

MWDOC CRAC UNIT INSTALL

ROSENBERG +
ASSOCIATES
6645 MOORE DRIVE
LOS ANGELES, CA 90048

HVAC LEGEND							
LEGEND		LEGEND		PIPING SYMBOL LEGEND		PIPING SYMBOL LEGEND	
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
(N) (E)	NEW (N) & EXISTING (E) RECTANGULAR SUPPLY AIR DUCT RISER	(E)	NEW (N) & EXISTING (E) RECTANGULAR RETURN AIR DUCT RISER	(E)	NEW (N) & EXISTING (E) RECTANGULAR EXHAUST AIR DUCT RISER	(E)	NEW (N) & EXISTING (E) ROUND AIR DUCT RISER
(E)	NEW SINGLE LINE & DOUBLE LINE RECTANGULAR OR ROUND DUCT	(E)	EXISTING SINGLE LINE & DOUBLE LINE RECTANGULAR OR ROUND DUCT	(E)	EXISTING SINGLE LINE DUCTWORK TO BE DEMOLISHED (X) OPTION	(E)	EXISTING DOUBLE LINE DUCTWORK TO BE DEMOLISHED (X) OPTION
(E)	EXISTING DUCTWORK TO BE DEMOLISHED (HATCH OPTION)	(E)	DUCT WITH LINING. DIMENSIONS SHOWN ARE O.D. OF SHEETMETAL (W X H). THICKNESS OF INSULATION AS SHOWN ON PLANS.	(E)	SINGLE & DOUBLE LINE DUCTWORK WITH TRANSITIONAL FITTING	(E)	DOUBLE LINE SQUARE TO ROUND TRANSITIONAL FITTING
(E)	90° SQUARE ELBOW	(E)	90° SQUARE ELBOW WITH TURNING VANES	(E)	ROUND DUCT TURNING VERTICAL	(E)	ROUND DUCT TURNING HORIZONTAL
(E)	SINGLE LINE MANUAL VOLUME DAMPER	(E)	DOUBLE LINE MANUAL VOLUME DAMPER	(E)	MOTORIZED DAMPER (ELECTRIC)	(E)	MOTORIZED DAMPER (PNEUMATIC)
(E)	FIRE DAMPER (SINGLE LINE AND DOUBLE LINE)	(E)	FIRE/SMOKE DAMPER (SINGLE LINE AND DOUBLE LINE)	(E)	SMOKE DETECTOR (DUCT TYPE)	(E)	SMOKE DETECTOR (AREA TYPE)
(E)	THERMOSTAT WITH ZONE NUMBER	(E)	CO2 SENSOR	(E)	CO SENSOR	(E)	WALL SWITCH
(E)	POINT OF CONNECTION	(E)	REVISION DELTA	(E)	GAS STUB-UP BY PLUMBING CONTRACTOR	(E)	COLD WATER STUB-UP BY PLUMBING CONTRACTOR
(E)	ELECTRICAL EQUIPMENT CONNECTION LOCATION BY ELECTRICAL CONTRACTOR	(E)	CONDENSATE LINE WITH TRAP TO APPROVED RECEPTOR BY PLUMBING CONTRACTOR	(E)	FLOOR SINK WITH TRAP TO APPROVED RECEPTOR BY PLUMBING CONTRACTOR	(E)	ELECTRICAL EQUIPMENT CONNECTION LOCATION BY ELECTRICAL CONTRACTOR

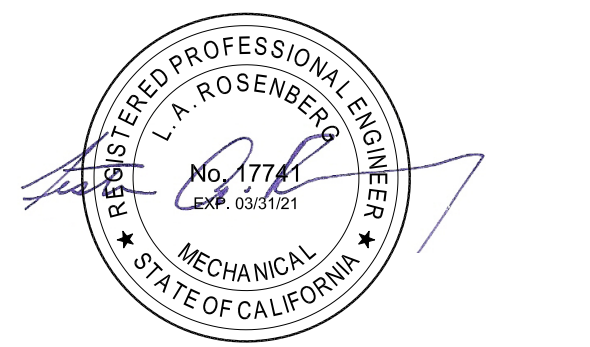
ABBREVIATIONS					
ABBR.	DESCRIPTION	ABBR.	DESCRIPTION	ABBR.	DESCRIPTION
AFF	ABOVE FINISHED FLOOR	GA	GAUGE	(R)	RELOCATE
AHJ	AUTHORITY HAVING JURISDICTION	GALV	GALVANIZED	RA	RETURN AIR
ASD	AREA SMOKE DETECTOR	GC	GENERAL CONTRACTOR	RG	RETURN OR TRANSFER GRILLE
BDD	BACKDRAFT DAMPER	GPH	GALLONS PER HOUR	RMF	RAPID MOUNT FRAME
BF	BOTTOM OF DUCT	GPM	GALLONS PER MINUTE	RND	ROUND
BOD	BOTTOM OF INSULATION	GYP BD	GYPSON BOARD	REQ'D	REQUIRED
BOI	BOTTOM OF PIPE	HT	HEIGHT	SA	SUPPLY AIR
BOP	BOTTOM OF PIPE	HOA	HAND-OFF-AUTO	SG	SUPPLY GRILLE
CS	CEILING SUPPLY	HWR	HOT WATER RETURN	SM	SHEET METAL
CR	CEILING RETURN	HWS	HOT WATER SUPPLY	SS	STAINLESS STEEL
CE	CEILING EXHAUST	ID	INSIDE DIMENSION	STD	STANDARD
CL	CENTERLINE	INS	INSULATION	TF	TOP FLAT
CLG	CEILING	INT	INTERIOR	TOD	TOP OF DUCT
CFM	CUBIC FEET PER MINUTE	(L)	LINED	TOP	TOP OF PIPE
CHWR	CHILLED WATER RETURN	LR	LINEAR RETURN	T*STAT	THERMOSTAT
CHWS	CHILLED WATER SUPPLY	LS	LINEAR SUPPLY	UBC	UNIFORM BUILDING CODE
CMU	CONCRETE MASONRY UNIT	MA	MIXED AIR	UC	UNDERCUT
CONC	CONCRETE	MECH	MECHANICAL	UG	UNDERGROUND
CONTR	CONTRACTOR	MFR	MANUFACTURER	UMK	UNIFORM MECHANICAL CODE
CWR	CONDENSER WATER RETURN	MTD	MOUNTED	UNO	UNLESS NOTED OTHERWISE
CWS	CONDENSER WATER SUPPLY	MTL	METAL	UTR	UP THROUGH ROOF
COND	CONDENSATE	MUA	MAKE UP AIR	V	VENT
DSD	DUCT SMOKE DETECTOR	MVD	MANUAL VOLUME DAMPER	VAV	VARIABLE AIR VOLUME
DWG	DRAWING	N/A	NOT APPLICABLE	VFD	VARIABLE SPEED DRIVE
(E)	EXISTING	NC	NORMALLY CLOSED	VOL	VOLUME
EG	EXHAUST AIR	NIC	NORMALLY OPEN	WMS	WIRE MESH SCREEN
ELB	ELBOW	NO	NOT TO SCALE	XFER	TRANSFER
ELEC	ELECTRICAL	NTS	NOT TO SCALE		
EQ	EQUIPMENT	ORD	OPPOSED BLADE DAMPER		
EXH	EXHAUST	OC	ON CENTER		
EXT	EXTERIOR	OD	OUTSIDE DIMENSION		
(F)	FUTURE	OPNG	OPENING		
FD	FIRE DAMPER	OSA	OUTSIDE AIR		
FLEX	FLEXIBLE	POC	POINT OF CONNECTION		
FLR	FLOOR				
FR	FLOOR RETURN				
FS	FLOOR SUPPLY				
FSD	FIRE SMOKE DAMPER				

APPLICABLE CODES	
CALIFORNIA MECHANICAL PROJECTS:	
ALL WORK SHALL BE IN FULL ACCORDANCE WITH APPLICABLE LOCAL, STATE, AND FEDERAL CODES, LAWS AND REGULATIONS. ALL WORK AND MATERIALS SHALL BE IN FULL ACCORDANCE WITH, BUT NOT LIMITED TO:	
<ul style="list-style-type: none">CALIFORNIA CODE OF REGULATIONS (CCR)2016 CALIFORNIA BUILDING CODE - CCR TITLE 24 PART 22016 CALIFORNIA ELECTRICAL CODE - CCR TITLE 24 PART 32016 CALIFORNIA MECHANICAL CODE - CCR TITLE 24 PART 42016 CALIFORNIA PLUMBING CODE - CCR TITLE 24 PART 52016 CALIFORNIA ENERGY CODE - CCR TITLE 24 PART 62016 CALIFORNIA FIRE CODE - CCR TITLE 24 PART 92016 CALIFORNIA GREEN BUILDING STANDARDS CODE - CCR TITLE 24 PART 11	
ALL WORK SHALL BE IN ACCORDANCE WITH THE FOLLOWING ADDITIONAL GUIDELINES WHERE REQUIRED BY CODE:	
<ul style="list-style-type: none">SHEET METAL AND AIR CONDITIONING CONTRACTORS NATIONAL ASSOCIATION (SMACNA)AMERICAN SOCIETY OF HEATING, REFRIGERATION AND AIR-CONDITIONING ENGINEERS (ASHRAE)AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME)AMERICAN SOCIETY OF CIVIL ENGINEERS (ASCE)NATIONAL FIRE PROTECTION AGENCY (NFPA)OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA)LOCAL UTILITY GUIDELINES AND REGULATIONSLOCAL AIR QUALITY MANAGEMENT DISTRICTS	

SCOPE OF WORK	
18700 WARD STREET IS AN EXISTING BUILDING. LOCATED IN THE CITY OF FOUNTAIN VALLEY, CA. THE MECHANICAL SCOPE OF WORK IS TO INSTALL (1) NEW CRAC UNIT AND ASSOCIATED SUPPLY, RETURN DUCTWORK.	
GENERAL NOTE	
ELECTRICAL WORK DEFERRED. AND TO BE SUBCONTRACTED AT A LATER DATE BY CONTRACTOR PERFORMING WORK.	

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6645 MOORE DRIVE
LOS ANGELES, CA 90048



Project

**MWDOC CRAC UNIT
INSTALL**

**18700 WARD ST.
FOUNTAIN VALLEY, CA 92708**

LES ROSENBERG

Designed By

1974210

Job Number

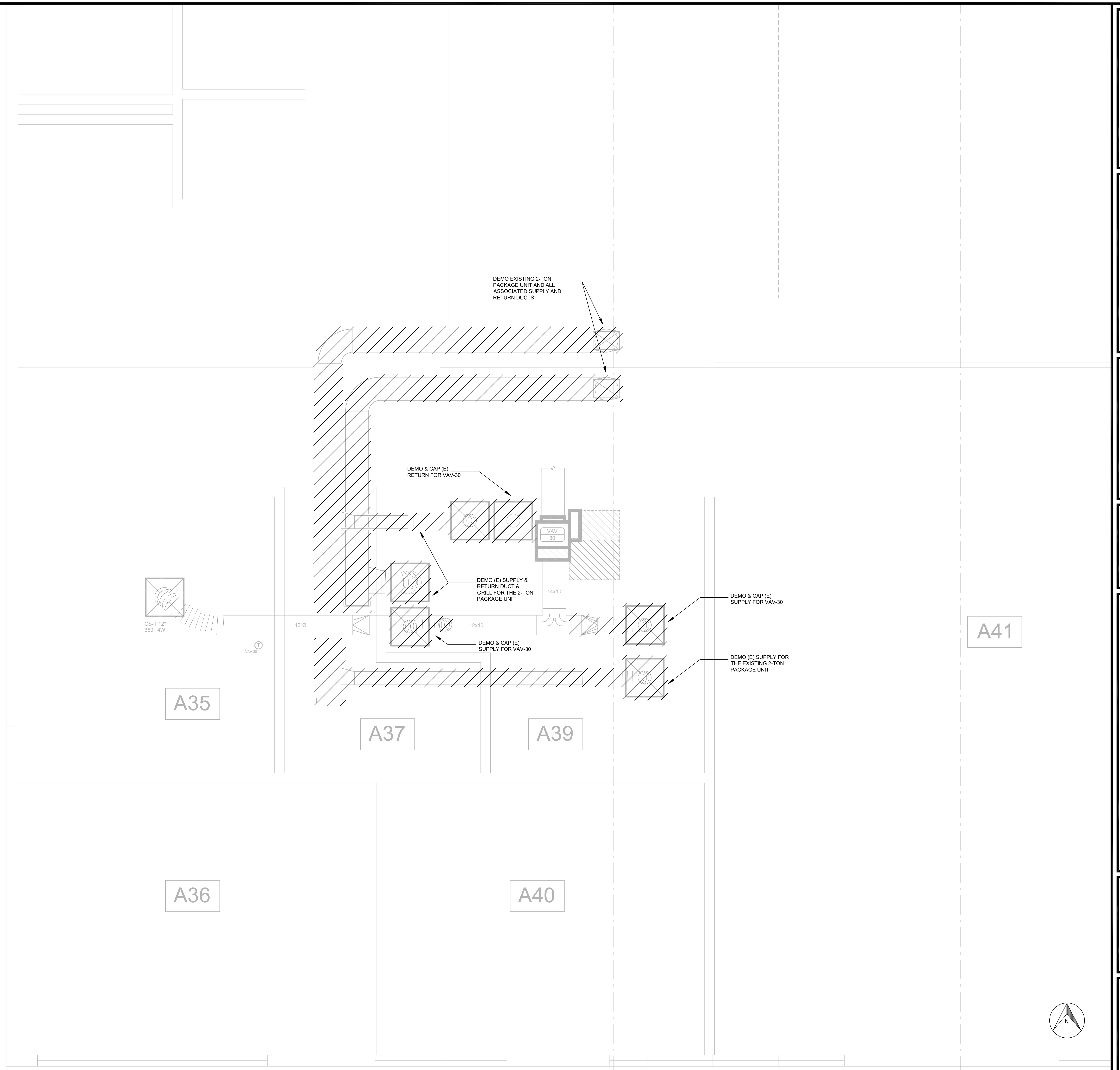
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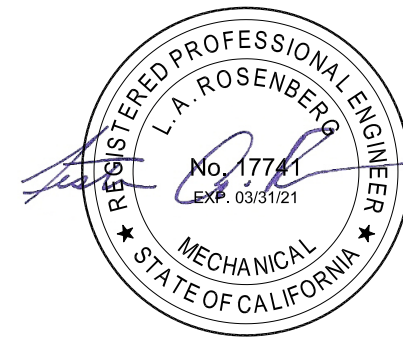
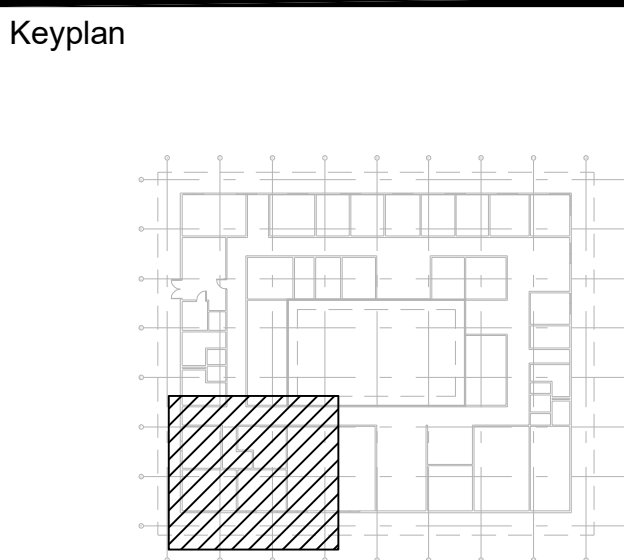
UTILITY NOTES

⚡ DENOTES POWER AND/OR CONTROL WIRING TO EQUIPMENT BY ELECTRICAL CONTRACTOR

● CONDENSATE LINE WITH TRAP TO APPROVED RECEPTOR BY PLUMBING CONTRACTOR

ROSENBERG + ASSOCIATES

6645 MOORE DRIVE
LOS ANGELES, CA 90048



Revisions		5/28/19	RE-ISSUE FOR PLAN CHECK	LR
		3/4/19	ISSUE FOR PLAN CHECK	LR
No.		Date	Description	By

Project

MWDOC CRAC UNIT INSTALL

18700 WARD ST.
FOUNTAIN VALLEY, CA 92708

Title

MECHANICAL FLOOR PLAN

LES ROSENBERG

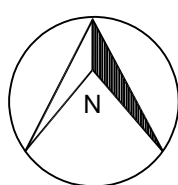
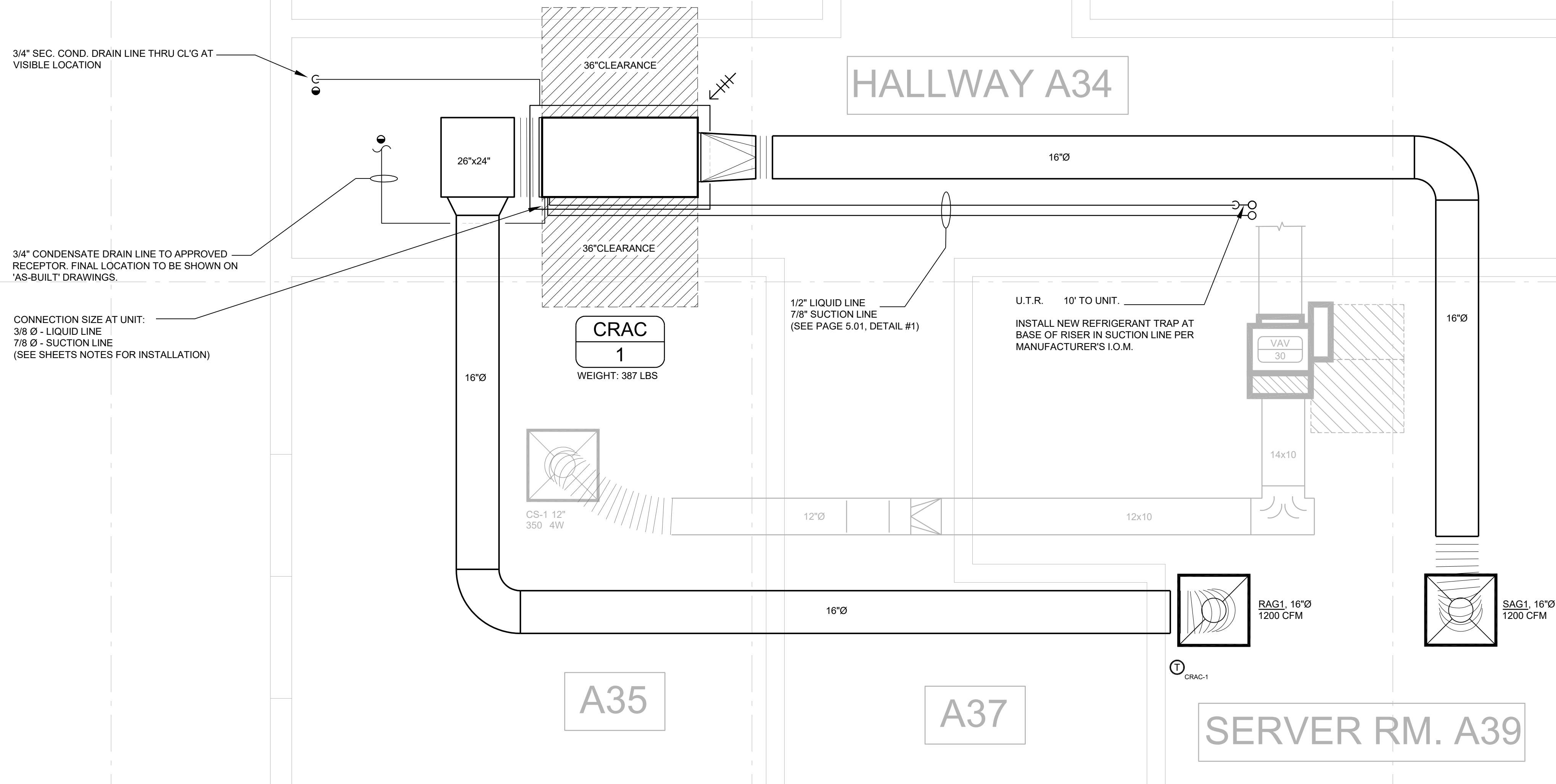
Designed By
1974210

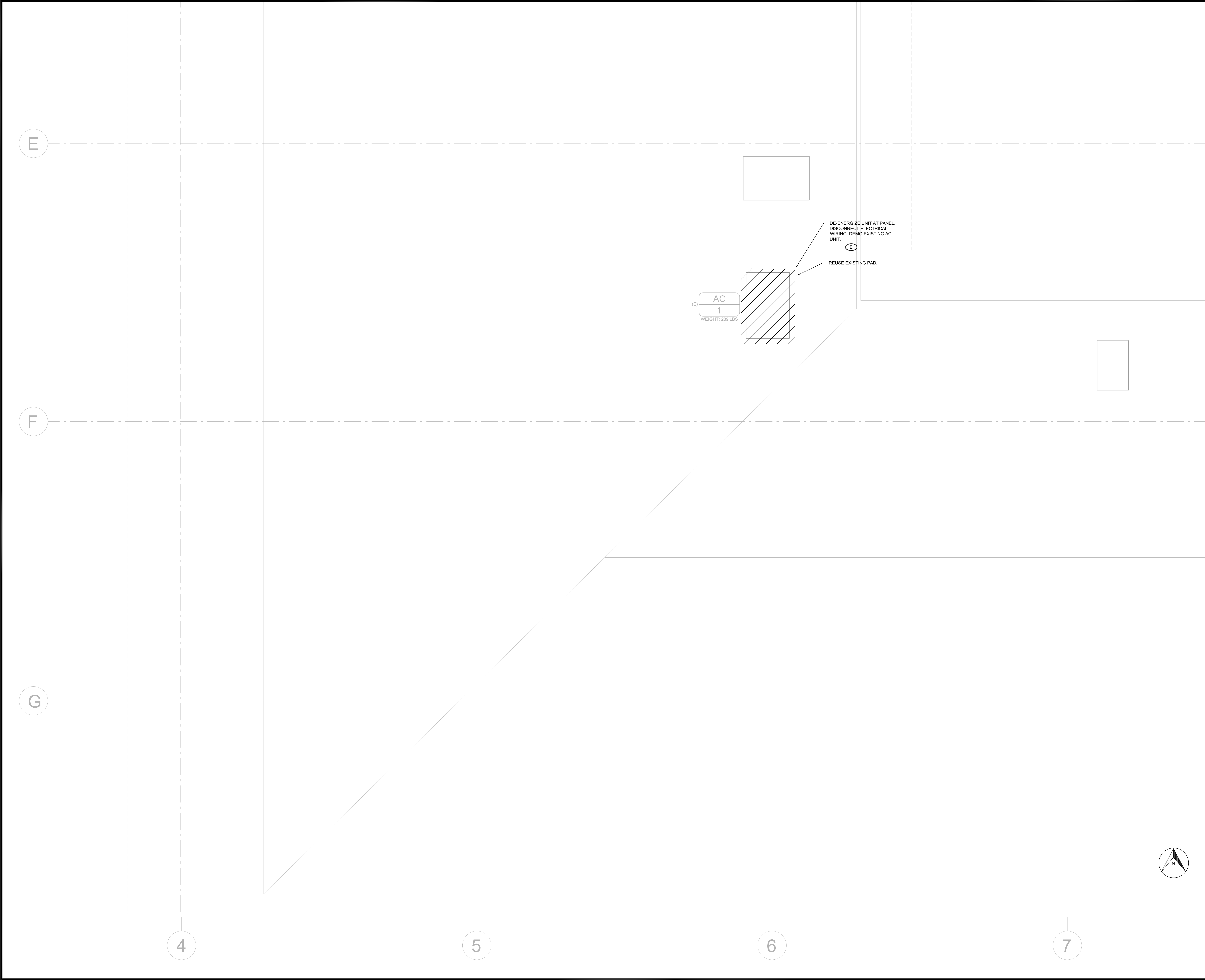
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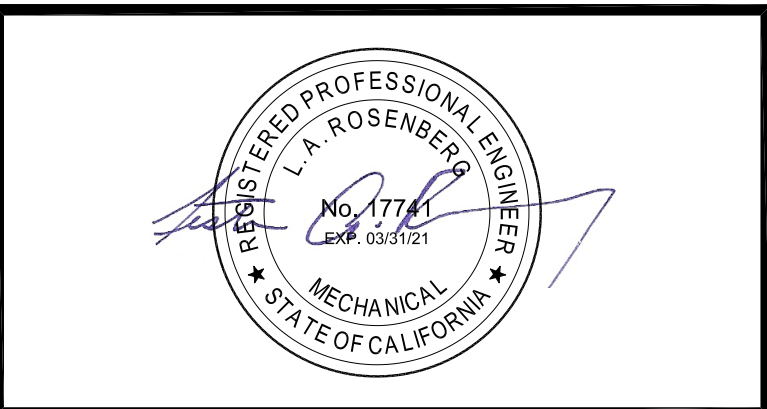
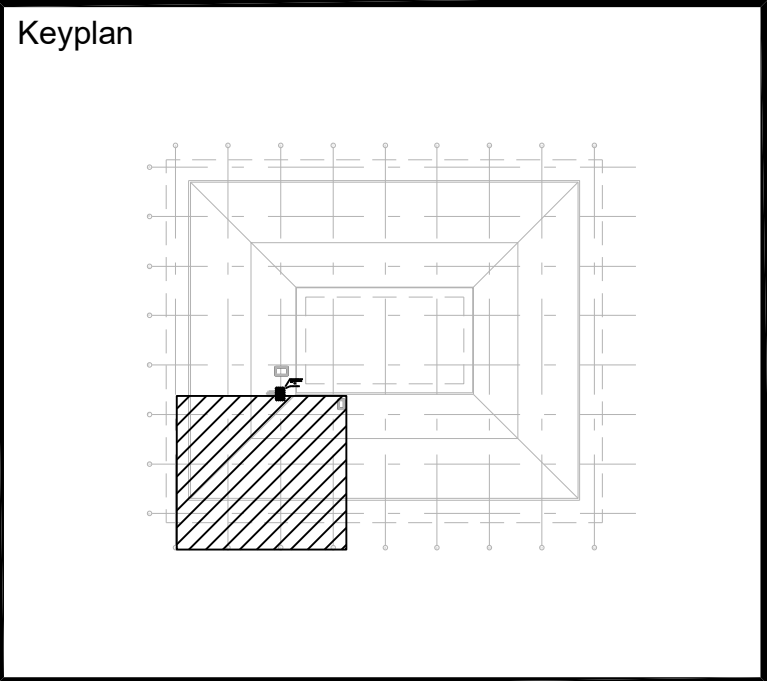
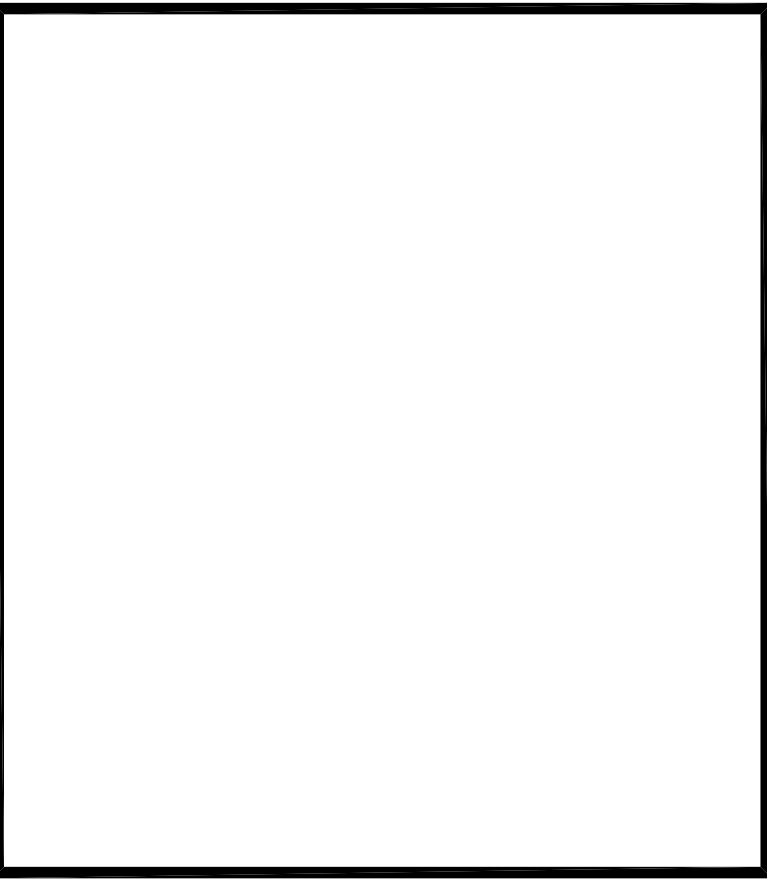
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ROSENBERG + ASSOCIATES
6645 MOORE DRIVE
LOS ANGELES, CA 90048



Revisions			
No.	Date	Description	By
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A	3/4/19	ISSUE FOR PLAN CHECK	LR

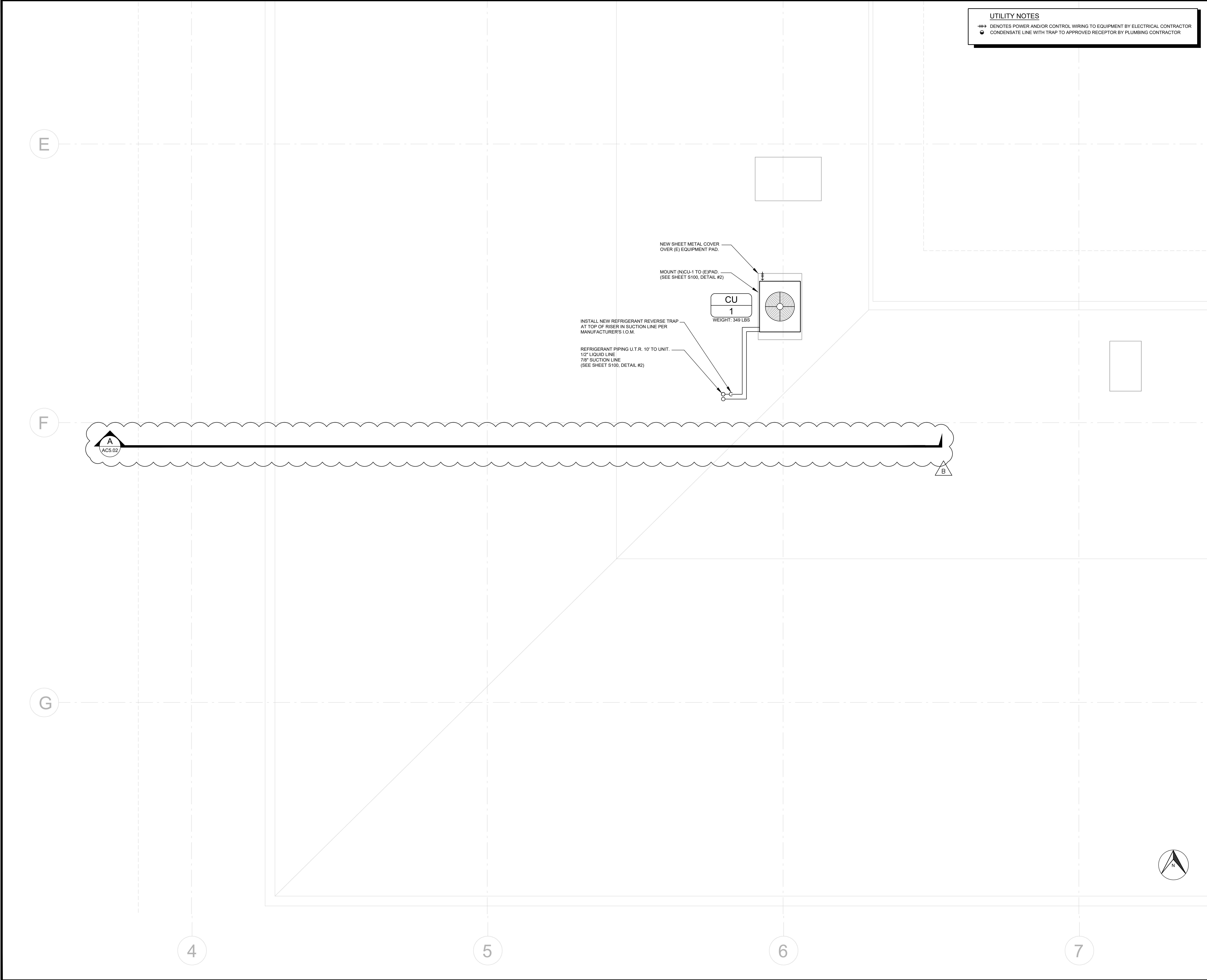
Project
MWDOC CRAC UNIT INSTALL

18700 WARD ST.
FOUNTAIN VALLEY, CA 92708

Title
MECHANICAL DEMO ROOF PLAN

LES ROSENBERG
Designed By
1974210
Job Number
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Scale
AC1.02D.dwg
File Name

AC1.02D



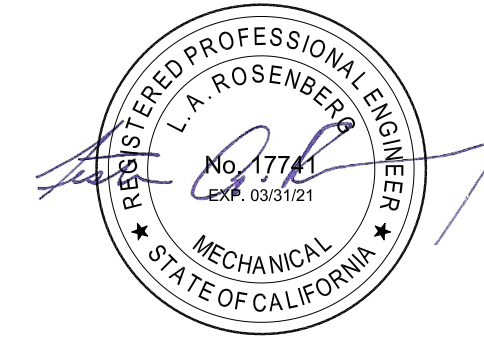
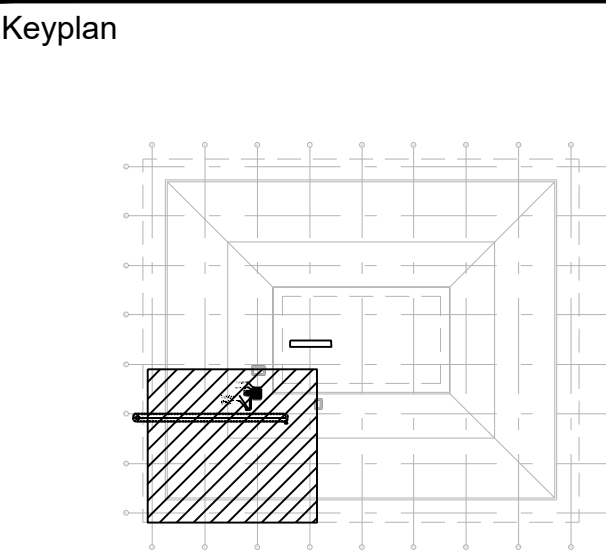
UTILITY NOTES

⚡→ DENOTES POWER AND/OR CONTROL WIRING TO EQUIPMENT BY ELECTRICAL CONTRACTOR

● CONDENSATE LINE WITH TRAP TO APPROVED RECEPTOR BY PLUMBING CONTRACTOR

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LOS ANGELES, CA 90048



△	5/28/19	RE-ISSUE FOR PLAN CHECK	LR
△	3/4/19	ISSUE FOR PLAN CHECK	LR
△	No.	Date	By
Revisions			

Project

MWDOC CRAC UNIT
INSTALL

18700 WARD ST.
FOUNTAIN VALLEY, CA 92708

Title

MECHANICAL ROOF PLAN

LES ROSENBERG

Designed By
1974210

Job Number
1/2"=1'-0"

Scale
AC1.02.dwg

File Name

AC1.02

Keyplan



Revisions	5/28/19	RE-ISSUE FOR PLAN CHECK	LR
	3/4/19	ISSUE FOR PLAN CHECK	LR
No.	Date	Description	By

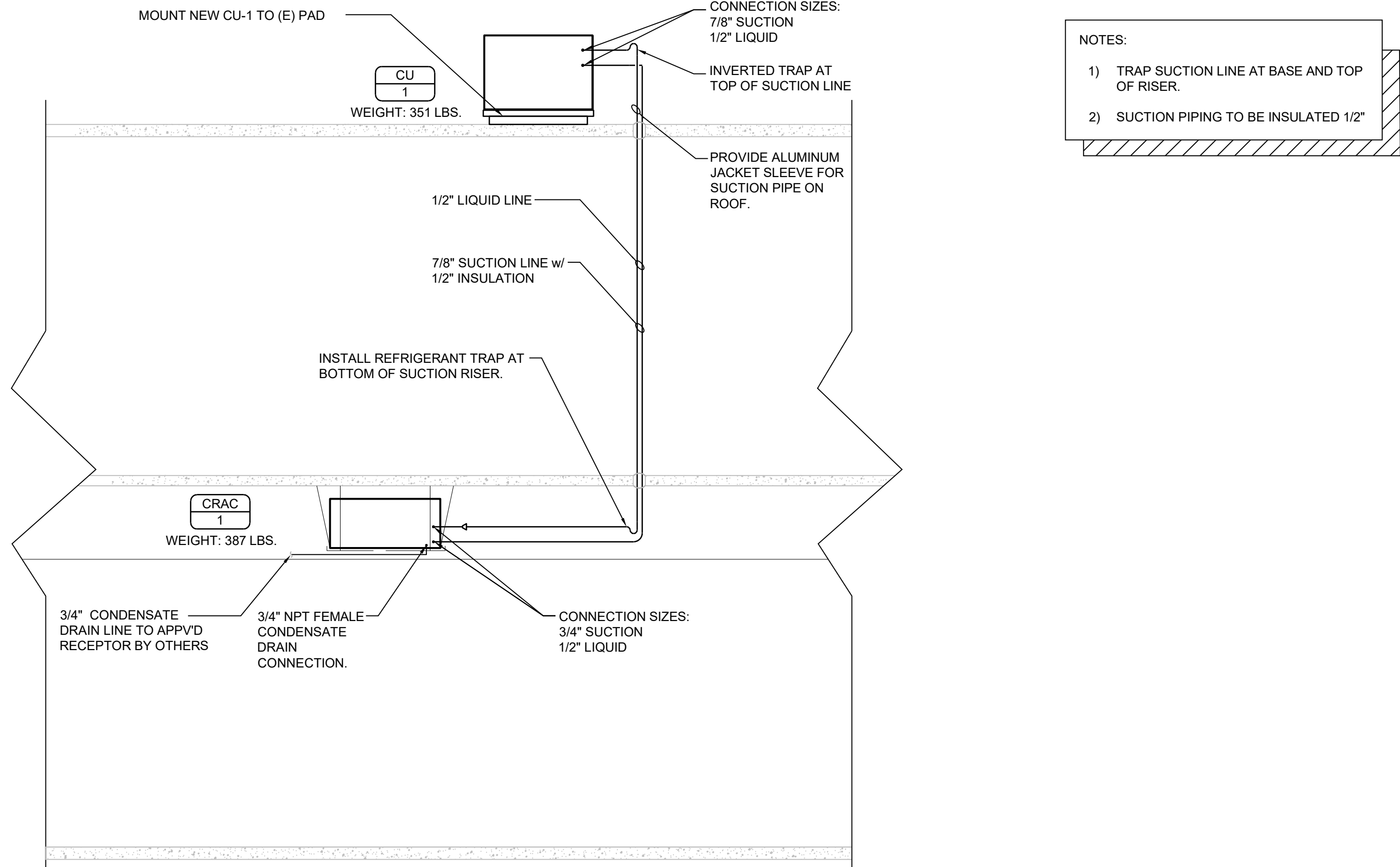
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MWDOC CRAC UNIT INSTALL

18700 WARD ST.
FOUNTAIN VALLEY, CA 92708

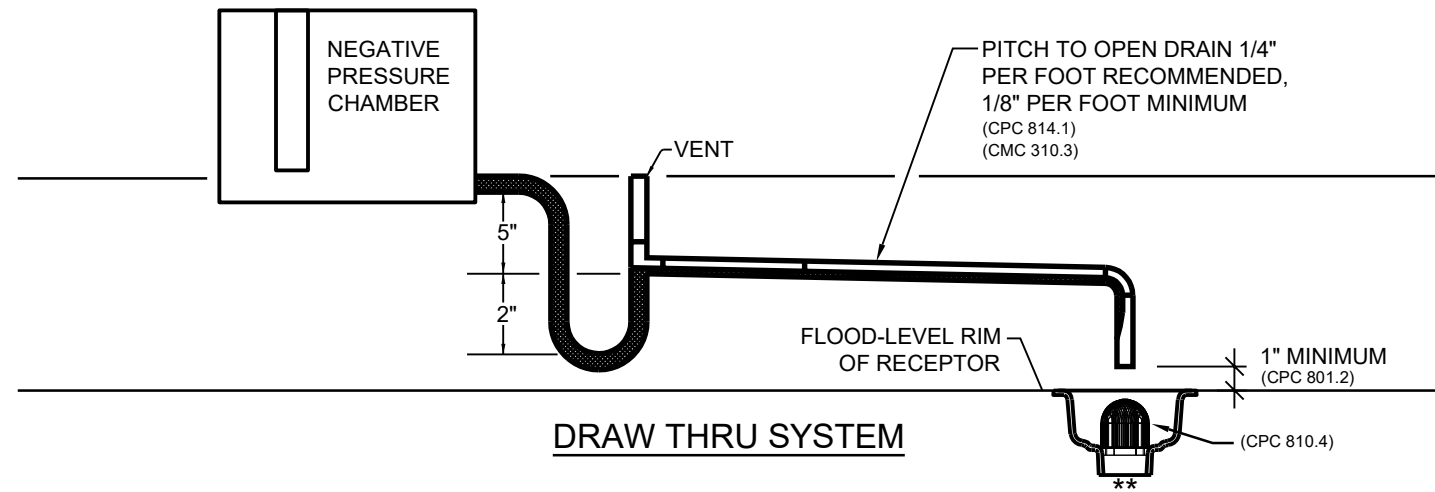
Title
SECTIONS & DETAILS

LES ROSENBERG
Designed By
1974210
Job Number
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Scale
AC5.01.dwg
File Name

AC5.01



DX PIPING DIAGRAM

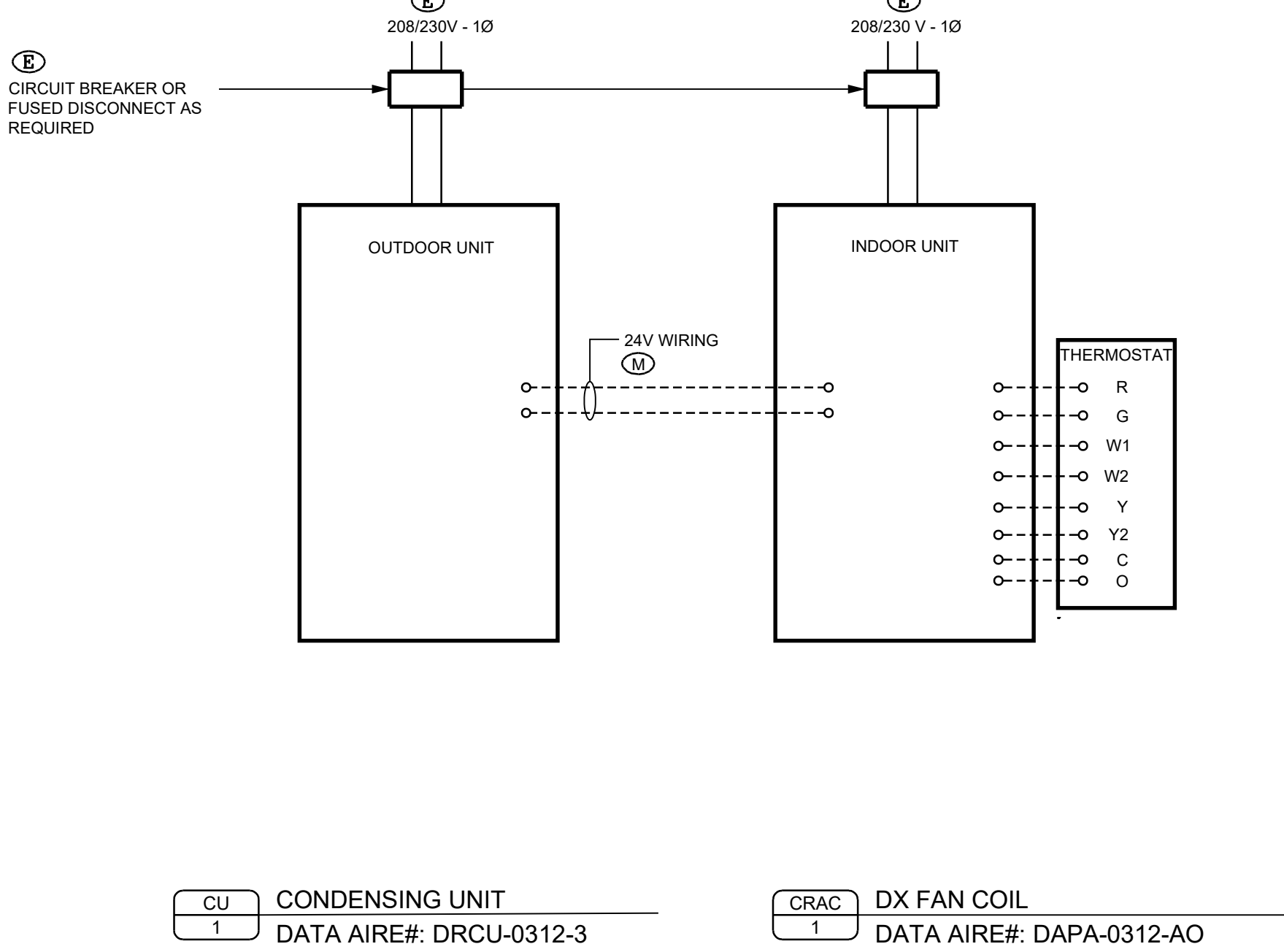


H - MAXIMUM ANTICIPATED PRESSURE DIFFERENTIAL BETWEEN ATMOSPHERE AND CHAMBER HOUSING DRAIN PAN. ADD 50% SAFETY FACTOR FOR "H" CALCULATION.

PER 2016 CALIFORNIA MECHANICAL CODE (FOR CONDENSATE PIPE LINES FROM EQUIPMENT TO APPROVED RECEPTACLE) (CMC 310.3)	MINIMUM CONDENSATE PIPE DIAMETER	PER 2016 CALIFORNIA PLUMBING CODE (FOR DRAIN LINES (INDIRECT WASTE) FROM EQUIPMENT TO APPROVED RECEPTOR) (CPC 814.3)
EQUIPMENT CAPACITY IN TONS OF REFRIGERATION		EQUIPMENT CAPACITY IN TONS OF REFRIGERATION
UP TO 20	3/4 INCH	UP TO 20
OVER 21 TO 40	1 INCH	OVER 21 TO 40
OVER 41 TO 90	1 1/4 INCH	OVER 41 TO 90
OVER 91 TO 125	1 1/2 INCH	OVER 91 TO 125
OVER 126 TO 250	2 INCH	OVER 126 TO 250

NOTES:
PER 2016 CALIFORNIA MECHANICAL CODE 1109.9, PIPING AND FITTINGS WHICH CONVEY BRINE, REFRIGERANT OR COOLANTS WHICH DURING NORMAL OPERATION COULD REACH A SURFACE TEMPERATURE BELOW THE DEW POINT OF THE SURROUNDING AIR AND THAT ARE LOCATED IN SPACES OR AREAS WHERE CONDENSATION COULD CAUSE A HAZARD TO THE BUILDING OCCUPANTS OR DAMAGE TO THE STRUCTURE OR ELECTRICAL OR OTHER EQUIPMENT SHALL BE PROTECTED TO PREVENT SUCH DAMAGE.
** PER 2016 CALIFORNIA PLUMBING CODE 703.2, SANITARY DRAINAGE PIPING SHALL BE SIZED TO ALLOW FOR TWO (2) FIXTURE UNITS FOR EACH GALLON PER MINUTE OF FLOW.

CONDENSATE TRAP DETAIL



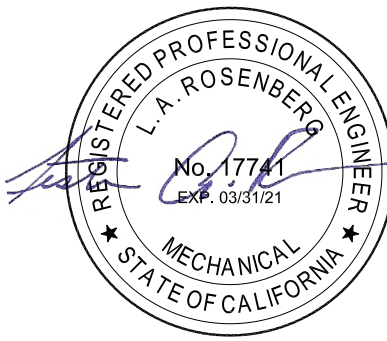
ELECTRICAL SHEET NOTES

1. WIRING AND INSTALLATION SHALL CONFORM TO ALL GOVERNING CODES.
2. (E) INDICATES ITEMS FURNISHED BY ELECTRICAL CONTRACTOR.
3. (D) INDICATES ITEMS FURNISHED BY MECHANICAL CONTRACTOR.
4. (B) INDICATES ITEMS FURNISHED BY BUILDING AUTOMATION SYSTEM CONTRACTOR.
5. ——— INDICATES LINE VOLTAGE WIRING BY ELECTRICAL CONTRACTOR.
6. - - - - - INDICATES LOW VOLTAGE WIRING BY ELECTRICAL CONTRACTOR.
7. INDICATES LOW VOLTAGE WIRING BY BUILDING AUTOMATION SYSTEM CONTRACTOR UNLESS OTHERWISE NOTED.
8. ALL COPPER AND/OR ALUMINUM CONDUCTOR CONNECTIONS SHALL BE MADE AS PRESCRIBED BY ESTABLISHED ELECTRICAL INDUSTRY AND ENGINEERING STANDARDS. EXTREME CARE MUST BE TAKEN WHEN CONNECTIONS INVOLVE DISSIMILAR MATERIALS.
9. FROM 2016 CMC, SEC. 301.4:
"EQUIPMENT REGULATED BY THIS CODE REQUIRING ELECTRICAL CONNECTIONS OF MORE THAN 50 VOLTS SHALL HAVE A POSITIVE MEANS OF DISCONNECT ADJACENT TO AND IN SIGHT FROM THE EQUIPMENT SERVED. A 120-VOLT RECEPTACLE SHALL BE LOCATED WITHIN 25 FEET OF THE EQUIPMENT FOR SERVICE AND MAINTENANCE PURPOSES. THE SERVICE RECEPTACLE NEED NOT BE LOCATED ON THE SAME LEVEL AS THE EQUIPMENT. LOW VOLTAGE WIRING OF 50 VOLTS OR LESS WITHIN A STRUCTURE SHALL BE INSTALLED IN A MANNER TO PREVENT PHYSICAL DAMAGE. ELECTRICAL WIRING, CONTROLS, AND CONNECTIONS TO EQUIPMENT AND APPLIANCES REGULATED BY THIS CODE SHALL BE IN ACCORDANCE WITH NFPA 70."

POWER LOAD DIAGRAM

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6645 MOORE DRIVE
LOS ANGELES, CA 90048

Keyplan



Revisions		3/4/19	ISSUE FOR PLAN CHECK	LR
		5/28/19	RE-ISSUE FOR PLAN CHECK	LR

Project
MWDOC CRAC UNIT
INSTALL

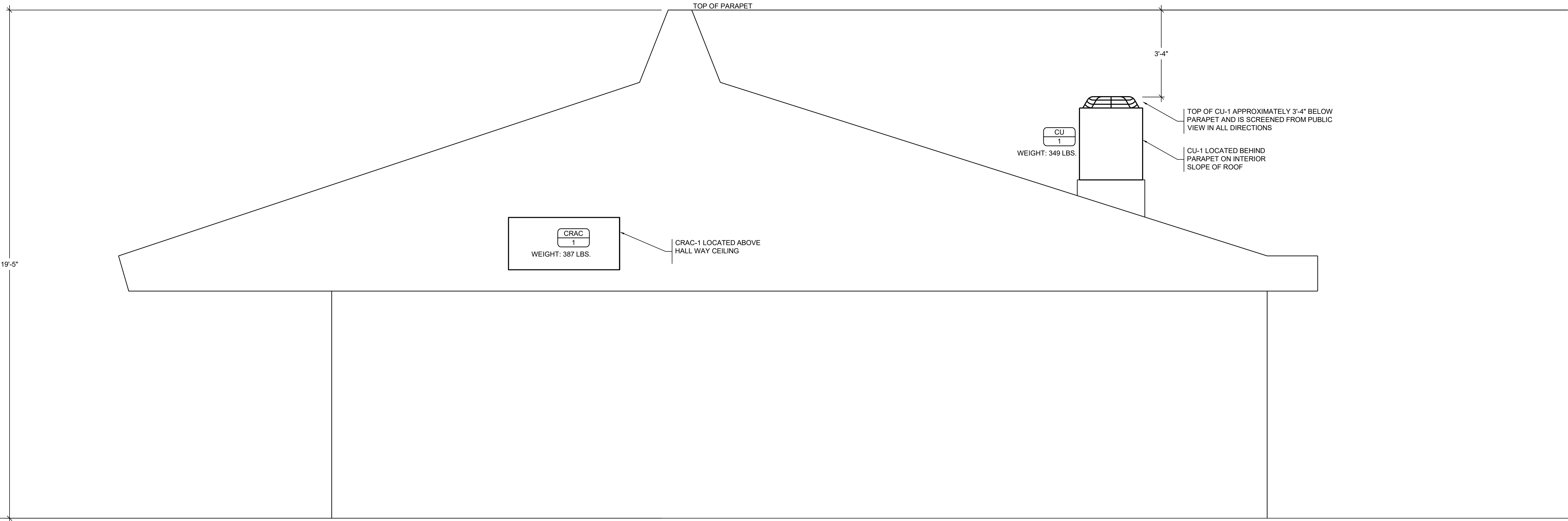
18700 WARD ST.
FOUNTAIN VALLEY, CA 92708

Title
BUILDING SECTION

LES ROSENBERG
Designed By
1974210
Job Number
AS SHOWN
Scale
AC5.02.dwg
File Name

AC5.02

GENERAL NOTE
ROOF MOUNTED MECHANICAL
EQUIPMENT IS SCREENED FROM VIEW
FROM ADJOINING PUBLIC STREETS AND
AREA(S) ZONED FOR RESIDENTIAL OF
OPEN SPACE USES.



A BUILDING SECTION LOOKING NORTH
SCALE: 1/2" = 1'-0"

<div style="text-align: center;">pe inc PLUMP ENGINEERING INC. CONSULTING ENGINEERS STRUCTURAL MECHANICAL PLUMBING, ELECTRICAL CIVIL SURVEYING, ARCHITECTURAL</div> <div style="text-align: center; margin-top: -10px;">914 E. KATELLA AVENUE ANAHEIM, CALIFORNIA 92805 P (714) 385-1835 F (714) 385-1834 www.peica.com</div>																															
<div style="margin-bottom: 10px;"></div> MWD 18700 WARD STREET FOUNTAIN VALLEY, CA 92708																															
PROJECT: <div style="float: left; width: 60%;">MUNICIPAL WATER DISTRICT OF ORANGE COUNTY</div> <div style="float: right; width: 35%;">18700 WARD STREET FOUNTAIN VALLEY, CA 92708</div> <div style="clear: both;"></div>																															
Stamp: <div style="text-align: center;"> 04-29-19</div>																															
<div>NOT FOR CONSTRUCTION</div> <div>AN IN-HOUSE QUALITY CONTROL AND INTERFACE HAS NOT BEEN COMPLETED AND BUILDING DEPARTMENT REVISIONS HAVE NOT BEEN ADDED TO THESE CONSTRUCTION DRAWINGS. THE ARCHITECT AND HIS CONSULTANTS ASSUME NO RESPONSIBILITY FOR CONSTRUCTION BIDS OR CONSTRUCTION PERFORMED FROM THESE DRAWINGS.</div>																															
<table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="padding: 2px;">REVISIONS</th><th style="padding: 2px;">ISSUE DATE</th></tr></thead><tbody><tr><td> </td><td> </td></tr><tr><td> </td><td> </td></tr><tr><td> </td><td> </td></tr><tr><td> </td><td> </td></tr><tr><td> </td><td> </td></tr><tr><td> </td><td> </td></tr><tr><td> </td><td> </td></tr><tr><td> </td><td> </td></tr><tr><td> </td><td> </td></tr><tr><td> </td><td> </td></tr><tr><td>Checked by:</td><td>GP</td></tr><tr><td>Date:</td><td>04-23-19</td></tr><tr><td>Scale:</td><td>AS NOTED</td></tr><tr><td>Project Number:</td><td>S.1904017</td></tr></tbody></table> <div style="text-align: center; font-weight: bold; padding-top: 5px;">SHEET NUMBER</div>	REVISIONS	ISSUE DATE																					Checked by:	GP	Date:	04-23-19	Scale:	AS NOTED	Project Number:	S.1904017	<div style="writing-mode: vertical-rl; transform: rotate(180deg);">GENERAL NOTES</div> <div style="font-size: small; writing-mode: vertical-rl; transform: rotate(180deg);">Sheet Title:</div>
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