Company Name:	San Bernadino County	**Date:**	September 19, 2023
Building Name:	303 W. 5th Street	**Job Number:**	23005335.00
Street Address:	303 W. 5th Street	**Engineer:**	Craig Chamberlain, S.E.
	San Bernadino, CA, USA 92401	**PE Number/State:**	CA SE 4588

MODIFIED FEMA-310 WORKSHEET

RM1(5AA)Reinforced Masonry Bearing Walls w/ Flexible Diaphragms

Category	Range	Typical	Modifier
GENERAL BUILDING FEATURES			
Complete load path	T, F	T	T
No adjacent buildings	T, F	T	T
Interior mezzanines adequately braced	N/A, T, F	T	T
No strength irregularity	T, F	T	T
No soft story	T, F	T	T
No geometrical irregularities	T, F	T	T
No mass irregularity	T, F	T	T
No vertical discontinuities	T, F	T	T
Deflection compatibility	T, F	F	T
LATERAL FORCE RESISTING SYSTEM			
Redundancy	T, F, 0-10	0	1
Shear stress check of shear walls	T, F, 0-15	5	T
Reinforcing steel	T, F, 0-5	2	2
Adequate reinforcing at openings	N/A, T, F, 0-5	2	2
Stable wall proportions	T, F, 0-5	2	2
CONNECTIONS			
Adequate wall anchorage	T, F, 0-10	0	0
Walls doweled into foundation	T, F, 0-10	0	0
Adequate girder to column/wall connection	T, F, 0-15	0	0
Wood ledgers not in cross grain bending	N/A, T, F, 0-10	0	N/A
Adequate wall anchor spacing	T, F, 0-10	0	0
Adequate stiffness of wall anchors	T, F, 0-10	0	0
FLOOR DIAPHRAGMS			
Cross Ties	T, F, 0-10	5	2
Limited diaphragm openings at shear walls	N/A, T, F, 0-5	2	N/A
Limited openings at exterior shear walls	N/A, T, F, 0-5	2	N/A
Reinforcing at re-entrant corners	N/A, T, F, 0-10	0	N/A
Adequate reinforcing at openings	N/A, T, F, 0-5	0	N/A
Adequate straight sheathing aspect ratios	N/A, T, F, 0-5	2	N/A
Large spans adequately sheathed	N/A, T, F, 0-5	2	N/A
Unblocked diaphragms meet requirements	N/A, T, F, 0-5	2	N/A
Untopped diaphragms meet requirements	N/A, T, F, 0-5	2	N/A
Other diaphragms meet requirements	N/A, T, F, 0-5	2	N/A
Collectors	T, F, 0-5	2	2

Company Name: San Bernadino County
Building Name: 303 W. 5th Street
Street Address: 303 W. 5th Street
San Bernadino, CA, USA 92401

Date: September 19, 2023
Job Number: 23005335.00
Engineer: Craig Chamberlain, S.E.
PE Number/State: CA SE 4588

MODIFIED FEMA-310 WORKSHEET

Category	Range	Typical	Modifier
ROOF DIAPHRAGM (ONLY IF 5 STORIES OR LESS)			
Cross Ties	T, F, 0-10	5	5
Limited diaphragm openings at shear walls	N/A, T, F, 0-5	2	2
Limited openings at exterior shear walls	N/A, T, F, 0-5	2	2
Reinforcing at re-entrant corners	N/A, T, F, 0-10	0	0
Adequate reinforcing at openings	N/A, T, F, 0-5	0	0
Adequate straight sheathing aspect ratios	N/A, T, F, 0-5	2	N/A
Large spans adequately sheathed	N/A, T, F, 0-5	2	N/A
Unblocked diaphragms meet requirements	N/A, T, F, 0-5	2	N/A
Untopped diaphragms meet requirements	N/A, T, F, 0-5	2	2
Other diaphragms meet requirements	N/A, T, F, 0-5	2	2
Collectors	T, F, 0-5	2	2
UNUSUAL CONDITIONS			
Little deterioration of masonry units	T, F, 0-5	2	2
Little deterioration of masonry joints	T, F, 0-5	2	2
Insignificant reinforced masonry wall cracks	T, F, 0-5	2	2
Little deterioration of wood	N/A, T, F, 0-5	2	N/A
Little foundation damage	T, F, 0-5	2	2
Little foundation deterioration	T, F, 0-5	2	2
Adequate overturning resistance	T, F, 0-5	2	2
Ties between foundation elements	N/A, T, F, 0-5	2	N/A
Lateral force on deep foundations	N/A, T, F, 0-5	2	N/A
Pole buildings	N/A, T, F, 0-5	0	N/A
Insignificant sloping at site	N/A, T, F, 0-5	0	0
SITE DEPENDENT HAZARDS - ACTIVE FAULTS			
Surface fault rupture	N/A, 0-50	0	0
NONSTRUCTURAL EXTERIOR 'WALLS'			
Cladding, glazing, veneer	N/A, T, F, 0-10	5	4
Chimneys	N/A, T, F, 0-5	5	N/A
NONSTRUCTURAL INTERIOR 'WALLS'			
Partitions (HC tile)	N/A, T, F, 0-10	0	N/A
Partitions (pre-cast panels..)	N/A, T, F, 0-10	5	2
EXTERIOR ORNAMENTATION			
Parapets, cornices, and appendages	N/A, T, F, 0-10	0	0

Company Name: San Bernadino County
Building Name: 303 W. 5th Street
Street Address: 303 W. 5th Street
San Bernadino, CA, USA 92401

Date: September 19, 2023
Job Number: 23005335.00
Engineer: Craig Chamberlain, S.E.
PE Number/State: CA SE 4588

MODIFIED FEMA-310 WORKSHEET

Category	Range	Typical	Modifier
INTERIOR ORNAMENTATION			
Building contents and furnishings	T, F, 0-10	5	2
Ceiling systems	T, F, 0-5	5	2
Light fixtures	T, F, 0-5	5	2
MECHANICAL AND ELECTRICAL SYSTEMS			
Mechanical and electrical equipment	T, F, 0-10	5	5
Piping and sprinklers	T, F, 0-5	2	2
Ducts	T, F, 0-5	2	2
Elevators	N/A, T, F, 0-5	2	2
HAZARDOUS EXPOSURES - MATERIALS			
No hazardous materials	N/A, T, F, 0-10	0	0
OCCUPANCY (TYPE: OFFICE)			
Interior Construction	-5-5	0	-3
SITE DEPENDENT CHARACTERISTICS			
UBC Soil Class	A - E	D	Unknown
Liquefaction Resilience	Low - High	Low	Moderate
Liquefaction Susceptibility	V. Low-V. High	Very Low	High
Depth to Water Table (ft)	0-1000+	15	Unknown
Landslide Susceptibility	V. Low-V. High	Very Low	Very Low

Company Name:	San Bernadino County	**Date:**	September 19, 2023
Building Name:	303 W. 5th Street	**Job Number:**	23005335.00
Street Address:	303 W. 5th Street	**Engineer:**	Craig Chamberlain, S.E.
	San Bernadino, CA, USA 92401	**PE Number/State:**	CA SE 4588

VULNERABILITY SUMMARY

Component Modifier Summary

Base Class 90% Fractile Loss at MMI=IX (% of Value): 27

Modifiers to Base Class Loss

Item	Group Modifier (% of Loss)	Sigma (% of Loss)
1. Occupancy type:	-3	1.0
2. Connections:	0	0.7
3. Walls:		
A. Exterior	-1	3.1
B. Interior	-3	1.8
4. Diaphragms:		
A. Floor(s)	-1	0.9
B. Roof	0	1.6
5. Ornamentation:		
A. Exterior	0	1.7
B. Interior	-3	1.6
6. Mechanical/electrical systems:	0	3.4
7. Unusual conditions:	0	2.4
8. Hazardous exposures:		
A. Tank and overhanging walls	0	1.7
B. Pounding and adjacent buildings	0	0.0
9. Site dependent hazards:		
A. Proximity of active fault	0	12.8
Total	-11	14.3

Modified Base Class 90% Fractile Loss at MMI=IX (% of Value): 24

Loss vs MMI

MMI	Loss to Facilities (% of Value)	
	90% Frac. Loss	Mean
V	0	0
VI	2	1
VII	10	5
VIII	17	9
IX	24	14
X	28	16
XI	31	18
XII	35	20

SB COUNTY PROPERTY ASSESSMENT - 303 W. 5TH STREET

Company Name: San Bernadino County
Building Name: 303 W. 5th Street
Street Address: 303 W. 5th Street
San Bernadino, CA, USA 92401

Date: September 19, 2023
Job Number: 23005335.00
Engineer: Craig Chamberlain, S.E.
PE Number/State: CA SE 4588

RISK SUMMARY

Expected Loss Table

Probability of Exceedance	MMI	Loss to Facilities (% of Value)			BI (months)
		PL	SUL	SEL	
50.0% in 30 years 43 year return period	VII	3	9	5	N/A
10.0% in 30 years 285 year return period	VIII-IX	14	22	12	N/A
2.0% in 30 years 1485 year return period	IX	77	77	77	N/A
10.0% in 50 years 475 year return period	VIII-IX	20	25	14	N/A
2.0% in 50 years 2475 year return period	IX-X	86	86	86	N/A

Event and Fault Table

Close and Significant Seismic Sources	Maximum Magnitude	Closest Distance (km)	Max. MMI	Max. SUL *	Max. SEL *	Maximum Business Interuption (months)	Percent Contribution **
San Jacinto;SBV	7.1	2.9	VIII-IX	20	11	N/A	14
San Jacinto;SBV+SJV	7.3	2.9	VIII-IX	20	11	N/A	9
San Jacinto;SBV+SJV+A+C	7.8	2.9	VIII-IX	21	12	N/A	9
San Jacinto (SB to C)	7.7	2.9	VIII-IX	21	12	N/A	6
San Jacinto;SBV+SJV+A	7.6	2.9	VIII-IX	21	12	N/A	3
San Jacinto;SBV+SJV+A+CC	7.8	2.9	VIII-IX	21	12	N/A	<1
San Jacinto;SBV+SJV+A+CC+B+SM***	7.9	2.9	VIII-IX	21	12	N/A	<1
San Jacinto;SBV+SJV+A+CC+B	7.8	2.9	VIII-IX	21	12	N/A	<1
California Gridded	7.0	5.0	VIII-IX	19	11	N/A	2
Imp Extensional Gridded, Char, Strike Slip	7.0	5.0	VIII-IX	19	11	N/A	<1
Imp Extensional Gridded, Char, Normal	7.0	5.0	VIII	18	10	N/A	<1
Imp Extensional Gridded, GR, Normal	7.0	5.0	VIII	18	10	N/A	<1
San Gorgornio Shear Gridded	7.6	5.0	VIII-IX	20	11	N/A	3
S. San Andreas;SM+NSB	7.4	7.1	VIII	18	10	N/A	4
S. San Andreas;NSB+SSB	7.2	7.1	VIII	17	10	N/A	4
S. San Andreas;SM+NSB+SSB	7.6	7.1	VIII	18	10	N/A	3

* Losses to individual events are from shaking only.
** Percent contributions are for the probabilistic 475 year return period risk.
*** Event causing highest loss (from shaking only)

Average Annual Loss (% of Repl. Cost): 0.354893
Business Interruption Average Annual Loss ($): 0
Return Period of Major Liquefaction/Landslide: 675 Years

Company Name:	San Bernadino County	**Date:**	September 19, 2023
Building Name:	303 W. 5th Street	**Job Number:**	23005335.00
Street Address:	303 W. 5th Street San Bernadino, CA, USA 92401	**Engineer:** **PE Number/State:**	Craig Chamberlain, S.E. CA SE 4588

DISCLAIMERS and OTHER INFORMATION

RESULTS DISCLAIMER

This report, and the analyses, estimates and conclusions are based on scientific data, mathematical and empirical models, and experience of engineers, geologist and geotechnical specialist, using the input specified by the software licensee. Actual losses experienced during any earthquake may differ substantially from these estimates. Neither Fugro Consultants, Inc., Degenkolb Engineers, nor any third party supplier of information to this software can be held liable for any inaccuracies in the results obtained by ST-RISK.

SPRINKLER DAMAGE

Substantial building facilities loss has occurred in recent large earthquakes due to fire sprinkler damage. The figures presented herein may not adequately account for these potential losses. If the modifier for sprinklers in the Mechanical and Electrical Systems section of the Modified FEMA-310 Worksheet was 3 or higher, or '?', a more detailed evaluation of potential sprinkler damage should be made and additional loss anticipated.

THIRD PARTY DATA

Much of the data in this report is derived from data provided by the California Geological Survey (CGS), the US Geological Survey (USGS), the Geological Survey of Canada (GSC), as well as other parties. Most of the original data received was modified to make compatible with ST-RISK. None of these parties can be held liable for any inaccuracies inherent in the data or inherent in the modifications.

Company Name:	San Bernadino County	**Date:**	September 19, 2023
Building Name:	303 W. 5th Street	**Job Number:**	23005335.00
Street Address:	303 W. 5th Street San Bernadino, CA, USA 92401	**Engineer:**	Craig Chamberlain, S.E.
		PE Number/State:	CA SE 4588

GLOSSARY

MMI	Modified Mercalli Intensity - A measure of ground motion intensity based on human perception of motion and observed structural damage.
PML	Probable Maximum Loss - A measure of seismic risk expressed as a percentage of replacement loss. Due to inconsistencies between the definition PML in recent standards and previous widespread practice, ST-RISK no longer identifies a particular results as being the PML. Instead, decision makers should identify the result that corresponds to the specific definition of PML that they are using.
PL	Probable Loss - For a given time interval, or return period, this is the amount of loss that a property is expected to meet or exceed on an average basis. This combines the probability distribution of hazard with the full damage distribution, representing the best overall assessment of risk.
SUL	Scenario Upper Loss - The percentage monetary loss (damage/replacement cost x 100) that has a 10 percent chance of being exceeded given any defined ground shaking intensity.
SEL	Scenario Expected Loss - The expected, or mean, percentage monetary loss (damage/replacement cost x 100) that is predicted given any defined ground shaking intensity.
Mean Loss	The expected, or average, percentage monetary loss (damage/replacement cost x 100) that is predicted for a given ground shaking level.
BI	Business Interruption / Loss-of-Use - The number of months that the facility is out of operation.
Base Class Loss	The percentage monetary loss for 90% fractile (damage/replacement cost x 100) assigned to a building class that accounts for type of construction and important construction deficiencies.
Modified Base Class Loss	The percentage monetary loss for 90% fractile assigned to a building class that accounts for the Base Class Loss and location and minor construction deficiencies.
Probability of Exceedance	The probability that the ground shaking level or damage level will be exceeded.
Event Causing Highest Loss	The highest level of intensity due only to shaking that is experienced when considering all earthquakes given a median predicted shaking level.
Maximum Considered Earthquake (MCE)	Loss associated with a 2% in 50 year probability of exceedence.
Uniform Building Code (UBC)	Loss associated with a 10% in 50 year probability of exceedence as defined by new building design provisions found in the Uniform Building Code.
% Contribribution	Percent contribution of fault or fault segment to the 475-year return period risk.

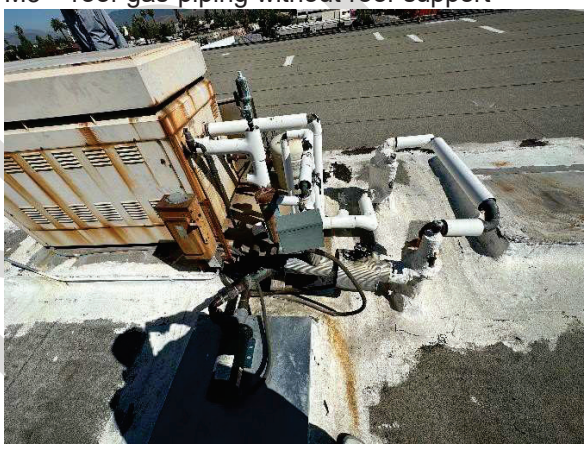
APPENDIX D
MECHANICAL PHOTOS

M1 – existing air – cooled chiller

M2 – existing air-cooled chiller roof curb mount

M3 – roof gas piping without roof support

M4 – existing hot water boiler



M5 – existing hot water boiler piping assembly

M6 – typical existing rooftop heat pump

APPENDIX D
MECHANICAL PHOTOS

M7 – typical heat pumps leaking condensate

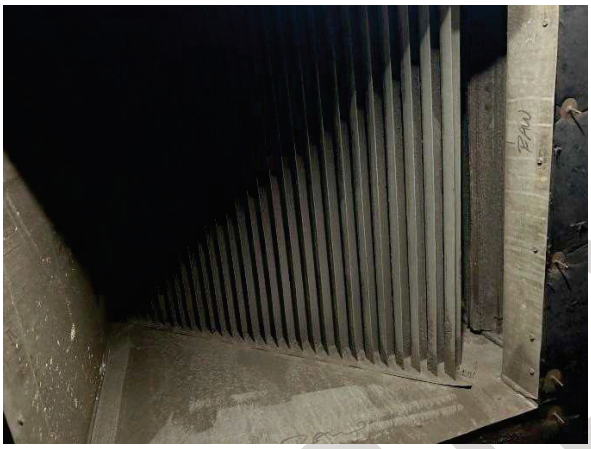
M8 – typical roof caps needs reseal

M9 – existing duct furnace flue

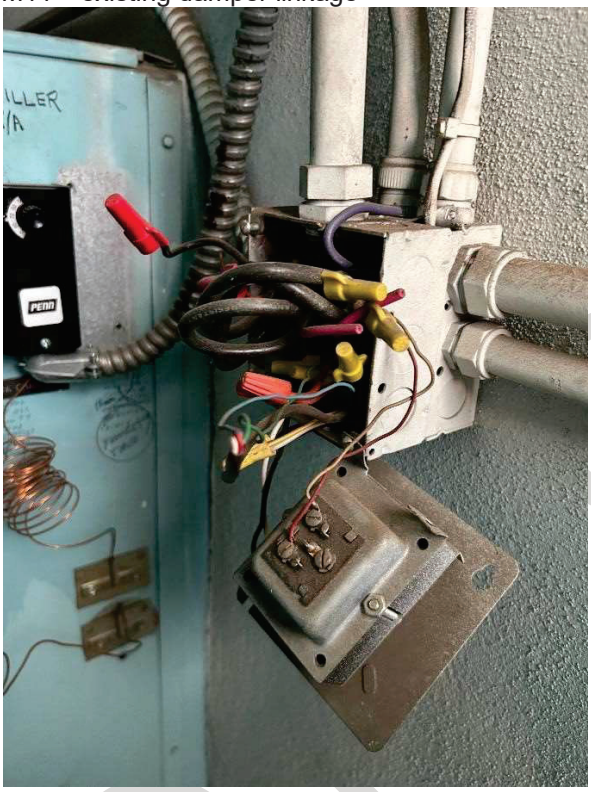
M10 – existing air handler centrifugal fan

APPENDIX D
MECHANICAL PHOTOS

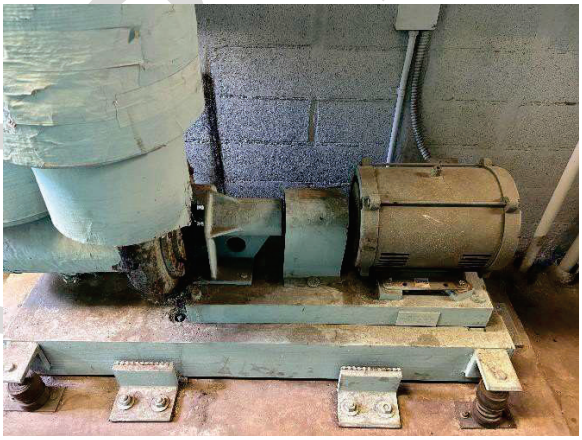
M11 – existing damper linkage



M12 – existing fresh air intake



M13 – disrepair control wiring



M14 – existing chiller pump

APPENDIX D
MECHANICAL PHOTOS

M15 – air handler motor

M16 – typical heat pump thermostat

M17 – typical vav box thermostat

M18 – Liebert unit thermostat

APPENDIX D
MECHANICAL PHOTOS

M19 – typical T-bar lay-in type diffuser

M20 – typical surface mount type grill

M21 – typical surface mount diffuser

APPENDIX E
PLUMBING AND FIRE PROTECTION PHOTOS

P1 - roof drain without cover

P2 – damaged roof drain cover

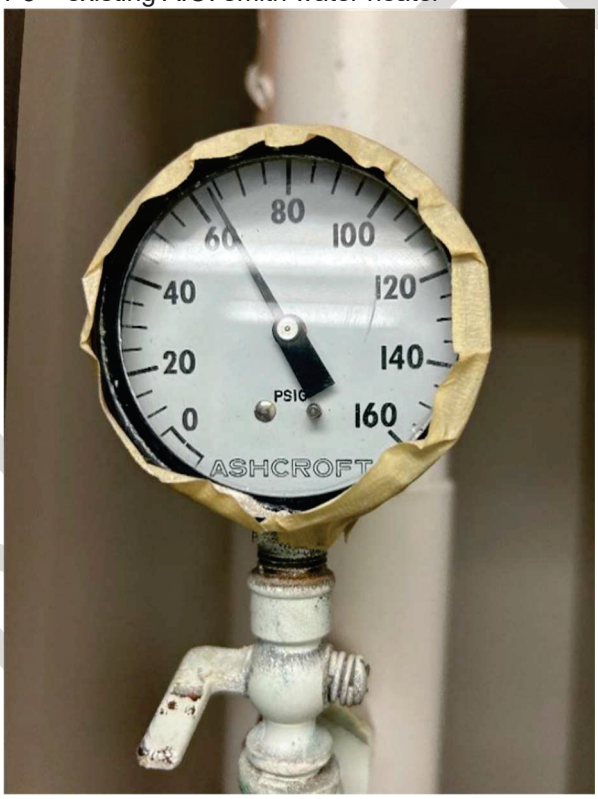
P3 – typical existing plastic roof vent

P4 – existing metal roof vent

APPENDIX E
PLUMBING AND FIRE PROTECTION PHOTOS

P5 – existing A.O. smith water heater

P6 – abandoned water heater in mechanical room



P7 – existing water meter

P8 – typical existing drinking fountain

APPENDIX E
PLUMBING AND FIRE PROTECTION PHOTOS

P9 – typical existing time clock exhaust fan in private rest room

P10 – typical existing flush-tank type water closet in private restroom

P11 – typical lavatory in private restroom

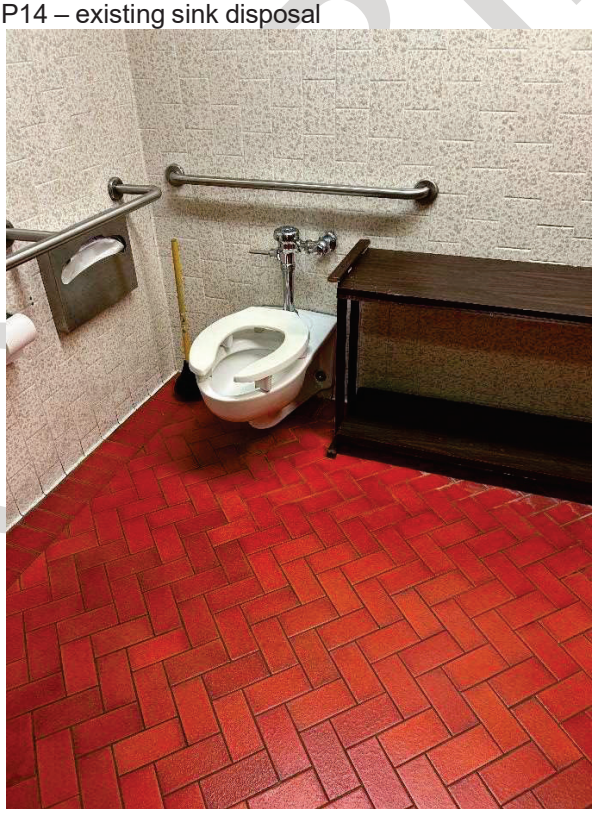
P12 – existing cabinet and sink in breakroom

APPENDIX E
PLUMBING AND FIRE PROTECTION PHOTOS

P13 – existing kitchen sink

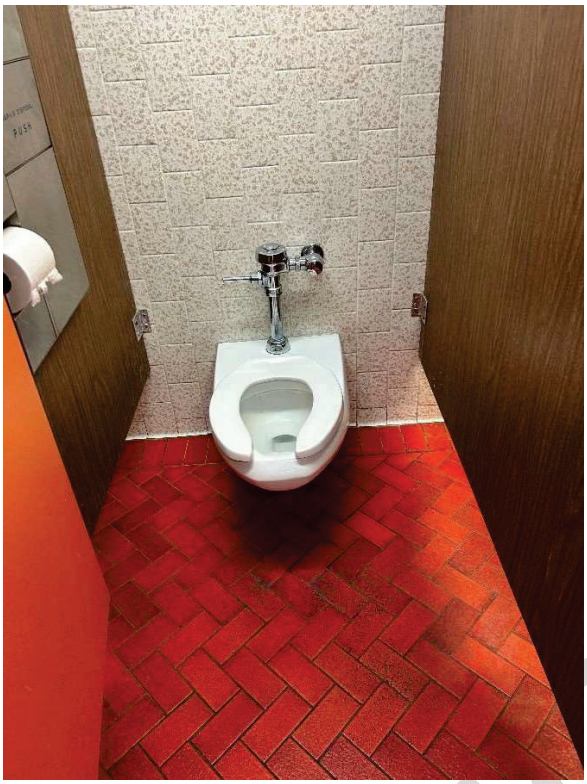
P14 – existing sink disposal

P15 – typical existing lavatory assembly in main restroom



P16 – typical existing flush-valve water closet

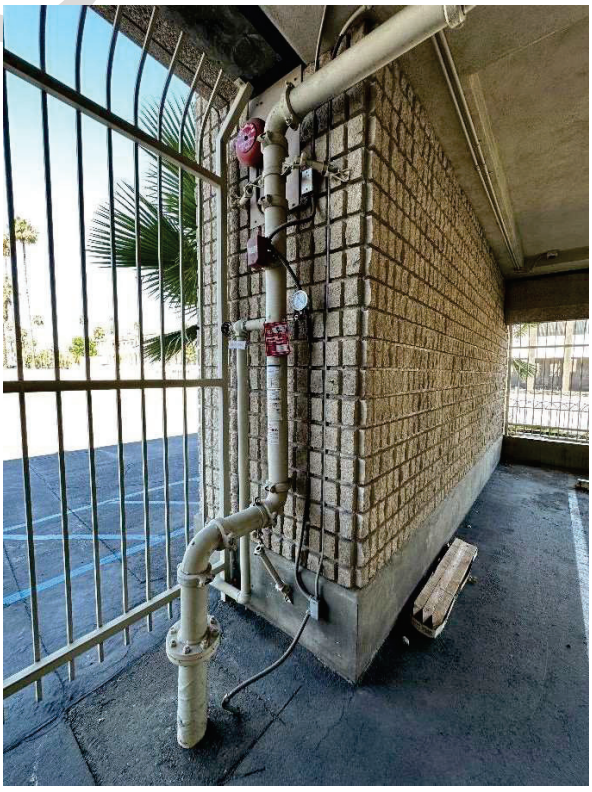
APPENDIX E
PLUMBING AND FIRE PROTECTION PHOTOS



P17 - typical existing flush-valve water closet

P18 - existing mop sink in janitor closet

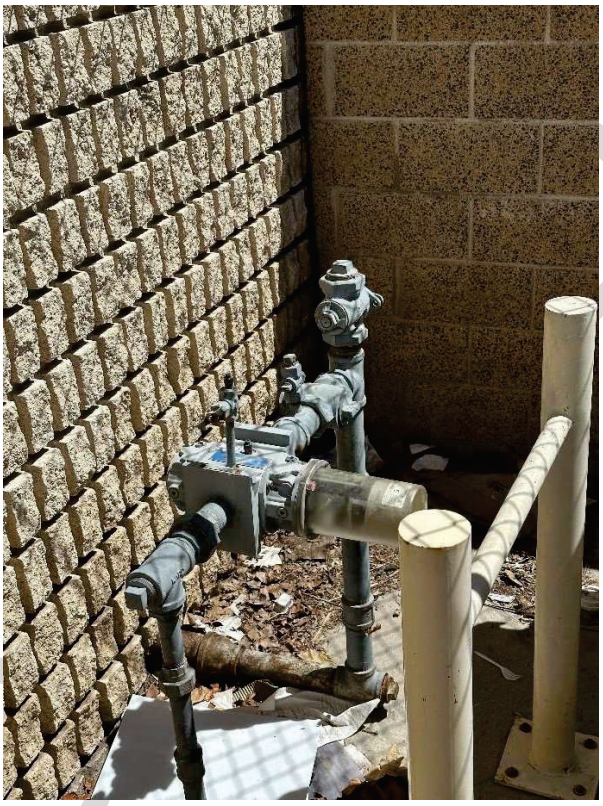
P19 – existing wall mount faucet in janitor closet



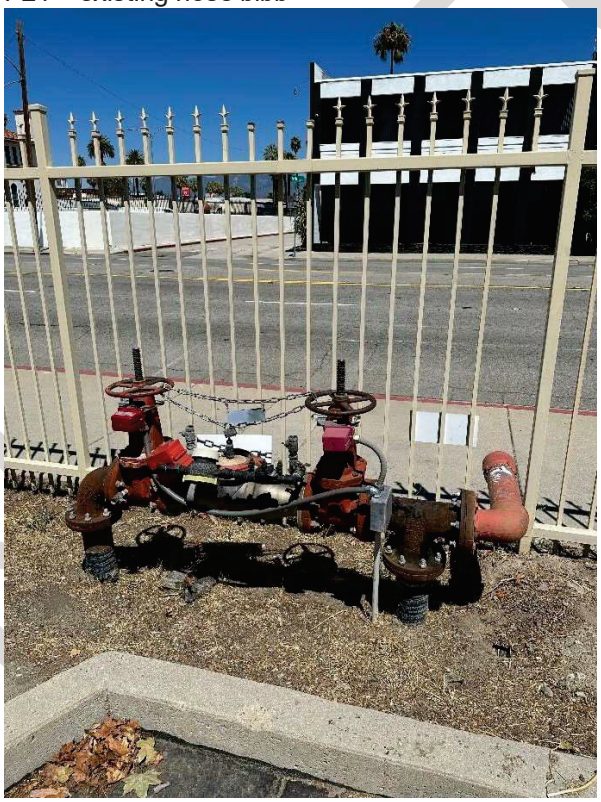
P20 – existing fire riser

APPENDIX E
PLUMBING AND FIRE PROTECTION PHOTOS

P21 – existing hose bibb



P22 – existing gas meter



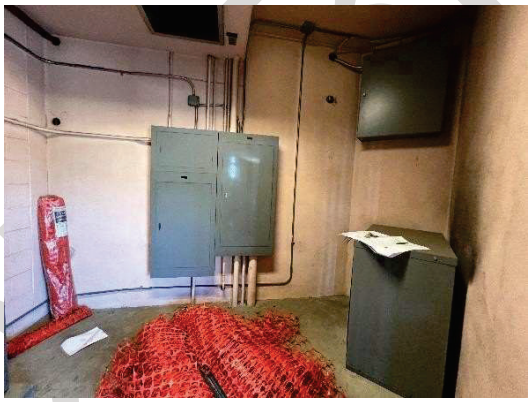
P23 – existing fire sprinkler backflow preventer

APPENDIX _
ELECTRICAL PHOTOS

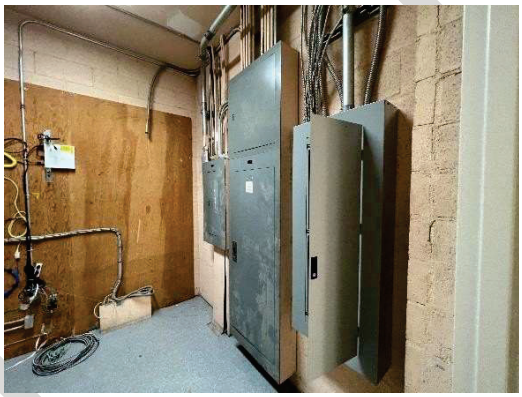
E1 - SCE Utility Transformer 500KVA, 12KU - 480/277V #P5055246 with 8' x 10' Slab box @ Parking Lot

E2 - Main Switchboard "MSB"

E3 - MCC 3P600A, 3P, 3W 480V (1981) @ 2nd Floor Mezzanine



E4 - Panels HA, DLA and Transformer T1 @ Main Electrical Room

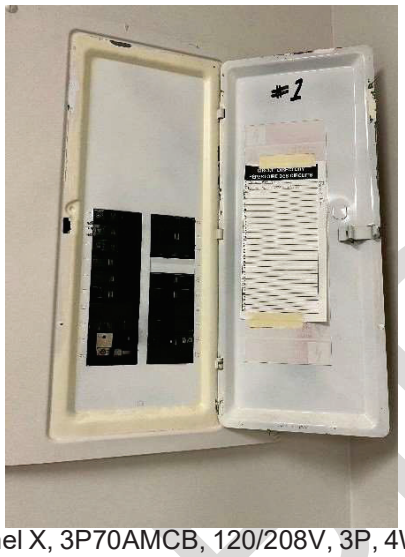


E5 - Panels LB, HB and LB2 @ 2ne Floor Telecomm/Electrical Room

E6 - Panel LA 3P225A, 120/208V, 3P, 4W @ 2nd Floor Stair Closet

APPENDIX _
ELECTRICAL PHOTOS

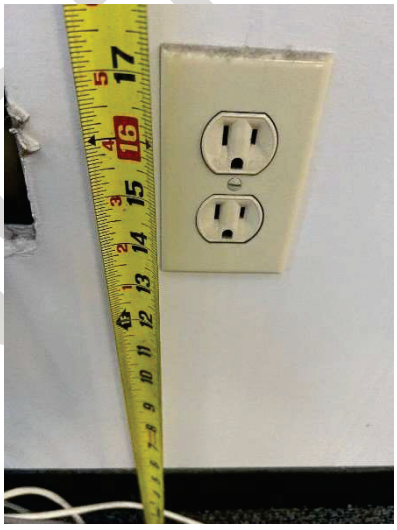
E7 - Panel A 2P100A, 120/208V (1981) @ 2nd Floor Stair Closet



E8 - Panel X, 3P70AMCB, 120/208V, 3P, 4W (1981) @ 2nd Floor Telecomm Room

E10 - Open power outlet box without devices @ 2nd Floor Clerical Office

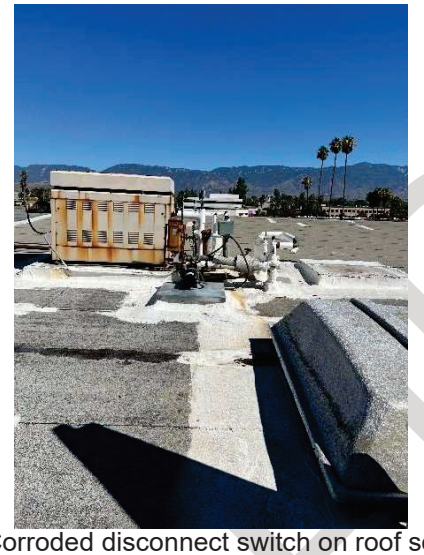
E11 - Typical communications and power receptacle outlets with mounting heights of 16” above finish floor on center of devices



APPENDIX _
ELECTRICAL PHOTOS

E12

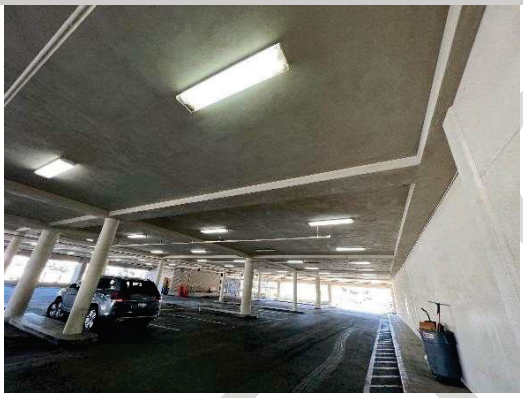
E13 - Single duplex receptacle on roof without GFCI protection

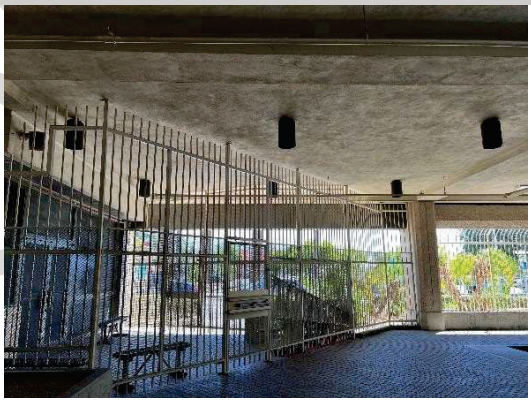


E14 - Typical elevator equipment disconnect switch without auxiliary contacts for proposed elevator recall function (1981))

E15 - Corroded disconnect switch on roof serving the boiler (1981)

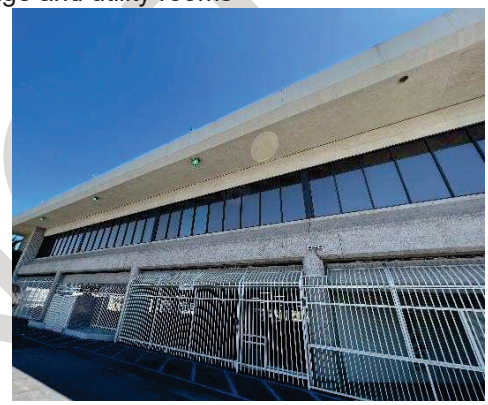
LIGHTING

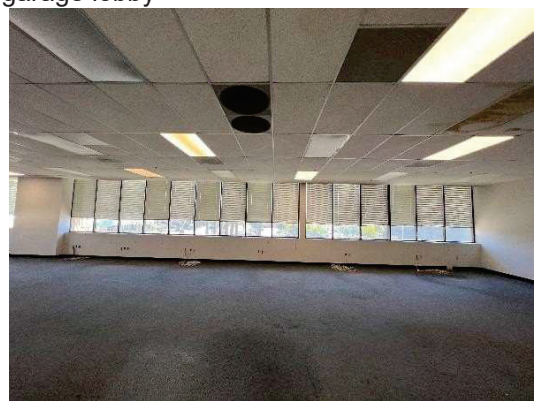




E16 - Typical surface 1' x 4' fluorescent fixture at garage and utility rooms

E17 - Typical cylinder fluorescent surface fixture at garage lobby

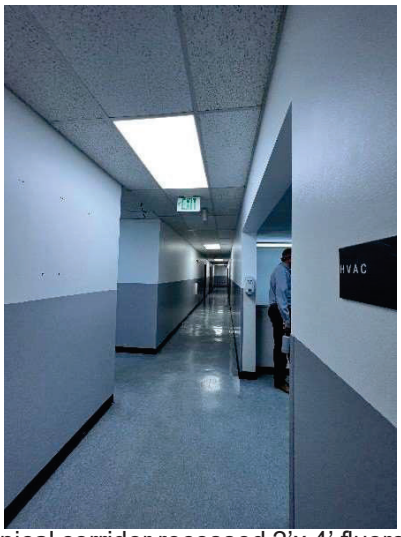




E18 - Typical HID type surface fixture at awning

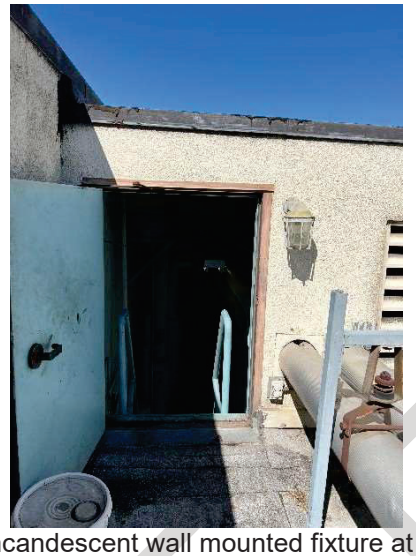
E19 - Typical 2'x 4' recessed fluorescent fixtures at offices

APPENDIX _
ELECTRICAL PHOTOS

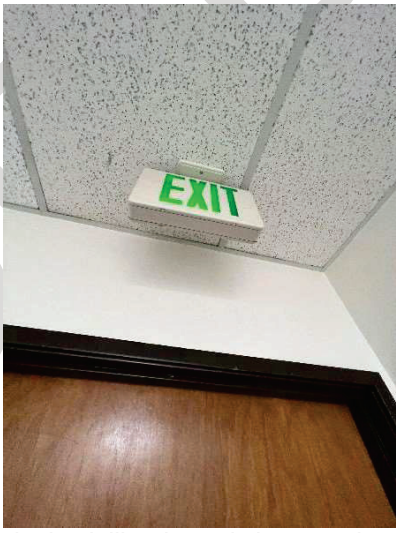


E20 - Typical corridor recessed 2'x 4' fluorescent fixture

E21 - Typical parapet halogen type spot light fixture on roof



E22 - Incandescent wall mounted fixture at roof



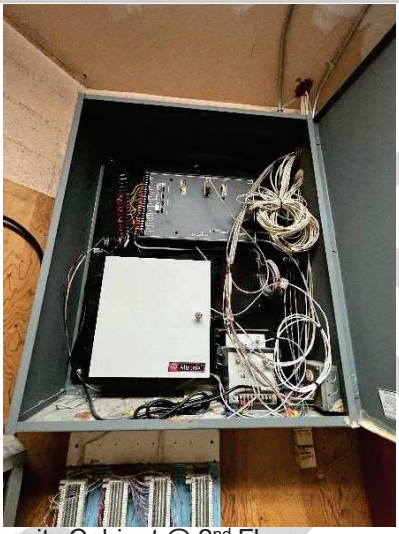
E23 - Typical exit illuminated signage along egress path

E24 - Typical light switch mounted at +48” above finish floor from center of device

E25 - Main Communication Backboard and MPOE @2nd Floor Telecomm/Electrical Room

SIGNALS

E26 - Communication MPDE @ 2nd Floor Telecomm/Electrical Room

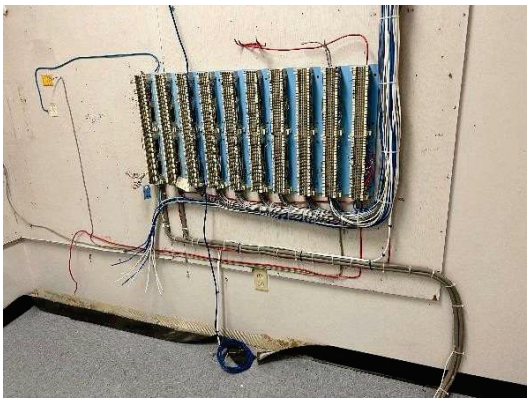


E27 - Security Cabinet @ 2nd Floor Telecomm/Electrical Room

E28 - Remote security cabinet @ 2nd Floor Stair Closet

E29 - Secondary Communication Backboard @ 2nd Floor Telecomm Room

APPENDIX _
ELECTRICAL PHOTOS



E30 - Telecom Backboard with Punchdown in 2nd Floor Telecomm Room

E31 - Security Door Control Cabinet in 2nd Floor Telecomm Room

E32 - Typical voice/data jacks utilizing CAT5E horizontal cabling

E33 - Main Fire Alarm Control Panel in 2nd Floor Telecomm/Electrical Room

E34 - Fire Alarm Horn/Strobe and Fire Alarm Pull Station