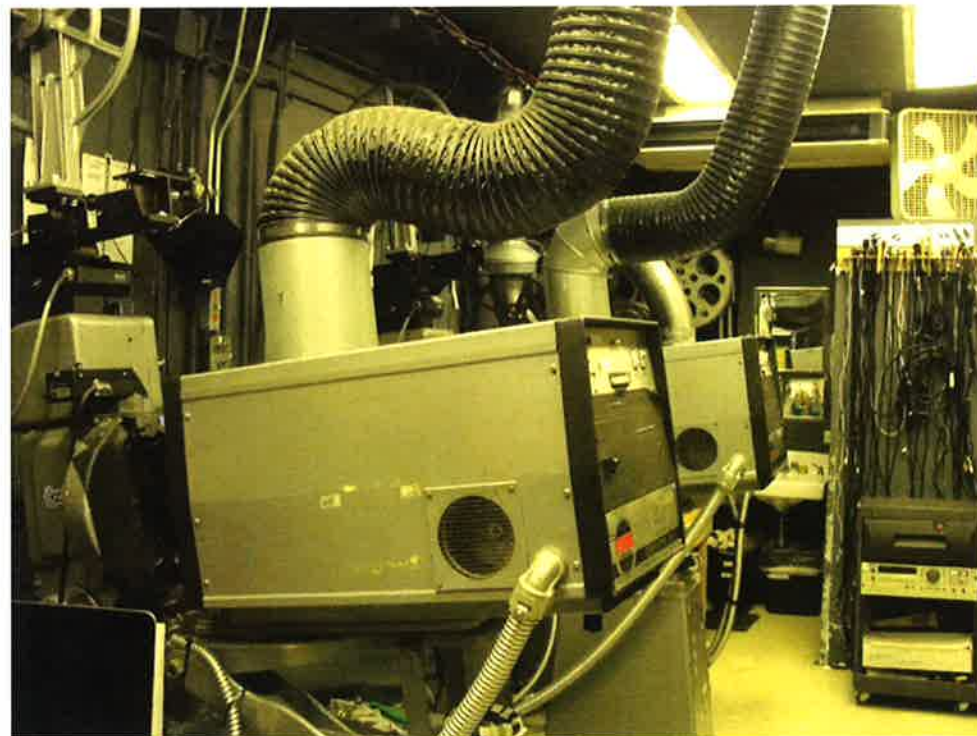
Picture 1

Comment #: C9012



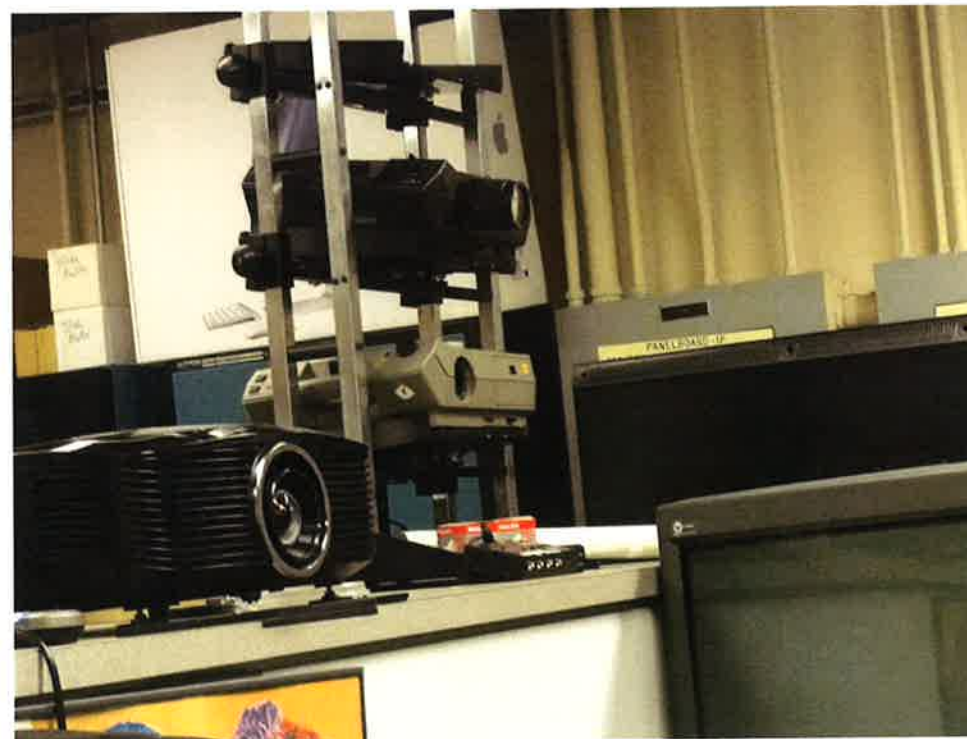
Picture 2:

Comment #: C9013



Picture 3

Comment #: C9503



Picture 4:

Comment #: C9504



Project: LACMA

Picture 1: Comment# C9012
Drawing #: Group 2 Level 1
Bldg:
Item: Unit Substation
Discipline: C Bing

Picture 2: Comment# C9013
Bldg:
Drawing #: Group 2 Level 3
Discipline: C Bing
Item: Unit Substation

Picture 3: Comment# C9503
Bldg:
Drawing #: Group 2 Level 3
Discipline: C Bing
Item: Audio Visual Systems

Picture 4: Comment# C9504
Bldg:
Drawing #: Group 2 Level 1
Discipline: C Bing
Item: Audio Visual Systems (Brown

Los Angeles County Museum of Art
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Building Evaluation

Comment# C9012. Comment# C9013.
Comment# C9503. Comment# C9504.

APPENDIX C

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Project: LACMA



Picture 1

Comment #: C9505



Picture 2:

Comment #: C9506

Picture 1: Comment# C9505
Drawing #: Group 2 Level 1
Bldg:
Item: Audio Visual Systems
Discipline: C Bing

Picture 2: Comment# C9506
Bldg:
Drawing #: Group 2 Level 1
Discipline: C Bing
Item: Audio Visual Systems (Germ)



Picture 3:

Comment #: D1901



Picture 4:

Comment #: D1001

Picture 3: Comment# D1901
Bldg:
Drawing #: Group 2 Roof
Discipline: D Pathways
Item: Exterior wall - procelain metal

Picture 4: Comment# D1001
Bldg:
Drawing #: Group 1 Level 2
Discipline: D AOA
Item: Passenger Elevator

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Bing Art of the Americas

Building Evaluation

Comment# C9505. Comment# C9506.
Comment# D1901. Comment# D1001.

APPENDIX C

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Picture 1

Comment #: D1244



Picture 2

Comment #: D1245.1



Picture 3

Comment #: D1245.2



Picture 4

Comment #: D1245.3



Project: LACMA

Picture 1: Comment# D1244
Drawing #: Group 1 Level 2
Bldg:
Item: Exterior glass exit doors
Discipline: D AOA

Picture 2: Comment# D1245.1
Bldg:
Drawing #: Group 1 Level 1
Discipline: D AOA
Item: Wilshire Blvd. Façade

Picture 3: Comment# D1245.2
Bldg:
Drawing #: Group 1 Level 1
Discipline: D AOA
Item: Wilshire Blvd. Façade

Picture 4: Comment# D1245.3
Bldg:
Drawing #: Group 1 Level 1
Discipline: D AOA
Item: Wilshire Blvd. Façade

Los Angeles County Museum of Art
Ahmanson Hammer
Bing Art of the Americas

Building Evaluation

Comment# D1244. Comment# D1245.
Comment# D1245. Comment# D1245.

APPENDIX C

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Picture 1

Comment #: D1245.4



Picture 2:

Comment #: D1245.5



Picture 3

Comment #: D1245.6



Picture 4

Comment #: D1245.7



Project: LACMA

Picture 1: Comment# D1245.4
Drawing #: Group 1 Level 1
Bldg:
Item: Wilshire Blvd. Façade
Discipline: D AOA

Picture 2: Comment# D1245.5
Bldg:
Drawing #: Group 1 Level 1
Discipline: D AOA
Item: Wilshire Blvd. Façade

Picture 3: Comment# D1245.6
Bldg:
Drawing #: Group 1 Level 1
Discipline: D AOA
Item: Wilshire Blvd. Façade

Picture 4: Comment# D1245.7
Bldg:
Drawing #: Group 1 Level 1
Discipline: D AOA
Item: Wilshire Blvd. Façade

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Building Evaluation

Comment# D1245. Comment# D1245.
Comment# D1245. Comment# D1245.
APPENDIX C
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Project: LACMA



Picture 1: Comment #: D1246



Picture 2: Comment #: D1247.1

Picture 1: Comment# D1246
Drawing #: Group 1 Level 1
Bldg:
Item: Ext. column Stone Base
Discipline: D AOA

Picture 2: Comment# D1247.1
Bldg:
Drawing #: Group 1 Level 1
Discipline: D AOA
Item: Main entry Fountain



Picture 3: Comment #: D1247.2



Picture 4: Comment #: D1248.1

Picture 3: Comment# D1247.2
Bldg:
Drawing #: Group 1 Level 1
Discipline: D AOA
Item: Main entry Fountain

Picture 4: Comment# D1248.1
Bldg:
Drawing #: Group 1 Level 1
Discipline: D AOA
Item: Ext. column Stone Base

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Building Evaluation

Comment# D1246. Comment# D1247.
Comment# D1247. Comment# D1248.

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Picture 1

Comment #: D1248.2



Picture 2

Comment #: D1248.3



Picture 3

Comment #: D1249.1



Picture 4

Comment #: D1249.2



Project: LACMA

Picture 1: Comment# D1248.2
Drawing #: Group 1 Level 1
Bldg:
Item: Ext. column Stone Base
Discipline: D AOA

Picture 2: Comment# D1248.3
Bldg:
Drawing #: Group 1 Level 1
Discipline: D AOA
Item: Ext. column Stone Base

Picture 3: Comment# D1249.1
Bldg:
Drawing #: Group 1 Level 1
Discipline: D AOA
Item: Ext. column tiles

Picture 4: Comment# D1249.2
Bldg:
Drawing #: Group 1 Level 1
Discipline: D AOA
Item: Ext. column tiles

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Comment# D1248. Comment# D1248.
Comment# D1249. Comment# D1249.

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Picture 1

Comment #: D1249.3



Picture 2:

Comment #: D1250.2



Picture 3:

Comment #: D1250.3



Picture 4

Comment #: D1250.4



Project: LACMA

Picture 1: Comment# D1249.3
Drawing #: Group 1 Level 1
Bldg:
Item: Ext. column tiles
Discipline: D AOA

Picture 2: Comment# D1250.2
Bldg:
Drawing #: Group 1 Level 2
Discipline: D AOA
Item: Plaza concrete pavers

Picture 3: Comment# D1250.3
Bldg:
Drawing #: Group 1 Level 2
Discipline: D AOA
Item: Plaza concrete pavers

Picture 4: Comment# D1250.4
Bldg:
Drawing #: Group 1 Level 2
Discipline: D AOA
Item: Plaza concrete pavers

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Comment# D1249. Comment# D1250.
Comment# D1250. Comment# D1250.

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Picture 1

Comment #: D1250.5



Picture 2:

Comment #: D1250.6



Picture 3

Comment #: D1251



Picture 4

Comment #: D1252.1



Project: LACMA

Picture 1: Comment# D1250.5
Drawing #: Group 1 Level 2
Bldg:
Item: Plaza concrete pavers
Discipline: D AOA

Picture 2: Comment# D1250.6
Bldg:
Drawing #: Group 1 Level 2
Discipline: D AOA
Item: Plaza concrete pavers

Picture 3: Comment# D1251
Bldg:
Drawing #: Group 1 Level 2
Discipline: D AOA
Item: Main entry concrete pavers

Picture 4: Comment# D1252.1
Bldg:
Drawing #: Group 1 Level 1
Discipline: D AOA
Item: Ext. porcelain / metal panels

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Building Evaluation

Comment# D1250. Comment# D1250.
Comment# D1251. Comment# D1252.

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Picture 1

Comment #: D1252.2



Picture 2

Comment #: D1252.3



Picture 3

Comment #: D1253



Picture 4

Comment #: D1254.1



Project: LACMA

Picture 1: Comment# D1252.2
Drawing #: Group 1 Level 1
Bldg:
Item: Ext. porcelain / metal panels
Discipline: D AOA

Picture 2: Comment# D1252.3
Bldg:
Drawing #: Group 1 Level 1
Discipline: D AOA
Item: Ext. porcelain / metal panels

Picture 3: Comment# D1253
Bldg:
Drawing #: Group 1 Level 3
Discipline: D AOA
Item: Ext. curtainwal mullions

Picture 4: Comment# D1254.1
Bldg:
Drawing #: Group 1 Level 4
Discipline: D AOA
Item: Ext. metal canopy and Kalwall



Project: LACMA



Picture 1

Comment #: D1254.2



Picture 2

Comment #: D1254.3



Picture 3

Comment #: D1254.4



Picture 4

Comment #: D1255

Picture 1: Comment# D1254.2
Drawing #: Group 1 Level 4
Bldg:
Item: Ext. metal canopy and Kalwall
Discipline: D AOA

Picture 2: Comment# D1254.3
Bldg:
Drawing #: Group 1 Level 4
Discipline: D AOA
Item: Ext. metal canopy and Kalwall

Picture 3: Comment# D1254.4
Bldg:
Drawing #: Group 1 Level 4
Discipline: D AOA
Item: Ext. metal canopy and Kalwall

Picture 4: Comment# D1255
Bldg:
Drawing #: Group 1 Level 3
Discipline: D AOA
Item: Ext. balcony and bridge



Picture 1

Comment #: D1256.1



Picture 2:

Comment #: D1256.2



Picture 3

Comment #: D1301



Picture 4

Comment #: D1302



Project: LACMA

Picture 1: Comment# D1256.1
Drawing #: Group 1 Level 1
Bldg:
Item: Ext. west elevation
Discipline: D AOA

Picture 2: Comment# D1256.2
Bldg:
Drawing #: Group 1 Level 1
Discipline: D AOA
Item: Ext. west elevation

Picture 3: Comment# D1301
Bldg:
Drawing #: Group 1 Level 3
Discipline: D AOA
Item: Ext. balcony and bridge

Picture 4: Comment# D1302
Bldg:
Drawing #: Group 1 Level 3
Discipline: D AOA
Item: Ext. balcony and bridge



Project: LACMA



Picture 1

Comment #: D1406.1



Picture 2:

Comment #: D1406.2

Picture 1: Comment# D1406.1
Drawing #: Group 1 Roof
Bldg:
Item: Rooftop skylight
Discipline: D AOA

Picture 2: Comment# D1406.2
Bldg:
Drawing #: Group 1 Roof
Discipline: D AOA
Item: Rooftop skylight



Picture 3

Comment #: D1513.1



Picture 4

Comment #: D1513.2

Picture 3: Comment# D1513.1
Bldg:
Drawing #: Group 1 Level 1
Discipline: D AOA
Item: Ext. exit concrete stairs

Picture 4: Comment# D1513.2
Bldg:
Drawing #: Group 1 Level 1
Discipline: D AOA
Item: Ext. exit concrete stairs

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Comment# D1406. Comment# D1406.
Comment# D1513. Comment# D1513.

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Project: LACMA



Picture 1

Comment #: D1513.3



Picture 2:

Comment #: D1514

Picture 1: Comment# D1513.3
Drawing #: Group 1 Level 1
Bldg:
Item: Ext. exit concrete stairs
Discipline: D AOA

Picture 2: Comment# D1514
Bldg:
Drawing #: Group 1 Level 2
Discipline: D AOA
Item: Plaza planter guardrails



Picture 3:

Comment #: D1515.1



Picture 4:

Comment #: D1515.2

Picture 3: Comment# D1515.1
Bldg:
Drawing #: Group 1 Level 1
Discipline: D AOA
Item: Ext. concrete stairs

Picture 4: Comment# D1515.2
Bldg:
Drawing #: Group 1 Level 1
Discipline: D AOA
Item: Ext. concrete stairs

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Comment# D1513. Comment# D1514.
Comment# D1515. Comment# D1515.

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Project: LACMA



Picture 1

Comment #: D1515.3



Picture 2:

Comment #: D1516.1



Picture 3

Comment #: D1516.2



Picture 4

Comment #: D1811

Picture 1: Comment# D1515.3
Drawing #: Group 1 Level 1
Bldg:
Item: Ext. concrete stairs
Discipline: D AOA

Picture 2: Comment# D1516.1
Bldg:
Drawing #: Group 1 Level 2
Discipline: D AOA
Item: Plaza concrete stairs

Picture 3: Comment# D1516.2
Bldg:
Drawing #: Group 1 Level 2
Discipline: D AOA
Item: Plaza concrete stairs

Picture 4: Comment# D1811
Bldg:
Drawing #: Group 2 Roof
Discipline: D AOA
Item: Roofing on the Art of America'

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Comment# D1515. Comment# D1516.
Comment# D1516. Comment# D1811.

APPENDIX C

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Picture 1 Comment #: D1812



Picture 2: Comment #: D1813



Picture 3 Comment #: D1814



Picture 4: Comment #: D1815



Project: LACMA

Picture 1: Comment# D1812
 Drawing #: Group 2 Roof
 Bldg:
 Item: Roofing on the Art of America's
 Discipline: D AOA

Picture 2: Comment# D1813
 Bldg:
 Drawing #: Group 2 Roof
 Discipline: D AOA
 Item: Roofing on the Art of America's

Picture 3: Comment# D1814
 Bldg:
 Drawing #: Group 2 Roof
 Discipline: D AOA
 Item: Roofing on the Art of America's

Picture 4: Comment# D1815
 Bldg:
 Drawing #: Group 2 Roof
 Discipline: D AOA
 Item: Roofing on the Art of America's



Picture 1: Comment #: D1816



Picture 2 Comment #: D1817



Picture 3 Comment #: D1818



Picture 4 Comment #: D1819



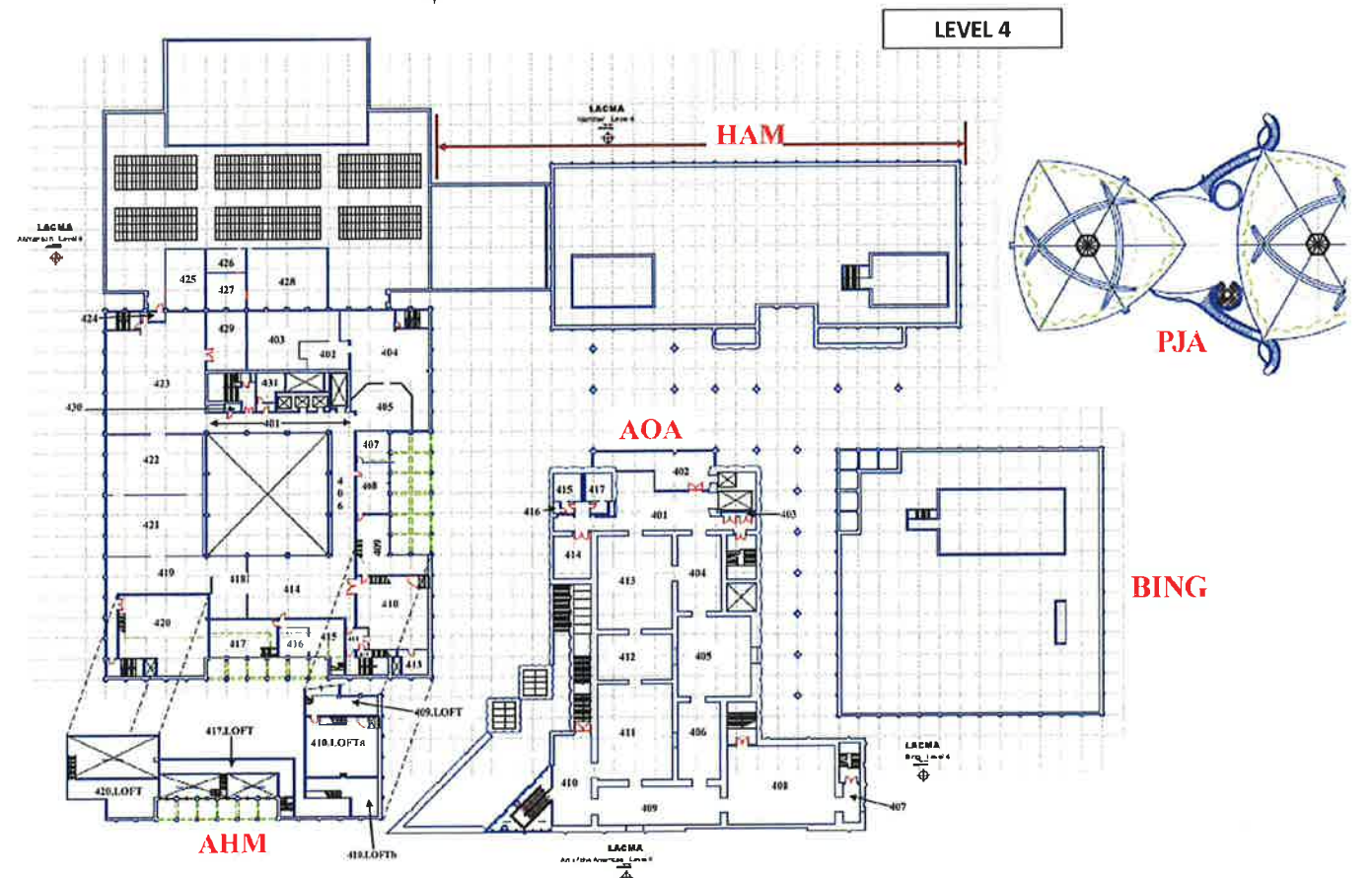
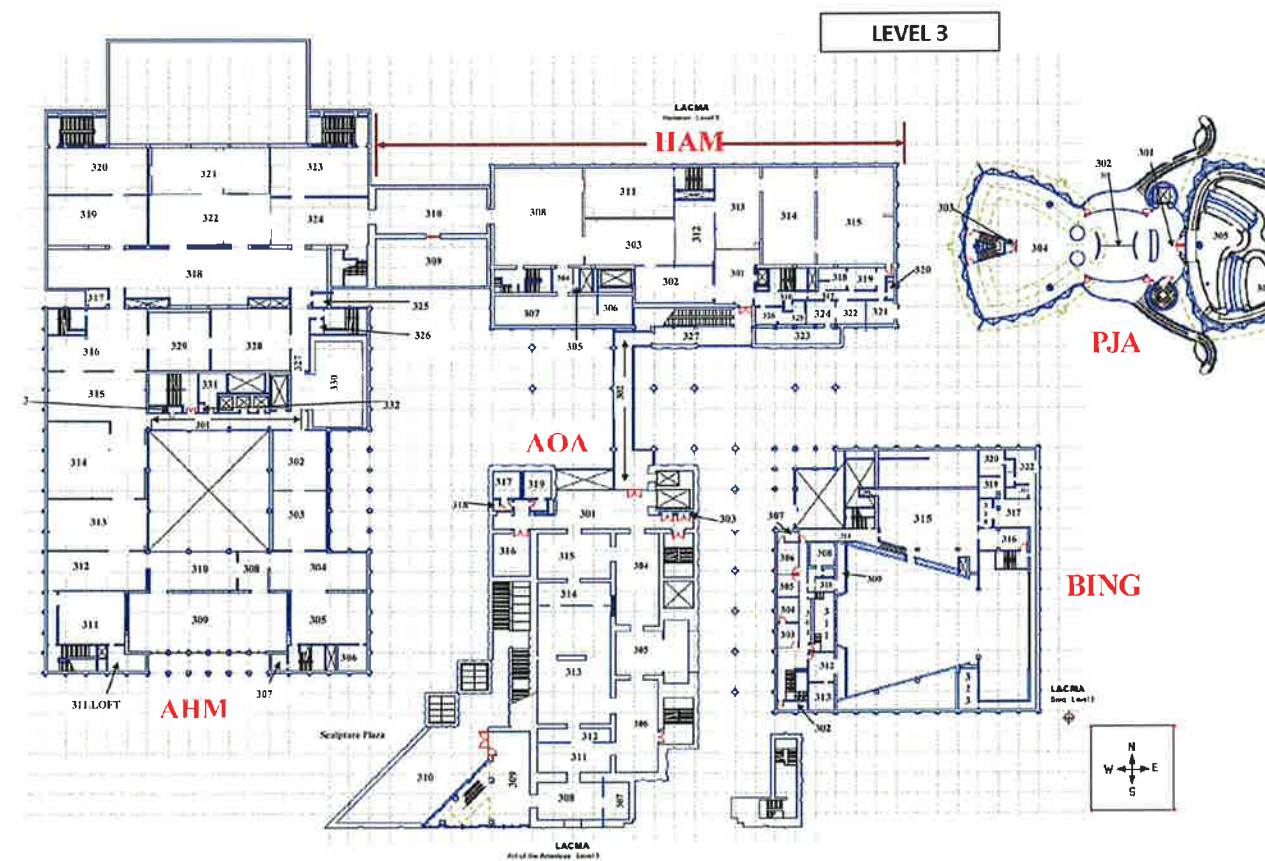
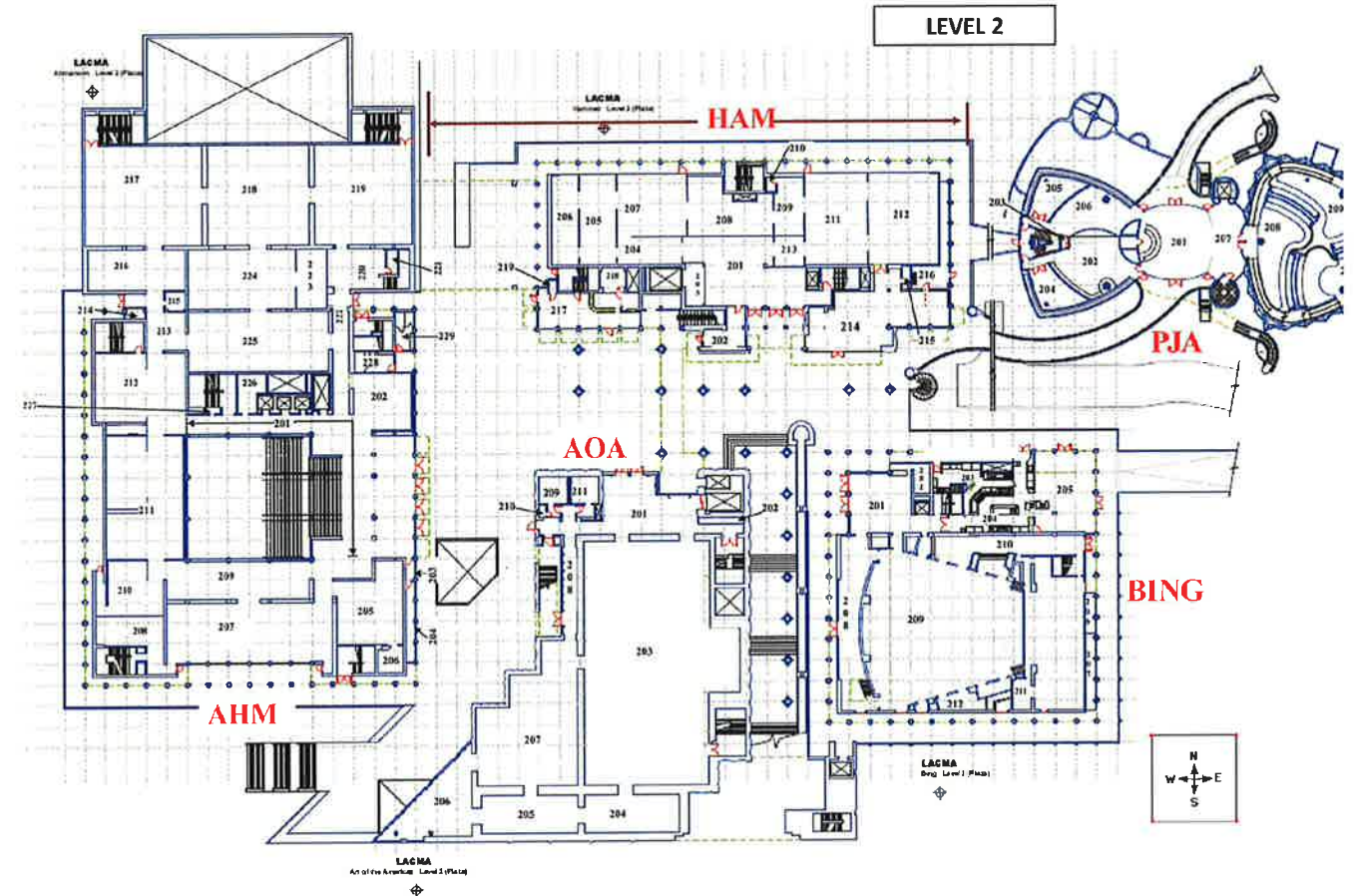
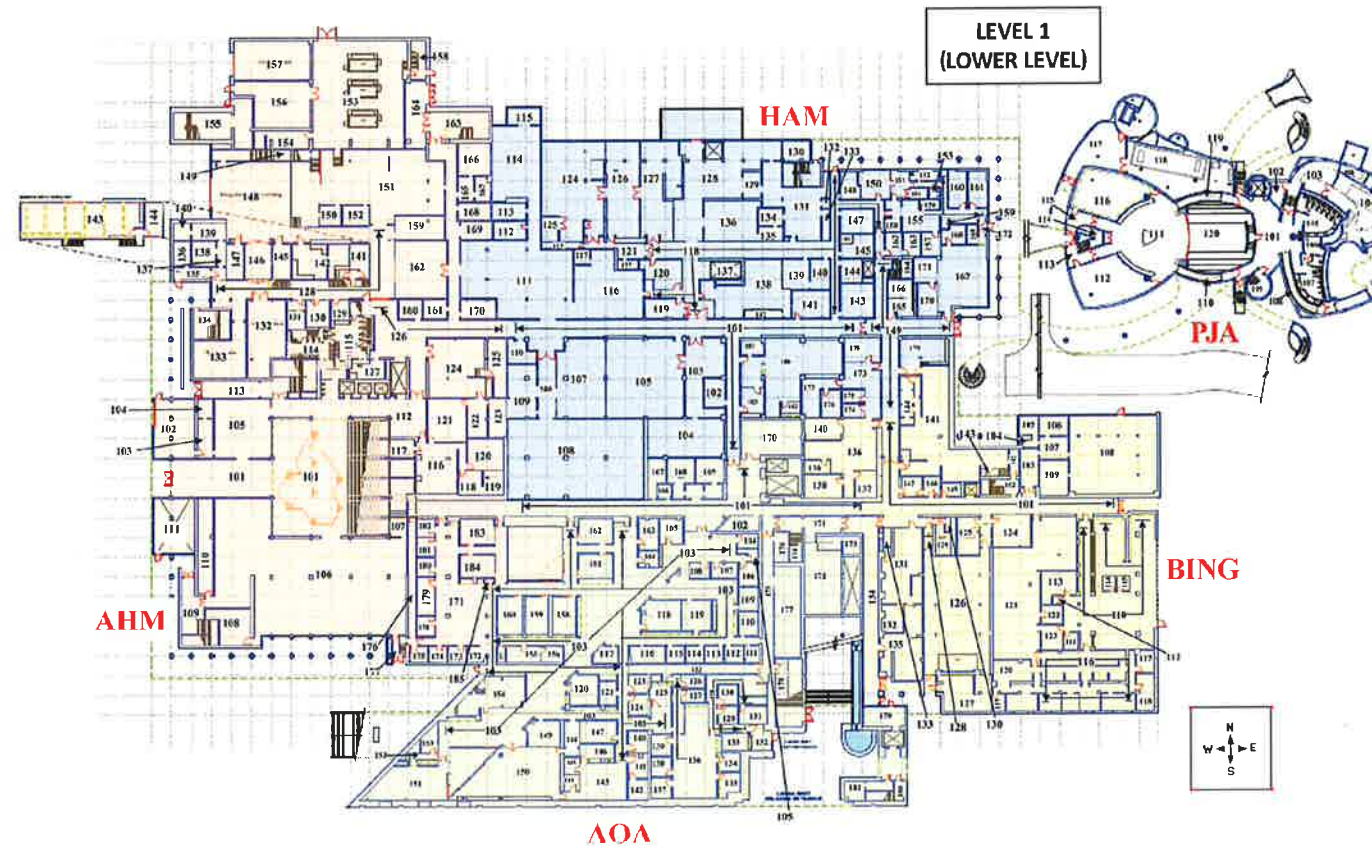
Project: LACMA

Picture 1: Comment# D1816
Drawing #: Group 2 Roof
Bldg:
Item: Roofing on the Art of America's
Discipline: D AOA

Picture 2: Comment# D1817
Bldg:
Drawing #: Group 2 Roof
Discipline: D AOA
Item: Roof stairwell and deck on the

Picture 3: Comment# D1818
Bldg:
Drawing #: Group 2 Roof
Discipline: D AOA
Item: Roof stairwell on the Art of

Picture 4: Comment# D1819
Bldg:
Drawing #: Group 2 Roof
Discipline: D AOA
Item: Roof stairwell on the Art of



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APPENDIX D
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Picture 1 Comment #: D1820



Picture 2 Comment #: D1821



Picture 3 Comment #: D1902



Picture 4 Comment #: D2220



Project: LACMA

Picture 1: Comment# D1820
Drawing #: Group 2 Roof
Bldg:
Item: Roof stairwell on the Art of
Discipline: D AOA

Picture 2: Comment# D1821
Bldg:
Drawing #: Group 2 Roof
Discipline: D AOA
Item: Wall cladding on the Art of

Picture 3: Comment# D1902
Bldg:
Drawing #: Group 2 Roof
Discipline: D AOA
Item: Skylight Panel System

Picture 4: Comment# D2220
Bldg:
Drawing #: Group 1 Level 1
Discipline: D AOA
Item: AOA - Restrooms (See 33)