PASADENA COURTHOUSE ELEVATOR MODERNIZATION

300 E Walnut St, Pasadena, CA 91101

BID SET

04/24/2017

GENERAL NOTES

1. PROVIDE WORK AND MATERIALS IN ACCORDANCE WITH THE LATEST RULES AND REGULATIONS OF APPLICABLE STATE AND LOCAL CODES, LAWS, AND STATUTES. INCLUDING 2013 CBC, CMC, CPC AND 2013 CEC AS AMENDED BY STATE OF CA AND LOCAL JURISDICTION. NOTHING IN THE CONTRACT DOCUMENTS IS TO BE CONSTRUED AS REQUIRING OR PERMITTING WORK CONTRARY TO THESE CODES, LAWS AND STATUTES.

2. EXAMINATION OF THE SITE AND PORTIONS THEREOF WHICH WILL AFFECT THIS WORK SHALL BE MADE IMMEDIATELY BY THE CONTRACTOR, WHO SHALL COMPARE IT WITH THE CONTRACT DOCUMENTS AND SATISFY HIMSELF AS TO CONDITIONS UNDER WHICH WORK IS TO BE PERFORMED. HE SHALL, AT SUCH TIME, CHECK LOCATIONS OF THE EXISTING STRUCTURES AND EQUIPMENT WHICH MAY AFFECT HIS WORK. NO ALLOWANCE SHALL BE MADE FOR ANY EXTRA EXPENSE TO WHICH HE MAY BE PUT DUE TO FAILURE OR NEGLECT ON HIS PART JCC BEFORE PROCEEDING WITH ANY WORK.

3. DIMENSIONS ON CONSTRUCTION DRAWINGS ARE TO FACE OF FINISH UNLESS OTHERWISE NOTED. CONTRACTOR SHALL NOT SCALE DRAWINGS. DIMENSIONS NOTED "(E)" MEANING EXISTING ARE TO BE FIELD VERIFIED PRIOR TO LAYING OUT WORK.

4. THE CONSTRUCTION DOCUMENTS ARE PROVIDED TO ILLUSTRATE THE DESIGN AND GENERAL TYPE OF CONSTRUCTION, MATERIALS, AND WORKMANSHIP THROUGHOUT. THE DOCUMENTS DO NOT ILLUSTRATE EVERY CONDITION. THE CONTRACTOR, IN ASSUMING RESPONSIBILITY FOR THE WORK INDICATED, SHALL COMPLY WITH THE SPIRIT AS WELL AS THE LETTER IN WHICH THEY WERE PREPARED.

5. CONSTRUCTION DOCUMENTS AND SPECIFICATIONS ARE COMPLEMENTARY, AND WHAT IS CALLED FOR BY ANY WILL BE AS BINDING AS IF CALLED FOR BY ALL. ANY WORK SHOWN OR REFERRED TO ON ANY CONSTRUCTION DOCUMENT SHALL BE PROVIDED AS THOUGH ON ALL RELATED DOCUMENTS.

6. WORK LISTED, SHOWN, OR IMPLIED ON ANY CONSTRUCTION DOCUMENT SHALL BE PROVIDED BY THE CONTRACTOR, EXCEPT WHERE NOTED OTHERWISE. THE GENERAL CONTRACTOR SHALL CLOSELY COORDINATE HIS WORK WITH THAT OF OTHER CONTRACTORS OR VENDORS ASSURE THAT SCHEDULES ARE MET AND THAT WORK IS DONE IN CONFORMANCE TO MANUFACTURER'S REQUIREMENTS.

7. UNLESS OTHERWISE NOTED WORK IS ASSUMED NEW UNLESS NOTED AS EXISTING (E).

8. THE USE OF THE WORD "PROVIDE" IN CONNECTION WITH ANY ITEM SPECIFIED IS INTENDED TO MEAN THAT SUCH SHALL BE FURNISHED, INSTALLED, AND CONNECTED, UNLESS OTHERWISE NOTED.

13. CONTRACTOR SHALL PROTECT WORK AREA AND NEW OR EXISTING MATERIALS AND FINISHES FROM DAMAGE WHICH MAY OCCUR FROM CONSTRUCTION, DEMOLITION, DUST, WATER, ETC.., AND SHALL PROVIDE AND MAINTAIN TEMPORARY BARRICADES OR ENCLOSURES AS REQUIRED TO PROTECT THE PUBLIC DURING THE PERIOD OF CONSTRUCTION. AT NO ADDITIONAL EXPENSE TO THE OWNER, THE CONTRACTOR SHALL REPAIR OR REPLACE DAMAGE TO NEW AND EXISTING MATERIALS, FINISHES, STRUCTURES, AND EQUIPMENT TO THE SATISFACTION OF THE OWNER.

14. CONTRACTORS SHALL REMOVE RUBBISH AND WASTE MATERIALS ON A REGULAR BASIS, AND SHALL EXERCISE STRICT CONTROL OVER JOB CLEANING TO PREVENT ANY DIRT, DEBRIS, OR DUST FROM AFFECTING, IN ANY WAY, FINISHED WORK OR EXISTING TO REMAIN WORK OR CREATING A SAFETY HAZARD IN OR OUTSIDE JOBSITE.

15. CONTRACTOR SHALL LEAVE JOB SITE AND AFFECTED AREAS CLEAN AND IN AN ORDERLY MANNER READY FOR MOVE IN, THIS IS TO INCLUDE CLEANING OF THE INTERIOR AND EXTERIOR FACES OFNEW AND EXISTING GLASS.

16. THE MAXIMUM FLAME SPREAD CLASSIFICATION OF FINISH MATERIALS USED ON THE INTERIOR WALLS AND CEILINGS MUST NOT EXCEED THE LIMITS SET FORTH IN C.B.C. TABLE NO. 803.9

17. HAZARDOUS MATERIALS ABATEMENT IS NOT PART OF THE ELEVATOR MODERNIZATION WORK AND IS THE SOLE RESPONSIBILITY OF THE JCC

18. FOR OFCI AND OFOI ITEMS COORDINATE W/ OWNER'S REPRESENTATIVE FOR SCHEDULING/ SEQUENCING DURING CONSTRUCTION, CONFIRM W/ OWNER BLOCKING/ BACKING REQT AND PROVIDE AS REQD. PREPARE SURROUNDING AREAS, SUBSTRATES AND SURFACES AS REQD

19. FIRE ALARM TO BE A DEFERRED SUBMITTAL TO OSFM

20. CONTRACTOR SHALL RECYCLE AND/OR SALVAGE FOR REUSE A MINIMUM OF 50 PERCENT OF THE NONHAZARDOUS CONSTRUCTION AND DEMOLITION WASTE. SUBMIT WASTE MANAGEMENT PLAN OF THESE PROCEDURES.

SYMBOLS

Symbol	Description
XX / YY	ROOM IDENTIFICATION: ROOM NAME, ROOM NUMBER
- / -	DOOR TAG: DOOR NUMBER
- / A-	SECTION TAG: SECTION NUMBER, SHEET NUMBER
X / XX	DETAIL SECTION TAG: SECTION NUMBER, SHEET NUMBER
- / A-	ELEVATION TAG: ELEVATION NUMBER, SHEET NUMBER
-	SHEET NOTE: NOTE NUMBER
W1	WINDOW TYPE: WINDOW NUMBER
XX	PARTITION TYPE: PARTITION TYPE
XXX / X'-Y"	ELEVATION TAGS: BUILDING ELEMENT, ELEVATION
FMC	FLOOR MATERIAL CHANGE
A	GRID LINE: GRID NUMBER
	BREAK LINE

APPLICABLE CODES

2016 CALIFORNIA BUILDING CODE
2016 CALIFORNIA ELECTRICAL CODE
2016 CALIFORNIA MECHANICAL CODE
2016 CALIFORNIA PLUMBING CODE
2016 CALIFORNIA FIRE CODE
2016 CALIFORNIA ENERGY CODE
2016 CALIFORNIA REFERENCE STANDARDS CODE
NFPA 72 AND NFPA 13 WITH CA AMENDMENTS

PROJECT DESCRIPTION

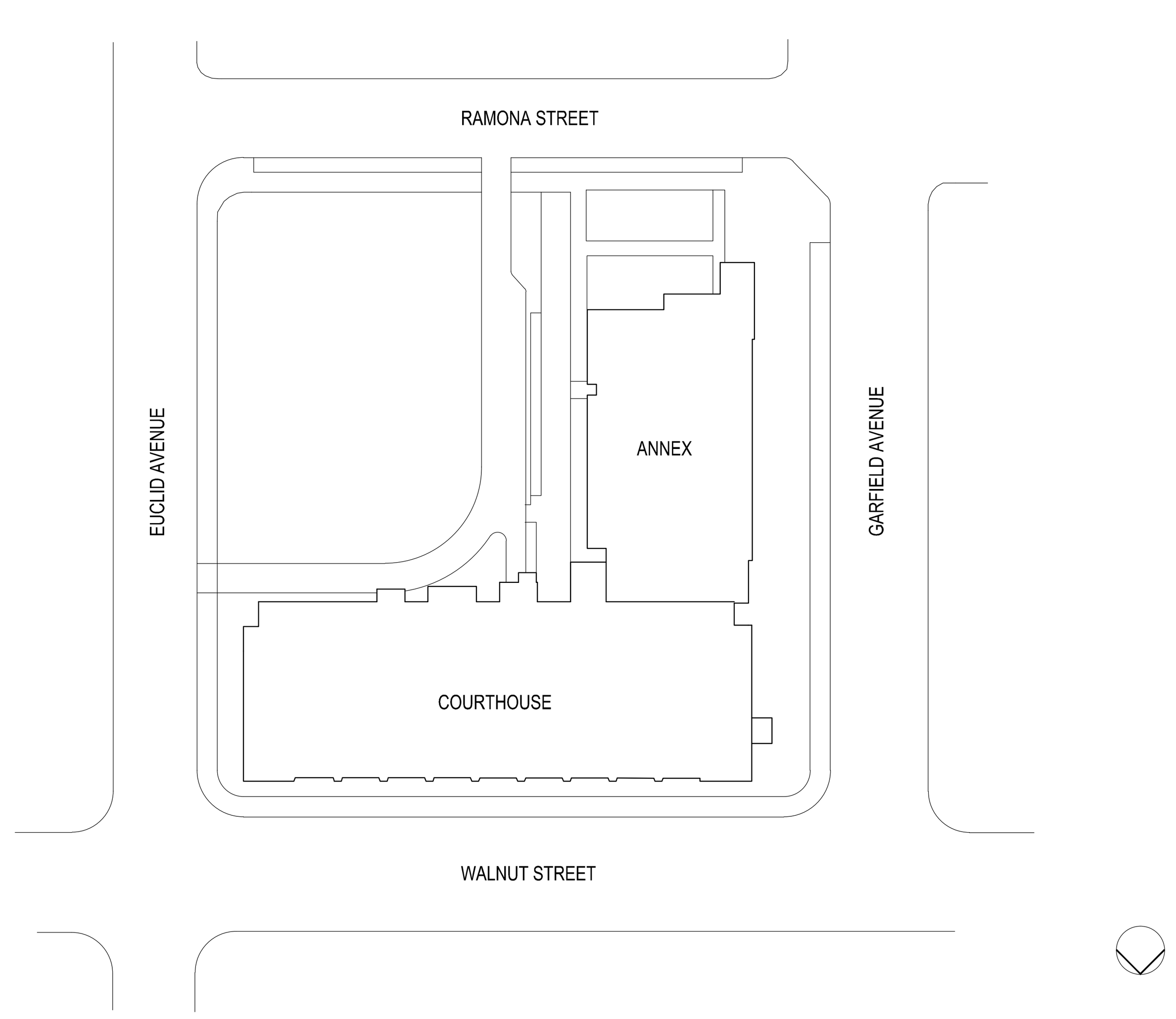
MODERNIZATION OF 7 EXISTING ELEVATORS. ELEVATORS INCLUDE 3 PUBLIC CABS, 1 JUDGED CAB, 2 CUSTODY CABS, AND 1 HYDRAULIC ELEVATOR IN ANNEX.

SCOPE OF WORK

SCOPE CONSISTS PRIMARILY OF MECHANICAL AND ELECTRICAL IMPROVEMENTS TO EXISTING ELEVATOR SYSTEMS. WORK WILL INCLUDE BUT NOT BE LIMITED TO, CAR FRAMES AND PLATFORMS, BUFFERS AND SAFETIES, HOIST WAY ENTRANCE FRAMES, DOORS AND PIT EQUIPMENT, NEW AC GEARLESS MACHINES, MICRO-PROCESSOR CONTROL SYSTEMS, REGENERATIVE VVVF AC DRIVES, FLY BALL GOVERNORS, CLOSED LOOP HEAVY DUTY HIGH SPEED OPERATORS, CURRENT CODE REQUIRED WIRING, INTERIOR AND LOBBY CONTROL PANELS, COUNTERWEIGHTS AND ROLLER GUIDES. NEW HVAC EQUIPMENT TO BE PROVIDED FOR MACHINE ROOM COOLING. ELECTRICAL UPGRADE RELATED TO ELEVATOR AND NEW HVAC EQUIPMENT. UPGRADE TO EXISTING FIRE ALARM SYSTEM RELATED TO THE ELEVATORS TO CURRENT CODE.

WORK INCLUDES CAB INTERIOR UPGRADES FOR THE 3 PUBLIC CABS. EXISTING AND PROPOSED CABS COMPLY WITH ADA STANDARDS. JUDGES CAB AND ANNEX CAB INTERIORS ARE BEING UPDATED AND EXISTING CAB DIMENSION CAN NOT BE INCREASED DUE TO LACK OF SPACE IN EXISTING CONCRETE HOISTWAYS. CUSTODY ELEVATOR CABS HAVE NO INTERIOR UPGRADES.

SITE PLAN



SHEET INDEX

ARCHITECTURAL

A0.0 TITLE SHEET
A0.1 TECHNICAL INFEASIBILITY FORM
A2.07 ROOF AND PENTHOUSE PLAN
A2.11 ANNEX PLANS
A4.07 ENLARGED MACHINE ROOM PLANS
A5.01 ELEVATOR DETAILS
A7.01 ELEVATOR DETAILS
A7.02 SIGNAGE DETAILS

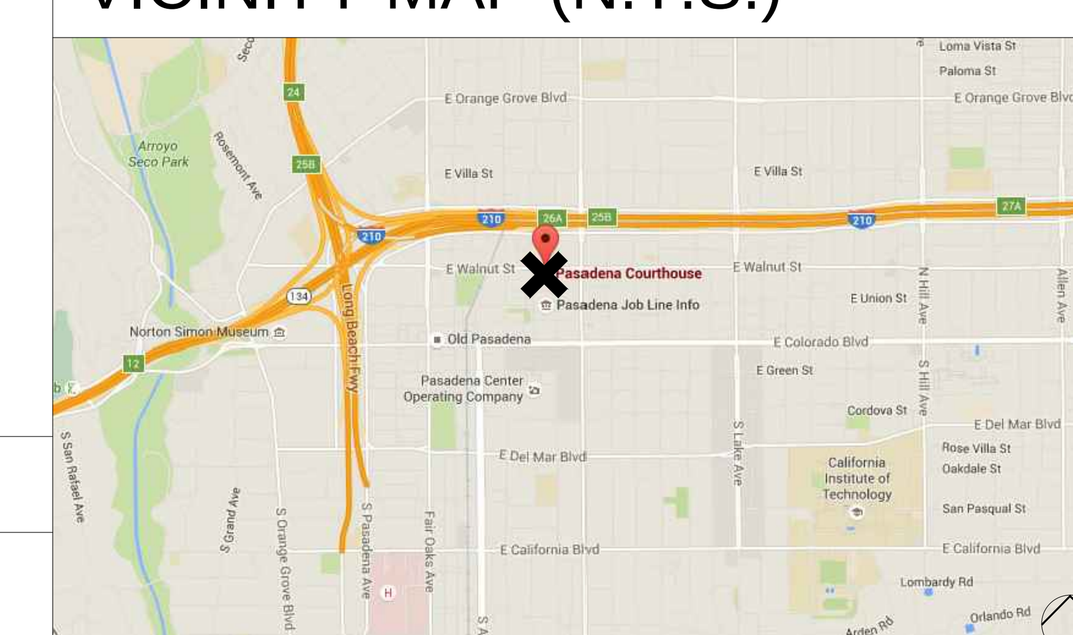
ELECTRICAL

E0.01 SYMBOLS LIST, ABBREVIATIONS, GENERAL NOTES AND SHEET INDEX
E0.02 ELECTRICAL SPECIFICATIONS
E0.03 ELECTRICAL SINGLE LINE DIAGRAM
E0.04 ELECTRICAL SINGLE LINE DIAGRAM
E0.05 FIRE ALARM GENERAL NOTES
E0.06 FIRE ALARM RISER DIAGRAM
E2.00 ELECTRICAL BASEMENT PLAN
E2.0R ELECTRICAL ROOF PLAN
E2.10A ELECTRICAL ANNEX BASEMENT PLAN
E4.00 ELECTRICAL ENLARGED PLANS
E4.01 ELECTRICAL ENLARGED PLANS
E5.01 ELECTRICAL DETAILS

MECHANICAL

M0.01 MECHANICAL SYMBOLS LIST, ABBREVIATIONS, AND SHEET INDEX
M0.02 MECHANICAL GENERAL NOTES
M0.03 MECHANICAL SPECIFICATIONS
M0.04 MECHANICAL SPECIFICATIONS
M0.05 MECHANICAL SPECIFICATIONS
M0.06 MECHANICAL TITLE 24 ENERGY COMPLIANCE FORMS
M0.07 MECHANICAL TITLE 24 ENERGY COMPLIANCE FORMS
M0.08 MECHANICAL SCHEDULES
M2.0R MECHANICAL ROOF PLAN
M4.0R ENLARGED MECHANICAL ROOF PLAN
M5.01 MECHANICAL DETAILS
M5.02 MECHANICAL DETAILS
M5.03 MECHANICAL DETAILS
M5.04 MECHANICAL DETAILS

VICINITY MAP (N.T.S.)



PROJECT DATA

PROJECT ADDRESS: 300 E Walnut St, Pasadena, CA 91101

BUILDING DATA:
EXISTING 6-STORY COURTHOUSE
CONSTRUCTION TYPE: TYPE I-A
OCCUPANCY TYPE: A-3, B, I-3
BUILDING HEIGHT: ±119'-0" FROM GRADE PLANE
GROSS BUILDING AREA: 187,120 SF

FIRE SPRINKLERS: YES
FIRE ALARM: YES
YEAR CONSTRUCTED: 1950
HIGH FIRE HAZARD SEVERITY ZONE: LOCAL RESPONSIBILITY

ABBREVIATIONS

& AND
∠ ANGLE
@ AT
℄ CENTER LINE

ACC ACCESSIBLE
ACOUS ACOUSTIC
AEC ARCH EXPOSED CONCRETE
AESS ARCH EXPOSED STRUCTURAL STEEL
AL ALUMINUM
APROX APPROXIMATE
ARCH ARCHITECTURAL

B.D BOARD
BEY BEYOND
BLDG BUILDING
B.O BOTTOM OF
B.U BUILT UP

CLNG CEILING
CLR CLEAR
CONC CONCRETE
CONT CONTINUOUS

DF DRINKING FOUNTAIN
DIA DIAMETER
DN DOWN
DWG DRAWING

(E) EXISTING
EA EACH
EJ EXPANSION JT

ELEC ELECTRICAL
ENCL ENCLOSURE
EQ EQUAL
EXT EXTERIOR

FACP FIRE ALARM CONTROL PANEL
FDC FIRE DEPARTMENT CONNECTION
FEC FIRE EXTINGUISHER CABINET
FF FINISH FLOOR
FLR FLOOR
F O S FACE OF STUD
F T FOOT
FTNG FOOTING

G GAS
GA GAUGE
GALV GALVANIZED
GSM GALVANIZED SHEET METAL
GYP GYPSUM

HDWD HARD WOOD
HT HEIGHT
HM HOLLOW METAL

INT INTERIOR
IN INCH
ISA INTERNATIONAL SYMBOL OF ACCESSIBILITY

JAN JANITOR
JT JOINT

LAV LAVATORY
MAX MAXIUMUM
MIN MINIMUM
MISC MISCELLANEOUS
MTD MOUNTED

NIC NOT IN CONTRACT
NO. NUMBER
NTS NOT TO SCALE
(N) NEW (SEE GENERAL NOTE 7)
O.C ON CENTER
O.D OUTSIDE DIAMETER
OFD OVERFLOW DRAIN
OFCI OWNER FURNISHED CONTRACTOR INSTALLED
OFOI OWNER FURNISHED OWNER INSTALLED
OPP OPPOSITE
O/ OVER

PA PLANTING AREA
PLAM PLASTIC LAMINATE
PIV POST INDICATOR VALVE
PLYWD PLYWOOD
PTD PAINTED
PT PRESSURE TREATED

R.D ROOF DRAIN
REC RECESSED
REQD REQUIRED
RM ROOM
R.O ROUGH OPENING

SECT SECTION
SIM SIMILAR
SPEC SPECIFICATION
SQ SQUARE
SAF SELF ADHESIVE FLASHING
SS STAINLESS STEEL
STD STANDARD
STL STEEL
SCD SEE CIVIL DRAWINGS
SLD SEE LANDSCAPE DRAWINGS
SED SEE ELECTRICAL DRAWINGS
SHPD SEE HISTORIC PRESERVATION DRAWINGS
SMD SEE MECHANICAL DRAWINGS
SPD SEE PLUMBING DRAWINGS
SSD SEE STRUCTURAL DRAWINGS
SYM SYMMETRICAL

THK THICK
TO TOP OF
TS TUBE STEEL
TYP TYPICAL

UNO UNLESS NOTED OTHERWISE

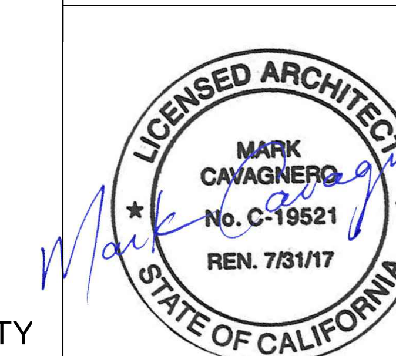
VERT VERTICAL
VIF VERIFY IN FIELD

W/ WITH
WC WATER CLOSET
WD WOOD
W.O WHERE OCCURS
WP WATERPROOF

CAVAGNERO
MARK CAVAGNERO ASSOCIATES ARCHITECTS

REV	DATE	DESCRIPTION
	06/16/2016	100% SD
	07/14/2016	100% DD
	08/18/2016	50% CD
	10/31/2016	90% CD
	12/12/2016	REVISED 90% CD
	04/03/2017	100% CD/CONFORMED SET
	04/24/2017	BID SET

PASADENA COURTHOUSE ELEVATOR MODERNIZATION
300 E Walnut St, Pasadena, CA 91101



TITLE SHEET

A0.0

COUNTY OF LOS ANGELES
DEPARTMENT OF PUBLIC WORKS
BUILDING AND SAFETY DIVISION

Date: 03/20/2017

REQUEST FOR RESEARCH SECTION REVIEW

Building Code Sections 104.2.7-Modifications and 104.2.8-Alternate Materials, Design, and Methods of Construction

SECTION 1 – APPLICANT

INSTRUCTION: Please complete SECTION 1 and submit this form and all supporting documents (building plans, calculations, specifications, test reports, etc.) to your Plan Check Engineer for review of this document. A Research Section review fee of two hours minimum is required upon submittal, and additional fee may be assessed for each hour or fraction thereof in excess of two hours.

Project Address: 300 E Walnut St., Pasadena, CA 91101

Plan-check Number: BL1701110008 District Office: _____

Type of Construction: 1-A Occupancy: A-3,B,I-3 Stories: 6 Sprinklered? ☒ YES ☐ NO

Modification Request Contact: Steven Brummond Phone: 415-398-6944

Is this referral for:

☐ Modifications ☐ Alternate Materials ☒ Alternate Designs ☐ Alternate Methods of Construction

Project description:
Repairing existing elevator equipment and alterations to cab interior finishes.

Modification Request - Explain the practical difficulties involved in carrying out the provisions of the Code and proposed application. –OR– Alternate Request - Explain the materials, designs, or methods of construction not specifically prescribed in the Code and proposed application. (Attach additional documents as necessary):
Existing elevators are being modernized to improve service reliability and to improve the cab interiors. Two of these existing elevators do not meet full accessibility size requirements. However the existing cab sizes can not be enlarged because there is not enough room in the elevator shafts. Paul Schaper is an elevator expert from the Thyssen Krupp Elevator Corporation. He is familiar with this building and has provided a written explanation of why the elevators cannot be enlarged to meet size requirements. See attached letter.

Applicable Code References:
CBC 11B-408.4.1, CBC 11B-407.4.1

Justification – Demonstrate conformity and equivalence with that prescribed in the Code. (Attach additional documents as necessary):
The Annex Elevator, #7, is in a low use area of the courthouse, and is compliant with the size requirements of a Limited-Use/Limited Application (LULA) elevator. Elevator #7' dimensions are 51"deep by 56" wide. The required dimension is 51" deep by 48" wide per 11B-408.4.1

The Judges Elevator, #5, is only used by judges and court staff. It is not public. The cab size is 48" deep by 60" wide. The code requirement is 54" deep by 48" wide per 11B-407.4.1. If a judge needed to use an accessible elevator her or she could use the public elevators and have a sheriff escort them for security. The public elevators comply with 11B-407.4.1. There is a fully accessible path of travel to all areas of the courthouse when the public elevators are used.

SECTION 2 – PLAN CHECK ENGINEER

INSTRUCTION: Please verify Research Section review fee is paid (AM fee item in DAPTS), complete SECTION 2 and forward this form and all supporting documents to Research Section.

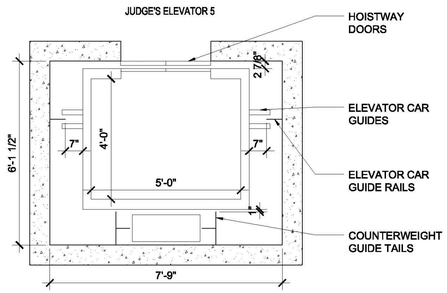
Reviewed By: _____ Date: _____

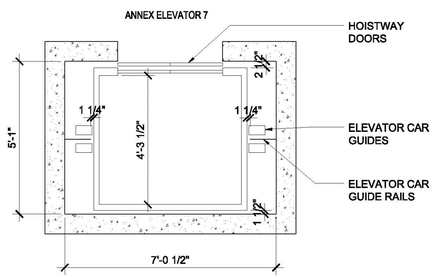
Comments:

SECTION 3 – RESEARCH SECTION

Received By: _____ Date: _____

Comments:





Steven Brummond

From: Jonathan Lam <JOLAM@dpw.lacounty.gov>
Sent: Tuesday, March 28, 2017 4:54 AM
To: Steven Brummond
Cc: Jae Lee - Consultant; Ben Ling
Subject: Re: Pasadena Courthouse elevator modernization Plan Review # BL1701110008

Steven,

Based on the information provided, we concur with your findings. As such, I have informed Jae Lee to continue with his review with no additional requirements to enlarge Elevators #5 and #7.

Jonathan Lam, P.E.
Research Section Head
Los Angeles County Public Works
Office: (626) 458-6352

On Mar 20, 2017, at 10:15 AM, Steven Brummond <StevenB@Cavagnero.com> wrote:

> Hi Jae,
>
> We worked pretty hard on this last week, and Paul Schaper was able to get access to the elevator shafts. We now have the dimensioned shafts with the cabs shown to demonstrate that they can't be enlarged. There is less than 2" of clearance between the counterweight rails and/or concrete shaft wall. Neither of these can be adjusted without a major structural change to the entire building. This is because the rails also have rollers that need this space to operate. I updated our application to include this new information.
>
> If this is adequate please let me know as soon as possible so I can resubmit the design package for approval. I have also addressed all other comments that we received in the plan review. To resubmit, is it ok if I relabel the drawings as "100% CD/ Conformed Set? Also, we did not need plan review for the Mechanical or Electrical scopes of the project, so would I need to include those as well or just the architectural sheets?
>
> Thanks,
>
> STEVEN BRUMMOND
>
> MARK CAVAGNERO ASSOCIATES ARCHITECTS
> 1045 Sansome Street Suite 200, San Francisco, CA 94111
> P 415.398.6944 | steven@cavagnero.com
> www.cavagnero.com | Follow us on LinkedIn | Follow us on Facebook

From: Jonathan Lam [mailto:JOLAM@dpw.lacounty.gov]
Sent: Monday, March 13, 2017 2:55 PM
To: Steven Brummond <StevenB@Cavagnero.com>

Steven Brummond

From: Schaper, Paul <Paul.Schaper@thyssenkrupp.com>
Sent: Wednesday, February 15, 2017 7:28 AM
To: Steven Brummond
Cc: Gerhard Flett; kit.kurisaki@jud.ca.gov; Tim Waters; Baratta, Michelle
Subject: RE: Pasadena Courthouse Elevators #5 and #7

Steve,

Regarding both elevators in question:

Both elevators were designed to fit their existing elevator shafts, size and structural requirement, with no additional room for enlargement of the actual elevator cab. It would be "Technically Infeasible" to enlarge the size of the elevator cabs do to existing hoistway constraints. The building layout and design does not lend itself to the enlargement of the hoistways to accommodate larger elevator cabs and entrances; additionally it is not known if structurally this can be achieved for added loads and rail attachment. It is not known if the elevator machine rooms would accommodate the requirements of machine and controller placement if this were to occur.

Therefore the elevator cabs cannot be enlarged.

Regards,

Paul Schaper
Service Manager, Burbank/Goleta
South District, West Region
ET-AMS/FLD

T: 818 847 6148, M: 323 855 6225, paul.schaper@thyssenkrupp.com
thyssenkrupp Elevator Corporation, 2850 N. California St #120, Burbank CA 91504
350 S. Kellogg Ave Ste E, Goleta, CA 93117, www.thyssenkruppelevator.com

From: Steven Brummond [mailto:StevenB@Cavagnero.com]
Sent: Monday, February 13, 2017 10:10 AM
To: Schaper, Paul
Cc: Gerhard Flett; Kit Kurisaki (kit.kurisaki@jud.ca.gov); Tim Waters; Baratta, Michelle
Subject: Pasadena Courthouse Elevators #5 and #7

Hi Paul,

I'm working on the Pasadena Courthouse elevator modernization. We submitted drawings to LA county, and received a comment back about the ADA compliance for the Judge's elevator #5 and Annex elevator #11. Those elevators don't meet ADA size requirements, and in order to get a permit for the modernization work, we need to show that it's "Technically Infeasible" to enlarge the current cab sizes. I spoke to Gerhard last week about getting a letter from Thyssen that states why we can't enlarge the cabs because it would require alterations to the hoist ways' structure and guide rails. Is this something you could provide to include with our permit application?

Thanks,

STEVEN BRUMMOND

CAVAGNERO
MARK CAVAGNERO ASSOCIATES ARCHITECTS
1045 Sansome Street Suite 200
San Francisco, California 94111
P 415 398 6944
www.cavagnero.com

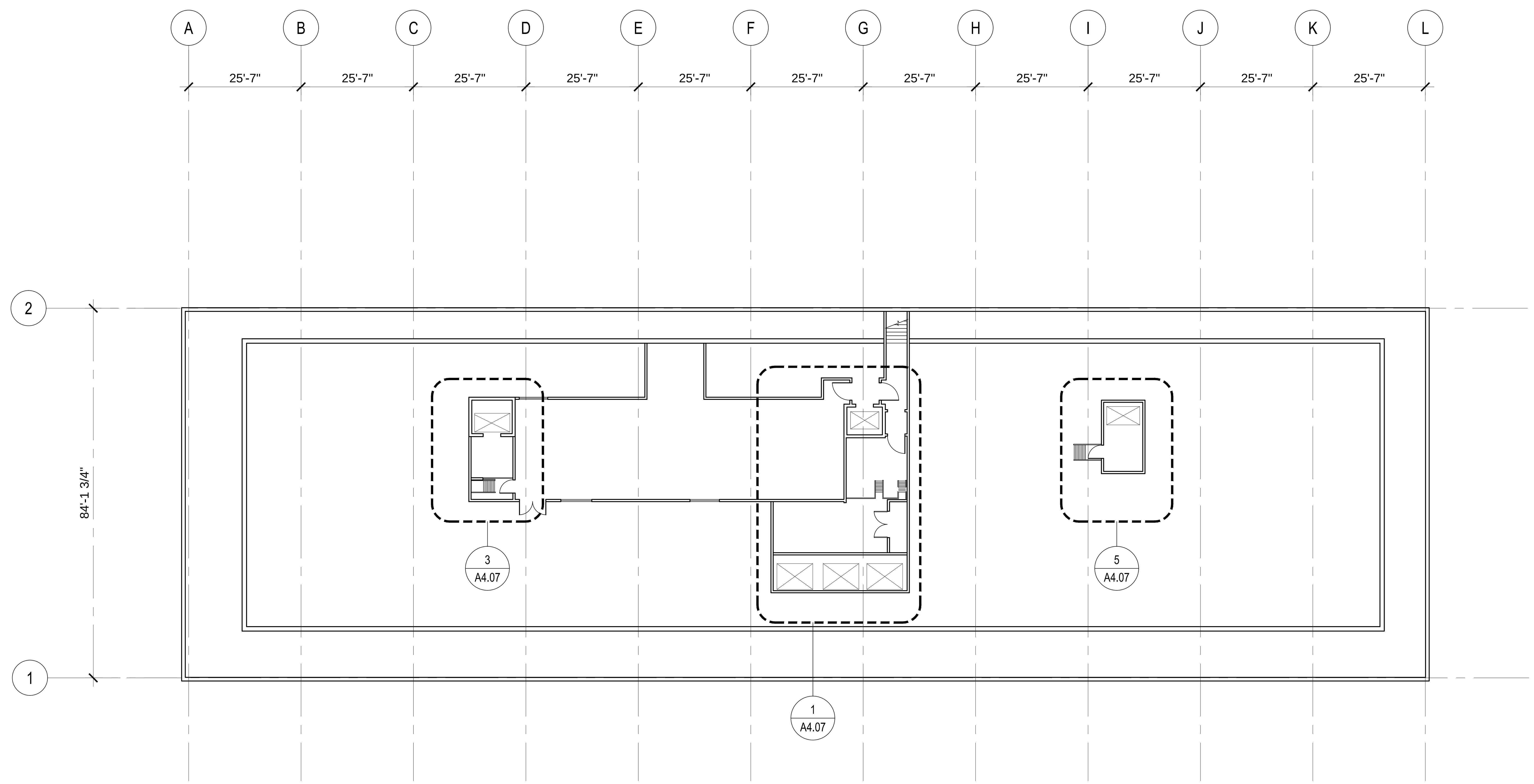
REV	DATE	DESCRIPTION
	06/16/2016	100% SD
	07/14/2016	100% DD
	09/30/2016	50% CD
	10/31/2016	90% CD
	12/12/2016	REVISED 90% CD
	04/03/2017	100% CD/CONFORMED SET
	04/24/2017	BID SET

PASADENA COURTHOUSE ELEVATOR MODERNIZATION
300 E Walnut St, Pasadena, CA 91101

LICENSED ARCHITECT
MARK CAVAGNERO
No. C-19521
REN. 7/31/17
STATE OF CALIFORNIA

TECHNICAL INFEASIBILITY FORM

A0.1



1 ROOF AND PENTHOUSE PLAN
1/16" = 1'-0"

CAVAGNERO
MARK CAVAGNERO ASSOCIATES ARCHITECTS

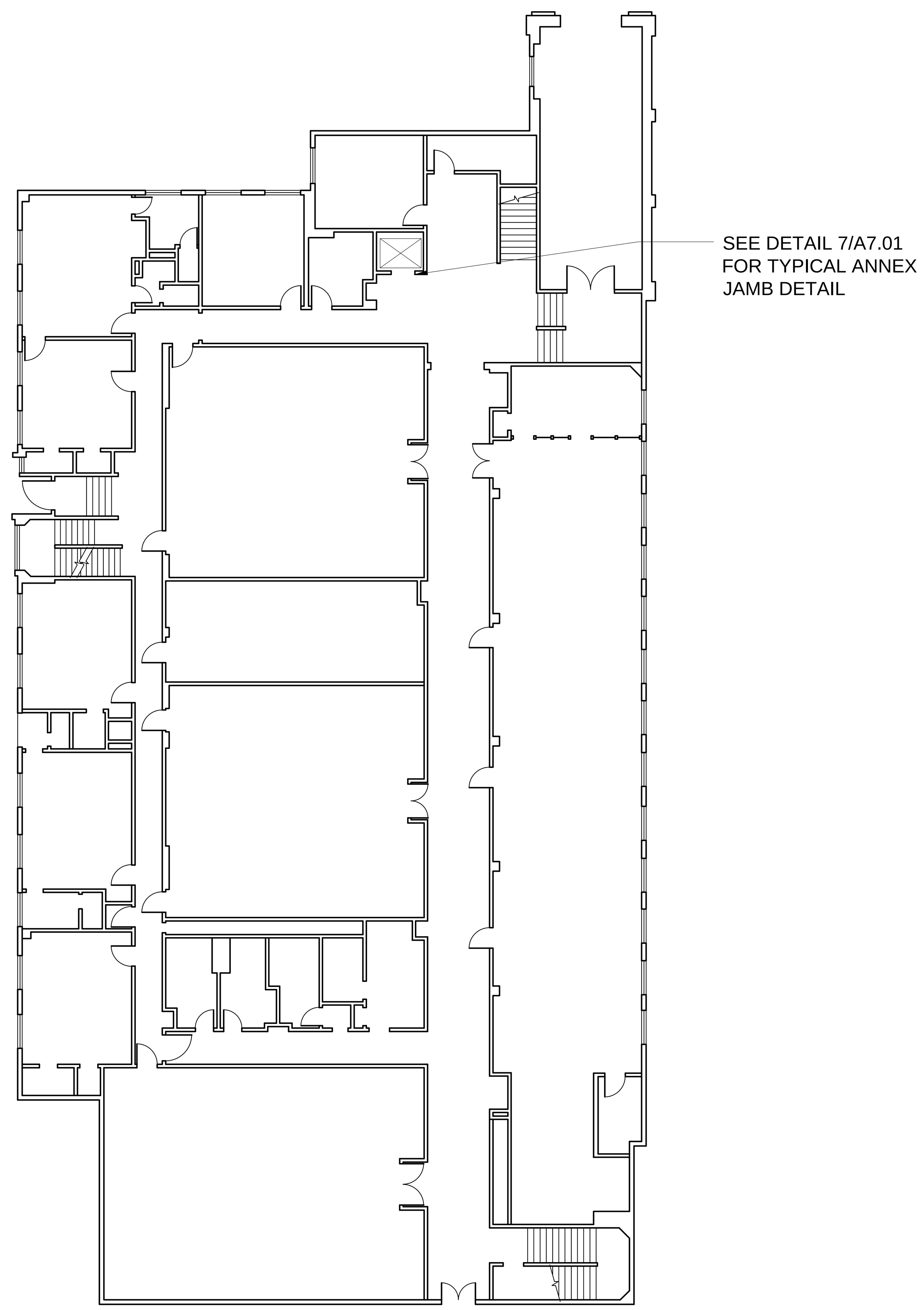
REV	DATE	DESCRIPTION
	06/16/2016	100% SD
	07/14/2016	100% DD
	08/18/2016	50% CD
	10/31/2016	90% CD
	12/12/2016	REVISED 90% CD
	04/03/2017	100% CD/CONFORMED SET
	04/24/2017	BID SET

PASADENA COURTHOUSE ELEVATOR MODERNIZATION
300 E Walnut St, Pasadena, CA 91101

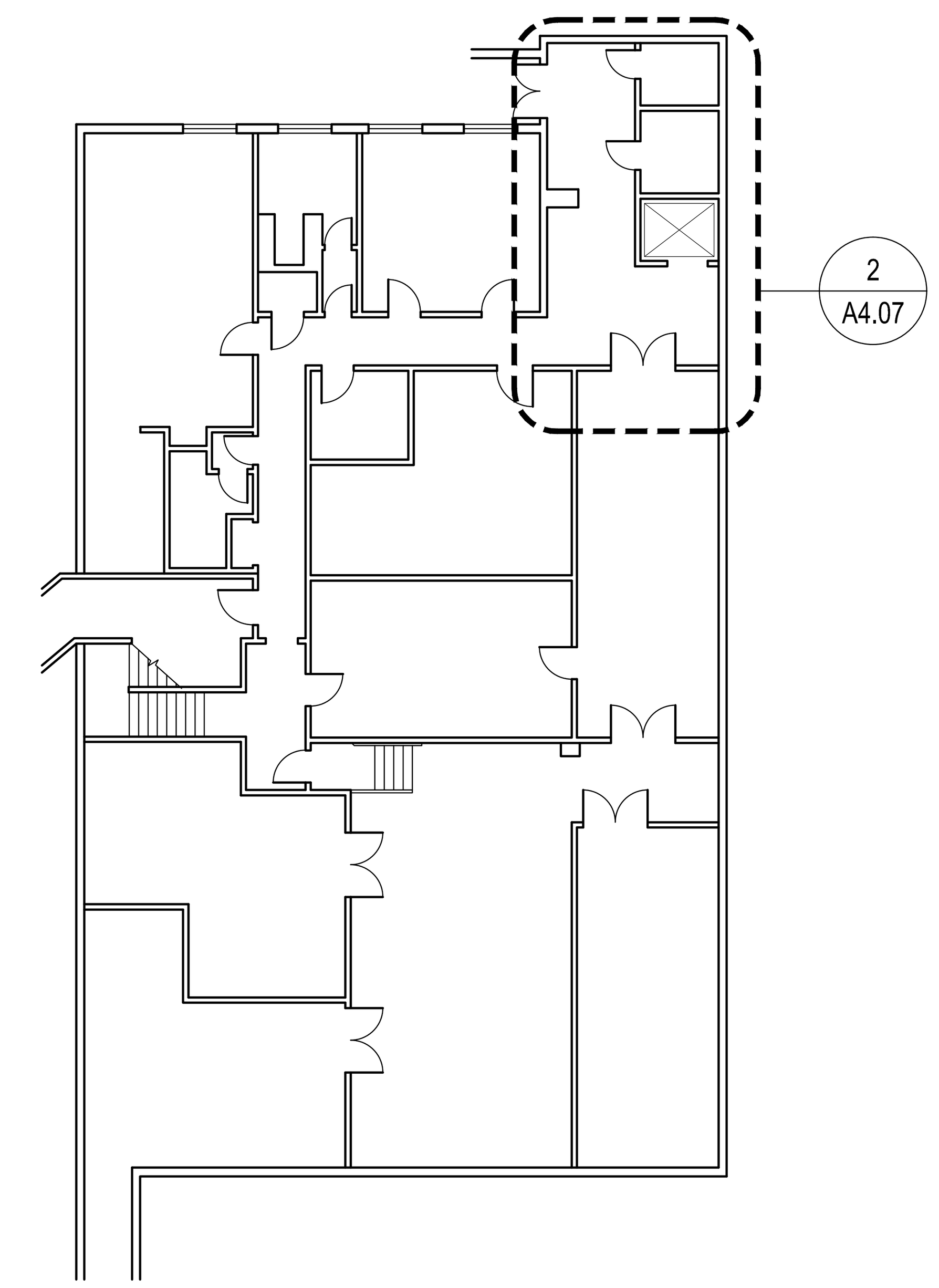
LICENSED ARCHITECT
MARK CAVAGNERO
No. C-19521
REN. 7/31/17
STATE OF CALIFORNIA

ROOF AND PENTHOUSE PLAN
1/16" = 1'-0"

A2.07



2 ANNEX FIRST FLOOR PLAN
1/16" = 1'-0"



1 ANNEX BASEMENT PLAN
1/16" = 1'-0"

N

CAVAGNERO
MARK CAVAGNERO ASSOCIATES ARCHITECTS

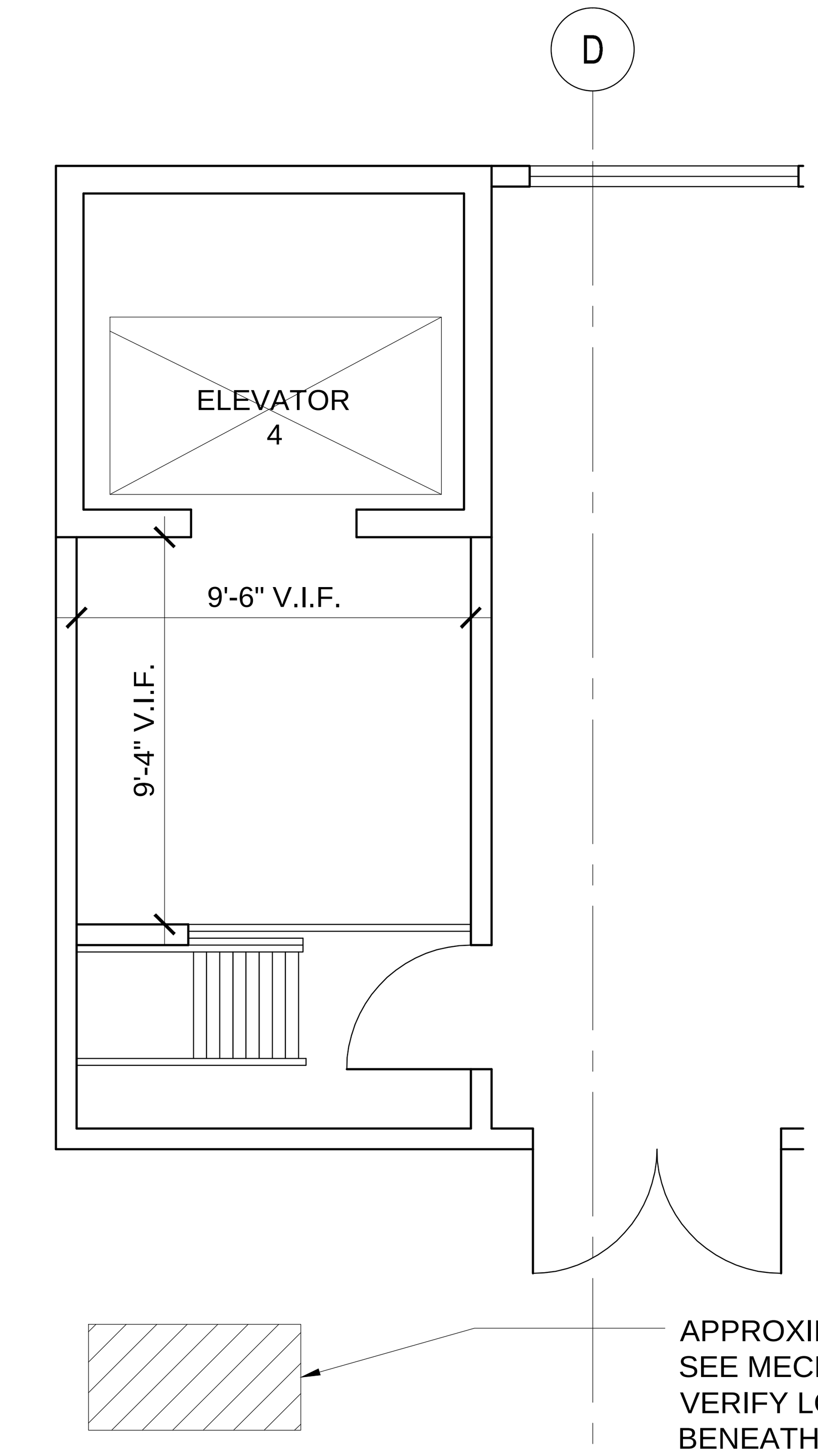
REV	DATE	DESCRIPTION
	06/16/2016	100% SD
	07/14/2016	100% DD
	08/18/2016	50% CD
	10/31/2016	90% CD
	12/12/2016	REVISED 90% CD
	04/03/2017	100% CD/CONFORMED SET
	04/24/2017	BID SET

PASADENA
COURTHOUSE
ELEVATOR MODERNIZATION
300 E Walnut St, Pasadena, CA 91101

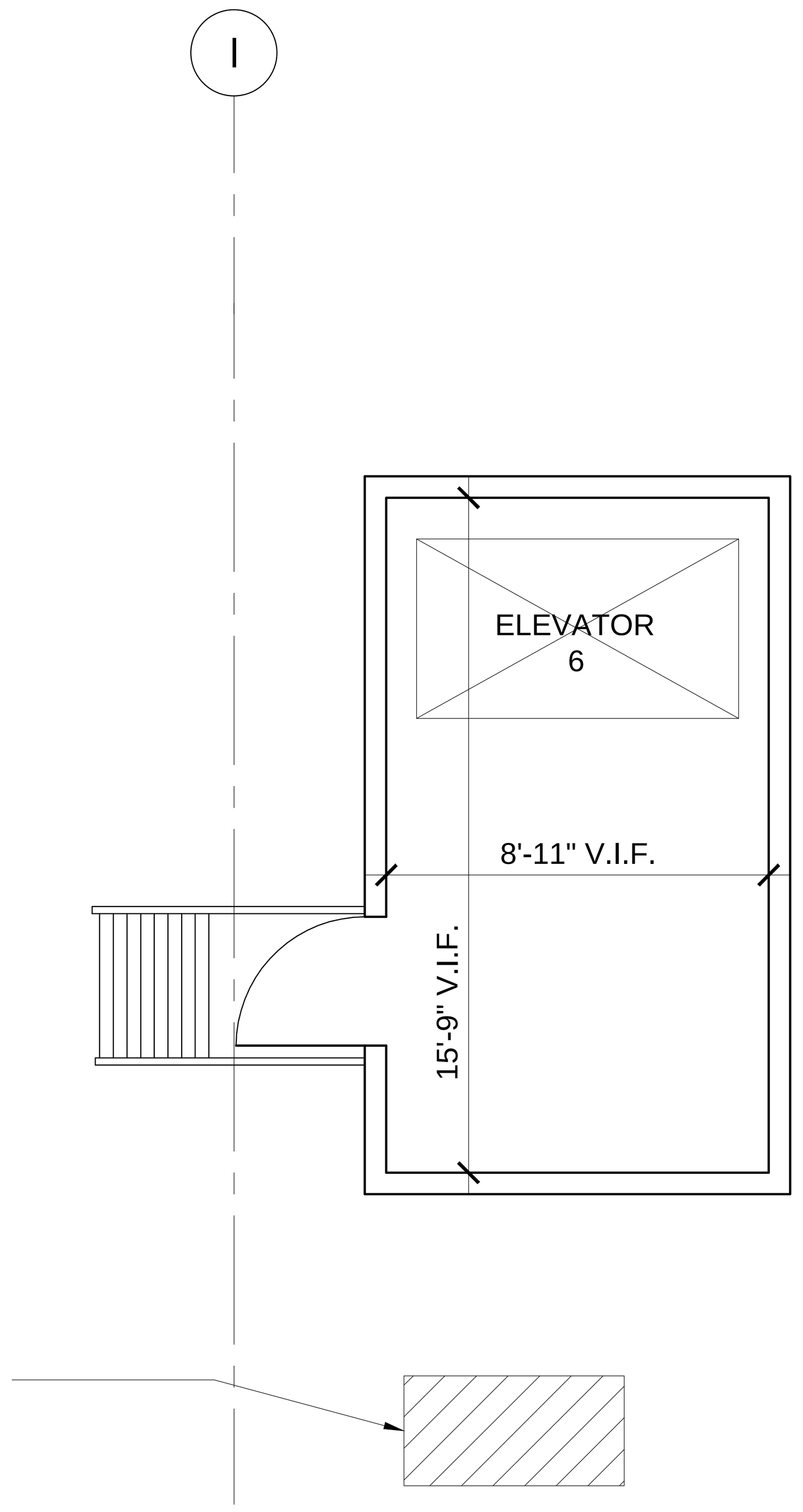
LICENSED ARCHITECT
MARK CAVAGNERO
No. C-19521
REN. 7/31/17
STATE OF CALIFORNIA

ANNEX PLANS
1/16" = 1'-0"

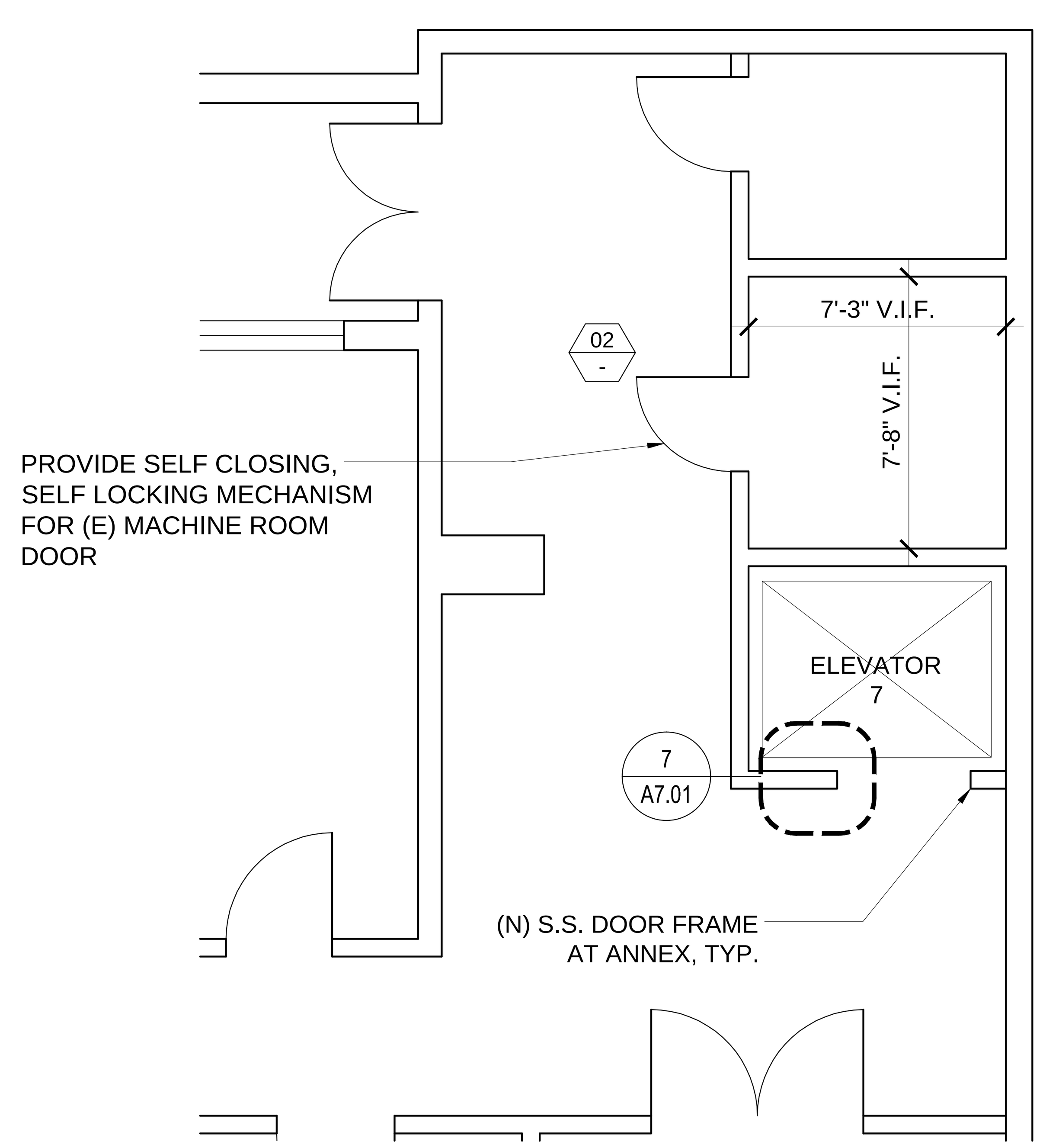
A2.11



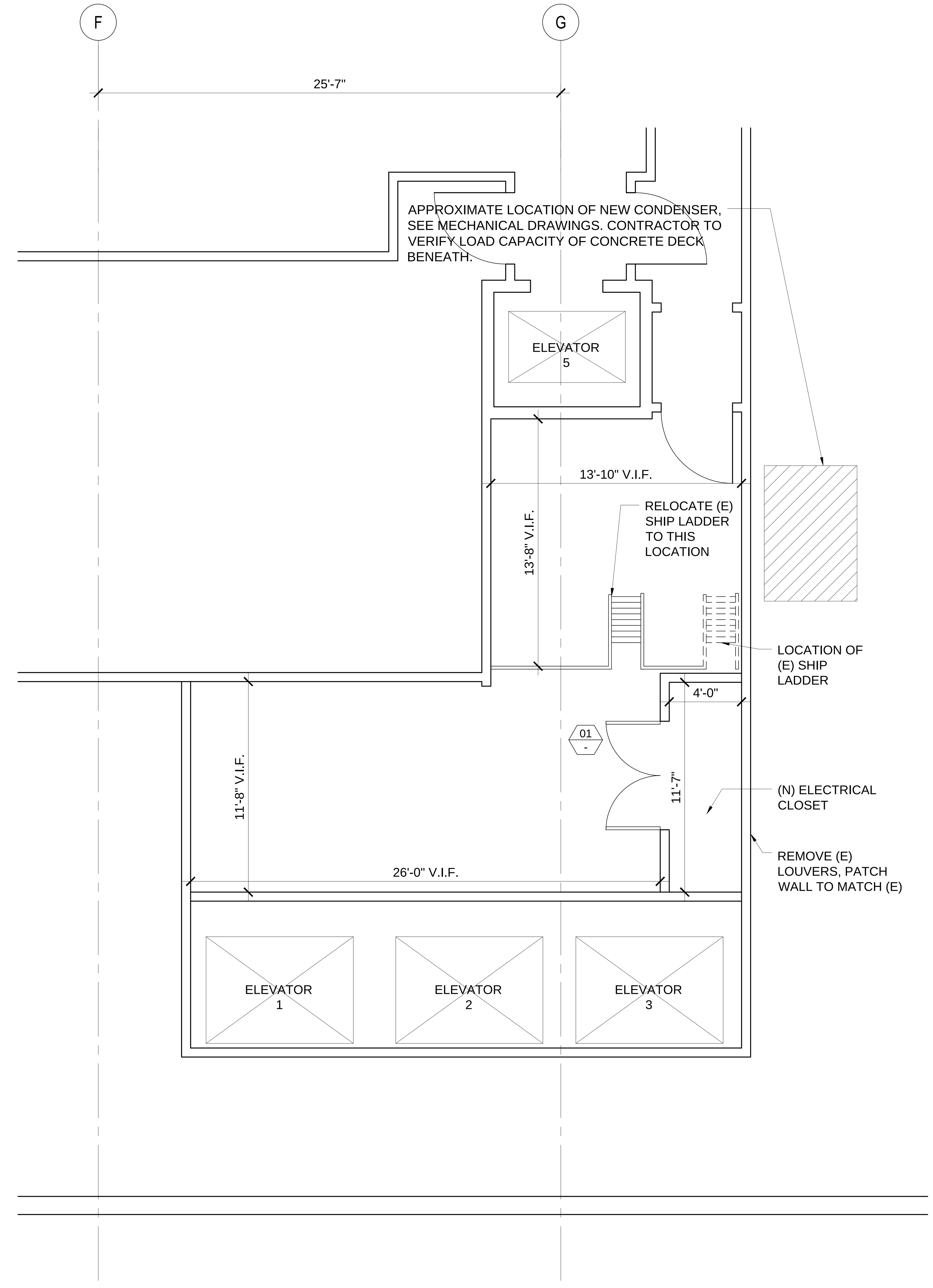
5 ELEVATOR 4 MACHINE ROOM
1/4" = 1'-0"



3 ELEVATOR 6 MACHINE ROOM
1/4" = 1'-0"



2 ANNEX ELEVATOR 7 MACHINE ROOM
1/4" = 1'-0"



1 ELEVATORS 1,2,3, & 5 MACHINE ROOM
1/4" = 1'-0"

DOOR SCHEDULE							
DOOR NUMBER	MATERIAL	HEIGHT	CLEAR WIDTH	NEW DOOR	EXISTING DOOR	FRAME MATERIAL	FIRE RATING
01	HOLLOW METAL	8'-0"	6'-0"	YES	NO	HOLLOW METAL	NONE
02	HOLLOW METAL	8'-0"	2'-8"	NO	YES	HOLLOW METAL	1HR

CAVAGNERO
MARK CAVAGNERO ASSOCIATES ARCHITECTS

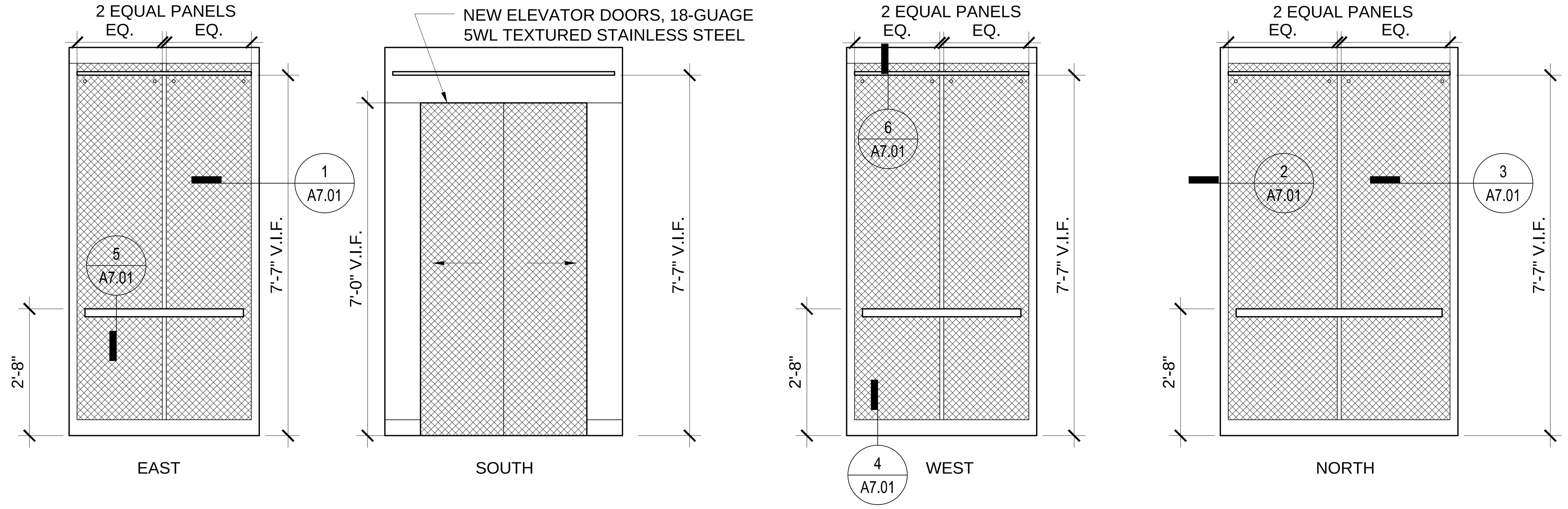
REV	DATE	DESCRIPTION
	06/16/2016	100% SD
	07/14/2016	100% DD
	08/18/2016	50% CD
	10/31/2016	90% CD
	12/12/2016	REVISED 90% CD
	04/03/2017	100% CD/CONFORMED SET
	04/24/2017	BID SET

PASADENA COURTHOUSE ELEVATOR MODERNIZATION
300 E Walnut St, Pasadena, CA 91101

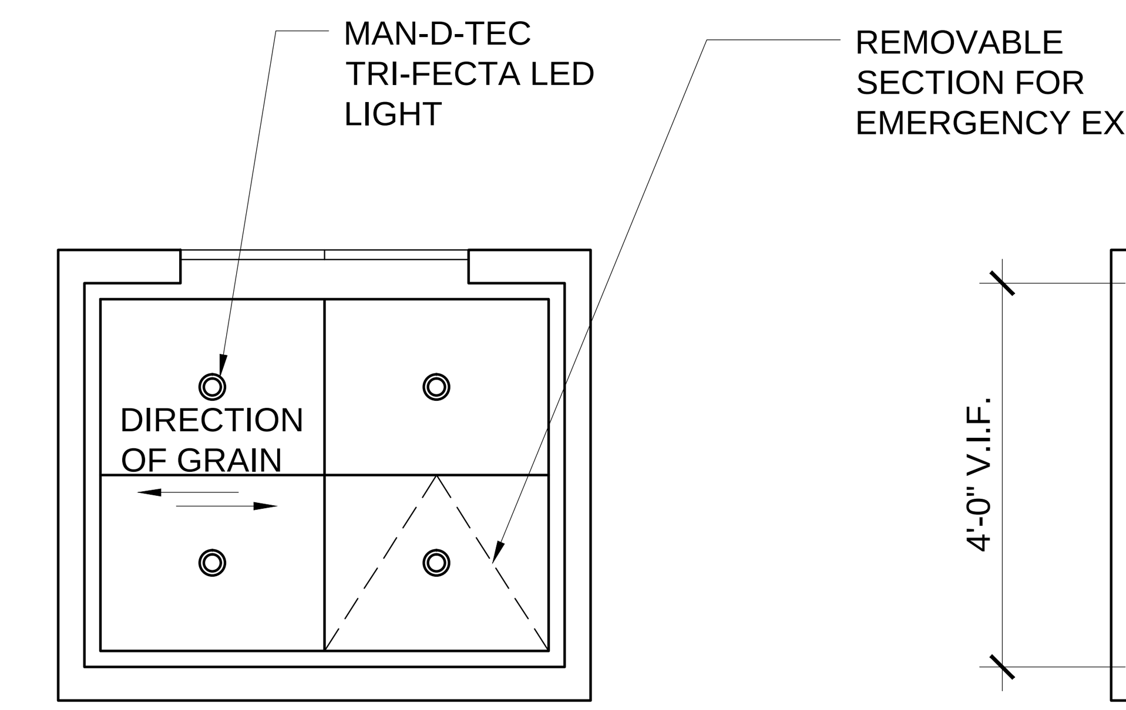
LICENSED ARCHITECT
MARK CAVAGNERO
No. C-19521
REN. 7/31/17
STATE OF CALIFORNIA

ENLARGEN MACHINE ROOM PLANS
1/4" = 1'-0"

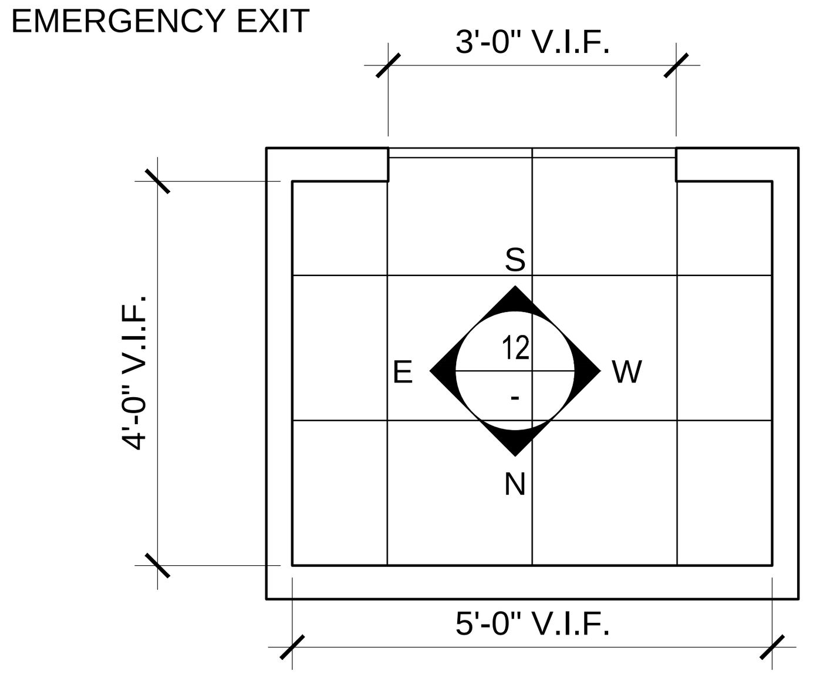
A4.07



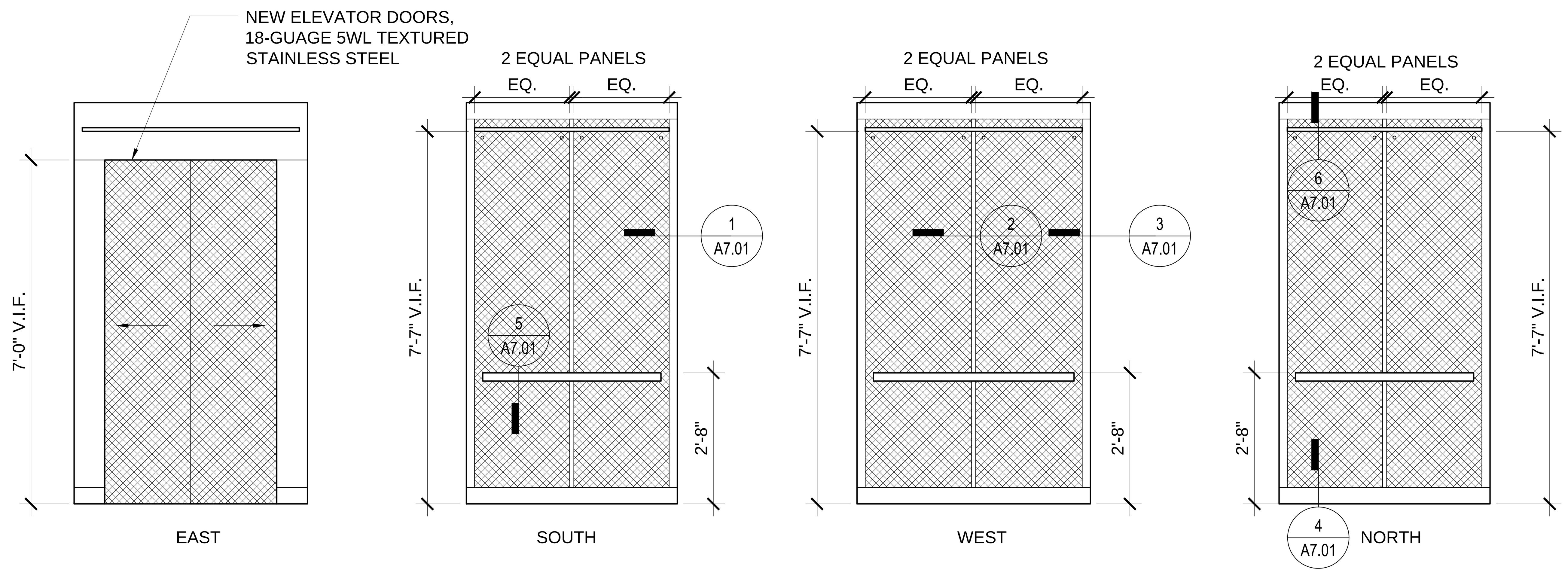
12 JUDGES ELEVATOR 5 INTERIOR CAB ELEVATIONS
1/2" = 1'-0"



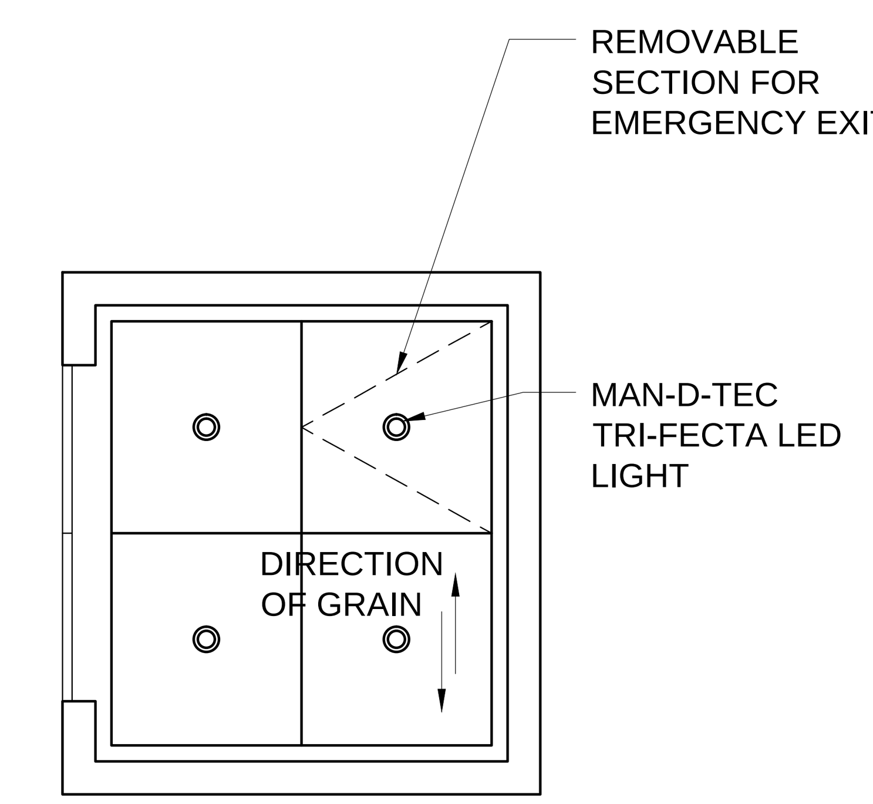
6 JUDGES ELEVATOR 5 RCP
1/2" = 1'-0"



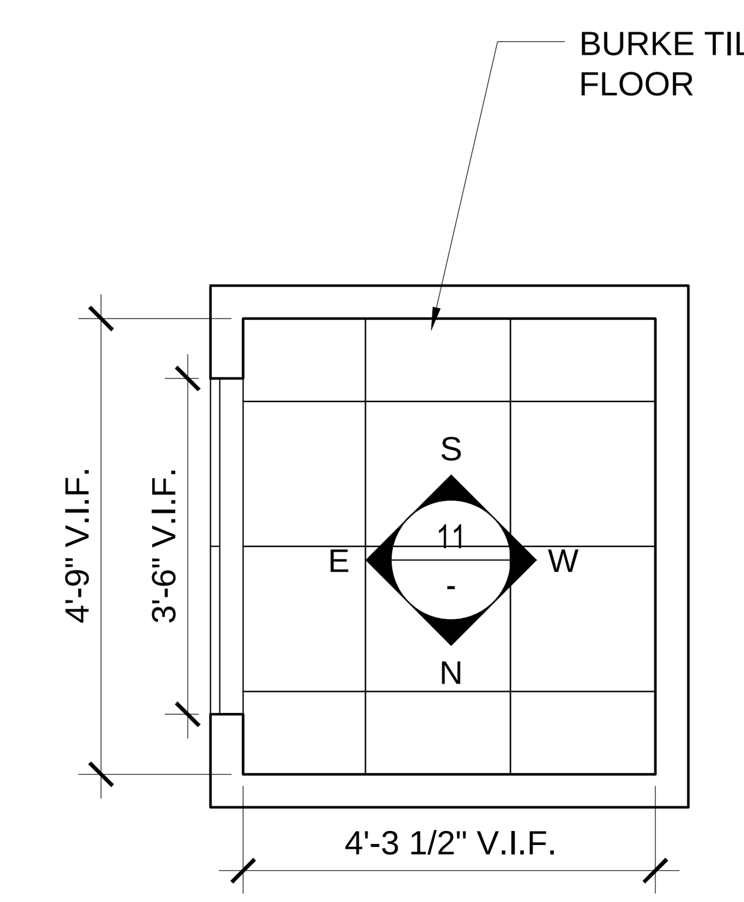
3 JUDGES ELEVATOR 5
1/2" = 1'-0"



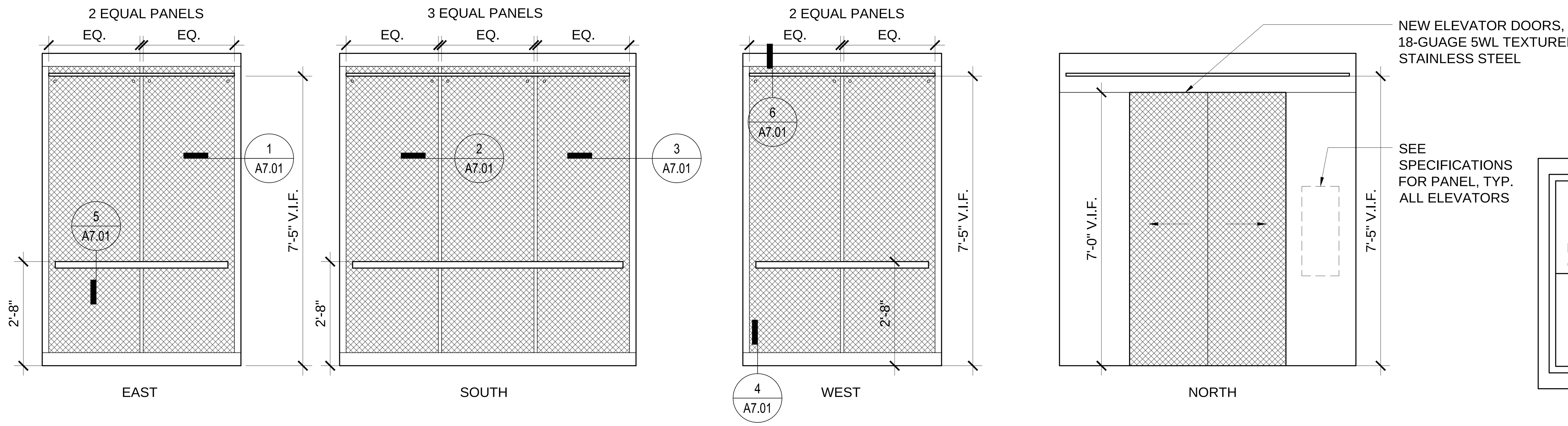
11 ANNEX ELEVATOR 7 INTERIOR CAB ELEVATIONS
1/2" = 1'-0"



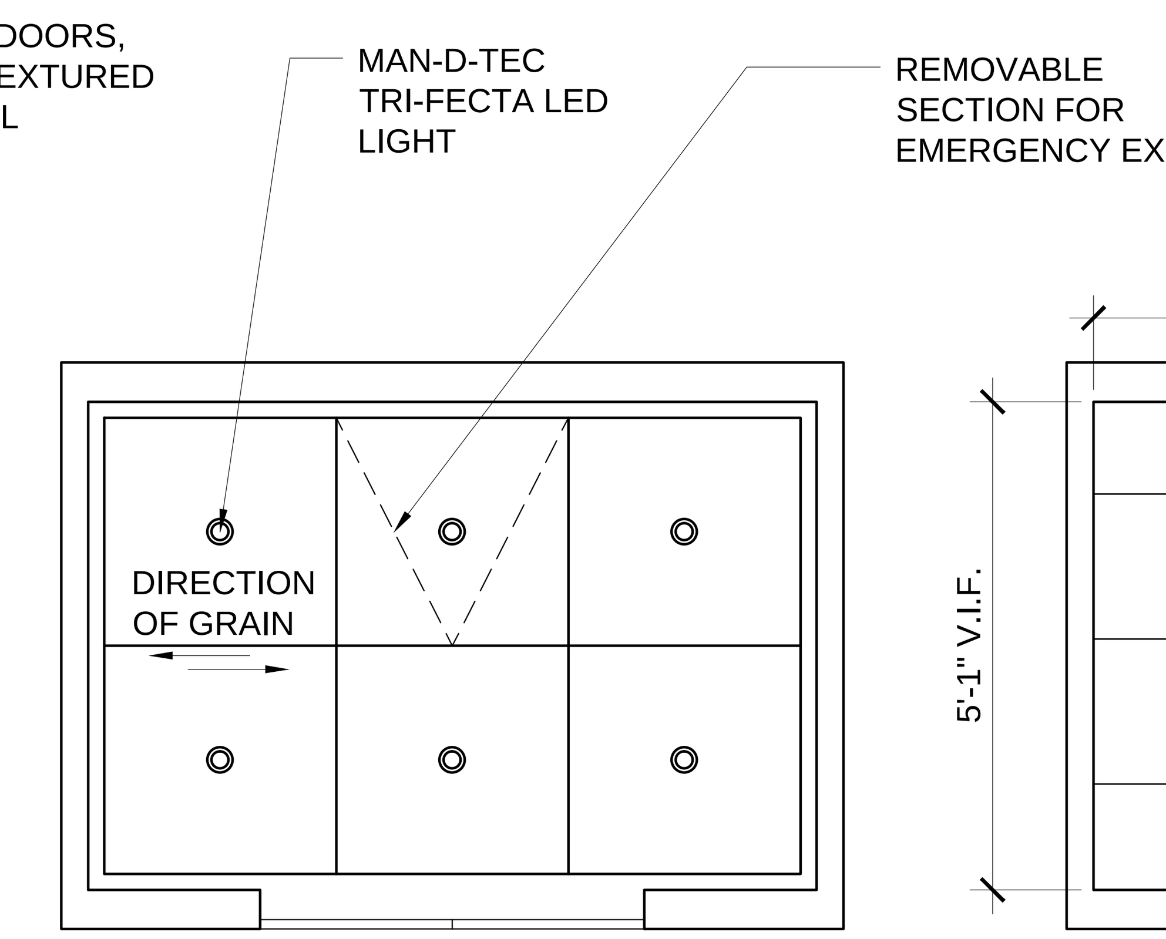
5 ANNEX ELEVATOR 7 RCP
1/2" = 1'-0"



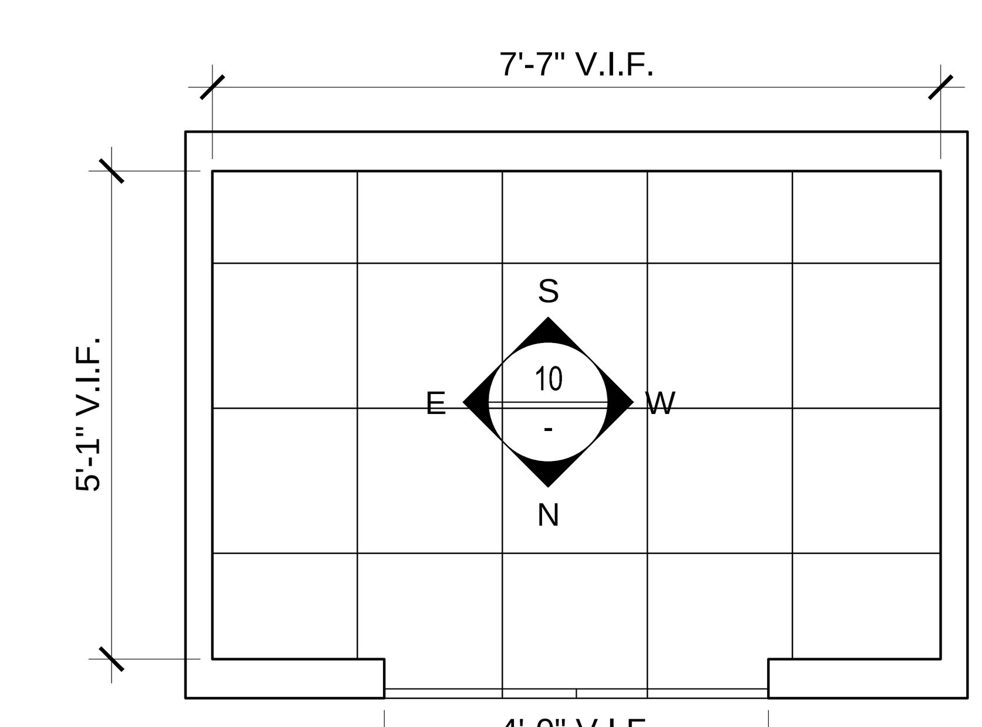
2 ANNEX ELEVATOR 7
1/2" = 1'-0"



10 PUBLIC ELEVATORS 1,2, & 3 INTERIOR CAB ELEVATIONS
1/2" = 1'-0"



4 PUBLIC ELEVATORS 1,2,& 3 RCP
1/2" = 1'-0"



1 PUBLIC ELEVATORS 1,2,& 3
1/2" = 1'-0"

CAVAGNERO

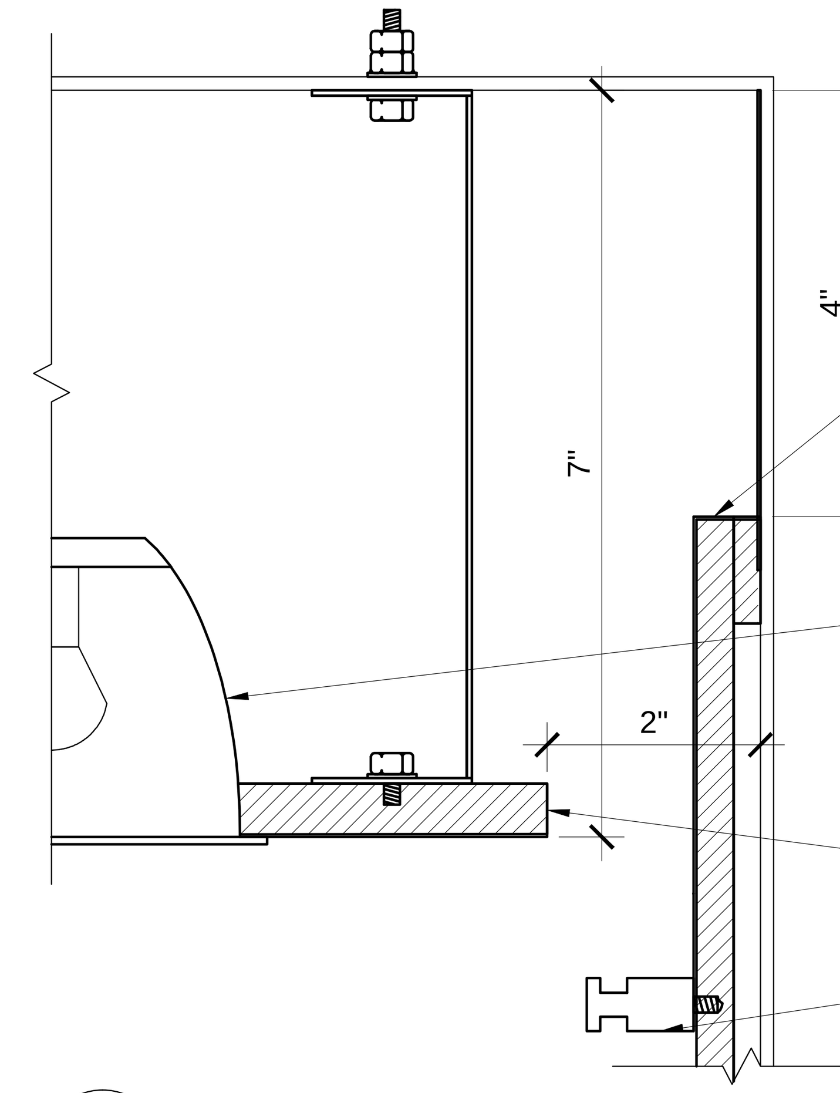
REV	DATE	DESCRIPTION
	06/16/2016	100% SD
	07/14/2016	100% DD
	08/18/2016	50% CD
	10/31/2016	90% CD
	12/12/2016	REVISED 90% CD
	04/03/2017	100% CD/CONFORMED SET
	04/24/2017	BID SET

PASADENA COURTHOUSE ELEVATOR MODERNIZATION
300 E Walnut St, Pasadena, CA 91101

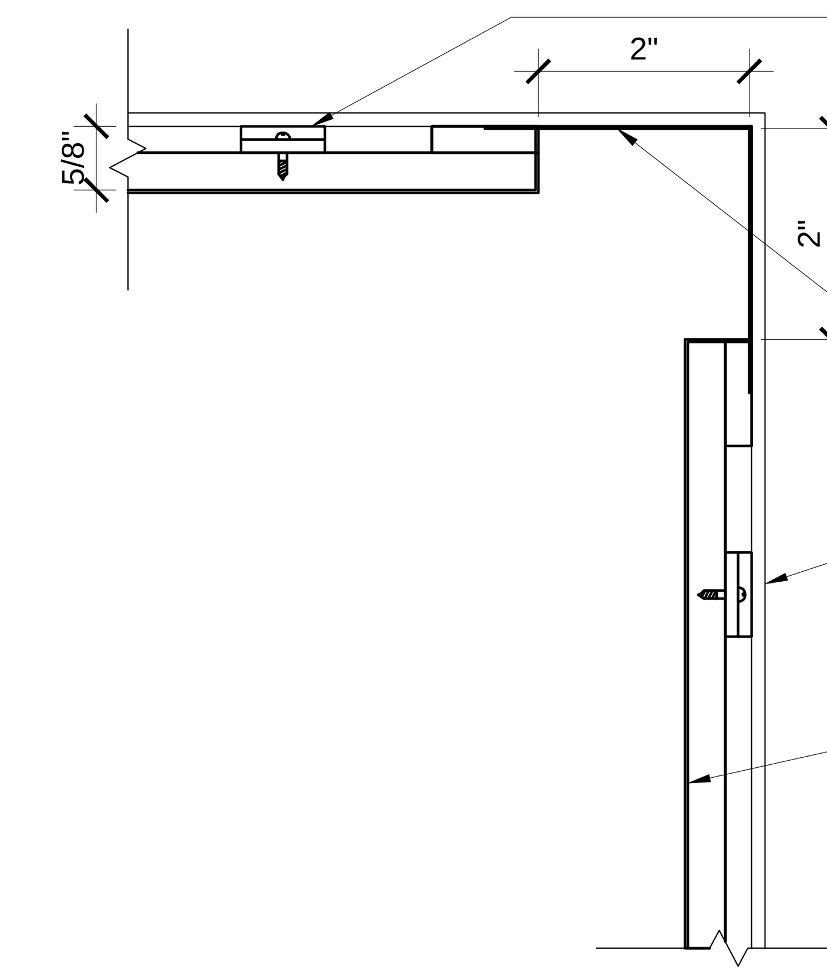
LICENSED ARCHITECT
MARK CAVAGNERO
No. C-19521
REN. 7/31/17
STATE OF CALIFORNIA

ELEVATOR DETAILS
1/2" = 1'-0"

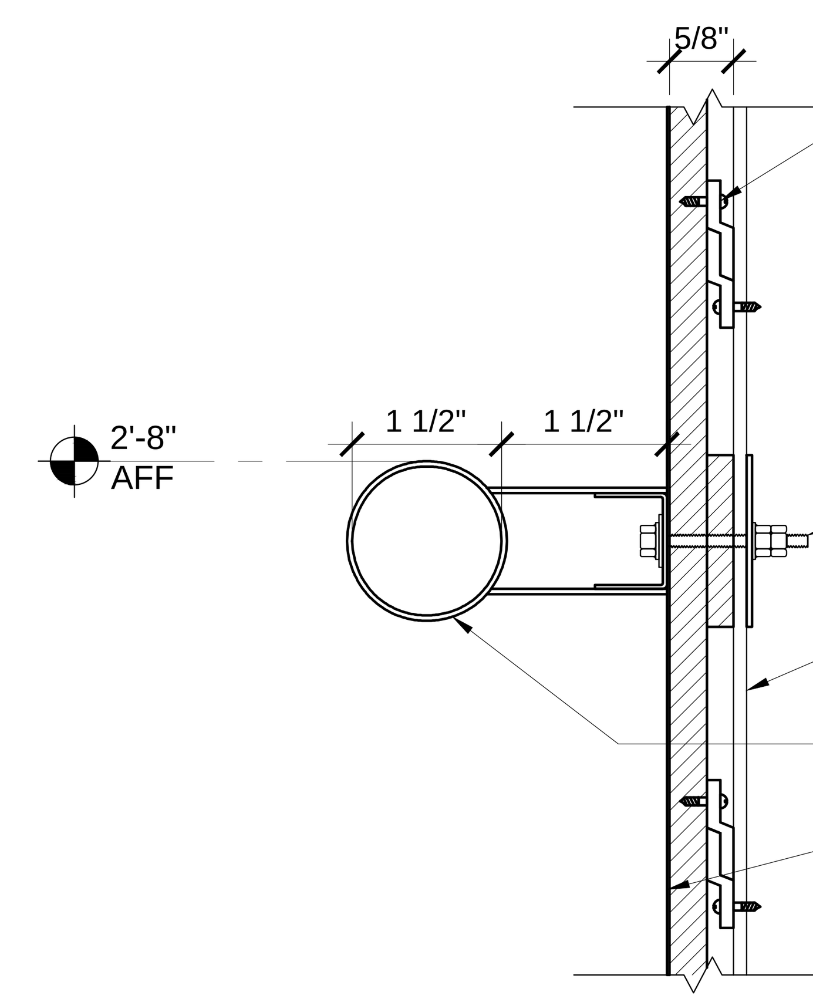
A5.01



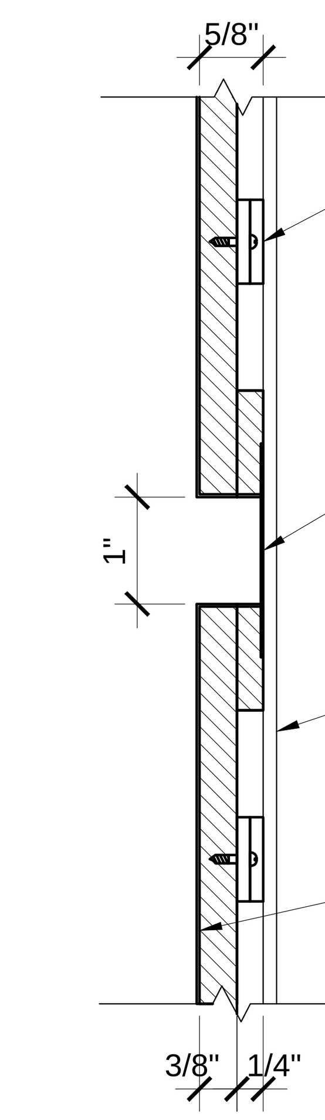
6 CEILING SECTION - PUBLIC CABS
6" = 1'-0"



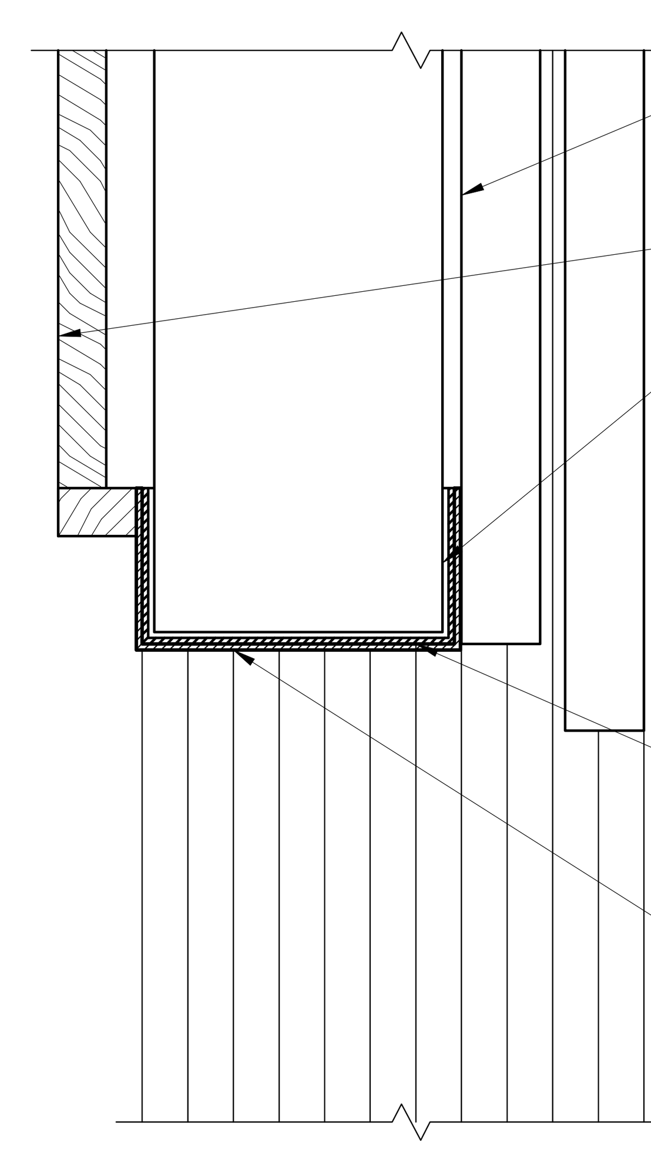
3 CORNER REVEAL
6" = 1'-0"



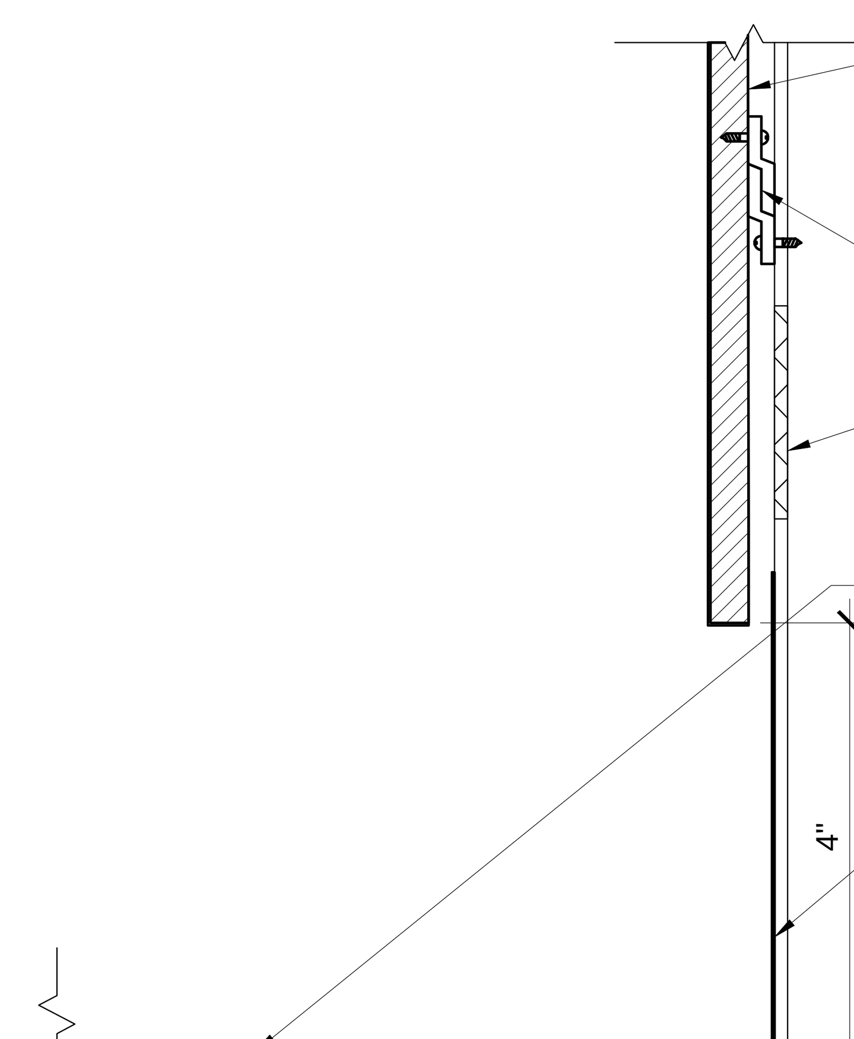
5 HANDRAIL - PUBLIC CABS
6" = 1'-0"



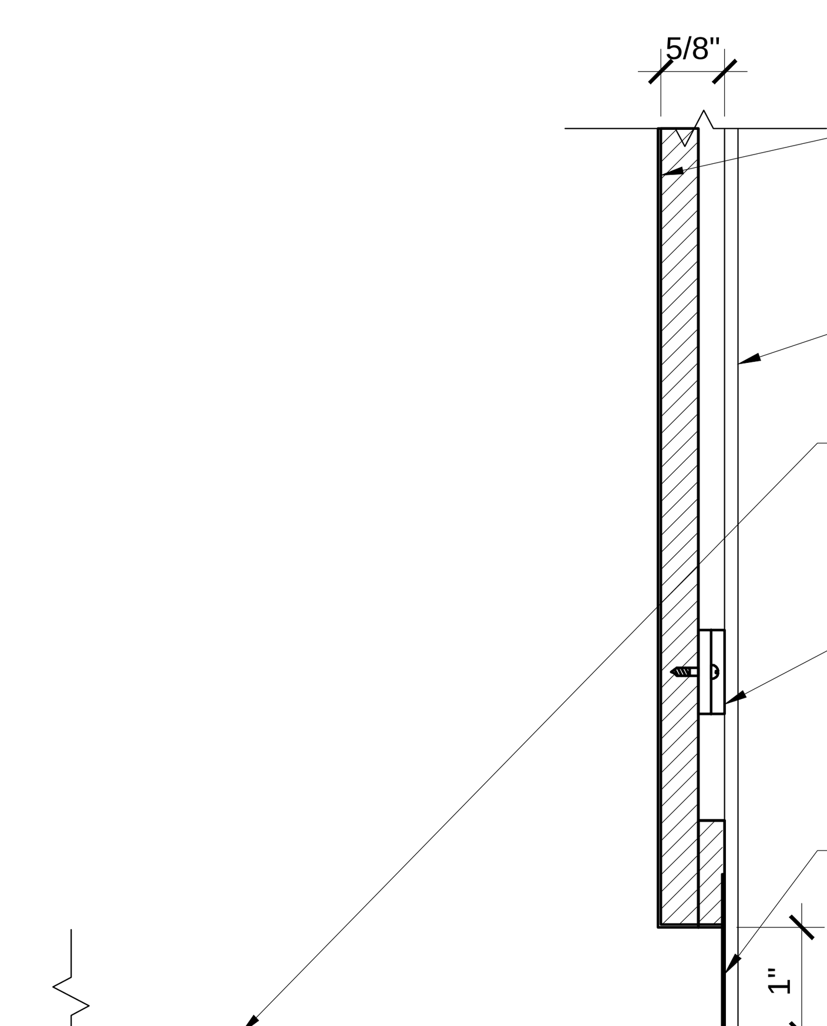
2 REVEAL
6" = 1'-0"



7 TYP. ANNEX ELEVATOR JAMB, HEAD SIM.
3" = 1'-0"



4 BASE
6" = 1'-0"



1 FRONT REVEAL
6" = 1'-0"

CAVAGNERO
MARK CAVAGNERO ASSOCIATES ARCHITECTS

REV	DATE	DESCRIPTION
	06/16/2016	100% SD
	07/14/2016	100% DD
	08/18/2016	50% CD
	10/31/2016	90% CD
	12/12/2016	REVISED 90% CD
	04/03/2017	100% CD/CONFORMED SET
	04/24/2017	BID SET

PASADENA COURTHOUSE ELEVATOR MODERNIZATION
300 E Walnut St, Pasadena, CA 91101

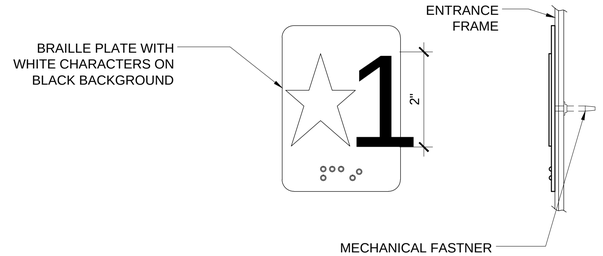
LICENSED ARCHITECT
MARK CAVAGNERO
No. C-19521
REN. 7/31/17
STATE OF CALIFORNIA

ELEVATOR DETAILS
1/2" = 1'-0"

A7.01

HALL BRAILLE PLATES

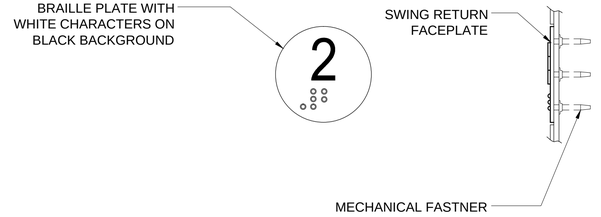
2 1/2" X 3 1/2" CAST PLATES WITH WHITE CHARACTERS ON BLACK BACKGROUND. MEETS ANSI A117.1 70% CONTRAST REQUIREMENTS. MECHANICALLY FASTENED FROM BACK SIDE. INCLUDES ARABIC OR N.E.I.I. DESIGNATIONS AND BRAILLE. EGRESS LEVEL TO BE INDICATED WITH A 2" DIAMETER STAR TO THE LEFT OF THE CHARACTER PER CURRENT EDITION OF CBC.



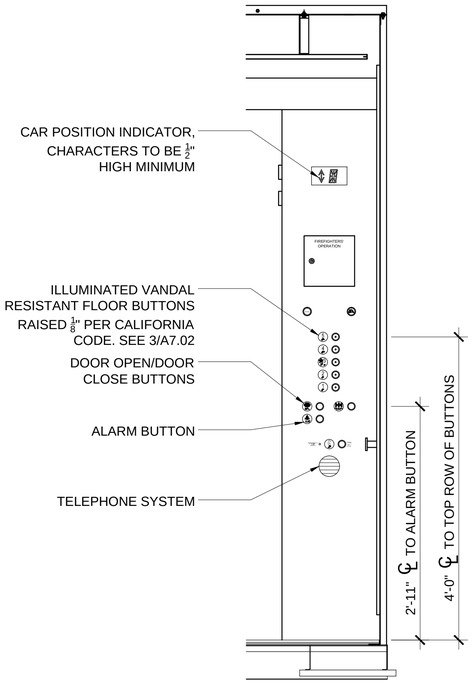
6 HALL BRAILLE DETAIL
NTS

CAR BRAILLE PLATES

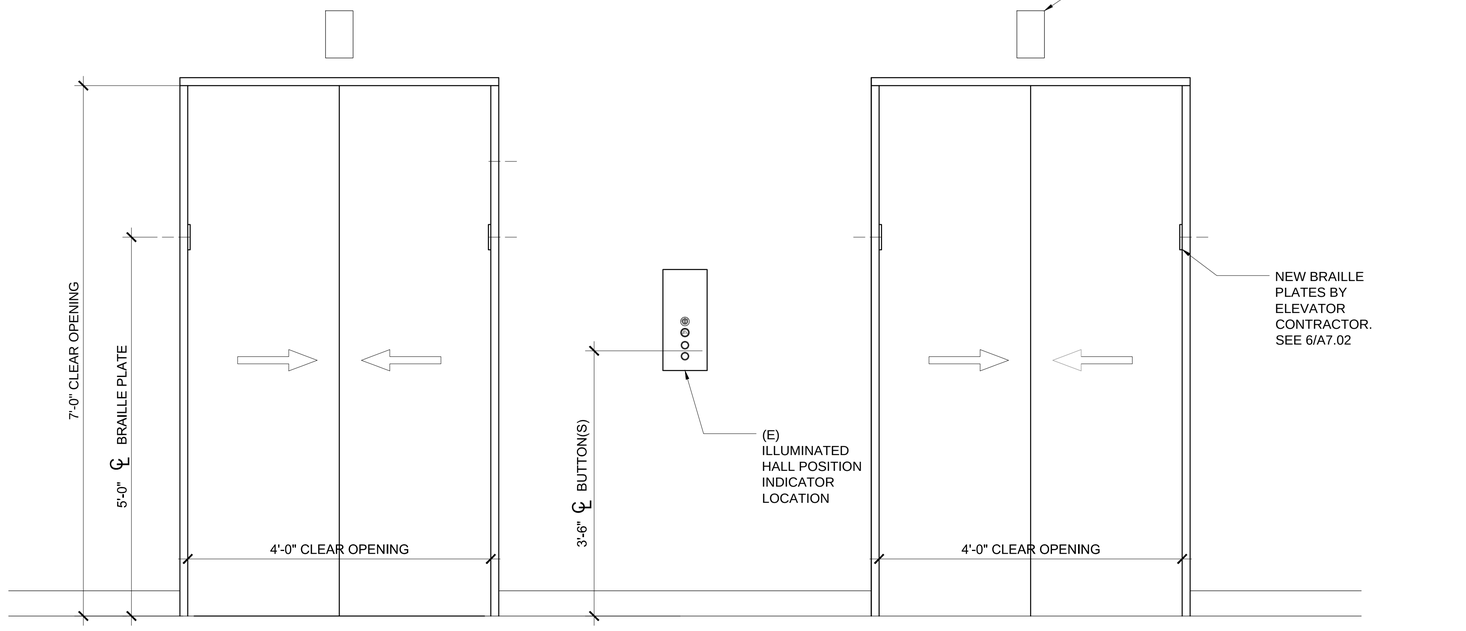
1 1/2" DIAMETER CAST PLATES WITH WHITE CHARACTERS ON BLACK BACKGROUND. MEETS ANSI A117.1 70% CONTRAST REQUIREMENTS. MECHANICALLY FASTENED FROM BACK SIDE. INCLUDES ARABIC OR N.E.I.I. DESIGNATIONS AND BRAILLE. EGRESS LEVEL TO BE INDICATED WITH A STAR TO THE LEFT OF THE CHARACTER PER THE CURRENT EDITION OF CBC.



3 CAR BRAILLE DETAIL
NTS



10 TYPICAL MAIN SWING RETURN
1" = 1'-0"



7 TYPICAL HALL BUTTON AND BRAILE PLATE LOCATIONS
1" = 1'-0"

CAVAGNERO
MARK CAVAGNERO ASSOCIATES ARCHITECTS
1390 Market Street, Suite 200
San Francisco, California 94102
T 415 346 1400
www.cavagnero.com

REV	DATE	DESCRIPTION
	06/16/2016	100% SD
	07/14/2016	100% DD
	09/19/2016	50% CD
	10/31/2016	90% CD
	12/12/2016	REVISED 90% CD
	04/03/2017	100% CD/CONFORMED SET
	04/24/2017	BID SET

PASADENA COURTHOUSE
ELEVATOR MODERNIZATION
300 E Walnut St, Pasadena, CA 91101

LICENSED ARCHITECT
MARK CAVAGNERO
No. C-19521
REN. 7/31/17
STATE OF CALIFORNIA

SIGNAGE DETAILS
AS SHOWN

A7.02

SYMBOLS LIST

Symbol	Description
	EXIT SIGN, CEILING MOUNTED, SINGLE OR DOUBLE FACED WITH DIRECTIONAL ARROW/S WHERE SHOWN ON LIGHTING PLANS. MATCH BASE BUILDING STANDARD. "P" DENOTES PENDANT MOUNTED.
	EXIT SIGN WALL MOUNT, SINGLE OR DOUBLE FACED WITH DIRECTIONAL ARROW/S WHERE SHOWN ON LIGHTING PLANS. MATCH BASE BUILDING STANDARD
$	SINGLE POLE TOGGLE SWITCH a = CONTROLLING OUTLET OR FIXTURE "a" M = MOTOR RATED
	NEW 4' LENSED NEMA 4R LED ELEVATOR PIT LIGHT FIXTURE TO REPLACE (E)LIIGHT FIXTURE. CONNECT TO (E)CKT. LITHONIA #XWMLED OR EQUAL
	DUPLEX CONVENIENCE RECEPTACLE 15A, 125V. FLUSH WALL MOUNTED. 20A. RATING FOR SINGLE RECEPTACLE ON 20A INDIVIDUAL CIRCUIT.
	GFCI, GROUND FAULT INTERRUPTER DUPLEX CONVENIENCE RECEPTACLE 15A, 125V.
	CEILING MOUNTED JUNCTION BOX
	FLUSH WALL MOUNTED JUNCTION BOX
	3/4 IN CONDUIT WITH 2#12 WIRES
	3/4 IN CONDUIT WITH 3 #12 WIRES
	3/4 IN CONDUIT WITH 4 #12 WIRES
	3/4 IN CONDUIT WITH 5 #12 WIRES
	3/4 IN CONDUIT WITH 6 #12 WIRES
	CONDUIT TURNING UP
	CONDUIT TURNING DOWN
	CONDUIT STUBBED OUT
	GROUND CONNECTION
2PA-1,3,5	CONDUIT HOMERUN TO PANELBOARD "2PA" WITH CIRCUITS 1,3,5
100AS/60AF	FUSED DISCONNECT SWITCH-100A SWITCH, 60A FUSE. PROVIDE LOCKABLE DISCONNECT SWITCH AT ELEVATORS.
30A 3P	DISCONNECT SWITCH-30AMP, 3 POLE
	SURFACE MOUNTED PANELBOARD
	FLUSH MOUNTED PANELBOARD
M	MOTOR
T OR	TRANSFORMER
100/100	CIRCUIT BREAKER-100 AMP FRAME/100AMP TRIP, 3 POLE UON LT=LONG TIME SETTING ST=SHORT TIME SETTING I=INSTANTANEOUS SETTING
	SMOKE DETECTOR (REFER TO FIRE ALARM SHEETS FOR ADDITIONAL INFORMATION)
R	COMBINATION SMOKE-HEAT DETECTOR (REFER TO FIRE ALARM SHEETS FOR ADDITIONAL INFORMATION.

SYMBOL TAG DESIGNATION

N = NEW
E = EXISTING
ER = EXISTING TO BE REMOVED OR RELOCATED
R = REMOVED

ABBREVIATIONS

– A –	
A	AMPERE
AC	ABOVE COUNTER
ACB	AIR CIRCUIT BREAKER
AFF	ABOVE FINISHED FLOOR
AL	ALUMINUM
ALM	ALARM
AMM	AMMETER
AQST	AQUASTAT
ARF	ABOVE RAISED FLOOR
ASYM	ASYMMETRICAL
ATS	AUTOMATIC TRANSFER SWITCH
AUTO	AUTOMATIC
AWG	AMERICAN WIRE GAUGE
– B –	
BG	BREAK GLASS SWITCH
BCB	BRANCH CIRCUIT BREAKER
BIL	BASIC IMPULSE LEVEL
BLDG	BUILDING
BFC	BEFORE FINISHED CEILING
– C –	
C	CONDUIT
°C	DEGREE CELSIUS
CAB	CABINET
CAT	CATALOG
CB	CIRCUIT BREAKER
CCTV	CLOSED CIRCUIT TELEVISION
CKT	CIRCUIT
CL	CENTER LINE
CLG	CEILING
CLOS	CLOSET
CNTL	CONTROL
CO	CONDUIT ONLY
COMM	COMMUNICATION
CONT	CONTINUATION
CT	CURRENT TRANSFORMER
CU	COPPER
CUH	CABINET UNIT HEATER
– D –	
DB	DECIBEL
DE	DOUBLE ENDED SUBSTATION
DEG	DEGREE
DF	DRINKING FOUNTAIN
DIA	DIAMETER
DISC	DISCONNECT
DN	DOWN
DP	DISTRIBUTION PANEL BOARD
DT	DUST TIGHT
DWG	DRAWING
– E –	
E	EXISTING
EA	EACH
EC	ELECTRICAL CLOSET
EL	ELEVATION
ELEC	ELECTRICAL
ELEV	ELEVATOR
EMER	EMERGENCY
EQUIP	EQUIPMENT
ERC	ELECTRIC REHEAT COIL
EXIST	EXISTING
EXT	EXTERIOR
EM	DENOTES FIXTURE WITH INTEGRAL BATTERIES PACK
– F –	
°F	DEGREE FAHRENHEIT
F	FUSE
FA	FIRE ALARM
FAP	FIRE ALARM CONTROL PANEL
FBO	FURNISHED BY OTHER DIVISION OF WORK
FCU	FAN COIL UNIT
FDR	FEEDER
FDS	FUSED DISCONNECT SWITCH
FIXT	FIXTURE
FL	FLOOR
FLEX	FLEXIBLE
FLUOR	FLUORESCENT
FM	FLOOR MACHINE
FSP	FAN SHUTDOWN PANEL
FT	FEET OR FOOT
– G –	
G	GROUND
GEN	GENERATOR
GFI	GROUND FAULT INTERRUPTER
– H –	
HC	HUNG CEILING
HID	HIGH INTENSITY DISCHARGE
HH	HAND HOLE
HP	HORSEPOWER
HV	HIGH VOLTAGE
HZ	HERTZ
– I –	
IC	INTERRUPTING CAPACITY
ID	INSIDE DIAMETER
INCAND	INCANDESCENT
INST	INSTRUMENT
– J –	
JB	JUNCTION BOX
– K –	
KV	KILOVOLT
KVA	KILOVOLT AMPERE
KW	KILOWATT
KWH	KILOWATT HOUR
KWHM	KILOWATT HOUR METER
– L –	
LCP	LIGHTING CONTROL PANEL
LIM	LINE ISOLATION MONITOR
LTG	LIGHTING
– M –	
MAP	MECHANICAL ALARM PANEL
MAX	MAXIMUM
MCB	MAIN CIRCUIT BREAKER
MC	MOTOR CONTROLLER
MCC	MOTOR CONTROL CENTER
MCM	THOUSAND CIRCULAR MILS
MECH	MECHANICAL
MER	MECHANICAL EQUIPMENT ROOM
MFS	MAIN FUSED SWITCH
MH	MANHOLE
MIC	MICROPHONE
MIN	MINIMUM
MTD	MOUNTED
MTG	MOUNTING
MTS	MANUAL TRANSFER SWITCH
MUFS	MAIN UNFUSED SWITCH
– N –	
N	NEW
NC	NORMALLY CLOSED
NF	NON-FUSED
NIC	NOT IN CONTRACT
NO	NORMALLY OPEN
NP	NETWORK PROTECTOR
NTS	NOT TO SCALE
– O –	
OC	ON CENTER
OCB	OIL CIRCUIT BREAKER
OD	OUTSIDE DIAMETER
– P –	
P	PENDANT MOUNTING
PB	PULL BOX
PBS	PUSH BUTTON SWITCH
0	PHASE
PNL	PANEL
PS	PRESSURE SWITCH
PT	POTENTIAL TRANSFORMER
PWR	POWER
– R –	
R	REMOVE
RCS	REMOTE CONTROL SWITCH
RDCP	REMOTE DATA COLLECTION PANEL
RECEPT	RECEPTACLE
REQ	REQUIRED
RFL	RAISED FLOOR
RG	ROOM GROUND POINT
RM	ROOM
RO	RACEWAY ONLY
RP	REFERENCE GROUND POINT
– S –	
SAP	SPRINKLER ALARM PANEL
SBST	SUBSTATION
SCHED	SCHEDULE
SD	SMOKE DETECTOR
SDP	SMOKE DETECTION PANEL
SE	SINGLE ENDED SUBSTATION
SECT	SECTION
SIG	SIGNAL
SP	SINGLE POLE
SN	SOLID NEUTRAL
SPEC	SPECIFICATION
SPKLR	SPRINKLER
SPKR	SPEAKER
SV	SOLENOID VALVE
SW	SWITCH
SWBD	SWITCHBOARD
SWGR	SWITCHGEAR
SYM	SYMMETRICAL
SYS	SYSTEMS
– T –	
TB	TROUBLE BELL
TBD	TERMINAL BOARD
TEL	TELEPHONE
TEMP	TEMPERATURE
THERM	THERMOSTAT
TRANSF	TRANSFORMER
TS	TAMPER SWITCH
TV	TELEVISION
TYP	TYPICAL
– U –	
UFD	UNDERFLOOR DUCT
UH	UNIT HEATER
UNF	UNFUSED
UON	UNLESS OTHERWISE NOTED
– V –	
V	VOLT OR VOLTAGE
VA	VOLT AMPERE
VM	VENDING MACHINE
VP	VAPORPROOF
– W –	
W	WATT
WC	WATER COOLER
WFS	WATER FLOW SWITCH
WHM	WATT HOUR METER
WP	WEATHERPROOF
WT	WATERTIGHT
– X –	
XP	EXPLOSION PROOF

GENERAL NOTES

1. ALL SYMBOLS SHOWN ON SYMBOL LIST ARE NOT NECESSARILY USED ON THIS PROJECT.
2. SEE ARCHITECTURAL DRAWINGS FOR NOTES, SYMBOLS, ETC. AND COMPLY WITH THEIR REQUIREMENTS.
3. ALL WORK SHALL COMPLY WITH THE NEC 2013, CEC 2013, THE 2013 STATE OF CALIFORNIA ENERGY CODE, CITY OF PASADENA AND ALL OTHER GOVERNING CODES AND ORDINANCES.
4. ALL MATERIALS AND WORKMANSHIP SHALL CONFORM TO THE NATIONAL ELECTRICAL CODE AND ALL LOCAL APPLICABLE CODES AND REGULATIONS.
5. UNLESS INSTRUCTED OTHERWISE, THE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS, LICENSES, AND FEES REQUIRED FOR INSTALLATION OF THE ELECTRICAL WORK, AND FURNISH FINAL CERTIFICATE OF INSPECTION OR WRITTEN EVIDENCE OF ACCEPTANCE BY INSPECTION AUTHORITIES FOR ALL WORK INSTALLED.
6. BEFORE STARTING ANY WORK, THE CONTRACTOR SHALL EXAMINE THE COMPLETE SET OF DRAWINGS FOR ALL TRADES, INCLUDING ARCHITECTURAL AND HEATING-VENTILATING-AIR CONDITIONING. VERIFY ALL DIMENSIONS SPACE REQUIREMENTS, POINTS OF CONNECTION TO ALL EQUIPMENT, AND MAKE ANY MINOR ADJUSTMENTS NECESSARY TO AVOID CONFLICTS WITH THE BUILDING STRUCTURE AND THE WORK OF OTHER TRADES.
7. BEFORE SUBMITTING PROPOSALS FOR THIS WORK, EACH BIDDER SHALL BECOME FAMILIAR WITH DRAWINGS, SHALL HAVE EXAMINED THE PREMISES, AND BE AWARE OF ALL EXISTING CONDITIONS UNDER WHICH HE WILL BE OBLIGATED TO OPERATE IN PERFORMING HIS CONTRACT. THE CONTRACTOR WILL NOT BE ENTITLED TO ANY EXTRA COMPENSATION FOR FAILURE TO ALLOW FOR ALL EXISTING CONDITIONS. SUBMITTING OF A BID OR PROPOSAL WILL BE CONSIDERED EVIDENCE OF THE FACT THAT CONTRACTOR IS FULLY AWARE OF THESE CONDITIONS AND IS ABLE TO COMPLETE ALL WORK REQUIRED BY THE DRAWINGS.
8. IF ANY EQUIPMENT SUBMITTED BY THE CONTRACTOR IS DIFFERENT FROM THAT SPECIFIED, OR REQUIRES CHANGES IN MATERIAL OR LABOR FROM THAT REQUIRED IN THE CONTRACT DOCUMENTS AFFECTING THIS AND/OR OTHER TRADES, SUCH CHANGES SHALL BE SUBMITTED AS SHOP DRAWING. SUBMITTAL SHALL INDICATE CREDIT DUE TO OWNER, IF ANY, BECAUSE OF THE CHANGES. CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR PAYMENT OF ALL CHARGES RESULTING FROM ADDITIONS OR CHANGES IN THE WORK OF OTHER TRADES NECESSARY TO ACCOMMODATE THE REQUESTED MODIFICATION. ALL CHANGES SHALL BE SHOWN ON RECORD AND AS-BUILT DRAWINGS.
9. THE DRAWINGS INDICATE, IN A DIAGRAMMATIC MANNER, THE DESIRED LOCATIONS AND ARRANGEMENT OF THE COMPONENTS OF THE ELECTRICAL WORK. DETERMINE EXACT CONDUIT ROUTING, CONDUIT BENDS, AUXILIARY JUNCTION BOXES, SUPPORTS, AND UNDEFINED CONSTRUCTION DETAILS, AS A JOB CONDITION TO BE INSTALLED IN ACCORDANCE WITH APPLICABLE CODE REQUIREMENTS.
10. THESE DRAWINGS INDICATE THE FINISHED REQUIREMENTS FOR THE ELECTRICAL SYSTEMS, EQUIPMENT, LIGHTING FIXTURES, OUTLETS AND DEVICES. DUE TO STRUCTURAL CONDITIONS, MECHANICAL DUCT OR PIPING INTERFERENCE, OR FOR OTHER REASONS, THE CONTRACTOR MAY DESIRE TO INSTALL THE WORK IN A MANNER DIFFERENT FROM THAT SHOWN. SUCH CHANGES SHALL BE PRESENTED TO THE OWNER'S REPRESENTATIVE FOR APPROVAL BEFORE PROCEEDING, AND THE RECORD DRAWINGS SHALL BE ACCURATELY REVISED TO SHOW THE CHANGES AS COMPLETED.
11. THE WORK OF THIS PROJECT INVOLVES ALTERATION OF THE EXISTING BUILDING TO ACHIEVE THE ARRANGEMENT INDICATED ON THE DRAWINGS. THE CONTRACTOR SHALL VISIT THE JOB SITE TO DETERMINE THE EXTENT OF WORK REQUIRED BY THE CONSTRUCTION ACTIVITIES. THE ARCHITECTURAL DRAWINGS SHOW THE CHANGES TO BE MADE. THE CONTRACTOR SHALL REVISE, REARRANGE, REROUTE OR REMOVE EXISTING WIRING AS REQUIRED TO ACCOMMODATE THE CHANGES AND ADDITION SHOWN AND TO PROVIDE CONTINUING ELECTRICAL SERVICE TO THOSE EXISTING PORTIONS OF THE PROJECT WHICH ARE TO REMAIN IN OPERATION.
12. THE ALTERATION OF THE EXISTING BUILDING IS A COMPLEX WORK IN NATURE WHICH WILL REQUIRE ACCURATE PLANNING, CAREFUL PREPARATION AND EXECUTION, ATTENTION TO DETAIL AND CLOSE SUPERVISION BY THE CONTRACTOR. THE CONTRACTOR WILL BE REQUIRED TO DO HIS WORK IN FULL COOPERATION WITH THE OTHER CONSTRUCTION TRADES.
13. SEE ARCHITECTURAL DRAWINGS FOR SCOPE/EXTENT OF DEMOLITION, NEW CONSTRUCTION.
14. MAINTAIN CIRCUIT CONTINUITY TO THOSE AREAS NOT AFFECTED BY THE ALTERATION WORK.
15. REFER TO THE ARCHITECTURAL DRAWINGS FOR DETAILS APPLICABLE TO THE ELECTRICAL WORK.
16. ALL ELECTRICAL MATERIALS SHALL BE NEW AND BEAR THE UNDERWRITERS (AND/OR EQUIVALENT TESTING AGENCY) LABEL.
17. ALL OUTLETS SHALL BE INSTALLED AT 15" TO BOTTOM ABOVE FINISHED FLOOR, UNLESS OTHERWISE NOTED ON THE DRAWINGS.
18. ALL J-BOXES SHALL BE SIZED PER NEC TABLE 314.16(A).
19. ALL OUTLET, FACE PLATES (RECEPTACLE, SWITCHES, ETC.) COLOR AND MATERIAL SHALL BE SUBMITTED TO ARCHITECT FOR APPROVAL.
20. ALL WALL JUNCTION BOXES SHALL BE MOUNTED FLUSH WITH FINISHED FACE OF WALL. PROVIDE EXTENSION BOXES AT WALLS WITH APPLIED ACOUSTIC PANELS. ALL WALL JUNCTION BOXES SHALL BE INSTALLED WITH MOUNTING HOLES AT TOP AND BOTTOM, UNLESS OTHERWISE NOTED.
21. ALL JUNCTION BOXES AND PULL BOXES SHALL BE OF CODE GAUGE AND OF THE REQUIRED SIZE TO ACCOMMODATE NUMBER OF CONDUCTORS SHOWN.
22. ALL PULL BOXES IN FINISHED AREAS SHALL HAVE FACTORY APPLIED PRIME COAT OF PAINT.
23. FOR ALL WIRING DEVICES, VERIFY FINISH COLOR WITH ARCHITECT.
24. A DUPLEX RECEPTACLE INSTALLED ON AN INDIVIDUAL 20A CIRCUIT BREAKER SHALL HAVE A 20A RATING AND A DUPLEX RECEPTACLE INSTALLED ON AN INDIVIDUAL 30A CIRCUIT BREAKER SHALL HAVE A 30A RATING.
25. LIGHT FIXTURES:
    a. PROVIDE FIXTURES COMPONENTS AND LAMPS
    b. TYPE OF FIXTURES INDICATED BY LETTERS
    c. BALLAST: ELECTRONIC BALLAST; SEE SPECIFICATIONS LEVEL, ETL AND CBM APPROVED, ENERGY SAVING ELECTRONIC BALLAST.
26. FLUORESCENT LAMP BALLASTS AND LUMINARIES WITH FLUORESCENT LAMP BALLASTS SHALL BE CERTIFIED BY THE MANUFACTURER TO COMPLY WITH TITLE 24 "APPLIANCE STANDARDS FOR FLUORESCENT BALLASTS".
27. THE CONTRACTOR SHALL EXTEND WIRING FROM ALL JUNCTION BOXES, RECEPTACLES, SWITCHES, ETC. AND MAKE FINAL CONNECTION AS REQUIRED TO ALL EQUIPMENT REQUIRING ELECTRICAL CONNECTION.
28. THE CONTRACTOR SHALL PROVIDE PULL CORDS IN ALL EMPTY CONDUITS. WHERE MORE THAN ONE CONDUIT TERMINATES IN A JUNCTION BOX, THE ELECTRICAL CONTRACTOR SHALL IDENTIFY EACH J-BOX AND CONDUIT IN A MANNER ALLOWING IDENTIFCATION OF J-BOXES AND CONDUITS AFTER ALL WALL FINISHES HAVE BEEN APPLIED.
29. REFER TO SPECIFICATION FOR ALLOWED CONDUIT TYPES.
30. THE MINIMUM SIZE OF CONDUITS SHALL BE 3/4". THE MINIMUM SIZE OF CONDUCTORS SHALL BE #12 AWG, U.O.N. 120V CONDUCTORS SHALL BE SIZED TO THE NEXT LARGER SIZE FOR EVERY ADDITIONAL 100 FT IN FEEDER RUN.
31. THE CONTRACTOR SHALL COORDINATE BOTH HORIZONTAL AND VERTICAL ROUTING OF ALL RACEWAY AND CONDUITS TO AVOID CONFLICTS WITH OTHER SYSTEMS, FRAMES AND ARCHITECTURAL OR STRUCTURAL BARRIERS. CONDUITS RUN IN THE CEILING SHALL BE RUN AS CLOSE AS POSSIBLE TO THE SLAB ANS SHALL BE RUN PARALLEL TO THE PERIMETER WALLS.
32. ALL CONDUCTORS SHALL BE COPPER TYPE THWN INSULATION.
33. ALUMINUM CONDUCTORS SHALL NOT BE USED ON THIS PROJECT.
34. FOR ANY INSTALLATION, NON-METALLIC SHEATHED CABLE, TYPES NM OR NMC ("ROMEX") OR TYPE AC ("BX") SHALL NOT BE ALLOWED. THIS NOTE OVERRIDES ALL OTHER CONTRADICTING NOTES THAT MAY EXIST WITHIN THIS CONTRACT.
35. MC CABLE SHALL NOT BE USED ON THIS PROJECT. THIS NOTE OVERRIDES ALL OTHER CONTRADICTING NOTES THAT MAY EXIST WITHIN THIS CONTRACT.
36. ALL PANELBOARDS SHALL BE MARKED WITH IDENTIFYING NAMEPLATES TO INDICATE THE DESIGNATIONS USED ON THESE DRAWINGS. PROVIDE NEW PANELBOARD SCHEDULES, CORRECTLY FILLED OUT FOR EVERY PANELBOARD.
37. PROVIDE TYPEWRITTEN PANEL SCHEDULES TO BE MOUNTED ON INSIDE OF ALL PANEL COVER DOORS. PROVIDE COPY IN AS-BUILT PACKAGE. SCHEDULE TO MATCH THOSE SHOWN ON DRAWINGS.
38. FURNISH APPROVED EXPANSION FITTINGS WHERE RACEWAY CROSSES BUILDING EXPANSION JOINTS.
39. THE CONTRACTOR SHALL VERIFY THE EXACT LOCATION OF ALL MECHANICAL EQUIPMENT AND OTHER EQUIPMENT REQUIRING ELECTRICAL CONNECTION PRIOR TO ROUGH IN.
40. WHERE MOTORS ARE INSTALLED IN HUNG CEILINGS, PROVIDE A DISCONNECT SWITCH IN HUNG CEILING WITHIN REACH FROM AN ACCESS POINT.
41. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY ACTUAL MOTOR AND APPLIANCE RATINGS AND LOADS IN ORDER TO PROVIDE CORRECTLY SIZED MOTOR RELATED ELECTRICAL COMPONENTS AND OUTLETS. THE CONTRACTOR SHALL SUBMIT TO ARCHITECT, WITH REVISED DATA, BEFORE INSTALLATION. ALL CHANGES SHALL BE SHOWN ON RECORD DRAWINGS.
42. ALL CONNECTIONS TO FANS, MOTORS, TRANSFORMERS, ETC. SHOULD BE MADE WITH LIQUIDTIGHT FLEXIBLE CONDUIT.
43. INFORMATION ON AVAILABLE CIRCUITS TO BE USED ON EXISTING PANELBOARDS WAS OBTAINED FROM SITE VISIT AND THE ORIGINAL DOCUMENTS. CONTRACTOR SHALL FIELD VERIFY ITS ACCURACY AND REASSIGN CIRCUIT NUMBERS IF NECESSARY. UPDATE PANEL DIRECTORY WITH THE LATEST INFORMATION AND SWITCH OFF ALL SPARE CIRCUIT BREAKERS.
44. ALL PENETRATIONS OF FIRE-RESISTING FLOORS OR SHAFT WALLS SHALL BE PROTECTED BY MATERIALS AND INSTALLATION DETAILS THAT CONFORM TO U.L. LISTING FOR "THROUGH-PENETRATION FIRE STOP SYSTEMS". THE CONTRACTOR SHALL SUBMIT SHOP DRAWING DETAILS, FURNISHED BY THE MANUFACTURER OF THE FIRE STOP MATERIAL, WHICH SHOW COMPLETE CONFORMANCE TO THE U.L. LISTING. THE SUBMITTAL SHALL BE SPECIFIC FOR EACH PENETRATION, WITH ALL VARIABLES DEFINED.
45. SUBMIT SHOP DRAWINGS AND PRODUCT DATA ACCORDING TO SPECIFICATIONS.
46. CONTRACTOR SHALL PROVIDE COMPLETE AS-BUILT DRAWINGS PRIOR TO COMPLETION OF PROJECT FOR REVIEW BY ARCHITECT / ENGINEER.
47. ALL DEVICES LOCATED OUTDOORS SHALL BE WEATHERPROOF TYPE.
48. ALL ABANDONED CONDUIT AND CONDUCTORS SHALL BE REMOVED BACK TO SOURCE PANEL.
49. ALL LIGHTING CONTROL DEVICES SHALL BE CERTIFIED BY THE CALIFORNIA ENERGY COMMISSION.
50. CONTRACTOR SHALL CONFORM TO CEC 2010 ARTICLE 210.7(B) MULTIWIRE BRANCH CIRCUITS BY IMPLEMENTING EITHER OF THE FOLLOWING METHODS:

    -INSTALL 2 POLE, 3 POLE OR (2) 2 POLES C/B'S IN LIEU OF 1 POLE BREAKERS SHOWN TO DISCONNECT THE UNGROUNDED CONDUCTORS SIMULTANEOUSLY.

    OR

    -INSTALL A SEPARATE NEUTRAL FOR EACH PHASE CONDUCTOR + INCREASE THE SIZE OF RACEWAY IF NECESSARY IN COMPLIANCE WITH FILL RATIO TABLES.
51. DEDICATED CIRCUITS SHALL HAVE INDIVIDUAL BLACK WIRE FROM OUTLET TO PANEL BREAKER AND INDIVIDUAL WHITE (NEUTRAL) WIRE FROM OUTLET TO PANEL NEUTRAL BUS. GREEN WIRE SHALL BE RUN TO BUILDING GROUND VIA AN ISOLATED GROUND PANEL BUS. (GREEN WIRE MAY BE GANGED FROM OUTLETS TO ISOLATED GROUND PANEL BUS.) CONTRACTOR SHALL FURNISH CERTIFICATION FROM ELECTRICAL CONTRACTOR THAT THIS WORK HAS BEEN INSTALLED IN COMPLIANCE WITH SPECIFICATIONS AND VENDOR'S EQUIPMENT REQUIREMENTS.
52. FOR ELECTRICAL/DATA/TELEPHONE OUTLET HEIGHTS: EXISTING RECEPTACLES MAY REMAIN AT 12" AFF, WHILE NEW OUTLETS SHALL BE PLACED AT MINIMUM 15", WITH A PREFERRED HEIGHT OF 18" AFF.
53. CONDUITS SHALL NOT BE ROUTED ALONG TOP ROOF STRUCTURES WITHOUT APPROVAL OF ARCHITECT. APPROVED CONDUITS RUN ALONG ROOF OR CONDUITS RUN DIRECTLY BELOW THE ROOF OR CANOPY EXPOSED TO THE SUN SHALL HAVE CONDUCTORS AND CONDUIT UPSIZED AS REQUIRED TO MEET NEC 310.15 (B) 2C.

SCOPE OF WORK

ELEVATOR MODERNIZATION OF ALL EXISTING SIX ELEVATORS IN MAIN BUILDING ONE ONE EXISTING ELEVATOR IN ANNEX BUILDING. MODERNIZATION INCLUDES THE FOLLOWING:

1. REPLACE EXISTING ELEVATOR #1-6 CABS WITH NEW. REPLACE EXISTING ELEVATOR #7 CAB, MOTOR AND CONTROLS.
2. UPGRADE EXISTING ELECTRICAL RELATED TO ELEVATORS, ELEVATOR MACHINE ROOMS, ELEVATOR HOISTWAYS AND PITS TO CURRENT CODE.
3. PROVIDE 24/7 COOLING FOR ELEVATOR MACHINE ROOMS.
4. UPGRADE EXISTING FIRE ALARM SYSTEM RELATED TO THE ELEVATORS TO CURRENT CODE.

SHEET INDEX

SHEET NO.	DESCRIPTION	SCALE
E0.01	SYMBOLS LIST,ABBREVIATIONS, GENERAL NOTES AND SHEET INDEX	NONE
E0.02	ELECTRICAL SPECIFICATIONS	NONE
E0.03	ELECTRICAL SINGLE LINE DIAGRAM	NONE
E0.04	ELECTRICAL SINGLE LINE DIAGRAM – ANNEX & PANEL SCHEDULES	NONE
E0.05	FIRE ALARM GENERAL NOTES	NONE
E0.06	FIRE ALARM RISER DIAGRAM	NONE
E2.00	ELECTRICAL BASEMENT PLAN	1/16"=1'-0"
E2.10A	ELECTRICAL ANNEX BASEMENT PLAN	1/16"=1'-0"
E2.0R	ELECTRICAL ROOF PLAN	1/16"=1'-0"
E4.00	ELECTRICAL ENLARGED PLANS	1/4"=1'-0"
E4.01	ELECTRICAL ENLARGED PLANS	1/4"=1'-0"
E5.01	ELECTRICAL DETAILS	NONE
E5.02	ELECTRICAL DETAILS	NONE

CAVAGNERO
MARK CAVAGNERO ASSOCIATES ARCHITECTS
1045 Sansome Street, Suite 200 T. 415.398.6944
San Francisco, California 94111 F. 415.398.6943
www.cavagnero.com

SYSKA HENNESSY GROUP
A member company of SH Group, Inc.
Syska Hennessy Group, Inc.
800 Corporate Pointe
Suite 200
Culver City, CA 90230
Tel: 310.312.0200
Fax: 310.665.0172
www.syska.com

REV	DATE	DESCRIPTION
	6/16/2016	100% SD SET
	7/14/2016	100% DD SET
	8/18/2016	100% CD SET
	10/31/2016	90% CD SET
	12/12/2016	REVISED 90% CD SET
	4/03/2017	100% CD/CONFORMED SET
	4/24/2017	BID SET

PASADENA COURTHOUSE
ELEVATOR MODERNIZATION
300 E Walnut St, Pasadena, CA 91101

REGISTERED PROFESSIONAL ENGINEER
BEHROUZ SEDIGHI
No. E-17637
9/30/17
ELECTRICAL
STATE OF CALIFORNIA

SYMBOLS LIST, ABBREVIATIONS, GENERAL NOTES AND SHEET INDEX

E0.01

ELECTRICAL SPECIFICATIONS

PART 1 GENERAL

1.01 GENERAL PROVISIONS

A. General Requirements:

1. Related documents: Architectural specifications, appliance and fixture specification package, general, special and supplementary conditions, shall form a part of these specifications.
2. Scope of work: Provide all required labor, materials, equipment and contractor's services necessary for compete and safe installation of Electrical work in conformity with requirements of all authorities have jurisdiction; as indicated on drawings and/or here in specified or described.
3. Site cleanliness: Keep site free from this section's surplus material, tools and rubbish at all times during construction periods and, upon completion, leave site in clean condition.
4. Site security: Protect this section's materials and equipment from all damage due to fire, theft, vandalism, weather, etc.
5. Damage to other work: Repair any damage caused by this section to integrity of original construction.
6. Damage to fireproofing: Repair any damaged fireproofing caused by this section to integrity of original construction.
7. Site safety: Contractor covenants and agrees that he and his subcontractors and his and their agents, servants and employees will provide and maintain a safe place to work and that he and they will comply with all laws and regulations of any governmental authority having jurisdiction thereof, and contractor agrees to indemnify, defend and hold harmless, engineer, owner and architect from and against any liability, loss, damage or expense, including attorney's fees, arising from a failure or alleged failure on the part of contractor, this subcontractors and his and their agents, servants and employees to provide and maintain a safe place to work or to comply with all laws and regulations of any governmental authority having jurisdiction thereof.
8. Verification of existing: Before submitting bid, contractor shall visit the site and become thoroughly familiar with actual existing conditions and of the present installations to which connections must be made or which must be changed or altered. the intent of the work is shown on the drawings and described herein, and no consideration will be granted by reason of lack of familiarity on the part of the contractor with actual physical conditions, requirements, and practices at the site.
9. Requirements of other sections: Carefully check the documents of other sections to ascertain the requirements of any interfacing materials or equipment being furnished and/or installed by that section which relate to this section, and provide the proper installation and/or connection.
10. Information transfer: Transmit all information required for work being performed by other sections in ample time for the proper installation and connection and for the provision of all openings required in floors and walls.
11. Holes and structure: Field drilling and cutting of holes in building structure required for work under this section shall be coordinated through the general contractor and approved by owner and building structural engineer. all such coordination, drilling, cutting and reinforcing costs shall be borne by this contractor.
12. Sleeves: Furnish and set all sleeves for the passage of conduit through walls, roof and floors and elsewhere as will be required for the proper protection of each conduit passing through building surfaces. coordinate this work with general contractor in order to properly expedite and perform this work.
13. Passage of equipment: Check the dimensional requirements of equipment can pass through the necessary areas to reach its ultimate installed location. include in bid costs for all work required, including any work required to move the equipment through the site to this final location, including any dismantling and re-assembly.
14. Signage: Provide signage required by Codes's and Authorities Having Jurisdiction.
15. Potential Delivery problems: notify the general contractor and engineer in writing, within five days of award of contract, of the proposed delivery schedule of any equipment or material that may prevent the installation from being completed by the project completion date.
16. Warranty: Submit a single guarantee stating that all portions of the work are in accordance with contract requirements. guarantee all work against faulty and improper material and workmanship for a period of one year from date of final acceptance by owner, except that where guarantees or warranties for longer terms are specified by contract, such longer term shall apply.
17. Rectification: At no additional cost to the owner, within 24 hours after notification, correct any deficiencies which occur during the guarantee periods, all to the satisfaction of the owner. the contractor shall be responsible for any damage caused by such deficiencies and repair thereof and reimburse the owner for all costs incurred.

B. Major items of work include(where applicable):

1. Lighting systems.
2. Power, including all feeders, conduit, receptacles and equipment connections.
3. Conduit for line and low voltage systems.
4. Testing of all systems.
5. Demolition or relocation of existing equipment, conduit, wiring and fixtures.
6. Provision of equipment and fixtures as identified.

C. General items:

1. Access doors panels: Provide concealed equipment requiring access with adequately sized access doors/panels. in removable type ceiling, provide access tile identification only.
2. Cutting and patching for electrical work.
3. Coordinate all new work with existing installations.
4. Contractor shall inspect job site prior to bid and verify exact location, size and loading of existing systems prior to installation and connection of any new work.

1.02 REFERENCE STANDARDS:

A. In addition to complying with all other legal requirements, comply with current provisions of governing Codes's and regulations in effect during the progress of the work, and with the following:

1. Drawings and specification requirements shall govern where they exceed Codes and regulation requirements.
2. Where requirements between governing Codes's and regulations vary, the more stringent shall apply.
3. Nothing contained in contract documents shall be construed as authority or permission to disregard or violate legal requirements. the contractor shall immediately draw the attention of architect to any such conflicts noted in the contract documents.

1.03 PERMITS AND INSPECTIONS:

A. The contractor shall secure all approvals and pay all fees for all work installed. Certificate shall be delivered to owner before final payment will be made.

1.04 DESCRIPTION

A. Specifications are of simplified form and include incomplete sentences. Words or phrases such as "The Contractor shall," "shall be," "furnish," "provide," "a," "an," "the," and "all" have been omitted for brevity.

B. Drawings are diagrammatic and indicate general arrangement of systems and work. Follow drawings in laying out work and check drawings of other trades to verify space conditions. Maintain headroom and space conditions.

C. Definitions:

1. "Furnish" or "Provide": To supply, install and connect up complete and ready for safe and regular operation of particular work referred to unless specifically otherwise noted.
2. "Install": To erect, mount and connect complete with related accessories.
3. "Supply": To purchase, procure, acquire and deliver complete with related accessories.
4. "Work": Labor, materials, equipment, apparatus, controls, accessories and other items required for proper and complete installation.
5. "Wiring": Raceway, fittings, wire, boxes and related items.
6. "Concealed": Embedded in masonry or other construction, installed in furred spaces, within double partitions or hung ceilings, in trenches, in crawl spaces or in enclosures. "Exposed": Not installed underground or "Concealed" as defined above.
7. "Equal": Equal in quality materials, weight, size, design and efficiency of specified product.
8. "Owner": Building Owner, tenant,client or duly appointed representative thereof, as applicable.

D. Scope of Work: Labor, materials, equipment, services and fees necessary for complete safe installation in conformity with applicable Codes and authorities having jurisdiction; as indicated on drawings and herein specified.

E. Work shall be installed in accordance with California Electrical Code and all other states, City & other applicable Codes

F. Coordinate work with other trades & install related work shown on Architect, Mechanical & Plumbing.

G. Install overcurrent protection for Mechanical & Plumbing based on the actual equipment nameplate ratings and recommendations.

1.05 JOB CONDITIONS

A. Connections to Existing Work:

1. Install new work and connect to existing work with minimum interference to existing facilities.
2. Temporary shutdowns of existing services:
   a. At no additional charges.
   b. At times not to interfere with normal operation of existing facilities.
   c. Only with written consent of Owner.
3. Alarm and emergency systems: Not to be interrupted.
4. Maintain continuous operation of existing facilities as required with necessary temporary connections between new and existing work.
5. Connect new work to existing work in neat and acceptable manner. Restore existing disturbed work to original working condition including maintenance of wiring continuity as required.
6. Field verify location of existing service & submit bid according to location and condition.

B. Demolition:

1. Remove all unused conduits and wiring, switches, receptacles, light fixtures, etc., where ceilings, ceiling tiles or walls are being demolished except as follows:where walls and ceilings are remain. Maintain existing conduit, wiring and boxes serving all electrical equipment, outlets and switches in those areas. Remove all power wiring back to its overcurrent device and mark circuit breakers as "spare". Install blank covers on all boxes. Refer to drawings for additional requirements and other specific operable system is not removed.
2. Coordinate all demolition work with new requirements to assure that existing equipment, wiring, etc., that is required for a complete and
3. All existing electrical equipment and conduits that interfere with any new construction shall be relocated or re-routed as required to clear the new construction. Reconnect all existing equipment that are to remain and not affected by the new construction, to the newly relocated or re-routed system to ensure a safe and operational system.
4. Disconnect and reconnect the existing electrical equipment as required by the construction modifications.
5. Modify and reconnect the existing electrical equipment required to remain, and not affected by the new construction, to ensure the final system will function in a safe manner acceptable to authorities.
6. All removed material and equipment which are salvageable shall remain the property of the owner. Deliver such salvaged material and equipment on the premises as directed by the owner, and neatly pile or store them and protect from damage. Remove from premises and dispose of all material considered by the owner to be scrap. Equipment such as ballasts, transformers, etc., containing PCB or other material classified as hazardous provide certificate of destruction.
7. Unless otherwise noted, remove all electrical equipment that are not to be reused within the renovated area, including but not limited to the following:
   a. Lighting fixtures
   b. Wall switches
   c. Fire alarm devices
   d. Receptacles
   e. Telephone outlets
   f. Data outlets
   g. Disconnect switches
   h. FIDS outlets

Refer to architectural drawings and notes for additional requirements for the demolition work within this area.

1.06 QUALITY ASSURANCE

A. Quality and Gauges of Materials:

1. Quality of materials:
   a. New, best of their respective kinds, free from defects and listed by Underwriters Laboratories, Inc., or bearing their label.
   b. Materials and equipment of similar application: Same manufacture, except as noted.

B. Voltage Characteristics:

1. Distribution.
   a. 480Y/277 Volts, 60 Hertz with grounded neutral.
   b. 208Y/120 Volts, 60 Hertz with grounded neutral.
   c. 240Y/120 Volts, 60 Hertz with grounded neutral.

C. Heights of Outlets

1. From finished floor to centerline of outlets for:
   a. Receptacles and telephones:
      - Generally: 1 ft.- 3 in.
   b. Wall switches: 3 ft.- 6 in.
   c. Motor controllers: 5 ft.- 0 in.
2. Exceptions:
   a. At junction of different wall finish materials.
   b. On molding or break in wall surface.
   c. In violation of Code.
   d. As noted or directed.

1.07 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Moving of Equipment: Where necessary, ship in crated sections of size to permit passing through available spaces.

B. Accessibility:

1. For operation, maintenance and repair.
2. Minor deviations: Permissible.
3. Changes of magnitude or involving extra cost: Not permissible without review.
4. Group concealed electrical equipment requiring access with equipment freely accessible through access doors.

1.08 SUBMITTALS

A. Submit shop drawings and product data in accordance with general requirements specified in Architectural specifications, SUBMITTALS. Or Provide six (6) copies of submittal material with descriptive data for all products and materials, including but not limited to the following, prior to installation. All submittals shall be highlighted to indicate specific products or materials being used.

B. Shop Drawings: Submit Prior to installation

1. E-mon meter and associated components.
2. Transformer, UPS, and PDU
3. Panelboards: Dimensions, schedules and catalog cuts.
4. Wall Switches
5. Receptacles.
6. Device plates.
7. Poke-throughs.
8. Life safety system:
   a. Descriptive data for all products and materials.
   b. Recommended application and installation methods, including area coverage for smoke detectors.
   c. Information and data, such as drawings showing device locations and types, riser diagrams, wiring diagrams, approvals, test data, etc. required by local Authorities.
   d. Complete shop drawings of all custom-fabricated or assembled products, including wiring diagrams.
   e. Drawings identifying all terminals and illustrating all device wiring connections.

1.09 MAINTENANCE MANUALS AND AS-BUILT DRAWINGS

A. Provide four (4) copies of operating and maintenance manual for Owner's use for each piece of equipment. Each item shall be cross-referenced and numbered with as-built drawing descriptions.

B. As-built Drawings: Provide for approval one set of prints (including schedules) showing work as actually installed.

C. Provide disc copy of final as-built drawings in AutoCAD format.

PART 2 PRODUCTS

2.01 GENERAL

A. Nameplates:
1. Fastened with epoxy cement, engraved black Lamicoid sheet with 3/8 in. white lettering for utility power. Red with white letters for emergency equipment, blue with white lettering for UPS, or Building Standard.
2. Inspection: Subject to review, indicating equipment, amperage and voltage.
3. Provide for:
   a. Disconnect switches.
   b. Circuit breakers.
   c. Panels.
   d. Cabinets
   e. Motor controllers.

B. Supports:
1. Supports from building construction:Beam clamps, steel fishplates (in concrete fill only) or cantilever brackets.
2. Grouped lines and services:Trapeze hangers of bolted angles or channels.
3. Where building construction is inadequate: Provide additional framing.
4. Shall comply with all OSHPD requirements.

2.02 MATERIALS

A. Raceways:

1. Electrical Metallic Tubing (EMT): Thin wall pipe, galvanized, threadless.
2. Rigid steel conduit: Full weight pipe, galvanized, treaded.

B. Fittings and Accessories:

1. Raceway fittings:
   a. Electrical Metallic Tubing: Compression or double set screw type. Galvanized rigid steel elbows., 2 in. or larger.
   b. Flexible metallic conduit: Angle wedge type with insulated throat.
   c. Bushings: Metallic insulated type.

C. Boxes:

1. Outlet boxes: Except as otherwise required by construction, devices or wiring.
   a. Stamped or welded steel, 4 in. square or octagon for:
      - Lighting fixtures: 1-1/2 in. deep above ceiling, 2-1/8 in. deep in wall.
      - In wall for telephone and data: 2-1/8 in. deep.
      - With raised covers and fixture studs where required.
      - Through-the-wall type, not permitted.
      - Without fixture or device: Blank cover.
   b. Galvanized cast iron or aluminum with threaded hubs: 4 inch round, 2 inch deep on ceiling, and 4 inch square, 2 inch deep on wall.
   c. Boxes without fixture or device: Provide with blank cover.
2. Junction and pull boxes:
   a. Galvanized sheet steel.
   b. Covers: Screw-on, except as noted.
   c. With insulated supports for cables
   d. Location: As noted or required and accessible.
   e. Provide barriers between:
      - 480Y/277 volt wiring energized from separate services.
      - 208Y/120 volt and 480Y/277 volt wiring.
      - 240Y/120 volt and 480Y/277 volt wiring.
      - Emergency and normal wiring.
   f. Provide barriers in existing boxes between:
      - 480/277 volt wiring energized from separate services.
      - 208/120 volt and 480Y/277 volt wiring.
      - 240Y/120 volt and 480Y/277 volt wiring
      - Emergency and normal wiring.

D. Wire and Cable:
1. Conductors:
   a. ASTM Standard Solid No. 14 and smaller, Stranded No. 12 and larger.
      - Type: Copper.
        a) General use:
           (1) No. 12 minimum.
           (2) At 120 volts and over 100 ft. circuit length: No. 10 minimum.
           (3) At 277 volts and over 200 ft. circuit length: No. 10 minimum.
        b) Control and alarm, except as noted:
           (1) No. 14 minimum.
           (2) At 120 volts and over 200 ft. circuit length: No. 12 minimum.
        c) Other voltages and phases: As required to maintain voltage drop.
        d) Increase raceway sizes for larger wire as required.
2. Insulation:
   a. THWN/THHN: Feeders and branch circuits except as noted.
   b. SFF-2: Branch circuits located in:
      - Wiring channels of continuous fluorescent fixtures.
      - Ambient temperatures over 75 deg. C.
   c. Color coding: As per Code. Where color coding is unavailable, certify in writing and request permission to overlap color taping conductors (minimum length 6 in.) in accessible locations.
   d. 600 V insulation, including control wiring.
3. Accessories:
   a. Tags:
      - Flameproof linen or fiber in accessible locations.
      - Feeders: Indicate feeder number, size, phase and points of origin and terminations.
      - Control and alarm wiring: Indicate type (Control or alarm), size of wire, and points or origin and terminations.
   b. Terminations, splices and taps under 600 volts:
      - Copper conductors No. 10 and smaller: With compression-type of twist-on spring-loaded connectors and clear nylon-insulated covering.
      - Copper conductors No. 8 and larger: Mechanical bolted pressure or hydraulic compression type using manufacturer's recommended tooling.
      - Cable lugs and connectors: Compression type of same metal as conductor. Provide to match cable, with marking indicating size and type.
      - Copper lug connections to bus bars: Use anti seize compound on tang.

E. Devices:

1. Local wall switches:
   a. Non-Modular Lighting System:
      - Heavy duty, toggle, quiet type.
      - 20a, 120/277v, AC.
      - Leviton Decora 5621W or equal toggle type. or building standard.
      - Color: by architect.
      - Faceplate: Building standard specifications grade.
      - To match building standards
   b. Modular Lighting System:
      - Heavy duty, toggle, quiet type.
      - 20a, 120/277v, AC.
      - Color: by architect.
      - Faceplate: Building standard specifications grade.
      - To match building standards
2. Insertion receptacles:
   a. Grounded, except as noted. Meeting NEMA Standards, Publication WD-1-1971.
   b. Equal to Hubbell Nos. indicated or building standard.
   c. Duplex convenience.
      - For multi-outlet circuits, 125 volts, 2 pole, 3 wire, grounded, 20 amp, equal to No. 5352.
      - For separate circuits, 125 volts, 2 pole, 3 wire, grounded, 20 amp, equal to No. 5352.
   d. Special use: Non-interchangeable types and ratings.
   e. Color: by architect.
   f. To match building standards.
3. Device faceplates
   a. Building standard specification grade.

F. Low Voltage Distribution Equipment:
1. Disconnect switches:
   a. Fused or nonfused as noted.
   b. Voltage as required.
   c. Heavy duty, except as noted.
   d. Horsepower rated for motor loads.
   e. Toggle type:
      - Non-fused, load breaks.
      - Maximum ratings:
        a) 20 amp at 600 volts.
        b) 30 amp at 250 volts
      - 2 pole: Equal to Arrow-Hart, No. 6808F.
      - 3 pole: Equal to Arrow-Hart, No. 7810F.
   f. Knife-blade type:
      - Load break, quick-make-quick-break, UL Class R up to 600 amp.
      - Maximum rating except as noted: 800 amp.
      - Arc quenchers.
      - Individually mounted: Equal to General Electric "TH" or equal.
      - Panelboard or switchboard mounted: Equal to General Electric "QMR" or equal.
   g. Enclosures: Dead Front, NEMA Type 1, except as
2. Fuses:
   a. Match existing.
   b. For motor and transformer loads:
      - Current limiting, dual element, time delay type, maximum rating: 600 amp at required voltage.
      - 200,000-amp IC: Equal to Bussmann Fusetron FRN or FRS or Lo-Peak LPN or LPS (UL Class R).
   c. For other loads:
      - Current limiting, fast acting type.
      - 200,000-amp IC: Equal to Bussmann Limitron KTN, KTS, or KTU (UL Class R, up to 600 Amp; Class L, over 600 amp).
   d. All fuses: Same manufacturer.
   e. Provide 1 spare matching fuse for each set of 3.
3. Circuit breakers:
   a. Molded case:
      - Thermal-magnetic, quick-make-quick-break.
      - Manually operated with insulated trip-free handle.
      - Multi-pole types: With internal trip bar.
      - Terminals: UL listed for 75 degree C and suitable for copper or aluminum cable.
      - Enclosures: Dead front, NEMA Type 1, except as noted.
      - Frames, IC and interchangeable trips:
        a) 120 volts, 100-amp frame:
           (1) Interrupting capacity: 10,000 amps.
           (2) 1, 2 and 3 poles.
        b) 277 volts, 100-amp frame:
           (1) Interrupting capacity: 14,000 amps.
           (2) 1, 2 and 3 poles.
4. Panelboards:
   a. New panel to match building standard manufacture. Rating as noted on plan. Copper bus with 200% rated neutral and 25% rated ground bar.
   b. Panelboards shall be door-in-door construction with continuous hinge. The fixed section will be a maximum width of 1 1/4".
5. Transformer:
   a. New transformer to match building standard manufacture. K-13 Rating for 480/208/120 and K-4 rating for 480/480/277 or as noted on plan. Copper winding with 150 ° rise and seven 2 1/2 % taps -10% to +5%.

G. Lighting Fixtures:

1. Existing fixtures shall be cleaned and relamped.
2. Replace ballast and relamp as required.
3. New exit sign (if required by inspector) shall match building.
4. Relocate lighting fixtures as required, verify ceiling construction.
5. New lighting fixtures shall be building standard or as directed on the drawing.

CAVAGNERO
MARK CAVAGNERO ASSOCIATES ARCHITECTS

SYSKA HENNESSY GROUP
A member company of SH Group, Inc.
Syska Hennessy Group, Inc.
800 Corporate Pointe
Suite 200
Culver City, CA 90230
Tel: 310.312.0200
Fax: 310.665.0172
www.syska.com

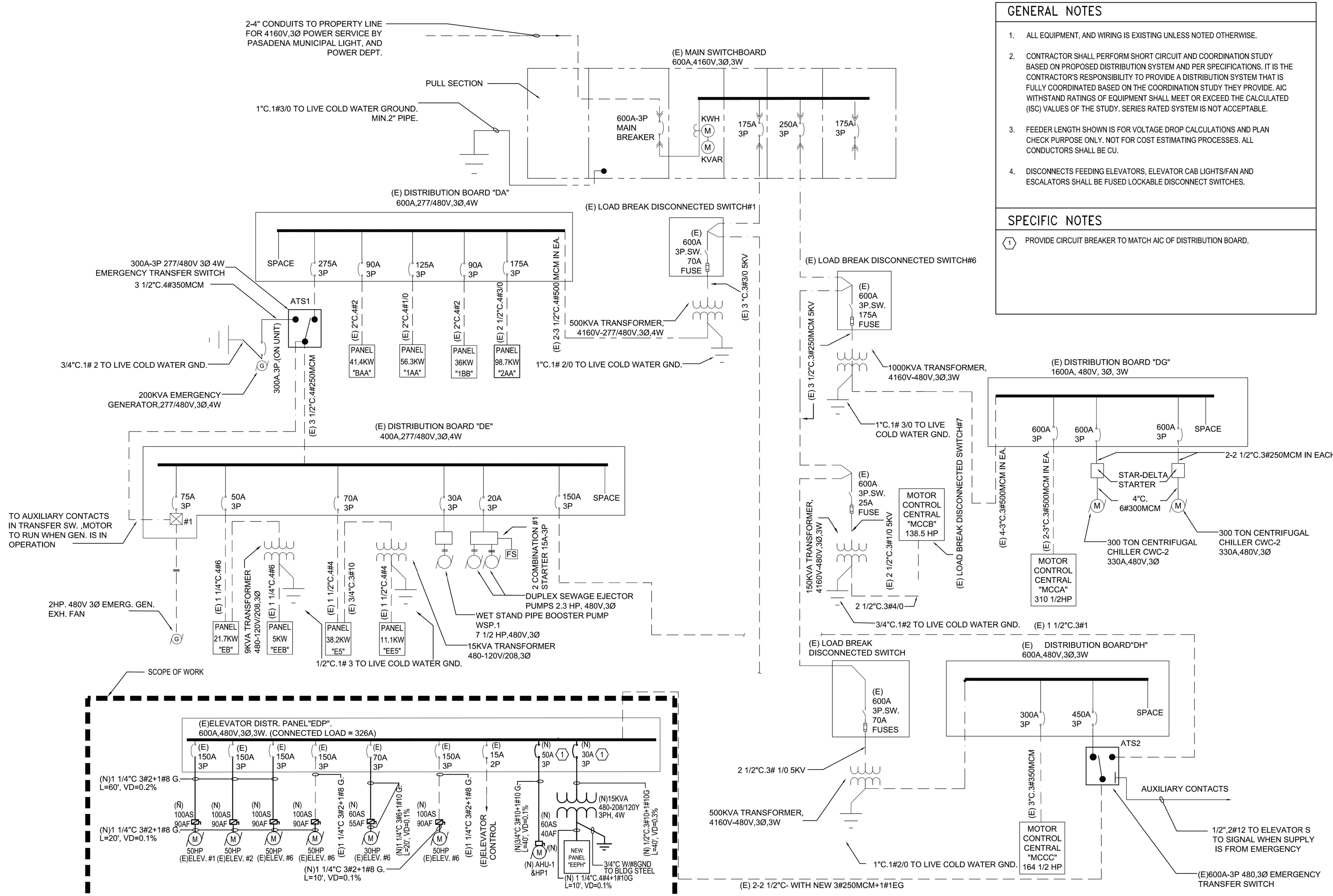
REV	DATE	DESCRIPTION
	6/16/2016	100% SD SET
	7/14/2016	100% DD SET
	8/18/2016	100% CD SET
	10/31/2016	90% CD SET
	12/12/2016	REVISED 90% CD SET
	4/03/2017	100% CD/CONFORMED SET
	4/24/2017	BID SET

PASADENA COURTHOUSE
ELEVATOR MODERNIZATION
300 E Walnut St, Pasadena, CA 91101

REGISTERED PROFESSIONAL ENGINEER
No. E-17637
9/30/17
ELECTRICAL
STATE OF CALIFORNIA

ELECTRICAL SPECIFICATIONS

E0.02



GENERAL NOTES

1. ALL EQUIPMENT, AND WIRING IS EXISTING UNLESS NOTED OTHERWISE.
2. CONTRACTOR SHALL PERFORM SHORT CIRCUIT AND COORDINATION STUDY BASED ON PROPOSED DISTRIBUTION SYSTEM AND PER SPECIFICATIONS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE A DISTRIBUTION SYSTEM THAT IS FULLY COORDINATED BASED ON THE COORDINATION STUDY THEY PROVIDE. AIC WITHSTAND RATINGS OF EQUIPMENT SHALL MEET OR EXCEED THE CALCULATED (ISC) VALUES OF THE STUDY. SERIES RATED SYSTEM IS NOT ACCEPTABLE.
3. FEEDER LENGTH SHOWN IS FOR VOLTAGE DROP CALCULATIONS AND PLAN CHECK PURPOSE ONLY. NOT FOR COST ESTIMATING PROCESSES. ALL CONDUCTORS SHALL BE CU.
4. DISCONNECTS FEEDING ELEVATORS, ELEVATOR CAB LIGHTS/FAN AND ESCALATORS SHALL BE FUSED LOCKABLE DISCONNECT SWITCHES.

SPECIFIC NOTES

(1) PROVIDE CIRCUIT BREAKER TO MATCH AIC OF DISTRIBUTION BOARD.

CAVAGNERO
MARK CAVAGNERO ASSOCIATES ARCHITECTS

SYSKA HENNESSY GROUP
A member company of SH Group, Inc.
Syska Hennessy Group, Inc.
800 Corporate Pointe
Suite 200
Culver City, CA 90230
Tel: 310.312.0200
Fax: 310.665.0172
www.syska.com

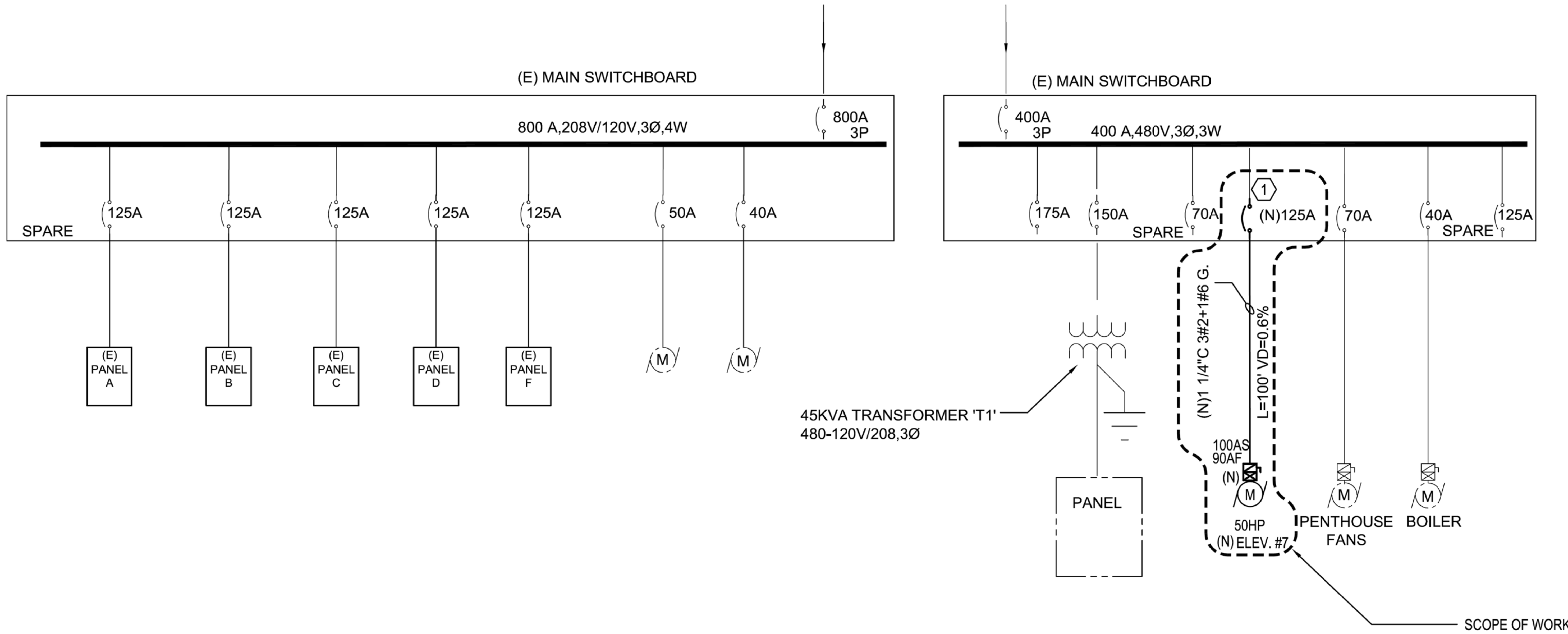
REV	DATE	DESCRIPTION
	6/16/2016	100% SD SET
	7/14/2016	100% DD SET
	8/18/2016	100% CD SET
	10/31/2016	90% CD SET
	12/12/2016	REVISED 90% CD SET
	4/03/2017	100% CD/CONFORMED SET
	4/24/2017	BID SET

PASADENA COURTHOUSE ELEVATOR MODERNIZATION
300 E Walnut St, Pasadena, CA 91101

REGISTERED PROFESSIONAL ENGINEER — No. E-17637 — 9/30/17 — ELECTRICAL — STATE OF CALIFORNIA

ELECTRICAL SINGLE LINE DIAGRAM

E0.03



ANNEX BUILDING SINGLE LINE DIAGRAM

GENERAL NOTES

1. ALL EQUIPMENT, AND WIRING IS EXISTING UNLESS NOTED OTHERWISE.
2. CONTRACTOR SHALL PERFORM SHORT CIRCUIT AND COORDINATION STUDY BASED ON PROPOSED DISTRIBUTION SYSTEM AND PER SPECIFICATIONS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE A DISTRIBUTION SYSTEM THAT IS FULLY COORDINATED BASED ON THE COORDINATION STUDY THEY PROVIDE. AIC WITHSTAND RATINGS OF EQUIPMENT SHALL MEET OR EXCEED THE CALCULATED (ISC) VALUES OF THE STUDY. SERIES RATED SYSTEM IS NOT ACCEPTABLE.
3. FEEDER LENGTH SHOWN IS FOR VOLTAGE DROP CALCULATIONS AND PLAN CHECK PURPOSE ONLY. NOT FOR COST ESTIMATING PROCESSES. ALL CONDUCTORS SHALL BE CU.
4. DISCONNECTS FEEDING ELEVATORS, ELEVATOR CAB LIGHTS/FAN AND ESCALATORS SHALL BE FUSED LOCKABLE DISCONNECT SWITCHES.

SPECIFIC NOTES

(1) REPLACE EXISTING BREAKER FEEDING EXISTING ELEVATOR #7 WITH NEW SHUNT TRIP BREAKER TO MATCH EXISTING MAIN SWITCHBOARD AIC RATING. CONNECT SHUNT TO HEAT DETECTORS IN ELEVATOR MACHINE ROOM AND HOISTWAY AND FIRE ALARM SYSTEM. PROVIDE 120VOLT EMERGENCY POWER TO SHUNT TRIP FROM SPARE 20AMP BREAKER IN PANEL EM.

PANEL NAME: EEPH | Bus Type: Cu | PANEL VOLTAGE: 208/120V | AIC: 10kAIC | SYSKA HENNESSY GROUP
PHASE & WIRE: 3PH,4W | FED FROM: EEDP
TYPE: NEMA 1 | Location/Room #: Elevator 1,2,3,5 Machine Room | NEW/EXISTING: NEW | BUS: 100 | FED FROM AMPS: 125
MOUNTING: RECESSED | BRANCH: EMERG. | MAINS: 60A MCB | LUGS: SINGLE

CIRCUIT		BREAKER		LOAD TYPE & DESIGNATION			LOAD	PHASES (VA)			LOAD	LOAD TYPE & DESIGNATION			BREAKER		CIRCUIT	
NO	CODE	TRIP	POLE	DESCRIPTION	MISC	REC	(VA)	A	B	C	(VA)	REC	MISC	DESCRIPTION	POLE	TRIP	CODE	NO
1	1	20	1	ELEV 1 LITE AND FAN*			240	420			180		2	AHU-4 & CU-4	2	15	2	2
3	1	20	1	ELEV 2 LITE AND FAN*			240		420		180			W/CKT ABOVE	-	-	2	4
5	1	20	1	ELEV 3 LITE AND FAN*			240			420	180		2	AHU-3 & HP-3	2	15	2	6
7	1	20	1	ELEV 4 LITE AND FAN*			240	420			180			W/CKT ABOVE	-	-	2	8
9	1	20	1	ELEV 5 LITE AND FAN*			240		240					SPARE	1	20		10
11	1	20	1	ELEV 6 LITE AND FAN*			240			240				SPARE	1	20		12
13		20	1	SPARE				0						SPARE	1	20		14
15		20	1	SPARE					0					SPARE	1	20		16
17		20	1	SPARE						0				SPARE	1	20		18
19		20	1	SPARE				0						SPARE	1	20		20
21		20	1	SPARE					0					SPARE	1	20		22
23		20	1	SPARE						0				SPARE	1	20		24
25				SPACE				0						SPACE				26
27				SPACE					0					SPACE				28
29				SPACE						0				SPACE				30
31				SPACE				0						SPACE				32
33				SPACE					0					SPACE				34
35				SPACE						0				SPACE				36
37				SPACE				0						SPACE				38
39				SPACE					0					SPACE				40
41				SPACE						0				SPACE				42
NOTES:							CONN. VA	840	660	660	CONNECTED KVA			2.2				SUM
*PROVIDE LOCK ON DEVICE					DEMAND		VA	960	780	780	CONT (CODE 1)			1.8		0.0		2
							AMPS	3	2	2	N-CONT (CODE 2):			0.7		0.0		1
											RECEP (CODE 3):			0.0		0.0		0
											KITCH (CODE 4):			0.0		0.0		0
											# OF KITCHEN EQ:			0.0				

JOB: PASADENA COURTHOUSE
BY: DAN MARTIN
ISSUE DATE: 08/18/2016

PANEL DEMAND KVA : 3
(MINIMUM PANEL SIZE) DEMAND AMPS : 7
MINIMUM X'FMR. KVA SIZE : 2

CAVAGNERO
MARK CAVAGNERO ASSOCIATES ARCHITECTS

SYSKA HENNESSY GROUP
A member company of SH Group, Inc.
Syska Hennessy Group, Inc.
800 Corporate Pointe
Suite 200
Culver City, CA 90230
Tel: 310.312.0200
Fax: 310.665.0172
www.syska.com

REV	DATE	DESCRIPTION
	6/16/2016	100% SD SET
	7/14/2016	100% DD SET
	8/18/2016	100% CD SET
	10/31/2016	90% CD SET
	12/12/2016	REVISED 90% CD SET
	4/03/2017	100% CD/CONFORMED SET
	4/24/2017	BID SET

PASADENA COURTHOUSE ELEVATOR MODERNIZATION
300 E Walnut St, Pasadena, CA 91101

REGISTERED PROFESSIONAL ENGINEER
No. E-17637
9/30/17
ELECTRICAL
STATE OF CALIFORNIA

ELECTRICAL SINGLE LINE DIAGRAM AND PANEL SCHEDULES

E0.04

FIRE ALARM GENERAL NOTES

1. THESE DRAWINGS AND THE SPECIFICATIONS ARE THE CONSTRUCTION DOCUMENTS FOR THE EXISTING PASADENA COURTHOUSE LOCATED AT 300 E. WALNUT STREET, PASADENA, CA 91101 ALL INSTALLATION WORK SHALL BE COMPLETED BY A LICENSED ELECTRICAL CONTRACTOR, WHO SHALL BE REFERRED TO AS "CONTRACTOR" WHERE REFERENCED ELSEWHERE WITHIN THESE DOCUMENTS. THE NEW FIRE ALARM SYSTEM SHALL FOLLOW THE REQUIREMENTS OF THE 2012 VUSBC (907.2.6), IN ADDITION TO THE STANDARDS LISTED IN THE SPECIFICATION, NAMELY NFPA 70 (2013 EDITION) AND NFPA 72 (2013 EDITION).
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING AND INSTALLING ALL FIRE ALARM SYSTEM COMPONENTS & DEVICES/APPLIANCES, WIRING, CONDUIT, MOUNTING HARDWARE, SYSTEM TESTING AND TRAINING. THE CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR SUBCONTRACTING WITH A CERTIFIED FIRE ALARM CONTRACTOR WHO SHALL REPRESENT THE SYSTEM MANUFACTURER TO ENSURE PROPER INSTALLATION, PROGRAMMING, OPERATION, FINAL PANEL WIRING AND MANUFACTURER SUPPORT. THIS PROJECT INCLUDES THE REPLACEMENT OF AN EXISTING ADDRESSABLE FIRE ALARM SYSTEM,WITH
3. THE NEW ADDRESSABLE INITIATION DEVICES AND NEW NOTIFICATION APPLIANCES SHALL BE CONNECTED TO THE APPROPRIATE FAS CIRCUITS AT THE TERMINAL BOX SERVING EACH FLOOR. PROVIDE AND INSTALL END OF LINE DEVICES AS REQUIRED. INSTALL LINE ISOLATION MODULES FOR EVERY 50 DEVICES ON EACH ADDRESSABLE INITIATING CIRCUIT. EXACT LOCATIONS OF ISOLATION MODULES SHALL BE DETERMINED IN THE FIELD, DOCUMENTED AND LABELED AS SUCH.
4. ALL FIRE ALARM LOW VOLTAGE WIRING SHALL BE CERTIFIED TEFLON JACKETED FIRE ALARM CABLE WHICH MEETS THE REQUIREMENTS OF SECTION 760 OF NFPA 70. FIRE ALARM CABLE SHALL BE PROTECTED IN ACCORDANCE WITH SECTION 760 OF NFPA 70. PROVIDE APPROVED FIRE STOPPING MATERIAL FOR ALL FLOOR, WALL AND BARRIER PENETRATIONS TO MAINTAIN FIRE/SMOKE RATINGS. ALL FAS CONDULETS, JUNCTION BOXES AND TERMINAL BOXES SHALL BE PAINTED IN ACCORDANCE WITH CODE.
5. THE BASE CONTRACT SHALL INCLUDE A CONCEALED CONDUIT & CABLE INSTALLATION. ALL FIRE ALARM DEVICES AND FIELD CIRCUITS IN OCCUPIED AREAS ON THE FLOORS, SHALL BE RECESSED AND CONCEALED. SURFACE MOUNTING OF DEVICES AND CONDUIT SHALL BE PERMITTED IN UNOCCUPIED AREAS SUCH AS MACHINE ROOMS, SHAFT WAYS AND OTHER UNOCCUPIED AREAS. ALL SURFACE MOUNTED DEVICE BACK-BOXES SHALL BE THE FINISHED TYPE. REFER TO DETAIL SHEETS FOR FURTHER INFORMATION.
6. DURING INSTALLATION THE ELECTRICAL CONTRACTOR SHALL TEST ALL WIRING FOR INTEGRITY (CONDUCTOR TO CONDUCTOR/CONDUCTOR TO GROUND) AFTER EACH PHASE OF WORK AFTER ALL EQUIPMENT IS COMPLETELY INSTALLED, TESTED AND OPERATIONAL, THE FACP SHALL BE PROGRAMMED AND THE WIRING RE-TESTED FOR INTEGRITY.
7. NEW ADDRESSABLE HEAT DETECTORS, INSTALLED IN ACCORDANCE WITH NFPA 72, SHALL BE PROVIDED FOR SPRINKLER PROTECTED ELEVATOR HOISTWAYS AND MACHINE ROOMS.
   A. THE HEAT DETECTORS IN ELEVATOR HOISTWAYS AND MACHINE ROOMS SHALL BE INSTALLED WITHIN 18" OF EACH SPRINKLER HEAD AND SHALL BE UTILIZED TO ACTIVATE ELEVATOR PHASE-I RECALL AND SHUNT TRIP OPERATIONS. SHUNT TRIP SHALL BE DELAYED SUCH THAT THE ELEVATOR HAS TIME TO RECALL TO THE DESIGNATED OR ALTERNATE FLOOR.
   B. THE SPACING OF DEVICES ON THE DRAWINGS ARE BASED UPON 50' SPACING AT 10' MOUNTING HEIGHTS AFF ALONG SMOOTH CEILINGS. ANY DEVIATION SHALL REQUIRE REEVALUATION OF PROPOSED DEVICE LOCATIONS.
8. NEW ADDRESSABLE SMOKE DETECTORS, INSTALLED IN ACCORDANCE WITH NFPA 72, SHALL BE PROVIDED IN ELEVATOR MACHINE ROOMS, ELEVATOR LANDINGS, AND THE TOP OF ELEVATOR HOISTWAYS.
   A. THE NEW ADDRESSABLE ELEVATOR MACHINE ROOM, LANDING, AND HOISTWAY SMOKE DETECTORS SHALL BE UTILIZED TO ACTIVATE ELEVATOR PHASE-I RECALL. THE DETECTORS SHALL BE CONNECTED TO THE ADDRESSABLE CIRCUIT SERVING THE ZONE.
9. IN LOCATIONS WHERE HEAT DETECTORS AND/OR SMOKE DETECTORS ARE REQUIRED, THE TYPE AND/OR TEMPERATURE RATING OF FIRE DETECTOR MAY BE MODIFIED IF THE TYPE OR TEMPERATURE RATING OF THE DEVICE IS UNSUITABLE DUE TO ENVIRONMENTAL OR STRUCTURAL CONDITIONS UNIQUE TO THAT LOCATION OR WHERE MULTIPLE NUISANCE ALARMS ARE LIKELY TO OCCUR.
10. INSTALL NEW ADDRESSABLE DUCT MOUNTED SMOKE DETECTORS AS SHOWN ON THE CONTRACT DRAWINGS AND WHERE REQUIRED TO COMPLY WITH THE VUSMC:
    A. WHERE A SMOKE DAMPER IS INSTALLED WITHIN A DUCT, A SMOKE DETECTOR SHALL BE INSTALLED IN THE DUCT WITHIN 5' OF THE DAMPER WITH NO AIR OUTLETS OR INLETS BETWEEN THE DETECTOR AND THE DAMPER.
    B. SMOKE DETECTORS SHALL BE INSTALLED IN RETURN AIR SYSTEMS WITH A DESIGN CAPACITY GREATER THAN 2,000 CFM, IN THE RETURN AIR DUCT OR PLENUM UPSTREAM OF ANY FILTERS, EXHAUST AIR CONNECTIONS, OUTDOOR AIR CONNECTIONS, OR DECONTAMINATION EQUIPMENT AND APPLIANCES.
11. WHERE DUCT-TYPE SMOKE DETECTORS ARE INSTALLED IN HVAC SYSTEMS, THE DUCT-TYPE SMOKE DETECTORS SHALL BE CONNECTED TO THE FIRE ALARM SYSTEM TO SIGNAL AN AUDIBLE AND VISUAL SUPERVISORY SIGNAL AT A CONSTANTLY ATTENDED LOCATION. THE SUPERVISORY SIGNAL AT A CONSTANTLY ATTENDED LOCATION IS NOT REQUIRED WHERE THE DUCT SMOKE DETECTOR ACTIVATES THE BUILDING'S ALARM-INDICATING APPLIANCES.
12. FAN SHUTDOWN SHALL BE A FUNCTION OF THE SYSTEM, NOT THE DUCT DETECTOR. CONTRACTOR TO VERIFY FAN SHUTDOWN WIRING WITH BMS AND MECHANICAL CONTRACTORS. PROVIDE INTERPOSING RELAYS AS REQUIRED FOR INTERPOSING VOLTAGES AT THE FAN STARTER CIRCUITS OR BMS PANEL. ADDITIONAL ADDRESSABLE CONTROL MODULES SHALL BE PROVIDED AND INSTALLED (AS OUTPUTS) FOR FIRE ALARM INDICATIONS AND ALSO FOR SEQUENTIAL FAN RESTART, UPON MANUAL COMMAND FROM THE FACP. DUCT MOUNTED SMOKE DETECTORS SHALL BE PROVIDED WITH REMOTE LED/TEST SWITCHES.
13. CONTRACTOR TO PROVIDE THE ELEVATOR WITH FIREFIGHTER'S SERVICE AS PER ANSI/ASME A17.1-2010, AS REQUIRED FOR PHASE-I EMERGENCY RECALL OPERATION. PHASE-II EMERGENCY IN-CAR OPERATION SHALL BE A FUNCTION OF THE ELEVATOR CONTROLLER AND IS NOT INCLUDED IN THIS CONTRACT. PROVIDE ADDRESSABLE INTERFACE CONTROL MODULE AND CONTROL RELAY AT THE ELEVATOR CONTROLLER AS INDICATED ON THE DRAWINGS FOR PHASE-I ELEVATOR RECALL. THE ADDRESSABLE CONTROL MODULE FOR PHASE-I ELEVATOR RECALL SHALL BE PROGRAMMED TO ACTIVATE UPON ACTIVATION OF ANY ASSOCIATED ELEVATOR SMOKE DETECTOR OR WATERFLOW DEVICE. COORDINATE CONNECTIONS TO ELEVATOR CONTROLLER WITH THE ELEVATOR CONTRACTOR. CONNECT INTERFACE MODULES TO THE ADDRESSABLE CIRCUIT SERVING FLOOR. PROVIDE WIRING, CONDUIT AND ENCLOSURES REQUIRED.
14. PROVIDE ADDRESSABLE INTERFACE CONTROL MODULES AS REQUIRED, FOR THE FOLLOWING EQUIPMENT/SYSTEMS:
    A. AT ELEVATOR CONTROLLERS FOR PHASE-1 ELEVATOR RECALL.
    B. AT ELEVATOR CIRCUIT-BREAKERS FOR SHUNT TRIP POWER SHUTDOWN.
    C. AT HVAC FAN UNIT CONTROLLER FOR FAN SHUT DOWN AND OVERRIDE.
15. ALL DEVICES INSTALLED AS DESCRIBED ABOVE SHALL BE PROGRAMMED, TESTED AND MADE FULLY OPERATIONAL AT THE FACP TO IMPLEMENT THE FIRE MANAGEMENT SEQUENCE OF OPERATION AS DESCRIBED IN THE DRAWINGS AND SPECIFICATIONS. THE ENTIRE FIRE ALARM SYSTEM SHALL BE TESTED IN ACCORDANCE WITH NFPA 72 (CHAPTER 14) INSPECTION, TESTING AND MAINTENANCE. THE CONTRACTORS SHALL BE RESPONSIBLE FOR COMMISSIONING A PRE-TEST PRIOR TO AHJ INSPECTION. THE OWNER SHALL BE PERMITTED 3 COMPLETE SYSTEM REPROGRAMMINGS AS PART OF THIS CONTRACT.
16. ALL WORK, WIRING, CONDUIT/RACEWAYS AND EQUIPMENT INSTALLATIONS SHALL MEET ALL APPLICABLE CODES REFERENCED IN BID SPECIFICATIONS AND SHALL BE CONSISTENT WITH MANUFACTURER'S SPECIFICATIONS. ALL WIRING AND CONDUIT REQUIREMENTS SHALL BE VERIFIED WITH THE MANUFACTURER.
17. UPON COMPLETION OF THE ALL WORK, THE CONTRACTOR SHALL SUBMIT 'AS-BUILT' DRAWINGS (IN ELECTRONIC FORMAT) OF THE NEW FIRE ALARM SYSTEM TO THE CM.
18. THE ELECTRICAL AND FIRE ALARM CONTRACTORS SHALL FILE FOR ALL WORK PERMITS AND PAY ALL FILING FEES WITH THE AHJ. ALL EXPEDITING SERVICES SHALL BE PROVIDED BY THE ELECTRICAL CONTRACTOR.
19. THE GENERAL CONTRACTOR & CONSTRUCTION MANAGER SHALL BE RESPONSIBLE FOR ALL PATCHING AND FINISHING OF SURFACES DAMAGED BY INSTALLATION OF NEW EQUIPMENT AND REMOVAL OF EXISTING FIRE ALARM EQUIPMENT. ALL FLOOR AND WALL PENETRATIONS SHALL BE FILED WITH AN APPROVED FIRE STOPPING MATERIAL. THE CONTRACTORS SHALL COORDINATE ALL PATCHING, FINISHING AND LOCATION OF THE NEW AND EXISTING EQUIPMENT WITH THE CM. THE CM SHALL SCHEDULE AND APPROVE ALL WORK.
20. UPON COMPLETION OF THIS INSTALLATION AND APPROVAL BY THE AHJ, THE FIRE ALARM CONTRACTOR SHALL WARRANTY THE ENTIRE INSTALLATION FOR A PERIOD OF FIVE (5) YEARS. WARRANTY SHALL INCLUDE ALL PARTS & LABOR.
21. UPON COMPLETION OF THE ENTIRE SYSTEM INSTALLATION AND APPROVAL BY THE AHJ, THE ELECTRICAL CONTRACTOR SHALL PROVIDE THE OWNER WITH 'AS-BUILT' DRAWINGS, DEPICTING THE EXACT INSTALLATION. DRAWINGS SHALL BE SUBMITTED IN ELECTRONIC FORMAT FOR AUTOCAD MEP.
22. THE ELECTRICAL AND FIRE ALARM CONTRACTORS SHALL PROVIDE ADEQUATE PERSONNEL FOR ALL PRE-TESTING AND AHJ INSPECTIONS; INCLUDING REPRESENTATION FROM THE FIRE ALARM SYSTEM MANUFACTURER.
23. ALL WORK SHALL CONFORM TO ALL APPLICABLE CODES AND STANDARDS AS REQUIRED BY THE AHJ. ALL MANUFACTURER'S SPECIFICATIONS SHALL ALSO APPLY.
24. UPON REVIEW OF CONSTRUCTION DOCUMENTS AND PRIOR TO THE SUBMISSION OF PROPOSALS, THE CONTRACTORS SHALL INFORM THE CM OF ANY DISCREPANCIES OR REQUEST CLARIFICATIONS, IF NECESSARY, CONCERNING THE INTENT OF THE PLANS AND SPECIFICATIONS.

SEQUENCE OF OPERATIONS MATRIX

	SYSTEM DEVICES							
SYSTEM FUNCTIONS	MANUAL INITIATION AT FACP	SMOKE / HEAT DETECTOR, AREA	SMOKE DETECTOR, ELEVATOR LANDING	SMOKE DETECTOR, ELEVATOR MACHINE ROOM	SMOKE DETECTOR, TOP OF ELEVATOR HOISTWAY	HEAT DETECTOR, ELEVATOR MACHINE ROOM	HEAT DETECTOR, ELEVATOR PIT AND TOP OF HOISTWAY	DESCRIPTION OF OPERATION
ALARM SIGNALING, AUTOMATIC		X	X	X	1-6 - N/A 7 - X	1-6 - N/A 7 - X	1-6 - N/A 7 - X	AUDIBLE SIGNAL AND VISIBLE ANNUNCIATION OF SIGNAL TYPE AND LOCATION AT FACP AND REMOTE ANNUNCIATORS. ALL FLASHING LIGHTS SHALL ACTIVATE AND ALL FIRE ALARM HORNS SHALL SOUND AN ALARM TONE ON ALL FLOORS.
ALARM SIGNALING, MANUAL CONTROL FROM MAIN FACP	X							MANUAL INITIATION OF CONTROLS FOR STANDARD ALARM SIGNALS (AUDIBLE, VISIBLE) IN SELECTED ZONES OR ALL ZONES.
TRANSMIT TO AN APPROVED CENTRAL STATION (SUPERVISIING STATION), ALARM		X	X	X	1-6 - N/A 7 - X	1-6 - N/A 7 - X	1-6 - N/A 7 - X	TRANSMIT THE APPROPRIATE ALARM SIGNALS (MANUAL, AUTOMATIC, WATER FLOW) TO CENTRAL STATION.
DOORS, FIRE / SMOKE BARRIER OPENING PROTECTIVES HELD OPEN	X		X	X	1-6 - N/A 7 - X			RELEASE MAGNETICALLY HELD DOORS AND ACTIVATE AUTOMATIC SHUTTERS UTILIZED AS PART OF FIRE / SMOKE BARRIER ASSEMBLIES.
DOORS / GATES, ELECTRICALLY LOCKED	X		X	X	1-6 - N/A 7 - X			UNLOCK ALL ELECTRICALLY LOCKED DOORS / GATES IN THE INGRESS AND EGRESS PATH (WHEN PERMITTED TO BE LOCKED).
ELEVATOR, EMERGENCY RECALL			X	X	1-6 - N/A 7 - X			RECALL ALL ELEVATORS SERVING ALARM FLOOR TO THE DESIGNATED LEVEL.
ELEVATOR, SHUNT TRIP		1-6 - N/A 7 - X	1-6 - N/A 7 - X			1-6 - N/A 7 - X	1-6 - N/A 7 - X	ACTIVATE SHUNT TRIP FOR ELEVATOR ASSOCIATED WITH THE HOISTWAY / MACHINE ROOM WITH INITIATED HEAT DETECTOR. SHUNT TRIP SHALL BE ON A DELAY TO ALLOW FOR PHASE I RE-CALL. WATERFLOW SHALL INITIATE SHUNT TRIP WITHOUT DELAY.
VENTILATION FANS SMOKE DAMPERS	X							SHUT DOWN FANS OVER 2000 CFM. CLOSE SMOKE DAMPERS UPON ACTIVATION OF ASSOCIATED DUCT DETECTOR OR SHUT DOWN OF ASSOCIATED VENTILATION FAN.

CAVAGNERO

SYSKA HENNESSY GROUP
A member company of SH Group, Inc.
Syska Hennessy Group, Inc.
800 Corporate Pointe
Suite 200
Culver City, CA 90230
Tel: 310.312.0200
Fax: 310.665.0172
www.syska.com

REV	DATE	DESCRIPTION
	6/16/2016	100% SD SET
	7/14/2016	100% DD SET
	8/18/2016	100% CD SET
	10/31/2016	90% CD SET
	12/12/2016	REVISED 90% CD SET
	4/03/2017	100% CD/CONFORMED SET
	4/24/2017	BID SET

PASADENA COURTHOUSE ELEVATOR MODERNIZATION
300 E Walnut St, Pasadena, CA 91101

FIRE ALARM GENRAL NOTES

E0.05

SYMBOLS LEGEND

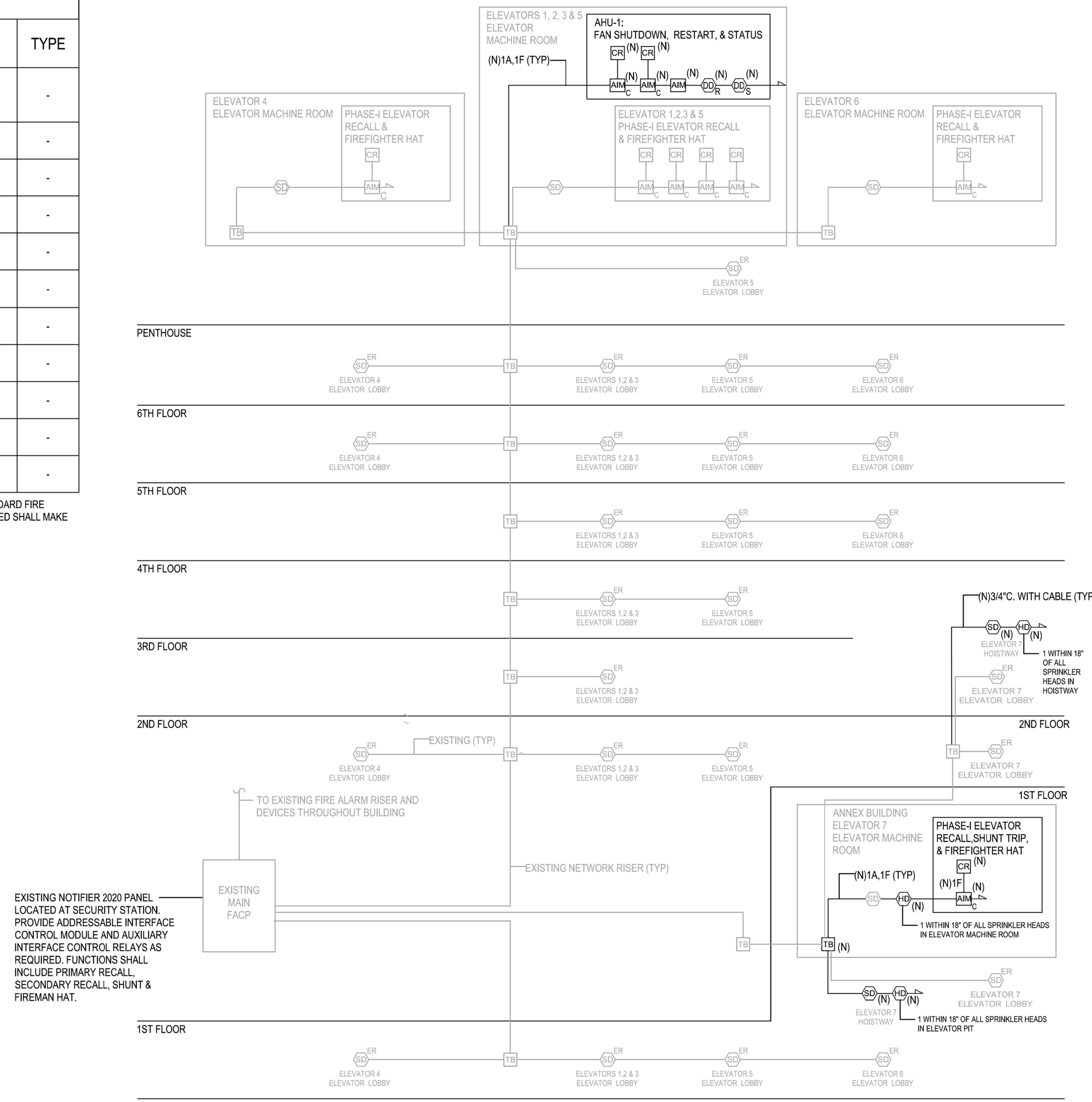
EVERYTHING IS EXISTING, UNLESS NOTED AS (N) FOR NEW.

Symbol	Description
FIRE ALARM CONDUIT	
———	CONDUIT (3/4" MIN.)
(leader)	CABLE TYPE LABEL
(arrow)	CLASS A RETURN
EOLR	END OF LINE RESISTOR
FIRE ALARM PANELS	
FACP	FIRE ALARM CONTROL PANEL
TB	TERMINAL BOX W/ TERMINAL STRIPS
FIRE ALARM INITIATING DEVICES	
HD	ADDRESSABLE AREA HEAT DETECTOR W/ REMOTE LED
SD	ADDRESSABLE AREA SMOKE DETECTOR W/ REMOTE LED
SD ER	ADDRESSABLE AREA SMOKE DETECTOR W/ REMOTE LED FOR PHASE-1 ELEVATOR RECALL
DD X	ADDRESSABLE DUCT MOUNTED SMOKE DETECTOR W/ REMOTE LED & TEST SWITCH (X = S: DENOTES SUPPLY; X = R: DENOTES RETURN)
AIM	ADDRESSABLE INTERFACE MONITOR MODULE
AIM C	ADDRESSABLE INTERFACE CONTROL MODULE
CR	AUXILIARY INTERFACE CONTROL RELAY

FIRE ALARM CABLE TYPE LEGEND

ID	DESCRIPTION	TYPE	ID	DESCRIPTION	TYPE
A	ADDRESSABLE CIRCUIT	#16 T.S.P.	M	-	-
B	HORN CIRCUIT	#14 PR	N	-	-
C	STROBE CIRCUIT	#14 PR	P	-	-
D	CONTROL CIRCUIT	#14 PR	R	-	-
E	MONITORING CIRCUIT	#16 PR	S	-	-
F	24VDC POWER CIRCUIT	#14 PR	T	-	-
G	GROUND CONDUCTOR	#10 COND	U	-	-
H	120VAC POWER CIRCUIT	2 #10 PR	W	-	-
J	-	-	X	-	-
K	-	-	Y	-	-
L	-	-	Z	-	-

THE CABLE TYPES LISTED REPRESENT BASIC FUNCTIONAL REQUIREMENTS OF A STANDARD FIRE ALARM SYSTEM. MANUFACTURERS REQUIRING VARIATIONS OF THE CABLE TYPES LISTED SHALL MAKE SUBSTITUTIONS ACCORDINGLY.



FIRE ALARM RISER DIAGRAM

CAVAGNERO

SYSKA HENNESSY GROUP
A member company of SH Group, Inc.
Syska Hennessy Group, Inc.
800 Corporate Pointe
Suite 200
Culver City, CA 90230
Tel: 310.312.0200
Fax: 310.665.0172
www.syska.com

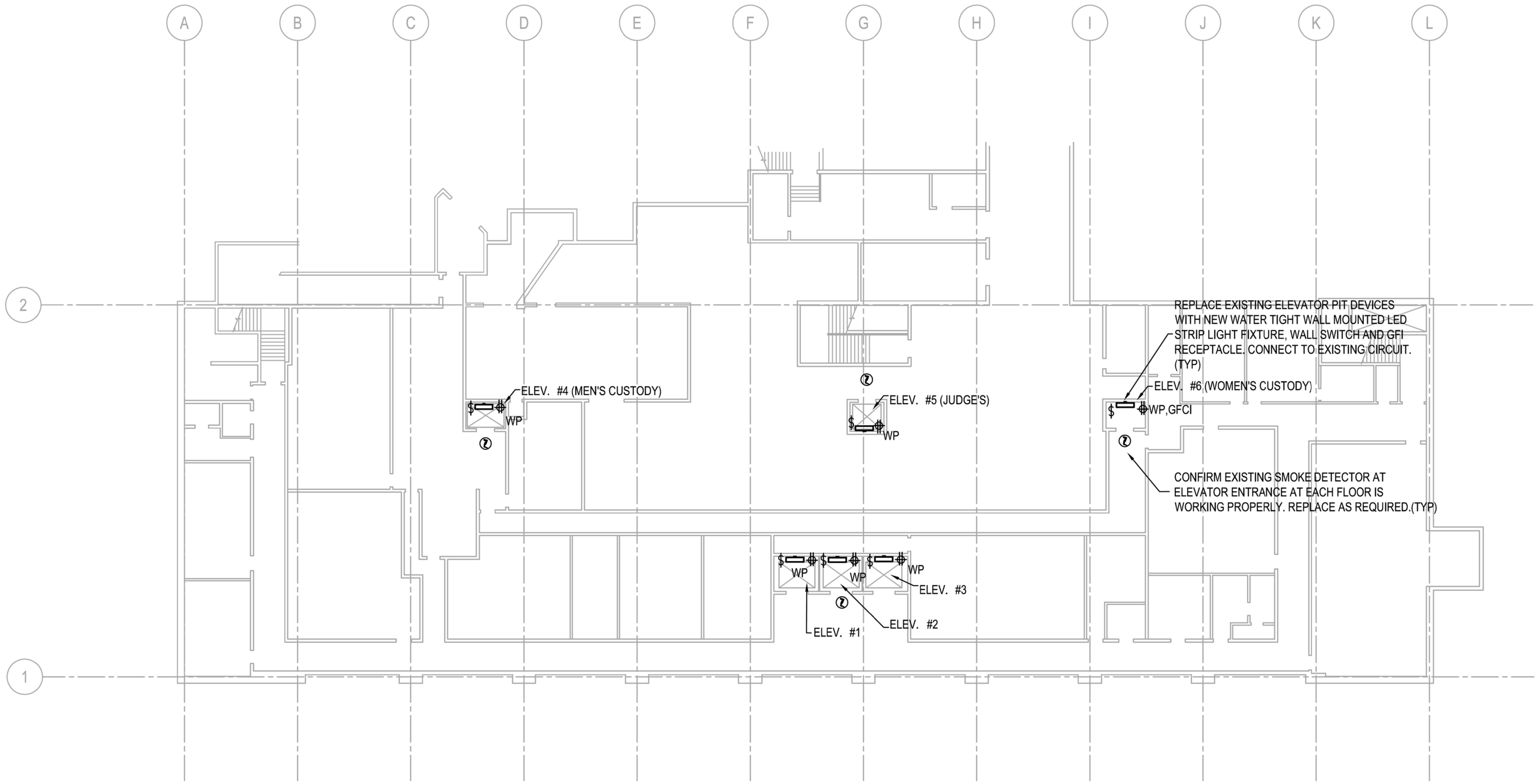
REV	DATE	DESCRIPTION
	6/16/2016	100% SD SET
	7/14/2016	100% DD SET
	8/18/2016	100% CD SET
	10/31/2016	90% CD SET
	12/12/2016	REVISED 90% CD SET
	4/03/2017	100% CD/CONFORMED SET
	4/24/2017	BID SET

PASADENA COURTHOUSE ELEVATOR MODERNIZATION
300 E Walnut St, Pasadena, CA 91101

REGISTERED PROFESSIONAL ENGINEER No. E-17637 ELECTRICAL STATE OF CALIFORNIA

FIRE ALARM RISER DIAGRAM

E0.06



1 ELECTRICAL BASEMENT FLOOR PLAN

SCALE: 1/16"=1'-0"

CAVAGNERO
MARK CAVAGNERO ASSOCIATES ARCHITECTS

SYSKA HENNESSY GROUP
A member company of SH Group, Inc.
Syska Hennessy Group, Inc.
800 Corporate Pointe
Suite 200
Culver City, CA 90230
Tel: 310.312.0200
Fax: 310.665.0172
www.syska.com

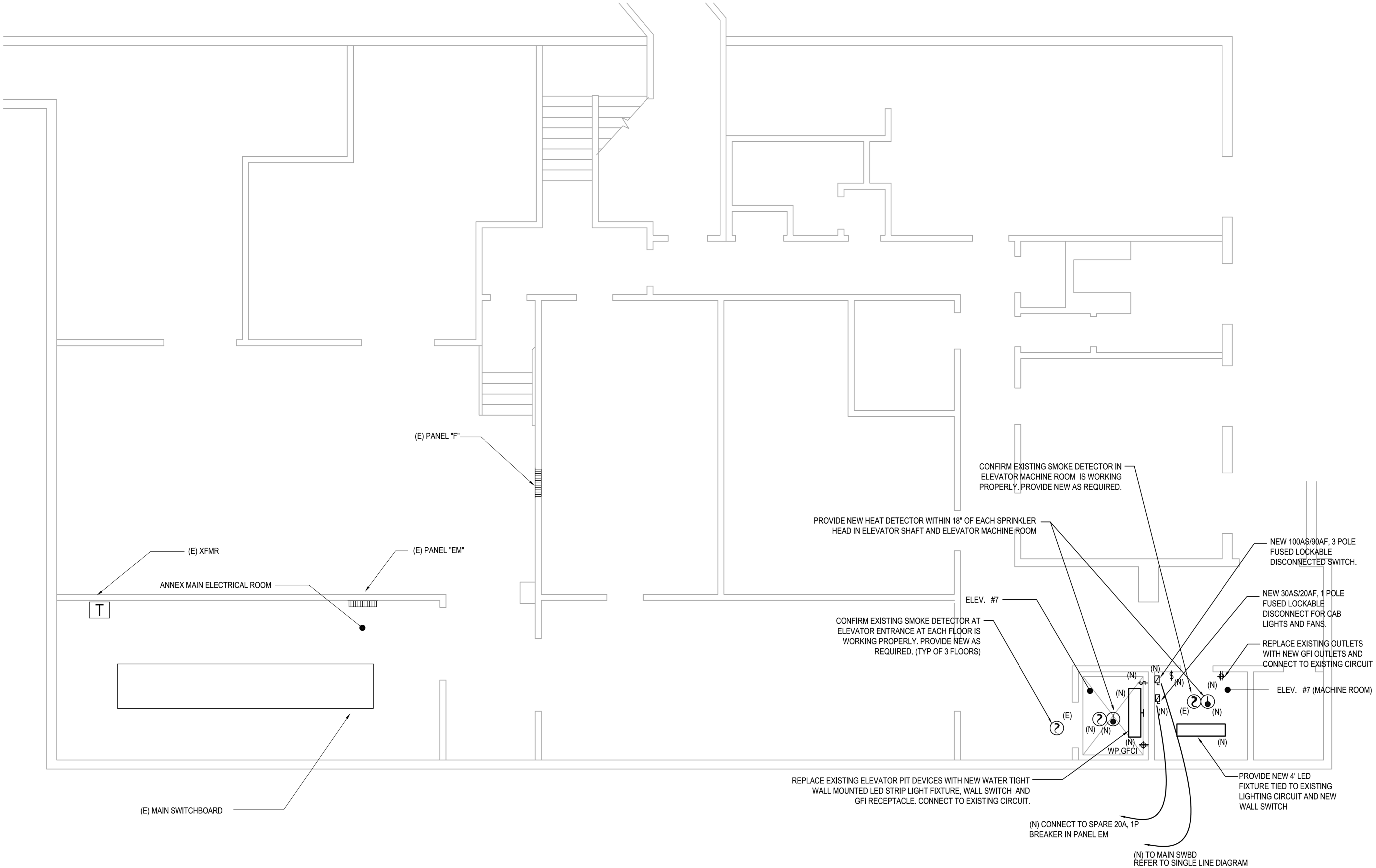
REV	DATE	DESCRIPTION
	6/16/2016	100% SD SET
	7/14/2016	100% DD SET
	8/18/2016	100% CD SET
	10/31/2016	90% CD SET
	12/12/2016	REVISED 90% CD SET
	4/03/2017	100% CD/CONFORMED SET
	4/24/2017	BID SET

PASADENA COURTHOUSE ELEVATOR MODERNIZATION
300 E Walnut St, Pasadena, CA 91101

REGISTERED PROFESSIONAL ENGINEER
No. E-17637
9/30/17
ELECTRICAL
STATE OF CALIFORNIA

ELECTRICAL BASEMENT PLAN

E2.00



1 ELECTRICAL ANNEX BASEMENT PLAN

SCALE: 1/4"=1'-0"

CAVAGNERO
MARK CAVAGNERO ASSOCIATES ARCHITECTS
1045 Sansome Street, Suite 200
San Francisco, California 94111
www.cavagnero.com
T: 415.398.6944
F: 415.398.6943

SYSKA HENNESSY GROUP
A member company of SH Group, Inc.

Syska Hennessy Group, Inc.
800 Corporate Pointe
Suite 200
Culver City, CA 90230
Tel: 310.312.0200
Fax: 310.665.0172
www.syska.com

REV	DATE	DESCRIPTION
	6/16/2016	100% SD SET
	7/14/2016	100% DD SET
	8/18/2016	100% CD SET
	10/31/2016	90% CD SET
	12/12/2016	REVISED 90% CD SET
	4/03/2017	100% CD/CONFORMED SET
	4/24/2017	BID SET

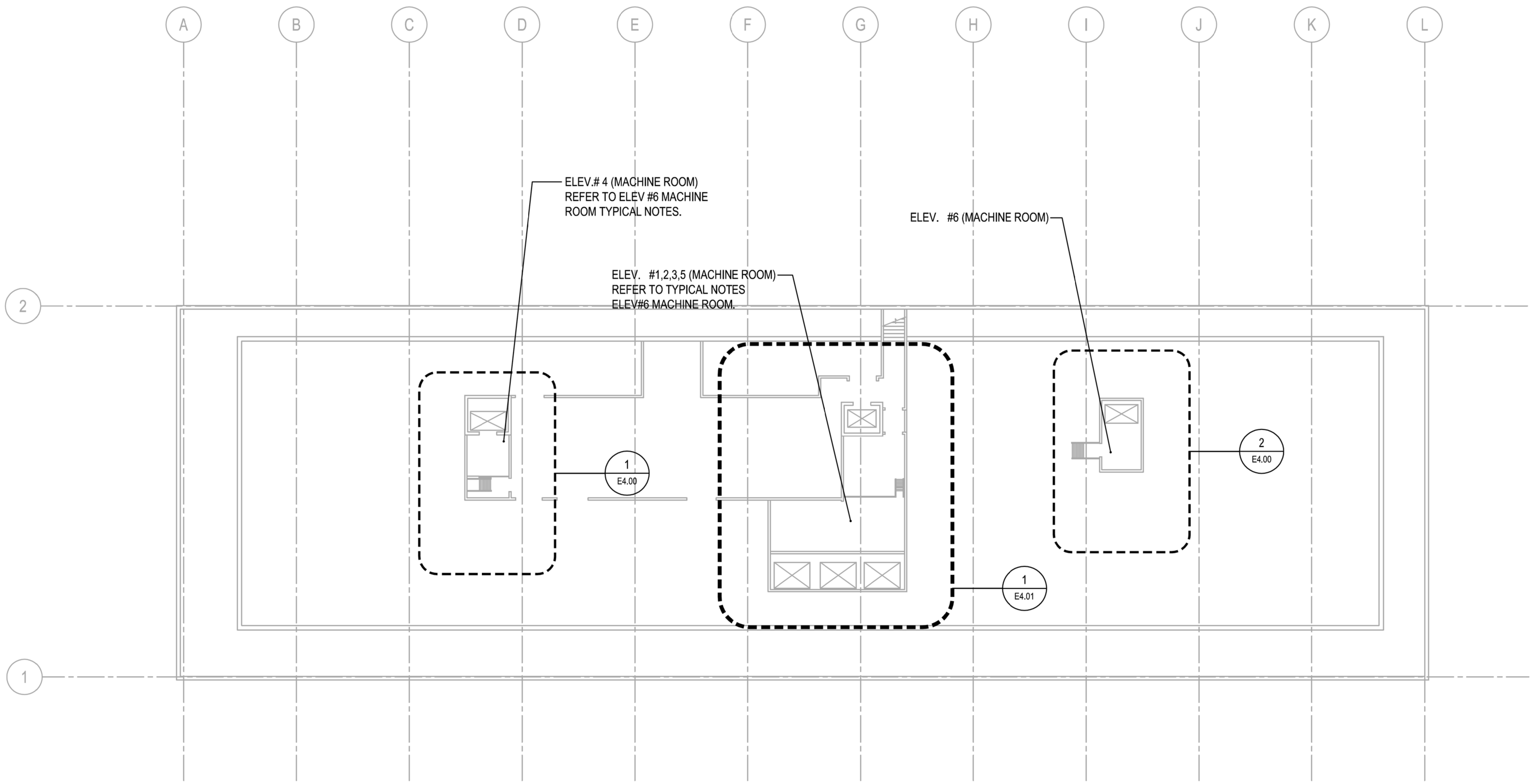
PASADENA COURTHOUSE ELEVATOR MODERNIZATION

300 E Walnut St, Pasadena, CA 91101

REGISTERED PROFESSIONAL ENGINEER No. E-17637 9/30/17 ELECTRICAL STATE OF CALIFORNIA

ELECTRICAL ANNEX BASEMENT PLAN

E2.10A



1 ELECTRICAL ROOF PLAN

SCALE: 1/16"=1'-0"

CAVAGNERO

SYSKA HENNESSY GROUP

A member company of SH Group, Inc.

Syska Hennessy Group, Inc.
800 Corporate Pointe
Suite 200
Culver City, CA 90230
Tel: 310.312.0200
Fax: 310.665.0172
www.syska.com

REV	DATE	DESCRIPTION
	6/16/2016	100% SD SET
	7/14/2016	100% DD SET
	8/18/2016	100% CD SET
	10/31/2016	90% CD SET
	12/12/2016	REVISED 90% CD SET
	4/03/2017	100% CD/CONFORMED SET
	4/24/2017	BID SET

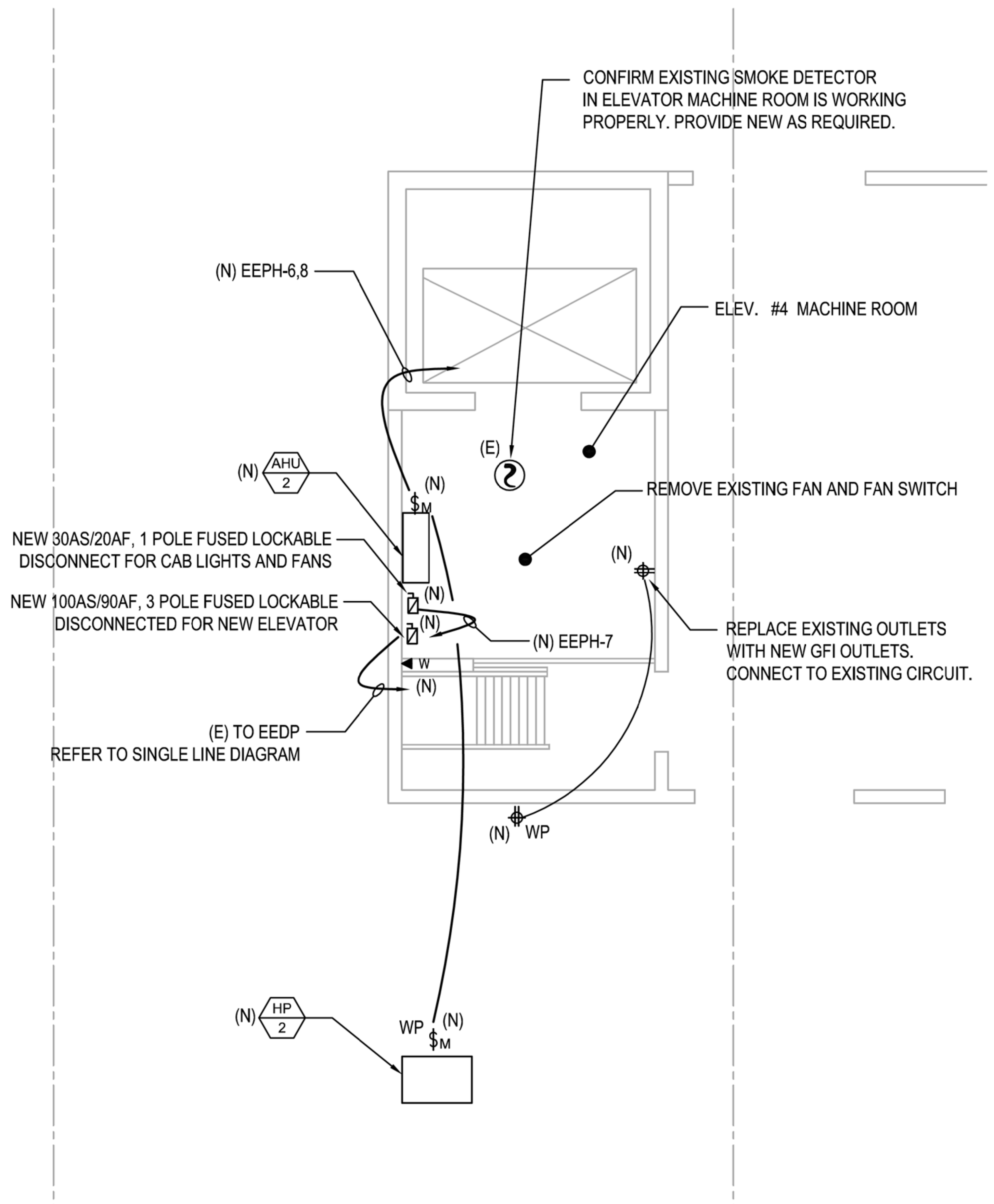
PASADENA
COURTHOUSE
ELEVATOR MODERNIZATION

300 E Walnut St, Pasadena, CA 91101

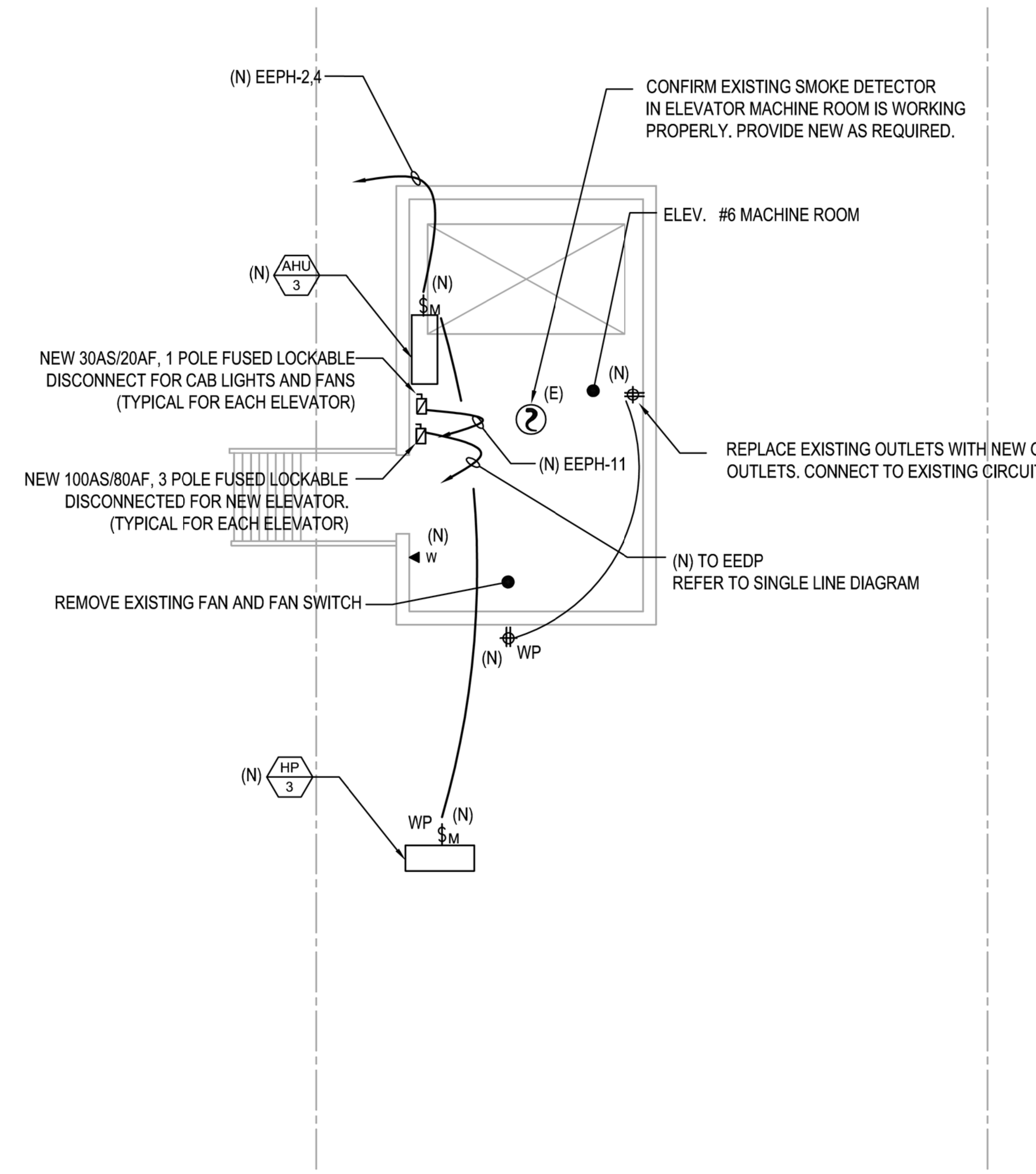
REGISTERED PROFESSIONAL ENGINEER
BEHROUZ SEDIGHI
No. E-17637
9/30/17
ELECTRICAL
STATE OF CALIFORNIA

ELECTRICAL ROOF PLAN

E2.0R



1 ELEVATOR MACHINE ROOM, ELEV 4
1/4" = 1'-0"



2 ELEVATOR MACHINE ROOM, ELEV 6
1/4" = 1'-0"

CAVAGNERO

SYSKA HENNESSY GROUP

Syska Hennessy Group, Inc.
800 Corporate Pointe
Suite 200
Culver City, CA 90230
Tel: 310.312.0200
Fax: 310.665.0172
www.syska.com

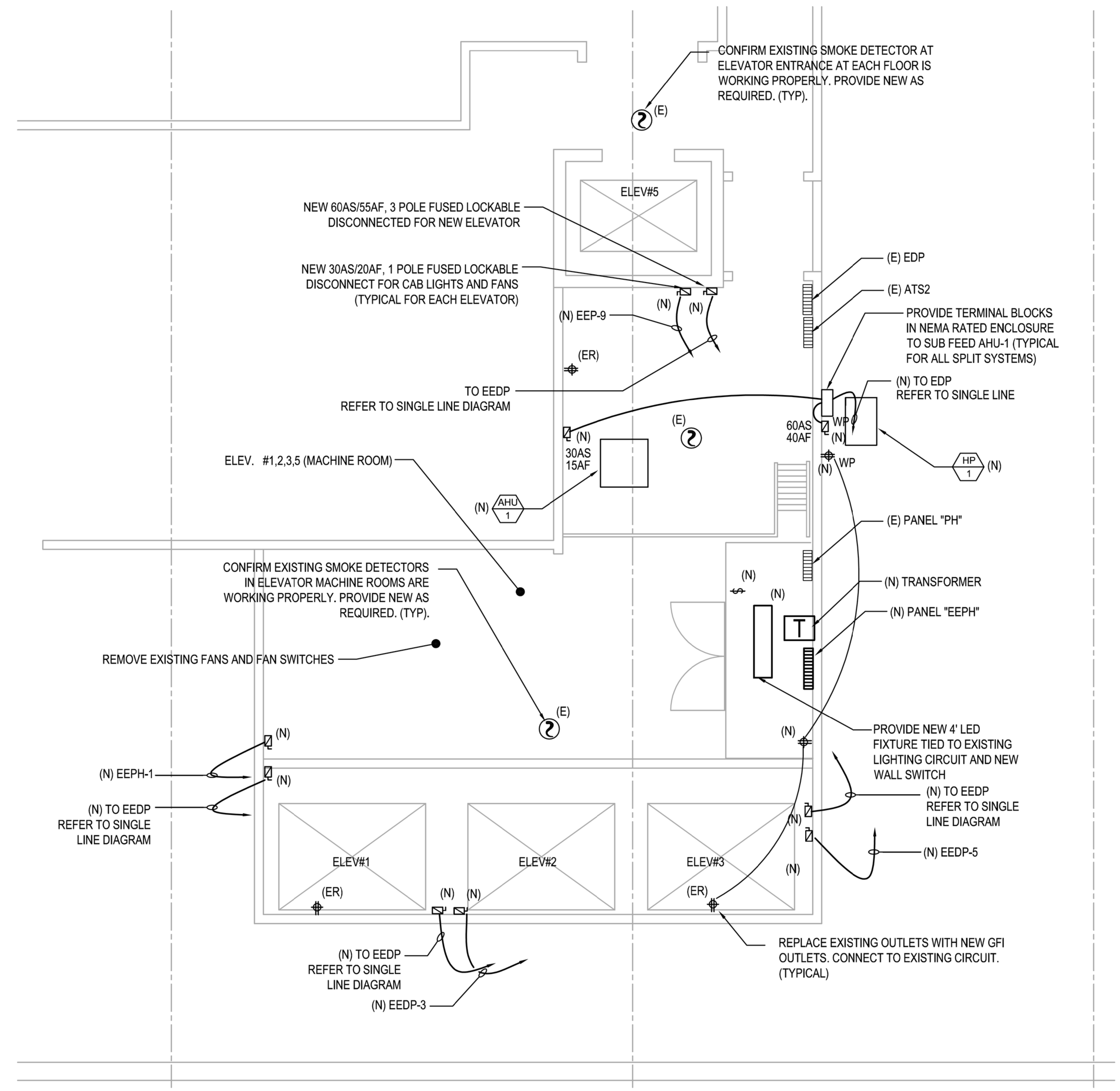
REV	DATE	DESCRIPTION
	6/16/2016	100% SD SET
	7/14/2016	100% DD SET
	8/18/2016	100% CD SET
	10/31/2016	90% CD SET
	12/12/2016	REVISED 90% CD SET
	4/03/2017	100% CD/CONFORMED SET
	4/24/2017	BID SET

PASADENA COURTHOUSE ELEVATOR MODERNIZATION

300 E Walnut St, Pasadena, CA 91101

ELECTRICAL ENLARGED PLANS

E4.00



1 ELEVATOR MACHINE ROOM, ELEV 1,2,3,5
1/4" = 1'-0"

CAVAGNERO
MARK CAVAGNERO ASSOCIATES ARCHITECTS
1045 Sansome Street, Suite 200
San Francisco, California 94111
www.cavagnero.com
T: 415.398.6944
F: 415.398.6943

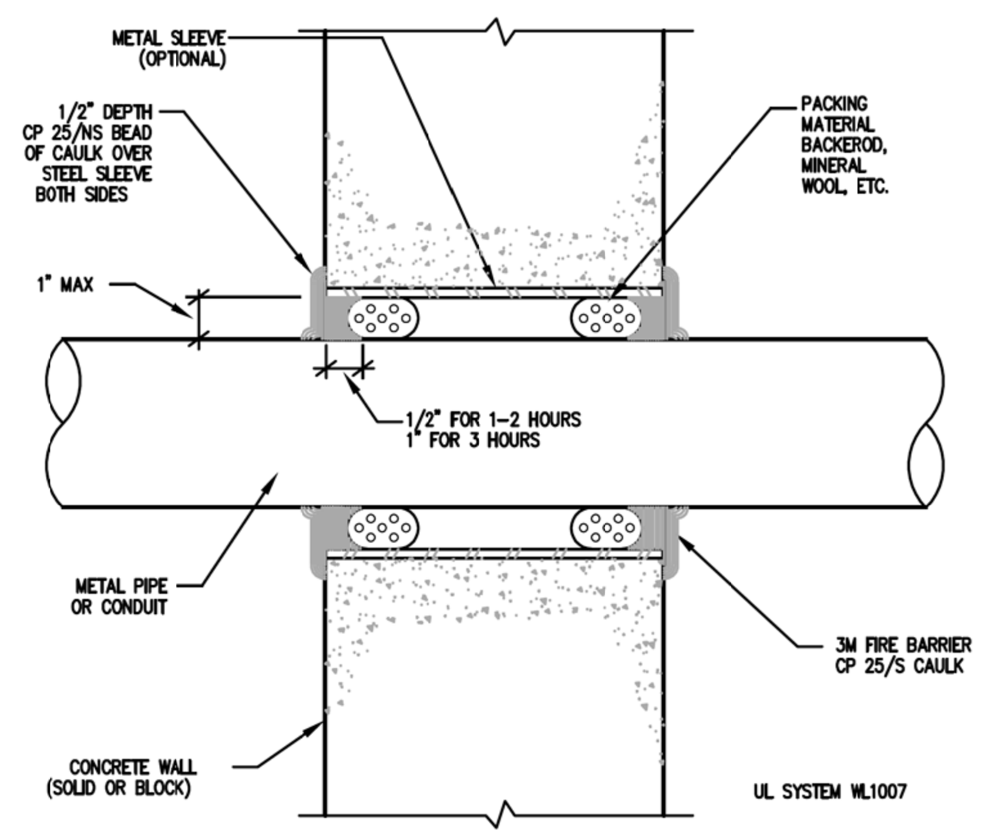
SYSKA HENNESSY GROUP
A member company of SH Group, Inc.
Syska Hennessy Group, Inc.
800 Corporate Pointe
Suite 200
Culver City, CA 90230
Tel: 310.312.0200
Fax: 310.665.0172
www.syska.com

REV	DATE	DESCRIPTION
	6/16/2016	100% SD SET
	7/14/2016	100% DD SET
	8/18/2016	100% CD SET
	10/31/2016	90% CD SET
	12/12/2016	REVISED 90% CD SET
	4/03/2017	100% CD/CONFORMED SET
	4/24/2017	BID SET

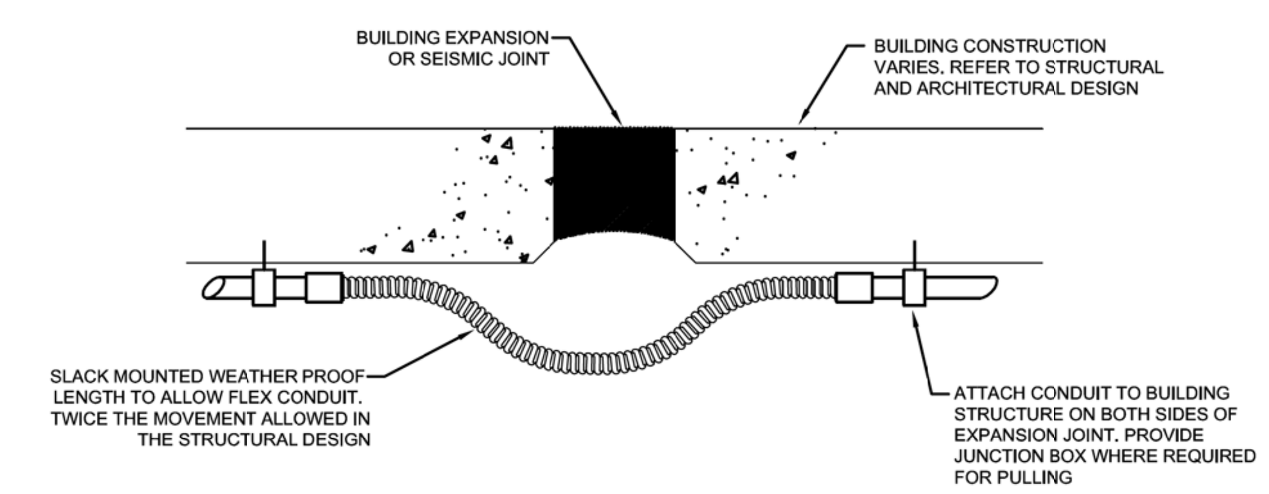
PASADENA COURTHOUSE ELEVATOR MODERNIZATION
300 E Walnut St, Pasadena, CA 91101

ELECTRICAL ENLARGED PLANS

E4.01

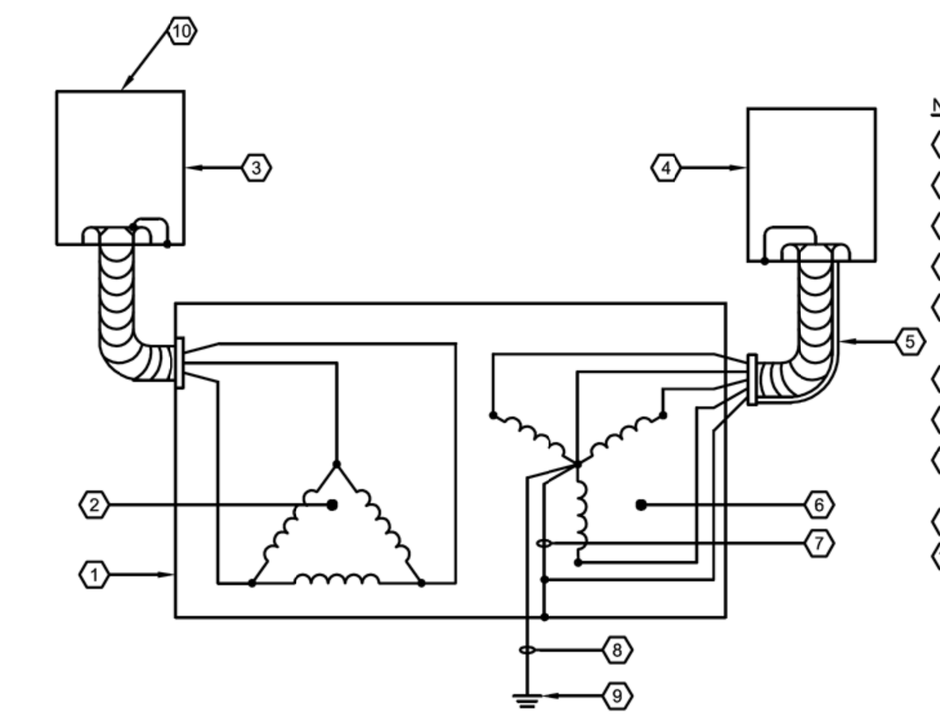


FIREPROOFING THROUGH CONCRETE SLAB — SCALE: NONE — 3



TO BE INSTALLED FOR ALL CONDUITS PASSING AN EXPANSION JOINT. REFER TO ARCHITECTURAL AND STRUCTURAL DRAWINGS FOR EXACT LOCATIONS.

FLEX CONDUIT EXPANSION DEFLECTION — SCALE: NONE — 2

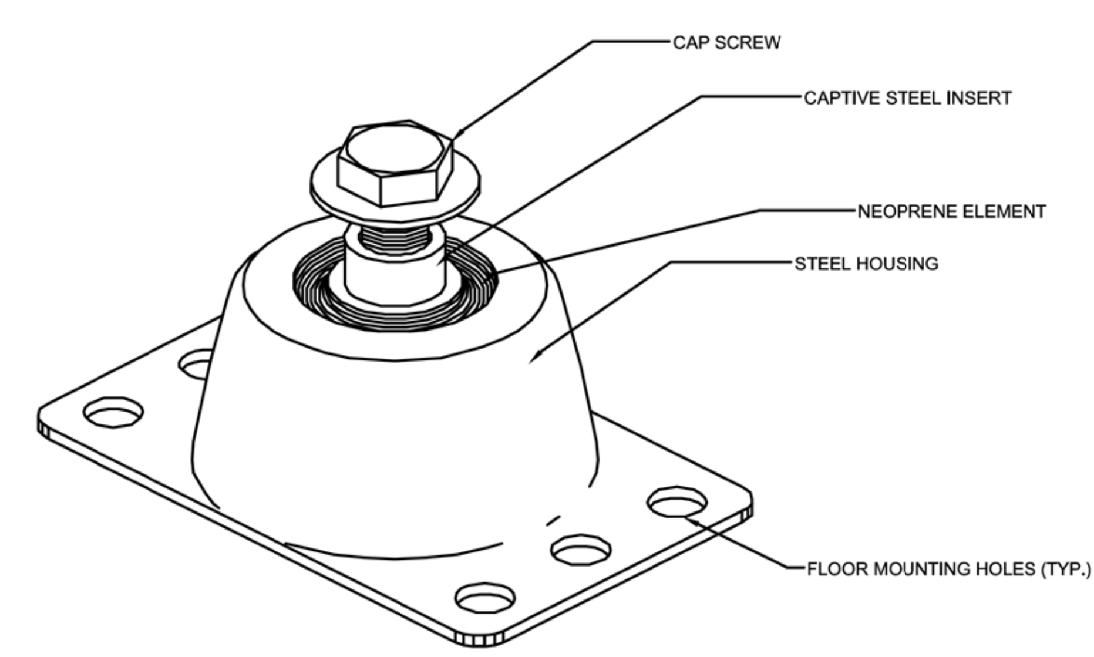


NOTES:

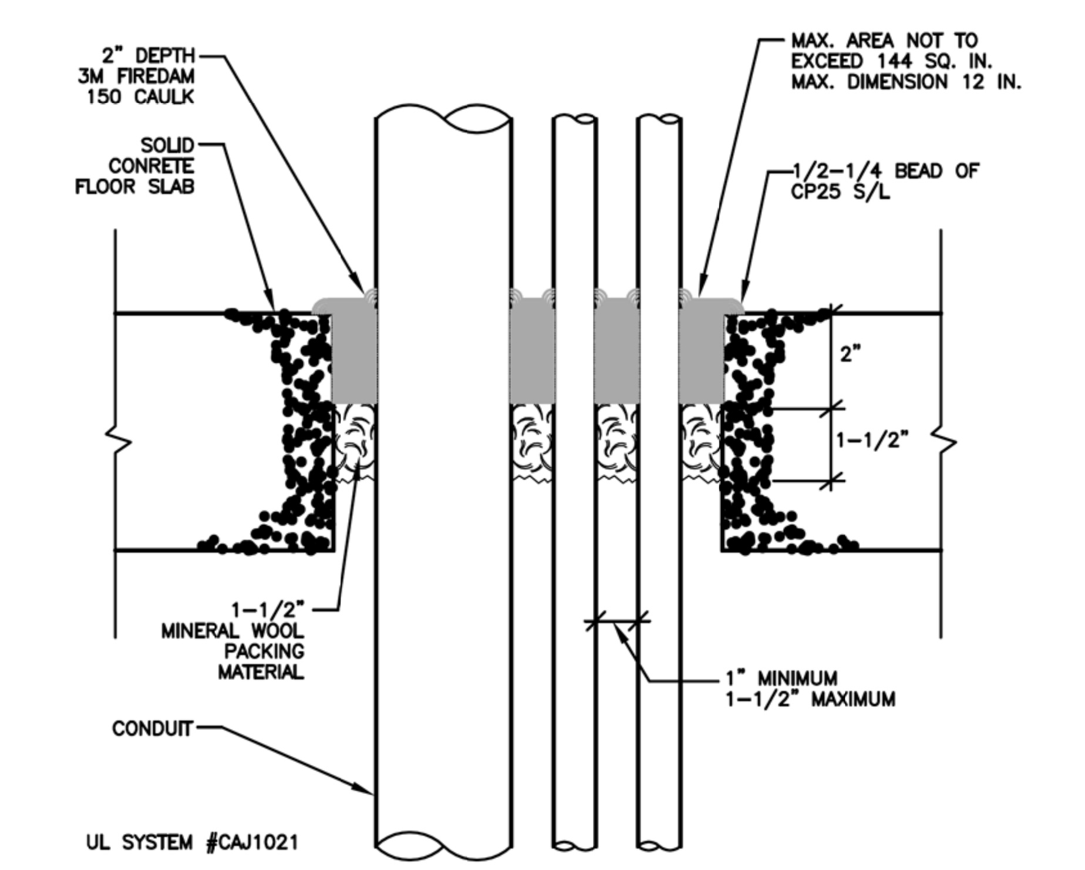
1. ENCLOSURE
2. PRIMARY WINDING
3. PRIMARY DISCONNECT SWITCH
4. SECONDARY DISCONNECT SWITCH
5. FLEXIBLE CONDUIT WITH 4-WIRE FEEDER AND SUPPLY-SIDE BONDING JUMPER
6. SECONDARY WINDING
7. BOND TO ENCLOSURE
8. GROUNDING ELECTRODE CONDUCTOR
9. GROUNDING ELECTRODE
10. PRIMARY CONDUCTORS WITH EQUIPMENT GROUNDING CONDUCTOR CONNECT TO DISCONNECT SWITCH ENCLOSURE.

TRANSFORMER GROUNDING — SCALE: NONE — 1

NOT USED — SCALE: NONE — 6



VIBRATION ISOLATOR FOR TRANSFORMERS — SCALE: NONE — 5



NOTE: COORDINATE THE REQUIRED T RATING VALUES NECESSARY BASED ON LOCATION OF FLOOR PENETRATIONS IN ACCORDANCE WITH THE DECK RATINGS.

FIREPROOFING THROUGH CONCRETE WALL — SCALE: NONE — 4

NOT USED — SCALE: NONE — 9

NOT USED — SCALE: NONE — 8

NOT USED — SCALE: NONE — 7

CAVAGNERO
MARK CAVAGNERO ASSOCIATES ARCHITECT

SYSKA HENNESSY GROUP
A member company of SH Group, Inc.
Syska Hennessy Group, Inc.
800 Corporate Pointe
Suite 200
Culver City, CA 90230
Tel: 310.312.0200
Fax: 310.665.0172
www.syska.com

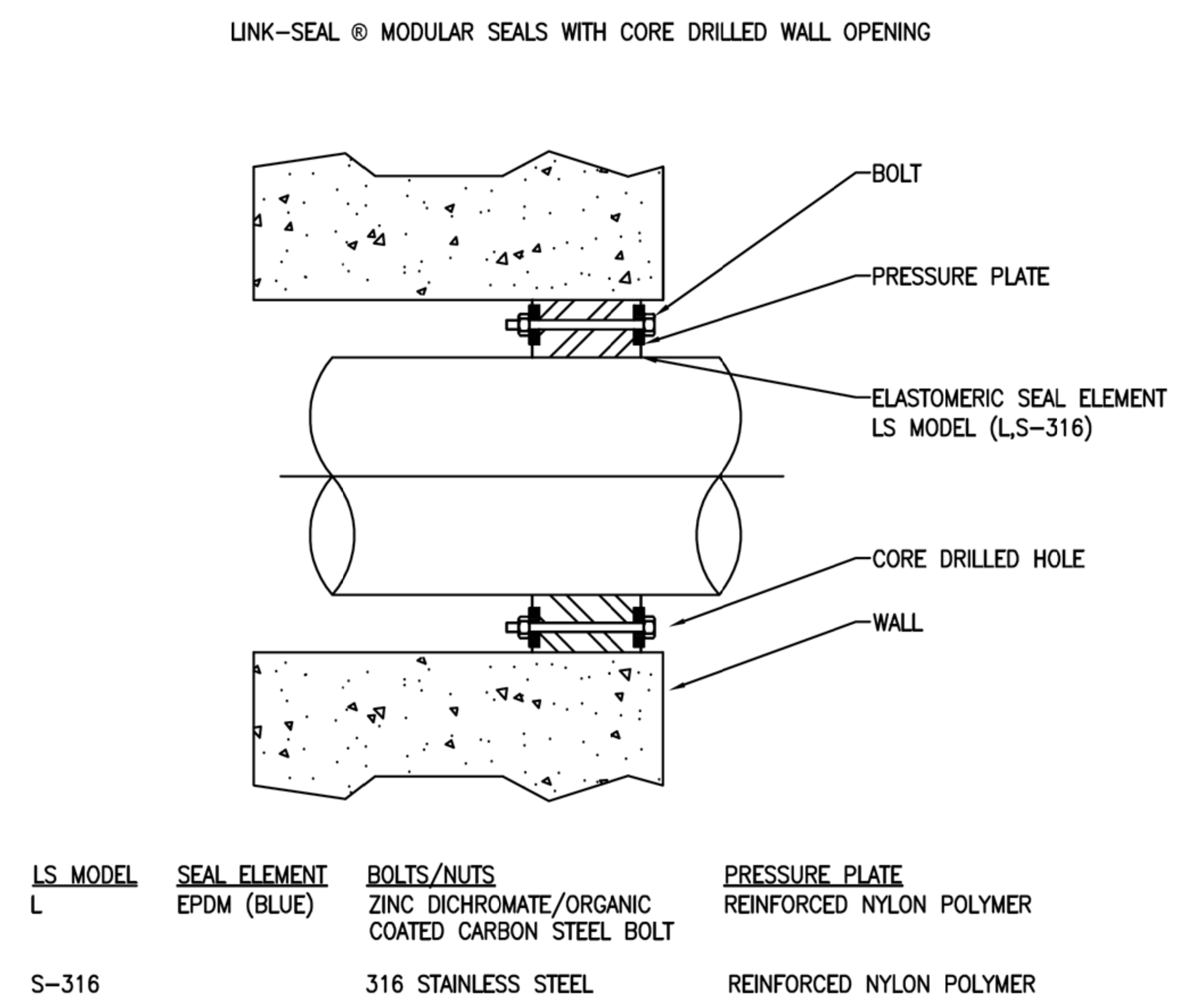
REV	DATE	DESCRIPTION
	6/16/2016	100% SD SET
	7/14/2016	100% DD SET
	8/18/2016	100% CD SET
	10/31/2016	90% CD SET
	12/12/2016	REVISED 90% CD SET
	4/03/2017	100% CD/CONFORMED SET
	4/24/2017	BID SET

PASADENA
COURTHOUSE
ELEVATOR MODERNIZATION
300 E Walnut St, Pasadena, CA 91101

REGISTERED PROFESSIONAL ENGINEER
BEHROUZ SEDIGHI
No. E-17637
9/30/17
ELECTRICAL
STATE OF CALIFORNIA

ELECTRICAL DETAILS

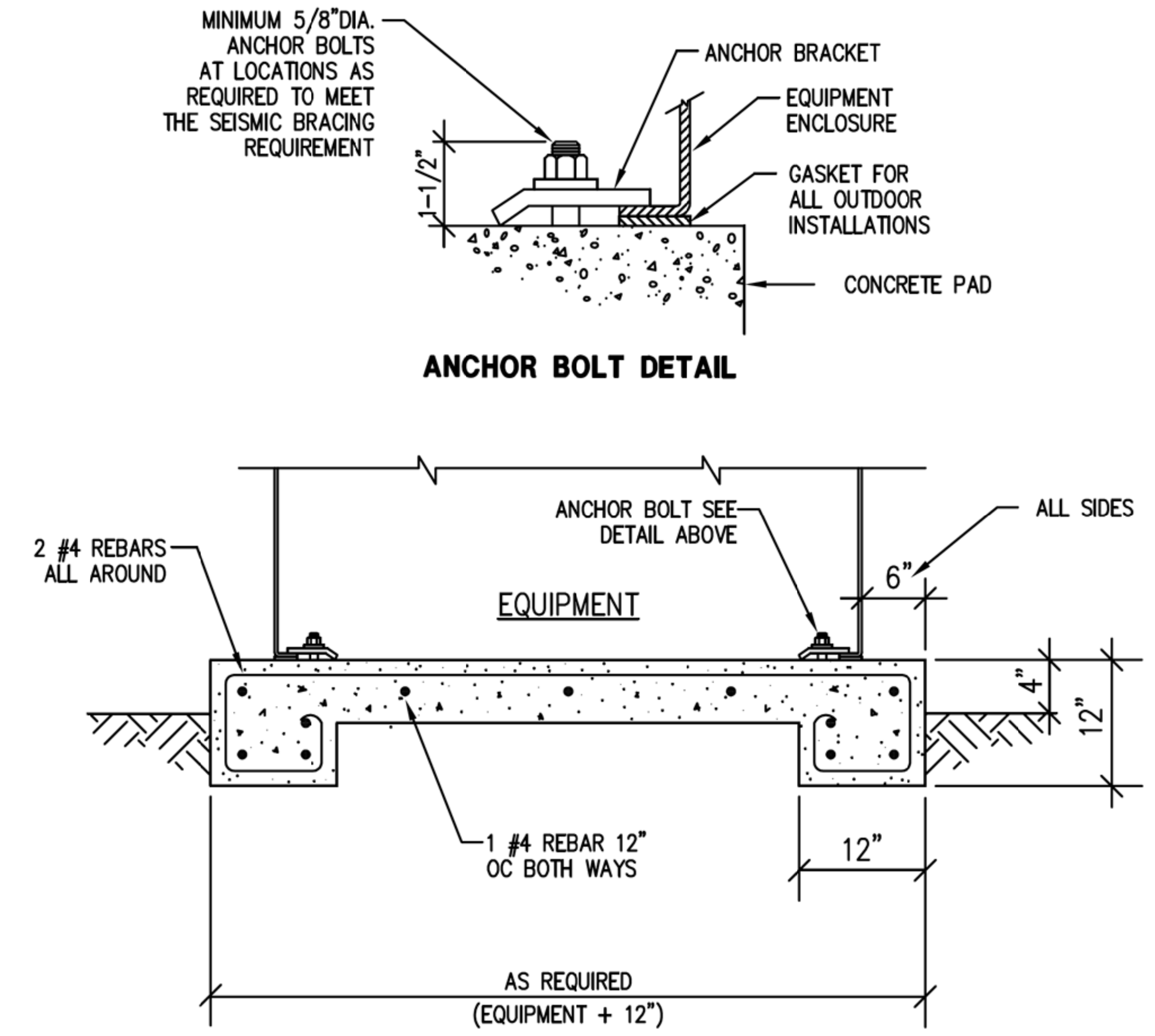
E5.01



LS MODEL	SEAL ELEMENT	BOLTS/NUTS	PRESSURE PLATE
L	EPDM (BLUE)	ZINC DICHROMATE/ORGANIC COATED CARBON STEEL BOLT	REINFORCED NYLON POLYMER
S-316		316 STAINLESS STEEL	REINFORCED NYLON POLYMER

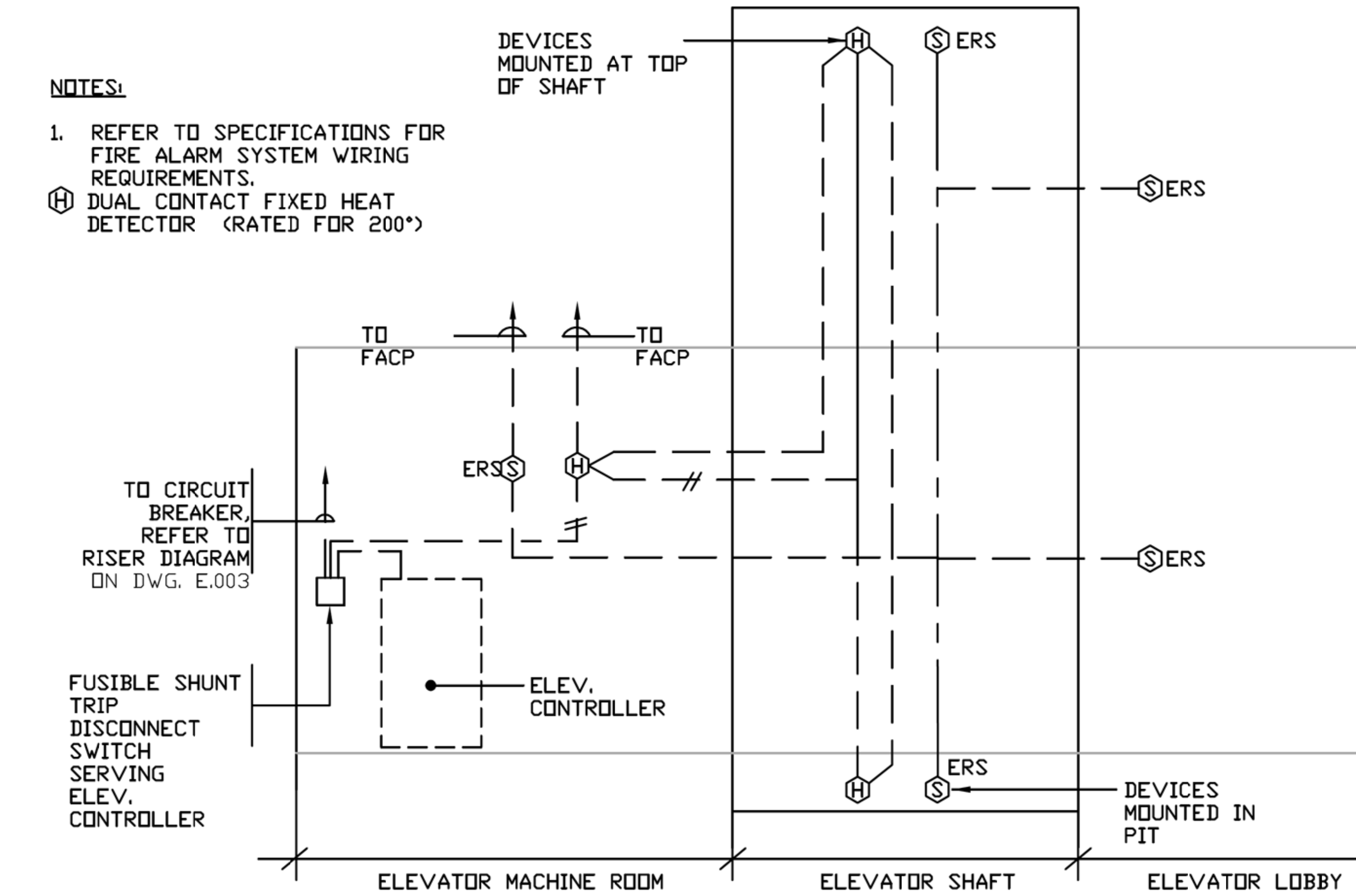
1 EXTERIOR WALL PENETRATION

SCALE: NONE



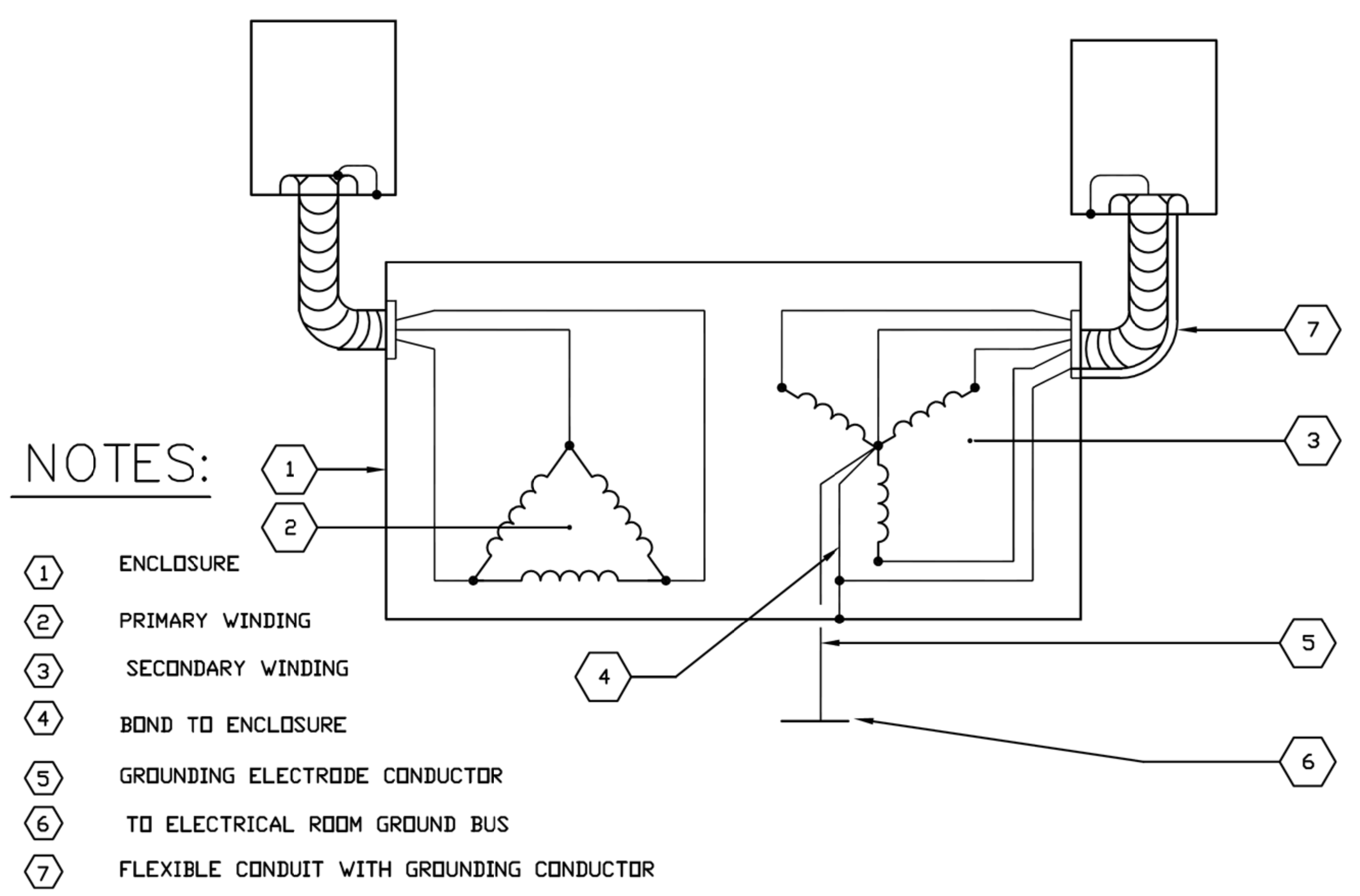
2 EQUIPMENT PAD AND ANCHOR

SCALE: NONE



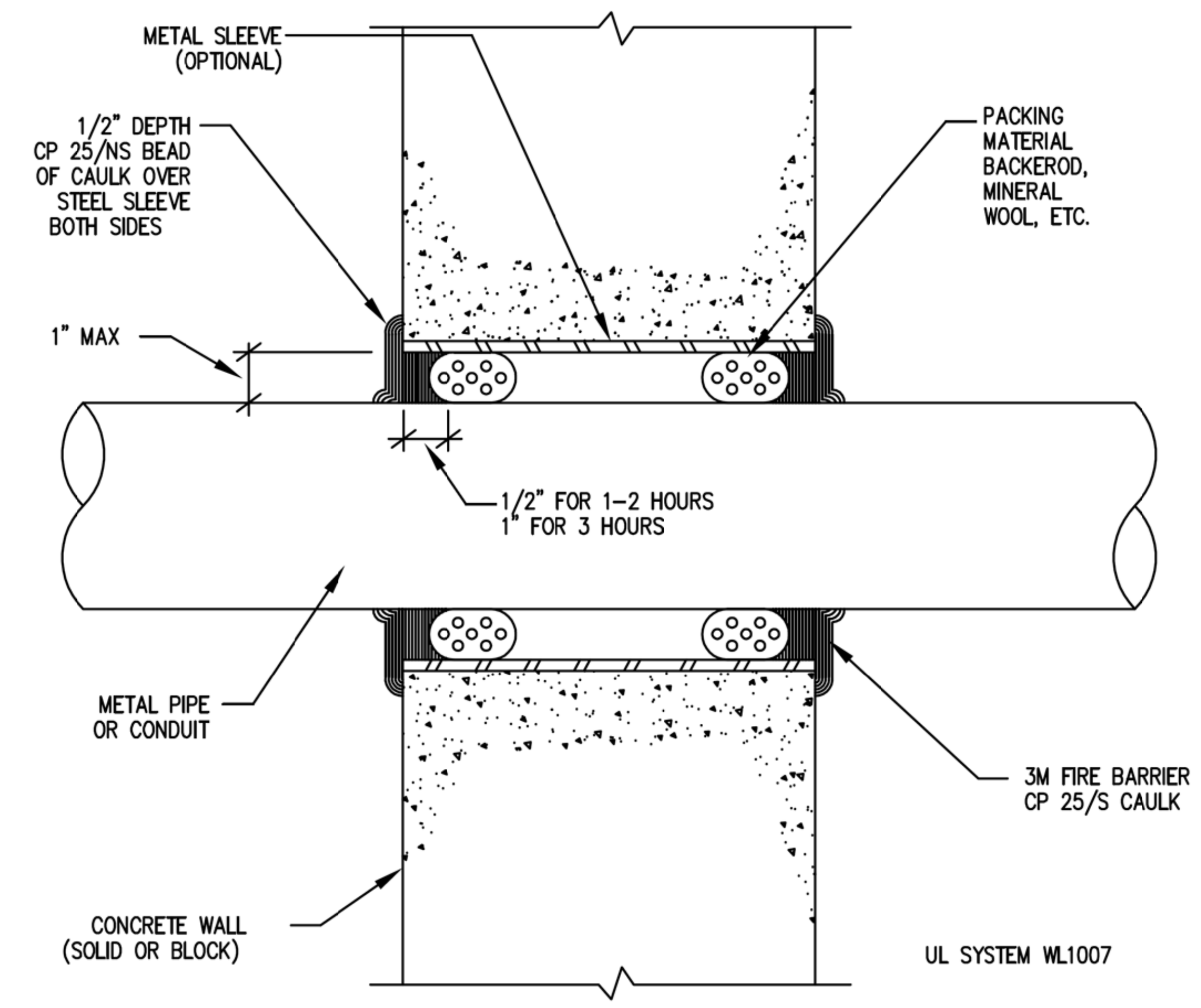
3 ELEVATOR SHUNT TRIP CONTROL DIAGRAM

SCALE: NONE



4 TRANSFORMER GROUNDING

SCALE: NONE



5 FIREPROOFING THROUGH CONCRETE WALL

SCALE: NONE

X

SCALE: NONE

CAVAGNERO
MARK CAVAGNERO ASSOCIATES ARCHITECTS

SYSKA HENNESSY GROUP
A member company of SH Group, Inc.
Syska Hennessy Group, Inc.
800 Corporate Pointe
Suite 200
Culver City, CA 90230
Tel: 310.312.0200
Fax: 310.665.0172
www.syska.com

REV	DATE	DESCRIPTION
	6/16/2016	100% SD SET
	7/14/2016	100% DD SET
	8/18/2016	100% CD SET
	10/31/2016	90% CD SET
	12/12/2016	REVISED 90% CD SET
	4/03/2017	100% CD/CONFORMED SET
	4/24/2017	BID SET

PASADENA COURTHOUSE ELEVATOR MODERNIZATION
300 E Walnut St, Pasadena, CA 91101

REGISTERED PROFESSIONAL ENGINEER
No. E-17637
9/30/17
ELECTRICAL
STATE OF CALIFORNIA

ELECTRICAL DETAILS

E5.02

ABBREVIATIONS

-#-	
2WAY	TWO-WAY
3WAY	THREE-WAY
-A-	
A/C	AIR CONDITION
AD	ACCESS DOOR
ADA	AMERICAN DISABILITIES ACT
ADDL	ADDITIONAL
ADJ	ADJUSTABLE
AFF	ABOVE FINISHED FLOOR
AHJ	AUTHORITY HAVING JURISDICTION
AHU	AIR HANDLING UNIT
AIA	AMERICAN INSTITUTE OF ARCH
AMP	AMPHERE
ARCH	ARCHITECT
ASHRAE	AMERICAN SOCIETY OF HEATING REFRIGERATION & AIR CONDITIONING ENGINEERS
AUTO	AUTOMATIC
AVG	AVERAGE
-B-	
BDD	BACKDRAFT DAMPER
BFP	BACKFLOW PREVENTOR
BLDG	BUILDING
BLW	BELOW
BTU	BRITISH THERMAL UNIT
BTUH	BRITISH THERMAL UNIT/ HOUR
-C-	
CAP	CAPACITY
CC	COOLING COIL
CD	CEILING DIFFUSER
CFM	CUBIC FEET PER MINUTE
CFSD	COMBINATION FIRE/SMOKE DAMPER
CH	CHILLER
CHWP	CHILLED WATER PUMP
CHWR	CHILLED WATER RETURN
CHWS	CHILLED WATER SUPPLY
CL	CENTER LINE
CLG	CEILING
CNDS	CONDENSATE DRAIN
CO2	CARBON DIOXIDE
COND	CONDENSER
CONN	CONNECT
CP	CONTROL PANEL
CV	CONSTANT VOLUME
CWP	CONDENSER WATER PUMP
CWR	CONDENSER WATER RETURN
CWS	CONDENSER WATER SUPPLY
-D-	
(D)	EXISTING TO BE DEMOLISHED
DB	DRY BULB
dB	DECIBEL
DBA	UNIT OF SOUND LEVEL
DBT	DRY BULB TEMPERATURE
DDC	DIRECT DIGITAL CONTROL
DEG	DEGREE
DIA	DIAMETER
DMPR	DAMPER
DN	DOWN
DPT	DEW POINT TEMPERATURE
DR	DRAIN
DWG	DRAWING
-E-	
(E)	EXISTING TO REMAIN
(ER)	EXISTING TO BE RELOCATED
EA	EXHAUST AIR
EAR	EXHAUST AIR REGISTER
EAT	ENTERING AIR TEMPERATURE
EDBT	ENTERING DRY BULB TEMP
EER	ENERGY EFFICIENCY RATIO
EF	EXHAUST FAN
EL	ELEVATION
ELEC	ELECTRIC / ELECTRICAL
EQ	EQUAL
ESP	EXTERNAL STATIC PRESSURE
EWBT	ENTERING WET BULB TEMP
EWT	ENTERING WATER TEMP
EXH	EXHAUST
EXIST	EXISTING
-F-	
F	FAHRENHEIT
FA	FACE/FREE AREA
FCU	FAN COIL UNIT
FD	FIRE DAMPER
FIN FLR	FINISH FLOOR
FLA	FULL LOAD AMPERES
FLEX	FLEXIBLE
FLTR	FILTER
FPM	FEET PER MINUTE
FT	FEET / FOOT
-G-	
GAL	GALLON
GALV	GALVANIZED
GPM	GALLONS PER MINUTE
GRL	GRILLE
-H-	
HD	HEAD
HORIZ	HORIZONTAL
HP	HORSEPOWER
HVAC	HEATING, VENTILATION, & AIR CONDITIONING
HWP	HOT WATER PUMP
HWR	HOT WATER RETURN
HWS	HOT WATER SUPPLY
HZ	HERTZ
-I-	
ID	INSIDE DIMENSION
IN	INCH
INSUL	INSULATION
-K-	
KW	KILOWATT
-L-	
(L)	LINED
LAT	LEAVING AIR TEMPERATURE
LBS	POUND(S)
LH	LATENT HEAT
LTH	LENGTH
LVR	LOUVER
LWT	LEAVING WATER TEMPERATURE
-M-	
MAT	MIXED AIR TEMPERATURE
MAX	MAXIMUM
MBTUH	THOUSAND BTU PER HOUR
MECH	MECHANICAL
MED	MEDIUM
MER	MECHANICAL EQUIPMENT ROOM
MFR	MANUFACTURER
MHP	MOTOR HORSEPOWER
MIN	MINIMUM OR MINUTE
MOT	MOTOR
MS	MOTOR STARTER
MTD	MEAN TEMP DIFFERENCE
MTGHT	MOUNTING HEIGHT
MU	MAKE UP WATER LINE
-N-	
NIC	NOT IN CONTRACT
NO	NUMBER
NTS	NOT TO SCALE
-O-	
OA	OUTSIDE AIR
OD	OUTSIDE DIAMETER
-P-	
PD	PRESSURE DROP/DIFFERENCE
PERF	PERFORATED
PH	PHASE
PLBG	PLUMBING
POS	POSITIVE
PRV	PRESSURE REDUCING VALVE
PSI	POUNDS PER SQUARE INCH
-R-	
(R)	REMOVE
R	RISE
RA	RETURN AIR
RAG	RETURN AIR GRILLE
REC	RECESSED
REFR	REFRIGERATION
REG	REGISTER
REM	REMOVABLE
REQD	REQUIRED
RFGT	REFRIGERANT
RH	RELATIVE HUMIDITY
RHC	REHEAT COIL
RLA	RUNNING LOAD AMPERES
RLL	REFRIGERANT LIQUID LINE
RM	ROOM
RPM	REVOLUTIONS PER MINUTE
RSL	REFRIGERANT SUCTION LINE
-S-	
SA	SUPPLY AIR
SAR	SUPPLY AIR REGISTER
SD	SMOKE DAMPER/DETECTOR
SEER	SEASONAL ENERGY EFFICIENCY
SF	SUPPLY FAN
SF	SQUARE FOOT (FEET)
SP	STATIC PRESSURE
SPEC	SPECIFICATION
SS	STAINLESS STEEL
STRUC	STRUCTURAL
-T-	
T	THROAT
TA	TRANSFER AIR
TDH	TOTAL DYNAMIC HEAD
TEMP	TEMPERATURE
TSTAT	THERMOSTAT
TYP	TYPICAL
-V-	
V	VOLT
VAV	VARIABLE AIR VOLUME
VD	VOLUME DAMPER
VFD	VARIABLE FREQUENCY DRIVE
-W-	
W	WIDTH
W/	WITH
W/O	WITHOUT
WB	WET BULB
WMS	WIRE MESH SCREEN
WP	WEATHERPROOF

SYMBOLS LEGEND

Symbol	Description
ANNOTATION	
1 TITLE M-201 SCALE: NTS	TITLE MARK DETAIL OR PLAN NO. - 1 FOUND IN M-201
1 M-501	DETAIL REFERENCE DETAIL NO. - 1 FOUND IN M-501
1 M-501	SECTION MARK SECTION NO. - 1 FOUND IN M-501
1	SHEET KEYNOTE
1	REVISION CLOUD (DELTA 1)
2 M-201	DETAIL BOUNDARY B DETAIL NO. - 2
AC 1-1	EQUIPMENT TAG; DESIGNATION AC, DESIGNATION NUMBER 1-1
L 1.0 FA	LOUVER IN DOOR MINIMUM 1.0 SQ FT, FREE AREA
	POINT OF CONNECTION
	POINT OF DISCONNECTION
DUCT	
	DUCTWORK (NEW)
(E)	DUCTWORK (EXISTING)
(D)	DUCTWORK (EXISTING TO BE DEMOLISHED)
	DUCTWORK WITH ACOUSTIC LINING
	DUCT UNDER POSITIVE PRESSURE
	DUCT UNDER NEGATIVE PRESSURE
UP	RISE IN DUCT (IN DIRECTION OF AIR FLOW)
DN	DROP IN DUCT (IN DIRECTION OF AIR FLOW)
	REHEAT COIL
	FLEX DUCT
	DUCT TRANSITION
	VANED ELBOW
	RADIUS ELBOW
	DUCT FITTING (SEE DETAILS)
	FLEXIBLE DUCT CONNECTION
	TRANSFER AIR BOOT (STRAIGHT) SEE SCHEDULE REQUIREMENTS
	TRANSFER AIR ELBOW WITH ACOUSTIC LINING
CD-A 100	CEILING SUPPLY DIFFUSER, TYPE A, THROW PATTERN 4-WAY, 100 CFM
CR-A 100	CEILING RETURN REGISTER (GRILLE), TYPE A, 100 CFM
	EXISTING TO REMAIN
	EXISTING TO BE DEMOLISHED
	SIDEWALL SUPPLY DIFFUSER
12X6 WR 150	12"X6" SIDEWALL SUPPLY REGISTER, 150 CFM
12X6 WG 150	12"X6" SIDEWALL RETURN / EXHAUST REGISTER, 150 CFM
	ROUND SUPPLY DIFFUSER
	ROUND RETURN DIFFUSER
	FLOOR REGISTER (GRILLE)
	ACCESS PANEL
	COMBINATION SMOKE/FIRE DAMPER AND ACCESS DOOR
	SMOKE DAMPER AND ACCESS DOOR
	BACK DRAFT DAMPER
	VOLUME DAMPER
T	THERMOSTAT
PIPING	
	NEW PIPING
(E)	EXISTING TO REMAIN
(D)	EXISTING TO BE DEMOLISHED
FITTINGS	
	ELBOW DOWN
	ELBOW DOWN TO TEE
	ELBOW UP
	END CAP
	TEE DOWN
	TEE UP
	UNION

SHEET INDEX

NO.	TITLE	SCALE
M0.01	MECHANICAL SYMBOLS LIST, ABBREVIATIONS, AND SHEET INDEX	NONE
M0.02	MECHANICAL GENERAL NOTES	NONE
M0.03	MECHANICAL SPECIFICATIONS	NONE
M0.04	MECHANICAL SPECIFICATIONS	NONE
M0.05	MECHANICAL SPECIFICATIONS	NONE
M0.06	MECHANICAL TITLE 24 ENERGY COMPLIANCE FORMS	NONE
M0.07	MECHANICAL TITLE 24 ENERGY COMPLIANCE FORMS	NONE
M0.08	MECHANICAL SCHEDULES	NONE
M2.0R	MECHANICAL ROOF PLAN	1/16" = 1' - 0"
M4.0R	ENLARGED MECHANICAL ROOF PLAN	1/8" = 1' - 0"
M5.01	MECHANICAL DETAILS	NONE
M5.02	MECHANICAL DETAILS	NONE
M5.03	MECHANICAL DETAILS	NONE
M5.04	MECHANICAL DETAILS	NONE

SCOPE OF WORK

THE SCOPE OF WORK FOR THIS PROJECT SHALL BE TO PROVIDE HVAC IMPROVEMENTS FOR THE ELEVATOR MACHINE ROOMS IN THE PASADENA COURTHOUSE AT 300 E WALNUT ST, PASADENA, CALIFORNIA 91101.

APPLICABLE CODE

PROJECT SHALL COMPLY WITH, BUT NOT LIMITED TO THE FOLLOWING CODE (WITH CITY OF PASADENA AMENDMENTS):

1. 2013 CALIFORNIA BUILDING CODE
2. 2013 CALIFORNIA MECHANICAL CODE
3. 2013 CALIFORNIA ELECTRICAL CODE
4. 2013 CALIFORNIA PLUMBING CODE
5. 2013 CALIFORNIA FIRE CODE
6. 2013 CALIFORNIA ENERGY CODE
7. 2013 CALIFORNIA GREEN BUILDING CODE

CAVAGNERO

SYSKA HENNESSY GROUP

A member company of SH Group, Inc.

Syska Hennessy Group, Inc.
800 Corporate Pointe
Suite 200
Culver City, CA 90230
Tel: 310.312.0200
Fax: 310.665.0172
www.syska.com

REV	DATE	DESCRIPTION
	6/16/2016	100% SD SET
	7/14/2016	100% DD SET
	8/18/2016	100% CD SET
	10/31/2016	90% CD SET
	12/12/2016	REVISED 90% CD SET
	4/03/2017	100% CD/CONFORMED SET
	4/24/2017	BID SET

PASADENA COURTHOUSE ELEVATOR MODERNIZATION

300 E Walnut St, Pasadena, CA 91101

MECHANICAL SYMBOLS LIST, ABBREVIATIONS, AND SHEET INDEX

M0.01

ENERGY CONSERVATION NOTES

MANDATORY MEASURES (§110-119 AND §120-129) APPLY TO ALL SYSTEMS, WHETHER THE DESIGNER CHOOSES THE PRESCRIPTIVE OR PERFORMANCE APPROACH TO COMPLIANCE. MANDATORY MEASURES INCLUDE:

CERTIFICATION OF EQUIPMENT EFFICIENCY (§110 AND §111).
HVAC AND SERVICE WATER HEATING EQUIPMENT EFFICIENCIES (§112 AND §113).
SERVICE WATER HEATING AND POOL HEATING MEASURES (§113 AND §114).
VENTILATION REQUIREMENTS (§121).
DEMAND CONTROLLED VENTILATION §121(C).
THERMOSTATS, SHUT-OFF CONTROL AND NIGHT SETBACK/SETUP (§122).
AREA ISOLATION (§122).
PIPE INSULATION (§123).
DUCT CONSTRUCTION AND INSULATION (§124).
ACCEPTANCE TESTS (§125 AND REFERENCE NONRESIDENTIAL APPENDIX NA7).

LIFE SAFETY NOTES

FIRE ALARM SYSTEM DESIGN UNDER ELECTRICAL DRAWINGS AND DIV. 26 / DIV. 28 SPECIFICATIONS CONTRACTOR SHALL EXAM RECORD DRAWINGS TO LOCATE AND TEST ALL EXISTING FIRE DAMPERS AND REPORT RESULTS TO UNIVERSITY REPRESENTATIVE. ANY FIRE DAMPERS THAT ARE FOUND TO BE NON-OPERATIONAL SHALL BE REPLACED IN KIND. INSTALL FIRE DAMPER OR COMBINATION FIRE/SMOKE DAMPER ON ALL DUCTS PENETRATING FIRE RATED ENCLOSURES AND PARTITIONS, AND RATED CEILINGS OF HORIZONTAL EXITS. THE CONTRACTOR SHALL INTERLOCK ALL COMBINATION FIRE/SMOKE DAMPERS WITH LISTED AREA TYPE SMOKE DETECTORS IN THE BUILDING FIRE LIFE SAFETY SYSTEM. VERIFY WITH LIFE SAFETY SYSTEM CONTRACTOR. SEE FIRE ALARM SPECIFICATION AND SMOKE CONTROL NOTES FOR ADDITIONAL INFORMATION.

MECHANICAL GENERAL NOTES

1. WHERE THERE IS A DISCREPANCY BETWEEN THE DRAWINGS AND SPECIFICATIONS, NOTIFY THE ENGINEER PRIOR TO BID. FOR BIDDING PURPOSES THE MORE STRINGENT SHALL APPLY.
2. THE CONTRACTOR SHALL EXAMINE THE COMPLETE SET OF CONTRACT DOCUMENTS FOR ALL TRADES, AS ISSUED BY THE ARCHITECT AND REVIEW DIMENSIONS, SPACE REQUIREMENTS AND POINT OF CONNECTIONS TO ALL EQUIPMENT. MAKE ANY MINOR ADJUSTMENTS NECESSARY TO AVOID CONFLICTS WITH THE BUILDING STRUCTURE AND THE WORK OF OTHER TRADES.
3. UNLESS INSTRUCTED OTHERWISE, THE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS, LICENSES, AND FEES REQUIRED FOR INSTALLATION OF THE MECHANICAL WORK. FURNISH FINAL CERTIFICATE OF INSPECTION OR WRITTEN EVIDENCE OF ACCEPTANCE BY INSPECTION AUTHORITIES FOR ALL WORK INSTALLED.
4. REFER TO COMPLETE DRAWING PACKAGE FOR EXTENT OF CONSTRUCTION, AND EXACT LOCATION OF FIXTURES, EQUIPMENT, DEVICES , ETC.
5. CONTRACTOR SHALL COORDINATE WITH ALL TRADES TO ENSURE AN UNDERSTANDING OF THE COMPLETE SCOPE OF PROJECT PRIOR TO START OF WORK.
6. ALL EQUIPMENT & MATERIALS SHALL MATCH DESIGN SPECIFICATIONS AND MANUFACTURER'S RECOMMENDED INSTALLATION INSTRUCTIONS.
7. LOCATION OF DUCTWORK IS APPROXIMATE. ALL DRAWINGS AND LAYOUT ARE DIAGRAMMATIC TO SHOW DESIGN INTENT ONLY. CONTRACTOR TO COORDINATE ALL DUCTWORK AND PIPING WITH ALL OTHER WORK IF FIELD CONDITIONS DIFFER SIGNIFICANTLY FROM THOSE SHOWN ON THE DRAWINGS AND AFFECT WORK, INFORM ARCHITECT IMMEDIATELY BEFORE PROCEEDING WITH THAT AREA.
8. INSTALL FIRE DAMPER OR COMBINATION FIRE/SMOKE DAMPER ON ALL DUCTS PENETRATING FIRE RATED ENCLOSURES AND PARTITIONS, AND RATED CEILINGS OF HORIZONTAL EXITS. THE CONTRACTOR SHALL INTERLOCK ALL COMBINATION FIRE/SMOKE DAMPERS WITH LISTED AREA TYPE SMOKE DETECTORS IN THE BUILDING FIRE LIFE SAFETY SYSTEM. VERIFY WITH LIFE SAFETY SYSTEM CONTRACTOR. SEE FIRE ALARM SPECIFICATION AND SMOKE CONTROL NOTES FOR ADDITIONAL INFORMATION.
9. AIR HANDLING UNITS AND FAN COIL UNITS SHALL BE PROVIDED WITH DUCT SMOKE DETECTORS AT THE UNITS OUTLET WHEN THE UNITS CAPACITY EQUALS 2000 CFM OR GREATER.
10. A MINIMUM OF 36" CLEAR WORKING SPACE, NOT LESS THAN 30" WIDE, SHALL BE MAINTAINED IN FRONT OF ALL SWITCHES, OVERCURRENT DEVICES AND ELECTRIC CONTROL COMPONENTS. THE WORKING SPACE SHALL BE CLEAR AND EXTEND FROM THE GRADE, FLOOR, OR PLATFORM TO MINIMUM OF 6'-8" FT. WHERE THE ELECTRICAL EQUIPMENT EXCEEDS 6-1/2 FT IN HEIGHT, THE MINIMUM HEADROOM SHALL NOT BE LESS THAN THE HEIGHT OF THE EQUIPMENT
11. A MINIMUM OF 24" CLEAR WORKING SPACE SHALL BE PROVIDED IN FRONT OF THE ACCESS PANELS.
12. THE SMOKE DETECTORS LOCATED AT AIR MOVING EQUIPMENT SHALL SHUT DOWN ALL AIR HANDLING EQUIPMENT VIA THE LIFE SAFETY SYSTEM. WHEN SMOKE IS DETECTED AT EQUIPMENT, ALL OTHER AIR MOVING EQUIPMENT LOCATED IN OR CONNECTED TO COMMON PLENUM OR SMOKE ZONE SHALL SHUT DOWN.
13. ALL ELECTRICAL CONTROLS FOR THE SMOKE CONTROL SHALL BE RATED FOR SUCH USE.
14. PROVIDE ACCESS PANELS (MATCH WALL OR CEILING RATING) IN ALL WALLS OR CEILINGS WHERE ACCESS TO DAMPERS, CONTROLS, ETC ARE REQUIRED BY CODE. COORDINATE LOCATIONS WITH ARCHITECT.
15. CONTRACTOR SHALL NOTE THE CRITICAL SPACE AVAILABLE ABOVE CEILINGS. PROVIDE TRANSITION PIECES AT CROSSOVERS, UNDER BEAMS, OVER/UNDER PIPES, AS REQUIRED TO ACCOMMODATE DUCTS WITHIN SPACE AVAILABLE, PROVIDING EQUIVALENT DUCT SIZE TO THE DIAMETER SHOWN. COORDINATE CLOSELY WITH OTHER TRADES TO REDUCE NECESSITY OF TRANSITIONS TO A MINIMUM. NO ADDITIONAL COSTS WILL BE PAID FOR ANY REQUIRED TRANSITIONS OR OTHER SPECIAL CHANGE SHAPE PIECES. ALL DUCTWORK SHALL BE SUPPORTED AND SEISMICALLY RESTRAINED PER THE CALIFORNIA BUILDING CODES AND SMACNA STANDARD.
16. THERE SHALL BE NO PIPING AND/OR DUCTWORK RUN THROUGH ELECTRICAL ROOMS UNLESS THAT DUCTWORK AND/OR PIPING IS SERVING THAT ELECTRICAL SPACE.
17. ALL FLEXIBLE DUCT CONNECTIONS TO AIR DISTRIBUTION DEVICES TO BE MIN. 5'-0" ACOUSTICAL FLEX DUCT PER SPECIFICATIONS.
18. NOT ALL SYMBOLS, NOTES, DETAILS AND EQUIPMENT IN SCHEDULES ON GENERAL SHEETS WILL APPLY TO EACH BUILDING. THEY ARE TO COVER ALL BUILDINGS AND WILL APPLY BASED ON SCOPE IN BUILDING.
19. LOCATE EXISTING REINFORCING STEEL UTILIZING ANY SUITABLE METAL DETECTION SYSTEM. DO NOT CUT ANY EXISTING STEEL REINFORCEMENT. SHIFT ANCHOR OR CORE TO MISS THE REBAR.
20. BOLTS MUST BE INSTALLED TO AVOID DAMAGING EXISTING STEEL REINFORCEMENT. IN CASE OF CONFLICT, ADJUST BOLT LOCATION, ALLOWING FOR 1" CONCRETE COVER BETWEEN REBAR AND BOLT.
21. PROVIDE TRANSFER DUCTS AS NECESSARY ABOVE CEILING FOR RETURN AIR PATH TO AIR HANDLING EQUIPMENT SERVING THAT SPACE. REFER TO DETAILS FOR TRANSFER DUCT SIZES.
22. ALL WORK SHALL COMPLY WITH THE STATE OF CALIFORNIA BUILDING CODE, TITLE 24 ENERGY CODE, CALGREEN, AND ALL OTHER GOVERNING CODES AND ORDINANCES.
23. COMBUSTIBLES WITHIN THE PLENUM SPACE MUST COMPLY WITH CALIFORNIA CODE FLAME-SPREAD INDEX OF NOT MORE THAN 25 AND A SMOKE-DEVELOPED RATING OF NOT MORE THAN 50.

CAVAGNERO
MARK CAVAGNERO ASSOCIATES ARCHITECTS
1045 Sansome Street, Suite 200
San Francisco, California 94111
www.cavagnero.com
T: 415.398.6944
F: 415.398.6943

SYSKA HENNESSY GROUP
A member company of SH Group, Inc.
Syska Hennessy Group, Inc.
800 Corporate Pointe
Suite 200
Culver City, CA 90230
Tel: 310.312.0200
Fax: 310.665.0172
www.syska.com

REV	DATE	DESCRIPTION
	6/16/2016	100% SD SET
	7/14/2016	100% DD SET
	8/18/2016	100% CD SET
	10/31/2016	90% CD SET
	12/12/2016	REVISED 90% CD SET
	4/03/2017	100% CD/CONFORMED SET
	4/24/2017	BID SET

PASADENA COURTHOUSE ELEVATOR MODERNIZATION

300 E Walnut St, Pasadena, CA 91101

MECHANICAL GENERAL NOTES

M0.02

MECHANICAL SPECIFICATIONS (AS APPLICABLE)

DIVISION NO. 23 SECTION 23000

MECHANICAL SPECIFICATION

PART 1 GENERAL

1.01 GENERAL PROVISIONS

A. GENERAL REQUIREMENTS:

1. RELATED DOCUMENTS: ENGINEERING SPECIFICATIONS, APPLIANCE AND FIXTURE SPECIFICATION PACKAGE, GENERAL, SPECIAL AND SUPPLEMENTARY CONDITIONS, SHALL FORM A PART OF THESE SPECIFICATIONS.

2. SCOPE OF WORK: PROVIDE ALL REQUIRED LABOR, MATERIALS, EQUIPMENT AND CONTRACTOR'S SERVICES NECESSARY FOR COMPETE AND SAFE INSTALLATION OF HEATING, VENTILATING, AIR CONDITIONING (HVAC) AND PLUMBING WORK IN CONFORMITY WITH REQUIREMENTS OF ALL AUTHORITIES HAVING JURISDICTION; AS INDICATED ON DRAWINGS AND/OR HERE IN SPECIFIED OR DESCRIBED.

3. SITE CLEANLINESS: KEEP SITE FREE FROM THIS SECTION'S SURPLUS MATERIAL, TOOLS AND RUBBISH AT ALL TIMES DURING CONSTRUCTION PERIODS AND, UPON COMPLETION, LEAVE SITE IN CLEAN CONDITION.

4. SITE SECURITY: PROTECT THIS SECTION'S MATERIALS AND EQUIPMENT FROM ALL DAMAGE DUE TO FIRE, THEFT, VANDALISM, WEATHER, ETC.

5. DAMAGE TO OTHER WORK: REPAIR ANY DAMAGED FIREPROOFING CAUSED BY THIS SECTION TO INTEGRITY OF ORIGINAL CONSTRUCTION.

6. DAMAGE TO FIREPROOFING: REPAIR ANY DAMAGED FIREPROOFING CAUSED BY THIS SECTION TO INTEGRITY OF ORIGINAL CONSTRUCTION.

7. SITE SAFETY: CONTRACTOR COVENANTS AND AGREES THAT HE AND HIS SUBCONTRACTORS AND HIS AND THEIR AGENTS, SERVANTS AND EMPLOYEES WILL PROVIDE AND MAINTAIN A SAFE PLACE TO WORK AND THAT HE AND THEY WILL COMPLY WITH ALL LAWS AND REGULATIONS OF ANY GOVERNMENTAL AUTHORITY HAVING JURISDICTION THEREOF, AND CONTRACTOR AGREES TO INDEMNIFY, DEFEND AND HOLD HARMLESS, ENGINEER, OWNER AND ARCHITECT FROM AND AGAINST ANY LIABILITY, LOSS, DAMAGE OR EXPENSE, INCLUDING ATTORNEY'S FEES, ARISING FROM A FAILURE OR ALLEGED FAILURE ON THE PART OF CONTRACTOR, THIS SUBCONTRACTORS AND HIS AND THEIR AGENTS, SERVANTS AND EMPLOYEES TO PROVIDE AND MAINTAIN A SAFE PLACE TO WORK OR TO COMPLY WITH ALL LAWS AND REGULATIONS OF ANY GOVERNMENTAL AUTHORITY HAVING JURISDICTION THEREOF.

8. VERIFICATION OF EXISTING: BEFORE SUBMITTING BID, CONTRACTOR SHALL VISIT THE SITE AND BECOME THOROUGHLY FAMILIAR WITH ACTUAL EXISTING CONDITIONS AND OF THE PRESENT INSTALLATIONS TO WHICH CONNECTIONS MUST BE MADE OR WHICH MUST BE CHANGED OR ALTERED. THE INTENT OF THE WORK IS SHOWN ON THE DRAWINGS AND DESCRIBED HEREIN, AND NO CONSIDERATION WILL BE GRANTED BY REASON OF LACK OF FAMILIARITY ON THE PART OF THE CONTRACTOR WITH ACTUAL PHYSICAL CONDITIONS, REQUIREMENTS, AND PRACTICES AT THE SITE.

9. REQUIREMENTS OF OTHER SECTIONS: CAREFULLY CHECK THE DOCUMENTS OF OTHER SECTIONS TO ASCERTAIN THE REQUIREMENTS OF ANY INTERFACING MATERIALS OR EQUIPMENT BEING FURNISHED AND/OR INSTALLED BY THAT SECTION WHICH RELATE TO THIS SECTION, AND PROVIDE THE PROPER INSTALLATION AND/OR CONNECTION.

10. INFORMATION TRANSFER: TRANSMIT ALL INFORMATION REQUIRED FOR WORK BEING PERFORMED BY OTHER SECTIONS IN AMPLE TIME FOR THE PROPER INSTALLATION AND CONNECTION AND FOR THE PROVISION OF ALL OPENINGS REQUIRED IN FLOORS AND WALLS.

11. HOLES AND STRUCTURE: FIELD DRILLING AND CUTTING OF HOLES IN BUILDING STRUCTURE REQUIRED FOR WORK UNDER THIS SECTION SHALL BE COORDINATED THROUGH THE GENERAL CONTRACTOR AND APPROVED BY OWNER AND BUILDING STRUCTURAL ENGINEER. ALL SUCH COORDINATION, DRILLING, CUTTING AND REINFORCING COSTS SHALL BE BORNE BY THIS CONTRACTOR.

12. SLEEVES: FURNISH AND SET ALL SLEEVES FOR THE PASSAGE OF CONDUIT THROUGH WALLS, ROOF AND FLOORS AND ELSEWHERE AS WILL BE REQUIRED FOR THE PROPER PROTECTION OF EACH CONDUIT PASSING THROUGH BUILDING SURFACES. COORDINATE THIS WORK WITH GENERAL CONTRACTOR IN ORDER TO PROPERLY EXPEDITE AND PERFORM THIS WORK.

13. PASSAGE OF EQUIPMENT: CHECK THE DIMENSIONAL REQUIREMENTS OF EQUIPMENT CAN PASS THROUGH THE NECESSARY AREAS TO REACH ITS ULTIMATE INSTALLED LOCATION. INCLUDE IN BID COSTS FOR ALL WORK REQUIRED, INCLUDING ANY WORK REQUIRED TO MOVE THE EQUIPMENT THROUGH THE SITE TO THIS FINAL LOCATION, INCLUDING ANY DISMANTLING AND RE-ASSEMBLY.

14. SIGNAGE: PROVIDE SIGNAGE REQUIRED BY CODES AND AUTHORITIES HAVING JURISDICTION.

15. POTENTIAL DELIVERY PROBLEMS: NOTIFY THE GENERAL CONTRACTOR AND ENGINEER IN WRITING, WITHIN FIVE DAYS OF AWARD OF CONTRACT, OF THE PROPOSED DELIVERY SCHEDULE OF ANY EQUIPMENT OR MATERIAL THAT MAY PREVENT THE INSTALLATION FROM BEING COMPLETED BY THE PROJECT COMPLETION DATE.

16. WARRANTY: SUBMIT A SINGLE GUARANTEE STATING THAT ALL PORTIONS OF THE WORK ARE IN ACCORDANCE WITH CONTRACT REQUIREMENTS. GUARANTEE ALL WORK AGAINST FAULTY AND IMPROPER MATERIAL AND WORKMANSHIP FOR A PERIOD OF ONE YEAR FROM DATE OF FINAL ACCEPTANCE BY OWNER, EXCEPT THAT WHERE GUARANTEES OR WARRANTIES FOR LONGER TERMS ARE SPECIFIED BY CONTRACT, SUCH LONGER TERM SHALL APPLY.

17. RECTIFICATION: AT NO ADDITIONAL COST TO THE OWNER, WITHIN 24 HOURS AFTER NOTIFICATION, CORRECT ANY DEFICIENCIES WHICH OCCUR DURING THE GUARANTEE PERIODS, ALL TO THE SATISFACTION OF THE OWNER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE CAUSED BY SUCH DEFICIENCIES AND REPAIR THEREOF AND REIMBURSE THE OWNER FOR ALL COSTS INCURRED.

B. MAJOR ITEMS OF WORK INCLUDE (AS APPLICABLE):

B.1. AIR CONDITIONING SYSTEMS: SUPPLY AND RETURN AIR DISTRIBUTION SYSTEMS, INCLUDING DUCTWORK, SUPPLY AIR DIFFUSERS, CONTROLS AND CONNECTIONS TO EXISTING WORK.
B.2. PIPE AND PIPING ACCESSORIES.
B.3. TESTING AND BALANCING OF ALL SYSTEMS.
B.4. SPRING ISOLATION.
B.5. DEMOLITION OF EXISTING EQUIPMENT, PIPING, AND DUCTWORK.

C. GENERAL ITEMS:

C.1. CUTTING AND PATCHING FOR MECHANICAL WORK.
C.2. COORDINATE ALL NEW WORK WITH EXISTING INSTALLATIONS.
C.3. CONDENSATE DRAIN LINES SHALL HAVE NO LESS THAN 1% SLOPE.
C.4. CONTRACTOR SHALL INSPECT JOB SITE PRIOR TO BID AND VERIFY EXACT LOCATION, SIZE AND LOADING OF EXISTING PIPING PRIOR TO INSTALLATION AND CONNECTION OF ANY PIPING.

1.02 REFERENCE STANDARDS:

A. IN ADDITION TO COMPLYING WITH ALL OTHER LEGAL REQUIREMENTS, COMPLY WITH CURRENT PROVISIONS OF GOVERNING CODES AND REGULATIONS IN EFFECT DURING THE PROGRESS OF THE WORK, AND WITH THE FOLLOWING:

1. DRAWINGS AND SPECIFICATION REQUIREMENTS SHALL GOVERN WHERE THEY EXCEED CODE AND REGULATION REQUIREMENTS.

2. WHERE REQUIREMENTS BETWEEN GOVERNING CODES AND REGULATIONS VARY, THE MORE STRINGENT SHALL APPLY.

3. NOTHING CONTAINED IN CONTRACT DOCUMENTS SHALL BE CONSTRUED AS AUTHORITY OR PERMISSION TO DISREGARD OR VIOLATE LEGAL REQUIREMENTS. THE CONTRACTOR SHALL IMMEDIATELY DRAW THE ATTENTION OF ARCHITECT TO ANY SUCH CONFLICTS NOTED IN THE CONTRACT DOCUMENTS.

1.03 PERMITS AND INSPECTIONS:

A. THE CONTRACTOR SHALL SECURE ALL APPROVALS AND PAY ALL FEES FOR ALL WORK INSTALLED. CERTIFICATE SHALL BE DELIVERED TO OWNER BEFORE FINAL PAYMENT WILL BE MADE.

1.04 DESCRIPTION:

A. SPECIFICATIONS ARE OF SIMPLIFIED FORM AND INCLUDE INCOMPLETE SENTENCES, WORDS OR PHRASES SUCH AS "THE CONTRACTOR SHALL", "SHALL BE", "FURNISH", "PROVIDE", "A", "AN", "THE", AND "ALL" HAVE BEEN OMITTED FOR BREVITY.

B. DRAWING ARE DIAGRAMMATIC AND INDICATE GENERAL ARRANGEMENT OF SYSTEMS AND WORK. FOLLOW DRAWINGS IN LAYING OUT WORK AND CHECK DRAWINGS OF OTHER TRADES TO VERIFY SPACE CONDITIONS. MAINTAIN HEADROOM AND SPACE CONDITIONS.

C. DEFINITIONS:

1. "FURNISH" OR "PROVIDE": TO SUPPLY, INSTALL AND CONNECT UP COMPLETE AND READY FOR SAFE AND REGULAR OPERATION OF PARTICULAR WORK REFERRED TO UNLESS SPECIFICALLY OTHERWISE NOTED.

2. "INSTALL": TO ERECT, MOUNT AND CONNECT COMPLETE WITH RELATED ACCESSORIES.

3. "SUPPLY": TO PURCHASE, PROCURE, ACQUIRE AND DELIVER COMPLETE WITH RELATED ACCESSORIES.

4. "WORK": LABOR, MATERIALS, EQUIPMENT, APPARATUS, CONTROLS, ACCESSORIES AND OTHER ITEMS REQUIRED FOR PROPER AND COMPLETE INSTALLATION.

5. "PIPING": PIPE, TUBE, FITTINGS, FLANGES, VALVES, CONTROLS, STRAINERS, HANGERS, SUPPORTS, UNIONS, TRAPS, DRAINS, INSULATION, AND RELATED ITEMS.

6. "WIRING": RACEWAY, FITTINGS, WIRE, BOXES AND RELATED ITEMS.

7. "CONCEALED": EMBEDDED IN MASONRY OR OTHER CONSTRUCTION, INSTALLED IN FURRED SPACES, WITHIN DOUBLE PARTITIONS OR HUNG CEILINGS, IN TRENCHES, IN CRAWL SPACES OR IN ENCLOSURES.

8. "EXPOSED": NOT INSTALLED UNDERGROUND OR "CONCEALED" AS DEFINED ABOVE.

9. "EQUIVALENT": EQUIVALENT IN MATERIALS, WEIGHT, SIZE, DESIGN AND EFFICIENCY OF SPECIFIED PRODUCT.

D. SCOPE OF WORK: LABOR, MATERIALS, EQUIPMENT, SERVICES AND FEES NECESSARY FOR COMPLETE SAFE INSTALLATION IN CONFORMITY WITH APPLICABLE CODES AND AUTHORITIES HAVING JURISDICTION; AS INDICATED ON DRAWINGS AND HEREIN SPECIFIED.

1.05 JOB CONDITIONS:

A. CONNECTION TO EXISTING WORK:

1. INSTALL NEW WORK AND CONNECT TO EXISTING WORK WITH MINIMUM INTERFERENCE TO EXISTING FACILITIES.

2. TEMPORARY SHUTDOWNS OF EXISTING SERVICES.

2.1. AT NO ADDITIONAL CHARGES.
2.2. AT TIMES NOT TO INTERFERE WITH NORMAL OPERATION OF EXISTING FACILITIES.
2.3. ONLY WITH WRITTEN CONSENT OF OWNER.

3. ALARM AND EMERGENCY SYSTEMS: NOT TO BE INTERRUPTED.

4. MAINTAIN CONTINUOUS OPERATION OF EXISTING FACILITIES AS REQUIRED WITH NECESSARY TEMPORARY CONNECTION BETWEEN NEW AND EXISTING WORK.

5. CONNECT NEW WORK TO EXISTING WORK IN NEAT AND ACCEPTABLE MANNER. RESTORE EXISTING DISTURBED WORK TO ORIGINAL CONDITION INCLUDING MAINTENANCE OF WIRING CONTINUITY AS REQUIRED.

B. REMOVAL AND RELOCATION OF EXISTING WORK:

1. REMOVE UNUSED PIPING, DUCTWORK AND MATERIAL.

1.06 QUALITY ASSURANCE:

A. QUALITY AND GAUGES OF MATERIALS:

1. QUALITY OF MATERIALS:

1.1. NEW, BEST OF THEIR RESPECTIVE KINDS, FREE FROM DEFECTS AND LISTED BY UNDERWRITES' LABORATORIES, INC. AND BEARING THEIR LABEL.
1.2. MATERIALS AND EQUIPMENT OF SIMILAR APPLICATION: SAME MANUFACTURE, EXCEPT AS NOTED.
1.3. CONFORM TO REFERENCE STANDARDS.

1.07 PRODUCT DELIVERY, STORAGE AND HANDLING:

A. MOVING OF EQUIPMENT: WHERE NECESSARY, SHIP IN CRATED SECTIONS OF SIZE TO PERMIT PASSING THROUGH AVAILABLE SPACES.

B. ACCESSIBILITY:

1. FOR OPERATION, MAINTENANCE AND REPAIR.

2. MINOR DEVIATIONS: PERMISSIBLE.

3. CHANGE OF MAGNITUDE OR INVOLVING EXTRA COST: NOT PERMISSIBLE WITHOUT REVIEW.

4. GROUP CONCEALED MECHANICAL EQUIPMENT REQUIRING ACCESS WITH EQUIPMENT FREELY ACCESSIBLE THROUGH ACCESS DOORS.

1.08 SUBMITTALS:

A. PROVIDE TWO (2) HARD COPIES OR AN ELECTRONIC COPY OF SUBMITTAL MATERIAL WITH DESCRIPTIVE DATA FOR ALL PRODUCTS AND MATERIALS, INCLUDING BUT NOT LIMITED TO THE FOLLOWING, PRIOR TO INSTALLATION. ALL SUBMITTALS SHALL BE HIGHLIGHTED TO INDICATE SPECIFIC PRODUCTS OR MATERIALS BEING USED. ALLOW 10 DAYS FOR ENGINEER TO REVIEW SUBMITTALS.

1. SHOP DRAWINGS OF NEW INSTALLATIONS SHOWING COMPLIANCE WITH DESIGN INTENT AND FULLY COORDINATED WITH ALL TRADES AND EXISTING BUILDING COMPONENTS AND SYSTEMS.
2. AIR HANDLING UNIT, CONDENSING UNIT, AND ALL OTHER SCHEDULED EQUIPMENT AND COMPONENTS.
3. DUCTWORK ACCESSORIES.
4. DUCTWORK TYPICAL CONSTRUCTION.
5. DUCT SEALING.
6. DAMPERS.
7. AIR TEST AND BALANCE.
8. PIPE, PIPE SUPPORT, AND PIPING ACCESSORIES.
9. CONTROLS DRAWINGS.
10. DIFFUSERS, GRILLES, AND REGISTERS.
11. VIBRATION ISOLATION.
12. ONE SET OF AS-BUILT REPRODUCIBLE DRAWINGS.

B. PROVIDE 1 COPY OF APPROVED SUBMITTALS TO THE OFFICE OF THE BUILDING ENGINEER.

C. SUBMITTALS TRANSMITTED VIA E-MAIL SHALL HAVE A MAXIMUM ATTACHMENT SIZE OF 5MB.
1. IF TRANSMITTAL OF LARGER FILE IS REQUIRED, CONTRACTOR SHALL CONFIGURE A SECURE FILE TRANSFER LOCATION ACCESSIBLE BY JCC AND ENGINEER REPRESENTATIVES VIA INTERNET AND NOTIFY THE APPROPRIATE PARTIES WHEN FILES HAVE BEEN POSTED TO THAT LOCATION REQUIRING REVIEW.

1.09 MAINTENANCE MANUALS AND AS-BUILT DRAWINGS:

A. PROVIDE FOUR (4) COPIES OF OPERATING AND MAINTENANCE MANUAL FOR OWNER'S USE FOR EACH PIECE OF EQUIPMENT. EACH ITEM SHALL BE CROSS-REFERENCED AND NUMBERED WITH AS-BUILT DRAWING DESCRIPTIONS.

B. AS-BUILT DRAWINGS: DELIVER TO ENGINEER, ONE SET OF REDLINED MARK-UP, AIR BALANCE REPORT AND PANEL SCHEDULES SHOWING WORK AS ACTUALLY INSTALLED THREE (3) DAYS PRIOR TO FINAL PUNCH WALK.

1.10 SEISMIC SUPPORT:

A. CONTRACTOR SHALL SUPPORT AND BRACE ALL NEW HVAC AND PLUMBING SYSTEMS IN ACCORDANCE WITH CODE SEISMIC REQUIREMENTS.

CAVAGNERO
MARK CAVAGNERO ASSOCIATES ARCHITECTS
1045 Sansome Street, Suite 200
San Francisco, California 94111
www.cavagnero.com
T: 415.398.6944
F: 415.398.6943

SYSKA HENNESSY GROUP
A member company of SH Group, Inc.
Syska Hennessy Group, Inc.
800 Corporate Pointe
Suite 200
Culver City, CA 90230
Tel: 310.312.0200
Fax: 310.665.0172
www.syska.com

REV	DATE	DESCRIPTION
	6/16/2016	100% SD SET
	7/14/2016	100% DD SET
	8/18/2016	100% CD SET
	10/31/2016	90% CD SET
	12/12/2016	REVISED 90% CD SET
	4/03/2017	100% CD/CONFORMED SET
	4/24/2017	BID SET

PASADENA COURTHOUSE ELEVATOR MODERNIZATION
300 E Walnut St, Pasadena, CA 91101

MECHANICAL SPECIFICATIONS

M0.03

MECHANICAL SPECIFICATIONS CONTINUED (AS APPLICABLE)

PART 2 PRODUCTS

2.01 DUCTWORK

A. GENERAL: ALL SHAFTING, DUCTS, DAMPERS, ACCESS DOORS, JOINTS, HANGERS, STIFFENERS, FIRE DAMPERS AND FIRE RETARDING MATERIALS, IN ACCORDANCE WITH REQUIREMENTS OF SMACNA, "HVAC DUCT CONSTRUCTION STANDARDS", LATEST EDITION, AND ALL OTHER AUTHORITIES HAVING JURISDICTION AND AS DESCRIBED HEREIN. ALL SHEET METAL WORK SHALL BE SEAL CLASS B AND HAVE A PRESSURE CLASSIFICATION AS FOLLOWS:

1. SUPPLY DUCT BETWEEN MAIN LOOP AND INLET TO TERMINAL AIR UNIT - 4 INCHES W.G.
2. SUPPLY DUCTS DOWNSTREAM OF TERMINAL AIR UNITS, AIR HANDLING UNITS AND FANS - 2 INCHES W.G.
3. RETURN AND EXHAUST AIR DUCTS - 2 INCHES W.G.

B. DUCTWORK: UNLESS OTHERWISE SPECIFIED.

1. COLD ROLLED "COMMERCIAL" QUALITY HOT DIPPED GALVANIZED IN ACCORDANCE WITH ASTM NO. M525-67.

1.1. AIR CONDITIONING SYSTEMS.
1.2. VENTILATION SYSTEMS.

2. DIMENSIONS SHOWN ON DRAWINGS ARE CLEAR INSIDE DIMENSIONS.
3. FITTINGS: SAME GAUGE AND CONSTRUCTION AS DUCTS. ELBOWS SHALL HAVE CENTERLINE RADIUS NOT LESS THAN 1.5 TIMES WIDTH.
4. DUCT SUPPORTS AS REQUIRED.
5. DUCTS WITH TRANSVERSE AND LONGITUDINAL BRACING IN ACCORDANCE WITH SMACNA.

C. ACCESS DOORS:

1. FURNISH ACCESS DOOR OF SUFFICIENT SIZE AS REQUIRED. FOR ACCESS, INSPECTION MAINTENANCE AND REPLACEMENT TO ALL INSTRUMENTS, CONTROLS AND EQUIPMENT.

D. DAMPERS:

1. FURNISH ALL DAMPERS NECESSARY FOR PROPER CONTROL AND BALANCING OF AIR DISTRIBUTION AS FOLLOWS:
1.1. ALL DUCTS WHICH SPLIT IN 2 OR MORE BRANCHES TO SERVE SUPPLY DIFFUSERS.
1.2. AT EACH SUPPLY AND RETURN BRANCH DUCT, AS FAR AWAY FROM EACH OUTLET AND INLET AS POSSIBLE.
1.3. ADJUSTABLE AND ACCESSIBLE.
1.4. ADDITIONALLY AS INDICATED.

I.5. FIRE/SMOKE DAMPERS SHALL BE DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH NFPA STANDARD 90A AND UL STANDARD 555 AND SHALL BE SO LABELED WITH A PERMANENT IDENTIFICATION. FIRE/SMOKE DAMPER SHALL BE LEAKAGE CLASS II, RATED FOR DYNAMIC USE, 165 DEG. FUSIBLE LINK, PROVIDED WITH FACTORY ELECTRIC ACTUATOR AND FACTORY INSTALLED AND PREWIRED DUCT MOUNTED SMOKE DETECTOR. FIRE/SMOKE DAMPERS SHALL BE CSFM LISTED FOR BOTH FIRE AND SMOKE. "POTTORFF" SERIES FSD-142.

J. TURNING VANES: GALVANIZED STEEL, DOUBLE THICKNESS TURNING VANES WITH 2 IN. INSIDE RADIUS ALL SQUARE ELBOWS, UNLESS OTHERWISE NOTED.

J. DUCT MTD. SMOKE DETECTORS SHALL BE "SYSTEM SENSOR" DH400 OR EQUIVALENT. AREA SMOKE DETECTORS SHALL BE SERIES 400.

K. MOTORIZED DAMPERS SHALL BE "RUSKIN" CD-50 LOW LEAKAGE TYPE ACTUATORS BY "BELIMO" UNLESS OTHERWISE NOTED.

2.02 AIR OUTLETS AND INLETS:

A. ALL DIFFUSERS, GRILLES AND REGISTERS SHALL BE OF TYPE AND CAPACITY AS INDICATED ON DRAWINGS, STEEL AND/OR EXTRUDED ALUMINUM CONSTRUCTION WITH BAKED ENAMEL FINISH COLOR AS SELECTED BY ARCHITECT. DIFFUSERS TO HAVE NO VISIBLE SCREW HEADS OR CONNECTORS. RETURN GRILLES AND EXHAUST REGISTERS SIMILAR TO SUPPLY.

B. BALANCING DAMPERS SHALL BE PROVIDED IN THE BRANCH DUCT AS FAR AS POSSIBLE FROM ALL SUPPLY AND RETURN DEVICES. THESE SHALL BE ADJUSTABLE AND ACCESSIBLE.

C. OUTLETS FURNISHED SHALL PROVIDE FOR THE REQUIRED CAPACITY WITH NO APPARENT DRAFTS OR EXCESSIVE AIR MOVEMENT. OUTLET WHICH CAUSE EXCESSIVE AIR MOVEMENT OR DRAFTS SHALL BE REPLACED AT NO COST TO THE OWNER.

D. SEE PLANS AND SCHEDULES FOR DIFFUSER TYPES AND MFR.

E. THE NOISE LEVEL PRODUCED SHALL COMPLY WITH ALL REQUIREMENTS OF THE ACOUSTICAL SPECIFICATION STATED HEREIN. A REPRESENTATIVE SAMPLE SHALL BE TESTED IN ACCORDANCE WITH THE PROCEDURE SPECIFIED HEREIN IN ORDER TO DEMONSTRATE SUCH COMPLIANCE. ALL MEASUREMENTS SHALL BE MADE IN ACCORDANCE WITH AIR DIFFUSION COUNCIL TEST CODE NO. 1062R3 AND ASHRAE STANDARD 36-72. TEST CONDITIONS SHALL BE IN ACCORDANCE WITH THE APPLICABLE STANDARDS. THE TEST RESULTS SHALL BE CERTIFIED BY THE TESTING AGENCY AND SUBMITTED FOR APPROVAL. THE TEST REPORT SHALL INCLUDE A COMPLETE DESCRIPTION OF THE TEST CONDITIONS, MEASUREMENT PROCEDURE AND SAMPLE CALCULATION.

F. THE SOUND POWER LEVEL (PWL. RE 10-12 WATTS) OF EACH TYPE AND SIZE OF DIFFUSER SPECIFIED SHALL NOT EXCEED THE VALUES AS FOLLOWS:

PWL IN DB RE 10-12 WATTS OCTAVE BAND CENTER FREQUENCY, HZ

OCTAVE BAND CENTER FREQUENCY, HZ	DIFFUSER UP TO CFM RANGE			
	125	126-180	181-280	281-400
125	46	48	50	51
250	39	41	43	44
500	33	35	35	38
1000	29	31	33	34
2000	26	28	30	31
4000	24	26	28	29
8000	23	25	27	28

2.03 HVAC AND DOMESTIC WATER PIPING

A. PIPE:

1. 2-1/2" AND SMALLER: SEAMLESS COPPER TUBING, TYPE L, COLD DRAWN, HARD TEMPER. ASTM B88, WROUGHT COPPER FITTINGS WITH

1.1. NON-POTABLE: SAME AS DOMESTIC WATER.

1.2. CONDENSATE DRAIN: SAME AS DOMESTIC WATER OR SEAMLESS TYPE M DRAWN TEMPER. ASTM B88.

2. REFRIGERANT PIPING (HOT GAS AND LIQUID): COPPER TUBE ASTM B 280, TYPE ACR, DRAWN-TEMPER TUBING, WROUGHT COPPER FITTINGS WITH BRAZED JOINTS.

B. FITTINGS:

1. WROUGHT COPPER. ANSI B16.22.

C. JOINTS:

1. SOLDER FILLER: ASTM B32, LEAD FREE ALLOYS.

2. BRAZING FILLER: AWS A5.8, BCUP SERIES, COPPER-PHOSPHORUS ALLOYS FOR JOINING COPPER WITH COPPER.

D. INSULATION:

1. INSULATE ALL PIPING, FITTINGS, VALVES, STRAINERS, ETC., BY EITHER PREFABRICATING OR BY FABRICATING FITTINGS FROM METERED SEGMENTS OF PIPE INSULATION TO AN EQUAL THICKNESS OF ADJOINING PIPE INSULATION.

2.04 SUPPORTS, ANCHORS AND RESTRAINTS

A. PIPE HANGERS, SUPPORTS, AND GUIDES:

1. GENERAL:

1.1. ASSURE ADEQUATE SUPPORT FOR PIPE AND CONTENTS.
1.2. PREVENT VIBRATION OR SWAYING.
1.3. PROVIDE FOR EXPANSION AND CONTRACTION.
1.4. SUPPORTS OF WIRE, ROPE, WOOD, CHAIN, STRAP PERFORATED BAR OR ANY OTHER MAKESHIFT DEVICE NOT PERMITTED.
1.5. COMPLY WITH APPLICABLE REQUIREMENTS AT ANSI B31.1.0 AND B31.2 FOR PIPING.
1.6. SUPPORT PIPING INDEPENDENTLY SO THAT EQUIPMENT IS NOT STRESSED BY PIPING WEIGHT OF EXPANSION.
1.7. HANGERS AND SUPPORTS SHALL HAVE MINIMUM SAFETY FACTOR OF THREE (3), BASED ON ULTIMATE TENSILE OR COMPRESSIVE STRENGTH, AS APPLICABLE, OF MATERIAL USED.
1.8. PRIME COAT EXPOSED STEEL HANGERS AND SUPPORTS:
1.8.1. HANGERS AND SUPPORTS LOCATED IN CRAWL SPACES, PIPES SHAFTS AND SUSPENDED CEILING SPACES ARE NOT CONSIDERED EXPOSED.

2. HORIZONTAL PIPING, EXCEPT AS NOTED:

2.1. ADJUSTABLE CLEVIS TYPE AND ROD:

2.1.1. ALL SERVICES AT OR BELOW 250°F.

2.2. THREADED STEEL RODS:

2.2.1. 2 IN VERTICAL ADJUSTMENT WITH 2 NUTS EACH END FOR POSITIONING AND LOCKING.
2.2.2. SIZE TO 12 IN IPS:

PIPE, IPS	ROD
TO 2 IN.	3/8 IN.
2-1/2 IN. AND 3 IN.	1/2 IN.
4 IN.	5/8 IN.

3. INSTALL PIPE ISOLATORS BETWEEN HANGERS AND:

3.1. UNINSULATED COPPER TUBING.

3.2. WHEREVER ANY PIPE REQUIRED SOUND AND VIBRATION ISOLATION.

4. MISCELLANEOUS STEEL:

4.1. PROVIDE MISCELLANEOUS STEEL MEMBERS, BEAMS, BRACKETS, ETC., FOR SUPPORT OF WORK IN THIS DIVISION UNLESS SPECIFICALLY INCLUDED IN OTHER DIVISIONS.

B. PIPE SUPPORT SPACING:

1. MAXIMUM SPACING FOR HORIZONTAL PIPING:

TYPE OF PIPE	SIZE	MAXIMUM SPACING
BRASS OR COPPER	3/4 IN. AND SMALLER	5 FT
	1- 1-1/4 IN.	6 FT
	1-1/2 TO 3 IN.	8 FT

SPACING NOTES:

NOTE 1 TYPE OF CAST IRON AND DURIRON.
NOTE 2 TWO SUPPORTS PER JOINT.
NOTE 3 SUPPORT TO BE WITHIN 18 INCHES OF HUB OR JOINT.
NOTE 4 SUPPORT TO BE PLACED ON OR IMMEDIATELY ADJACENT TO COUPLING.
NOTE 5 ADDITIONAL SUPPORT AT:

-CHANGE IN DIRECTION.
-BRANCH PIPING AND RUNOUTS OVER 5 FT.
-CONCENTRATED LOADS DUE TO VALVES, STRAINERS AND OTHER SIMILAR ITEMS.
-AT VALVES 4 IN. AND LARGER IN HORIZONTAL PIPING.
-SUPPORT PIPING ON EACH SIDE OF VALVE.

C. ATTACHMENT TO STRUCTURE:

1. WOOD TRUSS:

1.1. APPROVED SCREW.
1.2. DO NOT CUT WOOD TRUSS WITHOUT WRITTEN APPROVAL OF OWNER.
1.3. OTHER METHODS AS APPROVED BY LICENSED STRUCTURAL ENGINEER.

2.05 INSULATION AND LINING

A. MATERIALS:

1. INSULATION, JACKETS, FACINGS, ADHESIVES, COATINGS, AND ACCESSORIES FIRE HAZARD RATING BY UL, INC. STEINER TUNNEL TEST METHOD FOR FIRE HAZARD CLASSIFICATION OF BUILDING MATERIALS, STANDARD UL 723, ASTM E-84, NFPA-225.

1.1. FLAMESPREAD: MAXIMUM 25.
1.2. FUEL CONTRIBUTED AND SMOKE DEVELOPED: MAXIMUM 50.
1.3. FLAMEPROOFING TREATMENTS SUBJECT TO DETERIORATION DUE TO MOISTURE OR HUMIDITY NOT ACCEPTABLE.

2. INSULATION SHALL BE MANVILLE, OR EQUAL.

3. LABEL AS REQUIRED BY CODE.

B. ALL INSULATION APPLIED ACCORDING TO MANUFACTURER'S PUBLISHED RECOMMENDATIONS.

C. INSULATE ALL PIPING INCLUDING REFRIGERANT AND CONDENSATE DRAIN.

D. TYPE OF INSULATION:

1. PIPE INSULATION: GLASS FIBER INSULATION WITH ALL SERVICE JACKET AND VAPOR BARRIER, MANVILLE MICRO-LOK

1.1. CONDENSATE:

1.1.1. 1/2" THICK. K=.25

1.2. REFRIGERANT PIPING:

1.2.1. 1" THICK. K=.25. PROVIDE WEATHERPROOF JACKET ON OUTDOOR PIPING.

2.06 REFER TO SCHEDULE ON SHEET M-004.

A. AIR HANDLING UNIT AND CONDENSING UNIT
B. EXHAUST FAN

2.07 IDENTIFICATION

A. AN IDENTIFICATION LABEL SHALL BE PROVIDED FOR THE FOLLOWING TYPES OF EQUIPMENT:

1. AIR HANDLING UNITS, CONDENSING UNITS, EXHAUST FAN, EXHAUST FAN TIMER, PIPING, AND THERMOSTATS.

B. IDENTIFICATION LABELS SHALL BE BY SETON, OR EQUIVALENT. PROVIDE LABELS & FLOW ARROWS ON ALL PIPING. @ 10' INTERVALS.

C. IDENTIFICATION SHALL CONFORM TO BLDG. STD. WHERE APPLICABLE.

CAVAGNERO

SYSKA HENNESSY GROUP

Syska Hennessy Group, Inc.
800 Corporate Pointe
Suite 200
Culver City, CA 90230
Tel: 310.312.0200
Fax: 310.665.0172
www.syska.com

REV	DATE	DESCRIPTION
	6/16/2016	100% SD SET
	7/14/2016	100% DD SET
	8/18/2016	100% CD SET
	10/31/2016	90% CD SET
	12/12/2016	REVISED 90% CD SET
	4/03/2017	100% CD/CONFORMED SET
	4/24/2017	BID SET

PASADENA
COURTHOUSE
ELEVATOR MODERNIZATION
300 E Walnut St, Pasadena, CA 91101

MECHANICAL
SPECIFICATIONS

M0.04

MECHANICAL SPECIFICATIONS CONTINUED (AS APPLICABLE)

PART 3 EXECUTION

3.01 INSTALLATION OF THE WORK

A. THE CONTRACT DRAWINGS INDICATE THE GENERAL ARRANGEMENTS FOR THE HVAC AND PLUMBING SYSTEMS.

1. DRAWINGS ARE DIAGRAMMATIC AND DO NOT INDICATE NECESSARY OFFSETS, OBSTRUCTIONS OR STRUCTURAL CONDITIONS.
2. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO INSTALL THE WORK IN SUCH A MANNER THAT IT WILL BE AT THE HIGHEST ELEVATION POSSIBLE, CONFORM TO THE STRUCTURE, AVOID OBSTRUCTIONS, MAINTAIN HEADROOM, LEAVE ADEQUATE CLEARANCES FOR LIGHT FIXTURES, RETURN AIR PATHWAYS, MAINTENANCE AND REPAIRS, AND PROVIDE CLEARANCE AND ACCESS AS REQUIRED BY CODES. NOTHING SHALL BE INSTALLED BELOW CEILING LEVEL WITHOUT ARCHITECT'S WRITTEN CONSENT.
3. ABOVE ITEMS TO BE PERFORMED AT NO ADDITIONAL COST TO THE OWNER.
4. PROCEED AS RAPIDLY AS THE BUILDING CONSTRUCTION WILL PERMIT.
5. THOROUGHLY CLEAN ITEMS BEFORE INSTALLATION. CAP OPENING TO EXCLUDE DIRT UNTIL FINAL CONNECTION HAS BEEN MADE.
6. CUT MATERIALS ACCURATELY, WORK INTO PLACE WITHOUT SPRINGING OR FORCING, PROPERLY CLEAR WINDOWS, DOORS AND OTHER OPENINGS. EXCESSIVE CUTTING OR OTHER WEAKENING OF THE BUILDING STRUCTURE WILL NOT BE PERMITTED.
7. FIRE CAULK ANY PIPING, CONDUIT PENETRATIONS THRU FIRE RATED PARTITION TO MATCH THE RATING OF THE PARTITION.
8. MANUFACTURER'S DRAWINGS AND INSTRUCTIONS SHALL BE FOLLOWED IN ALL CASES WHERE THE MAKERS OF DEVICES AND EQUIPMENT FURNISH DIRECTIONS OR DETAILS NOT SHOWN ON THE DRAWINGS OR DESCRIBED IN THE SPECIFICATIONS.
9. DRAWINGS ARE NOT INTENDED TO BE SCALED, BUT SHALL BE FOLLOWED WITH SUFFICIENT ACCURACY TO COORDINATE WITH OTHER WORK AND STRUCTURAL LIMITATIONS.
10. SEISMIC DESIGN: THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ANCHORS, SUPPORTS AND CONNECTION OF MECHANICAL WORK TO THE BUILDING STRUCTURE TO PREVENT DAMAGE AS A RESULT OF AN EARTHQUAKE, INCLUDING MANUFACTURED EQUIPMENT, THE CONNECTION AND INTEGRITY OF SHOP FABRICATED AND FIELD FABRICATED MATERIALS AND EQUIPMENT. ALL SUPPORTS, EQUIPMENT AND CONNECTIONS THERETO SHALL BE DESIGNED TO CONFORM TO REQUIREMENTS OF THE CALIFORNIA ADMINISTRATIVE CODE, OR OTHER GOVERNING CODES.
11. ALL WORK SHALL BE PROPERLY SUPPORTED FROM BUILDING STRUCTURE AND/OR FRAMING IN AN APPROVED MANNER, INDEPENDENT OF THE CEILING SUPPORT SYSTEM. WHERE OVERHEAD CONSTRUCTION DOES NOT PERMIT DIRECT FASTENING OF SUPPORTS, FURNISH ADDITIONAL FRAMING.
12. ALL EQUIPMENT SHALL BE SECURELY FASTENED TO BUILDING CONSTRUCTION WITH APPROVED SUPPORTS.
13. REFER TO ENGINEERING DRAWINGS FOR EXACT LOCATION OF DIFFUSERS, GRILLES, AND THERMOSTATS.
14. COORDINATE THE WORK OF THIS SECTION WITH THE WORK OF OTHER SECTIONS IN AMPLE TIME FOR PROPER INSTALLATION AND CONNECTION.
15. CAREFULLY CHECK SPACE REQUIREMENTS, INCLUDING SERVICING SPACE REQUIREMENTS, WITH OTHER SECTIONS TO ENSURE THAT ALL EQUIPMENT AND MATERIALS CAN BE INSTALLED IN THE SPACES ALLOTTED THERETO.
16. PREPARE DRAWINGS, ATTEND MEETINGS, OBTAIN ALL APPROVALS REQUIRED BY ALL AUTHORITIES HAVING JURISDICTION, CONDUCT REQUIRED TESTS AND OBTAIN REQUIRED PERMITS.
17. SEISMIC RESTRAINT:

17.1. 2013 CALIFORNIA BUILDING CODE.
17.2. SEISMIC DESIGN CATEGORIES.
17.3. PROVIDE THE MANUFACTURER'S CERTIFICATE OF COMPLIANCE WHEN REQUIRED BY CONTRACT DOCUMENTS OR REGULATORY AGENCY.
17.4. SEISMIC ANCHORAGE SHALL BE PERFORMED ON ALL SUSPENDED, FLOOR-, ROOF- AND WALL-MOUNTED EQUIPMENT. DESIGN SHALL BE PERFORMED AND CERTIFIED BY A REGISTERED PROFESSIONAL ENGINEER.
17.5. SEISMIC BRACES SHALL BE LOCATED ON SHOP DRAWINGS INDICATING MEMBER SIZES, ANCHORAGE REQUIREMENTS AND CERTIFICATION FROM A REGISTERED CIVIL OR STRUCTURAL PROFESSIONAL ENGINEER.

B. GENERAL:

1. PAINTING:

1.1. PAINT:

1.1.1. BEST GRADE FOR ITS PURPOSE.
1.1.2. DELIVER IN ORIGINAL SEALED CONTAINERS.
1.1.3. APPLY IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
1.1.4. COLORS: TO MATCH EXISTING OR AS SELECTED BY ENGINEER.

1.2. GALVANIZED IRON PRIMER.
1.3. HOT DIPPED GALVANIZED OR DIPPED IN ZINC CHROMATE.
1.4. ZINC CHROMATE WITH FINISH TO MATCH SURROUNDINGS.

2. CLEANING:

2.1. BRUSH AND CLEAN WORK PRIOR TO CONCEALING PAINTING AND ACCEPTANCE.
2.2. PAINTED EXPOSED WORK SOILED OR DAMAGED: CLEAN AND REPAIR TO MATCH ADJOINING WORK BEFORE FINAL ACCEPTANCE.
2.3. REMOVE DEBRIS FROM INSIDE AND OUTSIDE OF MATERIAL AND EQUIPMENT.

3. CUTTING AND PATCHING: AS REQUIRED FOR NEW WORK.

3.02 TESTING AND BALANCING

A. GENERAL:

1. ADJUSTMENT: EACH PIECE OF EQUIPMENT AND ALL OF THE SYSTEMS SHALL BE ADJUSTED TO INSURE PROPER FUNCTIONING OF ALL CONTROLS, AND SHALL BE LEFT IN OPERATING CONDITION.
2. PRELIMINARY OPERATION: THE OWNER RESERVES THE RIGHT TO OPERATE ANY SYSTEMS OR EQUIPMENT PRIOR TO FINAL COMPLETION AND ACCEPTANCE OF THE WORK. SUCH PRELIMINARY OPERATION SHALL NOT BE CONSTRUED AS AN ACCEPTANCE OF ANY WORK.

B. AIR DISTRIBUTION SYSTEMS:

1. BALANCE AND ADJUST AIR DISTRIBUTION SYSTEM TO QUANTITIES INDICATED ON DRAWINGS IN ACCORDANCE WITH ASSOCIATED AIR BALANCE COUNCIL (AABC) MANUAL OR NEBB STANDARDS, LATEST EDITION.
2. BALANCING AND TESTING SHALL BE PERFORMED AND SUPERVISED BY A CERTIFIED INDEPENDENT FIRM SPECIALIZING IN TESTING AND BALANCING. FIRM SHALL BE A MEMBER OF AABC. TEST REPORTS SHALL BE SUBMITTED IN BOUND FOLDERS AND ON AABC TYPE REPORT FORMS. ALL DIFFUSERS SHALL BE IDENTIFIED BY DESIGNATIONS ON DRAWINGS.
3. DIFFUSER AIR DELIVERY SHALL NOT BE LESS THAN NOR EXCEED BY MORE THAN 5% THE AIR DELIVERY INDICATED ON THE PLANS.
4. UPON COMPLETION OF THE INSTALLATION, CONTRACTOR SHALL REBALANCE ANY AIR DISTRIBUTION SYSTEM AFFECTED BY THE RENOVATION, INCLUDING TERMINAL AIR UNITS AND AIR OUTLETS.
5. CONTRACTOR SHALL CONSTRUCT, SEAL, AND TEST PER 2005 TITLE 24 REQUIREMENTS.
6. PROVIDE WRITTEN REPORT OF ALL TEST RESULTS WITHIN ONE WEEK OF COMPLETION OF BALANCING. NOTE ALL DEFICIENCIES AND FIELD OBSERVATIONS.

C. HYDRONIC SYSTEMS:

1. PREPARE TEST REPORTS WITH PERTINENT DESIGN DATA AND NUMBER IN SEQUENCE STARTING AT PUMP TO END OF SYSTEM. CHECK THE SUM OF BRACH-CIRCUITS FLOWS AGAINST APPROVED PUMP FLOW RATE. CORRECT VARIATIONS THAT EXCEED PLUS OR MINUS 5 PERCENT.
2. PREPARE SCHEMATIC DIAGRAMS OF SYSTEMS' "AS-BUILT" PIPING LAYOUTS.
3. PREPARE HYDRONIC SYSTEMS FOR TESTING AND BALANCING ACCORDING TO THE FOLLOWING, IN ADDITION TO THE GENERAL PREPARATION PROCEDURES SPECIFIED ABOVE:

3.1. OPEN ALL MANUAL VALVES FOR MAXIMUM FLOW.
3.2. CHECK EXPANSION TANK LIQUID LEVEL.
3.3. CHECK MAKEUP-WATER-STATION PRESSURE GAGE FOR ADEQUATE PRESSURE FOR HIGHEST VENT.
3.4. CHECK FLOW-CONTROL VALVES FOR SPECIFIED SEQUENCE OF OPERATION AND SET AT INDICATED FLOW.
3.5. SET DIFFERENTIAL-PRESSURE CONTROL VALVES AT THE SPECIFIED DIFFERENTIAL PRESSURE. DO NOT SET AT FULLY CLOSED POSITION WHEN PUMP IS POSITIVE-DISPLACEMENT TYPE UNLESS SEVERAL TERMINAL VALVES ARE KEPT OPEN.
3.6. SET SYSTEM CONTROLS SO AUTOMATIC VALVES ARE WIDE OPEN TO HEAT EXCHANGERS.
3.7. CHECK PUMP-MOTOR LOAD. IF MOTOR IS OVERLOADED, THROTTLE MAIN FLOW-BALANCING DEVICE SO MOTOR NAMEPLATE RATING IS NOT EXCEEDED.
3.8. CHECK AIR VENTS FOR A FORCEFUL LIQUID FLOW EXITING FROM VENTS WHEN MANUALLY OPERATED.

3.03 PROJECT CLOSE-OUT

D. AFTER FINAL OPERATION FOR INSPECTION AND ACCEPTANCE, DELIVER ALL COPIES OF OPERATION INSTRUCTIONS, MAINTENANCE MANUALS AND PARTS DESCRIPTIONS TO THE ENGINEER.

E. ALL TOOLS SUPPLIED WITH THE EQUIPMENT FOR MAINTENANCE SHALL BE TAGGED AND TEMPORARILY SECURED TO THE UNIT, OR TURNED OVER TO THE BUILDING ENGINEER.

END OF SECTION

CAVAGNERO

SYSKA HENNESSY GROUP

Syska Hennessy Group, Inc.
800 Corporate Pointe
Suite 200
Culver City, CA 90230
Tel: 310.312.0200
Fax: 310.665.0172
www.syska.com

REV	DATE	DESCRIPTION
	6/16/2016	100% SD SET
	7/14/2016	100% DD SET
	8/18/2016	100% CD SET
	10/31/2016	90% CD SET
	12/12/2016	REVISED 90% CD SET
	4/03/2017	100% CD/CONFORMED SET
	4/24/2017	BID SET

PASADENA COURTHOUSE ELEVATOR MODERNIZATION

300 E Walnut St, Pasadena, CA 91101

MECHANICAL SPECIFICATIONS

M0.05

STATE OF CALIFORNIA

MECHANICAL SYSTEMS

CEC-NRCC-MCH-01-E (Revised 06/14) CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE NRCC-MCH-01-E

Mechanical Systems (Page 2 of 2)

Project Name: EAST COUNTY COURTHOUSE ELEVATOR MODERNIZATION | Date Prepared: 09/08/2016

MECHANICAL HVAC ACCEPTANCE FORMS (check box for required forms)

Designer:
This form is to be used by the designer and attached to the plans. Listed below are all the acceptance tests for HVAC systems. The designer is required to check the applicable boxes for all acceptance tests that apply and list all equipment that requires an acceptance test. All equipment of the same type that requires a test, list the equipment description and the number of systems.

Installing Contractor:
The contractor who installed the equipment is responsible to either conduct the acceptance test them self or have a qualified entity run the test for them. If more than one person has responsibility for the acceptance testing, each person shall sign and submit the Certificate of Acceptance applicable to the portion of the construction or installation for which they are responsible. The following tests require a

Enforcement Agency:
Plancheck – The NRCC-MCH-01-E form is not considered a completed form and is not to be accepted by the building department unless the correct boxes are checked. Inspector - Before occupancy permit is granted all newly installed process systems must be tested to ensure proper operations.

Test Description		MCH-12A	MCH-13A	MCH-14A	MCH-15A	MCH-16A	MCH-17A	MCH-18A
Equipment Requiring Testing or Verification	# of units	Fault Detection & Diagnostics for DX Units	Automatic Fault Detection & Diagnostics for Air & Zone	Distributed Energy Storage DX AC Systems	Thermal Energy Storage (TES) Systems	Supply Air Temperature Reset Controls	Condenser Water Reset Controls	ECMS
(N) AHU/HP	3	☐	☐	☐	☐	☐	☐	☐
		☐	☐	☐	☐	☐	☐	☐
		☐	☐	☐	☐	☐	☐	☐
		☐	☐	☐	☐	☐	☐	☐
		☐	☐	☐	☐	☐	☐	☐
		☐	☐	☐	☐	☐	☐	☐
		☐	☐	☐	☐	☐	☐	☐
		☐	☐	☐	☐	☐	☐	☐
		☐	☐	☐	☐	☐	☐	☐
		☐	☐	☐	☐	☐	☐	☐

STATE OF CALIFORNIA

HVAC SYSTEM REQUIREMENTS

CEC-NRCC-MCH-02-E (Revised 05/15) CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE NRCC-MCH-02-E

HVAC Dry System Requirements (Page 1 of 2)

Project Name: PASADENA COURTHOUSE ELEVATOR MODERNIZATION | Date Prepared: 08/18/2016

Equipment Tags and System Description		(N) AHU/HP		
MANDATORY MEASURES	***T-24 Sections***	***Reference to the Requirements in the Contract***		
Heating Equipment Efficiency	110.1 or 110.2(a)	N/A		
Cooling Equipment Efficiency	110.1 or 110.2(a)	N/A		
HVAC or Heat Pump Thermostats	110.2(b), 110.2(c)	PROCESS		
Furnace Standby Loss Control	110.2(d)	N/A		
Low leakage AHUs	110.2(f)	N/A		
Ventilation	120.1(b)	N/A		
Demand Control Ventilation	120.1(c)4	N/A		
Occupant Sensor Ventilation Control	120.1(c)5, 120.2(e)3	N/A		
Shutoff and Reset Controls	120.2(e)	N/A		
Outdoor Air and Exhaust Damper Control	120.2(f)	N/A		
Isolation Zones	120.2(g)	N/A		
Automatic Demand Shed Controls	120.2(h)	N/A		
Economizer FDD	120.2(i)	N/A		
Duct Insulation	120.4	M0.07		
PRESCRIPTIVE MEASURES				
Equipment is sized in conformance with 140.4 (a & b)	140.4(a & b)	Y/N	Y/N	Y/N
Supply Fan Pressure Control	140.4(c)	N/A		
Simultaneous Heat/Cool	140.4(d)	N/A		
Economizer	140.4(e)	N/A		
Heat and Cool Air Supply Reset	140.4(f)	N/A		
Electric Resistance Heating	140.4(g)	N/A		
Duct Leakage Sealing and Testing.	140.4(l)	N/A		

Notes:
1. Provide equipment tags (e.g. AHU 1 to 10) and system description (e.g. Single Duct VAV reheat) as appropriate. Multiple units with common requirements can be grouped together.
2. Provide references to plans (i.e. Drawing Sheet Numbers) and/or specifications (including Section name/number and relevant paragraphs) where each requirement is specified. Enter "N/A" if the requirement is not applicable to this system.
3. The referenced plans and specifications must include all of the following information: equipment tag, equipment nominal capacity, Title 24 minimum efficiency requirements, and actual rated equipment efficiencies. Where multiple efficiency requirements are applicable (e.g. full- and part-load) include all. Where appliance standards apply (110.1), identify where equipment is required to be listed per Title 20 1601 et seq.
4. Identify where the ventilation requirements are documented for each central HVAC system. Include references to both central unit schedules and sequences of operation. If one or more space is naturally ventilated identify where this is documented in the plans and specifications. Multiple zone central air systems must also provide a MCH-03-E form.
5. If one or more space has demand controlled ventilation identify where it is specified including the sensor specifications and the sequence of operation.
6. If one or more space has occupant sensor ventilation control identify where it is specified including the sensor specifications and the sequence of operation
7. If the system is DDC identify the sequences for the system start/stop, optimal start, setback (if required) and setup (if required). For all systems identify the specification for the thermostats and time clocks (if applicable).
8. Identify where the heating, cooling and deadband airflows are scheduled for this system. Include a reference to the specification of the zone controls. Provide a MCH-03-E form.
9. Enter N/A if there is no electric heating. If the system has electric heating indicate which exception to 140.4(g) applies.

STATE OF CALIFORNIA

MECHANICAL SYSTEMS

CEC-NRCC-MCH-00-E (Revised 05/15)

CERTIFICATE OF COMPLIANCE NRCC-MCH-00-E

Mechanical Systems (Page 1 of 1)

Project Name: PASADENA COURTHOUSE ELEVATOR MODERNIZATION | Date Prepared: 08/18/2016

DOCUMENTATION AUTHOR'S DECLARATION STATEMENT

1. I certify that this Certificate of Compliance documentation is accurate and complete.

Documentation Author Name: JOEL SOLIS	Documentation Author Signature:
Company: SYSKA HENNESSY GROUP INC.	Signature Date: 08/18/2016
Address: 800 CORPORATE POINTE, STE 200	CEA/ HERS Certification Identification (if applicable):
City/State/Zip: CULVER CITY, CA 90230	Phone: (310) 254-3658

RESPONSIBLE PERSON'S DECLARATION STATEMENT

I certify the following under penalty of perjury, under the laws of the State of California:
1. The information provided on this Certificate of Compliance is true and correct.
2. I am eligible under Division 3 of the Business and Professions Code to accept responsibility for the building design or system design identified on this Certificate of Compliance (responsible designer).
3. The energy features and performance specifications, materials, components, and manufactured devices for the building design or system design identified on this Certificate of Compliance conform to the requirements of Title 24, Part 1 and Part 6 of the California Code of Regulations.
4. The building design features or system design features identified on this Certificate of Compliance are consistent with the information provided on other applicable compliance documents, worksheets, calculations, plans and specifications submitted to the enforcement agency for approval with this building permit application.
5. I will ensure that a completed signed copy of this Certificate of Compliance shall be made available with the building permit(s) issued for the building, and made available to the enforcement agency for all applicable inspections. I understand that a completed signed copy of this Certificate of Compliance is required to be included with the documentation the

Responsible Designer Name: NATHAN KIRBY	Responsible Designer Signature:
Company: SYSKA HENNESSY GROUP INC.	Date Signed: 08/18/2016
Address: 800 CORPORATE POINTE, STE 200	License: M35696
City/State/Zip: CULVER CITY, CA 90230	Phone: (310) 312-0200

STATE OF CALIFORNIA

MECHANICAL SYSTEMS

CEC-NRCC-MCH-01-E (Revised 05/15) CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE NRCC-MCH-01-E

Mechanical Systems (Page 1 of 2)

Project Name: EAST COUNTY COURTHOUSE ELEVATOR MODERNIZATION | Date Prepared: 09/08/2016

MECHANICAL COMPLIANCE FORMS & WORKSHEETS (check box if worksheet is included)

For detailed instructions on the use of this and all Energy Efficiency Standards compliance forms, refer to the 2013 Nonresidential Manual Note: The Enforcement Agency may require all forms to be incorporated onto the building plans.

YES	NO	Form/Worksheet #	Title
✓	☐	NRCC-MCH-00-E (Part 1 of 1)	Certificate of Compliance, Declaration. Required on plans for all submittals.
✓	☐	NRCC-MCH-01-E (Part 1 of 2)	Certificate of Compliance, Required Acceptance Tests (MCH-02A to 11A). Required on plans for all submittals.
✓	☐	NRCC-MCH-01-E (Part 2 of 2)	Certificate of Compliance, Required Acceptance Tests (MCH-12A to 18A). Required on plans where applicable.
✓	☐	NRCC-MCH-02-E (Part 1 of 2)	Mechanical Dry Equipment Summary is required for all submittals with Central Air Systems. It is optional on plans.
☐	✓	NRCC-MCH-02-E (Part 2 of 2)	Mechanical Wet Equipment Summary is required for all submittals with chilled water, hot water or condenser water systems. It is optional on plans.
☐	✓	NRCC-MCH-03-E	Mechanical Ventilation and Reheat is required for all submittals with multiple zone heating and cooling systems. It is optional on plans.

MECHANICAL HVAC ACCEPTANCE FORMS (check box for required forms)

Designer:
This form is to be used by the designer and attached to the plans. Listed below are all the acceptance tests for HVAC systems. The designer is required to check the applicable boxes for all acceptance tests that apply and list all equipment that requires an acceptance test. All equipment of the same type that requires a test, list the equipment description and the number of systems.

Installing Contractor:
The contractor who installed the equipment is responsible to either conduct the acceptance test them self or have a qualified entity run the test for them. If more than one person has responsibility for the acceptance testing, each person shall sign and submit the Certificate of Acceptance applicable to the portion of the construction or installation for which they are responsible.

Enforcement Agency:
Plancheck – The NRCC-MCH-01-E form is not considered a completed form and is not to be accepted by the building department unless the correct boxes are checked. Inspector -

Test Description		MCH-02A	MCH-03A	MCH-04A	MCH-05A	MCH-06A	MCH-07A	MCH-08A	MCH-09A	MCH-10A	MCH-11A
Equipment Requiring Testing or Verification	# of units	Outdoor Air	Single Zone Unitary	Air Distribution Ducts	Economizer Controls	Demand Control Ventilation (DCV)	Supply Fan VAV	Valve Leakage Test	Supply Water Temp. Reset	Hydronic System Variable Flow Control	Automatic Demand Shed Control
(N) AHU/HP	3	☐	✓	✓	☐	☐	☐	☐	☐	☐	☐
		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

CAVAGNERO
MARK CAVAGNERO ASSOCIATES ARCHITECTS
1045 Sansome Street, Suite 200 T: 415.398.6944
San Francisco, California 94111 F: 415.398.6943
www.cavagnero.com

SYSKA HENNESSY GROUP
A member company of SH Group, Inc.
Syska Hennessy Group, Inc.
800 Corporate Pointe
Suite 200
Culver City, CA 90230
Tel: 310.312.0200
Fax: 310.665.0172
www.syska.com

REV	DATE	DESCRIPTION
	6/16/2016	100% SD SET
	7/14/2016	100% DD SET
	8/18/2016	100% CD SET
	10/31/2016	90% CD SET
	12/12/2016	REVISED 90% CD SET
	4/03/2017	100% CD/CONFORMED SET
	4/24/2017	BID SET

PASADENA COURTHOUSE ELEVATOR MODERNIZATION
300 E Walnut St, Pasadena, CA 91101

REGISTERED PROFESSIONAL ENGINEER
NATHANIEL R. KIRBY
No. M35696
Exp. 9/30/17
MECHANICAL
STATE OF CALIFORNIA

MECHANICAL TITLE 24 ENERGY COMPLIANCE FORMS

M0.06

MECHANICAL MANDATORY MEASURES: NONRESIDENTIAL (*Page 2 of 2*) MECH-MM

§ 120.1(c).4.	A. CO_2 sensors shall be installed in each room with no less than one sensor per 10,000 ft^2 of floor space. Signal from any sensor indicating that CO_2 is near or at the set point within a space shall trigger an increase in ventilation to the space (controls shall maintain CO_2 concentrations less than or equal to 600 ppm plus the outdoor air CO_2 concentration). B. CO_2 sensors shall be located in the room between 3ft and 6ft above the floor or at the anticipated height of the occupants heads, and shall have suitable coverage to detect occupants in the entire ventilated space. F. CO_2 sensors shall be certified by the manufacturer to be accurate to within 75 ppm at a 600 and 1000 ppm concentration (when measured at sea level and 25°C), shall be factory calibrated and certified by the manufacturer to require calibration no more frequently than once every 5 years. Detection of sensor failure shall prompt the system to provide a signal resetting the supply minimum of outside air levels to meet levels specified in the plans. G. CO_2 sensor readings for each zone shall be displayed continuously and recorded with DDC to the zone level.

MECHANICAL MANDATORY MEASURES: NONRESIDENTIAL (*Page 1 of 2*) MECH-MM

Equipment and System Efficiencies

§ 110.1	Any appliance for which there is a California standard established in the Appliance Efficiency Regulations will comply with the applicable standard.
§ 120.4(a)	Air distribution duct systems shall be installed, sealed and insulated to meet the requirements of the 2013 CMC Sections 601, 602, 603, 604, 605, and ANSI/SMACNA-006-2006 HVAC Duct Construction Standards Metal and Flexible (3rd edition). Portions of supply or return air conveying heated or cooled air in any unconditioned space shall be insulated to a minimum installed level of R-8.
§ 120.4(b)	All duct and plenum materials (including collars, connections, and splices) for factory- and field-fabricated duct systems shall comply with UL 181, and be labeled as complying with UL 181.
§ 120.3	Piping for all space-conditioning and service water-heating systems, except that conveying fluids between 60°F and 105°F, shall be insulated in accordance with Standards Section 120.3.
§ 120.3 & § 120.4(f)	All insulation shall be protected from damage (including that due to sunlight, moisture, maintenance, and wind). Insulation exposed to weather shall be protected and suitable for outdoor service (protected by aluminum, sheet metal, painted canvas, plastic cover). Cellular foam insulation shall be protected as previously stated or painted with a coating that is water-retardant and provides shielding from solar radiation.

Controls

§ 120.2(a&b)	Each space conditioning system shall be controlled by an individual thermostat that responds to temperature within the zone. Where used to control heating, the control shall be adjustable down to 55°F or lower. For cooling, control shall be adjustable up to 85°F or higher. Where used to control both heating and cooling, the control shall be capable of providing a deadband of at least 5°F within which the supply of heating and cooling is shut off or reduced to a minimum.
§ 120.2(d)	All heat pumps shall be installed with controls to prevent electric resistance supplementary operation when the heating load can be met by the heat pump alone.
§120.2(e).1.	Each space conditioning system shall be capable of automatically shutting off the system during periods of nonuse and shall have: A. An automatic time switch control device complying with Standards Section 110.9, with an accessible manual override that allows operation of the system for up to 4 hours; or B. An occupancy sensor; or C. A 4-hour timer that can be manually operated.
§120.2(e).2.	Each space conditioning system shall be installed with controls that temporarily restart and temporarily operate the system as required to maintain a setback and/or a setup cooling thermostat setpoint.
§ 120.2(f)	Except in areas where equipment must operate continuously and where prohibited by other provisions of law, outdoor air supply and exhaust equipment shall be installed with dampers that automatically close upon fan shutdown.
§ 120.2(g)	Each space conditioning system serving multiple zones with a combined conditioned floor area more than 25,000 square feet shall be provided with isolation zones. Each zone: shall not exceed 25,000 sq. feet; shall be provided with isolation devices, such as valves or dampers that allow the supply of heating or cooling to be setback or shut down independently of other isolation areas; and shall be controlled by a time control device as described above.
§ 120.2(h)	HVAC systems with DDC to the Zone level shall be programmed to allow centralized demand shed for non-critical zones as follows: 1. The controls shall have a capability to remotely setup the operating cooling temperature set points by 4 degrees or more in all non-critical zones on signal from a centralized contact or software point within an Energy Management Control System (EMCS). 2. The controls shall have a capability to remotely setdown the operating heating temperature set points by 4 degrees or more in all non-critical zones on signal from a centralized contact or software point within an EMCS. 3. The controls shall have capabilities to remotely reset the temperatures in all non-critical zones to original operating levels on signal from a centralized contact or software point within an EMCS. 4. The controls shall be programmed to provide an adjustable rate of change for the temperature setup and reset. 5. The controls shall have the following features: A. Disabled. Disabled by authorized facility operators; and B. Manual control. Manual control by authorized facility operators to allow adjustment of heating and cooling set points globally from a single point in the EMCS; and C. Automatic Demand Shed Control. Upon receipt of a demand response signal, the space-conditioning systems shall conduct a centralized demand shed, as specified in Sections120.2(h)1 and 120.2(h)2, for non-critical zones during the demand response period.

Ventilation

§ 120.1(e)	Controls shall be provided to allow outside air dampers or devices to be operated at the specified ventilation rates. All variable air volume mechanical ventilation and space conditioning systems shall include dynamic controls that maintain measured outside air ventilation rates within 10 percent of specified ventilation rates.

CAVAGNERO
MARK CAVAGNERO ASSOCIATES ARCHITECTS

SYSKA HENNESSY GROUP
A member company of SH Group, Inc.
Syska Hennessy Group, Inc.
800 Corporate Pointe
Suite 200
Culver City, CA 90230
Tel: 310.312.0200
Fax: 310.665.0172
www.syska.com

REV	DATE	DESCRIPTION
	6/16/2016	100% SD SET
	7/14/2016	100% DD SET
	8/18/2016	100% CD SET
	10/31/2016	90% CD SET
	12/12/2016	REVISED 90% CD SET
	4/03/2017	100% CD/CONFORMED SET
	4/24/2017	BID SET

PASADENA
COURTHOUSE
ELEVATOR MODERNIZATION
300 E Walnut St, Pasadena, CA 91101

MECHANICAL TITLE 24
ENERGY COMPLIANCE
FORMS

SPLIT SYSTEM DX AIR HANDLING UNIT SCHEDULE

TAG	SERVICE	LOCATION	REFRIGERANT	EVAPORATOR FAN CFM	EVAPORATOR FAN ESP (IN WG)	MOTOR TYPE	MOTOR QTY.	MOTOR RPM	COOLING EAT DB °F	COOLING EAT WB °F	COOLING LAT DB °F	COOLING LAT WB °F	COOLING CAPACITY (MBH) TOTAL	COOLING CAPACITY (MBH) SENSIBLE	HEATING EAT DB °F	HEATING EAT WB °F	HEATING LAT DB °F	HEATING LAT WB °F	HEATING CAPACITY (MBH)	FILTER TYPE	FILTER QTY.	FILTER SIZE (IN.)	ELECTRIC DATA V/PH/HZ	ELECTRIC DATA FLA / MCA / MOCP	VIBRATION ISOLATION MOUNTING TYPE	VIBRATION ISOLATION BASE TYPE	MIN. STATIC DEFLECTION (IN)	OPERATING WEIGHT (LB)	LENGTH (IN)	WIDTH (IN)	HEIGHT (IN)	MANUFACTURUER	MODEL	NOTES
AHU-1	PUBLIC PASSENGER & JUDGE EMR	PUBLIC PASSENGER & JUDGE EMR	R-410A	3,000	0.5	BELT-DRIVEN CENTRIF.	2	1,750	85	67	55	53	128.8	128.8	55	46	90	62	134.0	MERV 13	4	16 x 24 x 2	460 / 3 / 60	4.9 / 7.0 / 15	SPRING ISOLATOR	-	1	385	56.1	49.0	28.2	CARRIER	40RUQA08T3A6	1, 2
AHU-2	EAST CUSTODY EMR	EAST CUSTODY EMR	R-410A	700	0.3	ECM	1	-	85	67	55	53	27.4	27.4	55	46	90	62	31.8	ANTI-ALLERGY ENZYME	1	-	208 / 1 / 60	0.76 / 1 / -	WALL MOUNTED	-	-	37	43.3	9.4	12.8	MITSUBISHI	MSZ-GL24NA-U1	1, 2
AHU-3	WEST CUSTODY EMR	WEST CUSTODY EMR	R-410A	700	0.3	ECM	1	-	85	67	55	53	23.3	23.3	55	46	90	62	27.1	ANTI-ALLERGY ENZYME	1	-	208 / 1 / 60	0.76 / 1 / -	WALL MOUNTED	-	-	37	43.3	9.4	12.8	MITSUBISHI	MSZ-GL24NA-U1	1, 2

NOTES:
1. PROVIDE UNIT WITH STAINLESS STEEL PRIMARY DRAIN PAN, CONDENSATE PUMP, 7 DAY PROGRAMMABLE THERMOSTAT, SWEAT ADAPTER KIT, AND DISCONNECT SWITCH.
2. UNIT SHALL OPERATE 24/7.
3. PROVIDE CONDENSATE PUMP "LITTLE GIANT" VCL-24ULS 120V, 1/18 HP, 230 GPH AT 7' HEAD, WITH SAFETY SWITCH.

AIR COOLED HEAT PUMP UNIT SCHEDULE

UNIT NO.	SERVICE	LOCATION	REFRIGERANT	NOMINAL CAPACITY (TONS)	AMBIENT AIR TEMP. (°F)	CONDENSER COIL FACE AREA (SQ. FT.)	CONDENSER COIL NO. OF ROWS	CONDENSER FAN (S) TYPE	CONDENSER FAN (S) QTY.	CONDENSER FAN (S) CFM (TOTAL)	CONDENSER FAN (S) RPM	COMPRESSOR (S) NO.	COMPRESSOR (S) TYPE	ELECTRIC DATA V/PH/HZ	ELECTRIC DATA FLA / MCA / MOCP	DIMENSIONAL DATA LxWxH (IN)	DIMENSIONAL DATA WEIGHT (LB.)	VIBRATION ISOLATION MOUNTING TYPE	VIBRATION ISOLATION BASE TYPE	MIN. STATIC DEFLECTION (IN)	BASIS OF DESIGN MANUFACTURER	BASIS OF DESIGN MODEL NO.	NOTES
HP-1	AHU-1	ROOF	R-410A	7.5	100	-	-	DIRECT PROP.	2	6,000	-	1	DIGITAL SCROLL	460 / 3 / 60	19 / 20 / 30	59.3 / 46.0 / 50.3	523	NEOPRENE PADS	ROOF CURB	0.25	CARRIER	38AUQD08A0A6-0A2C	1
HP-2	AHU-2	ROOF	R-410A	2	100	-	-	ECM	1	1,700	-	1	DC INVERTER	208 / 1 / 60	0.93 / 17.1 / -	36.2 / 14.2 / 34.6	119	NEOPRENE PADS	ROOF CURB	0.25	MITSUBISHI	MUZ-GL24-NA-U1	1
HP-3	AHU-3	ROOF	R-410A	2	100	-	-	ECM	1	1,700	-	1	DC INVERTER	208 / 1 / 60	0.93 / 17.1 / -	36.2 / 14.2 / 34.6	119	NEOPRENE PADS	ROOF CURB	0.25	MITSUBISHI	MUZ-GL24-NA-U1	1

NOTES:
1. PROVIDE UNIT WITH FACTORY INSTALLED DISCONNECT SWITCH AND POWERED CONVENIENCE OUTLET.

DIFFUSER SCHEDULE

MARK NO.	TYPE	CFM RANGE	MAX. SP (IN.)	FRAME SIZE	NECK SIZE	MAX N.C.	REMARKS
SG-1	SUPPLY GRILLE	0-475	0.06	10 X 10	10 X 10	30	TITUS 300FL - DUCTED LOUVERED SUPPLY
SG-2	SUPPLY GRILLE	0-850	0.06	14 X 14	14 X 14	30	TITUS 300FL - DUCTED LOUVERED SUPPLY

NOTES:
1. COORDINATE FRAME STYLE WITH FRAMING.
2. OBTAIN ARCHITECT'S APPROVAL FOR FINISH.

BRANCH DUCT SCHEDULE

CFM	ROUND DUCT (IN)	RECTANGULAR DUCT (IN) W x 4	W x 6	W x 8	W x 10	W x 12	W x 14
UP TO 120	6	8	6	X	X	X	X
120 - 150	8	10	8	X	X	X	X
151 - 240	8	16	10	8	X	X	X
241 - 320	10	X	12	10	X	X	X
321 - 420	10	X	16	12	10	X	X
421 - 500	12	X	X	14	10	X	X
501 - 660	12	X	X	16	12	X	X
661 - 850	14	X	X	20	14	12	X
851 - 1000	14	X	X	22	16	14	X
1001 - 1200	16	X	X	26	20	16	14
1201 - 1400	16	X	X	30	24	18	16
1401 - 1700	X	X	X	34	26	20	18

NOTES:
1. THIS SCHEDULE APPLIES TO BRANCH DUCT TO INDIVIDUAL DIFFUSERS THAT ARE NOT SIZED ON PLANS .
2. APPLICABLE FOR LOW PRESSURE DUCT WORK ONLY (<2" WG).
3. "W" INDICATED IN THE SCHEDULE IS DUCT WIDTH.

CAVAGNERO

SYSKA HENNESSY GROUP

A member company of SH Group, Inc.

Syska Hennessy Group, Inc.
800 Corporate Pointe
Suite 200
Culver City, CA 90230
Tel: 310.312.0200
Fax: 310.665.0172
www.syska.com

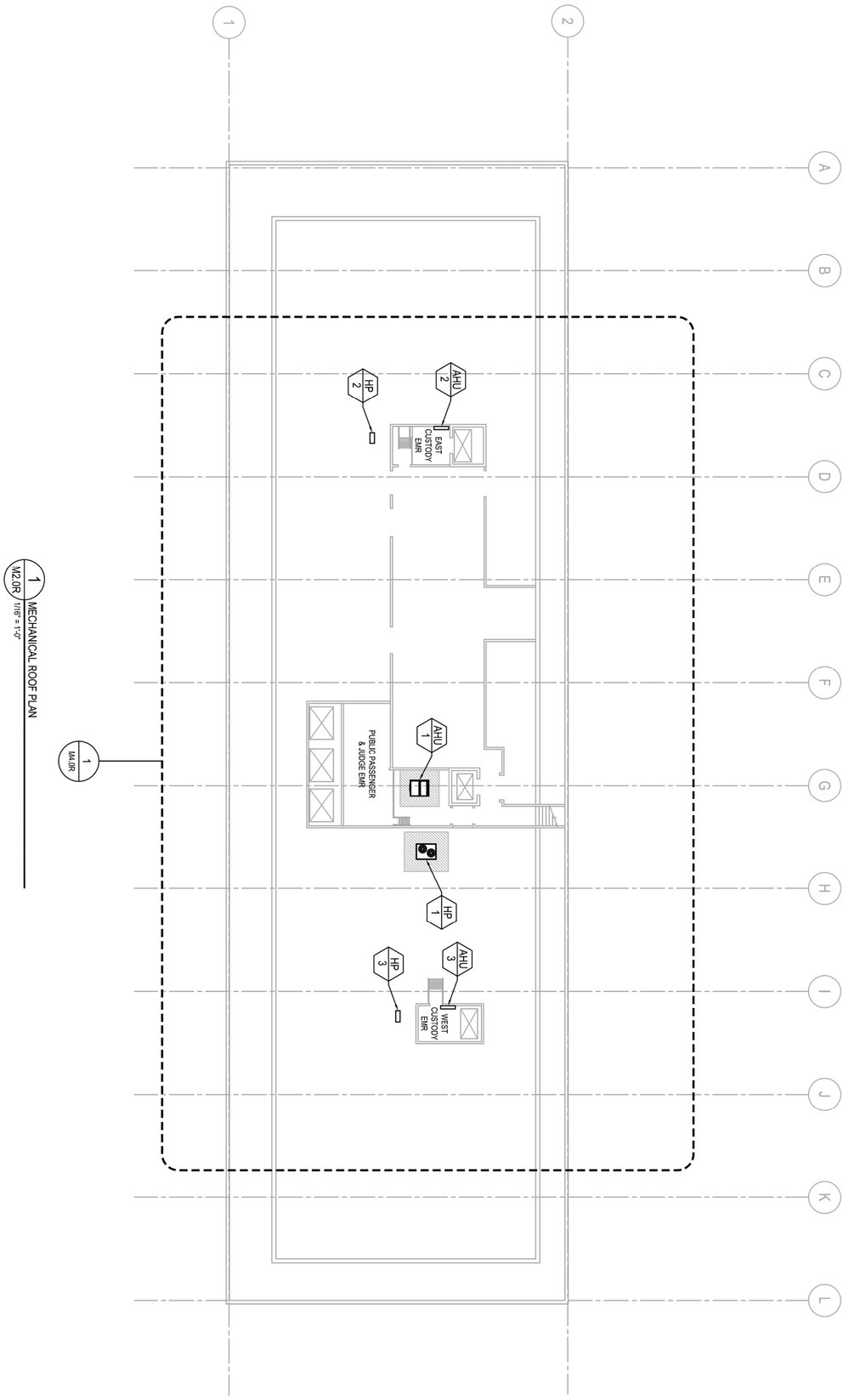
REV	DATE	DESCRIPTION
	6/16/2016	100% SD SET
	7/14/2016	100% DD SET
	8/18/2016	100% CD SET
	10/31/2016	90% CD SET
	12/12/2016	REVISED 90% CD SET
	4/03/2017	100% CD/CONFORMED SET
	4/24/2017	BID SET

PASADENA COURTHOUSE ELEVATOR MODERNIZATION

300 E Walnut St, Pasadena, CA 91101

MECHANICAL SCHEDULES

M0.08



M2.0R

MECHANICAL ROOF PLAN

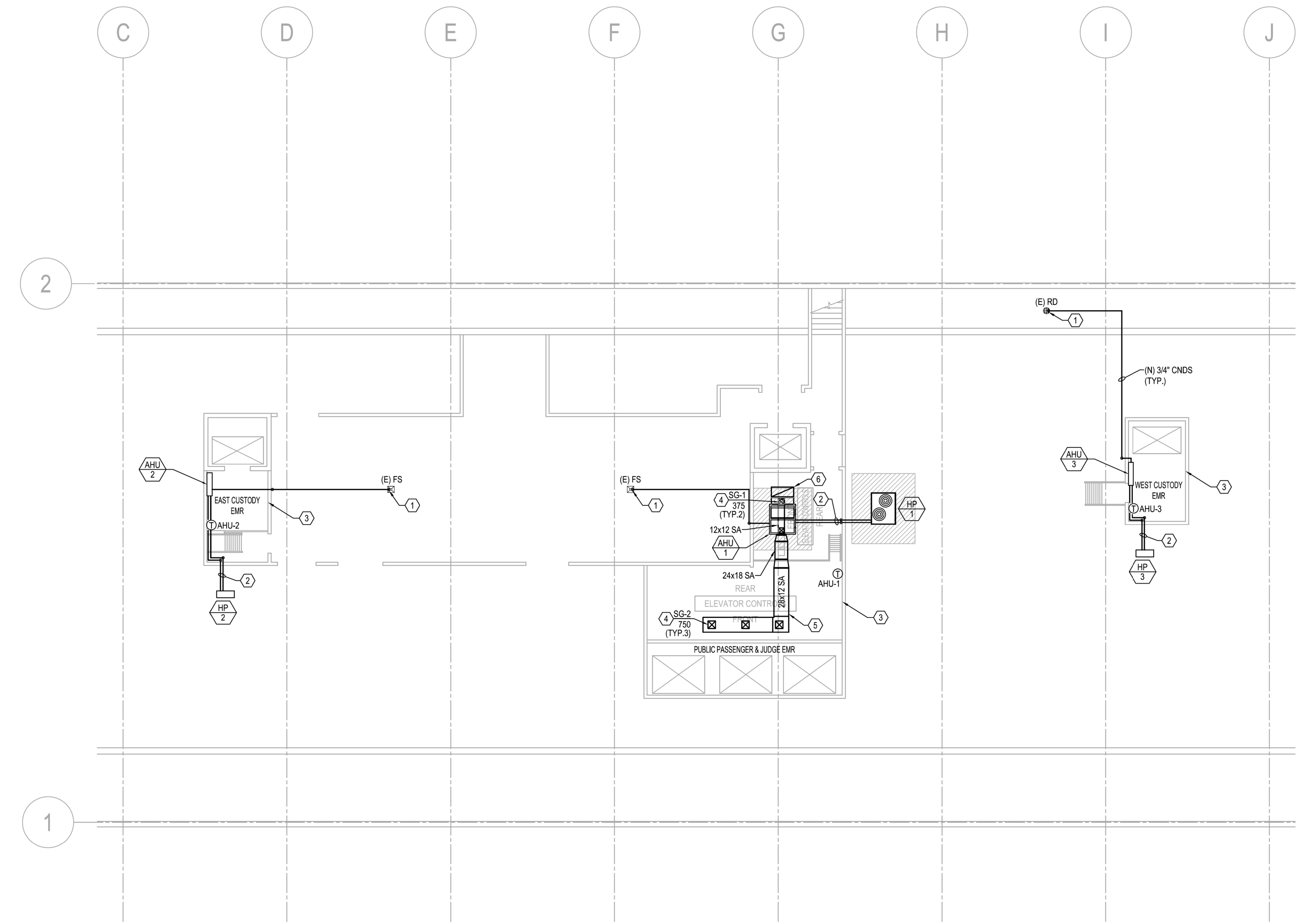
PASADENA
COURTHOUSE
ELEVATOR MODERNIZATION

300 E Walnut St, Pasadena, CA 91101

REV	DATE	DESCRIPTION
	6/16/2016	100% SD SET
	7/14/2016	100% DD SET
	8/18/2016	100% CD SET
	10/31/2016	90% CD SET
	12/12/2016	REVISED 90% CD SET
	4/03/2017	100% CD/CONFORMED SET
	4/24/2017	BID SET

SYSKA HENNESSY GROUP
A member network of WSP Global, Inc.
Syska Hennessy Group, Inc.
800 Corporate Pointe
Suite 200
Culver City, CA 90230
Tel: 310.312.0200
Fax: 310.665.0172
www.syska.com

CAVAGNERO ARCHITECTS



1 / M4.0R ENLARGED MECHANICAL ROOF PLAN
1/8" = 1'-0"

GENERAL NOTES

1. EXISTING CONDITIONS ARE PER AS-BUILT DRAWINGS AND SYSKA SITE SURVEY. CONTRACTOR TO VERIFY EXISTING CONDITIONS PRIOR TO DEMOLITION AND INSTALLATION OF ANY WORK.
2. CONTRACTOR SHALL COORDINATE ALL HVAC AND BUILDING CONTROLS, SEQUENCES OF OPERATION, AND INTERLOCKS FOR THE SPACE WITH THE CHIEF BUILDING ENGINEER TO ENSURE THAT ALL WORK IS IN CONFORMANCE WITH THE BUILDING REQUIREMENTS.
3. ALL ABANDONED AND UNUSED EQUIPMENT, INCLUDING, BUT NOT LIMITED TO PIPING AND DUCTWORK SHALL BE REMOVED.
4. CONTRACTOR SHALL COORDINATE THE INSTALLATION AND ROUTING OF NEW PIPING AND DUCTWORK WITH EXISTING CONDITIONS IN THE FIELD.
5. BRANCH DUCT SIZES PER SCHEDULE ON SHEET M-004. TRANSITION AS REQUIRED AT POINT OF CONNECTION.
6. REFER TO BRANCH DUCT SCHEDULE ON SHEET M-004 WHEN SIZING DUCT FOR NARROW PATHS DUE TO BEAM INTERFERENCE.
7. CONTRACTOR SHALL PROVIDE BEAM BOXES AND TRANSITIONS AT LOCATIONS OF EXISTING DEEP BEAMS. ALL LOCATIONS TO BE VERIFIED IN FIELD, TYP.

KEY NOTES

1. ROUTE (N) CONDENSATE DRAIN TO (E) APPROVED RECEPTACLE (FS/RD). MINIMUM 1" AIR GAP AT DISCHARGE.
2. (N) REFRIGERANT LINES CONNECTING BETWEEN (N) FCU IN ELEVATOR MACHINE ROOM TO (N) CU ON ROOF. CONTRACTOR TO COORDINATE WITH FIELD CONDITIONS FOR EXACT PIPE ROUTING.
3. ALL EXISTING WALL/ROOF OPENINGS AND/OR LOUVERS WITHIN THE INDICATED ELEVATOR MACHINE ROOM SHALL BE DEMOLISHED AND SEALED.
4. SEE DETAIL 2/M5.04 FOR SUPPLY GRILLE MOUNTING DETAIL.
5. ROUTE DUCTWORK TIGHT TO STRUCTURE ABOVE.
6. EXTEND RETURN AIR PLENUM UPWARD TOWARD STRUCTURE ABOVE. TERMINATE OPEN-ENDED WITHIN 1 FOOT OF STRUCTURE ABOVE. PROVIDE SCREEN MESH AT DUCT TERMINATION.

CAVAGNERO
MARK CAVAGNERO ASSOCIATES ARCHITECTS
1045 Sansome Street, Suite 200
San Francisco, California 94111
www.cavagnero.com
T: 415.398.6944
F: 415.398.6943

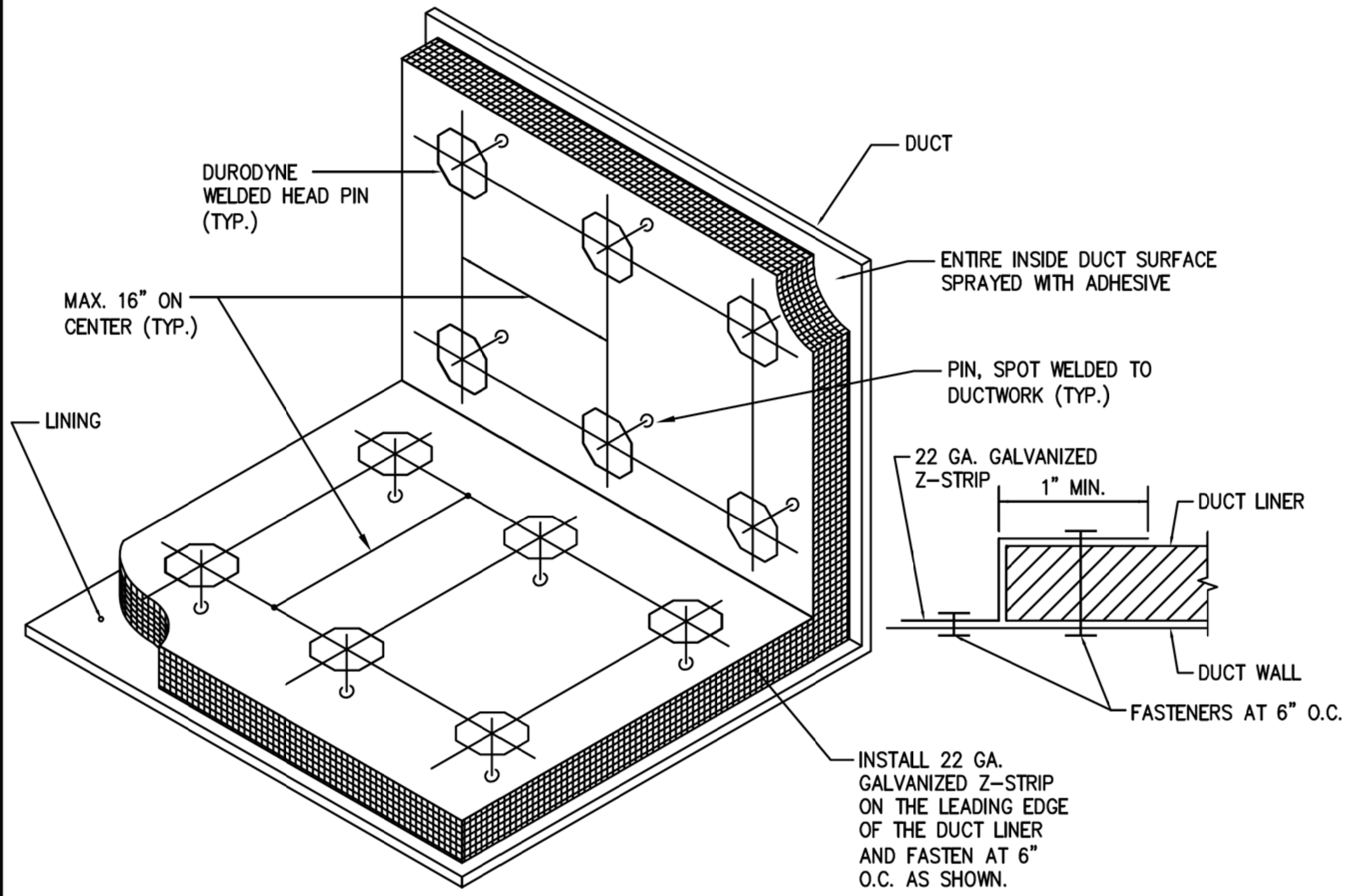
SYSKA HENNESSY GROUP
A member company of SH Group, Inc.
Syska Hennessy Group, Inc.
800 Corporate Pointe
Suite 200
Culver City, CA 90230
Tel: 310.312.0200
Fax: 310.665.0172
www.syska.com

REV	DATE	DESCRIPTION
	6/16/2016	100% SD SET
	7/14/2016	100% DD SET
	8/18/2016	100% CD SET
	10/31/2016	90% CD SET
	12/12/2016	REVISED 90% CD SET
	4/03/2017	100% CD/CONFORMED SET
	4/24/2017	BID SET

PASADENA COURTHOUSE ELEVATOR MODERNIZATION
300 E Walnut St, Pasadena, CA 91101

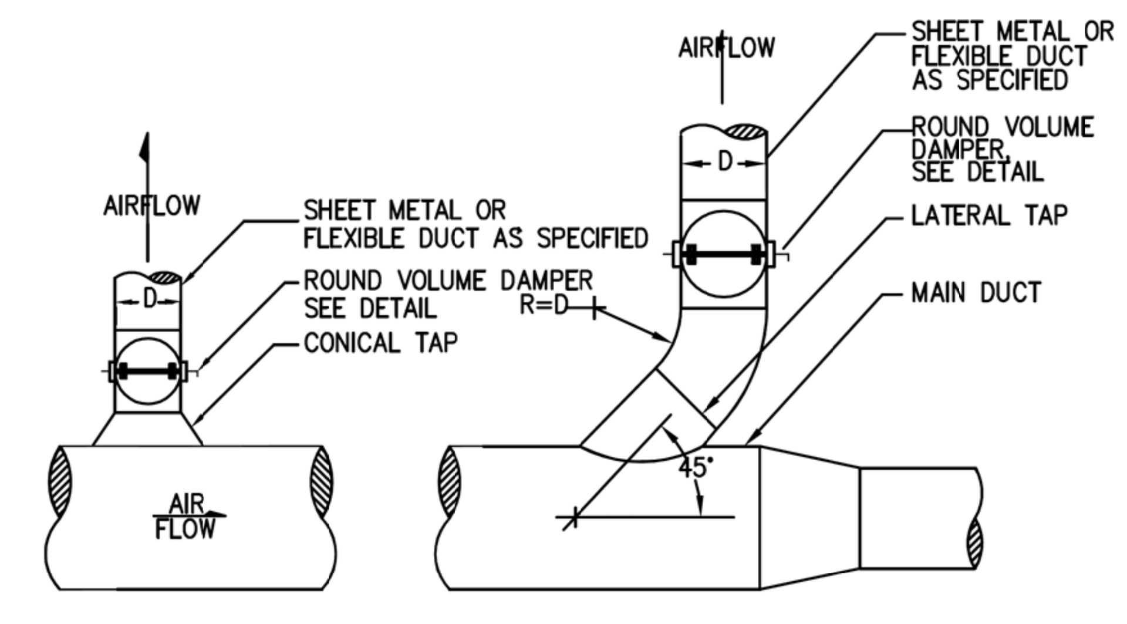
ENLARGED MECHANICAL ROOF PLAN

M4.0R



5 DUCT LINING INSTALLATION

SCALE: NONE

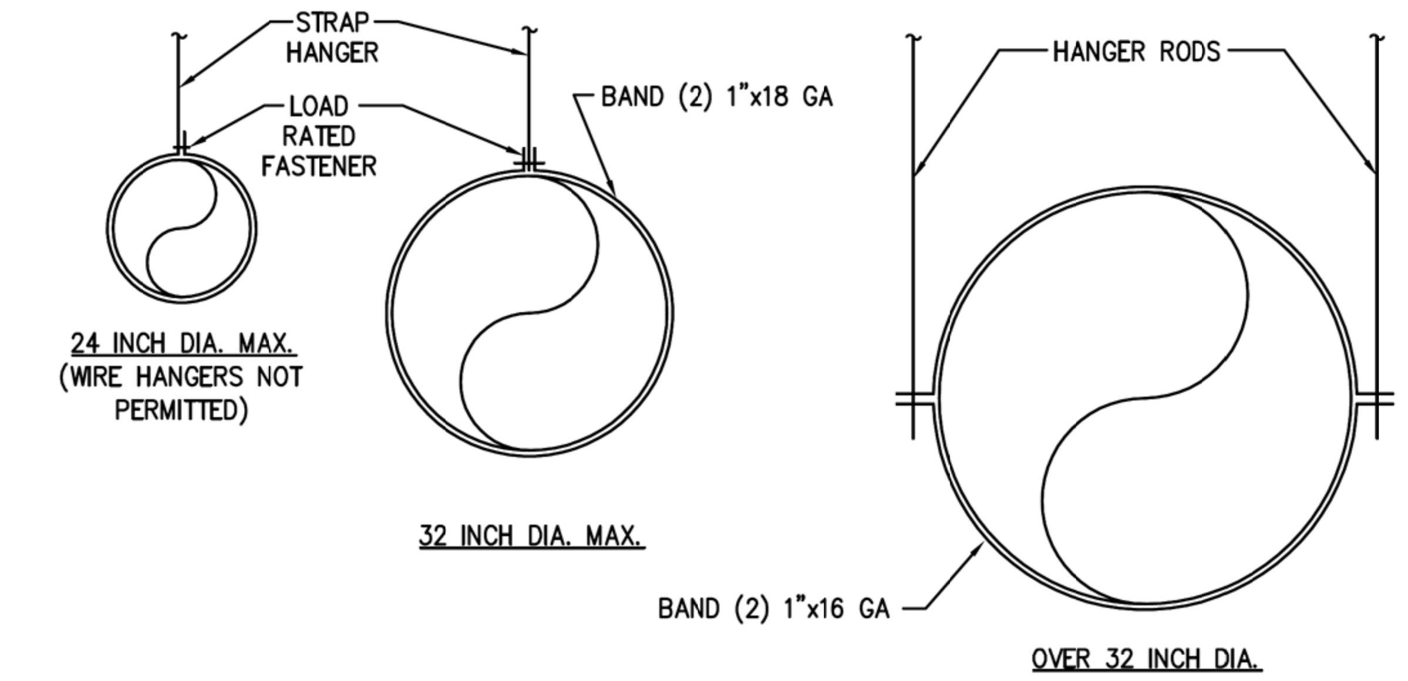


NOTES
1. USE FOR SYMBOL ⊥ WHERE BRANCH DUCT AIR QUANTITY IS LESS THAN 25% OF THE TOTAL AIR FLOW.
2. DEPTH OF MAIN DUCT MUST BE 2" LARGER THAN CONICAL DIAMETER.

NOTE:
USE FOR SYMBOLWHERE BRANCH DUCT IS ROUND FROM ROUND MAIN AND BRANCH DUCT AIR QUANTITY IS 50% OR LESS OF TOTAL AIR FLOW.

3 CIRCULAR DUCT WITH/WITHOUT VOLUME DAMPER

SCALE: NONE

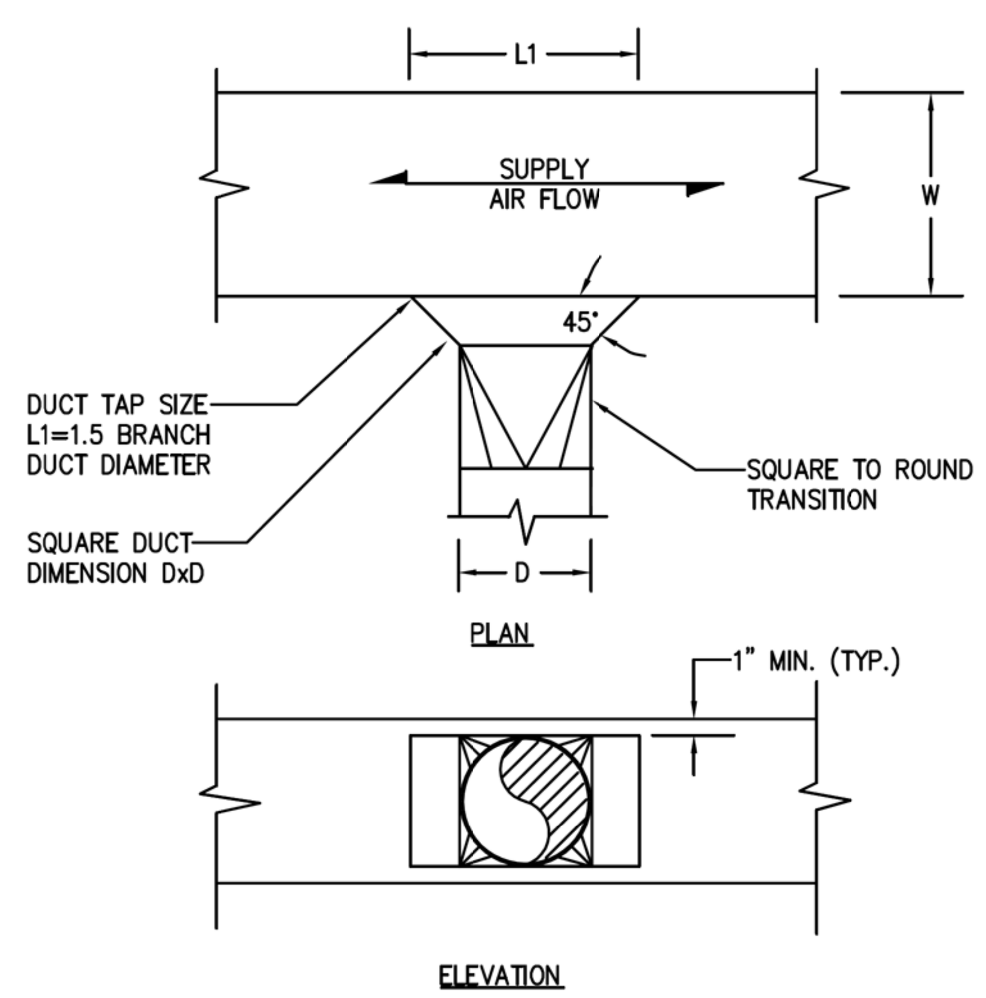


NOTES:

1. FOR HANGERS SIZE AND SPACING, SEE CURRENT SMACNA HVAC DUCT CONSTRUCTION STANDARDS TABLE 5-2.
2. FOR UPPER ATTACHMENT TO BUILDING, SEE CURRENT SMACNA HVAC DUCT CONSTRUCTION STANDARDS FIG 5-1 AND FIG 5-2 WITH SPECIFIC BUILDING STRUCTURAL ENGINEER APPROVAL.
3. FOR BRACING AND OTHER SEISMIC REQUIREMENTS, SEE GUIDELINES FOR SEISMIC RESTRAINTS OF MECHANICAL SYSTEMS AND PLUMBING PIPING SYSTEMS PUBLISHED BY SMACNA AND PPIC AS APPROVED BY CALIFORNIA CODE OF REGULATIONS (CCR), AND TITLE-24. ALSO REFER TO LATEST VERSION OF NATIONAL UNIFORM SEISMIC INSTALLATION GUIDELINES (NUSIG).
4. STRAPS ARE GALVANIZED STEEL, RODS ARE UNCOATED OR GALVANIZED STEEL.
5. PROVIDE MAX 6 FT SPACING FOR DUCT HANGERS.

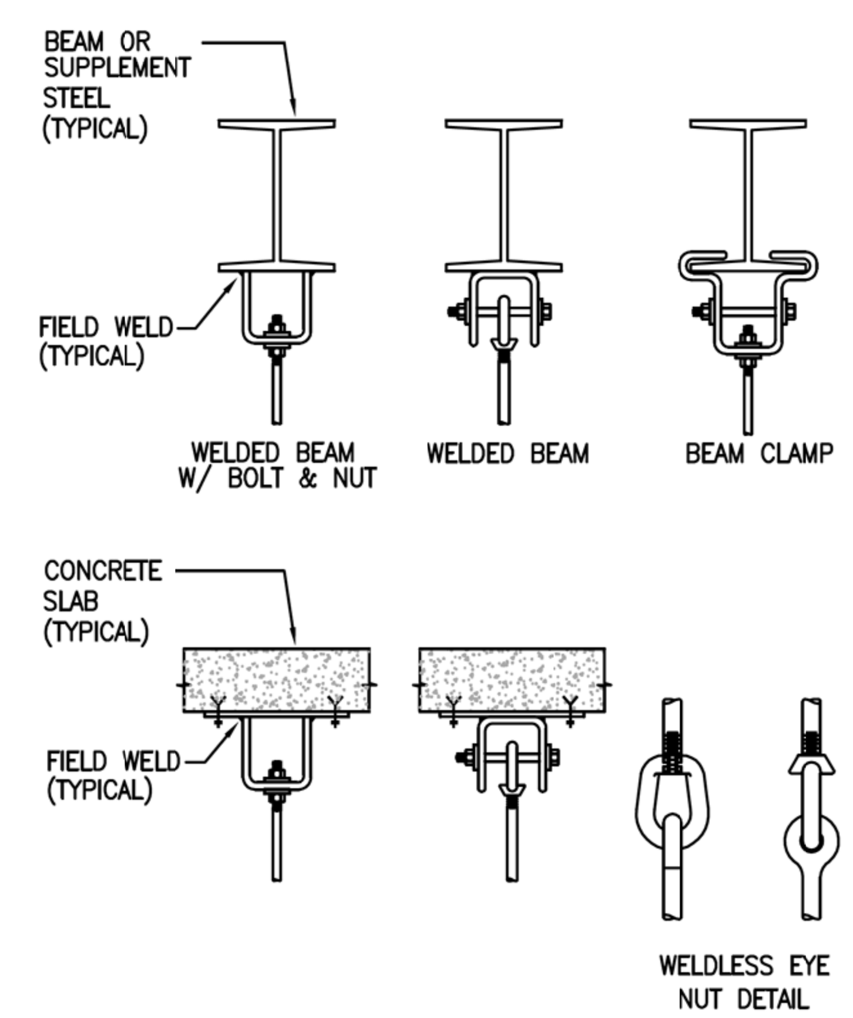
1 HORIZONTAL ROUND DUCT SUPPORTS

SCALE: NONE



6 RECTANGULAR TO ROUND BRANCH TAP

SCALE: NONE

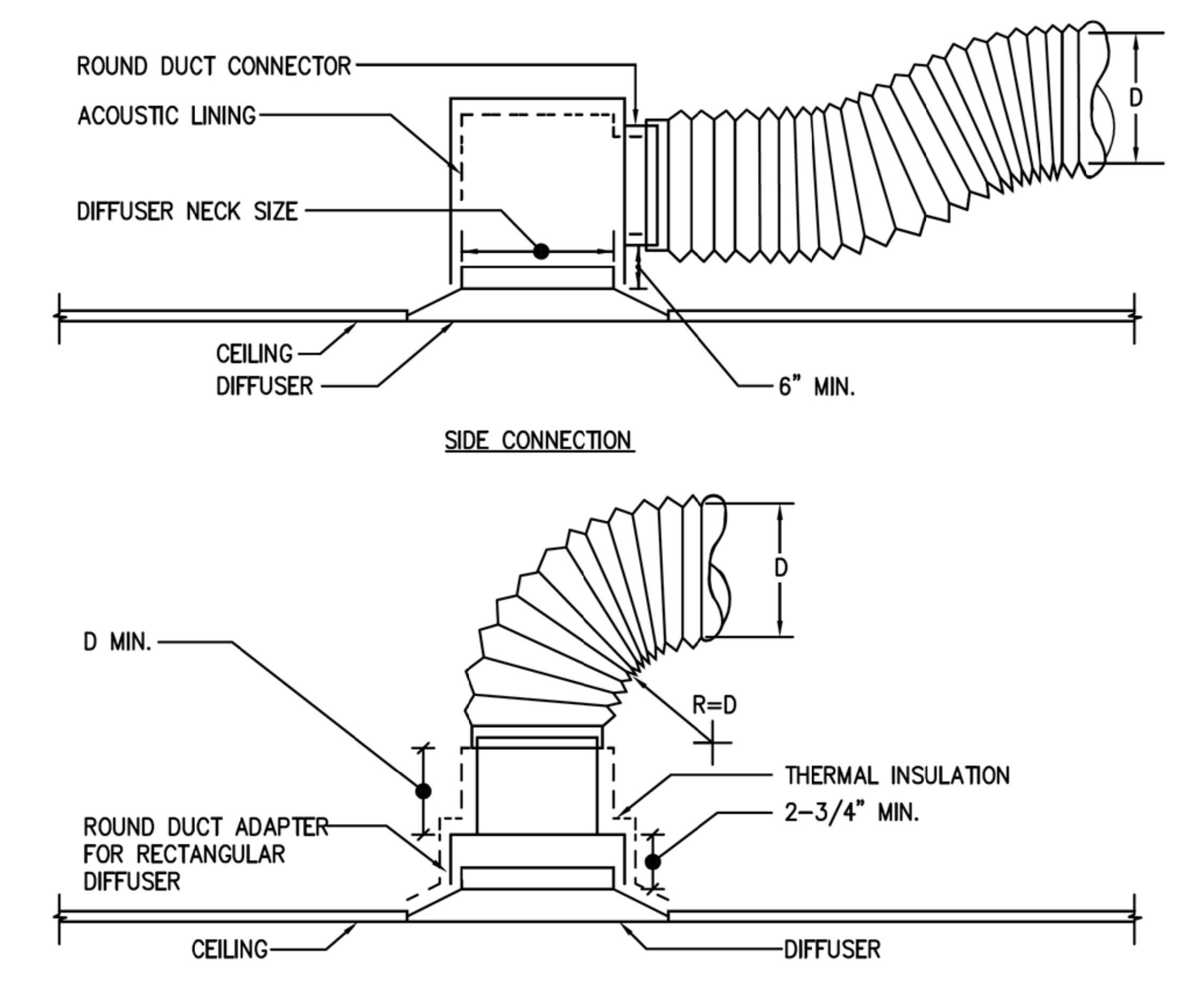


NOTES:

1. COORDINATE ATTACHMENT METHOD WITH FIELD CONDITION AT LOCATION OF REQUIRED HANGER.
2. ALTERNATIVE METHOD MUST BE APPROVED. SUBMIT REGISTERED ENGINEER SEALED PROPOSED ALTERNATIVE FOR APPROVAL.
3. REFER TO PIPE HANGER DETAIL FOR ROD SIZE AND HANGER SPACING REQUIREMENTS.
4. PIPE HANGERS AND SUPPORTS SHALL COMPLY WITH MSS SP58, SP69 AND SP89.

4 ACCEPTABLE ATTACHMENT

SCALE: NONE



2 DIFFUSER CONNECTION DETAIL

SCALE: NONE

CAVAGNERO

Syska Hennessy Group
A member company of SH Group, Inc.
Syska Hennessy Group, Inc.
800 Corporate Pointe
Suite 200
Culver City, CA 90230
Tel: 310.312.0200
Fax: 310.665.0172
www.syska.com

REV	DATE	DESCRIPTION
	6/16/2016	100% SD SET
	7/14/2016	100% DD SET
	8/18/2016	100% CD SET
	10/31/2016	90% CD SET
	12/12/2016	REVISED 90% CD SET
	4/03/2017	100% CD/CONFORMED SET
	4/24/2017	BID SET

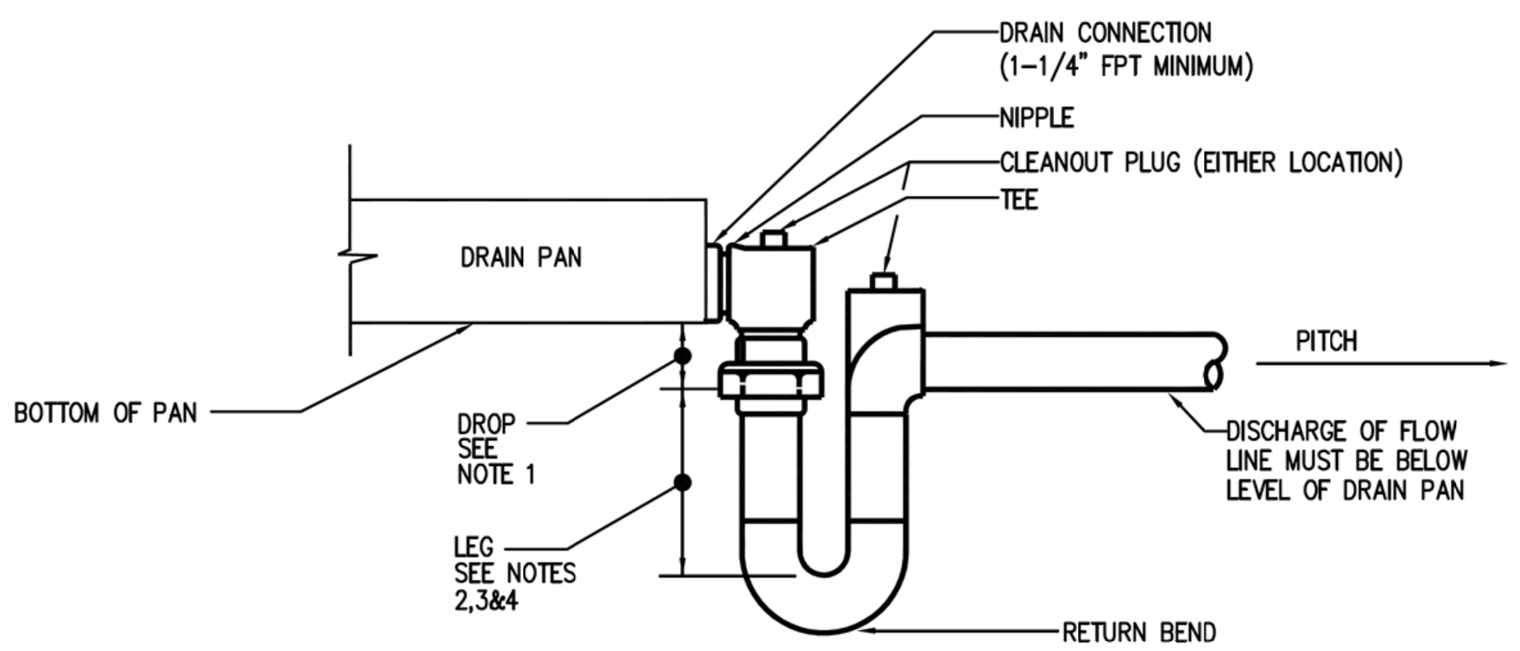
PASADENA COURTHOUSE ELEVATOR MODERNIZATION
300 E Walnut St, Pasadena, CA 91101

MECHANICAL DETAILS

M5.01

5 CONDENSATE DRAIN PIPING DETAIL

SCALE: NONE

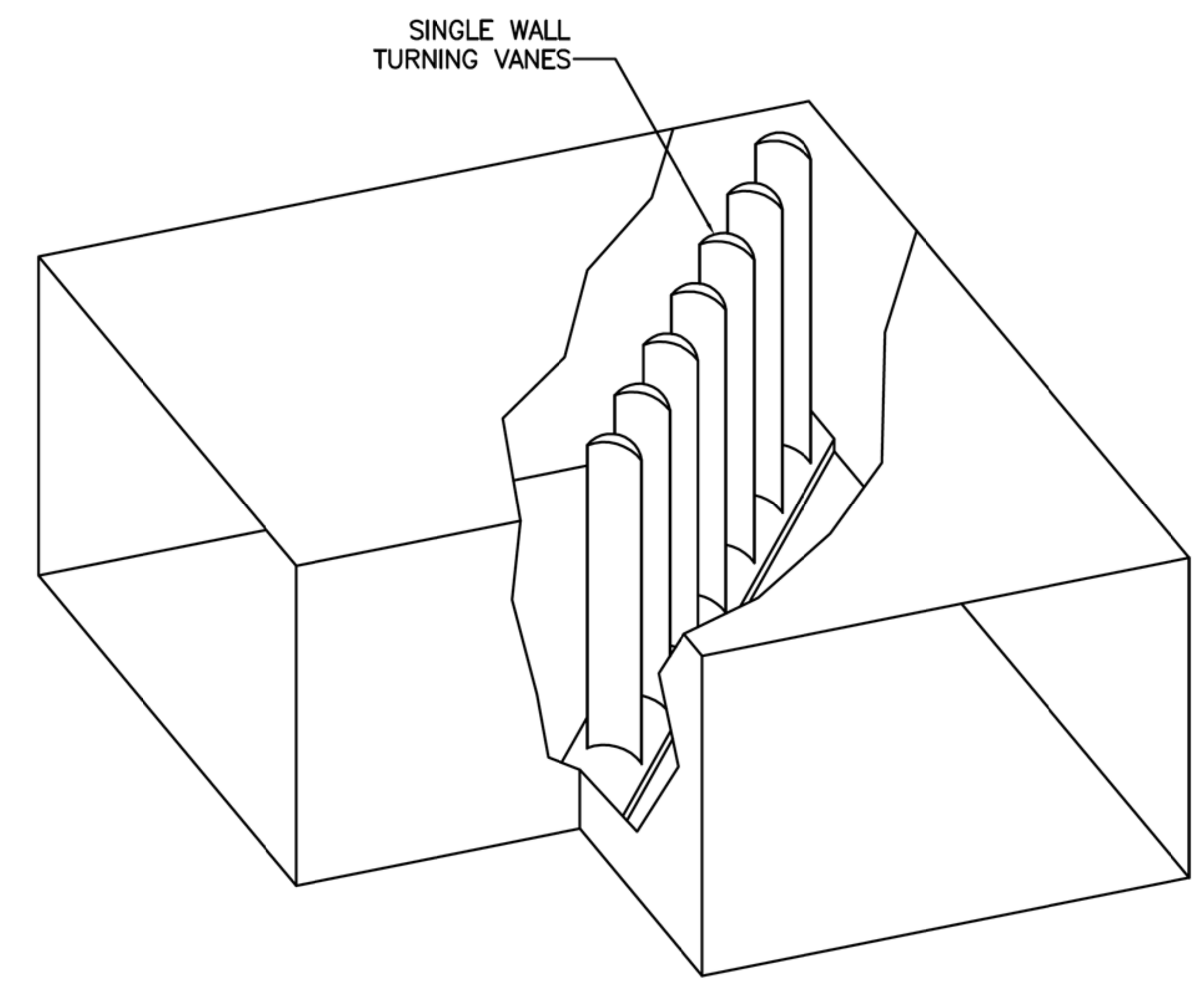


NOTES:

1. 1" MIN DROP REQUIRED. IF DRAW THRU, DROP=NEGATIVE STATIC PRESSURE AT FAN INLET.
2. BLOW-THRU UNIT: LEG=DISCHARGE PRESSURE OF FAN + 1.
3. DRAW-THRU UNIT: LEG=ONE HALF NEGATIVE INTERNAL STATIC PRESSURE AT FAN INLET + 1.
4. MANUFACTURER RECOMMENDATION: LEG SIZE PER ACU/FCU/FCU/CU MANUFACTURER.
5. ALLOW SUFFICIENT SPACE BELOW DRAIN PAN FOR TRAP.
6. PITCH DRAIN FOR PROPER RUN-OFF AND DISCHARGE TO APPROVED RECEPTACLE.
7. SUPPORT LENGTHY DRAIN LINES TO PREVENT SAG AND CONDENSATE OVERFLOW.
8. MANUALLY PRIME FILL TRAP BEFORE START-UP TO FORM INITIAL DRAIN SEAL.
9. CONTRACTOR TO VERIFY IF INTERNAL TRAP OCCUR IN WATER SOURCE HEAT PUMP.

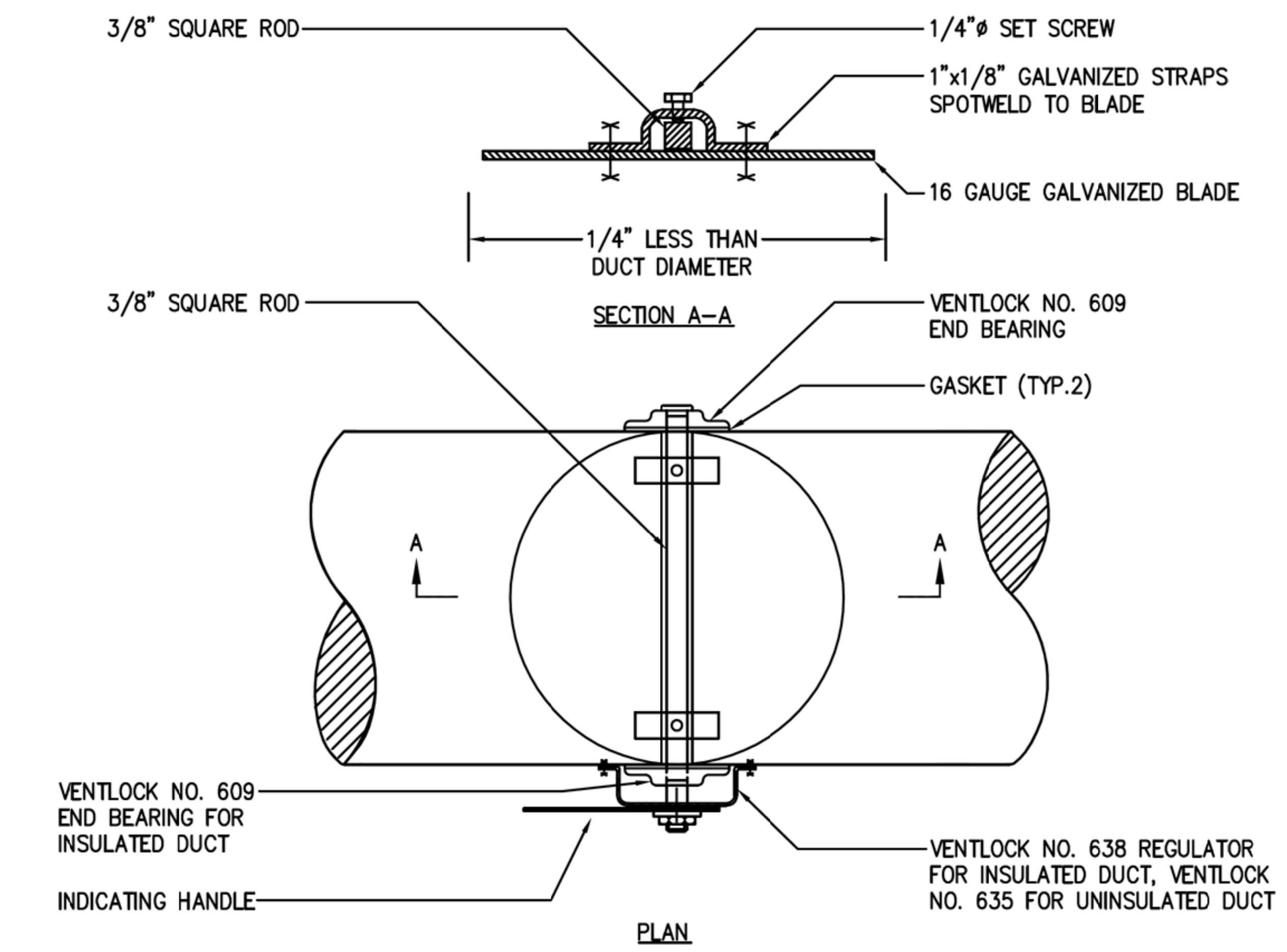
3 TYPICAL ELBOW DETAIL

SCALE: NONE



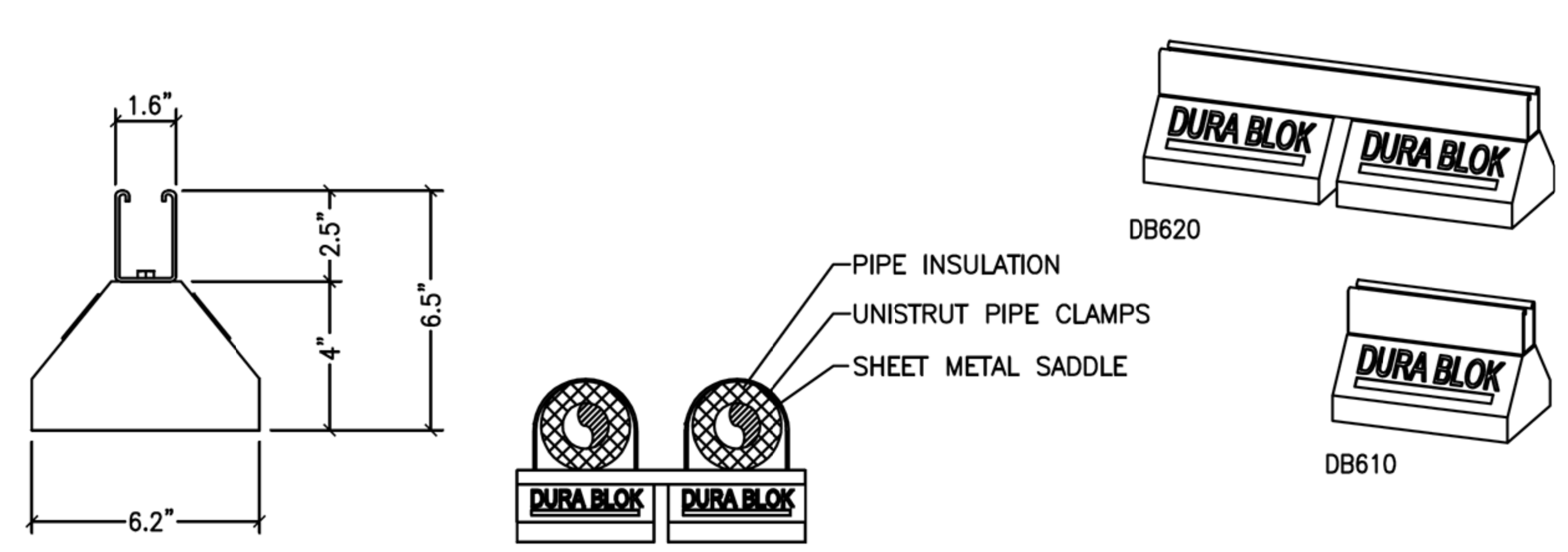
1 ROUND VOLUME DAMPER LOW PRESSURE UP TO 14"ɸ

SCALE: NONE



6 ROOF PIPE SUPPORT DETAIL

SCALE: NONE



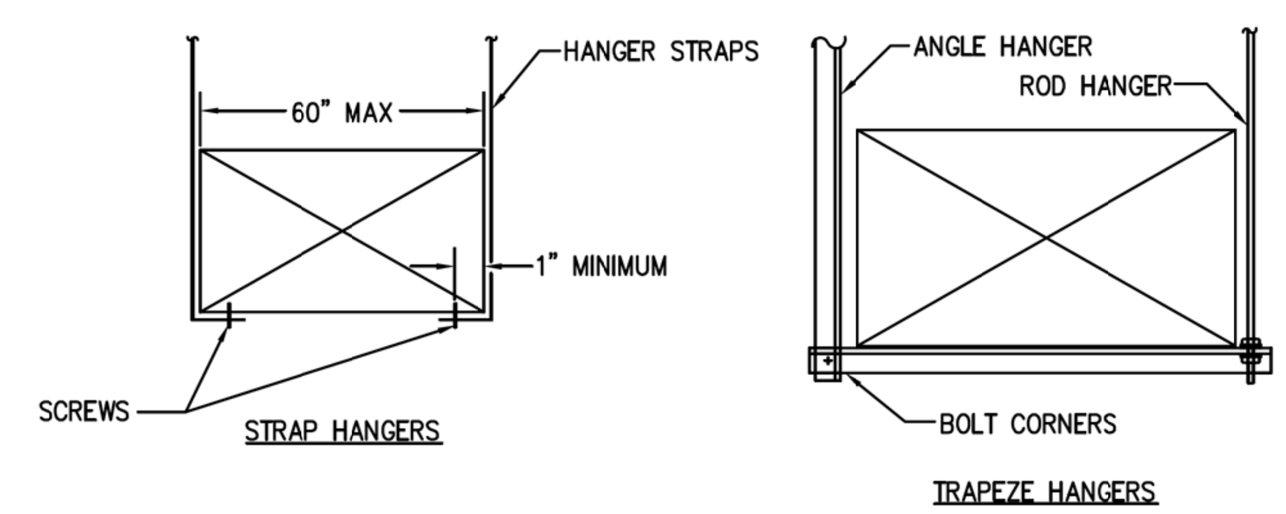
PIPE SUPPORT SPACING SCHEDULE		
TYPE OF PIPE	SIZE	MAX. SPACING
STEEL	1 1/2" AND SMALLER 2" AND LARGER	7 FT. 10 FT.
BRASS OR COPPER	3/4" AND SMALLER 1" TO 1-1/4" 1-1/2" TO 3" 4" AND LARGER	5 FT. 6 FT. 7 FT. 10 FT.

NOTES:

1. PIPE SUPPORT SHALL BE MANUFACTURED BY "COOPER B-LINE" MODEL DB6 SERIES. INSTALLATION SHALL PER MANUFACTURER RECOMMENDATION.

4 TYPICAL HORIZONTAL RECTANGULAR DUCT SUPPORTS

SCALE: NONE

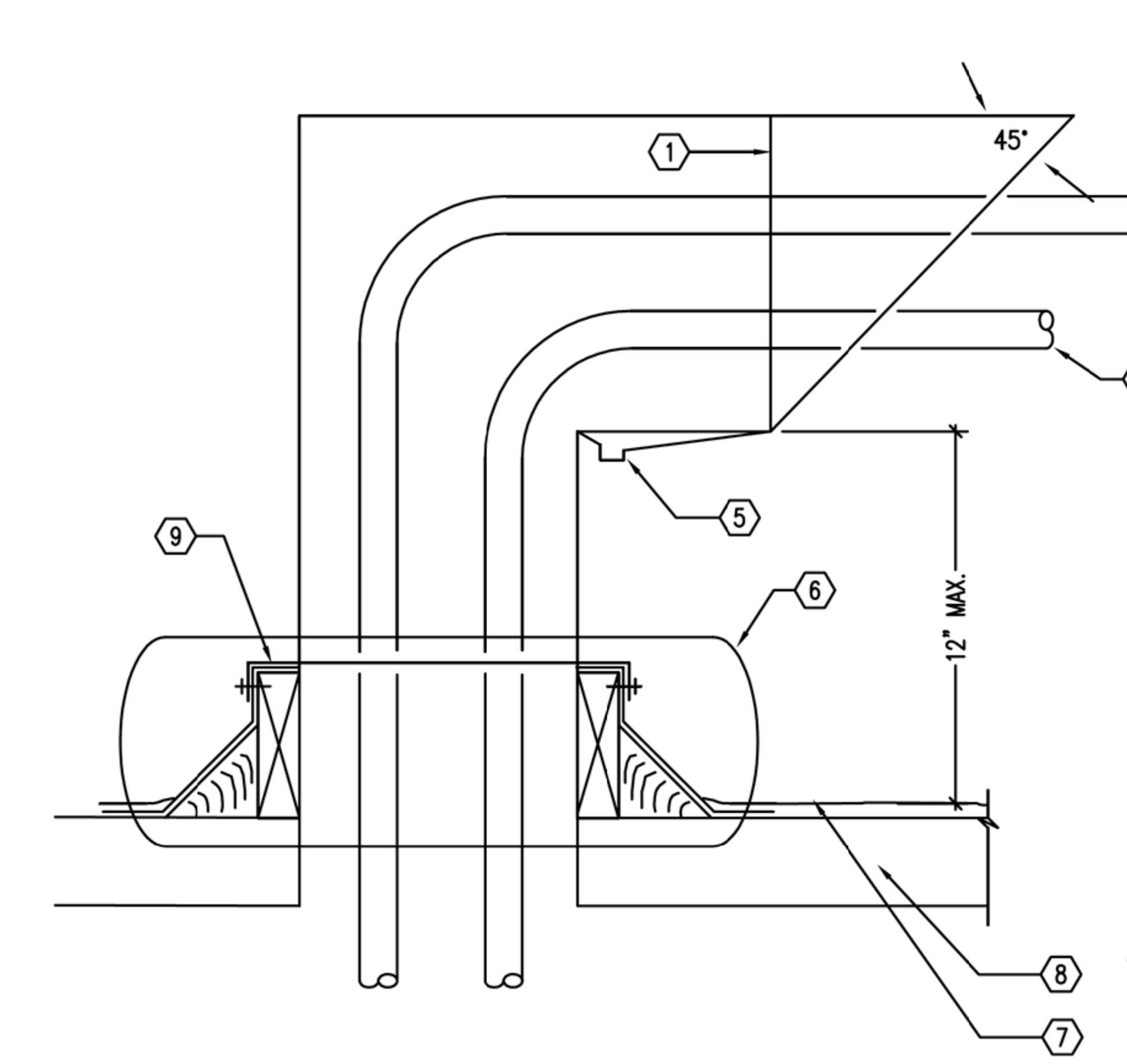


NOTES:

1. FOR HANGERS SIZE AND SPACING, SEE CURRENT SMACNA HVAC DUCT CONSTRUCTION STANDARDS TABLE 5-1 REFERENCED ON THIS SHEET.
2. DUCTS SHALL BE BRACED AND GUYED TO PREVENT LATERAL OR HORIZONTAL SWING PER UMC 603.2.5. FOR BRACING AND OTHER SEISMIC REQUIREMENTS, SEE GUIDELINES FOR SEISMIC RESTRAINTS OF MECHANICAL SYSTEMS AND PLUMBING PIPING SYSTEMS PUBLISHED BY SMACNA AND PPIC AS APPROVED BY CALIFORNIA CODE OF REGULATIONS (CCR), AND TITLE-24. ALSO REFER TO LATEST VERSION OF NATIONAL UNIFORM SEISMIC INSTALLATION GUIDELINES (NUSIG).
3. STRAPS ARE GALVANIZED STEEL, RODS ARE UNCOATED OR GALVANIZED STEEL.
4. PROVIDE MAX 6 FT SPACING FOR DUCT HANGERS.

2 REFRIGERANT PIPING ROOF PENETRATION

SCALE: NONE



1. 16 GAUGE GALVANIZED SHEET METAL ALL WELDED CONSTRUCTION.
2. MAKE ALL PIPE OPENING 1/8" LARGE THAN REQUIRED AND ALL SEAL WATER TIGHT ALL AROUND WITH WEATHERPROOF SILICON.
3. REFRIGERANT PIPING
4. LINE OF INSULATION (TYP.)
5. SLOPED DRAIN PAN WITH 1" DAM & 3/4" DRAIN. SPILL ONTO ROOF
6. FIELD FABRICATED ROOF CURB TO BE APPROVED BY STRUCTURAL ENGINEER.
7. FINISHED ROOF SURFACE
8. ROOF STRUCTURE
9. FLASHING

CAVAGNERO

SYSKA HENNESSY GROUP

A member company of SH Group, Inc.

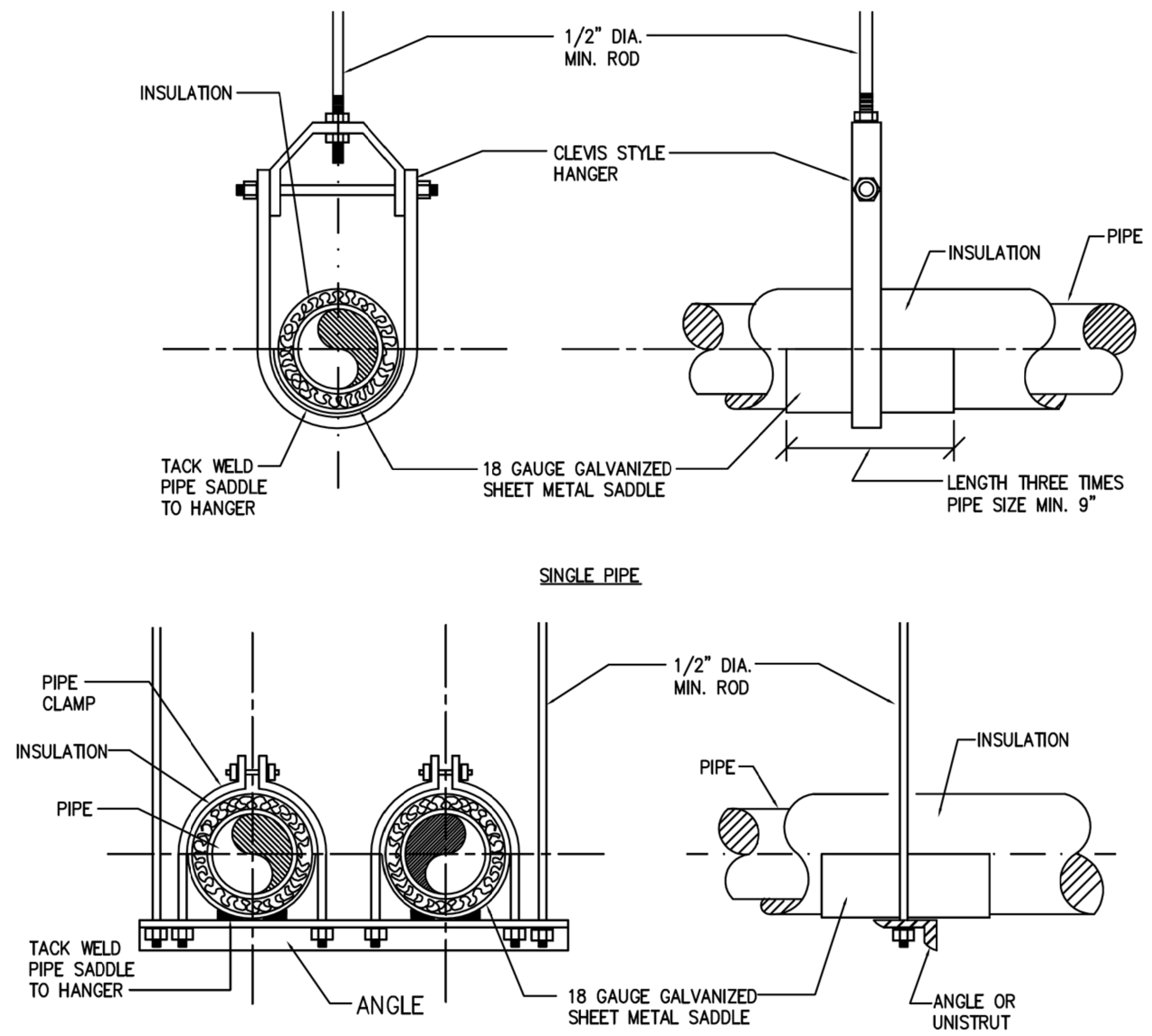
Syska Hennessy Group, Inc.
800 Corporate Pointe
Suite 200
Culver City, CA 90230
Tel: 310.312.0200
Fax: 310.665.0172
www.syska.com

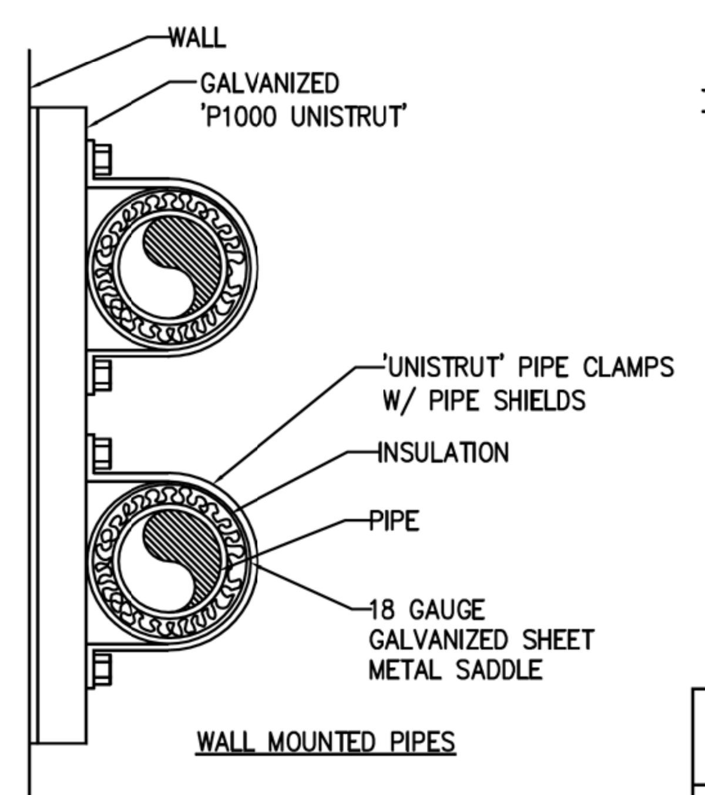
REV	DATE	DESCRIPTION
	6/16/2016	100% SD SET
	7/14/2016	100% DD SET
	8/18/2016	100% CD SET
	10/31/2016	90% CD SET
	12/12/2016	REVISED 90% CD SET
	4/03/2017	100% CD/CONFORMED SET
	4/24/2017	BID SET

PASADENA COURTHOUSE
ELEVATOR MODERNIZATION
300 E Walnut St, Pasadena, CA 91101

MECHANICAL DETAILS

M5.02





NOTES:

1. INSULATION ABOVE SADDLES SHALL BE FOAM/GLASS OF SAME THICKNESS AS PIPE INSULATION AND A COMPRESSIVE STRENGTH OF NOT LESS THAN 3,300 PSI.
2. HANGERS ARE ALSO TYPICAL FOR UNINSULATED PIPING (WITHOUT INSULATION AND SADDLES.)
3. CONNECT TO TOP OR BOTTOM CHORD OF JOISTS BUT ONLY AT PANEL POINTS.
4. C-CLAMPS ARE ACCEPTABLE FOR PIPE HANGER ASSEMBLIES ONLY IF RETAINING CLIP IS USED AND MSS-SP-69 STANDARD FOR PIPE HANGER ASSEMBLIES.
5. ATTACH PER SMACNA.
6. COORDINATE WITH STRUCTURE.

STEEL ROD SIZING SCHEDULE

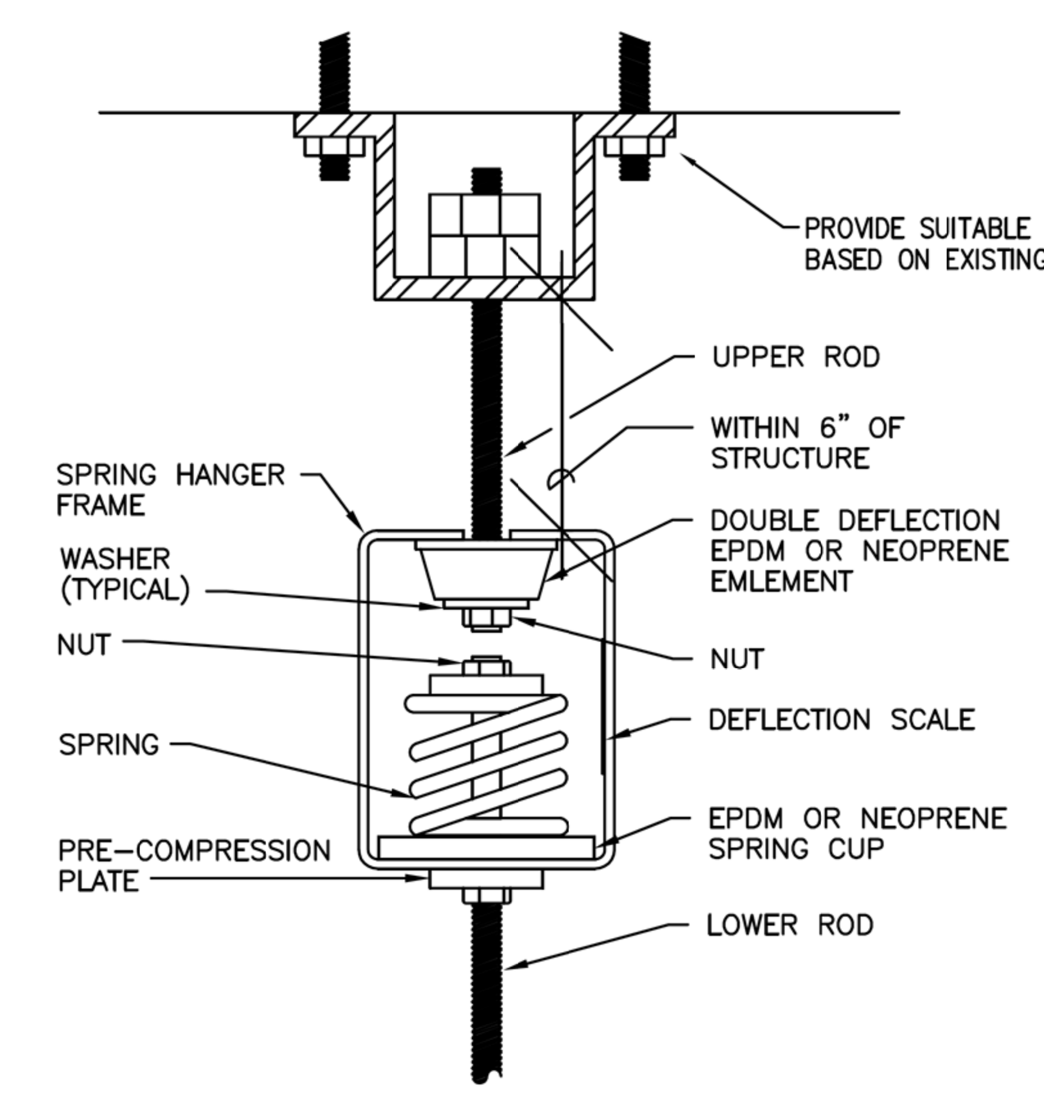
PIPE, IPS	ROD
2-1/2 IN	1/2 IN
3 IN	1/2 IN
4 IN	5/8 IN
6 IN	3/4 IN

PIPE SUPPORT SPACING SCHEDULE

TYPE OF PIPE	SIZE	MAX. SPACING
STEEL	1-1/2" AND SMALLER	7 FT
	2" AND LARGER	10 FT
BRASS OR COPPER	3/4" AND SMALLER	3 FT
	1" TO 1-1/4"	6 FT
	1-1/2" TO 3"	7 FT
	4" AND LARGER	10 FT

5 PIPE HANGER DETAIL (TYPICAL)

SCALE: NONE

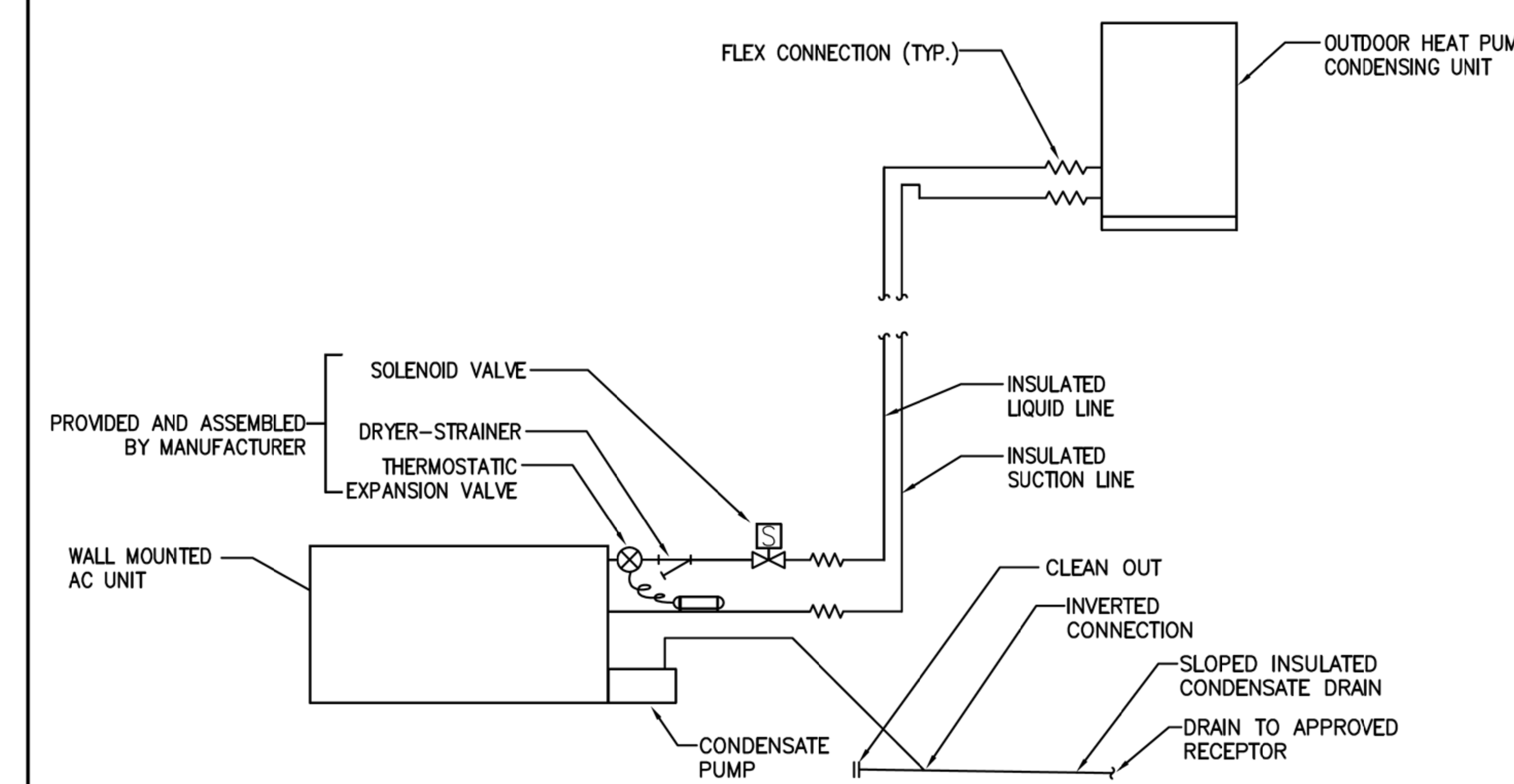


NOTES:

1. TYPICAL SPRING & NEOPRENE IN SERIES ISOLATOR DETAIL. OTHER TYPES OF VIBRATION ISOLATORS ARE SIMILAR.
2. THE SPRING SHALL BE PRE-COMPRESSED SO THAT WHEN PROPERLY INSTALLED AND LOADED, THE SPRING IS ADJUSTED TO THE MID-POINT OF THE DEFLECTION SCALE.
3. PROVIDE SPRING AND NEOPRENE ISOLATORS FOR FCU/AHU UNITS WITH MINIMUM 1/2-INCH STATIC DEFLECTION.

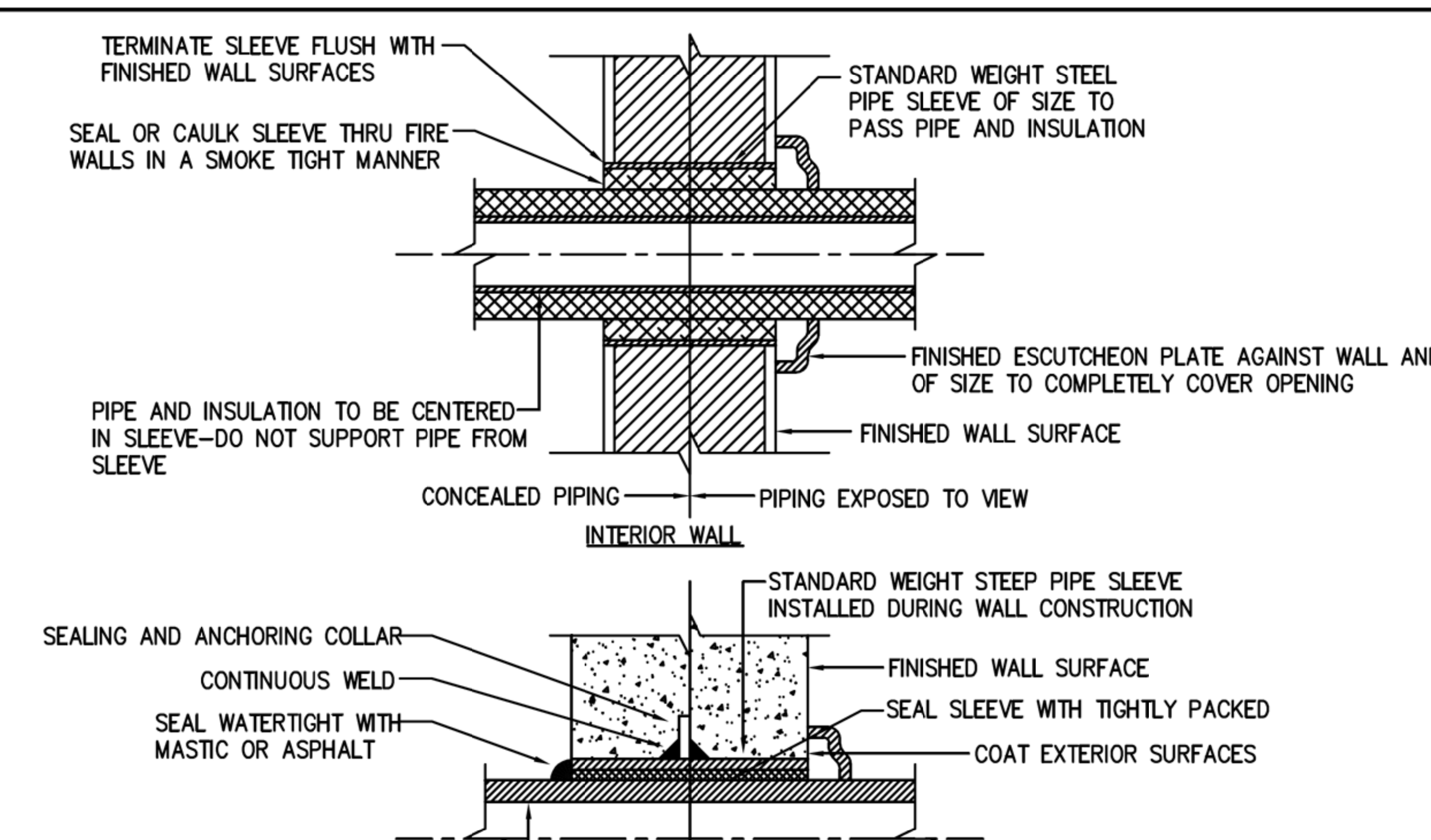
3 SPRING AND NEOPRENE ISOLATION/HANGER

SCALE: NONE



1 AHU / HP DX PIPING DETAIL

SCALE: NONE

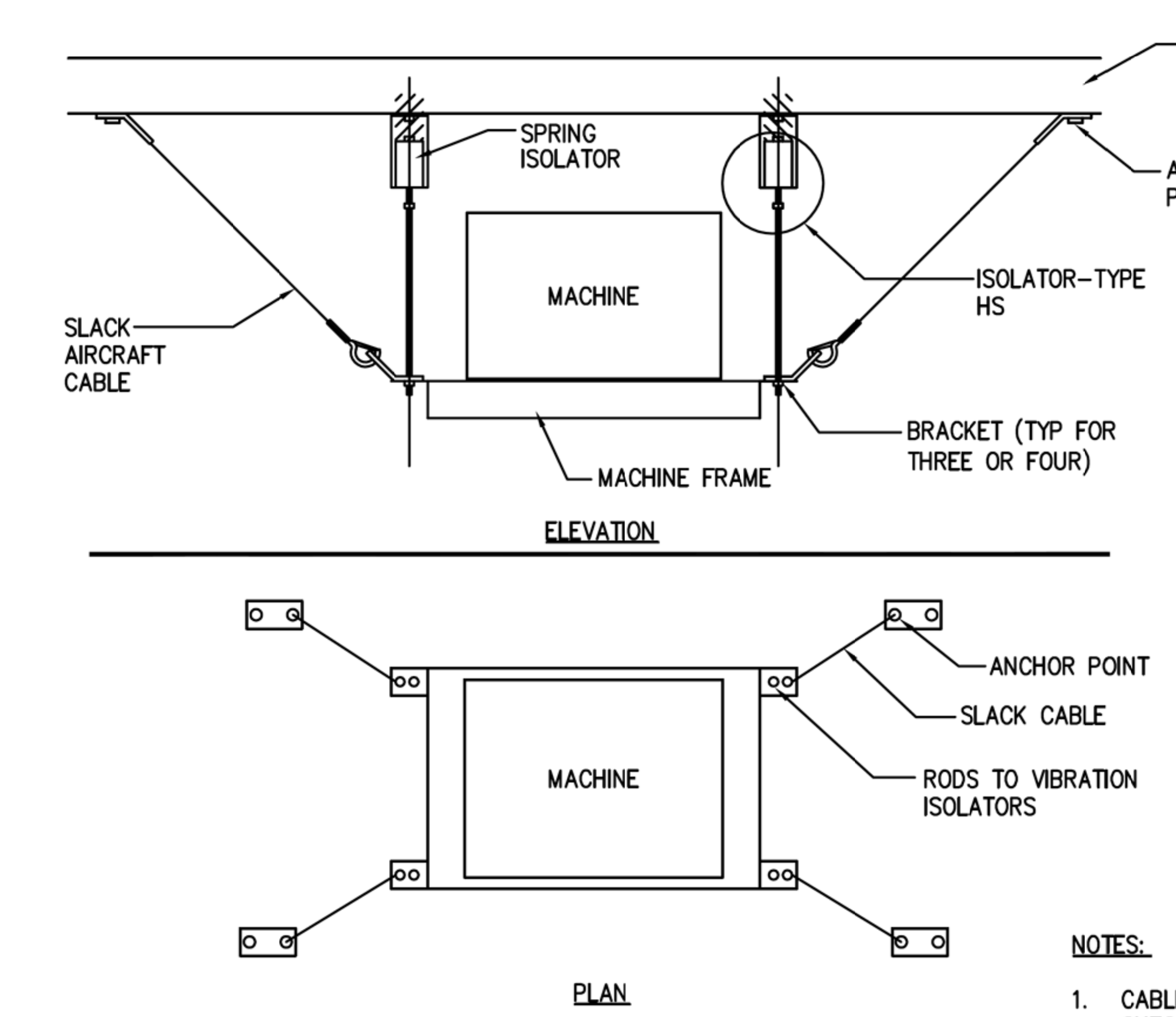


NOTES:

1. PIPE SLEEVE FOR EXTERIOR WALL ABOVE OR BELOW GRADE.
2. FOR GAS SERVICE EXTENT SLEEVE 1" PAST INSIDE FACE OF WALL AND 4" PASS OUTSIDE FACE OF WALL.

4 PIPE SLEEVE THRU WALL

SCALE: NONE



NOTES:

1. CABLE, ANCHORS TO BE CHECKED BY STRUCTURAL ENGINEER. REFER TO STRUCTURAL DRAWINGS FOR DETAILS.

2 ALL DIRECTIONAL SUSPENDED EQUIPMENT

SCALE: NONE

CAVAGNERO
MARK CAVAGNERO ASSOCIATES ARCHITECTS

SYSKA HENNESSY GROUP
A member company of SH Group, Inc.
Syska Hennessy Group, Inc.
800 Corporate Pointe
Suite 200
Culver City, CA 90230
Tel: 310.312.0200
Fax: 310.665.0172
www.syska.com

REV	DATE	DESCRIPTION
	6/16/2016	100% SD SET
	7/14/2016	100% DD SET
	8/18/2016	100% CD SET
	10/31/2016	90% CD SET
	12/12/2016	REVISED 90% CD SET
	4/03/2017	100% CD/CONFORMED SET
	4/24/2017	BID SET

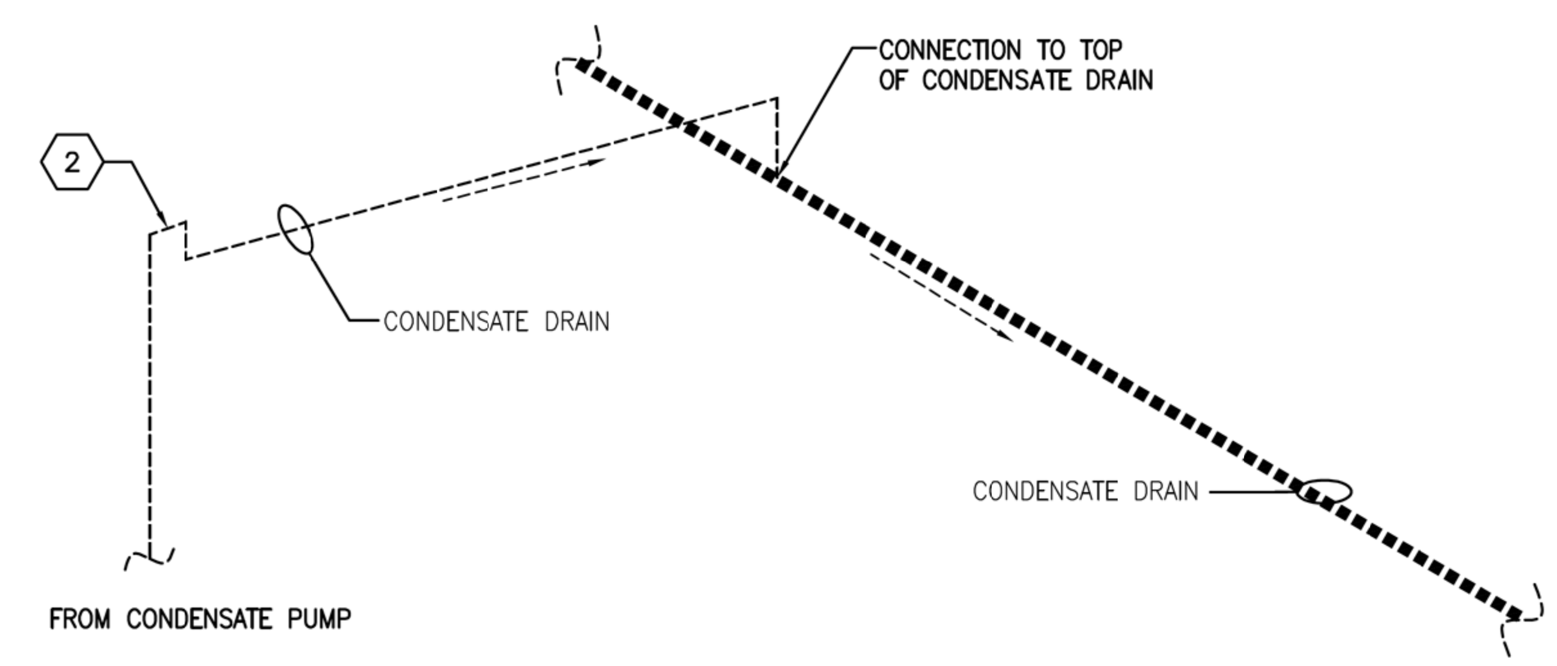
PASADENA COURTHOUSE ELEVATOR MODERNIZATION
300 E Walnut St, Pasadena, CA 91101

MECHANICAL DETAILS

M5.03

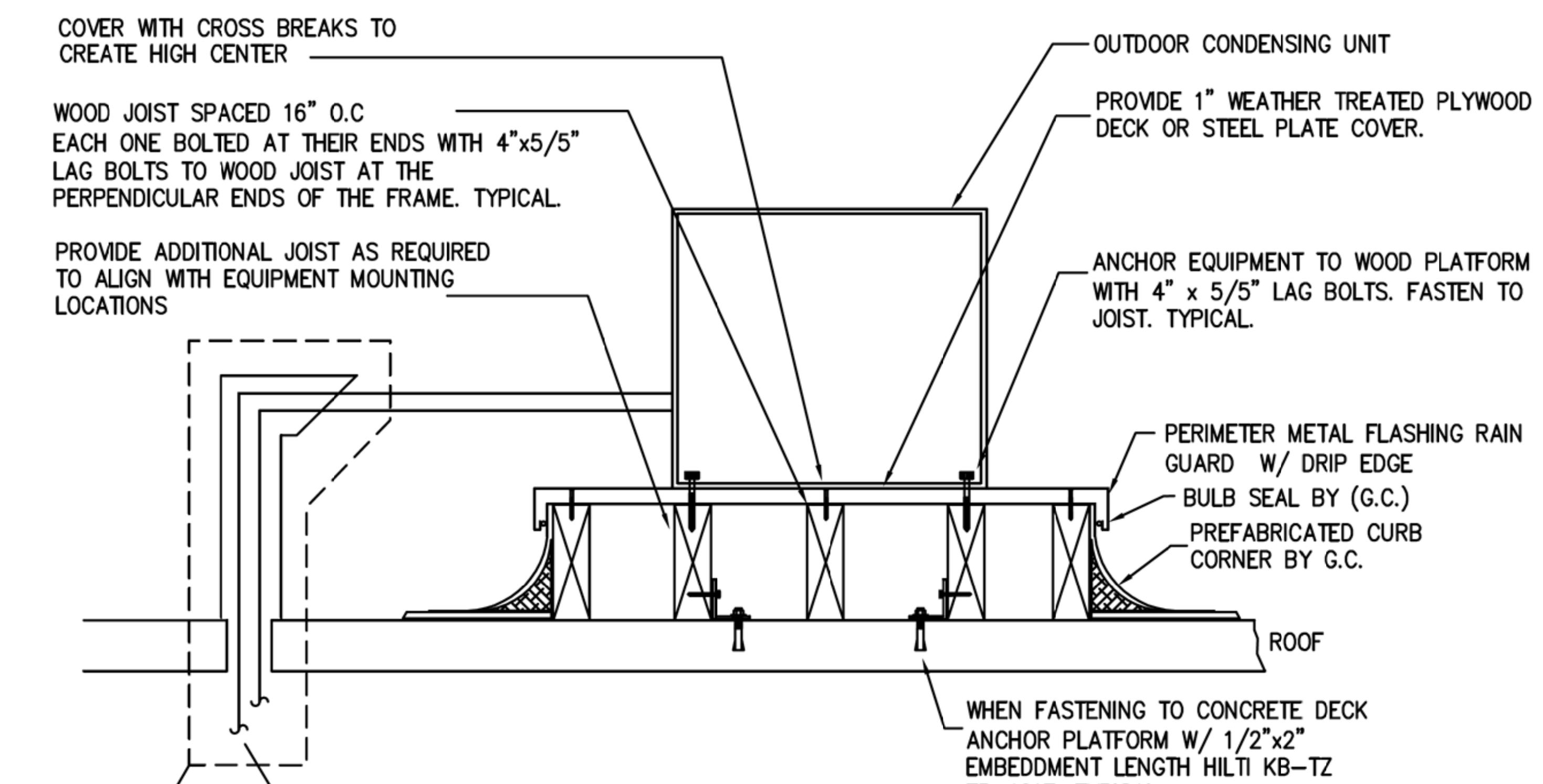
NOTES:

1. INVERTED TRAP AT HIGH POINT OF PUMPED DISCHARGE



3 CONDENSATE DRAIN LINE CONNECTION (TYPICAL)

SCALE: NONE

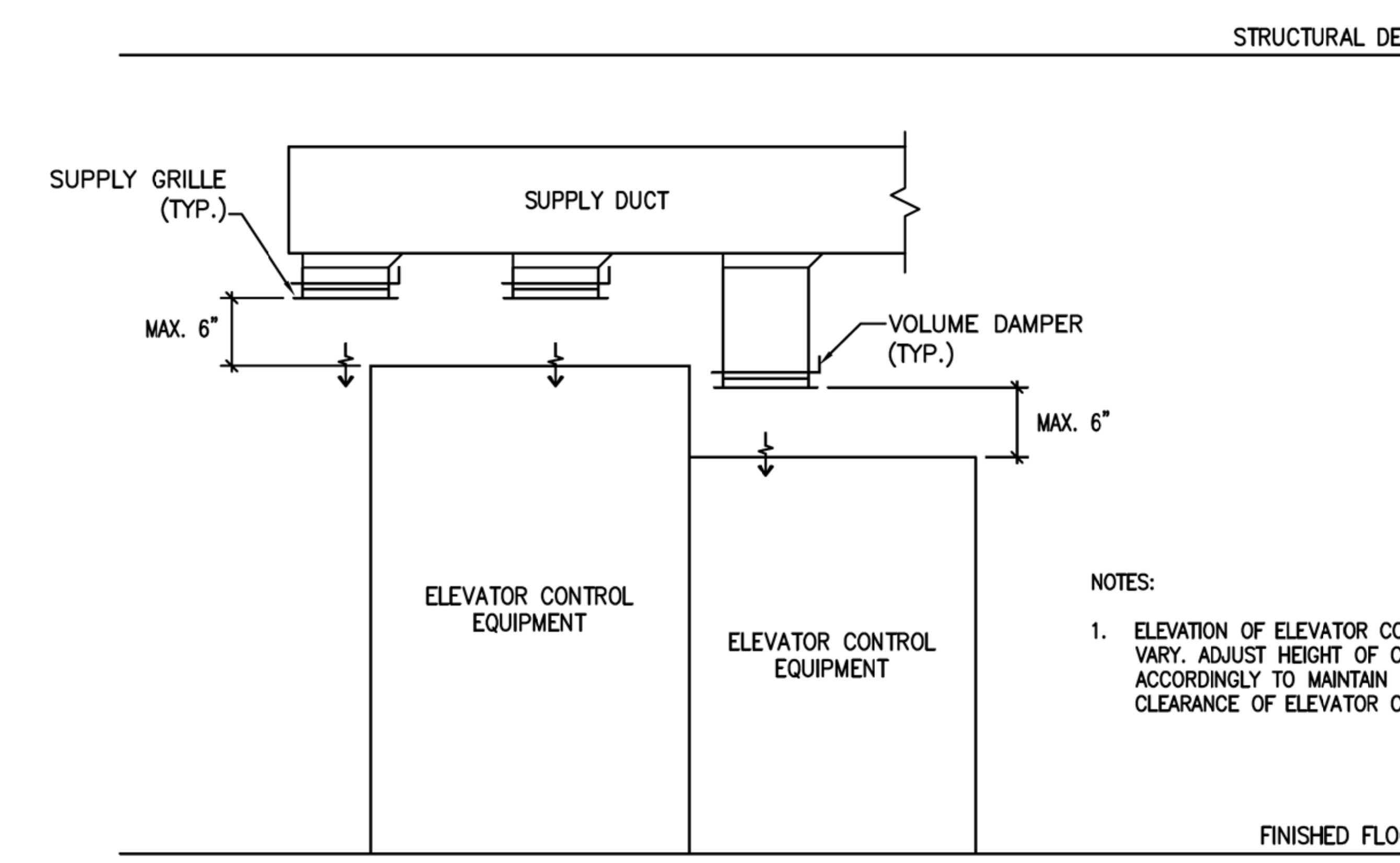


NOTES:

1. ROOF EQUIPMENT PLATFORM BY CONTRACTOR.
2. SHIM AS NECESSARY TO PROVIDE LEVEL PLATFORM.
3. FASTEN TO BUILDING DECK STRUCTURE COORDINATE WITH STRUCTURAL ENG..
4. EQUIPMENT PLATFORM SHALL BE APPROVED BY STRUCTURAL ENGINEER.
5. WOOD JOISTS TO BE SIZED BY STRUCTURAL ENGINEER.

1 CONDENSING UNIT MOUNTING DETAIL

SCALE: NONE



NOTES:

1. ELEVATION OF ELEVATOR CONTROL EQUIPMENT MAY VARY. ADJUST HEIGHT OF CEILING DIFFUSER ACCORDINGLY TO MAINTAIN REQUIRED SERVICE CLEARANCE OF ELEVATOR CONTROL EQUIPMENT.

2 SUPPLY GRILLE INSTALLATION DETAIL

SCALE: NONE

CAVAGNERO

SYSKA HENNESSY GROUP

A member company of SH Group, Inc.

Syska Hennessy Group, Inc.
800 Corporate Pointe
Suite 200
Culver City, CA 90230
Tel: 310.312.0200
Fax: 310.665.0172
www.syska.com

REV	DATE	DESCRIPTION
	6/16/2016	100% SD SET
	7/14/2016	100% DD SET
	8/18/2016	100% CD SET
	10/31/2016	90% CD SET
	12/12/2016	REVISED 90% CD SET
	4/03/2017	100% CD/CONFORMED SET
	4/24/2017	BID SET

PASADENA COURTHOUSE ELEVATOR MODERNIZATION

300 E Walnut St, Pasadena, CA 91101

MECHANICAL DETAILS

M5.04