



**AB 2766/MSRC Alternative Fuel Infrastructure Program Contract
CONTRACT NO. MS14037**

**Facility Modification / Garage Upgrades in Carson, CA
Final Report**

Prepared for the Mobile Source Air Pollution Review Committee (MSRC) under
the AB2766 Discretionary Work Program
by
Penske Truck Leasing Co., L.P.



Disclaimer

The statement and conclusions in this report are those of the contractor and not necessarily those of the Mobile Source Air Pollution Reduction Review Committee (MSRC) or the South Coast Air Quality Management District (SCAQMD). The mention of commercial products, their sources or their uses in connection with material reported is no to be construed as either an actual or implied endorsement of such products.



Project Description and Work Performed

Penske Truck Leasing Co., L.P (Penske) is the leading provider of full-service leasing and contract maintenance, including preventative maintenance, customer fleet specifications, fleet tracking, and driver safety throughout North America. In response to a growing demand from Penske’s extensive customer network who wish to take advantage of the cost-savings and environmental benefits of natural gas, Penske is committed to successfully and continually implementing its alternative fuel programs and initiatives.

As part of this commitment, Penske partnered with the Mobile Source Air Pollution Reduction Review Committee (MSRC) to upgrade its Carson facility located at 19646 Figueroa St., Carson, California. With the \$75,000 in grant support from the MSRC, Penske is now able to maintain, and repair compressed natural gas (CNG) vehicles at the site. These modifications brought the facility into compliance for natural gas vehicle (NGV) maintenance and was a critical step for Penske to provide comprehensive alternative fuel transportation services to its customers.

The primary upgrades to the Carson vehicle maintenance facility include:

- a) Installation of three new roof-mounted exhaust fans
- b) Installation of emergency shutdown buttons
- c) Relocation of light fixtures and wiring as necessary

More details and design plans are provided in Attachment 1 of the appendix found at the end of this report.

Public Outreach Plan

Additionally, Penske developed a Public Outreach Plan to promote the project and the partnership with MSRC. Penske published a story on their corporate blog for each of the upgrades that overviews the project’s success (which may be found [here](#)). A copy of the story may be found in Attachment 2 of the appendix. The story was then shared across the company’s social media channels, including: [LinkedIn](#), [Twitter](#), and [Facebook](#). The following outlines the tasks for the Public Outreach Plan:

Action	Status
Submit Public Outreach Plan	Complete
Implement Public Outreach Plan	Complete
Publish story	Complete
Share story on all social media platforms	Complete

Problems Encountered

The project team experienced minor delays related to poor weather conditions and the impacts of COVID-19 on supply chains. In particular, securing adequate personal protective equipment (PPE) for team members during the public health crisis was a challenge. Despite these issues, the project team was able to procure the necessary equipment and complete the facility modifications on schedule. No other issues or problems have been encountered to date during the implementation of this project.



Emission Benefits

The facility improvements are critical to the deployment of Penske’s CNG fleets and are projected to support a 20-30% reduction in greenhouse gas emissions over the facility’s operating life.

Budget

Penske expended \$259,500.11 implementing the facility upgrades. These expenses include Penske’s co-funding (\$184,500.11) and MSRC grant (\$75,000). Below is the project cost breakdown and Penske’s final costs. Copies of project invoices may be found in Attachment 3 of the appendix.

Table 1: Carson Project Budget

Description	Maximum AB 2766 Discretionary Funds payable under this contract	Penske Co-Funding	Other Co-Funding	Total Cost
Modify maintenance facility	\$75,000	\$184,500.11	\$0.00	\$259,500.11

Table 3: Carson Project Project Expenses

Inv. Date	Invoice No.	Company	Amount
11/13/2018	KG181181	KG Architects	\$ 5,915.94
04/15/2019	KG181192	KG Architects	\$ 22,000.00
07/19/2019	KG181193	KG Architects	\$ 766.85
02/16/2020	KG181195	KG Architects	\$ 4,950.00
03/10/2020	KG181196	KG Architects	\$ 3,549.32
03/10/2020	65969	Facility Builders & Erectors, Inc.	\$ 194,155.00
04/09/2020	65988	Facility Builders & Erectors, Inc.	\$ 5,931.00
04/21/2020	65989	Facility Builders & Erectors, Inc.	\$ 22,232.00
		TOTAL	\$ 259,500.11

Photographs and Outreach

Please see Attachment 4 of the appendix for photographs and outreach materials.

Summary and Conclusion

Natural gas is a clean, safe, and abundant alternative fuel that meets California’s low-emission standards. Maintenance facilities servicing natural gas vehicles must be constructed or modified to meet safety requirements specific to the use of natural gas. Unlike most liquid fuels, the properties of natural gas cause the liquid to rise in the event of a leak, which requires facilities to implement gas detection and



ventilation systems to meet safety standards. The installation of new roof-mounted exhaust fans and emergency shutdown buttons integrated with the natural gas detection system, brought the facility into compliance for NGV maintenance.

Penske also conducted a Public Outreach Plan to promote the project and partnership with MSRC in an effort to accelerate the adoption of clean fuel technologies. The modification of the maintenance facility will support the deployment of natural gas vehicles and this project exemplifies Penske's commitment to reducing emissions and implementing clean transportation technologies.

Acknowledgements

Penske would like to acknowledge our partners throughout the project, whose efforts and contributions were indispensable in completing the facility modification and relevant reporting.

Facility Builders and Erector's Inc.
Gladstein, Neandross & Associates

This report was submitted in fulfillment of Contract MS14067 and Facility Modification / Garage Upgrades in Carson, CA by Penske Truck Leasing under the partial sponsorship of the Mobile Source Air Pollution Reduction Review Committee (MSRC). Work was completed as of April 2020.



Appendix



Attachment 1 – Design Plans

PENSKE

Truck Leasing

PENSKE TRUCK LEASING CORP.

GAS DETECTION DESIGN

19646 S. FIGUEROA
CARSON, CA. 90745

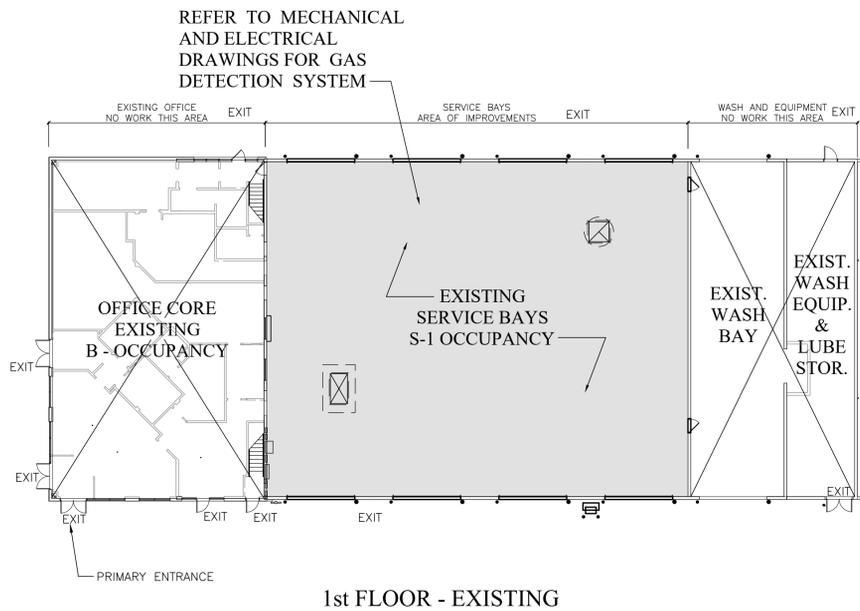
PERMIT SUBMITTAL: 03-28-19

1 PLAN REVIEW COMMENTS: 06-14-19

2 OWNER REVISIONS: 09-10-19

3 CITY COMMENTS / BID ISSUE: 10-01-19

REFERENCE PLAN



ADMINISTRATIVE REQUIREMENTS:

- A. THE PERSON WITH OVERALL RESPONSIBILITY FOR CONSTRUCTION OR THE PERSON RESPONSIBLE FOR THE INSTALLATION OF REGULATED FEATURES, MATERIALS, COMPONENTS, OR MANUFACTURED DEVICES SHALL POST, OR MAKE AVAILABLE WITH THE BUILDING PERMIT(S) ISSUED FOR THE BUILDING, THE REQUIRED INSTALLATION CERTIFICATE(S) FOR FEATURES, MATERIALS, COMPONENTS, OR MANUFACTURED DEVICES REGULATED BY THE APPLIANCE EFFICIENCY REGULATIONS OR PART 6. SUCH INSTALLATION CERTIFICATE(S) SHALL BE MADE AVAILABLE TO THE ENFORCEMENT AGENCY FOR ALL APPROPRIATE INSPECTIONS. THESE CERTIFICATE(S) SHALL:
- i) IDENTIFY FEATURES, MATERIALS, COMPONENTS, OR MANUFACTURED DEVICES REQUIRED TO VERIFY COMPLIANCE WITH THE APPLIANCE EFFICIENCY REGULATIONS AND PART 6.
 - ii) INCLUDE A STATEMENT INDICATING THAT THE FEATURES, MATERIALS, COMPONENTS, OR MANUFACTURED DEVICE CONFORM TO THE APPLIANCE EFFICIENCY REGULATIONS AND PART 6 AND THE REQUIREMENTS FOR SUCH FEATURES, MATERIALS, COMPONENTS, OR MANUFACTURED DEVICES GIVEN IN THE PLANS AND SPECIFICATIONS APPROVED BY THE LOCAL ENFORCEMENT AGENCY.
 - iii) STATE THE NUMBER OF THE BUILDING PERMIT UNDER WHICH THE CONSTRUCTION OR INSTALLATION WAS PERFORMED.
- SEC. 10-103 (a) 3A
- B. WITHIN 90 DAYS AFTER ISSUANCE OF CERTIFICATE OF OCCUPANCY RECORD DRAWINGS SHALL BE PROVIDED TO THE OWNER, IF A BUILDING DESIGN FEATURE, MATERIAL, COMPONENT, OR MANUFACTURED DEVICE IS CHANGED BEFORE FINAL CONSTRUCTION AND INSTALLATION, SUCH THAT THE BUILDING MAY NO LONGER COMPLY WITH PART 6, THE BUILDING MUST BE BROUGHT INTO COMPLIANCE, AND SO INDICATED ON AMENDED PLANS AND CERTIFICATE OF COMPLIANCE(S) THAT SHALL BE SUBMITTED FOR APPROVAL.
- SEC. 10-103 (a) 2B
- C. THE BUILDER SHALL PROVIDE THE BUILDING OWNER OR THE PERSON(S) RESPONSIBLE FOR BUILDING MAINTENANCE (IN CASE OF MULTI-TENANT OR CENTRALLY OPERATED BUILDINGS) AT OCCUPANCY THE FOLLOWING:
- 1) OPERATING INFORMATION: THE APPROPRIATE CERTIFICATE(S) OF COMPLIANCE AND A LIST OF THE FEATURES, MATERIALS, COMPONENTS, AND MECHANICAL DEVICES INSTALLED IN THE BUILDING AND INSTRUCTIONS ON HOW TO OPERATE THEM EFFICIENTLY.
 - 2) MAINTENANCE INFORMATION: REQUIRED ROUTING MAINTENANCE ACTIONS SHALL BE CLEARLY STATED AND INCORPORATED ON A READILY ACCESSIBLE LABEL. THE LABEL MAY BE LIMITED TO IDENTIFYING THE OPERATION AND MAINTENANCE MANUAL.

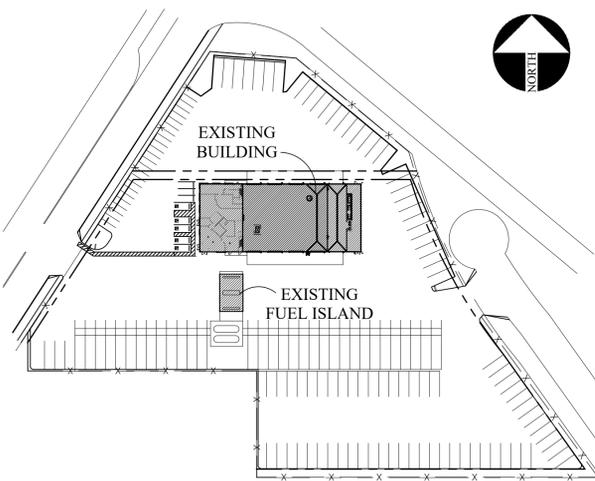
MANDATORY MEASURES:

- C. JOINTS, PENETRATIONS, AND OTHER OPENINGS IN THE BUILDING ENVELOPE THAT ARE POTENTIAL SOURCES OF AIR LEAKAGE SHALL BE CAULKED, GASKETED, WEATHER STRIPPED, OR OTHERWISE SEALED TO LIMIT INFILTRATION AND EXFILTRATION. SEC. 110.7
- J. ALL MECHANICAL VENTILATION AND SPACE-CONDITIONING SYSTEMS SHALL BE INSTALLED WITH DUCTWORK, DAMPERS, AND CONTROLS TO ALLOW OUTSIDE AIR RATES TO BE OPERATED AT THE LARGER OF (1) MINIMUM LEVELS SPECIFIED IN SECTION 120.1(b) OR (2) THE RATE REQUIRED FOR MAKE-UP OF EXHAUST SYSTEMS THAT ARE REQUIRED FOR AN EXEMPT OR COVERED PROCESS FOR CONTROL OF ODORS, OR FOR THE REMOVAL OF CONTAMINANTS WITHIN THE SPACE. ALL VARIABLE AIR VOLUME SPACE-CONDITIONING SYSTEMS SHALL INCLUDE CONTROLS THAT MAINTAIN MEASURED OUTSIDE AIR VENTILATION RATES WITHIN 10 PERCENT OF THE REQUIRED OUTSIDE AIR VENTILATION RATE AT BOTH FULL AND REDUCED SUPPLY AIRFLOW CONDITIONS. SEC. 120.1(e)
- P. ALL AIR DISTRIBUTION SYSTEM DUCTS AND PLENUMS, INCLUDING, BUT NOT LIMITED TO, BUILDING CAVITIES, MECHANICAL CLOSETS, AIR-HANDLER BOXES, AND SUPPORT PLATFORMS USED AS DUCTS OR PLENUMS, SHALL BE INSTALLED, SEALED AND INSULATED TO MEET THE REQUIREMENTS OF THE 2016 CALIFORNIA MECHANICAL CODE AND ANSI/SMACNA-066.2006 HVAC DUCT CONSTRUCTION STANDARDS METAL AND FLEXIBLE SUPPLY-AIR DUCTS CONVEYING HEATED OR COOLED AIR SHALL BE INSULATED TO A MINIMUM INSTALLED LEVEL OF R-4.2 (R-8 IN UNCONDITIONED SPACE), UNLESS DUCTS ARE IN CONDITIONED SPACE. SEC. 120.4(a)
- ### AIR CONDITIONING SYSTEM (HVAC) COMPLIANCE:
- A. INDICATE ON THE PLANS THE FOLLOWING NOTE: DUCT SYSTEMS USED WITH BLOWER TYPE EQUIPMENT WHICH ARE PORTIONS OF A HEATING, COOLING, ABSORPTION, EVAPORATIVE COOLING OR OUTDOOR AIR VENTILATION SYSTEM SHALL BE SIZED IN ACCORDANCE WITH CHAPTER 17 OF THE CALIFORNIA MECHANICAL CODE.
- B. AIR-MOVING SYSTEMS SUPPLYING AIR IN EXCESS OF 2000 CFM SHALL BE EQUIPPED WITH AN AUTOMATIC SHUTOFF ACTIVATED BY SMOKE DETECTOR LOCATED IN THE MAIN SUPPLY AIR DUCT. A SYSTEM MAY INCLUDE MORE THAN ONE PIECE OF A/C UNIT, WHICH SERVE A COMMON SPACE WITH AGGREGATE SUPPLY AIR OF MORE THAN 2000 CFM. PLEASE SHOW LOCATION OF SMOKE DETECTORS ON THE PLANS.
- T. CONDITIONED SPACE WITH OPERABLE WALL/ROOF OPENINGS TO THE OUTSIDE SHALL HAVE INTERLOCK CONTROLS THAT DISABLE OR RESET TEMPERATURE SET POINT TO 55°F FOR HEATING AND DISABLE (OR RESET) THE TEMPERATURE SET POINT TO 90°F FOR COOLING TO THAT PARTICULAR CONDITIONED SPACE WHEN ANY SUCH OPENING IS OPEN FOR MORE THAN 5 MINUTES. EXCEPTION: AUTOMATIC CLOSING WINDOWS/DOORS OR SPACE WITHOUT THERMOSTAT CONTROL. SEC. 140.4(n)

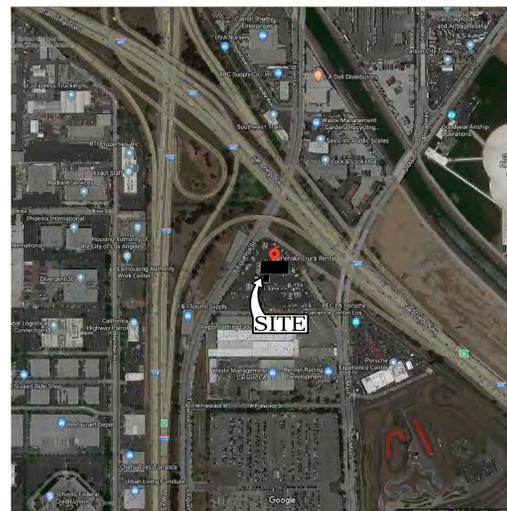
SHEET INDEX:

SHEET	DRAWING DESCRIPTION
ARCHITECTURAL	
CS-1	COVER SHEET AND CODE ANALYSIS
A1-0	SITE PLAN REFERENCE
A2-0	FLOORPLAN REFERENCE
ENV-1	BUILDING ENERGY ANALYSIS REPORT
ENV-2	BUILDING ENERGY ANALYSIS REPORT
ENV-3	BUILDING ENERGY ANALYSIS REPORT
ENV-4	BUILDING ENERGY ANALYSIS REPORT
ENV-5	BUILDING ENERGY ANALYSIS REPORT
ENV-6	BUILDING ENERGY ANALYSIS REPORT
STRUCTURAL	
S1.1	GENERAL STRUCTURAL NOTES
S1.2	FRAMING PLANS
S1.3	FRAMING DETAILS
MECHANICAL	
M0-1	MECHANICAL SYMBOLS, LEGEND, AND NOTES
M2-0	MECHANICAL FLOOR PLAN
M2-1	MECHANICAL SCHEDULES
M3-0	MECHANICAL DETAILS
M3-1	GAS DETECTION SYSTEM WIRING DIAGRAM
PLUMBING	
DELETED SHEETS	
ELECTRICAL	
E1.0	SPECS, SYMBOLS, AND SCHEDULES
E2.0	ELECTRICAL FLOORPLANS
E3.0	SINGLE-LINE DIAGRAM, AND CALCS, AND SCHEDULES

REFERENCE SITE PLAN



VICINITY MAP



SCOPE OF WORK

THIS PROJECT CONSISTS OF CONVERTING THE EXISTING 4 SERVICE BAYS TO ALLOW CNG/LNG & HYDROGEN VEHICLES TO BE REPAIRED. THIS WORK INCLUDES NEW MECHANICAL AND ELECTRICAL SYSTEMS TO MEET THE REQUIREMENTS OF THE 2018 CALIFORNIA CODES AS REQUIRED FOR CNG/LNG VEHICLE REPAIR. REFER TO MECHANICAL AND ELECTRICAL SHEETS FOR ADDITIONAL INFORMATION

THERE ARE NO EXTERIOR CHANGES TO THE BUILDING REQUIRED BY THIS WORK.

CAL GREEN BUILDING STANDARDS CODE REQUIREMENTS

1. SECTION 408.1 THE CONTRACTOR SHALL EMPLOY SALVAGE RECYCLING OR REUSE OF ALL CONSTRUCTION AND DEMOLITION MATERIAL TO REDUCE NON-HAZARDOUS WASTE BY A MINIMUM OF 50%

THE CONTRACTOR SHALL PROVIDE DOCUMENTATION OF WASTE MANAGEMENT. REFER TO PAGES 52, 53, AND 54 OF THE CGBCS FOR DOCUMENTATION REQUIREMENTS.

PROJECT DATA:

PROJECT ADDRESS:	19646 S. FIGUEROA CARSON, CA. 90745
OWNER:	PENSKE TRUCK LEASING 2219 S. 2ND PLACE PHOENIX, AZ. 85004 MIKE BARNES (602) 253-0041
CURRENT ZONING:	INDUSTRIAL
CONSTRUCTION TYPE:	IIIB (NO FIRE SPRINKLERS)
AREA OF WORK AFFECTED BY THIS PERMIT:	8,000 SF OF EXISTING INTERIOR SERVICE BAYS GAS DETECTION SYSTEM DESIGN
FIRE SPRINKLERS:	NONE
OCCUPANCY:	B-OFFICE (EXISTING) S-1 SERVICE BAYS (EXISTING)
OCCUPANT LOAD:	EXISTING OCCUPANT LOAD OF THE BUILDING REMAINS UNCHANGED AS A RESULT OF THIS WORK
AREA OF BUILDING:	15,332 SF (EXISTING) NO CHANGE
ALLOWABLE AREA:	17,500 S.F. (OK) NO YARDS CONSIDERED

APPLICABLE CODES:

2018 CALIFORNIA EXISTING BUILDING CODE
2018 CALIFORNIA MECHANICAL CODE
2018 CALIFORNIA PLUMBING CODE
2018 CALIFORNIA ELECTRICAL CODE
2018 CALIFORNIA FIRE CODE
2018 CALIFORNIA GREEN BUILD CODE

PROJECT DIRECTORY

OWNER: PENSKE TRUCK LEASING 2219 S. 2nd PLACE PHOENIX, AZ 85004 (602) 253-0041 MIKE BARNES MIKE.BARNES@PENSKE.COM	ARCHITECT: K/G ARCHITECTS 7585 E. REDFIELD ROAD SUITE 102 SCOTTSDALE, AZ 85260 (480) 443-3705 PHIL CALLEGOS PHIL@KARCHITECTS.NET
MECH. / PLUMB. ENG. KRAEMER ENGINEERING 2050 W. WHISPERING WIND DR. SUITE 158 PHOENIX, AZ 85085 (602) 285-1669 ROB OGBOURNE	ELECTRICAL ENGINEER: ASSOCIATED ENGINEERING INC. 11410 NORTH CAVE CREEK RD. SUITE 158 PHOENIX, AZ 85020 (602) 274-8988 CHRIS MOE

PENSKE
Truck Leasing

GAS DETECTION DESIGN
FOR
PENSKE TRUCK LEASING
19646 S. FIGUEROA
CARSON, CA. 90745

K/G
ARCHITECTS
7585 E. REDFIELD ROAD
SUITE 102
SCOTTSDALE, AZ. 85260
(480) 443-3705 - TEL.
(480) 443-3805 - FAX



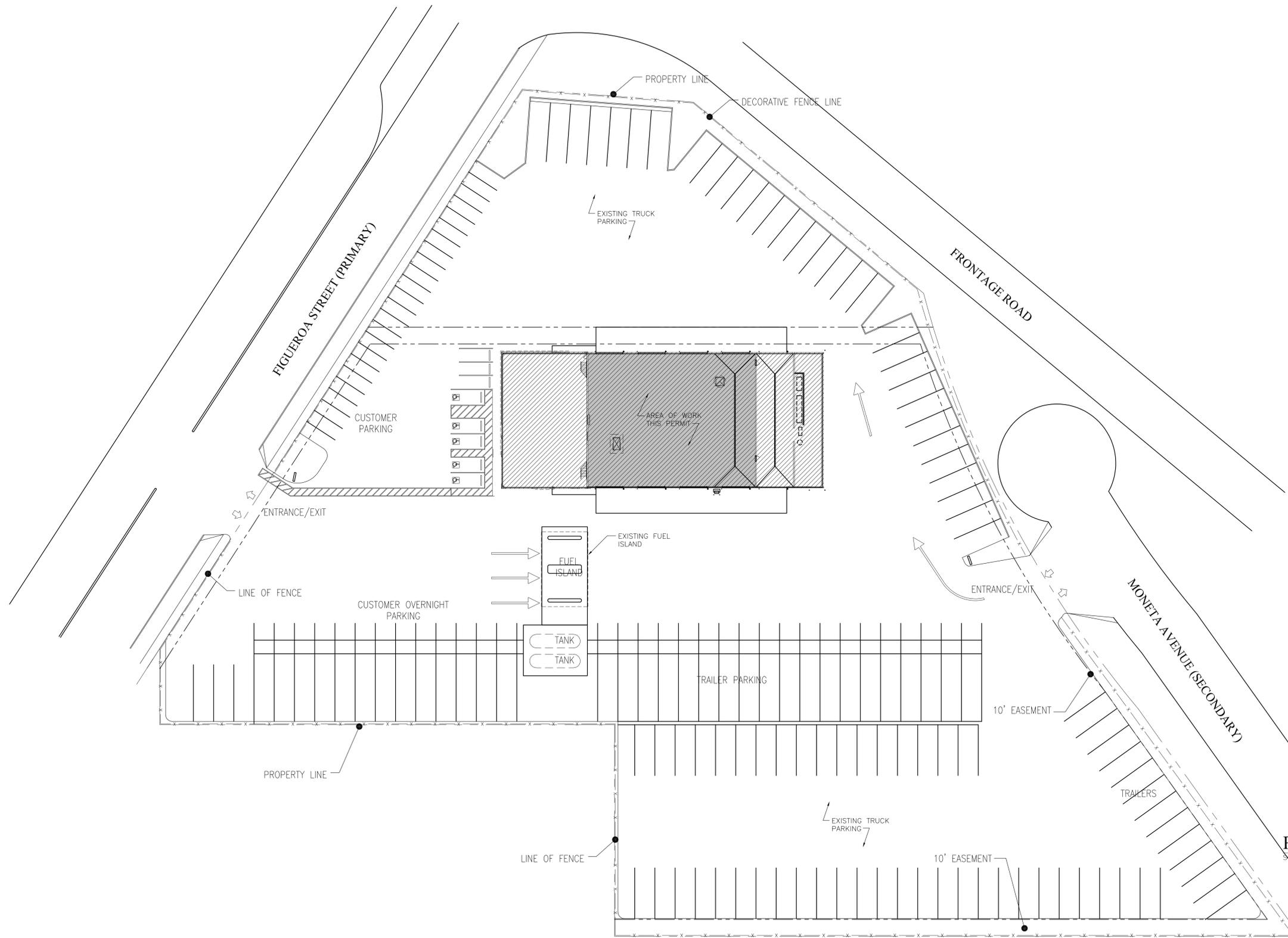
DRAWN BY: SM
CHECKED BY: LK, PG
PROJECT NO: 18119

DATE: 06-14-19
09-10-19

REVISIONS	DATE	ISSUED FOR:
1 PLAN REVIEW COMMENTS	03-28-19	PERMIT
2 OWNER REVISIONS		

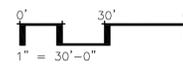
COVER SHEET

CS-1



REFERENCE SITE PLAN

SCALE: 1" = 30'-0"



GAS DETECTION DESIGN
FOR
PENSKE TRUCK LEASING
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CARSON, CA. 90745

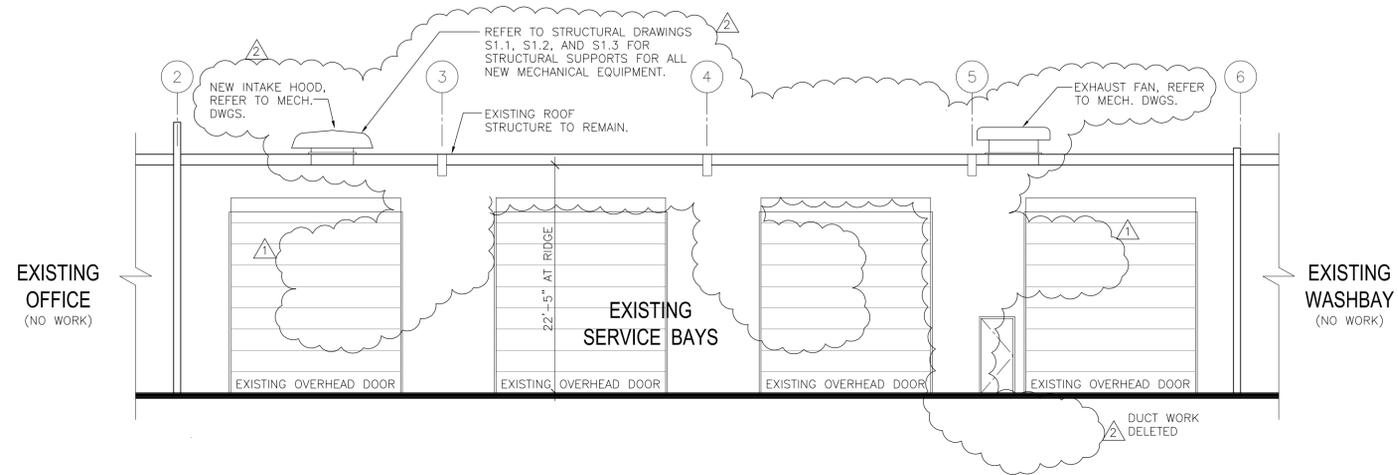
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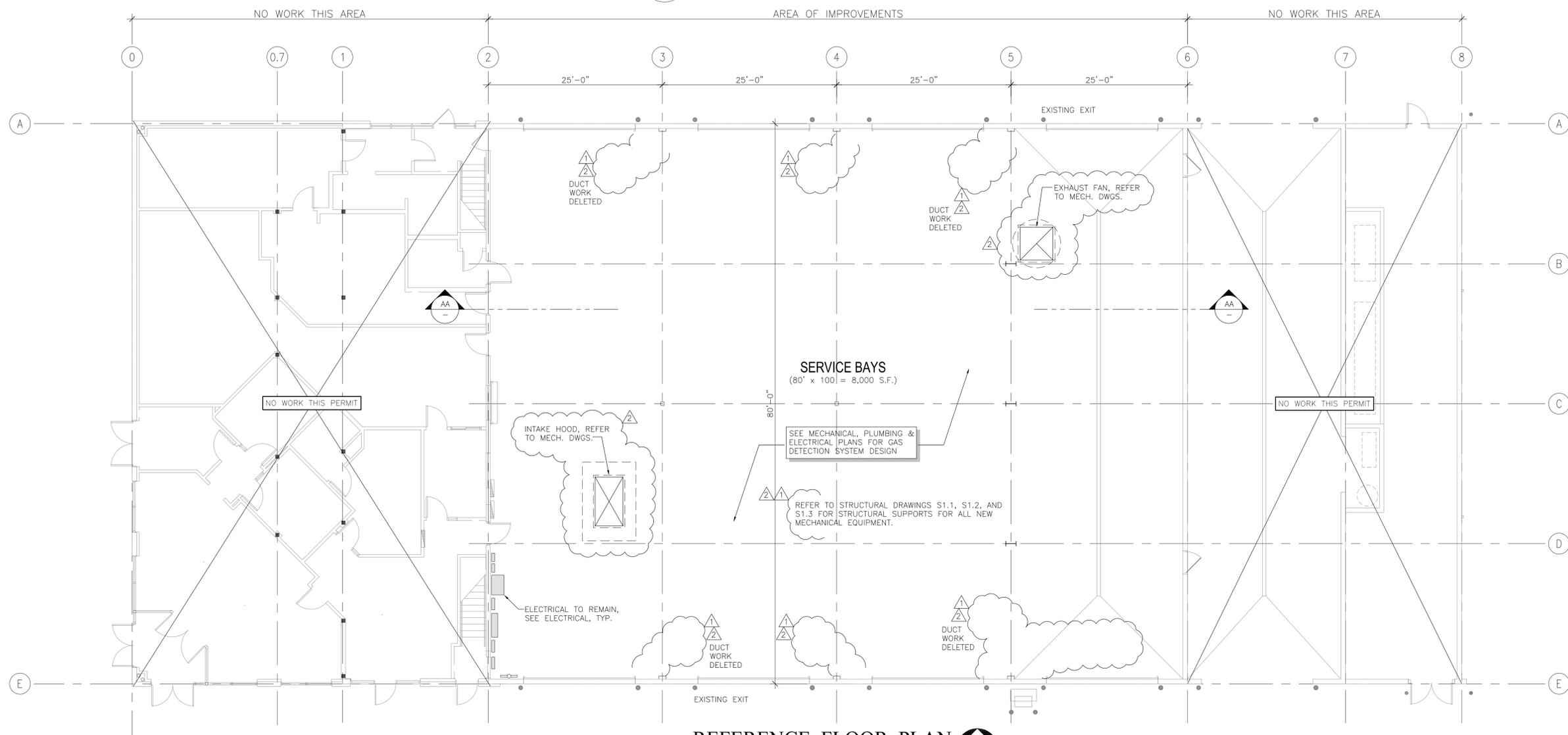
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LK, PG		
PROJECT NO:		
18119		

DATE:	ISSUED FOR:
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A1-0	

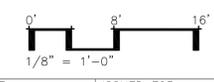
REFERENCE
SITE PLAN



AA REFERENCE BUILDING SECTION
1/8" = 1'-0"



REFERENCE FLOOR PLAN
SCALE: 1/8" = 1'-0"



GAS DETECTION DESIGN
FOR
PENSKE TRUCK LEASING
19646 S. FIGUEROA
CARSON, CA. 90745

K/G ARCHITECTS
7585 E. REDFIELD ROAD
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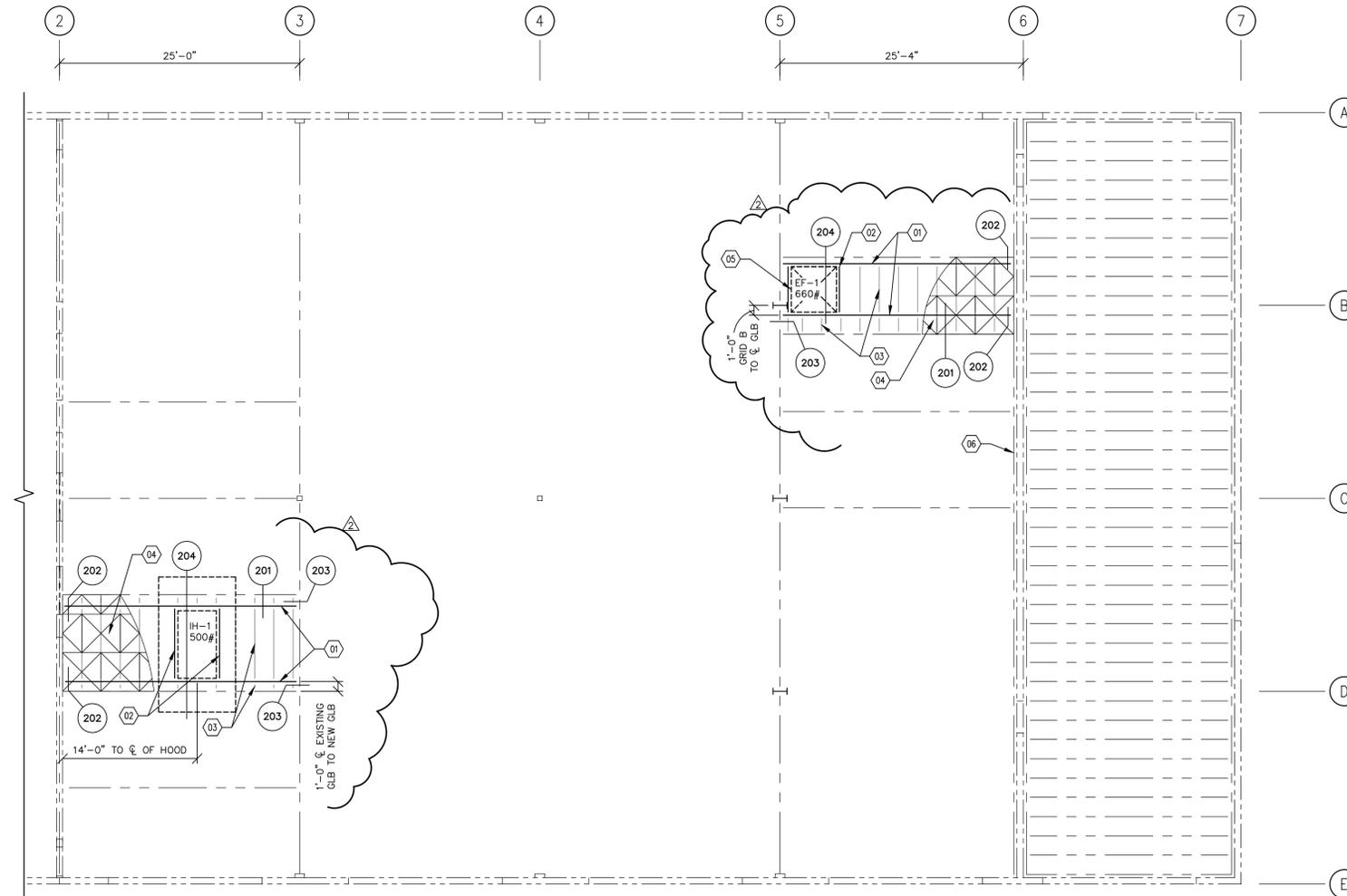


DRAWN BY: SM	DATE 06-14-19	REVISIONS PLAN REVIEW COMMENTS	DATE 03-28-19	ISSUED FOR: PERMIT
	CHECKED BY: L.K. PG	09-10-19	OWNER REVISIONS	
PROJECT NO: 18119	REFERENCE FLOOR PLAN & REFERENCE BLDG. SECTION			A2-0

- ROOF FRAMING NOTES – TYP. U.N.O.:**
1. VERIFY ALL DIMENSIONS AND ELEVATIONS WITH THE ARCHITECTURAL DRAWINGS AND FIELD CONDITIONS. BUILDING DIMENSIONS AND ELEVATIONS, WHERE SHOWN, WERE PROVIDED BY THE ARCHITECT AND IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY AND COORDINATE ALL DIMENSIONS PRIOR TO PROCEEDING WITH THE WORK. ANY DISCREPANCIES SHALL BE RESOLVED THROUGH THE ARCHITECT.
 2. (X), (X), ETC. – AS SHOWN ON PLAN INDICATES KEYNOTES, SEE ROOF FRAMING KEYNOTES ON THIS SHEET. KEYNOTE DESIGNATIONS ARE TYPICAL TO THE PROJECT AND MAY NOT NECESSARILY BE FOUND ON THIS PLAN.
 3. ———— — AS SHOWN ON PLAN INDICATES STRUCTURAL BEARING AND/OR SHEAR WALL BELOW.
 4. FOR CLARITY, DETAILS MAY SHOW ONLY ONE SIDE OF FRAMING CONDITIONS. ALL OPENINGS MAY NOT BE SHOWN ON THIS PLAN. FOR EXACT SIZE, NUMBER AND LOCATION OF OPENINGS, SEE ARCHITECTURAL, MECHANICAL, PLUMBING, ELECTRICAL, SPRINKLER AND THEIR RELATED DRAWINGS. FOR FRAMING AT OPENINGS, SEE TYPICAL DETAILS.
 5. THE EXISTING CONDITIONS DEPICTED ON THESE DRAWINGS ARE BASED ON THE BEST AVAILABLE INFORMATION AND SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE STRUCTURAL ENGINEER IMMEDIATELY.

- ROOF DIAPHRAGM NOTES:**
1. ROOF PLYWOOD SHALL BE 5-PLY EXTERIOR TYPE. NAILS SHALL BE 8d.
 2. PLYWOOD PANEL JOINTS IN THE NORTH-SOUTH DIRECTION SHALL BE STAGGERED.
 3. NAIL SPACING AT DIAPHRAGM BOUNDARIES (COLUMN LINE 6) SHALL BE 2 1/2" O.C.
 4. NAIL SPACING AT CONTINUOUS PANEL EDGES (EAST-WEST JOINTS AT PURLINS) SHALL BE 2 1/2" O.C.
 5. NAIL SPACING AT STAGGERED PANEL EDGES (NORTH-SOUTH JOINTS) SHALL BE 4" O.C.
 6. NAIL SPACING AT INTERMEDIATE FRAMING MEMBERS (NORTH-SOUTH AT INTERIOR OF PANELS) SHALL BE 12" MAXIMUM O.C.

- PLAN KEYNOTES** 940-11
- 01 NEW 5-1/8"x12" GLB WITH SIMPSON HGUSS.25/10 HANGERS EACH END.
 - 02 4x6 HEADER WITH LUS HANGER – TYP.
 - 03 INSTALL NEW 2x4 MIN SUBPURLINS AT 24" O.C. (IF EXISTING SUBPURLINS ARE LARGER, MATCH EXISTING).
 - 04 REMOVE AND RE-INSTALL PLYWOOD AS REQUIRED – RE-ATTACH 1/2" PLYWOOD PER ROOF DIAPHRAGM NOTES (4'-0"x4'-0" MIN SHEET SIZE).
 - 05 NEW MECHANICAL UNIT.
 - 06 EXISTING GLB.



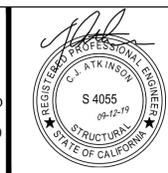
ROOF FRAMING PLAN
SCALE: 1/8" = 1'-0"

THESE DRAWINGS/CALCULATIONS ARE CONSIDERED PRELIMINARY – NOT FOR CONSTRUCTION OR RECORDING UNLESS THE STRUCTURAL ENGINEER OF RECORD'S SEAL IS AFFIXED WITH WRITTEN SIGNATURE.			
PROJECT NUMBER	19-0712	PROJECT MANAGER	CJA
PROJECT ENGINEER	MRF	PROJECT DRAFTER	MJN
CARUSO · TURLEY · SCOTT · INC		consulting structural engineers	
1215 West Rio Salado Parkway, Suite 200 Tempe, Arizona 85281 (480) 774-1700 (774-1701 FAX) www.ctsaz.com			



GAS DETECTION DESIGN
FOR
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19646 S. FIGUEROA
CARSON, CA. 90745

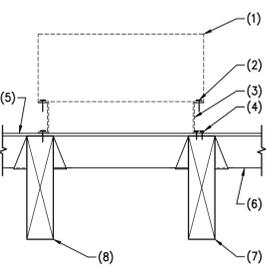
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SM	6-14-19	PLAN REVIEW COMMENTS	03-28-19	PERMIT
CHECKED BY:	9-11-19	OWNER REVISIONS	SHEET NO:	
LK, PG	FRAMING PLANS			S1.2
PROJECT NO:	18119			

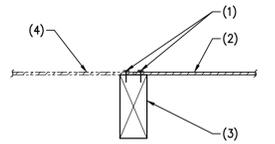
C:\Users\jdf03\Documents\My Jobs\190712\190712-S12.dwg, 9/12/2019 4:09:31 PM, dft03

SCREW #1 SELF TAPPING	SCREW #2 WOOD SCREW
EF-1&4 #12 AT 12" O.C. ALL AROUND	#2&2 1/2" AT 12" O.C. ALL AROUND



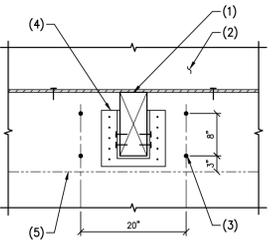
204 MECH'L EQUIPMENT TO ROOF FRAMING 1308-30M NO SCALE

- NOTES:
1. MECH'L UNIT BY OTHERS.
 2. SCREW #1 (PER TABLE BELOW) ALL AROUND UNIT.
 3. CURB BY OTHERS.
 4. SCREW #2 (PER TABLE BELOW) ALL AROUND UNIT.
 5. PLYWOOD SHEATHING.
 6. WOOD JOIST.
 7. 2x4 AT 24" O.C. MAX WITH LUS HANGER AT EACH END - TYP. GENERAL CONTRACTOR TO VERIFY 2x4 vs 2x6 AND MATCH EXISTING.
 8. WOOD PURLIN AS OCCURS.



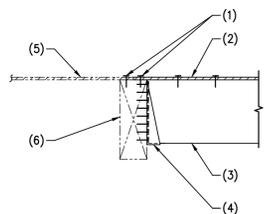
201 NEW PLYWOOD SHEATHING AT GLB 19-0712 NO SCALE

- NOTES:
1. DOUBLE EDGE NAILING.
 2. PLYWOOD SHEATHING.
 3. WOOD SEAM.
 4. EXISTING PLYWOOD SHEATHING.



202 WOOD PURLIN AT EXISTING LEDGER 19-0712 NO SCALE

- NOTES:
1. WOOD PURLIN.
 2. EXISTING TILT WALL.
 3. (4) 1/2" DIA THREADED RODS - EPOXY INTO EXISTING WALL USING SIMPSON HIT-RE 500V3 WITH 4-3/4" EMBED.
 4. SIMPSON HJUS 5.25/10 HANGER.
 5. EXISTING 3 1/8" x 15" GLB.



203 NEW PURLIN AT EXISTING GLB 19-0712 NO SCALE

- NOTES:
1. DOUBLE EDGE NAILING.
 2. PLYWOOD SHEATHING.
 3. WOOD SEAM.
 4. SIMPSON HJUS 5.25/10 HANGER.
 5. EXISTING PLYWOOD SHEATHING.
 6. EXISTING GLB.

THESE DRAWINGS/CALCULATIONS ARE CONSIDERED PRELIMINARY - NOT FOR CONSTRUCTION OR RECORDING UNLESS THE STRUCTURAL ENGINEER OF RECORD'S SEAL IS AFFIXED WITH WRITTEN SIGNATURE.

PROJECT NUMBER	19-0712	PROJECT MANAGER	CJA
PROJECT ENGINEER	MRF	PROJECT DRAFTER	MJN

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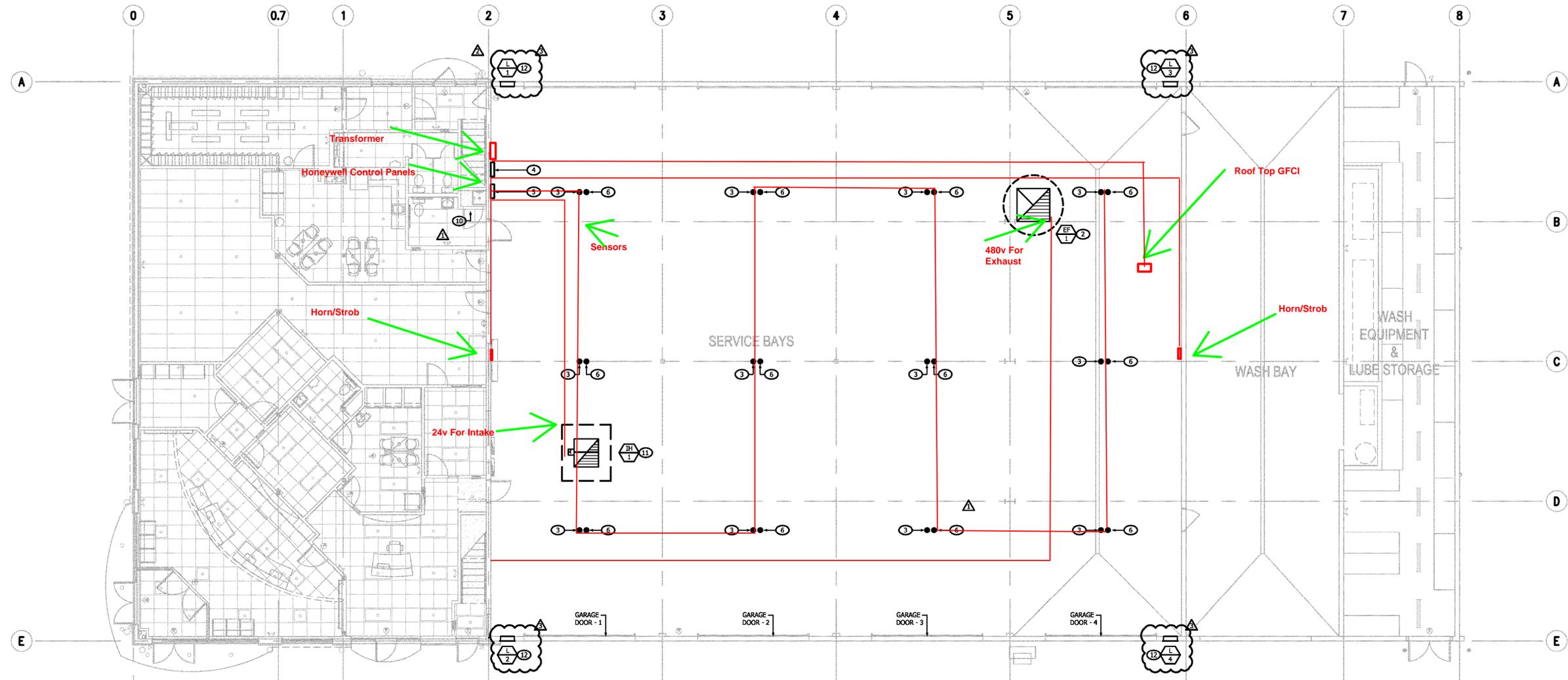
GAS DETECTION DESIGN
FOR
PENSKE TRUCK LEASING
19646 S. FIGUEROA
CARSON, CA. 90745

K/G
ARCHITECTS
7585 E. REDFIELD ROAD
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SM	6-14-19	PLAN REVIEW COMMENTS	03-28-19	PERMIT
CHECKED BY:	9-11-19	OWNER REVISIONS		
LK, PG	FRAMING DETAILS			
PROJECT NO:				
18119				

SHEET NO:
S1.3



MECHANICAL NEW FLOOR PLAN
1/8" = 1'-0"

- ▲ HEATING SYSTEM REMOVED COMPLETELY. ALL DUCTWORK REMOVED FROM EXHAUST SYSTEM. ADDED INTAKE HOOD FOR MAKEUP AIR.
- ▲ ALL APPLIANCES DESIGNED TO BE FIXED IN POSITION SHALL BE SECURELY FASTENED IN PLACE IN ACCORDANCE WITH MANUFACTURER INSTALLATION REQUIREMENTS AND THE BUILDING CODE, SECTION 303.4.
- ▲ OUTDOOR AIR INTAKE OPENINGS SHALL BE COVERED WITH A SCREEN HAVING NOT LESS THAN 1/4-INCH OPENINGS AND NOT MORE THAN 1/2-INCH OPENINGS, SECTION 502.1.

**SEQUENCE OF OPERATION
CNG/LNG & H2 GAS
DETECTION SYSTEM**

EXHAUST FAN (EF-1) AND IH-1 IN THE CNG/LNG SERVICE BAY SHALL BE INTERLOCKED WITH CNG/LNG & H2 GAS DETECTION SYSTEM.

SYSTEM OPERATION:
EF-1 SHALL BE CONTROLLED TO RUN CONTINUOUSLY AT LOW SPEED (DURING OCCUPIED HOURS).

CNG/LNG & H2 GAS DETECTION SYSTEM SHALL ACTIVATE WHEN THE LEVEL OF FLAMMABLE GAS EXCEEDS 20% (1/5) OF THE LOWER FLAMMABLE LIMIT. ACTIVATION OF GAS DETECTION SYSTEM SHALL INITIATE AN AUDIBLE AND VISUAL ALARM SIGNAL. IN THE CNG/LNG SERVICE BAY, ACTIVATE EF-1 TO HIGH SPEED AND CLOSE THE DAMPER IN IH-1.

SYSTEM FAILURE OPERATION:
FAILURE OF THE GAS DETECTION SYSTEM SHALL RESULT IN THE ACTIVATION OF EF-1 TO HIGH SPEED, CLOSE THE DAMPER IN IH-1 AND ACTIVATE A TROUBLE SIGNAL (AUDIBLE AND VISIBLE) TO SOUND IN AN APPROVED LOCATION.

KEYED NOTES

1. NOT USED.
2. INSTALL EXHAUST FAN ON FACTORY ROOF CURB. CONTRACTOR TO COORDINATE DUCT DROP WITH STRUCTURE. EXTEND FULL SIZE EXHAUST DUCT DOWN THRU ROOF. TERMINATE JUST BELOW ROOF DECK. CONTRACTOR TO VERIFY BUILDING EXHAUST HAS 10'-0" CLEARANCE FROM ANY FRESH AIR INTAKES.
3. LOW VOLTAGE CNG/LNG SENSOR MOUNTED AT 20" BELOW ROOF DECK. SENSOR SHALL BE HONEYWELL MODEL NUMBER E3M WITH E3M CARTRIDGE FOR METHANE (CH4). CONNECT AND INSTALL PER MANUFACTURER'S RECOMMENDATIONS. SENSOR SHALL BE UL 2075 LISTED. VERIFY MOUNTING HEIGHT WITH INSTALLATION INSTRUCTIONS PRIOR TO INSTALLATION.
4. HONEYWELL VA301C CNG/LNG GAS DETECTION CONTROLLER WITH LOCAL THREE COLOR LIGHT STROBE (AMBER, BLUE, RED) AND AUDIBLE HORN. PROVIDE A SEPARATE REMOTE STROBE AND HORN AT A CONSTANTLY ATTENDED LOCATION. COORDINATE FINAL LOCATION WITH ARCHITECT AND OWNER IN FIELD. CONTROLLER SHALL BE PROVIDED WITH TWELVE (12) LNG/CNG SENSORS AS LOCATED AND NOTED ON THE MECHANICAL FLOOR PLAN. SENSORS SHALL BE CONNECTED AND MONITORED BY THE CONTROLLER. SEE SEQUENCE OF OPERATION FOR MORE INFORMATION.
5. HONEYWELL ESPOINT DETECTION CONTROLLER. COORDINATE FINAL LOCATION WITH ARCHITECT AND OWNER IN FIELD. CONTROLLER SHALL BE PROVIDED WITH TWELVE (12) H2 SENSORS AS LOCATED AND NOTED ON THE MECHANICAL FLOOR PLAN. SENSORS SHALL BE CONNECTED AND MONITORED BY THE CONTROLLER. SEE SEQUENCE OF OPERATION FOR MORE INFORMATION.

GENERAL NOTES

6. LOW VOLTAGE H2 SENSOR MOUNTED AT 20" BELOW ROOF DECK. SENSOR SHALL BE HONEYWELL MODEL NUMBER E3M WITH E3M CARTRIDGE FOR HYDROGEN (H2). CONNECT AND INSTALL PER MANUFACTURER'S RECOMMENDATIONS. SENSOR SHALL BE UL 2075 LISTED. VERIFY MOUNTING HEIGHT WITH INSTALLATION INSTRUCTIONS PRIOR TO INSTALLATION.
7. NOT USED.
8. NOT USED.
9. NOT USED.
10. ACCESS TO ROOF MOUNTED EQUIPMENT IS LOCATED ON THE SECOND FLOOR.
11. INSTALL INTAKE AIR HOOD ON FACTORY ROOF CURB. CONTRACTOR TO COORDINATE EXACT LOCATION IN FIELD. 24 VOLT MOTORIZED DAMPER SHALL BE INTERLOCKED WITH THE OPERATION OF EF-1.
12. MOUNT INTAKE AIR LOUVER ON WALL DOWN LOW. BOTTOM OF LOUVER SHALL BE NO HIGHER THAN 18" A.F.F.

GENERAL NOTES

- A. ALL WORK SHALL COMPLY WITH ALL APPLICABLE FEDERAL, STATE AND LOCAL CODES, LAWS, ACTS, AND THE AUTHORITIES HAVING JURISDICTION.
- B. THE COMPLETED INSTALLATION SHALL BE IN ACCORDANCE WITH ALL APPLICABLE INDUSTRY STANDARD OF GOOD PRACTICE AND SAFETY, AND THE MANUFACTURER'S STRICTEST RECOMMENDATIONS FOR EQUIPMENT AND PRODUCT APPLICATION AND INSTALLATION.
- C. ALL WORK SHALL BE LOCATED TO PROVIDE ADEQUATE CLEARANCE FOR ARCHITECTURAL DESIGN AND PROPER OPERATION AND SERVICE OF EQUIPMENT.
- D. THERMOSTAT SHALL BE MOUNTED AT 44" A.F.F. TO THE CENTER OF THERMOSTAT DIRECTLY ABOVE OR NEXT TO LIGHT SWITCH IF APPLICABLE. COORDINATE FINAL THERMOSTAT LOCATION WITH ARCHITECT.
- E. FIRE SPRINKLERS AND LIGHTS TAKE PRECEDENCE OVER DIFFUSERS. CONTRACTOR TO VERIFY LOCATIONS WITH ARCHITECT.
- F. CONDENSATE SHALL BE 3" FOR ALL UNITS UNLESS OTHERWISE NOTED AND SLOPED AT A MINIMUM 1/8" PER FOOT TO POINT OF TERMINATION.
- G. REFER TO MECHANICAL SPECIFICATIONS FOR ADDITIONAL INFORMATION.
- H. DRAWINGS ARE DIAGRAMMATIC. CONTRACTOR SHALL MAKE ANY MINOR MODIFICATIONS, INCLUDING ALL OFFSETS, TURNS, AND REROUTING REQUIRED TO COMPLETE THE INSTALLATION.

MAKEUP AIR CALC.

GENERAL VENTILATION RATE DURING OCCUPIED HOURS IS 12,505 CFM. VENTILATION RATE UPON CNG/LNG/H2 DETECTION IS 16,930 CFM.

DURING GENERAL VENTILATION MAKEUP AIR IS PROVIDED AT THE INTAKE AIR HOOD (IH-1) AND EXTERIOR WALL LOUVERS (L-1 THRU 4).

VELOCITY THRU INTAKE AIR HOOD:
42"x48" INTAKE HOOD HAS 14 SQ.FT. OF FREE AREA.

VELOCITY THRU EXTERIOR WALL LOUVERS:
24"x42" LOUVER HAS 3.71 SQ.FT. OF FREE AREA x 4 LOUVERS = 14.84 SQ.FT. FREE AREA TOTAL.

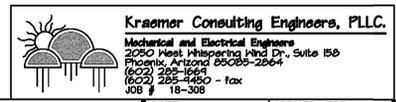
TOTAL FREE AREA BETWEEN INTAKE HOOD AND LOUVERS IS 28.84 SQ.FT.

12,505 CFM / 28.84 SQ.FT. = 433 FPM THRU INTAKE HOOD AND LOUVERS.

DURING CNG/LNG/H2 DETECTION VENTILATION MAKEUP AIR IS PROVIDED AT THE EXTERIOR WALL LOUVERS (L-1 THRU 4) ONLY.

VELOCITY THRU EXTERIOR WALL LOUVERS:
24"x42" LOUVER HAS 3.71 SQ.FT. OF FREE AREA x 4 LOUVERS = 14.84 SQ.FT. FREE AREA TOTAL.

16,930 CFM / 14.84 SQ.FT. = 1,140 FPM THRU LOUVERS.

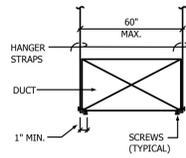


**IMPROVEMENTS
FOR
PENSKE TRUCK LEASING**
CARSON, CALIFORNIA

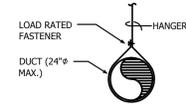
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REO/CTR	5-22-19	▲ CITY COMMENTS	01-16-19	COORDINATION
CHECKED BY:	9-5-19	▲ OWNER REVISION		
MJK	10-1-19	▲ CITY COMMENTS		
PROJECT NO:	MECHANICAL FLOORPLAN		M2-0	



SMACNA TABLE 4-1 RECTANGULAR DUCT HANGERS		
MAX HALF OF DUCT PERIMETER	STRAP	SPACING
P/2 = 30"	1"x22GA	10'-0"
P/2 = 72"	1"x18GA	10'-0"
P/2 = 96"	1"x16GA	10'-0"
P/2 = 120"	1-1/2"x16GA	10'-0"

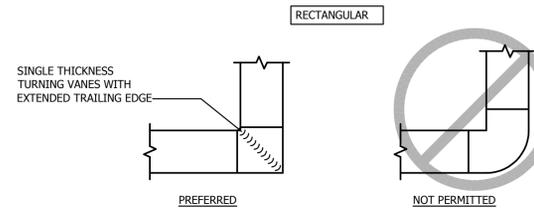
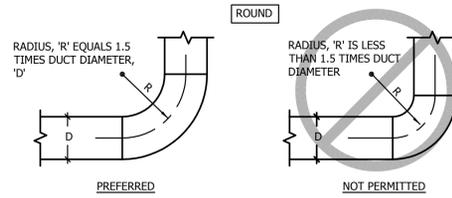


SMACNA TABLE 4-2 ROUND DUCT HANGERS		
DUCT DIAMETER	STRAP	SPACING
UP TO 10"	1"x22GA	10'-0"
11" TO 18"	1"x22GA	10'-0"
19" TO 24"	1"x22GA	10'-0"

NOTE:
REFER TO STRUCTURAL SHEET S1.1 FOR HANGER ATTACHMENT TO STRUCTURE.

DUCT HANGERS

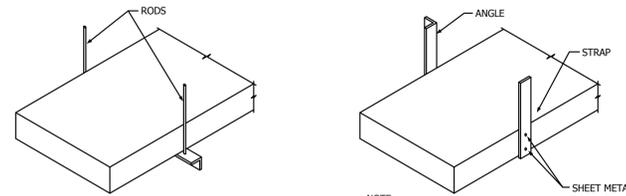
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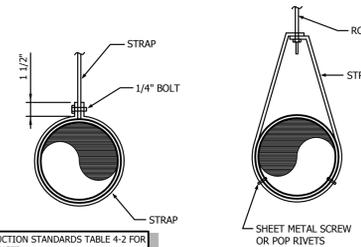
DUCT ELBOW DETAIL

4

DETAIL REMOVED



REFER TO SMACNA HVAC DUCT CONSTRUCTION STANDARDS TABLE 4-1 FOR "RECTANGULAR DUCT HANGERS MINIMUM SIZE".

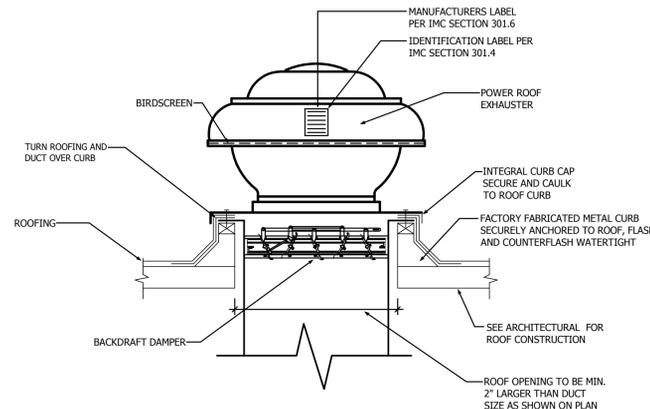


REFER TO SMACNA HVAC DUCT CONSTRUCTION STANDARDS TABLE 4-2 FOR "MINIMUM HANGER SIZES FOR ROUND DUCT".

DUCT HANGER DETAIL

5

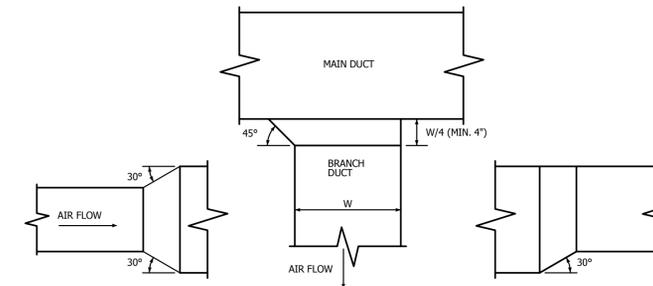
DETAIL REMOVED



NOTE: INSTALL EQUIPMENT PER MANUFACTURERS RECOMMENDATIONS

POWER ROOF EXHAUSTER DETAIL

6



NOTE:
FABRICATE PER SMACNA DUCT CONSTRUCTION STANDARDS FIGURE #2-8.
DO NOT USE EXTRACTORS IN BRANCH DUCTWORK.

DUCT CONNECTION

3

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JOB # 18-305



IMPROVEMENTS
FOR
PENSKE TRUCK LEASING
CARSON, CALIFORNIA

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REO/CTR
CHECKED BY:
MJK
PROJECT NO:

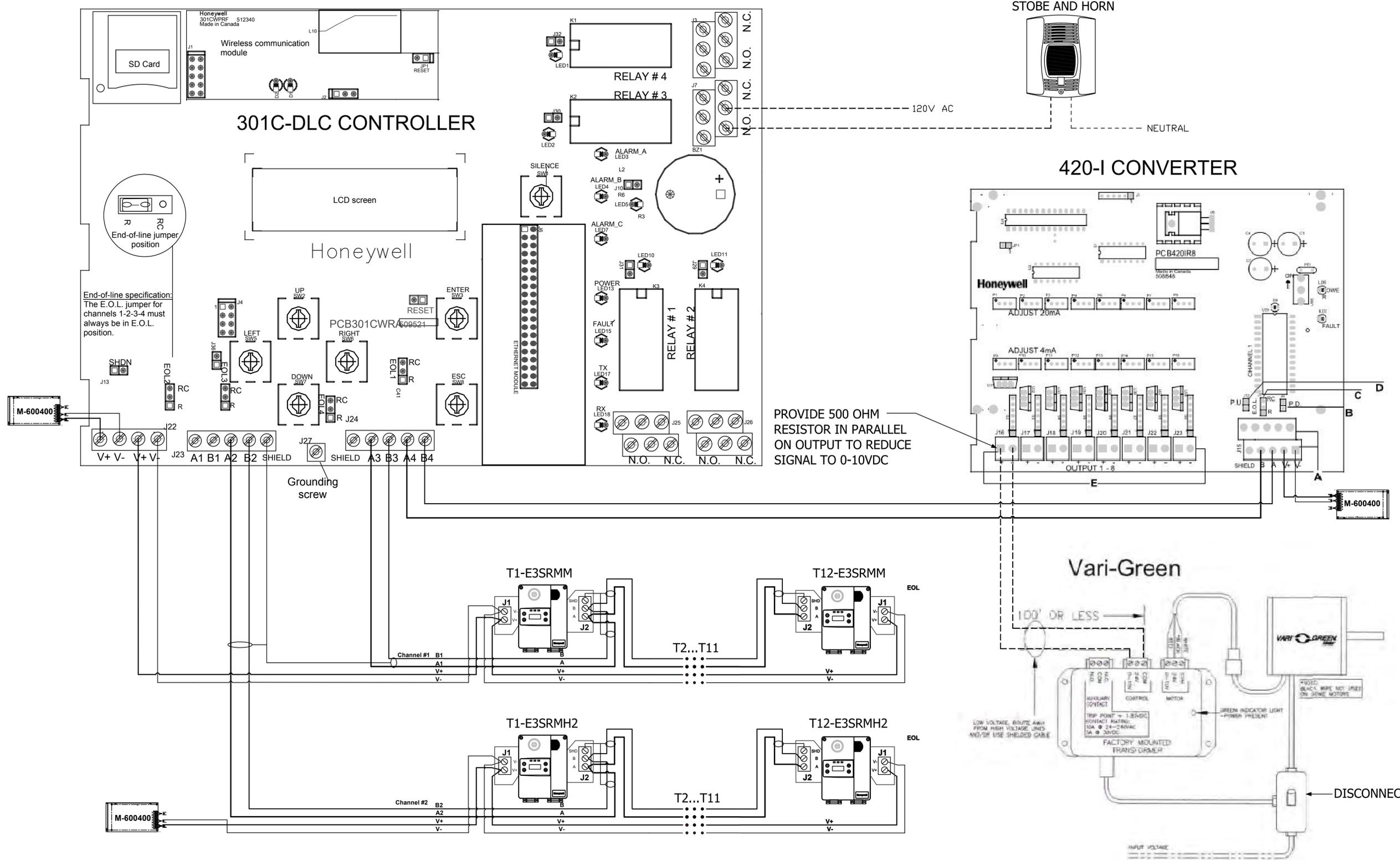
DATE:
5-22-19
9-5-19

REVISIONS
CITY COMMENTS
OWNER REVISION

MECHANICAL
DETAILS

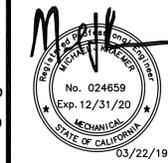
DATE:
01-16-19
ISSUED FOR:
COORDINATION

SHEET NO:
M3-0



IMPROVEMENTS
FOR
PENSKE TRUCK LEASING
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REQ/CTR:			01-16-19	COORDINATION
CHECKED BY:			SHEET NO:	M3-1
MJK				
PROJECT NO:	GAS DETECTION SYSTEM WIRING DIAGRAM			

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JOB # 18-305

EQUIPMENT MOUNTING HEIGHTS (UNLESS OTHERWISE NOTED ARE TO TOP OF DEVICE)		
DESCRIPTION	MOUNTING HEIGHT	
LIGHT SWITCHES	48" AFF	(TO OUTLET TOP)
GENERAL PURPOSE RECEP.TS.	18" AFF - 48" AFF SERVICE & WASH BAYS	(TO OUTLET TOP)
WATER COOLER RECEP.TS.	22" AFF	(TO OUTLET TOP)
COMMUNICATION OUTLETS	18" AFF - 48" AFF SERVICE & WASH BAYS	(TO OUTLET TOP)
PANELBOARDS	72" AFF TO TOP OF PANELBOARD	
DISCONNECT SWITCHES	60" AFF	(TO DEVICE CENTER)
MOTOR STARTERS	60" AFF	(TO DEVICE CENTER)

NOTES:

- COORDINATE DEVICE MOUNTING HEIGHTS WITH PLAN NOTES AND SPECIFICATIONS.
- RECEPTACLES ON OPPOSITE SIDES OF FIRE RATED WALLS SHALL BE SEPARATED BY A MINIMUM HORIZONTAL DISTANCE OF 24".
- ALL PENETRATIONS OF FIRE RESISTIVE FLOORS OR SHAFT WALLS SHALL BE PROTECTED BY MATERIALS AND INSTALLATION DETAIL THAT CONFORM TO U.L. LISTINGS FOR THROUGH PENETRATION FIRESTOP SYSTEMS. THE CONTRACTOR SHALL SUBMIT SHOP DRAWING DETAILS WHICH SHOW COMPLETE CONFORMANCE TO THE LISTING TO THE ARCHITECT AND SUCH DRAWINGS SHALL BE AVAILABLE TO THE LOCAL GOVERNING INSPECTORS. THE DRAWINGS SHALL BE SPECIFIC FOR EACH PENETRATION WITH ALL VARIABLES DEFINED.
- AS-BUILT DRAWINGS: PROVIDE PRINTS TO THE ARCHITECT/OWNER INDICATING ANY MODIFICATIONS TO THE ORIGINAL DESIGN DWGS. THESE PRINTS SHALL BE OF THE ORIGINAL DRAWINGS WITH ANY MODIFICATIONS INDICATED WITH RED INK. INCLUDE PANEL SCHEDULES AND ONE-LINE DIAGRAM CHANGES. IF NO AS BUILTS ARE PROVIDED IT IS IMPLIED THAT WORK WAS DONE PER PLANS AND SPECIFICATIONS.
- ANY 15A. OR 20A., 120 VOLT LIGHTING OR OUTLET BRANCH CIRCUIT WITH AN OVERALL LENGTH OF 100 FEET OR LONGER SHALL BE #10 WIRE FOR FULL LENGTH OF CIRCUIT EXCEPT AS NOTED OTHERWISE.
- EQUIPMENT AS REFERRED TO IN THESE NOTES SHALL MEAN ANY HEATING, VENTILATION OR AIR CONDITIONING, PLUMBING, REFRIGERATION, SHOP, OFFICE EQUIPMENT, MODULAR FURNITURE SYSTEMS, SPECIALTY EQUIPMENT, TENANT, OWNER, OR OR CONTRACTOR FURNISHED EQUIPMENT, OR ANY OTHER EQUIPMENT, SPECIAL OR OTHERWISE THAT IS INDICATED ON ANY CONTRACT DOCUMENTS FOR THIS PROJECT. REGARDING EQUIPMENT, THE ELECTRICAL CONTRACTORS WORK IS NOT LIMITED TO WORK INDICATED IN THE ELECTRICAL CONSTRUCTION DOCUMENTS.
- A COMPLETE SET OF CONTRACT RELATED DOCUMENTS SHALL BE OBTAINED AND REVIEWED BY THE ELECTRICAL CONTRACTOR FOR THE PURPOSE OF STUDYING THE ARCHITECTURAL, HVAC, PLUMBING, SPECIALTY SYSTEMS DRAWINGS, ETC. THIS SHALL INCLUDE ANY DRAWINGS PREPARED BY VENDORS, SUCH AS MODULAR FURNITURE DRAWINGS, ETC. THE INTENT IS TO DISCOVER ANY WORK OR MATERIAL TO BE PROVIDED BY THE ELECTRICAL CONTRACTOR, AND THE ELECTRICAL CHARACTERISTICS OF EQUIPMENT. WHERE ANY CONFLICT IS INDICATED ON ANY OF THESE DOCUMENTS SHALL BE RESOLVED PRIOR TO BID. NO MONEY WILL BE PAID TO THE CONTRACTOR AS A RESULT OF FAILURE TO DISCOVER DISCREPANCIES WITHIN THESE AFOREMENTIONED DOCUMENTS.
- IF ANY EQUIPMENT REQUIRES ELECTRICAL POWER IS SHALL BE PROVIDED, INCLUDING ALL CIRCUITRY, OVER CURRENT DEVICES, GROUNDING, RECEPTACLES, HARD WIRING, ROUGH-IN, ETC. ALL SUCH WORK SHALL BE DONE BY THE ELECTRICAL CONTRACTOR UNLESS SPECIFIED OTHERWISE IN THESE CONTRACT DOCUMENTS, AND WHETHER OR NOT IT IS INDICATED IN THE ELECTRICAL DOCUMENTS.
- PRIOR TO BID, ANY CONFLICT BETWEEN THE ELECTRICAL DOCUMENTS AND ANY OTHER CONTRACT-RELATED DOCUMENTS SHALL BE REPORTED TO THE ELECTRICAL ENGINEER. CONFLICT SHALL BE RESOLVED PRIOR TO BID.
- FOR EACH ITEM OF EQUIPMENT, VERIFY THE ELECTRICAL CHARACTERISTICS, INCLUDING LOAD, VOLTAGE, AND PHASE: LOAD BALANCING ON PHASES, AND GROUNDING REQUIREMENTS, ETC.
- VERIFY ROUGH-IN LOCATION, AND FINAL CONNECTION REQUIREMENTS. PROVIDE THE CORP RECEPTACLES TO MATCH THE CORP CAP FURNISHED WITH THE EQUIPMENT, OR PROVIDE THE APPROPRIATE HARD WIRING.
- PROVIDE ANY INDICATED OR REQUIRED OVERCURRENT PROTECTION AND/OR DISCONNECT SWITCHES, FUSED FOR THE LOAD OR PER MANUFACTURERS RECOMMENDATIONS.
- PROVIDE FOR CONNECTION TO ANY CONTROLLER FURNISHED WITH EQUIPMENT.
- PROVIDE ANY CONTROLLERS, CONTACTORS, CONTROL DEVICES, STARTERS, AND CONTROL WIRING NOT INDICATED TO BE PROVIDED BY OTHERS, OR INDICATED TO BE PROVIDED BY THE ELECTRICAL CONTRACTOR.
- ALL APPLIANCES SHALL BE PROVIDED WITH A DISCONNECTING MEANS IN ACCORDANCE WITH NEC 422 PART D.
- ANY DROP CORDS SERVING EQUIPMENT SHALL BE PROVIDED WITH KELLEMS STRESS RELIEF GRIPS AT THE JUNCTION BOX CONNECTOR(S).
- ANY HVAC CONTROL WIRING AND CONNECTIONS NOT PROVIDED BY THE HVAC CONTRACTOR SHALL BE PROVIDED BY THE ELECTRICAL CONTRACTOR UNLESS SPECIFIED OTHERWISE.
- WHERE ONE OR MORE DISCONNECT SWITCH IS REQUIRED FOR AN HVAC UNIT, THEY SHALL BE PROVIDED BY THE ELECTRICAL CONTRACTOR.
- SEE MECHANICAL DRAWINGS FOR EXACT LOCATION OF ALL DUCTWORK AND DIFFUSERS TO AVOID ANY CONFLICTS WITH LIGHTING FIXTURE LAYOUT. OVERLAY THE LIGHTING AND HVAC PLANS AND REVIEW FOR CONFLICT.
- PROVIDE FOR CONNECTION AND CIRCUITRY OF ANY DUCT DETECTOR FURNISHED UNDER ANOTHER SECTION. REVIEW MECHANICAL PLANS.
- PROVIDE ALL INTERLOCK WIRING FOR ANY HVAC EQUIPMENT REQUIRING INTERLOCKING.
- SERVICE CONDUIT FOR ELECTRICAL OR OTHER SYSTEMS USED FOR THIS PROJECT SPACE SHALL BE MARKED AT EACH ENDS AS TO SOURCE AND DESTINATION. (I.E.: SERVICE SECTION, FACP, SUITE #, PANEL DESIGNATION, ETC.)

NOTE:
SHOP/SERVICE AREAS DEVICES SHALL BE GREY WITH STAINLESS STEEL COVERPLATES. (SWITCHES, RECEP.TS, CCTV, DATA, ETC)
OFFICE AREAS DEVICES SHALL BE GREY WITH GREY GREY COVERPLATES. (SWITCHES, RECEP.TS, CCTV, DATA, ETC)

ABBREVIATIONS

A	AMPERES	M.C.B.	MAIN CIRCUIT BREAKER
AL	ALUMINUM	M.L.O.	MAIN LUGS ONLY
A.F.F.	ABOVE FINISHED FLOOR	MTD.	MOUNTED
A.F.G.	ABOVE FINISHED GRADE	N.I.C.	NOT IN CONTRACT
C.	CONDUIT	N.L.	NIGHT LIGHT
C/B	CIRCUIT BREAKER	P.	POLE
CU.	COPPER	S.T.	SHUNT-TRIP
DISC.	DISCONNECT	SW.	SWITCH
E.C.	EMPTY CONDUIT	T.M.B.	TELEPHONE MOUNTING BOARD
E.F.	EXHAUST FAN	TYP.	TYPICAL
E.W.C.	ELECTRIC WATER COOLER	U.N.O.	UNLESS NOTED OTHERWISE
F.	FUSE	V.	VOLTS
F.B.O.	FURNISHED BY OTHERS	W.	WIRE
G.F.C.I.	GROUND FAULT CURRENT INTERRUPTER	W.P.	WEATHERPROOF
GND.	GROUND	X.P.	EXPLOSION PROOF
H.P.	HORSE POWER	XFMR	TRANSFORMER
K	1000	Ø	PHASE
EDF	ELECTRIC DRINKING FOUNTAIN	D	DEDICATED

MASTER ELECTRICAL SYMBOLS LIST

NOTE: ALL DIMENSIONS GIVEN ARE TO DEVICE TOP. CONTRACTOR TO COORDINATE ALL INSTALLATIONS.

LIGHTING & LIGHTING CONTROLS

- FLUORESCENT LIGHTING FIXTURE. SUBSCRIPT LETTER DENOTES FIXTURE TYPE AS DESCRIBED IN LIGHT FIXTURE SCHEDULE. LOWER CASE LETTER INDICATES SWITCHING CONTROL.
- FLUORESCENT STRIPLIGHT
- RECESSED DOWNLIGHT OR SURFACE MTD. LIGHTING FIXTURE
- WALL MOUNTED LIGHTING FIXTURE
- POLE MOUNTED LIGHT FIXTURE. SEE FIXTURE SCHEDULE.
- STEP LIGHT RECESSED IN WALL AT 24" A.F.F. U.N.O.
- GROUND MOUNT FLOOD LIGHT. SEE FIXTURE SCHEDULE.
- EXIT SIGN LIGHTING FIXTURE, WITH FACES AND DIRECTIONAL ARROWS AS SHOWN ON PLANS.
- SELF-CONTAINED EMERGENCY LIGHTING FIXTURE, WITH BATTERY BACK-UP.
- SINGLE POLE I.R./MOTION SENSOR SWITCH WITH MANUAL 'OFF' OVERRIDE AND TIME DELAY TO 30 MINUTES. MOUNT AT 48" A.F.F. U.N.O. LOWER CASE LETTER DENOTES FIXTURE CONTROL. 300V. 20A. (SENSOR SWITCH #WSD.GY SERIES DEVICES)
- THREE-WAY I.R./MOTION SENSOR SWITCH WITH TYPICAL REQUIREMENTS AS SINGLE POLE UNIT. (SENSOR SWITCH #WSD.GY SERIES DEVICES)
- SINGLE-POLE SWITCH Ø 48" A.F.F. U.N.O. LOWER CASE LETTER DENOTES FIXTURE CONTROL. 300V. 20A.
- THREE-WAY SWITCH 300V. 20A. MTD Ø 48" A.F.F. U.N.O.
- DIMMER SWITCH. Ø48" A.F.F. U.N.O. LUTRON NOVA T SERIES. (2000 VA UNLESS NOTED). NO FINS TO BE BROKEN.
- SINGLE-POLE LIGHT SWITCH WITH PILOT LIGHT Ø 48" A.F.F. U.N.O. 300V. 20A.
- KEY-OPERATED SWITCH Ø48" A.F.F. U.N.O. 300V. 20A.
- CEILING MOUNTED I.R./MOTION SENSOR DEVICE. (SENSOR SWITCH #CMRO SERIES DEVICES)

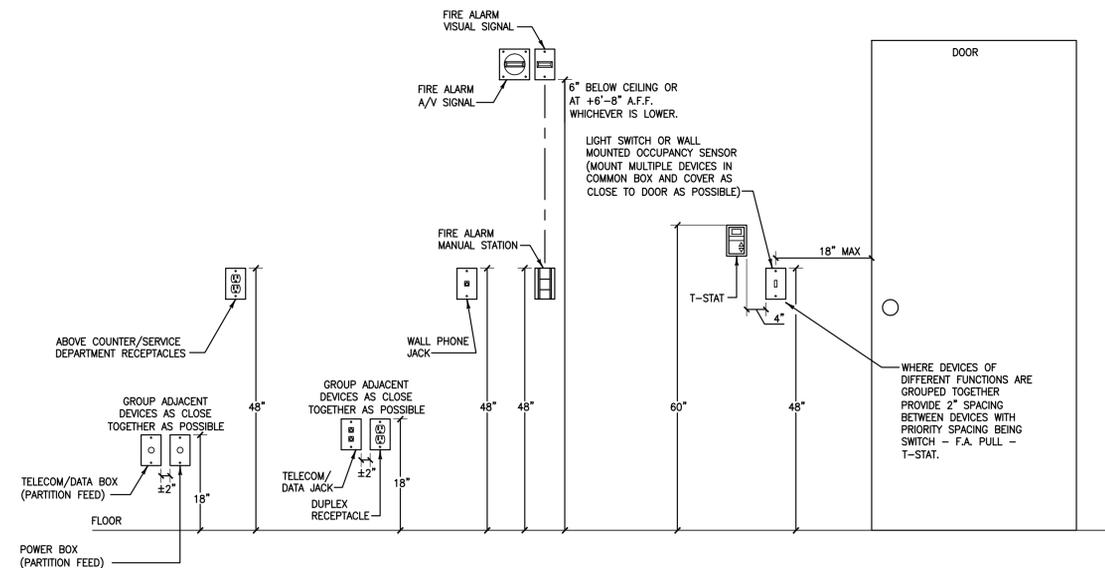
POWER DISTRIBUTION

- J-BOX (WITH FLEX CONNECTION TO EQUIPMENT.)
- DISCONNECT SWITCH, WITH RATING AS SHOWN ON PLANS
- CONTROLLER FURNISHED WITH EQUIPMENT, OR BY OTHERS
- MOTOR STARTER FURNISHED BY ELECTRICAL CONTRACTOR.
- HORSEPOWER RATED, SINGLE-POLE SWITCH.
- HORSEPOWER RATED, MULTI-POLE SWITCH.
- BRANCH CIRCUITRY CONCEALED IN WALL OR CEILING WITH #12 INSULATED GND. U.N.O. HACHURES INDICATE NUMBER OF CURRENT CARRYING CONDUCTORS. 'X' INDICATES ADDITIONAL INSULATED, ISOLATED GROUND CONDUCTORS.
- BRANCH CIRCUITRY ROUTED UNDERGROUND AND/OR IN FLOOR SLAB
- LOW-VOLTAGE BRANCH CIRCUITRY
- BRANCH CIRCUITRY HOMERUN TO PANEL AS NOTED ON PLANS
- TRANSFORMER MOUNTED ON 4" RAISED CONCRETE HOUSEKEEPING PAD U.N.O.
- CIRCUIT BREAKER. AMPERAGE/# OF POLES AS NOTED ON PLANS
- SAFETY DISCONNECT SWITCH. AMPERAGE AND # OF POLES AS NOTED ON PLANS
- FUSE. TYPE AND AMPERAGE AS NOTED ON PLANS.
- APPROVED GROUND. SIZE AND TYPE AS NOTED ON PLANS.
- MOTOR: HORSEPOWER, VOLTAGE, AND PHASE AS NOTED ON PLANS

RECEPTACLES & COMMUNICATIONS OUTLETS

- ISOLATED GROUND DUPLEX CONVENIENCE OUTLET. 20A, 125V. MTD Ø +18" A.F.F. DEVICE SHALL BE IDENTIFIED WITH ORANGE DOT U.N.O.
- ISOLATED GROUND DOUBLE DUPLEX CONVENIENCE OUTLET. 20A, 125V. Ø +18" A.F.F. DEVICE SHALL BE IDENTIFIED WITH ORANGE DOT U.N.O.
- DUPLEX CONVENIENCE OUTLET, 20A, 125V, MTD Ø +18" A.F.F. U.N.O.
- DOUBLE DUPLEX CONVENIENCE OUTLETS UNDER COMMON COVER
- DUPLEX CONVENIENCE OUTLET MOUNTED 3" ABOVE COUNTERTOP BACKSPASH OR APPROXIMATELY 48" A.F.F.
- DUPLEX CONVENIENCE OUTLET; SPLIT WIRED, WITH TIE-BAR REMOVED. 125V. 20A. MTD. Ø +18" A.F.F. U.N.O.
- SIMPLEX CONVENIENCE OUTLET 125V. 20A. MTD Ø +18" A.F.F. U.N.O.
- SPECIAL PURPOSE RECEPTACLE MTD. Ø +18" A.F.F. U.N.O., AMPERAGE AND PHASE AS NOTED ON PLANS, NEMA CONFIGURATION AS REQ'D.
- FLUSH FLOOR MOUNTED DUPLEX CONVENIENCE OUTLET 125V. 20A.
- FLUSH FLOOR COMBINATION POKE THRU DEVICE WITH 20A. 125V. DUPLEX CONVENIENCE OUTLET, AND PHONE & DATA KNOCK-OUTS.
- TELEPHONE OUTLET MOUNTED Ø +18" A.F.F. U.N.O. PROVIDE 3/4" CONDUIT WITH PULL WIRE STUBBED ABOVE CEILING
- DATA COMMUNICATIONS OUTLET MOUNTED Ø +18" A.F.F. U.N.O. PROVIDE 3/4" CONDUIT WITH PULL WIRE STUBBED ABOVE CEILING
- COMBINATION TELE./DATA OUTLET MTD. Ø +18" A.F.F. U.N.O. PROVIDE 3/4" CONDUIT WITH PULL WIRE STUBBED ABOVE CEILING
- T.V. SYSTEM OUTLET MOUNTED Ø +18" A.F.F. U.N.O. PROVIDE 3/4" CONDUIT WITH PULL WIRE STUBBED ABOVE CEILING
- FLUSH FLOOR MOUNTED TELEPHONE OUTLET PROVIDE 3/4" CONDUIT WITH PULL WIRE STUBBED ABOVE CEILING
- FLUSH FLOOR MOUNTED DATA COMMUNICATIONS OUTLET PROVIDE 3/4" CONDUIT WITH PULL WIRE STUBBED ABOVE CEILING
- FLUSH FLOOR MOUNTED COMBO DATA/TELEPHONE OUTLET PROVIDE 3/4" CONDUIT WITH PULL WIRE STUBBED ABOVE CEILING

CEILING



TYPICAL MOUNTING HEIGHT DETAIL

N.T.S.

ELECTRICAL DRAWING INDEX

- E1.0: SYMBOLS & SCHEDULES
- E1.1: INSTALLATION DETAILS
- E2.0: ELECTRICAL FLOOR PLAN
- E3.0: SINGLE-LINE DIAGRAM, CALCS, PANELBOARD SCHEDULES, AND DETAIL

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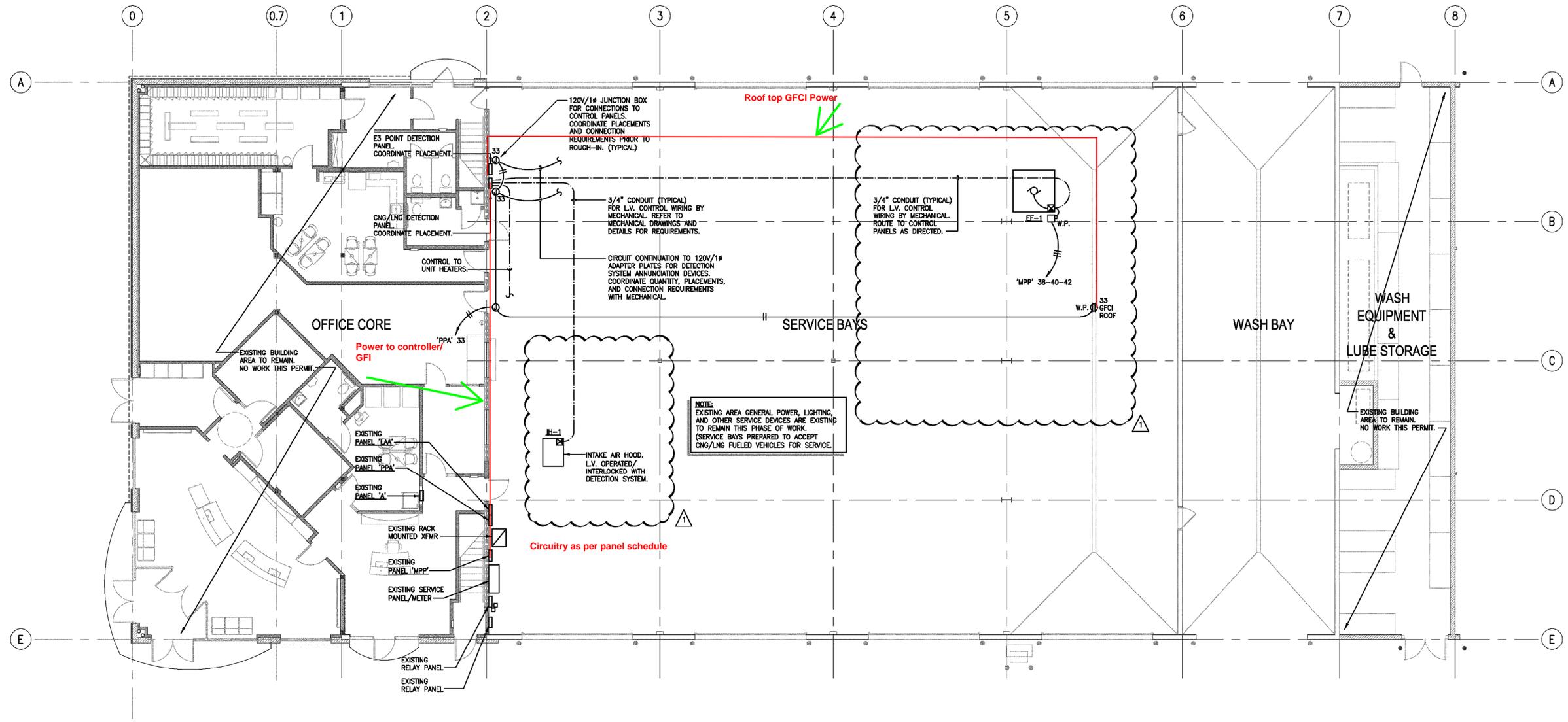
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IMPROVEMENTS
FOR
PENSKE TRUCK LEASING
CARSON, CALIFORNIA

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RBH	09/04/2019	OWNER	01-16-19	COORDINATION
CHECKED BY:			SHEET NO:	
RTF			E1.0	
PROJECT NO:	SPECIFICATIONS, SYMBOLS, AND SCHEDULES			



ELECTRICAL FLOOR PLAN

SCALE: 1/8"=1'-0"

- ELECTRICAL PLAN GENERAL NOTES:**
- COORDINATE PRECISE DEVICE MOUNTING HEIGHTS AND LOCATIONS WITH FURNITURE PLANS, OWNER, ETC.
 - ALL CONDUITS SHALL BE ROUTED CONCEALED WITHIN BUILDING, INCLUDING MASONRY BLOCK WALLS IN SERVICE AND WASH BAYS.
 - MINIMUM WIRE SIZE SHALL BE #12 AWG. THE CONTRACTOR SHALL PROVIDE A DEDICATED NEUTRAL CONDUCTOR FOR EACH UNGROUNDED CONDUCTOR IN THE MULTI-WIRE BRANCH CIRCUIT. WHERE SHARED NEUTRALS ARE PROVIDED, THE MINIMUM SIZE SHALL BE 10 AWG, AND MULTI-POLE CIRCUIT BREAKERS WILL BE PROVIDED TO DISCONNECT ALL UNGROUNDED CONDUCTORS OF THE MULTI-WIRE BRANCH CIRCUIT.

- CLASS 1 GENERAL NOTES:**
- PER N.E.C. 511.3(c)(1) AND (2) THE ENTIRE SERVICE BAYS AREA WILL BE "UNCLASSIFIED" WITH VENTILATION TAKEN ACROSS ENTIRE AREA AT PROPER EXCHANGE RATES AT CEILING AND FLOOR LEVELS. REFER TO MECHANICAL DOCUMENTS FOR ADDITIONAL INFORMATION. (AREA SHALL BE CONSIDERED UNCLASSIFIED)

NOTE:
REFER TO MECHANICAL DOCUMENTATION FOR ADJACENT AREAS VENTILATION AND POSITIVE PRESSURE CALCULATIONS. (N.E.C. ART. 511.3) WHERE REQUIRED.

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EXISTING

PANELBOARD SCHEDULE 'MPP'										LOCATION: SEE PLANS	
VOLT: 277/480V, 3Ø, 4W										C/B RATING: 14 k.A.I.C.	
MAINS: 225A M.L.O.										NEMA RATING: 1	
MTG: SURFACE										TYPE: BOLT-ON W/ GROUND BUS	
USE AND/OR AREA SERVED	C/B	CIR. NO.	V.A.			CIR. NO.	C/B	USE AND/OR AREA SERVED			
EXTERIOR LIGHTING	20	1	#A	#B	#C	20	1	EXTERIOR LIGHTING			
		3					3				
		5					5				
WASH BAY LIGHTING		7					7	OFFICE LIGHTING			
SHOP LIGHTING		9					9	EXTERIOR LIGHTING			
		11					11				
		13					13	RTU			
		15					15				
PUMP	20	17				20	17				
		19					19	RTU			
		21					21				
COMPRESSOR	20	23				20	23				
		25					25	COMPRESSOR			
		27					27				
RTU	20	29				20	29				
		31					31	LIGHTING			
		33					33				
SPACE		35					35	SPACE			
		37					37				
		39					39				
		41					41	EF-1			
TOTAL LOAD PER PHASE								1330	42	3	

* CONTINUOUS LOAD OR LARGEST MOTOR SHOWN AT 125%.

- 1 EXISTING PANEL CONDITION.
- 2 NEW CIRCUITRY - NEW BREAKER.

EXISTING

PANELBOARD SCHEDULE 'PPA'										LOCATION: SEE PLANS	
VOLT: 120/208V, 3Ø, 4W										C/B RATING: 10 k.A.I.C.	
MAINS: 400A M.C.B.										NEMA RATING: 1	
MTG: SURFACE										TYPE: EXISTING W/GROUND BUS	
USE AND/OR AREA SERVED	C/B	CIR. NO.	V.A.			CIR. NO.	C/B	USE AND/OR AREA SERVED			
SHOP RECEIPTS	20	1	#A	#B	#C	20	1	SHOP RECEIPTS			
		3					3				
		5					5				
ROLL UP DOORS	20	7				20	7	ROLL UP DOORS			
		9					9				
		11					11				
SHOP RECEIPTS	20	13				20	13	SHOP OUTLET			
		15					15				
		17					17				
SHOP OUTLET	50	19				50	19				
		21					21				
		23					23				
FUEL ISLAND	60	25				60	25				
		27					27				
SHOP OUTLET	50	29				50	29				
		31					31	PANEL 'LAA'			
CONTROL / RECEIPT	20	33				20	33	700			
		35					35				
PANEL 'LA'	100	37				100	37	PANEL 'A'			
		39					39				
		41					41				
TOTAL LOAD PER PHASE								700	42	3	

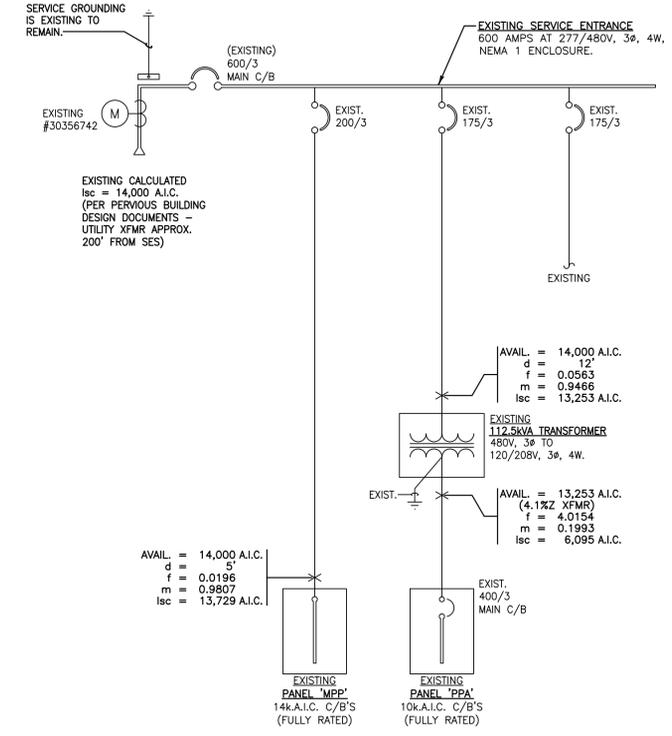
* CONTINUOUS LOAD OR LARGEST MOTOR SHOWN AT 125%.

- 1 EXISTING PANEL CONDITION.
- 2 NEW CIRCUITRY - NEW BREAKER.

EQUIPMENT SCHEDULE (HVAC EQUIP.)									
#	DESCRIPTION	KW	H.P.	FLA	VOLT / Ø	WIRE, CONDUIT	CONN.	MOUNT HEIGHT	REMARKS
EF-1	EXHAUST FAN		3.0	4.8	480V/3Ø	3 #12, #12 GND., 3/4" C.		ROOF	(30A, 3P, 3F W.P. DISC) SEE NOTE BELOW (#1, #2, #3)

- NOTES:
- EXHAUST FAN TO BE CONTROLLED BY TIMECLOCK TO RUN DURING OCCUPIED HOURS.
 - EQUIPMENT INTERLOCKED WITH CNG/LNG DETECTION SYSTEM. COORDINATE INTERLOCK CONNECTION REQUIREMENTS WITH MECHANICAL DOCUMENTS AND EQUIPMENT MANUFACTURER DOCUMENTS.
 - EQUIPMENT FURNISHED WITH FACTORY EMS STARTER/DISCONNECT WITH VFD CONTROLS. (FAN SET FOR LOW SPEED AND HIGH SPEED CONTROLS THROUGH EMS STARTER/DISCONNECT - SEE MECHANICAL DOCUMENTS)

NOTE: EQUIPMENT EF-1 IS CONTROLLED BY TIMECLOCK SYSTEMS AND CNG/LNG DETECTION SYSTEMS. REFER TO MECHANICAL DOCUMENTS FOR ALL INTERLOCK AND CONTROL REQUIREMENTS. MECHANICAL DOCUMENTS OF CNG/LNG SYSTEM SUBCONTRACTOR DOCUMENTS



NOTE: ALL SERVICE DISTRIBUTION COMPONENTS ARE EXISTING TO REMAIN AS INSTALLED. NO ADDITIONS TO SERVICE THIS PHASE OF REMODEL.

EXISTING/PARTIAL SINGLE-LINE DIAGRAM

N.T.S.

SERVICE LOAD RECAP

1 EXISTING SES LOAD	62.0 kW = 116.5 AMPS
ADDED LOAD (PANEL 'PPA')	700 VA = 2.5 AMPS
ADDED LOAD (PANEL 'MPP')	3,990 VA = 4.8 AMPS
SERVICE TOTAL	= 123.8 AMPS
	Ø277/480V, 3Ø, 4W (600 AMP SERVICE)

1 EXISTING LOADS DERIVED FROM PREVIOUS BUILDING DOCUMENTS/UTILITY COMPANY RECORDS.



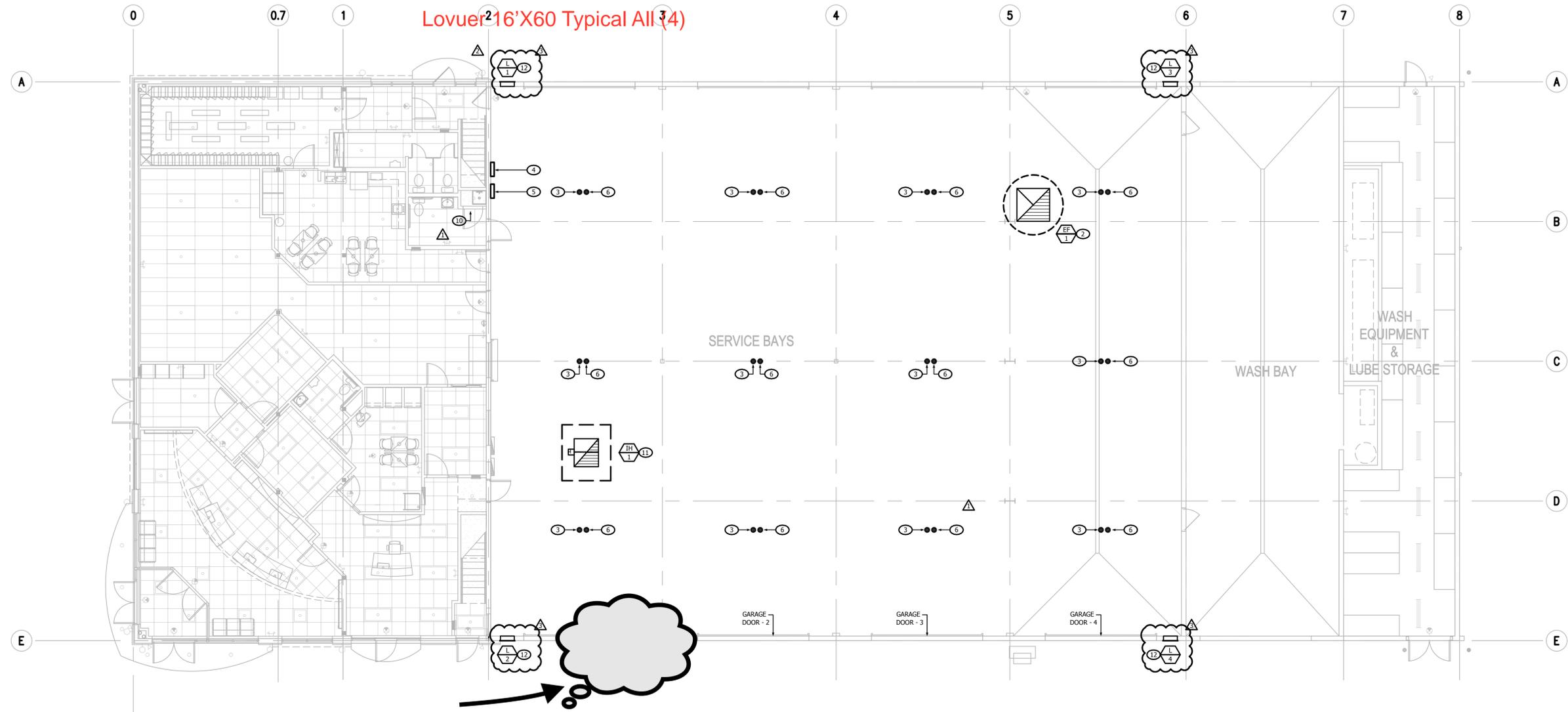
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PROJECT NO:	SINGLE-LINE DIAGRAM, CALCS, SCHEDULES, AND DETAIL			

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MECHANICAL NEW FLOOR PLAN
1/8" = 1'-0"

HEATING SYSTEM REMOVED COMPLETELY. ALL DUCTWORK REMOVED FROM EXHAUST SYSTEM. ADDED INTAKE HOOD FOR MAKEUP AIR.

ALL APPLIANCES DESIGNED TO BE FIXED IN POSITION SHALL BE SECURELY FASTENED IN PLACE IN ACCORDANCE WITH MANUFACTURER INSTALLATION REQUIREMENTS AND THE BUILDING CODE, SECTION 303.4.

OUTDOOR AIR INTAKE OPENINGS SHALL BE COVERED WITH A SCREEN HAVING NOT LESS THAN 1/4-INCH OPENINGS AND NOT MORE THAN 1/2-INCH OPENINGS, SECTION 502.1.

**SEQUENCE OF OPERATION
CNG/LNG & H2 GAS
DETECTION SYSTEM**

EXHAUST FAN (EF-1) AND IH-1 IN THE CNG/LNG SERVICE BAY SHALL BE INTERLOCKED WITH CNG/LNG & H2 GAS DETECTION SYSTEM.

SYSTEM OPERATION:
EF-1 SHALL BE CONTROLLED TO RUN CONTINUOUSLY AT LOW SPEED (DURING OCCUPIED HOURS).

CNG/LNG & H2 GAS DETECTION SYSTEM SHALL ACTIVATE WHEN THE LEVEL OF FLAMMABLE GAS EXCEEDS 20% (1/5) OF THE LOWER FLAMMABLE LIMIT. ACTIVATION OF GAS DETECTION SYSTEM SHALL INITIATE AN AUDIBLE AND VISUAL ALARM SIGNAL IN THE CNG/LNG SERVICE BAY, ACTIVATE EF-1 TO HIGH SPEED AND CLOSE THE DAMPER IN IH-1.

SYSTEM FAILURE OPERATION:
FAILURE OF THE GAS DETECTION SYSTEM SHALL RESULT IN THE ACTIVATION OF EF-1 TO HIGH SPEED, CLOSE THE DAMPER IN IH-1 AND ACTIVATE A TROUBLE SIGNAL (AUDIBLE AND VISIBLE) TO SOUND IN AN APPROVED LOCATION.

KEYED NOTES

- NOT USED.
- INSTALL EXHAUST FAN ON FACTORY ROOF CURB. CONTRACTOR TO COORDINATE DUCT DROP WITH STRUCTURE. EXTEND FULL SIZE EXHAUST DUCT DOWN THRU ROOF. TERMINATE JUST BELOW ROOF DECK. CONTRACTOR TO VERIFY BUILDING EXHAUST HAS 10'-0" CLEARANCE FROM ANY FRESH AIR INTAKES.
- LOW VOLTAGE CNG/LNG SENSOR MOUNTED AT 20" BELOW ROOF DECK. SENSOR SHALL BE HONEYWELL MODEL NUMBER E3M WITH E3M CARTRIDGE FOR METHANE (CH4). CONNECT AND INSTALL PER MANUFACTURER'S RECOMMENDATIONS. SENSOR SHALL BE UL 2075 LISTED. VERIFY MOUNTING HEIGHT WITH INSTALLATION INSTRUCTIONS PRIOR TO INSTALLATION.
- HONEYWELL VA301C CNG/LNG GAS DETECTION CONTROLLER WITH LOCAL THREE COLOR LIGHT STROBE (AMBER, BLUE, RED) AND AUDIBLE HORN. PROVIDE A SEPARATE REMOTE STROBE AND HORN AT A CONSTANTLY ATTENDED LOCATION. COORDINATE FINAL LOCATION WITH ARCHITECT AND OWNER IN FIELD. CONTROLLER SHALL BE PROVIDED WITH TWELVE (12) LING/CNG SENSORS AS LOCATED AND NOTED ON THE MECHANICAL FLOOR PLAN. SENSORS SHALL BE CONNECTED AND MONITORED BY THE CONTROLLER. SEE SEQUENCE OF OPERATION FOR MORE INFORMATION.
- HONEYWELL ESPOINT DETECTION CONTROLLER. COORDINATE FINAL LOCATION WITH ARCHITECT AND OWNER IN FIELD. CONTROLLER SHALL BE PROVIDED WITH TWELVE (12) H2 SENSORS AS LOCATED AND NOTED ON THE MECHANICAL FLOOR PLAN. SENSORS SHALL BE CONNECTED AND MONITORED BY THE CONTROLLER. SEE SEQUENCE OF OPERATION FOR MORE INFORMATION.

GENERAL NOTES

- LOW VOLTAGE H2 SENSOR MOUNTED AT 20" BELOW ROOF DECK. SENSOR SHALL BE HONEYWELL MODEL NUMBER E3SM WITH E3H2 CARTRIDGE FOR HYDROGEN (H2). CONNECT AND INSTALL PER MANUFACTURER'S RECOMMENDATIONS. SENSOR SHALL BE UL 2075 LISTED. VERIFY MOUNTING HEIGHT WITH INSTALLATION INSTRUCTIONS PRIOR TO INSTALLATION.
- NOT USED.
- NOT USED.
- NOT USED.
- ACCESS TO ROOF MOUNTED EQUIPMENT IS LOCATED ON THE SECOND FLOOR.
- INSTALL INTAKE AIR HOOD ON FACTORY ROOF CURB. CONTRACTOR TO COORDINATE EXACT LOCATION IN FIELD. 24 VOLT MOTORIZED DAMPER SHALL BE INTERLOCKED WITH THE OPERATION OF EF-1.
- MOUNT INTAKE AIR LOUVER ON WALL DOWN LOW. BOTTOM OF LOUVER SHALL BE NO HIGHER THAN 18" A.F.F.

GENERAL NOTES

- ALL WORK SHALL COMPLY WITH ALL APPLICABLE FEDERAL, STATE AND LOCAL CODES, LAWS, ACTS, AND THE AUTHORITIES HAVING JURISDICTION.
- THE COMPLETED INSTALLATION SHALL BE IN ACCORDANCE WITH ALL APPLICABLE INDUSTRY STANDARD OF GOOD PRACTICE AND SAFETY, AND THE MANUFACTURER'S STRICTEST RECOMMENDATIONS FOR EQUIPMENT AND PRODUCT APPLICATION AND INSTALLATION.
- ALL WORK SHALL BE LOCATED TO PROVIDE ADEQUATE CLEARANCE FOR ARCHITECTURAL DESIGN AND PROPER OPERATION AND SERVICE OF EQUIPMENT.
- THERMOSTAT SHALL BE MOUNTED AT 44" A.F.F. TO THE CENTER OF THERMOSTAT DIRECTLY ABOVE OR NEXT TO LIGHT SWITCH IF APPLICABLE. COORDINATE FINAL THERMOSTAT LOCATION WITH ARCHITECT.
- FIRE SPRINKLERS AND LIGHTS TAKE PRECEDENCE OVER DIFFUSERS. CONTRACTOR TO VERIFY LOCATIONS WITH ARCHITECT.
- CONDENSATE SHALL BE 3" FOR ALL UNITS UNLESS OTHERWISE NOTED AND SLOPED AT A MINIMUM 1/8" PER FOOT TO POINT OF TERMINATION.
- REFER TO MECHANICAL SPECIFICATIONS FOR ADDITIONAL INFORMATION.
- DRAWINGS ARE DIAGRAMMATIC. CONTRACTOR SHALL MAKE ANY MINOR MODIFICATIONS, INCLUDING ALL OFFSETS, TURNS, AND REROUTING REQUIRED TO COMPLETE THE INSTALLATION.

MAKEUP AIR CALC.

GENERAL VENTILATION RATE DURING OCCUPIED HOURS IS 12,505 CFM. VENTILATION RATE UPON CNG/LNG/H2 DETECTION IS 16,930 CFM.

DURING GENERAL VENTILATION MAKEUP AIR IS PROVIDED AT THE INTAKE AIR HOOD (IH-1) AND EXTERIOR WALL LOUVERS (L-1 THRU 4).

VELOCITY THRU INTAKE AIR HOOD:
42"x48" INTAKE HOOD HAS 14 SQ.FT. OF FREE AREA.

VELOCITY THRU EXTERIOR WALL LOUVERS:
24"x42" LOUVER HAS 3.71 SQ.FT. OF FREE AREA x 4 LOUVERS = 14.84 SQ.FT. FREE AREA TOTAL.

TOTAL FREE AREA BETWEEN INTAKE HOOD AND LOUVERS IS 28.84 SQ.FT.

12,505 CFM / 28.84 SQ.FT. = 433 FPM THRU INTAKE HOOD AND LOUVERS.

DURING CNG/LNG/H2 DETECTION VENTILATION MAKEUP AIR IS PROVIDED AT THE EXTERIOR WALL LOUVERS (L-1 THRU 4) ONLY.

VELOCITY THRU EXTERIOR WALL LOUVERS:
24"x42" LOUVER HAS 3.71 SQ.FT. OF FREE AREA x 4 LOUVERS = 14.84 SQ.FT. FREE AREA TOTAL.

16,930 CFM / 14.84 SQ.FT. = 1,140 FPM THRU LOUVERS.



**IMPROVEMENTS
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REO/CTR	5-22-19	△ CITY COMMENTS	01-16-19	COORDINATION
CHECKED BY:	9-5-19	△ OWNER REVISION	SHEET NO:	
MJK	10-1-19	△ CITY COMMENTS		
PROJECT NO:	MECHANICAL FLOORPLAN		M2-0	

MECHANICAL PROJECT NOTES

A. THESE DRAWINGS REFLECT INFORMATION ON EXISTING BUILDING SERVICES GATHERED BY SITE INSPECTIONS, DISCUSSIONS WITH MAINTENANCE PERSONNEL, PREVIOUS CONSTRUCTION DOCUMENTS AND INFORMATION PROVIDED BY OTHERS WHO HAVE REPORTED THE AS-BUILT CONDITIONS. THE EXACT LOCATION, ARRANGEMENT, AND SIZE OF PIPELINES, DUCTWORK, AND EQUIPMENT MAY BE DIFFERENT FROM THAT SHOWN ON THESE DRAWINGS. ALL BIDDERS AND THOSE RELYING ON THESE RECORD DOCUMENTS ARE TO OBTAIN INDEPENDENT VERIFICATION OF ITS ACCURACY BEFORE APPLYING IT FOR ANY PURPOSE AND CAUTIONED TO INVESTIGATE EXISTING BUILDING CONDITIONS PRIOR TO SUBMITTING THEIR BIDS TO INSURE THAT THE WORK REPRESENTED ON THE DRAWINGS AND IN THESE SPECIFICATIONS CAN BE INSTALLED AS INDICATED. NOTIFY THE ARCHITECT/ENGINEER OF ANY MAJOR DISCREPANCIES. CONTRACTOR SHALL PERFORM ALL REQUIRED FIELD MEASUREMENTS PRIOR TO FABRICATING NEW DUCTWORK, PIPING, COMPONENTS, AND DEVICES. FAILURE TO DO SO SHALL RELIEVE THE ARCHITECT/ENGINEER/OWNER FROM ANY ADDED COST CHANGES. NO EXTRAS WILL BE GIVEN DUE TO UNFAMILIARITY WITH ALL EXISTING CONDITIONS.

B. FURNISH ALL LABOR, MATERIALS, TOOLS, EQUIPMENT, FEES, PERMITS, CERTIFICATE OF INSPECTION, ETC. NECESSARY OR REASONABLE, REQUIRED FOR THE COMPLETE INSTALLATION OF ALL AIR CONDITIONING WORK.

C. WORK SHALL BE IN STRICT ACCORDANCE WITH ASHRAE GUIDE, AND SHALL COMPLY WITH ALL FEDERAL, STATE, AND LOCAL CODES, LAWS, ACTS, ORDINANCES, REGULATIONS AND REQUIREMENTS OF AUTHORITIES HAVING JURISDICTION.

D. THE COMPLETED INSTALLATION SHALL BE IN ACCORDANCE WITH ALL THE APPLICABLE INDUSTRY STANDARDS OF GOOD PRACTICE, SAFETY, AND THE MANUFACTURERS STRICTEST RECOMMENDATIONS FOR EQUIPMENT AND PRODUCT APPLICATION AND INSTALLATION.

E. THESE DRAWINGS ARE DIAGRAMMATIC ONLY. CONTRACTOR SHALL MAKE MODIFICATIONS INCLUDING OFFSETS, TURNS, AND RE-ROUTING REQUIRED TO COMPLETE THE INSTALLATION. DO NOT SCALE LOCATION OF EQUIPMENT, DUCTWORK OR PIPING.

F. COORDINATE ALL MECHANICAL WORK, INCLUDING EQUIPMENT, DUCTWORK AND PIPING, WITH OTHER TRADES PRIOR TO WORK.

G. COORDINATE LOCATION OF ALL GRILLES, DIFFUSERS, DUCTS, ETC. WITH CEILING, LIGHTS, FIRE PROTECTION, AND ARCHITECTURAL REFLECTED CEILING PLAN. LIGHTING AND SPRINKLER HEADS TAKE PRECEDENCE OVER DIFFUSER LOCATIONS. CONTRACTOR SHALL MAKE NECESSARY ADJUSTMENTS TO DUCTWORK AND DIFFUSER LOCATIONS TO AVOID ANY CONFLICT WITH LIGHTING AND SPRINKLER ADJUSTMENT.

H. THE CONTRACTOR SHALL COORDINATE WITH THE ELECTRICAL CONTRACTOR REGARDING SPACE AVAILABILITY FOR RECESSED LIGHTING & DUCTWORK TO AVOID RELOCATING DUCTWORK AT THE MECHANICAL CONTRACTORS EXPENSE.

I. CONTRACTOR TO VERIFY THAT ALL DUCTWORK WILL FIT WHERE INDICATED WITHOUT INTERFERENCE'S PRIOR TO FABRICATING.

J. CONTRACTOR TO VERIFY LOCATION OF ALL EXISTING EQUIPMENT SO THAT NO INTERFERENCES ARE ENCOUNTERED WITH OTHER EQUIPMENT OR WITH STRUCTURAL ELEMENTS.

K. ALL HVAC WORK IS TO RUN IN A NEAT AND PROFESSIONAL MANNER, WITH THE AESTHETICS OF THE FACILITY OF PARAMOUNT IMPORTANCE. ALL ROUGH-IN WORK TO BE HIDDEN WITHIN WALLS AND ABOVE CEILING UNLESS OTHERWISE NOTED.

L. ALL WORK SHALL BE LOCATED TO AVOID CONFLICTS WITH OTHER TRADES. CLOSELY COORDINATE ALL WORK WITH ALL OTHER TRADES. FAILURE OF THE CONTRACTOR TO COORDINATE WITH ALL OTHER TRADES SHALL RELIEVE THE ARCHITECT/ENGINEER/OWNER FROM ANY ADDED COSTS.

M. THE CONTRACTOR SHALL DO ALL NECESSARY CUTTING OF WALLS AND CEILING. PATCH AROUND ALL OPENINGS TO MATCH EXISTING CONSTRUCTION. NO STRUCTURAL MEMBER SHALL BE CUT WITHOUT PERMISSION FROM THE ENGINEER.

N. CONTRACTOR TO COORDINATE ALL FINAL THERMOSTAT LOCATIONS WITH OWNER AND ARCHITECT PRIOR TO MOUNTING. MOUNT ALL WALL MOUNTED THERMOSTATS AT 46"-48" ABOVE FINISHED FLOOR FOR DISABLED ACCESS COMPLIANCE PER THE IMC AND ADA.

O. CONTRACTOR TO VERIFY AND COORDINATE AVAILABLE VOLTAGE WITH ELECTRICAL CONTRACTOR PRIOR TO ORDERING EQUIPMENT.

P. THE CONTRACTOR SHALL COORDINATE THE PAINTING OF ALL EXPOSED DUCTWORK AND AIR DISTRIBUTION WITH THE ARCHITECT AND GENERAL CONTRACTOR. EXPOSED DUCTWORK SHALL BE "PAINT READY".

Q. ALL DUCTWORK SHALL BE CONSTRUCTED FROM NEW HOT DIPPED GALVANIZED SHEET IRON OR STEEL, ASTM A-653, IN ACCORDANCE WITH THE IMC, ASHRAE GUIDE, AND SMACNA STANDARDS FOR GAGE AND REINFORCEMENT. ALL LOW VELOCITY AIR CONDITIONING SUPPLY AIR AND RETURN AIR DUCTWORK SHALL BE 2-INCH DUCT CONSTRUCTION. CONSTRUCT AND ERECT DUCTWORK IN ACCORDANCE WITH THE CURRENT ISSUES OF THE IMC, SMACNA STANDARDS AND ASHRAE HANDBOOKS. DUCTS SHALL CONFORM TO DIMENSIONS ON THE DRAWINGS UNLESS LOCATION OF STRUCTURAL MEMBERS PROHIBITS. IN CASE OF CHANGE IN DIMENSIONS, CROSS SECTIONAL AREAS SHALL BE MAINTAINED.

R. ROUND GALVANIZED SPIRAL SEAM DUCT WITH FACTORY FABRICATED FITTINGS. SPIRAL DUCTWORK SHALL BE GAUGED FOR 2" POSITIVE PRESSURE CLASS AS SPECIFIED IN TABLE 3-2A OF THE LATEST EDITION OF SMACNA DUCT CONSTRUCTION STANDARDS. SEALING SHALL BE AS REQUIRED IN THE SMACNA DUCT CONSTRUCTION STANDARDS FOR CONSTRUCTION PRESSURE CLASSES. SEALANT SHALL NOT EXCEED A FLAME SPREAD OF 25 OR A SMOKE DEVELOPMENT OF 50, AND SHALL BE UL LISTED FOR FLAME SPREAD AND SMOKE DEVELOPMENT.

S. EXHAUST DUCTWORK SHALL BE A MINIMUM OF 26 GAUGE GALVANIZED STEEL. SEE EQUIPMENT SCHEDULE AND FLOOR PLAN FOR SIZE AND TERMINATION POINT.

T. DUCT SIZES SHOWN ARE "CLEAR INSIDE" DIMENSIONS. INCREASE SHEET METAL SIZE ACCORDINGLY FOR LINED DUCTWORK.

U. ALL DUCTS SHALL BE SUBSTANTIALLY SUPPORTED WITH HANGERS TO THE STRUCTURE. SIZE, TYPE, AND PLACING OF SUPPORTS SHALL BE PER THE CURRENT EDITION OF THE IMC AND SMACNA STANDARDS.

V. PROVIDE RADIUS ELBOWS, TURNING VANES, SPLITTER DAMPERS, MANUAL VOLUME DAMPERS IN ALL BRANCHES, AIR EQUALIZERS, AND SIMILAR DEVICES WHEREVER NECESSARY TO PROPERLY BALANCE THE SYSTEM AND PRODUCE A QUIET AND DRAFTLESS OPERATION.

W. DIFFUSER AND GRILLE TAKE-OFFS FROM RECTANGULAR DUCTS TO ROUND DUCTS SHALL BE MADE WITH EITHER A SPIN-IN FITTING OR A 1/2" FLANGED BOTTOM TAP. ROUND TAKE-OFFS SHALL BE BUILT FROM 26 GAUGE GALVANIZED STEEL WITH A 24 GAUGE ROUND DAMPER BLADE AND LOCKING QUADRANT WITH 2" STAND-OFF TO ALLOW FOR INSULATION THICKNESS. REFERENCE FIGURE 7-4 OF THE 2005 EDITION OF THE SMACNA HVAC DUCT CONSTRUCTION STANDARDS.

X. ALL "FACTORY-MADE" DUCT TO BE CLASS "0" OR CLASS "1".

Y. FLEXIBLE DUCTS SHALL BE THERMIFLEX II TYPE M-KE, FACTORY FABRICATED ASSEMBLY, SPIRAL CONSTRUCTION, FIBERGLASS BLANKET INSULATION (R=6.0), AND MYLAR SHEATH. FLEXIBLE DUCTS UL LISTED FOR CLASS 0 DUCT AND COMPLY WITH NFPA-90A.

Z. INSTALL FLEXIBLE DUCTS WITH A MINIMUM OF BENDS, AND EXTENDED STRAIGHT WHERE POSSIBLE. MINIMUM BEND RADIUS OF 1-1/2 TIMES THE DIAMETER OF THE DUCT MEASURED FROM THE CENTERLINE. ALL JOINTS AND CONNECTIONS SEALED AND CONNECTED TO SHEET METAL COLLARS WITH WORK DRIVE STEEL CLAMPS.

AA. THE MAXIMUM LENGTH OF ANY FLEX DUCT SHALL NOT EXCEED 8 FEET. PROVIDE RIGID ROUND DUCT UPSTREAM OF FLEX DUCT IF DUCT LENGTH EXCEEDS 8 FEET.

BB. MATERIALS EXPOSED WITHIN DUCTS OR PLENUMS SHALL BE NONCOMBUSTIBLE OR SHALL BE LISTED AND LABELED AS HAVING A FLAME SPREAD INDEX OF NOT MORE THAN 25 AND A SMOKE DEVELOPED INDEX OF NOT MORE THAN 50 WHEN TESTED IN ACCORDANCE WITH ASTM E 84 UL 723.

CC. FOR CONCEALED DUCTWORK, INSULATE THE FIRST 10 FEET OF ALL SUPPLY AIR AND ALL RETURN AIR SHEET METAL DUCTWORK INTERNALLY WITH JOHNS-MANVILLE LINACOUSTIC RC FIBERGLASS DUCT LINER WITH REINFORCED COATING SYSTEM, THICKNESS 1-1/2" (R=6.0) AND DENSITY 1-1/2 PCF. ALL OTHER DUCTWORK AND RIGID ROUND DUCTWORK SHALL BE INSULATED WITH 2-1/3" THICK (R=6.0) JOHNS-MANVILLE MICROCLITE DUCT WRAP WITH FSK VAPOR BARRIER.

DD. REFRIGERANT SUCTION AND LIQUID LINES SHALL BE TYPE "L" HARD DRAWN ABOVE GROUND AND TYPE "K" BELOW GRADE WITH WROUGHT COPPER FITTINGS AND BRAZED JOINTS. INSULATE WITH 1" THICK FLEXIBLE CLOSED CELL FOAMED PLASTIC PIPE INSULATION, ARMSTRONG ARAMFLEX, OR EQUAL FOR THE ENTIRE LENGTH. FITTING FIELD FABRICATED OF NESTING SIZES, SECURED WITH ADHESIVE.

EE. ALL MECHANICAL SYSTEMS INSULATION SHALL BE MANUFACTURED AND INSTALLED BY COMPANIES SPECIALIZING IN MANUFACTURING/INSTALLING THE SPECIFIED PRODUCTS WITH A MINIMUM OF 5 YEARS DOCUMENTED EXPERIENCE.

FF. ALL MECHANICAL EQUIPMENT LOCATIONS TO COMPLY WITH THE CURRENT EDITION OF THE IMC.

GG. ALL EQUIPMENT AND WORK SHALL BE LOCATED TO PROVIDE REQUIRED CLEARANCES PER CODE, MANUFACTURERS RECOMMENDATIONS, SERVICE AREA, PROPER OPERATION, AND ARCHITECTURAL DESIGN.

HH. ALL OUTSIDE AIR INTAKES SHALL BE A MINIMUM OF 10'-0" HORIZONTALLY OR 3'-0" ABOVE ANY EXHAUST OUTLETS OR PLUMBING VENTS.

II. EXTEND CONDENSATE DRAINS AS SHOWN. CONDENSATE DRAIN PIPING SHALL BE ASTM B-88, TYPE "M" HARD DRAWN COPPER WITH WROUGHT COPPER FITTINGS AND SOLDERED JOINTS, 50/50 SOLDER. INSULATE WITH 1/2" THICK FLEXIBLE CLOSED CELL FOAMED PLASTIC PIPE INSULATION, ARMSTRONG ARAMFLEX, OR EQUAL FOR ENTIRE LENGTH. FITTINGS FIELD FABRICATED OF NESTING SIZES, SECURED WITH ADHESIVE.

JJ. CHANGE FILTER MEDIA AS DIRECTED, AND ADJUST REFRIGERANT CHARGE AT COMPLETION OF CONSTRUCTION. CONTRACTOR SHALL PROVIDE THREE (3) SETS OF FILTERS FOR EACH PIECE OF EQUIPMENT. PROVIDE ONE (1) SET OF SPECIFIED FILTERS JUST PRIOR TO TEST AND BALANCE. PROVIDE ONE (1) SET OF SPECIFIED FILTERS PRIOR TO OWNER OCCUPANCY OR AS DIRECTED BY THE OWNER. FILTER USED DURING CONSTRUCTION MAY BE THROWAWAY FILTERS IN LIEU OF SPECIFIED FILTERS.

KK. SET AIR CONDITIONING/AIR HANDLER UNITS OUTSIDE AIR INTAKE DAMPERS TO BRING IN OUTSIDE AIR CFM AS SCHEDULED OR NOTED.

LL. PROVIDE AS PART OF THE MECHANICAL CONTRACT SERVICES OF AN INDEPENDENT TEST AND BALANCE CONTRACTOR. THE BALANCING SHALL BE PERFORMED BY AGENCIES WHO HAVE BEEN REGULARLY ENGAGED IN TESTING AND BALANCING WORK FOR A MINIMUM OF FIVE (5) CONSECUTIVE YEARS AND WHO ARE CERTIFIED BY THE ASSOCIATED AIR BALANCE COUNCIL (AABC) OR NATIONAL ENVIRONMENTAL BALANCING BUREAU (NEBB). THE TEST AND BALANCE FIRM SHALL EXAMINE THE DRAWINGS AND PROVIDE TESTING, ADJUSTING AND BALANCING OF ALL EQUIPMENT AND SYSTEMS INDICATED ON THE DRAWINGS. ALL INSTRUMENTS SHALL BE PROPERLY CALIBRATED. TABULATE ALL TEST DATA ON NEBB OR AABC FORMS. IF PROBLEMS ARE ENCOUNTERED DURING BALANCING, THE TAB CONTRACTOR SHALL NOTIFY THE GENERAL CONTRACTOR AND IF NECESSARY, THE ARCHITECT/ENGINEER FOR INSTRUCTIONS BEFORE COMPLETION OF TESTING AND BALANCING. SUBMIT 3 COPIES OF REPORT TO ARCHITECT/OWNER WITHIN 10 DAYS OF COMPLETING TEST AND BALANCE. BALANCE AIR DISTRIBUTION TO WITHIN 10% OF VALUES LISTED ON DRAWINGS.

MM. SUBMIT ACCURATE "AS-BUILT" DRAWINGS TO OWNER UPON PROJECT COMPLETION.

NN. PROVIDE A READY-TO-USE SYSTEM WITH ALL WORK GUARANTEED IN WRITING AGAINST DEFECTIVE WORKMANSHIP AND MATERIALS FOR A PERIOD OF ONE YEAR MINIMUM FROM OWNER OCCUPANCY UNLESS ARCHITECT SPECIFIES A LONGER WARRANTY TERM.

△ MAKEUP AIR UNIT
SCHEDULED REMOVED

EXHAUST FAN SCHEDULE

SYMBOL	MANUFACTURER	MODEL #	TYPE	CFM	E.S.P.	RPM	MAX. TIP (FPM)	DRIVE	MOTOR			SERVICE	MAX SONES	ROOF OPENING (IN)	WEIGHT (LBS)	REMARKS
									HP	WATTS	VOLT / PH					
EF-1	GREENHECK	GB-540-VGD	CENTRIFUGAL ROOF	12,505 / 16,930	0.25"	291	3,613	BELT	3	-	460 / 3	SERVICE BAYS	11.5	56.5 x 56.5	550	1 THRU 7

1. U.L. LISTED
2. PROVIDE WITH ROOF CURB, BIRDSCREEN AND BACKDRAFT DAMPER
3. FAN TO BE CONTROLLED BY TIMECLOCK TO RUN DURING OCCUPIED HOURS WITH MANUAL BY-PASS
4. FAN SHALL BE CONTROLLED BY GAS DETECTION SYSTEM
5. FAN TO BE INTERLOCKED WITH IH-1
6. PROVIDE WITH FACTORY EMS STARTER/DISCONNECT WITH VFD CONTROL
7. FAN SHALL BE SET FOR LOW SPEED (12,505 CFM) AND HIGH SPEED (16,930 CFM) THRU THE EMS STARTER/DISCONNECT

CNG/LNG SERVICE BAY VENTILATION SCHEDULE

AREA DESCRIPTION	OCCUPANCY TYPE	FT ²	VOLUME [FT ³]	AIRFLOW [CFM / FT ²]	AIRFLOW REQUIRED [CFM]	AIRFLOW SUPPLIED [CFM]	EXHAUST AIR FLOW [CFM]
CNG/LNG SERVICE BAY AREA (CNG/LNG VENTILATION)	CNG/LNG	7,815	187,560	1 CFM / 12 CU.FT.	15,630	-	16,930 (EF-1)

- NOTES:
1. THE AVERAGE HEIGHT OF THE CNG/LNG SERVICE BAY IS 24'-0"

SERVICE BAY VENTILATION SCHEDULE

AREA DESCRIPTION	OCCUPANCY TYPE	FT ²	AIRFLOW [CFM / FT ²]	VOLUME [FT ³]	AIRFLOW REQUIRED [CFM]	AIRFLOW SUPPLIED [CFM]	EXHAUST AIR FLOW [CFM]
SERVICE BAYS	REPAIR GARAGE	7,815	4 AIR CHANGES / HR	187,560	12,504	-	12,505 / 16,930 (EF-1)
TOTAL					12,504	-	

- NOTES:
1. OUTSIDE AIR CALCULATIONS BASED ON 2016 CMC CHAPTER 4, SECTION 403 AND TABLE 403.3
 2. THE AVERAGE HEIGHT OF THE CNG/LNG SERVICE BAY IS 24'-0"

INTAKE AIR HOOD SCHEDULE

SYMBOL	MANUFACTURER	MODEL #	THROAT SIZE	DAMPER TYPE	CFM	E.S.P.	HEIGHT W/O CURB	WEIGHT	REMARKS
IH-1	GREENHECK	FGI	42" x 48"	MOTORIZED	6,000	0.05"	23"	350 LBS	1,2,3

1. UL LISTED
2. PROVIDE WITH ROOF CURB, BIRD SCREEN AND 24 VOLT MOTORIZED DAMPER
3. DAMPER SHALL OPEN/CLOSE WITH THE START/STOP OF EF-1

△ DIFFUSER, GRILLE &
REGISTER SCHEDULE
REMOVED

LOUVER SCHEDULE

SYMBOL	MANUFACTURER	DESCRIPTION	MODEL #	FRAME	SIZE	STYLE	MATERIAL	FINISH	REMARKS
L-1 THRU 4	GREENHECK	COMBINATION LOUVER	ESD-635	EXTRUDED ALUM.	24" x 42"	DRAINABLE	ALUMINUM	MED. BRONZE	1,2

1. PROVIDE WITH BIRD SCREEN ON INSIDE
2. VERIFY EXACT COLOR WITH ARCHITECT PRIOR TO ORDERING



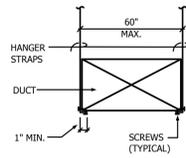
**IMPROVEMENTS
FOR
PENSKE TRUCK LEASING
CARSON, CALIFORNIA**

**K/G
ARCHITECTS**
7585 E. REDFIELD ROAD
SUITE 102
SCOTTSDALE, AZ. 85260
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(480) 443-3805 - FAX

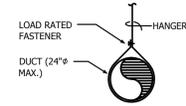


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CHECKED BY:	10-1-19	△ CITY COMMENTS	SHEET NO:	
MJK	MECHANICAL SCHEDULES			M2-1
PROJECT NO:				





SMACNA TABLE 4-1 RECTANGULAR DUCT HANGERS		
MAX HALF OF DUCT PERIMETER	STRAP	SPACING
P/2 = 30"	1"x22GA	10'-0"
P/2 = 72"	1"x18GA	10'-0"
P/2 = 96"	1"x16GA	10'-0"
P/2 = 120"	1-1/2"x16GA	10'-0"

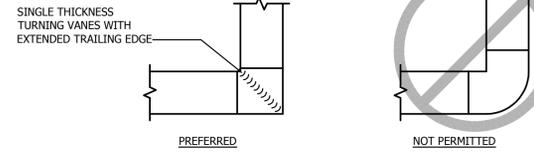
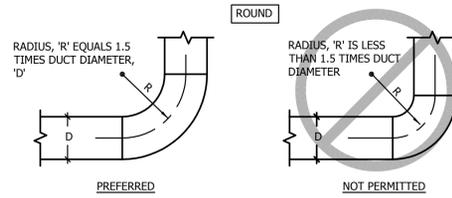


SMACNA TABLE 4-2 ROUND DUCT HANGERS		
DUCT DIAMETER	STRAP	SPACING
UP TO 10"	1"x22GA	10'-0"
11" TO 18"	1"x22GA	10'-0"
19" TO 24"	1"x22GA	10'-0"

NOTE:
REFER TO STRUCTURAL SHEET S1.1 FOR HANGER ATTACHMENT TO STRUCTURE.

DUCT HANGERS

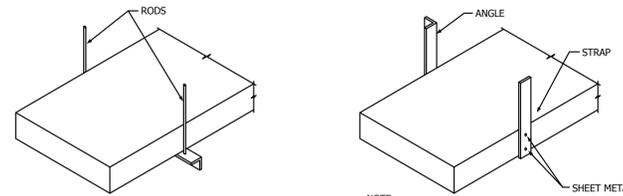
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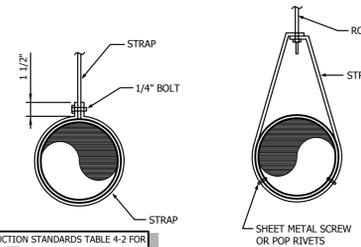
DUCT ELBOW DETAIL

4

DETAIL REMOVED



REFER TO SMACNA HVAC DUCT CONSTRUCTION STANDARDS TABLE 4-1 FOR "RECTANGULAR DUCT HANGERS MINIMUM SIZE".

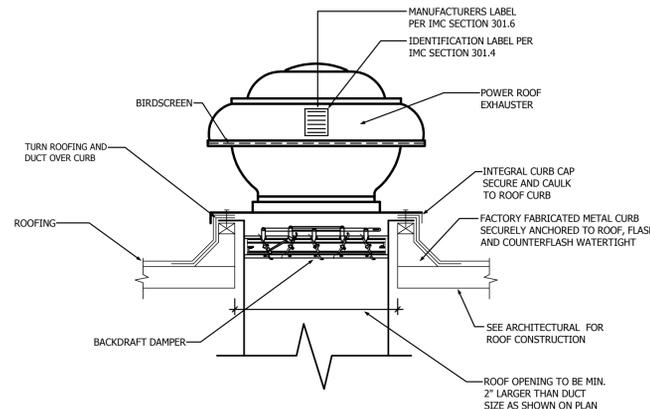


REFER TO SMACNA HVAC DUCT CONSTRUCTION STANDARDS TABLE 4-2 FOR "MINIMUM HANGER SIZES FOR ROUND DUCT".

DUCT HANGER DETAIL

5

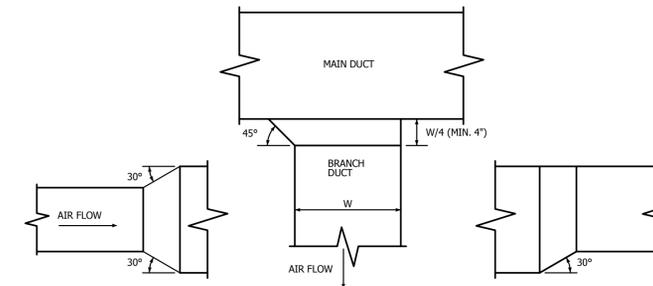
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NOTE: INSTALL EQUIPMENT PER MANUFACTURERS RECOMMENDATIONS

POWER ROOF EXHAUSTER DETAIL

6



NOTE:
FABRICATE PER SMACNA DUCT CONSTRUCTION STANDARDS #2-8.
DO NOT USE EXTRACTORS IN BRANCH DUCTWORK.

DUCT CONNECTION

3

Kraemer Consulting Engineers, PLLC.
Mechanical and Electrical Engineers
2080 West Whispering Willow Dr., Suite 150
Phoenix, Arizona 85085-2864
(602) 285-1661
(602) 285-4450 - Fax
JOB # 18-305



IMPROVEMENTS
FOR
PENSKE TRUCK LEASING
CARSON, CALIFORNIA

K/G ARCHITECTS
7585 E. REDFIELD ROAD
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SCOTTSDALE, AZ. 85260
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MJK
MECHANICAL ENGINEER
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Exp. 12/31/20
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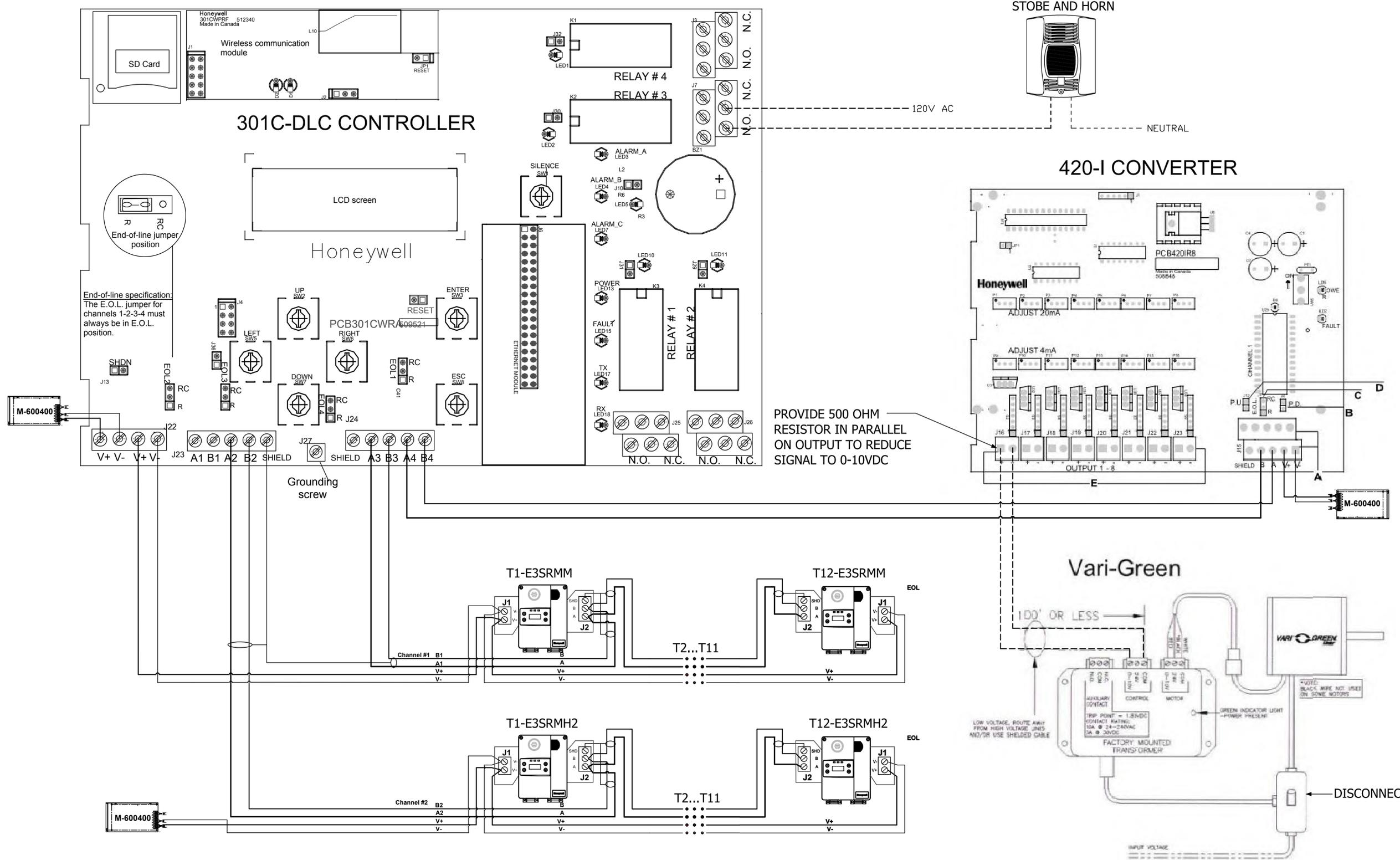
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9-5-19

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OWNER REVISION

MECHANICAL
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01-16-19
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SHEET NO:
M3-0



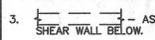
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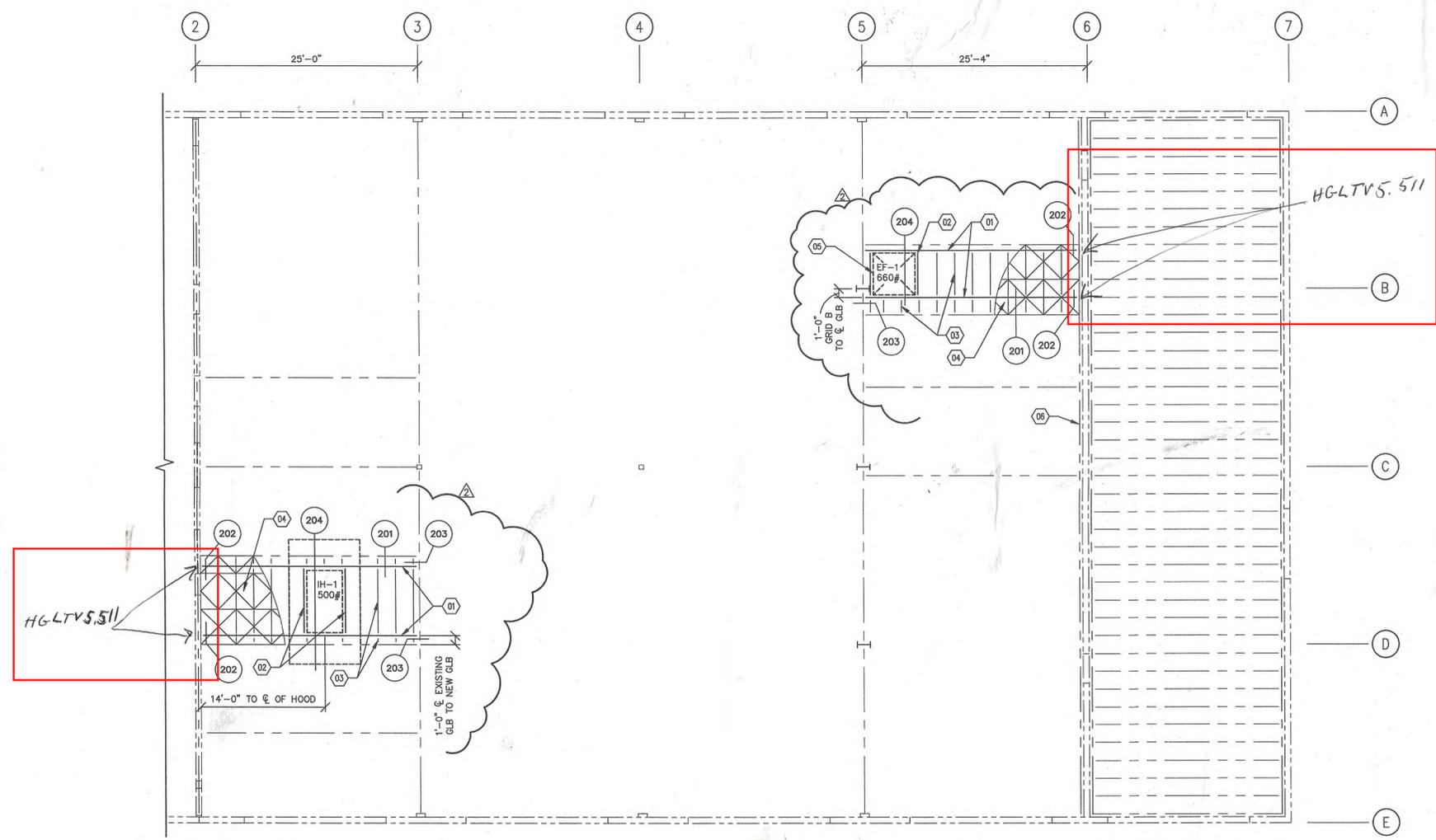
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CHECKED BY:			SHEET NO:	M3-1
MJK				
PROJECT NO:	GAS DETECTION SYSTEM WIRING DIAGRAM			

Kraemer Consulting Engineers, PLLC.
Mechanical and Electrical Engineers
2080 West Whispering Willow Dr., Suite 150
Phoenix, Arizona 85025-2864
(602) 285-1664
(602) 285-4450 - Fax
JOB # 18-305

1. VERIFY ALL DIMENSIONS AND ELEVATIONS WITH THE ARCHITECTURAL DRAWINGS AND FIELD CONDITIONS. BUILDING DIMENSIONS AND ELEVATIONS, WHERE SHOWN, WERE PROVIDED BY THE ARCHITECT AND IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY AND COORDINATE ALL DIMENSIONS PRIOR TO PROCEEDING WITH THE WORK. ANY DISCREPANCIES SHALL BE RESOLVED THROUGH THE ARCHITECT.
2. (X), (X), ETC. - AS SHOWN ON PLAN INDICATES KEYNOTES, SEE ROOF FRAMING KEYNOTES ON THIS SHEET. KEYNOTE DESIGNATIONS ARE TYPICAL TO THE PROJECT AND MAY NOT NECESSARILY BE FOUND ON THIS PLAN.
3.  - AS SHOWN ON PLAN INDICATES STRUCTURAL BEARING AND/OR SHEAR WALL BELOW.
4. FOR CLARITY, DETAILS MAY SHOW ONLY ONE SIDE OF FRAMING CONDITIONS. ALL OPENINGS MAY NOT BE SHOWN ON THIS PLAN. FOR EXACT SIZE, NUMBER AND LOCATION OF OPENINGS, SEE ARCHITECTURAL, MECHANICAL, PLUMBING, ELECTRICAL, SPRINKLER AND THEIR RELATED DRAWINGS. FOR FRAMING AT OPENINGS, SEE TYPICAL DETAILS.
5. THE EXISTING CONDITIONS DEPICTED ON THESE DRAWINGS ARE BASED ON THE BEST AVAILABLE INFORMATION AND SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE STRUCTURAL ENGINEER IMMEDIATELY.

- ROOF DIAPHRAGM NOTES:**
1. ROOF PLYWOOD SHALL BE 5-PLY EXTERIOR TYPE. NAILS SHALL BE 8d.
 2. PLYWOOD PANEL JOINTS IN THE NORTH-SOUTH DIRECTION SHALL BE STAGGERED.
 3. NAIL SPACING AT DIAPHRAGM BOUNDARIES (COLUMN LINE 6) SHALL BE 2 1/2" O.C.
 4. NAIL SPACING AT CONTINUOUS PANEL EDGES (EAST-WEST JOINTS AT PURLINS) SHALL BE 2 1/2" O.C.
 5. NAIL SPACING AT STAGGERED PANEL EDGES (NORTH-SOUTH JOINTS) SHALL BE 4" O.C.
 6. NAIL SPACING AT INTERMEDIATE FRAMING MEMBERS (NORTH-SOUTH AT INTERIOR OF PANELS) SHALL BE 12" MAXIMUM O.C.

- PLAN KEYNOTES** 940-11
- (01) NEW 5-1/8"x12" GLB WITH SIMPSON HGUS.25/10 HANGERS EACH END.
 - (02) 4x6 HEADER WITH LUS HANGER - TYP.
 - (03) INSTALL NEW 2x4 MIN SUBPURLINS AT 24" O.C. (IF EXISTING SUBPURLINS ARE LARGER, MATCH EXISTING).
 - (04) REMOVE AND RE-INSTALL PLYWOOD AS REQUIRED - RE-ATTACH 1/2" PLYWOOD PER ROOF DIAPHRAGM NOTES (4'-0"x4'-0" MIN SHEET SIZE).
 - (05) NEW MECHANICAL UNIT.
 - (06) EXISTING GLB.



ROOF FRAMING PLAN
SCALE: 1/8" = 1'-0"

REVISED

BUILDING AND SAFETY DIVISION
Department of Public Works
APPROVED
UNDER TITLE 26
BY: [Signature]
OCT 15 2019

This set of plans and specifications must be kept on the job at all times and is intended to make any changes or alterations in same without written permission from the Building and Safety Division, County of Los Angeles. The stamping of this plan and specification SHALL NOT be held to permit or to be an approval of the violation of any provisions of any County Ordinance or State Law.

THESE DRAWINGS/CALCULATIONS ARE CONSIDERED PRELIMINARY - NOT FOR CONSTRUCTION OR RECORDING UNLESS THE STRUCTURAL ENGINEER OF RECORD'S SEAL IS AFFIXED WITH WRITTEN SIGNATURE.

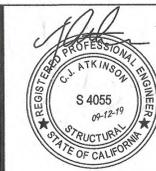
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PROJECT ENGINEER	MRF	PROJECT DRAFTER	MJN

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1215 West Rio Salado Parkway, Suite 200
Tempe, Arizona 85281 (480) 774-1700 (774-1701 FAX)
www.ctsaz.com

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LK_PG	PROJECT NO:	18119	OWNER REVISIONS	SHEET NO:	△ S1.2
FRAMING PLANS					

GAS DETECTION DESIGN
FOR
PENSKE TRUCK LEASING
19646 S. FIGUEROA
CARSON, CA. 90745

K/G ARCHITECTS
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Attachment 2 – Public Outreach



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PENSKE TRUCK LEASING COMPLETES UPGRADES TO CARSON, CALIFORNIA, FACILITY

READING, Pa., May 24, 2020 – [Penske Truck Leasing](#) has completed upgrades to its facility in Carson, California, to safely provide maintenance and repair services for natural gas vehicles. Proper maintenance infrastructure is essential for supporting alternative fuel vehicles.

Penske partnered with the Mobile Source Air Pollution Reduction Review Committee (MSRC) within the South Coast Air Quality Management District (AQMD), which provided funds in order to support Penske's upgrade to its Carson facility. MSRC's co-funding of this project provided Penske the opportunity to enhance its service facility to safely maintain natural gas vehicles.

The facility modifications in Carson included specific ventilation infrastructure in order to ensure maintenance staff can safely work on natural gas vehicles.

Penske Truck Leasing is a Penske Transportation Solutions company headquartered in Reading, Pennsylvania. A leading global transportation services provider, Penske Truck Leasing operates more than 326,000 vehicles and serves customers from more than 1,100 locations in North America, South America, Europe, Australia and Asia. Product lines include full-service truck leasing, contract maintenance, commercial and consumer truck rentals, used truck sales, transportation and warehousing management and supply chain management solutions. Visit www.pensketruckleasing.com to learn more.

[Press Contacts >>](#)[Product Placement Requests >>](#)[Move Ahead Blog >>](#)[Never Stop Moving™ Podcast >>](#)[Truck Leasing & Maintenance News >>](#)[Logistics News >>](#)[Truck Rental News >>](#)[Used Trucks News >>](#)[RSS Feeds >>](#)[Social Media >>](#)

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natural gas vehicles.

The facility modifications in Carson included specific ventilation infrastructure in order to ensure maintenance staff can safely work on natural gas vehicles.

Penske Truck Leasing is a Penske Transportation Solutions company headquartered in Reading, Pennsylvania. A leading global transportation services provider, Penske Truck Leasing operates more than 326,000 vehicles and serves customers from more than 1,100 locations in North America, South America, Europe, Australia and Asia. Product lines include full-service truck leasing, contract maintenance, commercial and consumer truck rentals, used truck sales, transportation and warehousing management and supply chain management solutions. Visit www.pensketruckleasing.com to learn more.

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Penske completes upgrades to its Carson, CA, facility.



Penske Truck Leasing Completes Upgrades to Carson, California, Facility

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#Penske completes upgrades to its Carson, CA, facility:



Penske Truck Leasing Completes Upgrades to Carson, Californ...
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14 hrs · 🌐

Penske completes upgrades to its Carson, CA, facility.



GOPENSKES.COM

Penske Truck Leasing Completes Upgrades to Carson, California, Facility

READING, Pa., May 24, 2020 – Penske Truck Leasing has completed upgrades to its facility in Carson, California, to safely provide...

👍 18

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Contract MS14067
Final Report
May 2020

Attachment 3 – Documentation of Project Expenses

K/G

ARCHITECTS

7585 E. Redfield Rd.
Suite 102
Scottsdale, AZ 85260
(480) 443-3705 office

To: Mike Barnes
Regional Facilities Manager
Penske Truck Leasing
2219 South 2nd Place
Phoenix, AZ 85004

Project: PENSKE TRUCK LEASING
CNG UPGRADES
19646 S. FIGUEROA
CARSON, CA

Date: 11-1-18

Invoice: #KG18118-1

AMOUNT
\$ 5915.94
PROJECT #
158281
A.R. #
59296
LOCATION #
0071-10
APPV'D/DATE
13 11-12-18
G.L. ACCOUNT #
6000

Pursuant to our agreement, dated 08-10-18, please remit for the following.

Site Visit 10-9-18 \$ 4,500.00

Reimbursable Expenses (receipts attached)

Airfare	\$ 1,049.88
Car Rental	\$ 84.81
Meals	\$ 109.40
Airport Parking	\$ 27.00
Printing & Delivery	\$ 16.13

Total Reimbursable \$ 1,287.22 x 1.1 = \$ 1,415.94

Total Due this invoice \$ 5,915.94

Submitted by:



Lew Kaplan

Attachments

K/G

ARCHITECTS

7585 E. Redfield Rd.
Suite 102
Scottsdale, AZ 85260
(480) 443-3705 office

To: **Mike Barnes**
Regional Facilities Manager
Penske Truck Leasing
2219 South 2nd Place
Phoenix, AZ 85004

Project: **PENSKE TRUCK LEASING**
CNG UPGRADES
19646 S. FIGUEROA
CARSON, CA

Date: **04-01-19**

Invoice: **#KG18119-2**

Pursuant to our agreement, dated 08-10-18 revised 11-05-18, please remit for the following.

Phase I Site Visit 10-9-18 **Completed and Paid**

Phase II Construction Documents **\$ 22,000 Arch, MPE**
\$ 2,700 Structural if required

This Invoice: **\$ 22,000.00**

Reimbursable Expenses (none this invoice)

Total Due this invoice **\$ 22,000.00**

Submitted by:



Lew Kaplan

AMOUNT
22,000.00
PROJECT #
158281
A.R. #
59292
LOCATION #
0071-10
APPV'D/DATE
B 4/3/19
G.L. ACCOUNT #
0000

K/G

ARCHITECTS

7585 E. Redfield Rd.
Suite 102
Scottsdale, AZ 85260
(480) 443-3705 office

To: Mike Barnes
Regional Facilities Manager
Penske Truck Leasing
2219 South 2nd Place
Phoenix, AZ 85004

Project: PENSKE TRUCK LEASING
CNG UPGRADES
19646 S. FIGUEROA
CARSON, CA

Date: 07-01-19

Invoice: #KG18119-3

AMOUNT	766.85
PROJECT #	158281
A.R. #	59296
LOCATION #	0071-0
APPV'D/DATE	13 7-15-19
G.I. ACCOUNT #	leew

Pursuant to our agreement, dated 08-10-18 revised 11-05-18, please remit for the following.

Phase I Site Visit 10-9-18	Completed and Paid
Phase II Construction Documents \$ 2,700 Structural if required	\$ 22,000 Arch, MPE

This Invoice:

Add Service: CA Title 24 (see attached)	\$ 750.00
Reimbursable Expenses (receipt attached) Printing & Delivery \$ 15.32 x 1.1 =	\$ 16.85
Total Due this invoice	\$ 766.85

Submitted by:



Lew Kaplan

Attachment:



ARCHITECTS

7585 E. Redfield Rd.
Suite 102
Scottsdale, AZ 85260
(480) 443-3705 office

To: Mike Barnes
Regional Facilities Manager
Penske Truck Leasing
2219 South 2nd Place
Phoenix, AZ 85004

Project: PENSKE TRUCK LEASING
CNG UPGRADES
19646 S. FIGUEROA
CARSON, CA

Date: 11-01-19

Invoice: #KG18119-5

Pursuant to our agreement, dated 08-10-18 revised 11-05-18, please remit for the following.

Phase I Site Visit 10-9-18 Completed and Paid

Phase II Construction Documents \$ 22,000 Arch, MPE

This Invoice:

Add Service: Redesign of mechanical for new exhaust system associated with CNG Upgrades;

CTS Structural Design Seismic, etc.	\$ 2,500.00
Kraemer Mechanical Design	\$ 1,250.00
AEI Electrical Design Coord.	\$ 450.00
K/G Architects Coord.	\$ 750.00

Reimbursable Expenses (none this invoice)

Total Due this invoice \$ 4,950.00

Submitted by:

Lew Kaplan

AMOUNT
\$4,950.00
PROJECT #
158281
A.R. #
60811
LOCATION #
0071-10
APPV'D/DATE
3 2-6-20
G.L.ACCOUNT #
2000

K/G

ARCHITECTS

7585 E. Redfield Rd.
Suite 102
Scottsdale, AZ 85260
(480) 443-3705 office

To: Mike Barnes
Regional Facilities Manager
Penske Truck Leasing
2219 South 2nd Place
Phoenix, AZ 85004

Project: PENSKE TRUCK LEASING
CNG UPGRADES
19646 S. FIGUEROA
CARSON, CA

Date: 03-05-20

Invoice: #KG18119-6

Pursuant to our agreement, dated 08-10-18 revised 11-05-18, please remit for the following.

Phase I Site Visit 10-9-18 Completed and Paid

Phase II Construction Documents \$ 22,000 Arch, MPE

This Invoice:

Add Service: Redesign for mechanical openings in tilt wall

CTS Structural Design	\$ 3,000.00
K/G Architects Coord.	\$ 500.00
Total services this period	\$ 3,500.00
Reimbursable Expenses (receipts attached)	
Printing & Delivery \$ 44.84 x 1.1 =	\$ 49.32
Total Due this invoice	\$ 3,549.32

Submitted by:



Lew Kaplan

Attachments

AMOUNT	\$ 3,549.32
PROJECT #	158281
A.R. #	60811
LOCATION #	0071-10
APPV'D/DATE	B 3-12-20
G.L. ACCOUNT #	0000



3940 E. Miraloma Ave
 Anaheim, California 92806
 Phone (714) 577-8060
 Fax (714) 577-8064
 www.FacilityBuilders.com

Invoice date: 03/20/2020
 Invoice # 65969

Progress Billing #1

From: Facility Builders & Erectors Inc.
 3940 E. Miraloma Ave.
 Anaheim, CA 92806

To: Penske Truck Leasing Co. L.P.
 1711 West Greentree Drive, Suite 117
 Tempe, AZ 85284

For: Penske Carson Gas Detection System
 19646 S. Figueroa
 Carson, California 90745

Attn: Mike Barnes

FB&E Job No. PNC-289-20

Work Completed thru March 31, 2020

AMOUNT
\$194,155.00
AR #
60811
PROJECT #
158281
LOCATION #
0071-10
APP'V/DATE
MJB 3/24/20
G.L. ACCOUNT
6000

Contract Amount

Original Contract	211,606
Net Change by Change Order #3	4,122
Contract Sum to date	215,728
Total complete & stored to date	215,728
Retainage 10%	21,573
Total earned less retainage	194,155
Less previous certificates for payment	-

Current Payment Due	194,155
Balance to finish plus retainage	21,573

Phase	Description	Scheduled	Work completed		Mat'l's. Stored	TotalComp. & Stored	Pct. Complete	Balance to finish	Retention
		Value	Previous	This Period					
1-000	General Conditions	33,420							
	C.O.'s	210							
	Revised Amount	33,630		33,630		33,630	100%	-	3,363
2-020	Misc. Testing								
	C.O.'s	978							
	Revised Amount	978		978	-	978	100%	-	98
2-150	Demolition - Hard	4,300							
	C.O.'s								
	Revised Amount	4,300		4,300	-	4,300	100%	-	430
6-010	Rough Framing	31,025							
	C.O.'s								
	Revised Amount	31,025		31,025	-	31,025	100%	-	3,103
7-500	Membrane Roofing	18,950							
	C.O.'s								
	Revised Amount	18,950		18,950	-	18,950	100%	-	1,895
13-038	Equipment	740							
	C.O.'s								
	Revised Amount	740		740	-	740	100%	-	74
13-542	Erection Services - Secondary	960							
	C.O.'s								
	Revised Amount	960		960	-	960	100%	-	96
15-500	HVAC	62,000							
	C.O.'s	2,490							
	Revised Amount	64,490		64,490	-	64,490	100%	-	6,449
16-100	Electrical	30,000							
	C.O.'s								
	Revised Amount	30,000		30,000	-	30,000	100%	-	3,000
17-100	Overhead & Profit	28,116							
	C.O.'s	410							
	Revised Amount	28,526		28,526	-	28,526	100%	-	2,853
1-500	Insurance	2,095							
	C.O.'s	34							
	Revised Amount	2,129		2,129		2,129	100%	-	213
Totals		215,728	-	215,728	-	215,728	100%	-	21,573



3940 E. Miraloma Ave
Anaheim, California 92806
Phone (714) 577-8060
Fax (714) 577-8064
www.FacilityBuilders.com

CONDITIONAL WAIVER AND RELEASE ON PROGRESS PAYMENT NOTICE:
(in accordance with CA Civil Code §8132)

THIS DOCUMENT WAIVES THE CLAIMANT'S LIEN, STOP PAYMENT NOTICE, AND PAYMENT BOND RIGHTS EFFECTIVE ON RECEIPT OF PAYMENT. A PERSON SHOULD NOT RELY ON THIS DOCUMENT UNLESS SATISFIED THAT THE CLAIMANT HAS RECEIVED PAYMENT.

Name of Claimant : Facility Builders & Erectors, Inc.
Name of Customer : Penske Truck Leasing Co. L.P.
Job Name : Penske Carson Gas Detection System
Job Location : 19646 S. Figueroa, Carson, California 90745
Owner : Penske Truck Leasing Co. L.P.
Through Date : March 31, 2020
Job Number : PNC-289-20

Conditional Waiver and Release

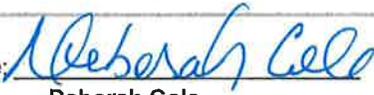
This document waives and releases lien, stop payment notice, and payment bond rights the claimant has for labor and service provided, and equipment and material delivered, to the customer on this job through the Through Date of this document. Rights based upon labor or service provided, or equipment or material delivered, pursuant to a written change order that has been fully executed by the parties prior to the date that this document is signed by the claimant, are waived and released by this document, unless listed as an Exception below. This document is effective only on the claimant's receipt of payment from the financial institution on which the following check is drawn:

Maker of Check : Penske Truck Leasing Co. L.P.
Amount of Check : \$194,155.00
Check Payable to : Facility Builders & Erectors, Inc.

Exceptions

This document does not affect any of the following: Retentions.

- 1) Extras for which the claimant has not received payment.
 - 2) **The following progress payments for which the claimant has previously given a conditional waiver and release but has not received payment:**
 - Date(s) of waiver and release :
 - Amount(s) of unpaid progress payment(s) :
 - 3) Contract rights, including (A) a right based on rescission, abandonment, or breach of contract, and (B) the right to recover compensation for work not compensated by the payment.
-

Claimant's Signature:  Claimant's Title: Accounting Manager
Deborah Cole

Date of Signature: March 20, 2020



3940 E. Miraloma Ave
 Anaheim, California 92806
 Phone (714) 577-8060
 Fax (714) 577-8064
 www.FacilityBuilders.com

Invoice date: 04/09/2020
 Invoice # 65988

Progress Billing #2

From: Facility Builders & Erectors Inc.
 3940 E. Miraloma Ave.
 Anaheim, CA 92806

To: Penske Truck Leasing Co. L.P.
 1711 West Greentree Drive, Suite 117
 Tempe, AZ 85284

Attn: Mike Barnes

For: Penske Carson Gas Detection System
 19646 S. Figueroa
 Carson, California 90745

FB&E Job No. PNC-289-20

Work Completed thru April 9, 2020

AMOUNT	\$ 5931.00
PROJECT #	158281
A.R. #	60811
LOCATION #	0071-10
APP'D/DATE	B 4-9-20
G.L. ACCOUNT #	6002

Contract Amount

Original Contract	211,606
Net Change by Change Order #1-4	10,712
Contract Sum to date	222,318
Total complete & stored to date	222,318
Retainage 10%	22,232
Total earned less retainage	200,086
Less previous certificates for payment	194,155

Current Payment Due	5,931
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Balance to finish plus retainage	22,232
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3940 E. Miraloma Ave
Anaheim, California 92806
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Fax (714) 577-8064
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CONDITIONAL WAIVER AND RELEASE ON PROGRESS PAYMENT NOTICE:
(in accordance with CA Civil Code §8132)

THIS DOCUMENT WAIVES THE CLAIMANT'S LIEN, STOP PAYMENT NOTICE, AND PAYMENT BOND RIGHTS EFFECTIVE ON RECEIPT OF PAYMENT. A PERSON SHOULD NOT RELY ON THIS DOCUMENT UNLESS SATISFIED THAT THE CLAIMANT HAS RECEIVED PAYMENT.

Name of Claimant : Facility Builders & Erectors, Inc.
Name of Customer : Penske Truck Leasing Co. L.P.
Job Name : Penske Carson Gas Detection System
Job Location : 19646 S. Figueroa, Carson, California 90745
Owner : Penske Truck Leasing Co. L.P.
Through Date : April 9, 2020
Job Number : PNC-289-20

Conditional Waiver and Release

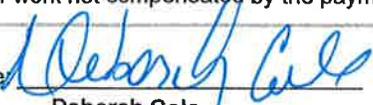
This document waives and releases lien, stop payment notice, and payment bond rights the claimant has for labor and service provided, and equipment and material delivered, to the customer on this job through the Through Date of this document. Rights based upon labor or service provided, or equipment or material delivered, pursuant to a written change order that has been fully executed by the parties prior to the date that this document is signed by the claimant, are waived and released by this document, unless listed as an Exception below. This document is effective only on the claimant's receipt of payment from the financial institution on which the following check is drawn:

Maker of Check : Penske Truck Leasing Co. L.P.
Amount of Check : \$5,931.00
Check Payable to : Facility Builders & Erectors, Inc.

Exceptions

This document does not affect any of the following: Retentions.

- 1) Extras for which the claimant has not received payment.
 - 2) **The following progress payments for which the claimant has previously given a conditional waiver and release but has not received payment:**
Date(s) of waiver and release :
Amount(s) of unpaid progress payment(s) :
 - 3) Contract rights, including (A) a right based on rescission, abandonment, or breach of contract, and (B) the right to recover compensation for work not compensated by the payment.
-

Claimant's Signature:  Claimant's Title: Accounting Manager
Deborah Cole

Date of Signature: April 9, 2020



3940 E. Miraloma Ave
 Anaheim, California 92806
 Phone (714) 577-8060
 Fax (714) 577-8064
 www.FacilityBuilders.com

Invoice date: 04/09/2020
 Invoice # 65989

RETENTION BILLING

From: **Facility Builders & Erectors Inc.**
 3940 E. Miraloma Ave.
 Anaheim, CA 92806

To: **Penske Truck Leasing Co. L.P.**
 1711 West Greentree Drive, Suite 117
 Tempe, AZ 85284

Attn: Mike Barnes

For: **Penske Carson Gas Detection System**
 19646 S. Figueroa
 Carson, California 90745

FB&E Job No. PNC-289-20

Work Completed thru April 9, 2020

AMOUNT	22,232.00
PROJECT #	158281
A.R. #	60811
LOCATION #	0071-10
APPV'D/DATE	4-21-20
G.L. ACCOUNT #	6000

Contract Amount

Original Contract	211,606
Net Change by Change Order #1-4	10,712
Contract Sum to date	222,318
Total complete & stored to date	222,318
Retainage 10%	-
Total earned less retainage	222,318
Less previous certificates for payment	200,086

Current Payment Due **22,232**

Balance to finish plus retainage

CONSTRUCTION SERVICES

CA #670072 • AZ #129581 • NV #45334 • UT #98-36067-5601 • WA #FACILBEO11JH • HI #BC28285

Phase	Description	Scheduled	Work completed		Mat'l's. Stored	TotalComp. & Stored	Pct. Complete	Balance to finish	Retention
		Value	Previous	This Period					
1-000	General Conditions	33,420							
	C.O.'s	5,634							
	Revised Amount	39,054	39,054			39,054	100%	-	3,905
2-020	Misc. Testing								
	C.O.'s	978							
	Revised Amount	978	978		-	978	100%	-	98
2-150	Demolition - Hard	4,300							
	C.O.'s								
	Revised Amount	4,300	4,300		-	4,300	100%	-	430
6-010	Rough Framing	31,025							
	C.O.'s								
	Revised Amount	31,025	31,025		-	31,025	100%	-	3,103
7-500	Membrane Roofing	18,950							
	C.O.'s								
	Revised Amount	18,950	18,950		-	18,950	100%	-	1,895
13-038	Equipment	740							
	C.O.'s	250							
	Revised Amount	990	990		-	990	100%	-	99
13-542	Erection Services - Secondary	960							
	C.O.'s								
	Revised Amount	960	960		-	960	100%	-	96
15-500	HVAC	62,000							
	C.O.'s	2,490							
	Revised Amount	64,490	64,490		-	64,490	100%	-	6,449
16-100	Electrical	30,000							
	C.O.'s								
	Revised Amount	30,000	30,000		-	30,000	100%	-	3,000
17-100	Overhead & Profit	28,116							
	C.O.'s	1,281							
	Revised Amount	29,377	29,377		-	29,377	100%	-	2,938
1-500	Insurance	2,095							
	C.O.'s	99							
	Revised Amount	2,194	2,194			2,194	100%	-	219
Totals		222,318	222,318	-	-	222,318	100%	-	22,232



3940 E. Miraloma Ave
Anaheim, California 92806
Phone (714) 577-8060
Fax (714) 577-8064
www.FacilityBuilders.com

CONDITIONAL WAIVER AND RELEASE ON FINAL PAYMENT

(in accordance with CA Civil Code Section 8136)

NOTICE: THIS DOCUMENT WAIVES THE CLAIMANT'S LIEN, STOP PAYMENT NOTICE, AND PAYMENT BOND RIGHTS EFFECTIVE ON RECEIPT OF PAYMENT. A PERSON SHOULD NOT RELY ON THIS DOCUMENT UNLESS SATISFIED THAT THE CLAIMANT HAS RECEIVED PAYMENT.

Identifying Information:

Name of Claimant : Facility Builders & Erectors, Inc.
Name of Customer : Penske Truck Leasing Co. L.P.
Job Name : Penske Carson Gas Detection System
Job Location : 19646 S. Figueroa, Carson, California 90745
Owner : Penske Truck Leasing Co. L.P.

Conditional Waiver and Release

This document waives and releases lien, stop payment notice, and payment bond rights the claimant has for labor and service provided, and equipment and material delivered, to the customer on this job. Rights based upon labor or service provided, or equipment or material delivered, pursuant to a written change order that has been fully executed by the parties prior to the date that this document is signed by the claimant, are waived and released by this document, unless listed as an Exception below. This document is effective only on the claimant's receipt of payment from the financial institution on which the following check is drawn:

Maker of Check : Penske Truck Leasing Co. L.P.
Amount of Check : \$22,232.00
Check Payable to : Facility Builders & Erectors, Inc.

Exceptions

This document does not affect any of the following: **Outstanding invoice #65988 for \$5,931.00 dated 04/09/2020.**

Disputed claims for extras in the amount of: \$ -0-

Claimant's Signature


Deborah Cole

Claimant's Title: Accounting Manager

Date of Signature: April 9, 2020



Contract MS14067
Final Report
May 2020

Attachment 4 – Project Photos



Control Panels



Typical Sensor Installation



Alarm Horn and Strobe



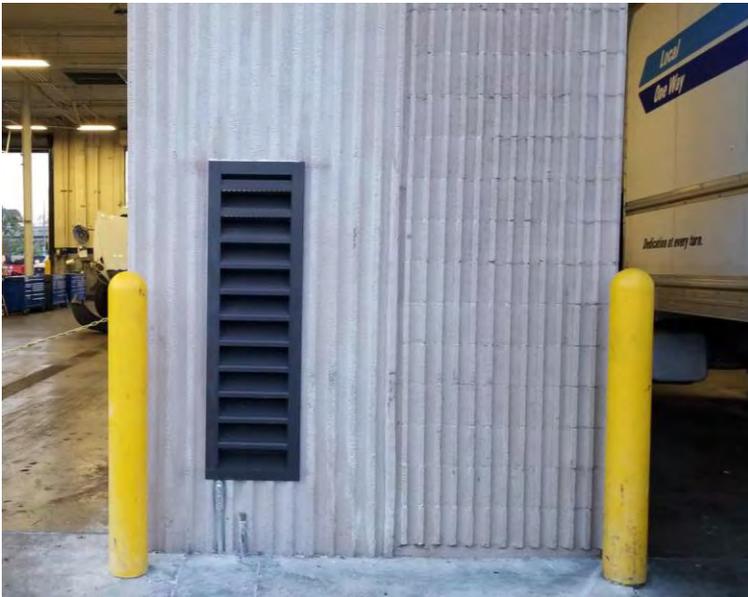
Second Alarm Strobe



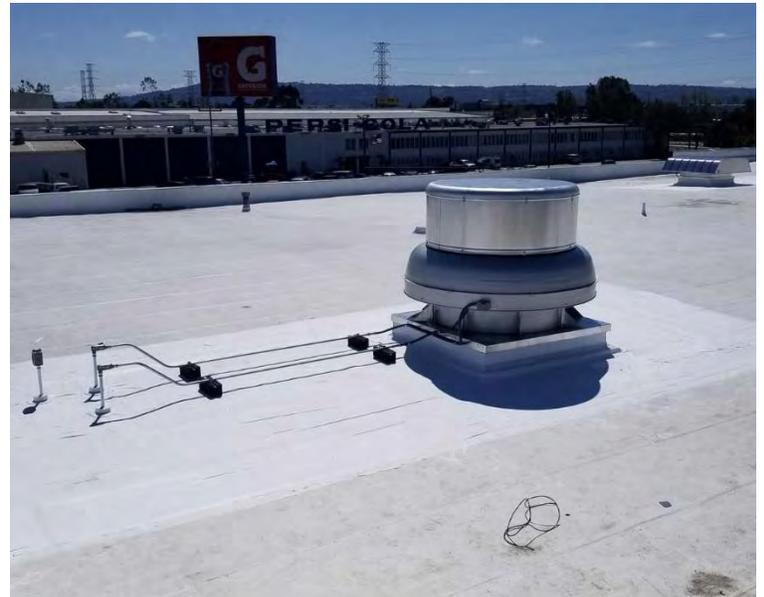
Exhaust Fan



Fresh Air Supply



Louver



Exhaust Fan