DEPARTMENT OF OPERATIONS & MAINTENANCE

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Las Vegas Senior Center
Roof and HVAC Replacement

Department of Operations and Maintenance

REVISIONS

CONSULTANT

Las Vegas Senior Center
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Cover

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FILE

DATE 12/8/17

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BID NO 18.69111.02

CIV DWG NO 513-45Q

SHT NO Cvr

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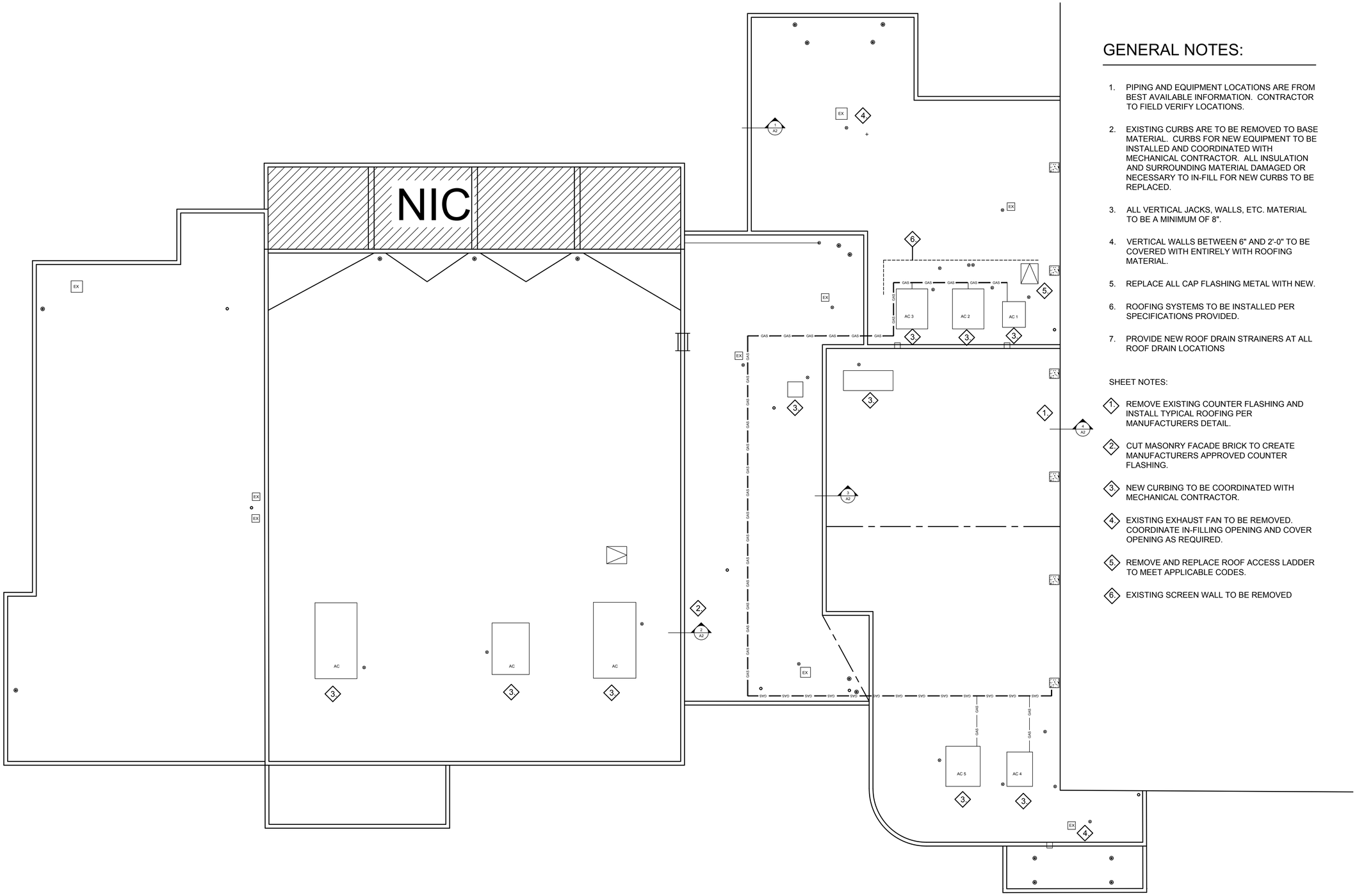

Roof Plan

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

GENERAL NOTES:

1. PIPING AND EQUIPMENT LOCATIONS ARE FROM BEST AVAILABLE INFORMATION. CONTRACTOR TO FIELD VERIFY LOCATIONS.
2. EXISTING CURBS ARE TO BE REMOVED TO BASE MATERIAL. CURBS FOR NEW EQUIPMENT TO BE INSTALLED AND COORDINATED WITH MECHANICAL CONTRACTOR. ALL INSULATION AND SURROUNDING MATERIAL DAMAGED OR NECESSARY TO IN-FILL FOR NEW CURBS TO BE REPLACED.
3. ALL VERTICAL JACKS, WALLS, ETC. MATERIAL TO BE A MINIMUM OF 8".
4. VERTICAL WALLS BETWEEN 6" AND 2'-0" TO BE COVERED WITH ENTIRELY WITH ROOFING MATERIAL.
5. REPLACE ALL CAP FLASHING METAL WITH NEW.
6. ROOFING SYSTEMS TO BE INSTALLED PER SPECIFICATIONS PROVIDED.
7. PROVIDE NEW ROOF DRAIN STRAINERS AT ALL ROOF DRAIN LOCATIONS

SHEET NOTES:

1. REMOVE EXISTING COUNTER FLASHING AND INSTALL TYPICAL ROOFING PER MANUFACTURERS DETAIL.
2. CUT MASONRY FACADE BRICK TO CREATE MANUFACTURERS APPROVED COUNTER FLASHING.
3. NEW CURBING TO BE COORDINATED WITH MECHANICAL CONTRACTOR.
4. EXISTING EXHAUST FAN TO BE REMOVED. COORDINATE IN-FILLING OPENING AND COVER OPENING AS REQUIRED.
5. REMOVE AND REPLACE ROOF ACCESS LADDER TO MEET APPLICABLE CODES.
6. EXISTING SCREEN WALL TO BE REMOVED

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Roof Plan

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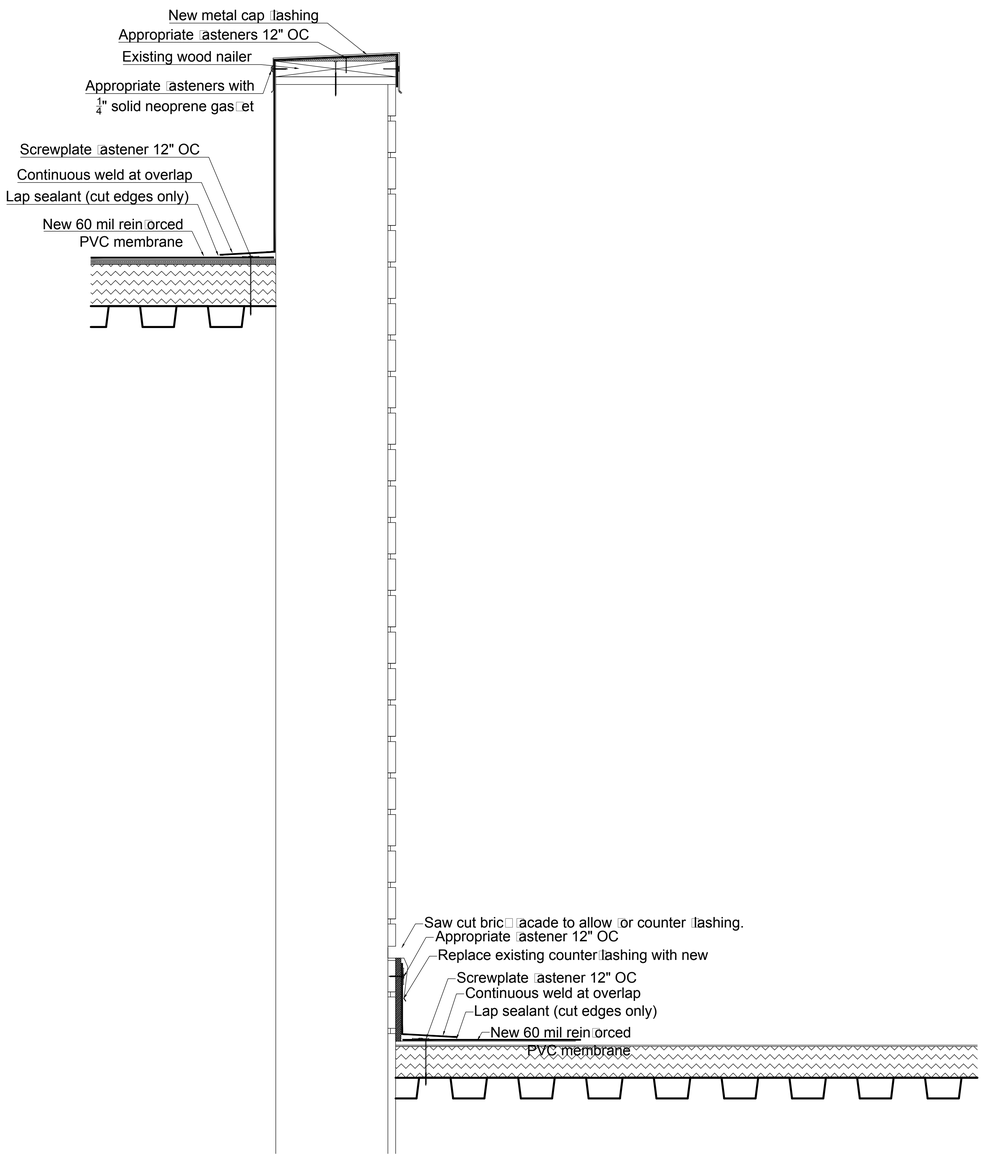
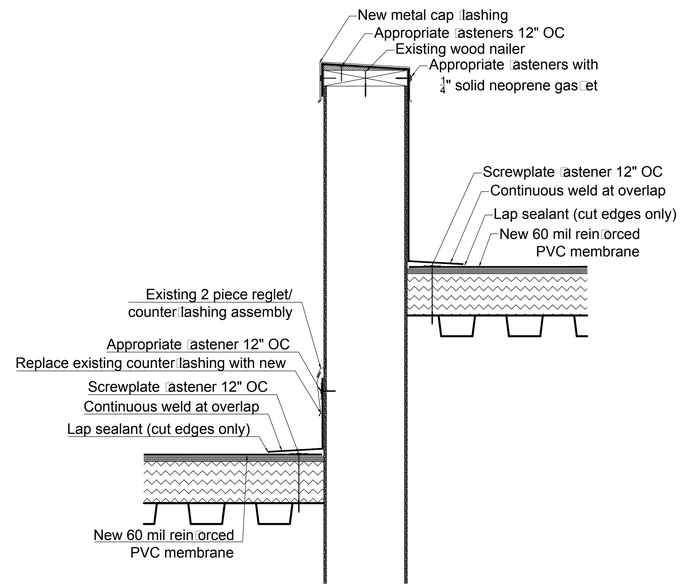
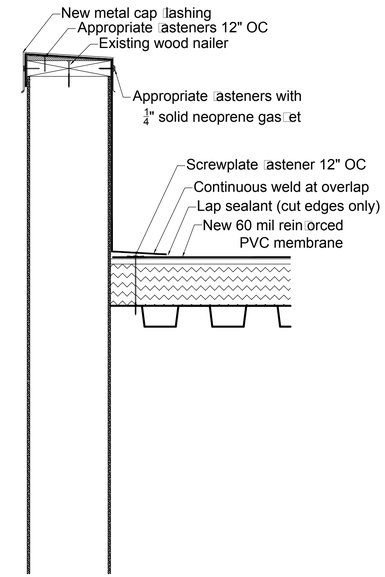


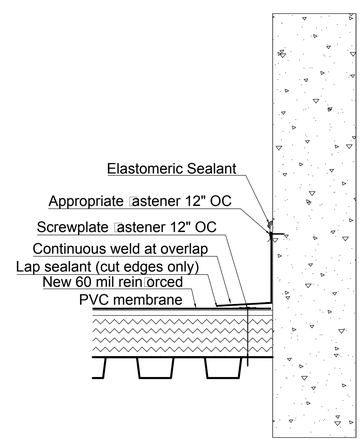
Masonry Wall Detail (Dtl 2/A2)



Wall Detail (Dtl 3/A2)



Exterior Wall Detail (Dtl 1/A2)



Concrete Wall Detail (Dtl 4/A2)

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GENERAL STRUCTURAL NOTES

APPLY UNLESS NOTED ON STRUCTURAL DRAWINGS. IN CASE OF CONFLICT BETWEEN GSN, DETAILS AND PLANS, THE GREATER REQUIREMENTS GOVERN.

CODE:

COMPLY WITH 2012 INTERNATIONAL BUILDING CODE.

RISK CATEGORY: III

SEISMIC IMPORTANCE FACTOR: IE=1.25

MAPPED SPECTRAL RESPONSE ACCELERATION: Ss =1.487, S1 =0.164

SITE CLASS: D

SPECTRAL RESPONSE COEFFICIENT: Sds=0.458, Sd1=0.234

SEISMIC DESIGN CATEGORY: D

BASIC WIND SPEED: 120 MPH

BUILDING CATEGORY: ENCLOSED

EXPOSURE: B

DESIGN WIND PRESSURE FOR COMPONENTS AND CLADDING: 31 PSF

DEAD LOADS: 15 PSF

LIVE LOADS: 20 PSF

MECHANICAL LOADS: SEE MECHANICAL DRAWINGS. VERIFY ANY LOADS SHOWN ON STRUCTURAL DRAWINGS WITH MECHANICAL DRAWINGS.

STRUCTURAL STEEL:

FOR ALL STRUCTURAL STEEL FABRICATION AND CONSTRUCTION LATEST AISC HANDBOOKS AND CODES SHALL APPLY. ALL STEEL FABRICATION IS REQUIRED TO BE COMPLETED BY AN APPROVED STEEL FABRICATOR RECOGNIZED BY THE BUILDING DEPARTMENT.

ASTM A36, EXCEPT AS FOLLOWS: WIDE FLANGE SECTIONS - ASTM A992, PIPE SECTIONS - ASTM A53 GRADE B, HSS SECTIONS - ASTM A500 GRADE B, HP SECTIONS - ASTM A572 GRADE 50.

ANCHOR BOLTS, ASTM A307 UNO; HIGH STRENGTH BOLTS, A325-X OR A325-SC PER SCHEDULES. MINIMUM EMBEDMENT OF ALL BOLTS IN GROUT OR CONCRETE SHALL BE 8" INCLUDING BOLT HEAD OR 5" WITH A STD HOOK. WELDED ANCHORS AND SHEAR CONNECTORS SHALL BE ICC APPROVED.

UNLESS OTHERWISE NOTED MINIMUM CONNECTION SHALL BE: (2) 3/4" DIAMETER BOLTS OR 3/16" FILLET WELD 4" LONG, USING 1/4" CONNECTION MATERIAL AND DETAILED TO MINIMIZE BENDING IN THE CONNECTION.

WELDING:

ALL CONSTRUCTION AND TESTING PER AMERICAN WELDING SOCIETY CODES AND RECOMMENDATIONS. ALL WELDING SHALL BE BY WELDERS HOLDING CURRENT VALID CERTIFICATES AND HAVING CURRENT EXPERIENCE IN TYPE OF WELD CALLED FOR. WELDING RODS TO BE LOW HYDROGEN TYPE, E70 FOR STRUCTURAL STEEL AND E60 FOR METAL DECK.

ALL BUTT WELDED SPLICES IN MATERIAL THICKER THAN 5/16" SHALL BE INSPECTED BY AN INDEPENDENT TESTING LABORATORY, TO CERTIFY CONNECTION AS MEETING OR EXCEEDING STRENGTH OF MATERIALS SPLICED.

ALL WELDING OF REINFORCING SHALL CONFORM TO THE "STRUCTURAL WELDING CODES-REINFORCING STEEL" AWS D1.4, CURRENT EDITION.

ALL WELDING OF STRUCTURAL STEEL SHALL CONFORM TO THE "STRUCTURAL WELDING CODES-STEEL" AWS D1.1, CURRENT EDITION.

WELDS INDICATED MAY BE MADE IN SHOP OR FIELD WITH APPROVAL.

SUPPLEMENTARY NOTES:

PROVIDE ALL TEMPORARY BRACING, SHORING, GUYING OR OTHER MEANS TO AVOID EXCESSIVE STRESSES AND TO HOLD STRUCTURAL ELEMENTS IN PLACE DURING CONSTRUCTION. ESTABLISH AND VERIFY ALL OPENINGS AND INSERTS FOR MECHANICAL, ELECTRICAL AND PLUMBING WITH APPROPRIATE TRADES, DRAWINGS AND SUBCONTRACTORS PRIOR TO CONSTRUCTION.

THE STRUCTURAL ENGINEER SHALL NOT HAVE CONTROL OR CHARGE OF, AND SHALL NOT BE RESPONSIBLE FOR, CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES, FOR SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE WORK, FOR THE ACTS OR OMISSIONS OF THE CONTRACTOR, SUBCONTRACTORS OR ANY OTHER PERSONS PERFORMING ANY OF THE WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.

FOR CONNECTIONS, SEE DETAILS.

POST-INSTALLED ANCHORS SHALL ONLY BE USED WHERE SPECIFIED ON THE CONSTRUCTION DOCUMENTS. THE CONTRACTOR SHALL OBTAIN APPROVAL FROM THE ENGINEER-OF-RECORD PRIOR TO INSTALLING POST-INSTALLED ANCHORS IN PLACE OF MISSING OR MISPLACED CAST-IN-PLACE ANCHORS. CARE SHALL BE TAKEN IN PLACING POST-INSTALLED ANCHORS TO AVOID CONFLICTS WITH EXISTING REBAR. HOLES SHALL BE DRILLED AND CLEANED IN ACCORDANCE WITH THE MANUFACTURER'S WRITTEN INSTRUCTIONS. SUBSTITUTION REQUESTS FOR PRODUCTS OTHER THAN THOSE SPECIFIED SHALL BE SUBMITTED BY THE CONTRACTOR TO THE ENGINEER-OF-RECORD ALONG WITH CALCULATIONS THAT ARE PREPARED AND SEALED BY A REGISTERED PROFESSIONAL ENGINEER. THE CALCULATIONS SHALL DEMONSTRATE THAT THE SUBSTITUTED PRODUCT IS CAPABLE OF ACHIEVING THE EQUIVALENT OR GREATER PERFORMANCE VALUES OF THE SPECIFIED PRODUCT USING THE APPROPRIATE DESIGN PROCEDURE AND/OR STANDARD(S) AS REQUIRED BY THE BUILDING CODE. CONTACT MANUFACTURER'S REPRESENTATIVE FOR THE INITIAL TRAINING AND INSTALLATION OF ANCHORS AND FOR PRODUCT RELATED QUESTIONS AND AVAILABILITY.

COST OF ADDITIONAL FIELD AND OFFICE WORK NECESSITATED BY REQUEST BY THE CONTRACTOR FOR AN OPTION OR DUE TO ERRORS OR OMISSIONS IN CONSTRUCTION SHALL BE BORNE BY THE CONTRACTOR. OPTIONS ARE FOR CONTRACTORS CONVENIENCE. HE SHALL BE RESPONSIBLE FOR ALL CHANGES NECESSARY IF HE CHOOSES AN OPTION AND HE SHALL COORDINATE ALL DETAILS.

ANY ENGINEERING DESIGN PROVIDED BY OTHERS AND SUBMITTED FOR REVIEW SHALL BEAR THE SEAL OF AN ENGINEER REGISTERED IN THE STATE OF NEVADA.

UNLESS OTHERWISE NOTED, DETAILS ON STRUCTURAL DRAWINGS ARE TYPICAL AS INDICATED BY CUTS, REFERENCES OR TITLES.

VERIFY ALL DIMENSIONS WITH ARCHITECTURAL DRAWINGS.

CONTRACTOR SHALL VERIFY IN FIELD ALL EXISTING CONDITIONS SHOWN ON DRAWINGS.

LEGEND:

ABBREVATIONS

ARCH'L = ARCHITECTURAL	GLB = GLULAM BEAM
C.I.P. = CAST IN PLACE	G.S.N. = GENERAL STRUCTURAL NOTES
C.J. = CONTROL/CONSTRUCTION JOINT	M.C.J. = MASONRY CONTROL JOINT
C.M.U. = CONCRETE MASONRY UNIT	MECH'L = MECHANICAL
CONC. = CONCRETE	M.L. = MASONRY LINTEL
CONT. = CONTINUOUS	P.C. = PRECAST
EXIST. = EXISTING	U.N.O. = UNLESS NOTED OTHERWISE

INDICATES EXIST. CONSTRUCTION.

500# — INDICATES MECH'L EQUIPMENT ON ROOF. VERIFY SIZE AND LOCATION W/ARCH'L AND MECH'L DRAWINGS.

INDICATES OPENING IN ROOF OR FLOOR. VERIFY SIZE AND LOCATION W/ARCH'L AND MECH'L DRAWINGS. ALL OPENINGS AND OPENING FRAMING NOT NECESSARILY SHOWN ON PLANS.

SHEET INDEX:

GENERAL STRUCTURAL NOTES — S1.0
ROOF FRAMING PLAN — S2.0
TYPICAL DETAILS — S3.0

PROFESSIONAL ENGINEER - STATE OF NEVADA
KURT GUIDICE
Exp: 6/30/2019
CIVIL / STRUCTURAL
No. 21312
January 9, 2018

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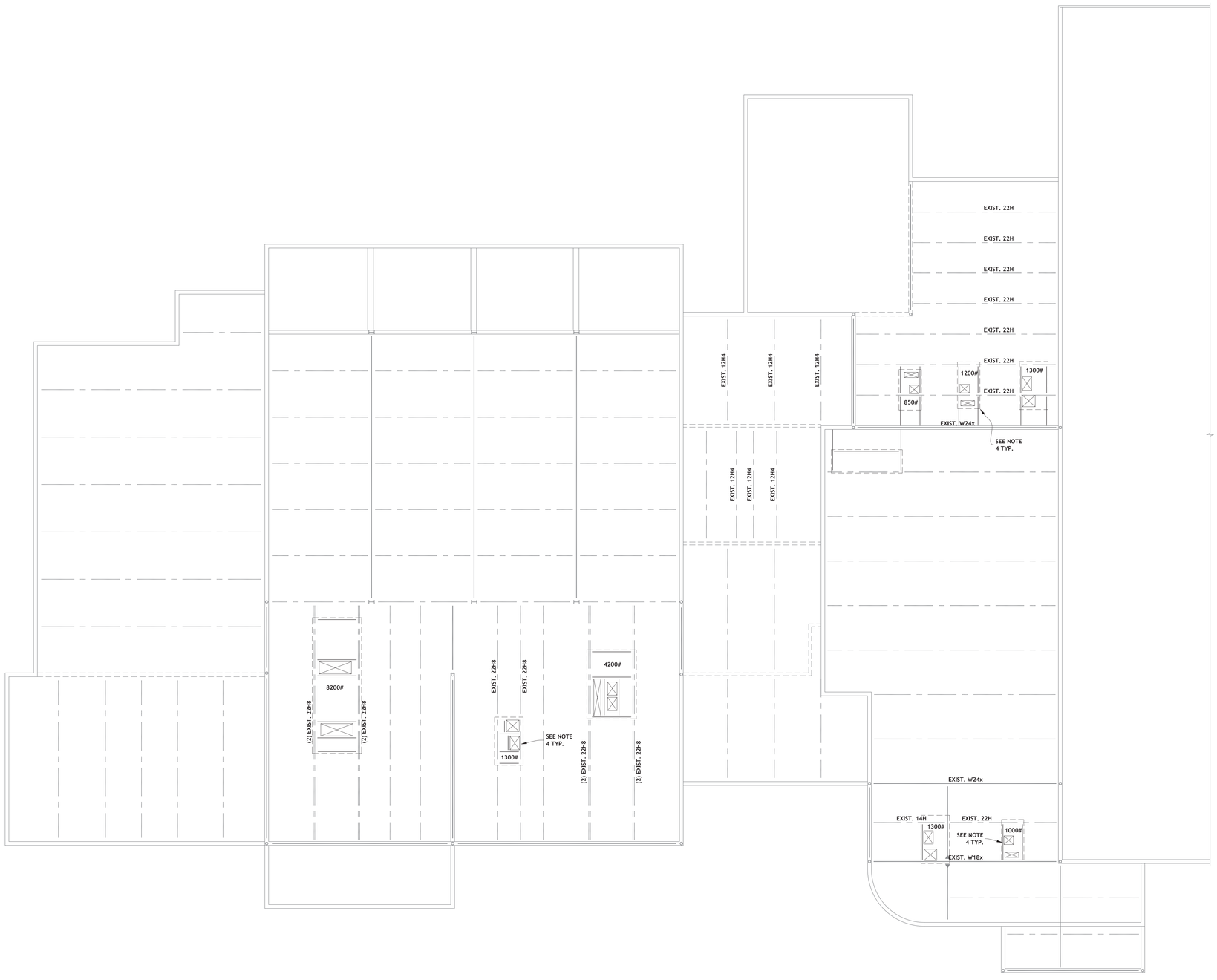
SHEET TITLE
GENERAL STRUCTURAL NOTES

513-45Q

S1.0

SHEET OF



ROOF FRAMING PLAN

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

NORTH

ROOF FRAMING NOTES:

1. VERIFY ANY DIMENSIONS SHOWN WITH ARCHITECTURAL DRAWINGS.
2. MECHANICAL UNITS ARE SHOWN SCHEMATICALLY (DUCT PENETRATIONS, UNIT SIZE, ORIENTATION ...ETC.). SPECIFIC UNITS SHALL BE PURCHASED, BASED ON MECHANICAL SPECIFICATIONS, SUBSEQUENT TO SUBMITTAL OF CONSTRUCTION DOCUMENTS. VERIFICATION THAT THE SPECIFIC MECHANICAL UNIT SIZE, WEIGHT AND LOCATION CONFORMS TO THE SCHEMATIC INFORMATION SHOWN IS THE RESPONSIBILITY OF THE CONTRACTOR. COORDINATION OF MECHANICAL UNIT SIZE, WEIGHT AND LOCATION WITH ALL TRADES IS THE RESPONSIBILITY OF THE CONTRACTOR.
3. ALL EXISTING CONDITIONS SHOWN ARE TO BE VERIFIED IN THE FIELD.
4. NEW UNITS ARE TO USE EXISTING SUPPORTS AND ROOF PENETRATIONS WHERE POSSIBLE. PROVIDE NEW SUPPORTS WHERE REQUIRED PER DETAIL 1/S3.0. PROVIDE SUPPORTS AT NEW PENETRATIONS AS REQUIRED PER DETAIL 2/S3.0.

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SHEET TITLE
ROOF FRAMING PLAN

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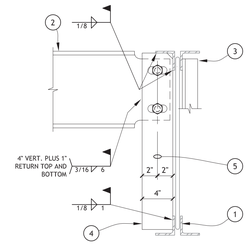
S2.0

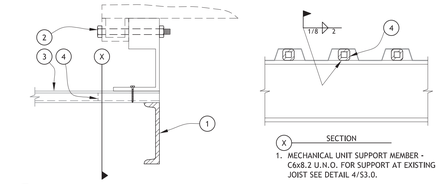
SHEET OF



1. EXISTING STEEL JOIST.
2. STEEL CHANNEL.
3. REINFORCING ANGLE PER "JOIST REINFORCING DETAIL".
4. 3/8" SHEAR PLATE.
5. (2) 3/4"Ø ERECTION BOLTS IN SHORT SLOTTED HOLES.

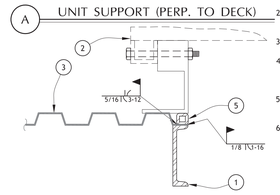
4 LARGE OPENING IN METAL ROOF DECK

217023D53.0-4

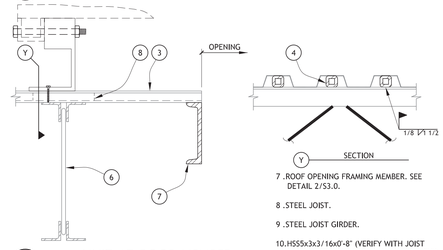


1. MECHANICAL UNIT SUPPORT MEMBER - C6x8.2 U.N.O. FOR SUPPORT AT EXISTING JOIST SEE DETAIL 4/S3.0.
2. LINE OF MECHANICAL UNIT AND SUPPORT CURB.
3. EXISTING METAL ROOF DECK.
4. MECHANICAL CURB SUPPORT TUBE - HSS 1 1/2x1 1/2x3/16x0'-8" LOCATED IN EACH FLUTE ALONG MECH'L CURB.
5. MECHANICAL CURB SUPPORT TUBE - HSS 1 1/2x1 1/2x3/16.
6. EXISTING ROOF SUPPORT MEMBER (STEEL JOIST, STEEL CHANNEL OR STEEL BEAM AS OCCURS. MEMBER SECONDARILY SUPPORTS MECHANICAL UNIT).

A UNIT SUPPORT (PERP. TO DECK)



B UNIT SUPPORT (PARALLEL TO DECK)



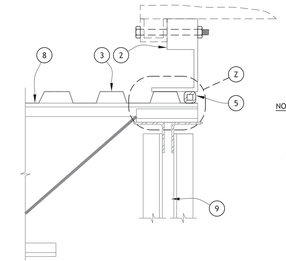
7 .ROOF OPENING FRAMING MEMBER. SEE DETAIL 2/S3.0.

8 .STEEL JOIST.

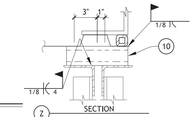
9 .STEEL JOIST GIRDER.

10.HSS5x3x3/16x0'-8" (VERIFY WITH JOIST SHOE DEPTH) LOCATED 6" MAX. FROM END OF MECH'L UNIT SUPPORT TUBE AND AT 2'-0" O.C. BETWEEN JOISTS. IF STEEL JOIST BEARS WITHIN 12" OF END OF MECH'L UNIT SUPPORT TUBE, 6" TUBE MAY BE OMITTED.

C UNIT AT ROOF MEMBER



NOTE:
MECHANICAL UNIT SHALL BE CONNECTED TO CURB SUPPORT TUBES PER MANUFACTURER'S RECOMMENDATIONS. CONTRACTOR SHALL SUBMIT CONNECTION DETAIL ALONG WITH MECH'L UNIT SIZE, WEIGHT AND LOCATION PRIOR TO OR CONCURRENT WITH STEEL JOIST AND STRUCTURAL STEEL SHOP DRAWINGS.



D UNIT AT JOIST GIRDER

1 MECHANICAL UNIT SUPPORT

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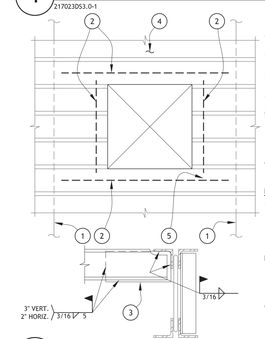

1. EXISTING STEEL JOIST.
2. NEW STEEL SUPPORT - C6x8.2.
3. NEW PLATE - 3/8x8x8.
4. EXISTING METAL DECK.
5. BUTT CHANNEL TO CHANNEL AND WELD WEB TO WEB WITH 3/16"x8" FILLETE WELD WEBS AS SHOWN OR PROVIDE 3/8" x 4" SHEAR TAB AND WELD 4" VERTICAL AND 2" HORIZONTAL AS SHOWN BELOW.
6. ADDED WEB MEMBER PER DETAIL 10/S3.0. REQUIRED WHEN PENETRATION EXCEEDS 18" WIDE.

NOTES:
A. USE THIS DETAIL FOR OPENINGS 3'-0" IN WIDTH OR LESS (DIMENSION PARALLEL TO JOISTS). OPENINGS SMALLER THAN 7" SQUARE OR IN DIAMETER DO NOT NEED CHANNEL REINFORCING UNLESS OPENINGS ARE CLUSTERED (SEE BELOW).

B. IF AN OPENING SMALLER THAN 7" SQUARE OR IN DIAMETER IS LOCATED CLOSER THAN 18" CLEAR FROM ANOTHER OPENING, THE SMALL OPENING MUST BE REINFORCED WITH NEW CHANNELS.

C. ALL OPENINGS AND THEIR FRAMING PER ABOVE ARE NOT NECESSARILY SHOWN ON FRAMING PLANS. SEE MECH'L OR ARCH'L DRAWINGS FOR SIZE AND LOCATION OF OPENINGS.

2 NEW OPENING IN EXISTING METAL DECK

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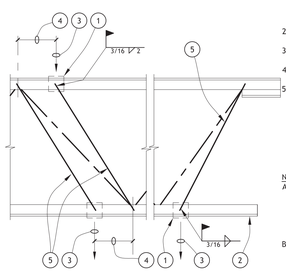

1. SPACER PLATE BETWEEN CHORD ANGLES. WELD TO EACH ANGLE TOP AND BOTTOM WITH A 3" LONG 3/16" FILLET WELD.
2. JOIST EXTENSION AS REQUIRED.
3. CONCENTRATED LOAD ON JOIST.
4. GREATER THAN 4".
5. SEE NOTE BELOW.

NOTES:
A. WHERE CENTER OF LOAD IS MORE THAN 4" FROM JOIST PANEL POINT, ADD EXTRA WEB MEMBER; ANGLE 2x2x3/16" TO CHORD PANEL POINT EACH SIDE OF JOISTS.

B. THIS DETAIL IS REQUIRED WHERE CONCENTRATED LOAD IS GREATER THAN 200#.

3 JOIST REINF. FOR CONCENTRATED LOAD

217023D53.0-3

January 9, 2018

LAS VEGAS SENIOR CENTER HVAC REPLACEMENT

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CONSULTANTS

ISSUE	DATE	DESCRIPTION

ISSUE DATE: 12.08.2017
PROJECT NO: L17138
CAD DWG FILE:
DRAWN BY: TT
BID NUMBER: 18.69111.02

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SHEET TITLE
TYPICAL DETAILS

513-45Q

S3.0

SHEET OF

MEC□ANICAL SYMBOLS

(NOT ALL USED IN PROJECT)

- SHEET NOTE
- XX-X — EQUIPMENT ID
- XX-X / X CFM — DIFFUSER TAG
- ACCESS DOOR
- SUPPLY AIR DUCT DOWN / UP
- RETURN AIR DUCT DOWN / UP
- EXHAUST AIR DUCT DOWN / UP
- SUPPLY DIFFUSER (4 WAY)
- SUPPLY DIFFUSER (3 WAY)
- SUPPLY DIFFUSER (2 WAY)
- SUPPLY DIFFUSER (2 WAY)
- SUPPLY DIFFUSER (1 WAY)
- RETURN GRILLE
- EXHAUST GRILLE
- FLEX DUCT
- 24x24 / 18"Ø — SQUARE TO ROUND TRANSITION (AAxBB SQUARE DUCT DIMENSIONS) (AA" ROUND DUCT DIMENSIONS)
- DUCT WITH LINER
- EXISTING DUCT
- DUCT TO BE REMOVED
- MANUAL BALANCE DAMPER
- MD — MOTORIZED DAMPER
- FD — FIRE DAMPER
- SD — SMOKE DAMPER
- SF — SMOKE/FIRE DAMPER
- SD — SMOKE DETECTOR
- T — THERMOSTAT
- S — SENSOR
- H — HUMIDISTAT
- C — CARBON DIOXIDE SENSOR
- M — GAS METER
- W — WATER METER
- BACKFLOW PREVENTION STATION
- DEMOLITION EXTENT
- POINT OF CONNECTION
- FLOOR DRAIN
- RD — ROOF DRAIN
- OD — OVERFLOW ROOF DRAIN
- BALL VALVE
- GAS COCK
- GATE VALVE
- CHECK VALVE
- THREE-WAY VALVE
- TWO-WAY VALVE
- GLOBE VALVE
- PRESSURE REDUCING VALVE
- HOSE END DRAIN VALVE
- BUTTERFLY VALVE
- PLUG VALVE
- RELIEF VALVE
- CLEANOUT
- FLOOR SINK
- FLOOR CLEAN OUT
- GRADE CLEAN OUT
- TWO WAY CLEANOUT
- WATER HAMMER ARRESTOR
- HOSE BIBB
- GAS REGULATOR
- MANUAL AIR VENT
- THERMOMETER
- Y-STRAINER W/BLOWDOWN
- PIPE DOWN
- PIPE UP
- PRESSURE RELIEF
- TEE UP
- TEE DOWN
- CIRCUIT SETTER

MEC□ANICAL ABBREVIATIONS

(NOT ALL USED IN PROJECT)

AABC	AMERICAN BUILDING COUNCIL
AFF	ABOVE FINISHED FLOOR
ASHRAE	AMERICAN SOCIETY OF HEATING, REFRIGERATION, AND AIR CONDITIONING ENGINEERS
ASPE	AMERICAN SOCIETY OF PLUMBING ENGINEERS
AV	ACID VENT
AW	ACID WASTE
BHP	BRAKE HORSEPOWER
BTUH	BRITISH THERMAL UNIT PER HOUR
CFH	CUBIC FEET PER HOUR
CFM	CUBIC FEET PER MINUTE
CHR	CHILLED WATER RETURN
CHS	CHILLED WATER SUPPLY
CND	CONDENSATE DRAIN
CO	CLEAN OUT
CR	CONDENSER WATER RETURN
CS	CONDENSER WATER SUPPLY
(D)	EXISTING TO BE DEMOLISHED
D	DRAIN
DB	DRY BULB TEMPERATURE (F)
DCW	DOMESTIC COLD WATER
DDC	DIRECT DIGITAL CONTROLS
DHC	DOMESTIC HOT WATER RECIRCULATION
DHW	DOMESTIC HOT WATER
DIA.	DIAMETER
DX	DIRECT EXPANSION
(E)	EXISTING TO REMAIN
EA	EXHAUST AIR, EACH
EAT	ENTERING AIR TEMPERATURE (F)
EER	ENERGY EFFICIENCY RATIO
EFF	EFFICIENCY
ELEC	ELECTRICAL
ESP	EXTERNAL STATIC PRESSURE
EWT	ENTERING WATER TEMPERATURE (F)
F	DEGREES FAHRENHEIT
FCW	FILTERED COLD WATER
FPM	FEET PER MINUTE
FW	FILTERED WATER
G	GAS
GA	GAGE OR GAUGE
GAL	GALLONS
GCO	GRADE CLEANOUT
GI	GREASE INTERCEPTOR
GPF	GALLONS PER FLUSH
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
GW	GREASE WASTE
HP	HORSEPOWER
HPG	HIGH PRESSURE GAS
HSPF	HEATING SEASONAL PERFORMANCE FACTOR
HW	HOT WATER
HWR	HEATING WATER RETURN
HWS	HEATING WATER SUPPLY
IBC	INTERNATIONAL BUILDING CODE
IE	INVERT ELEVATION
IMC	INTERNATIONAL MECHANICAL CODE
IPC	INTERNATIONAL PLUMBING CODE
KW	KILOWATT
LAT	LEAVING AIR TEMPERATURE (F)
LBS, #	POUNDS
LWT	LEAVING WATER TEMPERATURE
MBH	ONE THOUSAND BTUH
MCA	MINIMUM CIRCUIT AMPS
MOCP	MAXIMUM OVER CURRENT PROTECTION
MPG	MEDIUM PRESSURE GAS
N/A	NOT APPLICABLE
NC	NORMALLY CLOSED
NEBB	NATIONAL ENVIRONMENTAL BALANCING BUREAU
NEC	NATIONAL ELECTRIC CODE
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
NIC	NOT IN CONTRACT
NO	NORMALLY OPEN
NTS	NOT TO SCALE
OA	OUTSIDE AIR
OAT	OUTSIDE AIR TEMPERATURE (F)
OBD	OPPOSED BLADE DAMPER
OD	OVERFLOW ROOF DRAIN
OFCI	OWNER FURNISHED, CONTRACTOR INSTALLED
PD	PRESSURE DROP
PRV	PRESSURE REDUCING VALVE
PSI	POUNDS PER SQUARE INCH
PSIA	POUNDS PER SQUARE INCH ABSOLUTE
PSID	POUNDS PER SQUARE INCH DIFFERENTIAL
PSIG	POUNDS PER SQUARE INCH GAUGE
(R)	EXISTING TO BE RELOCATED
RA	RETURN AIR
RD	ROOF DRAIN
RH	RELATIVE HUMIDITY
RPM	REVOLUTIONS PER MINUTE
RPPA	REDUCED PRESSURE PRINCIPAL ASSEMBLY
SA	SUPPLY AIR
SAN	SANITARY SEWER
SD	SMOKE DAMPER
SEER	SEASONAL ENERGY EFFICIENCY RATIO
SF	SMOKE FIRE DAMPER
SFW	SOFTENED COLD WATER
SOI	SAND OIL SEPARATOR
SP	STATIC PRESSURE
SQ.FT.	SQUARE FEET
SS	STAINLESS STEEL
STM	STORM DRAIN
T	TEMPERATURE
TAB	TEST AND BALANCE
TSP	TOTAL STATIC PRESSURE
TW	TEMPERED WATER
TYP	TYPICAL
UBC	UNIFORM BUILDING CODE
UMC	UNIFORM MECHANICAL CODE
UON	UNLESS OTHERWISE NOTED
UPC	UNIFORM PLUMBING CODE
V	VENT
V/PH/HZ	VOLTS/PHASE/HERTZ
V/ /HZ	VOLTS/PHASE/HERTZ
VFD	VARIABLE FREQUENCY DRIVE
VTR	VENT THROUGH ROOF
WB	WET BULB TEMPERATURE
WCO	WALL CLEANOUT
WG	WATER GAUGE
WMS	WIRE MESH SCREEN

MEC□ANICAL LINETY□ES

(NOT ALL USED IN PROJECT)

- 4" CHR — CHILLED WATER RETURN PIPING
- 4" CHS — CHILLED WATER SUPPLY PIPING
- 4" HWR — HEATING WATER RETURN PIPING
- 4" HWS — HEATING WATER SUPPLY PIPING
- 4" CWR — CONDENSER WATER RETURN PIPING
- 4" CHS — CONDENSER WATER SUPPLY PIPING
- 0" SAN — SANITARY SEWER PIPING
- 0" SAN — UNDERGROUND SANITARY SEWER PIPING
- 0" GW — GREASE WASTE PIPING
- 0" GW — UNDERGROUND GREASE WASTE PIPING
- 0" V — VENT PIPING
- 0" CND — CONDENSATE DRAIN PIPING
- 0" D — DRAIN PIPING
- 0" DCW — COLD WATER PIPING
- 0" FCW — FILTERED COLD WATER PIPING
- 0" SFW — SOFTENED COLD WATER PIPING
- 0" STM — ROOF DRAIN PIPING
- 0" OD — OVERFLOW ROOF DRAIN PIPING
- 0" DHW — HOT WATER PIPING
- 0" 140F — 140 F HOT WATER PIPING
- 0" DHC — HOT WATER RECIRCULATION PIPING
- 0" TW — TEMPERED WATER PIPING
- 0" LPG — LOW PRESSURE GAS PIPING
- 0" MPG — MEDIUM PRESSURE GAS PIPING
- 0" AIR — COMPRESSED AIR LINES

DRAWING INDEX

SHEET NUMBER	SHEET TITLE	PERMIT 12/08/2017	CLARIFICATIONS 08.21.18 (1)	OWNER CHANGES 08.29.18 (2)
M0.0	MECHANICAL SYMBOLS, ABBREVIATIONS AND DRAWING INDEX	X	X	X
M0.1	MECHANICAL AND PLUMBING SPECIFICATIONS	X		
M0.2	MECHANICAL AND PLUMBING SCHEDULES AND DIAGRAMS	X		
M0.3	IECC COMPLIANCE STATEMENT	X		
MD2.1	MECHANICAL DEMOLITION FLOOR PLAN	X		
M2.1	MECHANICAL FLOOR PLAN	X	X	X
MD2.2	MECHANICAL DEMOLITION ROOF PLAN	X		
M2.2	MECHANICAL ROOF PLAN	X		
MFS-1	MECHANICAL FOOD SERVICE	X		
MFS-2	MECHANICAL FOOD SERVICE	X		
P0.1	NATURAL GAS DIAGRAM	X		
PD2.2	PLUMBING DEMOLITION ROOF PLAN	X		
P2.1	PLUMBING FLOOR PLAN	X		
P2.2	PLUMBING ROOF PLAN	X		
TOTAL		14	2	2

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ISSUE	DATE	DESCRIPTION
2	08.29.18	OWNER CHANGES
1	08.21.18	CLARIFICATIONS

ISSUE DATE: 12/08/2017

PROJECT NO: L17138

CAD DWG FILE: M0.0 MECHANICAL SYMBOLS, ABBREVIATIONS AND DRAWING INDEX.DWG

DRAWN BY: HPA

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SHEET TITLE

MECHANICAL SYMBOLS, ABBREVIATIONS AND DRAWING INDEX

513-45Q

M0.0

SHEET - OF -

MEC□ANICAL AN□ □L□MBIN□ S□ECI□ICATIONS

GENERAL PROVISIONS

1. THE MECHANICAL CONTRACTOR SHALL PROVIDE THE WORK SHOWN ON THE PLANS:

   A. "PROVIDE" SHALL BE DEFINED AS INSTALL, MAKE ALL FINAL CONNECTIONS, AND TURNOVER TO THE OWNER AN APPROVED FULLY FUNCTIONING AND OPERATIONAL SYSTEM.
   B. "WORK" SHALL INDICATE ALL MATERIALS, LABOR, TRANSPORTATION, EQUIPMENTS, TOOLS, SUPERVISION, AND ANY OTHER SERVICES AND/OR MATERIALS REQUIRED FOR THE INSTALLATION AND PROPER OPERATION OF THE ENTIRE SYSTEM.

2. ALL WORK SHALL BE PERFORMED IN COMPLIANCE WITH THE LATEST EDITIONS OF THE ADOPTED CODES AS IDENTIFIED BY THE AUTHORITY HAVING JURISDICTION.

3. PRIOR TO INSTALLATION, THE MECHANICAL CONTRACTOR SHALL CAREFULLY EXAMINE ALL CONSTRUCTION DOCUMENTS AND COORDINATE THE WORK WITH ALL OTHER TRADES. THE MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ENSURING THAT THE WORK FITS INTO THE BUILDING AS SHOWN WITH REASONABLE EXCEPTIONS TO THE LAYOUT AS REQUIRED TO AVOID INTERFERENCE WITH OTHER TRADES . CONTRACTOR IS TO MAINTAIN ACCURATE AS BUILT SET AND DOCUMENT ALL EXCEPTIONS AND MODIFICATIONS TO THE PLANS.

4. CONSTRUCTION DOCUMENTS PROVIDED ARE DIAGRAMMATIC IN NATURE AND INDICATE THE SIZE, TYPE, CONFIGURATION, AND LOCATIONS OF THE WORK. ALL COMPONENTS OF THE SYSTEM MAY NOT BE SHOWN. CONTRACTOR IS RESPONSIBLE FOR ENSURING ALL COMPONENTS ARE PROVIDED AND INSTALLED TO COMPLETE THE WORK ACCORDING TO INDUSTRY STANDARDS.

   A. DO NOT SCALE DRAWINGS.
   B. CONTRACTOR TO INSTALL THE WORK REASONABLY PLUMB TO BUILDING CONSTRUCTION AND MAY REQUIRE ALTERNATE ROUTING BASED ON UNFORESEEN FIELD CONDITIONS.

6. IDENTICAL ITEMS SHOWN ON PLANS SHALL BE PROVIDED THOUGH EACH SIMILAR ITEM MAY NOT BE DETAILED.

7. THE CONTRACTOR IS TO CONFIRM AND FIELD VERIFY ALL EXISTING CONDITIONS PRIOR TO PERFORMING WORK. ANY VARIATIONS FROM THE CONTRACT DOCUMENTS SHOULD BE COMMUNICATED TO THE ENGINEER FOR REVIEW.

8. WORK IS INDICATED NEW UNLESS NOTED OTHERWISE.

9. THE CONTRACTOR, PRIOR TO BIDDING, SHALL VISIT THE SITE AND NOTE THE EXISTING CONDITIONS. WORK SHOWN ON CONTRACT DOCUMENTS SHALL BE EVALUATED IN RELATION TO THE EXISTING CONDITIONS. ANY DEVIATION SHALL BE NOTED AND IN WRITING, NOTIFY THE ENGINEER OF SUCH DIFFERENCES. NO CHANGE ORDERS WILL BE ALLOWED DUE TO UNFAMILIARITY OF EXISTING CONDITIONS BY THE CONTRACTOR.

   A. THE CONTRACTOR PROPOSAL SHOULD BE BASED ON THE MANUFACTURERS OR AS APPROVED EQUALS AS LISTED ON THE PLANS.

SUBMITTALS

1. CONTRACTOR TO SUBMIT ELECTRONIC COPY (OR AS REQUIRED BY OWNER/OWNER'S REPRESENTATIVE) OF SHOP DRAWINGS (OR ELECTRONIC VERSION IF APPROVED BY OWNER/ARCHITECT) INCLUDING TECHNICAL PERFORMANCE DATA FOR ALL HVAC EQUIPMENT AND ACCESSORIES AS IDENTIFIED ON THE PLANS TO THE ENGINEER FOR REVIEW. COMPLIANCE OR NON-COMPLIANCE WITH CONTRACT DOCUMENTS WILL BE NOTED AND RETURNED BACK TO OWNER PRIOR TO BEGINNING WORK. THE CONTRACTOR WILL BE RESPONSIBLE FOR ADDITIONAL ENGINEERING FEES ASSOCIATED WITH PERMIT DOCUMENT MODIFICATIONS BASED ON EQUIPMENT SUBSTITUTIONS.

2. ANY AND ALL SUBSTITUTIONS SHALL BE SUBMITTED IN ACCORDANCE WITH 016000 "PRODUCT REQUIREMENTS" TO THE ENGINEER FOR APPROVAL. THE OWNER /OWNER'S REPRESENTATIVE SHALL PRELIMINARILY APPROVE THE SUBSTITUTION PROPOSED IN WRITING.

   A. IT IS THE RESPONSIBILTY OF THE CONTRACTOR TO PROVIDE THE BURDEN OF PROOF OF EQUAL IN THE SUBMITTAL WITH PERFORMANCE, SPECIFICATIONS, DIMENSIONS, WEIGHTS, ELECTRICAL REQUIREMENTS AS APPLICABLE, WITH ALL ITEMS CLEARLY IDENTIFIED AND IS TO COORDINATE THE CHANGE WITH ALL OTHER TRADES AND FIELD CONDITIONS.
   B. CONTRACTOR SHALL ALSO IDENTIFY ALL COST DEBITS OR CREDITS IN WRITING TO EVALUATE THE PROPOSED SUBSTITUTION AS IT RELATES TO THE OTHER TRADES.
   C. FINAL DETERMINATION OF AN OR EQUAL IS ENTIRELY BASED ON ENGINEERS EVALUATION OF THE INFORMATION INCLUDED IN THE SUBMITTAL.

3. AT THE CONCLUSION OF THE PROJECT, THE CONTRACTOR SHALL PROVIDE MINIMUM THREE (OR AS REQUIRED BY OWNER/OWNER'S REPRESENTATIVE) COPIES OF AS-BUILT DOCUMENTS.

4. CONTRACTOR TO SUBMIT SHOP DRAWINGS OF TEMPERATURE CONTROL SYSTEM DRAWINGS SHOWING DEVICES PROPOSED FOR USE, LOCATION OF DEVICES, WIRING, SEQUENCE OF OPERATIONS, SCREENSHOTS OF USER INTERFACE SCREENS, AND NETWORK DIAGRAMS.

WARRANTY

1. ALL MATERIALS AND INSTALLATION SHALL BE GUARANTEED FOR A MINIMUM OF ONE YEAR FROM TURNOVER DATE TO OWNER AS ACCEPTED, WITH THE FOLLOWING EXCEPTION.

   A. REFRIGERATION COMPRESSORS - FIVE YEAR WARRANTY.

2. THE CONTRACTOR SHALL GUARANTEE THAT THE INSTALLATION WILL MEET OR EXCEED ALL PERFORMANCE REQUIREMENTS AS OUTLINED IN THE CONTRACT DOCUMENTS AS OPERATED BY THE OWNER IN ACCORDANCE WITH CONTRACTOR INSTRUCTIONS.

   A. IN THE EVENT THAT THE SYSTEMS DO NOT MEET THE REQUIREMENTS OF THE CONTRACT DOCUMENTS, THE CONTRACTOR SHALL REMEDY THE SITUATION AT NO COST TO THE OWNER AND WITHOUT DELAY TO RECTIFY THE PROBLEM AND SATISFY THE REQUIREMENTS OF THE CONTRACT DOCUMENTS.

PLUMBING PRODUCTS

1. EQUIPMENT

   A. PROVIDED AS SPECIFIED AND/OR SCHEDULED AND IS TO BE INSTALLED PER APPLICABLE BUILDING CODES AND MANUFACTURER'S RECOMMENDATIONS. UNIT IS TO BE INSTALLED PER MANUFACTURER'S OPERATION AND MAINTENANCE MANUAL AND CONFORMING TO THE ONE YEAR WARRANTY.
   B. PLUMBING FIXTURES TO COMPLY WITH ADOPTED WATER CONSERVATION CODES AND LOCAL JURISDICTION REGULATIONS.

2. DOMESTIC WATER

   A. BELOW GROUND - TYPE K (ASTM B-88), WROUGHT FITTINGS (ASME B16.22), HARD DRAWN, WITH AWS A5.8, BCuP SILVER BRAZE JOINTS.
   B. ABOVE GROUND - TYPE L (ASTM B-88), WROUGHT FITTINGS (ASME B16.22), WITH SOLDER, MAX LEAD 0.2□ , GRADE 95 TA, ANSI/ASTM B32 JOINTS.

3. PIPE HANGERS

   A. FOR PIPE SIZES TO 1-1/2 , MALLEABLE IRON, CARBON STEEL, SPLIT RING, ADJUSTABLE SWIVEL.
   B. FOR PIPE SIZES 2 TO 4 , ADJUSTABLE, CLEVIS, CARBON STEEL.
   C. FOR PIPE SIZES 6 AND LARGER, CAST IRON ROLL, DOUBLE HANGER, ADJUSTABLE STEEL YOKE.

6. PIPE INSULATION

   A. 1 THICK FIBERGLASS WITH ALL SERVICE JACKET, MAXIMUM K VALUE OF 0.27 AT 75 F.
   B. MINIMUM 3/4" THICK CLOSED CELL NEOPRENE MAY BE USED WHERE CLEARANCE LIMITS INHIBIT THE USE OF 1 FIBERGLASS.
   C. PROVIDE INSULATION FOR ALL DOMESTIC HOT WATER AND DOMESTIC HOT WATER RETURN PIPING ABOVE GRADE.
   D. PROVIDE INSULATION FOR ALL DOMESTIC COLD WATER PIPING IN UNCONDITIONED SPACES ONLY.
   E. PROVIDE INSULATION FOR ALL CONDENSATE PIPING.
   F. PROVIDE 15' OF INSULATION FOR ALL ROOF DRAINS AND OVERFLOW ROOF DRAINS.

7. GAS PIPING

   A. BELOW GRADE - POLYETHYLENE WITH BUTT FUSION JOINTS.
   B. ABOVE GRADE - BLACK IRON SCHEDULE 40 WITH GALVANIZED FITTINGS AND PIPE WITH JOINT COMPOUND (EXPOSED) OR THREADED MALLEABLE FITTINGS (CONCEALED).
   C. PROVIDE NON-LUBRICATED, TEFLON PACKING, BRONZE TAPERED PLUG, BRONZE BODY VALVES WITH THREADED ENDS.
   D. PROVIDE PIPE LABELS WITH GAS PRESSURE SERVICE RATINGS - GAS, 2 PSI GAS, 5 PSI GAS, 10 PSI GAS, ETC.
   E. PROVIDE EQUIPMENT ISOLATION VALVES.
   F. PROVIDE UNION, DIRT LEG AND GAS COCK FOR ALL EQUIPMENT CONNECTION.

8. CONDENSATE DRAIN

   A. TYPE M COPPER (ASTM B-88).
   B. WROUGHT FITTINGS (ASME B16.22).
   C. SOLDER JOINTS - GRADE 95 TA, 0.2□ MAX LEAD CONTENT, ANSI/ASTM B32.

MECHANICAL PRODUCTS

1. EQUIPMENT

   A. PROVIDED AS SPECIFIED AND/OR SCHEDULED AND IS TO BE INSTALLED PER APPLICABLE BUILDING CODES AND MANUFACTURER'S RECOMMENDATIONS. UNIT IS TO BE INSTALLED PER MANUFACTURER'S OPERATION AND MAINTENANCE MANUAL AND IN PROPER OPERATING CONDITION PRIOR TO PERFORMING TEST AND BALANCE PROCEDURES.

2. DUCT WORK

   A. GALVANIZED SHEET METAL IN ACCORDANCE WITH ASTM A90, SMACNA CONSTRUCTION STANDARDS, AND ASHRAE RECOMMENDATIONS.
   B. MECHANICAL DUCTWORK IS TO BE SEALED AT ALL PENETRATIONS THROUGH BUILDING CONSTRUCTION AND SUPPORTED AND SEALED PER SMACNA STANDARDS FOR RIGID DUCTWORK.
   C. ALL PLANS SHOW MINIMUM CLEAR INSIDE DIMENSIONS.
   D. VISIBLE PORTIONS OF INTERIOR DUCTWORK SHALL BE PAINTED BLACK OR AS PER ARCHITECTURAL REQUIREMENTS.
   E. SUPPLY DUCT CLASSIFICATION 2 PRESSURE CLASS.
   F. RETURN AND EXHAUST DUCT CLASSIFICATION 1 PRESSURE CLASS.
   G. FLEXIBLE DUCTS WHERE INDICATED ON THE PLANS, SHALL BE INSULATED AND PROVIDED WITH VAPOR BARRIER ON THE INTERIOR AND EXTERIOR, AND REINFORCED WITH STEEL WIRE. JOINTS TO BE BAND CLAMPED AND SEALED WITH TAPE FOR VAPOR BARRIER INTEGRITY. INSULATION TO HAVE MAXIMUM 0.23 K VALUE AT 75 F. FLEXIBLE DUCT TO BE INSTALLED WITH ADEQUATE SUPPORT TO ELIMINATE SAGS.
   H. MANUAL BALANCE DAMPERS FOR AIR BALANCING ARE TO BE PROVIDED AT EACH BRANCH DUCT OR AIR DEVICE UNLESS OTHERWISE NOTED. PROVIDE LOCKING QUADRANTS AND DAMPER HANDLE IDENTIFICATION.

3. DUCT INSULATION

   A. SUPPLY AND RETURN DUCTWORK IS TO BE EXTERNALLY WRAPPED WITH MINIMUM 1-1/2 FLEXIBLE GLASS FIBER WITH MAXIMUM K VALUE OF 0.29 AT 75 F AND SHALL HAVE A FLAME RESISTANT VAPOR BARRIER AT 0.75 LBS/CUBIC FOOT DENSITY
   B. EXHAUST DUCTS AND BUILDING NEUTRAL OUTSIDE AIR DUCTS ARE NOT INSULATED.
   C. SUPPLY AND RETURN DUCTWORK WITHIN 20' OF FAN INLETS AND DISCHARGES ARE TO BE INTERNALLY LINED FOR ACOUSTICAL REDUCTIONS WITH 1 THICK, 1-1/2 LB DENSITY DUCT LINER. LINING SHALL BE APPLIED WITH FIRE RESISTANT ADHESIVES AND CADMIUM OR COPPER FASTENERS.
   D. DISHWASHER OR GREASE EXHAUST HOOD DUCTWORK SHALL NOT BE LINED.
   E. MINIMUM R-5 FOR DUCTS IN UNCONDITIONED SPACES AND R-8 FOR DUCTS INSTALLED OUTDOORS, PER IECC 2009.

4. AIR DEVICES

   A. MAXIMUM NOISE CRITERIA (NC) SHALL NOT EXCEED VALUES LISTED IN AIR DEVICE SCHEDULE.
   B. APPROVED MANUFACTURERS - TITUS, KRUEGER, NAILOR, PRICE, J&J, METAL AIRE, OR APPROVED EQUAL.

5. DUCT MOUNTED SMOKE DETECTORS

   A. INSTALLED BY THE MECHANICAL CONTRACTOR AND FURNISHED BY THE ELECTRICAL CONTRACTOR WHEN A DESIGN BUILD FIRE ALARM SYSTEM IS REQUIRED.
   B. FURNISHED AND INSTALLED BY THE MECHANICAL CONTRACTOR WHEN NOT A PART OF THE DESIGN BUILD FIRE ALARM SYSTEM PACKAGE.
   C. PROVIDE AT 24VAC.
   D. DUCT DETECTORS SHALL SHUT DOWN THE ASSOCIATED AIR MOVING EQUIPMENT AND ANY OTHER ASSOCIATED UNITS WHEN TOTAL SUPPLY CFM IS 2000 OR GREATER.

6. KITCHEN HOOD EXHAUST DUCT SHALL MEET THE FOLLOWING:

   A. MINIMUM 16 GAGE CARBON STEEL.
   B. CONTINUOUS EXTERNALLY WELDED JOINTS SHALL BE PROVIDED.
   C. FABRICATE TO MEET LOCALLY ADOPTED MECHANICAL CODE, ASTM A569, AND SMACNA STANDARDS.

7. PACKAGED ROOFTOP UNIT - ELECTRIC, GASPACK, HEAT PUMP

   A. PROVIDE COMPLETE ROOFTOP UNIT WITH COILS, AIR COOLED CONDENSER, HERMETICALLY SEALED COMPRESSOR, HEATING SECTION (AS APPLICABLE), EVAPORATOR FAN, CONDENSER FAN, AND 2 SETS OF 1 THROWAWAY PLEATED 30 FILTERS, MANUAL OUTSIDE AIR DAMPER, AND ITEMS AS SCHEDULED AND ALL NECESSARY ACCESSORIES REQUIRED FOR PROPER OPERATION.
   B. ACCEPTABLE MANUFACTURERS - LENNOX, CARRIER, OR APPROVED EQUAL.
   C. PROVIDE AUTOMATIC CONTROLS - 7 DAY PROGRAMMABLE THERMOSTAT WITH AUTO HEAT/COOL CHANGEOVER AND FAN AUTO/MANUAL OPERATION.
   D. PROVIDE ALL CONDUIT, WIRING, TRANSFORMERS, AND RELAYS.
   E. PROVIDE COMPRESSOR HIGH AND LOW PRESSURE CUT-OFFS.
   F. PROVIDE CONTROL PANEL WITH STARTERS, DISCONNECT SWITCH, AND RELAYS FOR SINGLE POINT POWER CONNECTION.
   G. PROVIDE COMPLETELY FACTORY WIRED TERMINAL CONNTECTIONS FOR THERMOSTAT CONTROL.

8. FANS

   A. PROVIDE FORWARD CURVED DIRECT OR BELT DRIVEN STEEL FAN DYNAMICALLY BALANCED WITH VARIABLE OR ADJUSTABLE PITCH MOTOR SHEAVES.
   B. PROVIDE ACCESSORIES AS OUTLINED IN PLANS AND ANY OTHER REQUIRED COMPONENT TO ENSURE PROPER OPERATION.
   C. BACK DRAFT DAMPER TO BE STEEL OR CAST IRON.
   D. ACCEPTABLE MANUFACTURERS - GREENHECK, COOK, TWIN CITIES, OR APPROVED EQUAL.

TEST AND BALANCE

1. BALANCE ALL DIFFUSERS AND GRILLES TO OBTAIN THE AIRFLOWS SHOWN ON THE HVAC FLOOR PLANS.

2. THE TEST AND BALANCE (TAB) REPORT SHALL CONTAIN ALL DESIGN AIRFLOW QUANTITIES, ACTUAL AIRFLOW QUANTITIES, SUPPLY AIR TEMPERATURES, EQUIPEMENT DESIGN POWER, EQUIPMENT ACTUAL POWER, EQUIPMENT CURRENT DRAW, OUTSIDE AIR QUANTITIES AS APPLICABLE.

3. TEST AND BALANCE WORK SHALL BE DONE BY A CERTIFIED NEBB OR AABC, INDEPENDENT CONTRACTOR.

4. PROVIDE OWNER/OWNER'S REPRESENTATIVE WITH THREE COPIES OF THE FINAL REPORT.

AUTOMATIC TEMPERATURE CONTROLS

1. MECHANICAL CONTRACTOR TO PROVIDE A COMPLETE AUTOMATIC TEMPERATURE CONTROL SYSTEM AS OUTLINED BELOW, BUT NOT LIMITED TO:

   A. 7 DAY PROGRAMMABLE THERMOSTAT WITH AUTO HEAT/COOL CHANGEOVER AND FAN AUTO/MANUAL OPERATION. PROVIDE ALL JUNCTION BOXES, CONDUIT, WIRE, CIRCUIT BREAKERS, SENSOR BACK BOXES, AND ANY OTHER ACCESORY REQUIRED TO INSTALL A COMPLETE SYSTEM, IN ACCORDANCE WITH PROJECT ELECTRICAL SPECIFICATIONS AND NEC.
   B. FOR ZONING SYSTEM, SENSOR LOCATED PER PLANS ARE TO BE INTERLOCKED WITH CONTROL PANEL. ZONING MOTORIZED DAMPER TO MODULATE OPEN AND CLOSED BASED ON SPACE LOAD CONDITIONS. CONTROL PANEL TO BE PROGRAMMED TO INPUT FEEDBACK FROM SENSORS AND OUTPUT CONTROL COMMANDS TO DEVICES AT THE ZONES. UNIT HEATING AND COOLING FUNCTIONS TO BE CONTROLLED BY THERMOSTAT OR SEPARATE SENSOR LOCATED IN AN AVERAGE SPACE. CONTROL PANEL TO HAVE CAPABILITY OF AVERAGING ALL ZONES TO DETERMINE THE MODE OF THE UNIT-HEAT OR COOL. BYPASS DAMPER TO OPERATE BASED ON LOGIC FROM THE CONTROLLER AND DEPENDENT ON PRESSURE SWITCH.

2. SUBMIT SHOP DRAWINGS SHOWING THE LOCATION OF DEVICES, TEMPERATURE CONTROL WIRING, DEVICE AND COMPONENT DATA SHEETS, AND INSTALLATION DATA FOR REVIEW PRIOR TO PERFORMING WORK.

DUCT MOUNTED SMOKE DETECTORS

   A. SHALL HAVE A DUCT SMOKE TEST, AND WHEN ACTIVATED, IT SHALL INITIATE A VISIBLE AND AUDIBLE SIGNAL (ANNUNCIATOR) IN ADDITION TO THE REQUIREMENT BELOW.

1. PROVIDE WHEN INDIVIDUAL AIR MOVING EQUIPMENT EXCEEDS 2000 CFM.

   A. IF MULTIPLE UNITS ARE SERVING THE SAME SPACE, THEN EACH UNIT SERVING THE SPACE WILL REQUIRE DUCT MOUNTED SMOKE DETECTORS IF THE AGGREGATE AIRFLOW EXCEEDS 2000 CFM.
   B. DUCT DETECTORS TO SHUT DOWN THE RESPECTIVE AIR MOVING EQUIPMENT.

2. DUCT MOUNTED SMOKE DETECTORS SHALL BE INSTALLED AND PROVIDED AT 24 VAC BY THE MECHANICAL CONTRACTOR WHEN NOT PART OF THE FIRE ALARM SYSTEM.

   A. WHEN PART OF A DESIGN BUILD FIRE ALARM SYSTEM, THE MECHANICAL CONTRACTOR SHALL INSTALL THE DUCT MOUNTED SMOKE DETECTORS PROVIDED BY THE ELECTRICAL CONTRACTOR.

INSTALLATION

1. CONTRACTOR TO PROVIDE ALL OPENINGS, SLEEVES, CUTTING, PATCHING, AS REQUIRED. ALL WORK TO BE DONE BY SKILLED WORKMAN IN THE APPROPRIATE TRADES REQURED AND PAID BY THE CONTRACTOR REQUIRING THE WORK. SLEEVES PENETRATING FIRE RATED CONSTRUCTION SHALL BE APPROPRIATELY FIRE PROOFED WITH APPROVED MATERIAL FOR THE RATING AND UL LISTED. SLEEVES PASSING THROUGH WATER PROOF OR DAMP PROOF ASSEMBLIES ARE TO BE WATER TIGHT.

2. ESCUTCHEON PLATES WITH COLORS AND FINISHES SHALL BE PROVIDED AND COORDINATED WITH ARCHITECT WHERE CONDUIT OR PIPING PASSES THROUGH FLOORS, CEILING, WALLS IN FINISHED AREAS.

3. PROVIDE BASE AND COUNTER FLASHING AND WATER PROOFING FOR EXTERIOR WALL OR ROOF PENETRATIONS. COORDINATE WITH GENERAL CONTRACTOR AND/OR ROOFING CONTRACTOR ANY PROCEDURES, PROVISIONS, MEASURES RELATED TO ROOF WARRANTY, IF APPLICABLE.

4. CONTRACTOR TO PROVIDE HANDLING OF MATERIALS, RIGGING, HANDLING OF EQUIPMENT.

   A. CONTRACTOR TO PROVIDE PROTECTION OF ALL MATERIALS AND EQUIPMENT AGAINST DAMAGE, DIRT, THEFT, ETC, UNTIL ACCEPTED BY THE OWNER.
   B. ALL WORK SHALL BE TURNED OVER FULLY FUNCTIONAL, IN NEW CONDITION, AND CLEAN.

5. CONTRACTOR TO PROVIDE ALL EQUIPMENT SUPPORTS REQUIRED WITHIN THEIR SCOPE OF WORK.

   A. HANGERS, FOUNDATION, AND SUPPORTS.
   B. EQUIPMENT WITH MOVING PARTS SHALL BE PROVIDED WITH, AS APPLICABLE:
      FLEXIBLE DUCT CONNECTIONS.
      FLEXIBLE PIPING CONNECTIONS.
      VIBRATION ISOLATION.

6. SEISMIC RESTRAINTS

   A. THE MECHANICAL CONTRACTOR IS TO INCLUDE IN THEIR SCOPE OF WORK, THE DESIGN SERVICES OF A REGISTERED STRUCTURAL ENGINEER TO PRODUCE STAMPED AND SIGNED CONSTRUCTION DOCUMENTS OF MECHANICAL/PLUMBING SYSTEMS SEISMIC RESTRAINT SUPPORTS PER THE APPLICABLE BUILDING CODE.
   B. SHOP DRAWINGS TO BE SUBMITTED PRIOR TO PERFORMING WORK AND SHALL INCLUDE COORDINATION BETWEEN ALL AFFECTED TRADES. INCLUDED, BUT NOT LIMITED TO, THE FOLLOWING:
      TYPES OF SEISMIC SUPPORT REQUIRED.
      SYSTEM SUPPORT REQUIRED.
      AREAS REQUIRING SUPPORT.
      DRAWINGS DEPICTING DESIGN AND DETAILS.
   C. DRAWINGS TO BE SENT TO LOCAL BUILDING DEPARTMENT APPROVAL ANY INSTALLATION WITHOUT THE APPROVAL OF THE LOCAL BUILDING DEPARTMENT IS ENTIRELY AT THE RISK OF THE CONTRACTOR.

7. PIPE HANGERS

   A. PIPE SIZES TO 1-1/2 :
      6'-0 MAXIMUM SPACING WITH 3/8 ROD DIAMETER.
   B. PIPE SIZES 2 TO 3 :
      10'-0 MAXIMUM SPACING WITH ROD DIAMETER.
   C. PIPE SIZES 4 TO 6 :
      10'-0 MAXIMUM SPACING WITH 5/8 ROD DIAMETER.

8. PLUMBING

   A. CLEAN OUTS TO BE PROVIDED IN DRAIN, SANITARY, WASTE AS SHOWN AND AS REQUIRED BY LOCAL PLUMBING CODE AND AMENDMENTS.
   B. ON ALL INDIRECT WASTE PIPING BETWEEN 5 TO 15 FEET IN TOTAL DEVELOPED LENGTH, PROVIDE A NON-VENTED TRAP.
   C. CLEANOUTS TO BE PROVIDED IN CHANGES OF PIPING DIRECTION.
   D. DIELECTRIC FITTINGS ARE TO BE PROVIDED WHEREVER DISSIMILAR METALS ARE JOINED.
   E. PROVIDE BALANCE VALVE FOR HOT WATER RETURN SYSTEM AS REQUIRED.
   F. PROVIDE PRESSURE REDUCING VALVE IN SYSTEM AS REQUIRED.
   G. PROVIDE EXTERNAL OR INTEGRAL HEAT TRAPS FOR ALL WATER HEATING EQUIPMENT.
   H. PROVIDE CHROME PLATED ANGLE STOPS WITH ESCUTCHEON PLATES AT ALL PLUMBING FIXTURES.
   I. ALL POTABLE WATER SYSTEMS TO BE DISINFECTED PER AWWA STANDARD AND/OR PLUMBING CODE. PROVIDE OWNER OR OWNER'S REPRESENTATIVE WITH OFFICIAL DOCUMENT STATING COMPLIANCE.

9. AT THE CONCLUSION OF THE JOB, PROVIDE THE FOLLOWING, INCLUDING BUT NOT LIMITED TO:

   A. ALL AIR SIDE AND WATER SIDE SYSTEMS TO BE BALANCED, TESTED AND ADJUSTED.
   B. ALL EQUIPMENT TO BE OPERATING SAFELY, QUIETLY, AND STABLE AS PER MANUFACTURER RECOMMENDATIONS.
   C. PROVIDE SYSTEM OPERATION DEMONSTRATION TO OWNER/OWNER'S REPRESENTATIVE.
   D. PROVIDE IDENTIFICATION FOR THE FOLLOWING, WHETHER VISIBLE OR CONCEALED IN ACCORDANCE WITH OSHA AND ANSI REQUIREMENTS:
      :SWITCHES
      :STARTERS

   VALVES - PROVIDE 2 LAQUERED BRASS TAGS WITH STAMPED LETTERS ON CHAINS OR S HOOKS.

   :EQUIPMENT - PROVIDE PERMANENTLY ATTACHED (ADHESIVE NOT ACCEPTED) LAMINATED ENGRAVED NAMEPLATES WITH BEVELED EDGES, WITH WHITE LETTERS ON BLACK BACKGROUND.

   :PIPING - NEAR EACH VALVE WITH PIPE TAPE INDICATING SYSTEM TYPE, DIRECTION OF FLOW, AREA SERVED AND SIZE.

   :DUCT

   DAMPERS - PROVIDE 2 LAQUERED BRASS TAGS WITH STAMPED LETTERS ON CHAINS OR S HOOKS.

   CONTROLS - PROVIDE 2 LAQUERED BRASS TAGS WITH STAMPED LETTERS ON CHAINS OR S HOOKS.

10. GENERAL

   A. MAINTAIN RATED WALL ASSEMBLY INTEGRITY AS REQUIRED. PROVIDE FIRE DAMPERS, SMOKE/FIRE DAMPERS, SMOKE DAMPERS AND ALL ASSOCIATED ACCESSORIES AND CONSTRUCTION REQUIREMENTS AS REQUIRED.
   B. STARTERS AND MOTOR CONTROLS TO BE FURNISHED BY MECHANICAL CONTRACTOR, INSTALLED BY ELECTRICAL CONTRACTOR. ELECTRICAL CONTRACTOR TO PROVIDE ALL NECESSARY COMPONENTS REQUIRED FOR INSTALLATION. MECHANICAL CONTRACTOR TO FURNISH ALL CONTROLS AND RELATED ACCESSORIES REQUIRED.
   C. PROVIDE APPROPRIATE ACCESS PANELS FOR INACCESSIBLE COMPONENTS WHERE REQUIRED

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ISSUE	DATE	DESCRIPTION

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SHEET TITLE

MECHANICAL AND PLUMBING SPECIFICATIONS

M0.1

SHEET - OF -

MECHANICAL AND PLUMBING SCHEDULES AND DIAGRAMS

PACKAGED GAS HEATING ELECTRIC COOLING ROOFTOP UNIT SCHEDULE

EQUIP ID	MANUFACTURER MODEL	LOCATION	SERVICE	SUPPLY AIR CFM	MIN. OUTSIDE AIR, CFM	ESP IN	BHP	COOLING TOTAL MBH	COOLING SENSIBLE MBH	COOLING EAT DB (°F)	COOLING EAT WB (°F)	COOLING OUTSIDE AMBIENT (°F)	COOLING SEER/ EER	HEATING GAS INPUT MBH	HEATING GAS OUTPUT MBH	HEATING EAT DB (°F)	HEATING LAT DB (°F)	HEATING GAS TYPE (NATURAL, LP, PROP)	HEATING EFFICIENCY (%)	ELECTRICAL V/PH/HZ	ELECTRICAL MCA	ELECTRICAL MOCP	OPERATING WEIGHT, LBS	NOTES
AC-1	LENNOX KGA090S4B	ROOF	RECEPTION	3000	600	0.75	2	72.4	68.6	115	68	115	- / 11	150	120	54.9	56.6	NATURAL	80	208/3/60	42	60	1300	1 THROUGH 11
AC-2	LENNOX KGB024S4D	ROOF	ROOM	800	200	0.75	1/4	18.8	18.8	115	68	115	14 / 12.7	65	52	58.8	59.7	NATURAL	80	208/1/60	16	25	1000	1 THROUGH 11
AC-3	LENNOX KGA120S4B	ROOF	TOILET, TOILET, MAINTENANCE	4000	800	0.75	3	78.4	74.2	115	68	115	- /11	180	144	59.4	61.1	NATURAL	80	208/3/60	46	50	1400	1 THROUGH 11
AC-4	LENNOX KGA120S4B	ROOF	RECEPTION	4000	800	0.75	3	78.4	74.2	115	68	115	- /11	180	144	59.4	61.1	NATURAL	80	208/3/60	46	50	1400	1 THROUGH 11
AC-5	LENNOX KGA060S4B	ROOF	ROOM	2000	400	0.75	2	47.4	45.6	115	68	115	13 / 11.2	150	120	55.2	56.7	NATURAL	80	208/3/60	27	40	1100	1 THROUGH 11
AC-6	LENNOX LGH242H4V	ROOF	KITCHEN, DINING ROOM, BANQUET HALL, LARGE OFFICE SPACE, OFFICES (11)	8000	1600	0.75	5	203	185.4	115	68	115	- / 12.3	260	208	55.1	56.3	NATURAL	80	208/3/60	131	150	4200	1 THROUGH 15
AC-7	LENNOX KGA120S4B	ROOF	ROOM, ROOM, OFFICE, OFFICE, OFFICE, BANQUET HALL, LARGE OFFICE SPACE	4000	800	0.75	3	78.4	74.2	115	68	115	- /11	180	144	59.4	61.1	NATURAL	80	208/3/60	46	50	1400	1 THROUGH 11
AC-8	LENNOX LGH420S4V	ROOF	OFFICES (17)	14000	300	0.75	10	287.7	244	115	68	115	- / 10	500	400	60.2	62.1	NATURAL	80	208/3/60	203	225	7400	1 THROUGH 11, 13

NOTES
1. PROVIDE DUCT MOUNTED SMOKE DETECTOR.
2. PROVIDE DISCONNECT.
3. PROVIDE VIBRATION ISOLATION.
4. PROVIDE 2" MERV 4 THROWAWAY FILTER.
5. PROVIDE 14" ROOF CURB.
6. PROVIDE FLEX DUCT CONNECTION AT DUCT DROPS.
7. PROVIDE DUCT ACOUSTICAL LINING FOR MINIMUM 20 FEET FROM DUCT CONNECTION INCLUDING DUCT FITTINGS.
8. PROVIDE ECONOMIZER WITH BAROMETRIC RELIEF.
9. PROVIDE LOW AMBIENT KIT.
10. PROVIDE BELT DRIVE INDOOR MOTOR.
11. PROVIDE POWERED CONVENIENCE OUTLET, POWERED FROM LINE VOLTAGE SIDE OF UNIT.
12. PROVIDE ENVIRON COIL SYSTEM.
13. PROVIDE 100% HIGH STATIC PEF WITH VFD AND HOOD.
14. PROVIDE STANDARD CAP.
15. PROVIDE STATIC LIMIT TRANSDUCER.

EXHAUST FAN SCHEDULE

EQUIP ID	MANUFACTURER & MODEL	LOCATION	AREA SERVED	EXHAUST AIR CFM	FAN TYPE	ESP IN	RPM	ELECTRICAL V/PH/HZ	ELECTRICAL HP	ELECTRICAL FLA	OPERATING WEIGHT, LBS	NOTES
EF-1	COOK 120R15D	ROOF	TOILET	1000	CENTRIFUGAL	0.6	1550	120/1/60	1/4	5.8	60	1,2,3,4,5
EF-2	COOK 101R17D	ROOF	TOILET	600	CENTRIFUGAL	0.6	1725	120/1/60	1/6	5.2	32	1,2,3,4,5
EF-3	COOK 101R17D	ROOF	STORAGE	600	CENTRIFUGAL	0.6	1725	120/1/60	1/6	5.2	32	1,2,3,4,5
EF-4	COOK 150R13D	ROOF	DISH	1600	CENTRIFUGAL	0.7	1300	120/1/60	3/4	13.8	62	1,2,3,4,5,6,7,8
EF-5	COOK 101R17D	ROOF	KILN	500	CENTRIFUGAL	0.6	1725	120/1/60	1/6	5.2	32	1,2,3,4,5,9

NOTES
1. PROVIDE ROOF CURB.
2. PROVIDE DISCONNECT.
3. INTERLOCK WITH EXISTING CONTROLS.
4. PROVIDE MOTOR WITH THERMAL OVERLOADS.
5. PROVIDE BACKDRAFT DAMPER.
6. PROVIDE CLEAN OUT PORT.
7. PROVIDE ALL ALUMINUM CONSTRUCTION.
8. INTERLOCK WITH DISH HOOD. FIELD VERIFY CONNECTION.
9. INTERLOCK WITH KILN ROOM SWITCH.

KITCHEN EXHAUST FAN SCHEDULE

EQUIP ID	MANUFACTURER & MODEL	LOCATION	AREA SERVED	EXHAUST AIR CFM	FAN TYPE	ESP IN	RPM	ELECTRICAL V/PH/HZ	ELECTRICAL HP	ELECTRICAL FLA	OPERATING WEIGHT, LBS	NOTES
KEF-1	COOK 225VX17D	ROOF	HOOD	3000	CENTRIFUGAL	2.5	1895	208/3/60	3	10.6	219	1, 2, 3, 4, 5

NOTES
1. INTERLOCK WITH HOOD.
2. PROVIDE DISCONNECT.
3. PROVIDE MOTOR WITH THERMAL OVERLOADS.
4. PROVIDE AUTOMATIC BELT TENSIONER.
5. UL 762.

PLUMBING FIXTURE SPECIFICATION AND SCHEDULE

PLAN ID	DESCRIPTION	MAXIMUM FLOW RATE	ROUGH-IN CONNECTIONS (IN) CW	HW	TW	V	SS	TRAP	REMARKS
HB-1	HOSE BIBB. WOODFORD RHY2 FREEZELESS HYDRANTS AUTOMATICALLY DRAIN WITH SHUT-OFF. HEVY DUTY CAST IRON MOUNTING SYSTEM.		3/4	-	-	-	-	-	

MAKE UP AIR UNIT SCHEDULE

EQUIP ID	MANUFACTURER & MODEL	LOCATION	AREA SERVED	MAKE-UP AIR CFM	ESP IN	RPM	ELECTRICAL V/PH/HZ	ELECTRICAL FLA	ELECTRICAL HP	OPERATING WEIGHT, LBS	NOTES
MAU-1	CAPTIVEAIRE A2-IBT-300-G15	ROOF	HOOD	2400	0.8	756	208/3/60	4.6	1.5	1383	1, 2

EQUIP ID	HEATING SECTION DATA INPUT MBH / OUTPUT MBH	ENTERING AIR / LEAVING AIR (°F)	FUEL TYPE	EFFICIENCY (%)	EVAP COOLER ENTERING AIR DB (°F)	WB (°F)	EVAP COOLER LEAVING AIR DB (°F)	WB (°F)
MAU-1	139 / 111	27 / 70	NAT GAS	80	107	67.0	84	67.0

NOTES
1. ACCESSORIES AS DETAILED ON CAPTIVEAIRE SHOP DRAWINGS MFS-1 AND MFS-2.
2. OR APPROVED EQUAL

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SHEET TITLE
MECHANICAL AND PLUMBING SCHEDULES AND DIAGRAMS

513-45Q

M0.2

SHEET - OF -

IECC COM□LIANCE STATEMENT

COM*check* Software Version 4.0.5.0

Mechanical Compliance Certificate

Section 1: Project Information

Energy Code: **2009 IECC**
Project Title: Las Vegas Senior Center HVAC
Project Type: Alteration

Construction Site:
451 East Bonanza Road
Las Vegas, NV 89101

Owner/Agent:

Designer/Contractor:
HPA Consulting Engineers
6280 S. Valley View Blvd Suite 416
Las Vegas, NV 89118

Section 2: General Information

Building Location (for weather data): Las Vegas, Nevada
Climate Zone: 3b

Section 3: Mechanical Systems List

Quantity System Type & Description

1 AC-1 (Single Zone) :
Heating: 1 each - Other, Gas, Capacity = 52 kBtu/h
No minimum efficiency requirement applies
Cooling: 1 each - Single Package DX Unit, Capacity = 19 kBtu/h, Air-Cooled Condenser, Air Economizer
Proposed Efficiency = 14.00 SEER, Required Efficiency: 13.00 SEER
Fan System: FAN SYSTEM 1 -- Compliance (Motor nameplate HP method) : Passes

Fans:
MUA1 Supply, Constant Volume, 2400 CFM, 1.5 motor nameplate hp

3 AC-2, 4, 7 (Single Zone) :
Heating: 1 each - Other, Gas, Capacity = 144 kBtu/h
No minimum efficiency requirement applies
Cooling: 1 each - Single Package DX Unit, Capacity = 78 kBtu/h, Air-Cooled Condenser, Air Economizer
Proposed Efficiency = 11.00 EER, Required Efficiency: 11.00 EER
Fan System: FAN SYSTEM 1 -- Compliance (Motor nameplate HP method) : Passes

Fans:
MUA1 Supply, Constant Volume, 2400 CFM, 1.5 motor nameplate hp

1 AC-3 (Single Zone) :
Heating: 1 each - Other, Gas, Capacity = 120 kBtu/h
No minimum efficiency requirement applies
Cooling: 1 each - Single Package DX Unit, Capacity = 72 kBtu/h, Air-Cooled Condenser, Air Economizer
Proposed Efficiency = 11.00 EER, Required Efficiency: 11.00 EER
Fan System: FAN SYSTEM 1 -- Compliance (Motor nameplate HP method) : Passes

Fans:
MUA1 Supply, Constant Volume, 2400 CFM, 1.5 motor nameplate hp

1 AC-5 (Single Zone) :
Heating: 1 each - Other, Gas, Capacity = 120 kBtu/h
No minimum efficiency requirement applies
Cooling: 1 each - Single Package DX Unit, Capacity = 47 kBtu/h, Air-Cooled Condenser, Air Economizer
Proposed Efficiency = 13.00 SEER, Required Efficiency: 13.00 SEER
Fan System: FAN SYSTEM 1 -- Compliance (Motor nameplate HP method) : Passes

Fans:
MUA1 Supply, Constant Volume, 2400 CFM, 1.5 motor nameplate hp

1 AC-6 (Single Zone) :

Heating: 1 each - Other, Gas, Capacity = 208 kBtu/h
No minimum efficiency requirement applies
Cooling: 1 each - Single Package DX Unit, Capacity = 203 kBtu/h, Air-Cooled Condenser, Air Economizer
Proposed Efficiency = 12.30 EER, Required Efficiency: 10.80 EER
Fan System: FAN SYSTEM 1 -- Compliance (Motor nameplate HP method) : Passes

Fans:
MUA1 Supply, Constant Volume, 2400 CFM, 1.5 motor nameplate hp

1 AC-8 (Single Zone) :
Heating: 1 each - Other, Gas, Capacity = 400 kBtu/h
No minimum efficiency requirement applies
Cooling: 1 each - Single Package DX Unit, Capacity = 288 kBtu/h, Air-Cooled Condenser, Air Economizer
Proposed Efficiency = 10.00 EER, Required Efficiency: 9.80 EER (9.5 IPLV)
Fan System: FAN SYSTEM 1 -- Compliance (Motor nameplate HP method) : Passes

Fans:
MUA1 Supply, Constant Volume, 2400 CFM, 1.5 motor nameplate hp

Section 4: Requirements Checklist

Requirements Specific To: AC-1 :

☐ 1. Equipment minimum efficiency: Single Package Unit: 13.00 SEER

Requirements Specific To: AC-2, 4, 7 :

☐ 1. Equipment minimum efficiency: Single Package Unit: 11.00 EER
☐ 2. Integrated economizer is required for this location and system.
☐ 3. Cooling system provides a means to relieve excess outdoor air during economizer operation.

Requirements Specific To: AC-3 :

☐ 1. Equipment minimum efficiency: Single Package Unit: 11.00 EER
☐ 2. Integrated economizer is required for this location and system.
☐ 3. Cooling system provides a means to relieve excess outdoor air during economizer operation.

Requirements Specific To: AC-5 :

☐ 1. Equipment minimum efficiency: Single Package Unit: 13.00 SEER

Requirements Specific To: AC-6 :

☐ 1. Equipment minimum efficiency: Single Package Unit: 10.80 EER
☐ 2. Integrated economizer is required for this location and system.
☐ 3. Cooling system provides a means to relieve excess outdoor air during economizer operation.
☐ 4. Hot gas bypass prohibited unless system has multiple steps of unloading or continuous capacity modulation
☐ 5. Hot gas bypass limited to 50% of total cooling capacity

Requirements Specific To: AC-8 :

☐ 1. Equipment minimum efficiency: Single Package Unit: 9.80 EER (9.5 IPLV)
☐ 2. Integrated economizer is required for this location and system.
☐ 3. Cooling system provides a means to relieve excess outdoor air during economizer operation.
☐ 4. Hot gas bypass prohibited unless system has multiple steps of unloading or continuous capacity modulation
☐ 5. Hot gas bypass limited to 25% of total cooling capacity

Generic Requirements: Must be met by all systems to which the requirement is applicable:

☐ 1. Plant equipment and system capacity no greater than needed to meet loads
Exception(s):
☐ Standby equipment automatically off when primary system is operating
☐ Multiple units controlled to sequence operation as a function of load
☐ 2. Minimum one temperature control device per system
☐ 3. Minimum one humidity control device per installed humidification/dehumidification system
☐ 4. Load calculations per ASHRAE/ACCA Standard 183.
☐ 5. Automatic Controls: Setback to 55°F (heat) and 85°F (cool); 7-day clock, 2-hour occupant override, 10-hour backup
Exception(s):
☐ Continuously operating zones
☐ 6. Outside-air source for ventilation; system capable of reducing OSA to required minimum

☐ 7. R-5 supply and return air duct insulation in unconditioned spaces
R-8 supply and return air duct insulation outside the building
R-8 insulation between ducts and the building exterior when ducts are part of a building assembly
Exception(s):
☐ Ducts located within equipment
☐ Ducts with interior and exterior temperature difference not exceeding 15°F.
☐ 8. Mechanical fasteners and sealants used to connect ducts and air distribution equipment
☐ 9. Ducts sealed - longitudinal seams on rigid ducts; transverse seams on all ducts; UL 181A or 181B tapes and mastics
☐ 10. Hot water pipe insulation: 1.5 in. for pipes <=1.5 in. and 2 in. for pipes >1.5 in.
Chilled water/refrigerant/brine pipe insulation: 1.5 in. for pipes <=1.5 in. and 1.5 in. for pipes >1.5 in.
Steam pipe insulation: 1.5 in. for pipes <=1.5 in. and 3 in. for pipes >1.5 in.
Exception(s):
☐ Piping within HVAC equipment.
☐ Fluid temperatures between 55 and 105°F.
☐ Fluid not heated or cooled with renewable energy.
☐ Piping within room fan-coil (with AHRI440 rating) and unit ventilators (with AHRI840 rating).
☐ Runouts <4 ft in length.
☐ 11. Operation and maintenance manual provided to building owner
☐ 12. Thermostatic controls have 5°F deadband
Exception(s):
☐ Thermostats requiring manual changeover between heating and cooling
☐ Special occupancy or special applications where wide temperature ranges are not acceptable and are approved by the authority having jurisdiction.
☐ 13. Balancing devices provided in accordance with IMC 603.17
☐ 14. Demand control ventilation (DCV) present for high design occupancy areas (>40 person/1000 ft2 in spaces >500 ft2) and served by systems with any one of 1) an air-side economizer, 2) automatic modulating control of the outdoor air damper, or 3) a design outdoor airflow greater than 3000 cfm.
Exception(s):
☐ Systems with heat recovery.
☐ Multiple-zone systems without DDC of individual zones communicating with a central control panel.
☐ Systems with a design outdoor airflow less than 1200 cfm.
☐ Spaces where the supply airflow rate minus any makeup or outgoing transfer air requirement is less than 1200 cfm.
☐ 15. Motorized, automatic shutoff dampers required on exhaust and outdoor air supply openings
Exception(s):
☐ Gravity dampers acceptable in buildings <3 stories
☐ 16. Automatic controls for freeze protection systems present
☐ 17. Exhaust air heat recovery included for systems 5,000 cfm or greater with more than 70% outside air fraction or specifically exempted
Exception(s):
☐ Hazardous exhaust systems, commercial kitchen and clothes dryer exhaust systems that the International Mechanical Code prohibits the use of energy recovery systems.
☐ Systems serving spaces that are heated and not cooled to less than 60°F.
☐ Where more than 60 percent of the outdoor heating energy is provided from site-recovered or site solar energy.
☐ Heating systems in climates with less than 3600 HDD.
☐ Cooling systems in climates with a 1 percent cooling design wet-bulb temperature less than 64°F.
☐ Systems requiring dehumidification that employ energy recovery in series with the cooling coil.
☐ Laboratory fume hood exhaust systems that have either a variable air volume system capable of reducing exhaust and makeup air volume to 50 percent or less of design values or, a separate make up air supply meeting the following makeup air requirements: a) at least 75 percent of exhaust flow rate, b) heated to no more than 2°F below room setpoint temperature, c) cooled to no lower than 3°F above room setpoint temperature, d) no humidification added, e) no simultaneous heating and cooling.

Section 5: Compliance Statement

Compliance Statement: The proposed mechanical alteration project represented in this document is consistent with the building plans, specifications and other calculations submitted with this permit application. The proposed mechanical alteration project has been designed to meet the 2009 IECC, Chapter 8, requirements in COM*check* Version 4.0.5.0 and to comply with the mandatory requirements in the Requirements Checklist.

_____ _____ _____

Name - Title Signature Date

Section 6: Post Construction Compliance Statement

☐ HVAC record drawings of the actual installation, system capacities, calibration information, and performance data for each equipment provided to the owner.
☐ HVAC O&M documents for all mechanical equipment and system provided to the owner by the mechanical contractor.
☐ Written HVAC balancing and operations report provided to the owner.

The above post construction requirements have been completed.

_____ _____ _____
Principal Mechanical Designer-Name Signature Date

PROFESSIONAL ENGINEER - STATE OF NEVADA
BRYAN OSAMU NEKOBA
Exp. 12-31-19
MECHANICAL
No. 18520
01/09/2018

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Project #: L17138

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ISSUE DATE: 12.08.2017
PROJECT NO: L17138
CAD DWG FILE: M0.3 IECC COMPLIANCE STATEMENT.DWG
DRAWN BY: HPA
BID NUMBER: 18.69111.02

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SHEET TITLE

IECC COMPLIANCE STATEMENT

513-45Q

M0.3

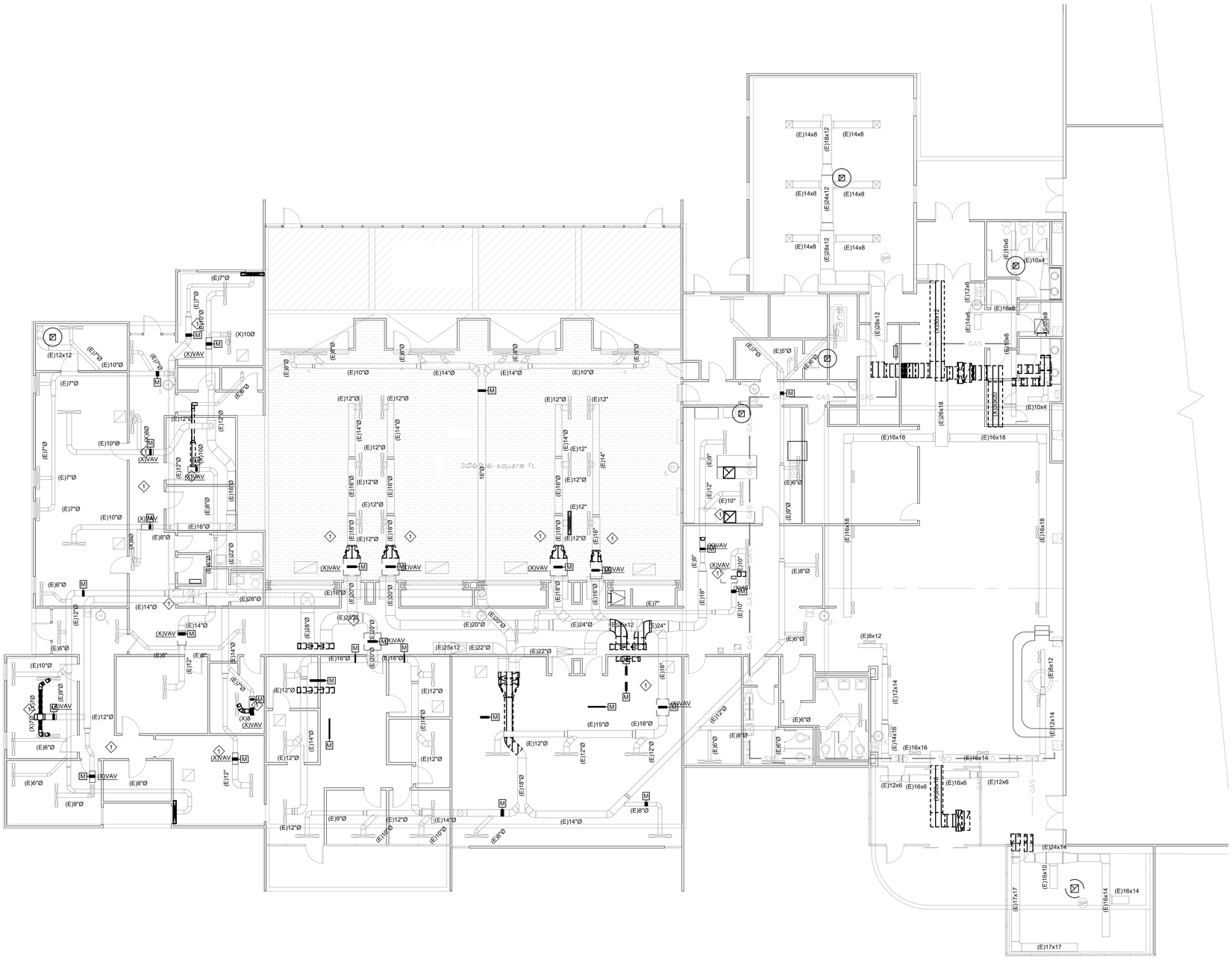
SHEET - OF -

GENERAL NOTES:

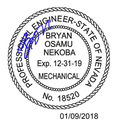
1. WHERE DUCT OR PIPING IS TO BE REMOVED AT A SPECIFIC POINT, DUCT OR PIPE IS TO BE BLANKED OFF OR CAPPED AND REPAIRED TO LIKE NEW CONDITION.
2. PIPING AND EQUIPMENT LOCATIONS SHOWN ARE FROM BEST AVAILABLE INFORMATION. CONTRACTOR TO FIELD VERIFY SPECIFIC LOCATION.
3. PIPING DISCONNECTED FROM EQUIPMENT REMOVED SHALL BE BLANKED OFF OR CAPPED IN CEILING, FLOORS OR WALLS.
4. ANY EQUIPMENT OR COMPONENT REMOVED SHALL BE DISPOSED OF PROPERLY BY THE CONTRACTOR AND REMOVED FROM THE PROJECT SITE.
5. RECYCLE DEMOLISHED COMPONENTS TO THE FURTHEST EXTENT POSSIBLE. CONTRACTOR ALLOWED TO PERFORM RECYCLING PROVIDED PAPERWORK IS PRODUCED TO PROVE RECYCLING.

SHEET NOTES:

1. EXISTING VAV BOX TO BE REMOVED. FIELD VERIFY SPECIFIC LOCATION. REMOVE EXISTING ASSOCIATED CONTROLS AND SENSOR. RETURN TO OWNER.



A MECHANICAL DEMOLITION FLOOR PLAN
MD2.1 1/8" = 1'-0"



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MECHANICAL DEMOLITION FLOOR PLAN

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MD2.1

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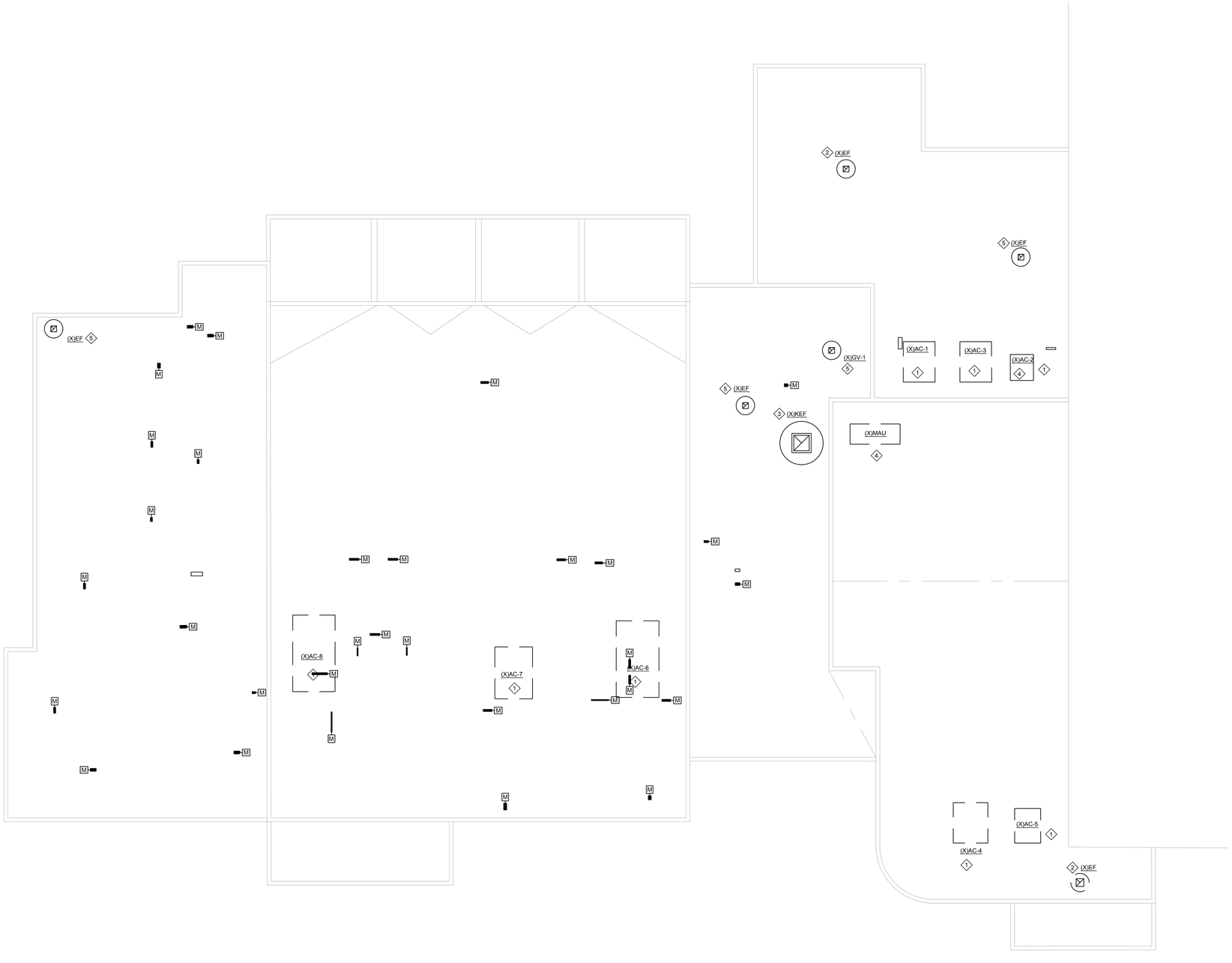

A MECHANICAL DEMOLITION ROOF PLAN
MD2.2 1/8" = 1'-0"

GENERAL NOTES:

1. WHERE DUCT OR PIPING IS TO BE REMOVED AT A SPECIFIC POINT, DUCT OR PIPE IS TO BE BLANKED OFF OR CAPPED AND REPAIRED TO LIKE NEW CONDITION.
2. PIPING AND EQUIPMENT LOCATIONS SHOWN ARE FROM BEST AVAILABLE INFORMATION. CONTRACTOR TO FIELD VERIFY SPECIFIC LOCATION.
3. PIPING DISCONNECTED FROM EQUIPMENT REMOVED SHALL BE BLANKED OFF OR CAPPED IN CEILING, FLOORS OR WALLS.
4. ANY EQUIPMENT OR COMPONENT REMOVED SHALL BE DISPOSED OF PROPERLY BY THE CONTRACTOR AND REMOVED FROM THE PROJECT SITE.
5. RECYCLE DEMOLISHED COMPONENTS TO THE FURTHEST EXTENT POSSIBLE. CONTRACTOR ALLOWED TO PERFORM RECYCLING PROVIDED PAPERWORK IS PRODUCED TO PROVE RECYCLING.
6. ALL WORK TO BE COORDINATED WITH ROOFING CONTRACTOR.

SHEET NOTES:

1. EXISTING ROOFTOP UNIT TO BE REPLACED. FIELD VERIFY SPECIFIC LOCATION. REMOVE EXISTING CURB AND PREPARE FOR NEW UNIT AND CURB.
2. EXISTING EXHAUST FAN TO BE REMOVED. FIELD VERIFY SPECIFIC LOCATION. REMOVE EXISTING CURB. CAP AND SEAL ROOFING PER OWNER REQUIREMENTS. REMOVE ALL AIR DISTRIBUTION DOWNSTREAM.
3. EXISTING KITCHEN EXHAUST FAN TO BE REPLACED. FIELD VERIFY SPECIFIC LOCATION. REMOVE EXISTING CURB AND PREPARE FOR NEW FAN AND CURB. MAINTAIN AND INSPECT EXISTING GREASE DUCT. PROVIDE ITEMIZED LIST OF DEFICIENCIES TO OWNER.
4. EXISTING MAKE UP AIR UNIT TO BE REPLACED. FIELD VERIFY SPECIFIC LOCATION. REMOVE EXISTING CURB AND PREPARE FOR NEW UNIT AND CURB. MAINTAIN AND INSPECT EXISTING MAKE UP AIR CONNECTION.
5. EXISTING FAN TO BE REPLACED. FIELD VERIFY SPECIFIC LOCATION.

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ISSUE DATE: 12.08.2017
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MECHANICAL DEMOLITION ROOF PLAN

513-45Q

MD2.2

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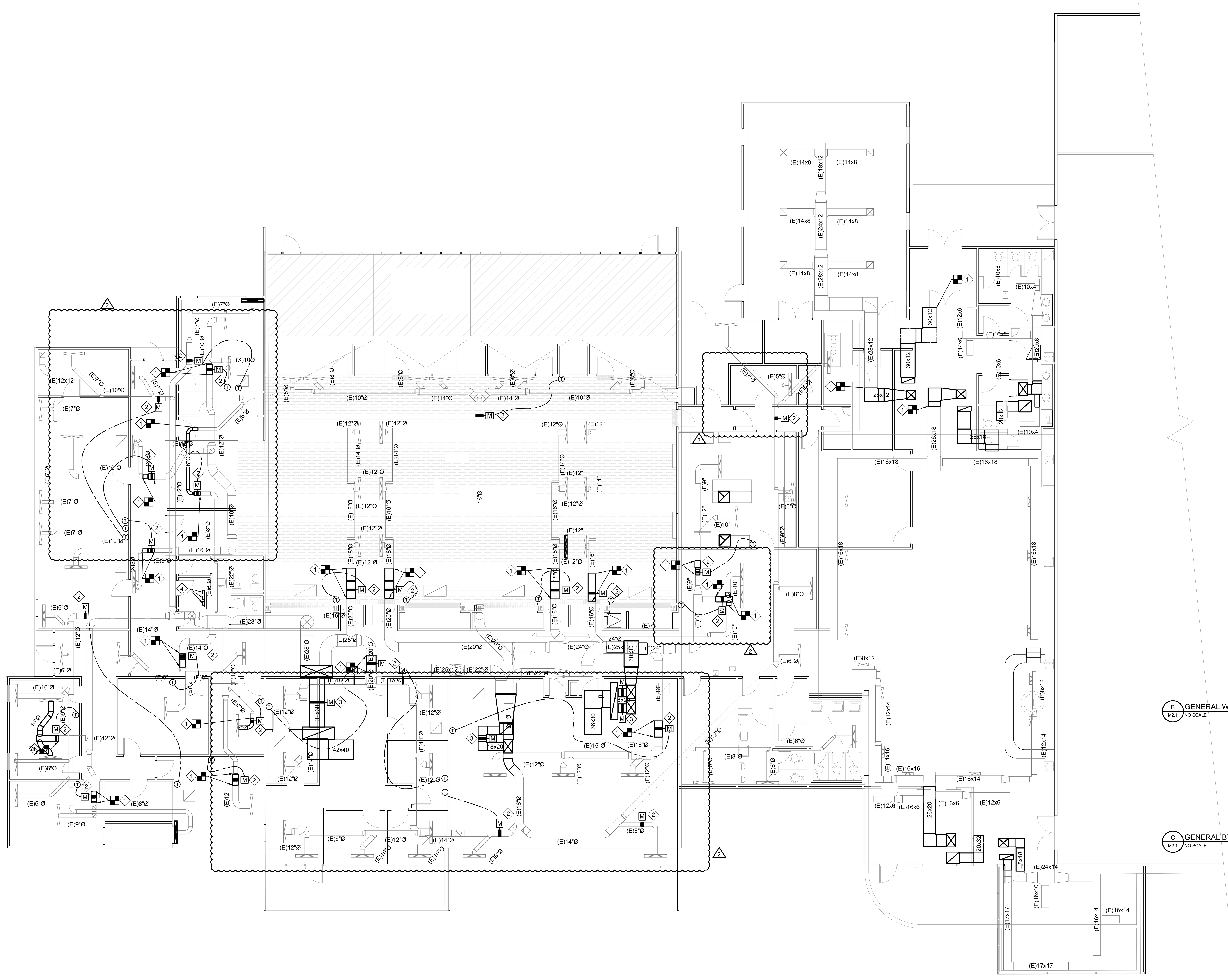


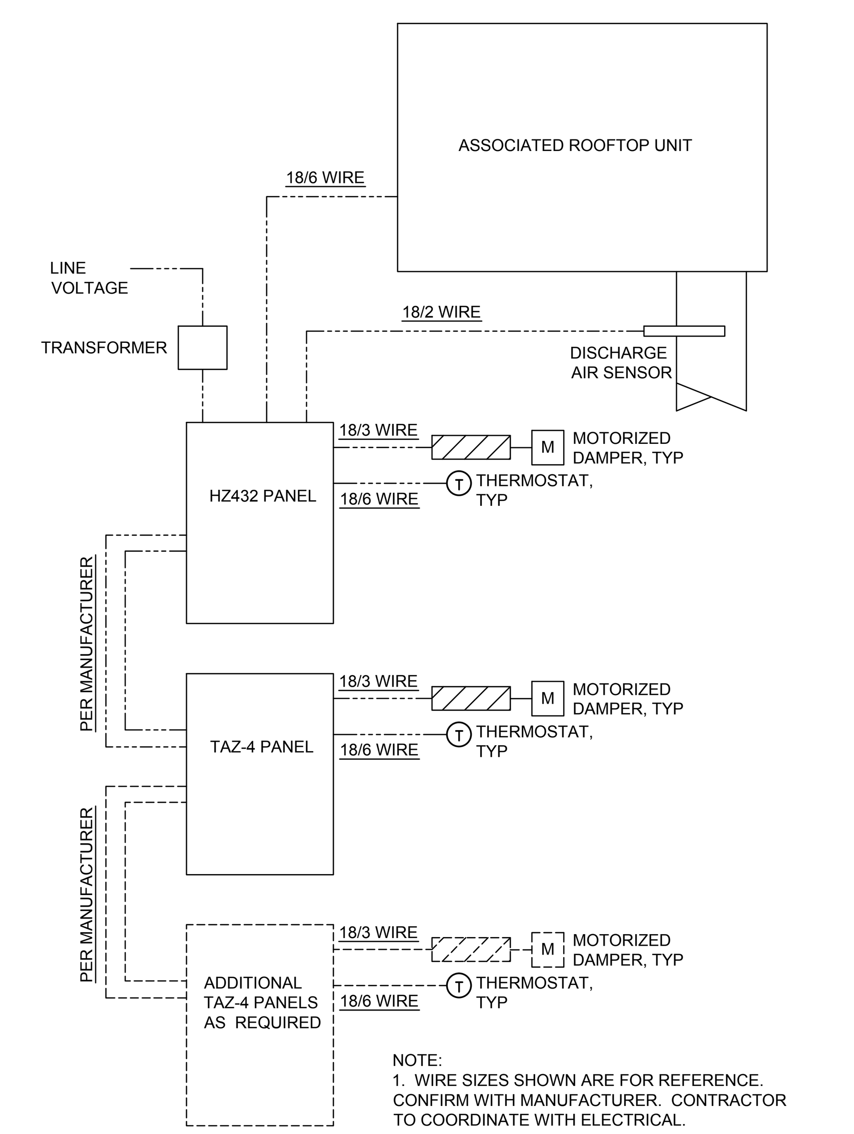
A MECHANICAL FLOOR PLAN
M2.1 1/8" = 1'-0"

GENERAL NOTES:

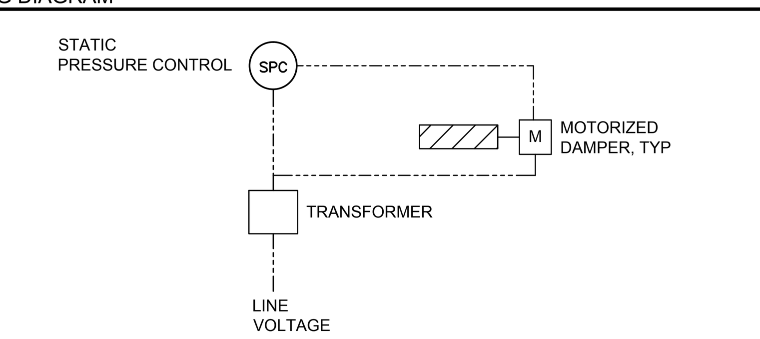
1. MECHANICAL CONTRACTOR TO COORDINATE ROUTING AND LOCATION OF MECHANICAL COMPONENTS AND EQUIPMENT WITH ALL OTHER TRADES AND EXISTING FIELD CONDITIONS PRIOR TO PERFORMING WORK.
2. CONTRACTOR TO CUT AND PATCH AS REQUIRED TO PERFORM THE WORK.
3. ACCESS DOORS ARE REQUIRED FOR ANY COMPONENT REQUIRING ACCESS ABOVE HARD LID CEILINGS. COORDINATE SIZE, LOCATION AND FINISH WITH ARCHITECT PRIOR TO PERFORMING WORK.
4. REFER TO THE DIAGRAMS THAT APPLY TO THIS SHEET WHICH PROVIDE GENERAL GUIDANCE FOR INSTALLATION THOUGH NOT ALL COMPONENTS AND ACCESSORIES MAY BE SHOWN.
5. PRIOR TO INSTALLATION, CONFIRM SPECIFIC LOCATION FOR ALL THERMOSTATS / SENSORS WITH ARCHITECT. MOUNT AT 48" A.F.F. OR IN ACCORDANCE WITH ADA REQUIREMENTS. PROVIDE LOCKING COVERS.
6. COORDINATE AND CONFIRM BORDER, FRAME, FINISH, AND LOCATION WITH ARCHITECT PRIOR TO ORDERING.
7. ANY PENETRATIONS THROUGH WALL STUDS, FLOOR JOISTS, OR ROOF TO BE IN ACCORDANCE WITH THE LATEST ADOPTED BUILDING CODE.
8. DUCT DIMENSIONS SHOWN ARE CLEAR INSIDE DIMENSIONS.
9. CONTRACTOR TO CONFIRM ADEQUATE RETURN AIR PATH BACK TO MAIN AIR HANDLING UNIT.

SHEET NOTES:

1. CONNECT NEW TO EXISTING.
2. ZONE CONTROL DAMPER. HONEYWELL MARD OR EQUAL INTEGRATED WITH CONTROL PANEL.
3. BYPASS DAMPER. HONEYWELL MARD MODULATING DAMPER WITH STATIC PRESSURE SWITCH.
4. ZONE CONTROL PANEL. HONEYWELL TRUEZONE HZ432 OR EQUAL. PROVIDE EXPANSION TO ACCOMMODATE REQUIRED NUMBER OF ZONES SHOWN ON PLAN.
5. RETURN CONTROL DAMPER. DAMPER TO MODULATE IN CONJUNCTION WITH BYPASS DAMPER.
6. ALL SENSORS/THERMOSTATS TO BE FIELD LOCATED.



B GENERAL WIRING DIAGRAM
M2.1 NO SCALE



C GENERAL BYPASS DAMPER WIRING DIAGRAM
M2.1 NO SCALE

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ISSUE	DATE	DESCRIPTION
2	08.29.18	OWNER CHANGES
1	08.21.18	CLARIFICATIONS

ISSUE DATE: 12/08/2017
PROJECT NO: L17138
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SHEET TITLE

MECHANICAL FLOOR PLAN

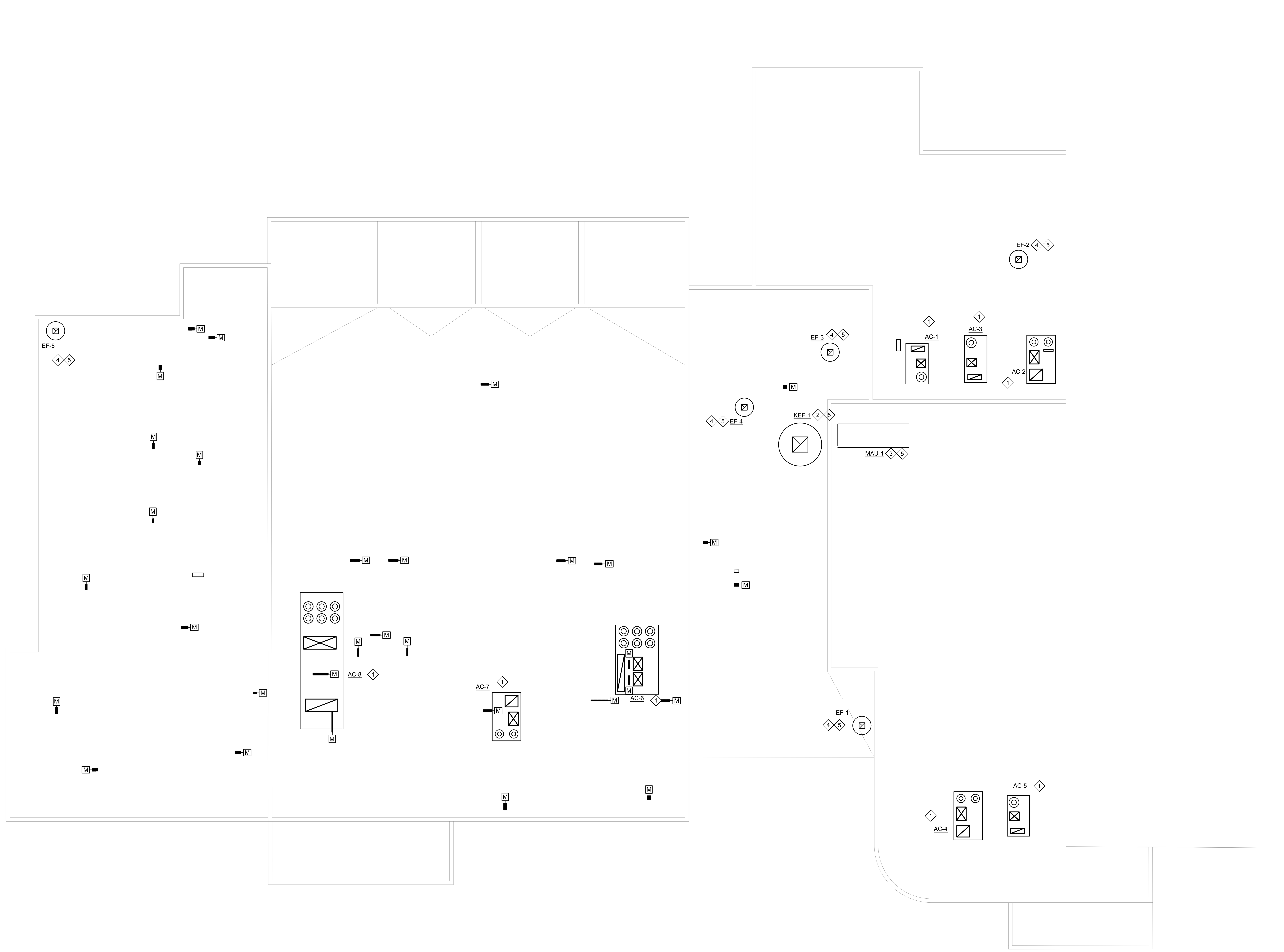
513-45Q

GENERAL NOTES:

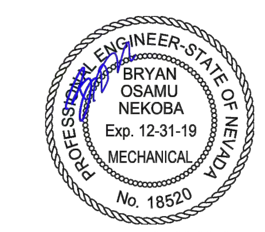
1. MECHANICAL CONTRACTOR TO COORDINATE ROUTING AND LOCATION OF MECHANICAL COMPONENTS AND EQUIPMENT WITH ALL OTHER TRADES AND EXISTING FIELD CONDITIONS PRIOR TO PERFORMING WORK.
2. CONTRACTOR TO CUT AND PATCH AS REQUIRED TO PERFORM THE WORK.
3. ACCESS DOORS ARE REQUIRED FOR ANY COMPONENT REQUIRING ACCESS ABOVE HARD LID CEILINGS. COORDINATE SIZE, LOCATION AND FINISH WITH ARCHITECT PRIOR TO PERFORMING WORK.
4. REFER TO THE DIAGRAMS THAT APPLY TO THIS SHEET WHICH PROVIDE GENERAL GUIDANCE FOR INSTALLATION THOUGH NOT ALL COMPONENTS AND ACCESSORIES MAY BE SHOWN.
5. COORDINATE AND CONFIRM BORDER, FRAME, FINISH, AND LOCATION WITH ARCHITECT PRIOR TO ORDERING.
6. ANY PENETRATIONS THROUGH WALL STUDS, FLOOR JOISTS, OR ROOF TO BE IN ACCORDANCE WITH THE LATEST ADOPTED BUILDING CODE.
7. DUCT DIMENSIONS SHOWN ARE CLEAR INSIDE DIMENSIONS.
8. ALL WORK TO BE COORDINATED WITH ROOFING CONTRACTOR.

SHEET NOTES:

1. NEW ROOFTOP UNIT. INSTALL PER MANUFACTURER RECOMMENDATION'S AND APPLICABLE BUILDING CODES.
2. NEW ROOF MOUNTED KITCHEN EXHAUST FAN. INSTALL PER MANUFACTURER RECOMMENDATIONS AND APPLICABLE BUILDING CODES. MAINTAIN 10' MINIMUM FROM OUTSIDE AIR INTAKES. RECONNECT EXISTING GREASE DUCT TO NEW FAN. PROVIDE DUCT EXTENSION AND TRANSITIONS AS REQUIRED.
3. NEW MAKEUP AIR UNIT. INSTALL PER MANUFACTURER RECOMMENDATIONS AND APPLICABLE BUILDING CODES. RECONNECT EXISTING MAKEUP AIR DUCT TO NEW UNIT .
4. NEW EXHAUST FAN. INSTALL PER MANUFACTURER'S RECOMMENDATIONS AND APPLICABLE BUILDING CODES.
5. RECONNECT EXISTING DUCT TO NEW EQUIPMENT. PROVIDE TRANSITIONS AS REQUIRED. FIELD VERIFY SPECIFIC LOCATION.



A M2.2 MECHANICAL ROOF PLAN
1/8" = 1'-0"



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SHEET TITLE

MECHANICAL ROOF PLAN

513-45Q

M2.2

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MUA FAN INFORMATION – Job#3213184

FAN UNIT NO.	TAG	FAN UNIT MODEL #	BLOWER	HOUSING	DESIGN CFM	ESP.	RPM	H.P.	B.H.P.	ø	VOLT	FLA	EVAP COOLER ENTERING DB TEMP.	EVAP COOLER ENTERING WB TEMP.	EVAP COOLER LEAVING DB TEMP.	EVAP COOLER LEAVING WB TEMP.	WEIGHT (LBS.)	SONES	BURNER EFFICIENCY(%)
1		A2-IBT-300-G15	G15-PB	A2-IBT-300	2400	0.800	756	1.500	0.9260	3	208	4.6	107.0°F	67.0°F	84.0°F	67.0°F	1383	11	80

GAS FIRED MAKE-UP AIR UNIT(S)

FAN UNIT NO.	TAG	INPUT BTUs	OUTPUT BTUs	TEMP. RISE	REQUIRED INPUT GAS PRESSURE	GAS TYPE
1		139320	111456	43 deg F	7 in. w.c. - 14 in. w.c.	Natural

FAN OPTIONS

FAN UNIT NO.	TAG	OPTION (Qty. - Descr.)
1		1 - Standard Electrical Connection (main and control panel) for Standing Power - Single Module. If a Non-DCV Prewire is used on the IBT Heater, the #28, #47, "NS", "MA", or "E2" Option Prewire must be selected. Do not provide supply starter in prewire.
		1 - Motorized Backdraft Damper for A2-I Housing
		1 - Inlet Pressure Gauge, 0-35"
		1 - Manifold Pressure Gauge, 0 to 10" wc, 1 Furnace
		1 - IBT Evap Interlock
		1 - Freeze Protection Drain Kit for IBTs with Evaporative Coolers

FAN ACCESSORIES

FAN UNIT NO.	TAG	EXHAUST			SUPPLY			
		GREASE CUP	GRAVITY DAMPER	WALL MOUNT	SIDE DISCHARGE	GRAVITY DAMPER	MOTORIZED DAMPER	WALL MOUNT
1							YES	

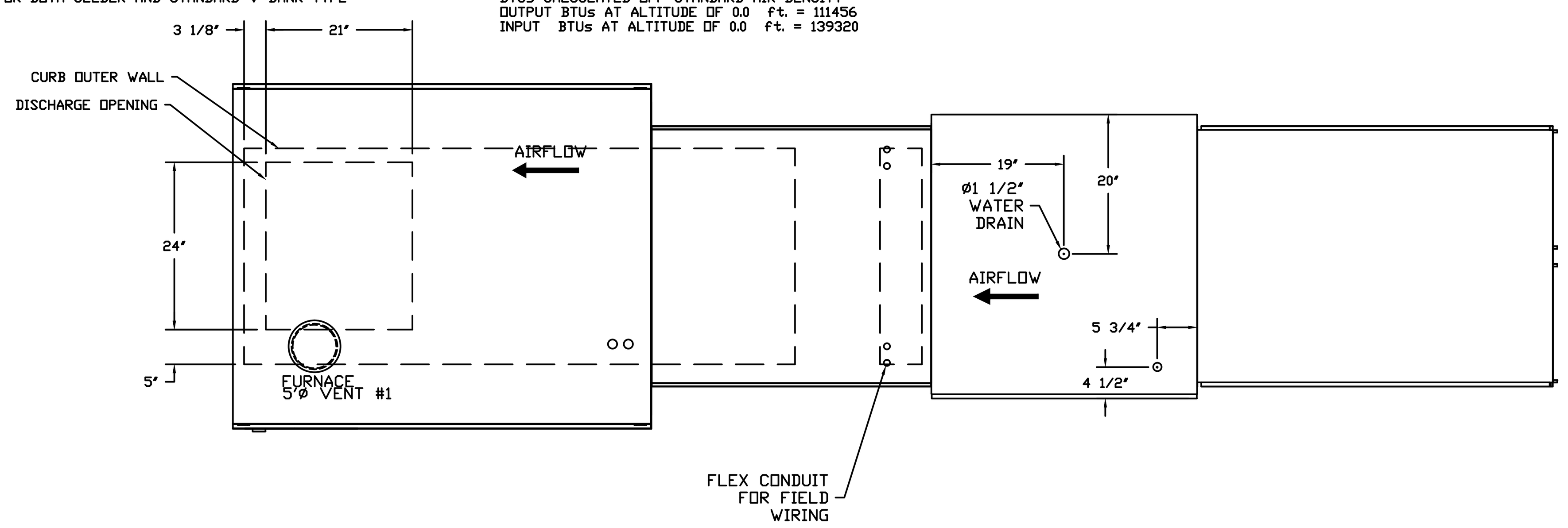
CURB ASSEMBLIES

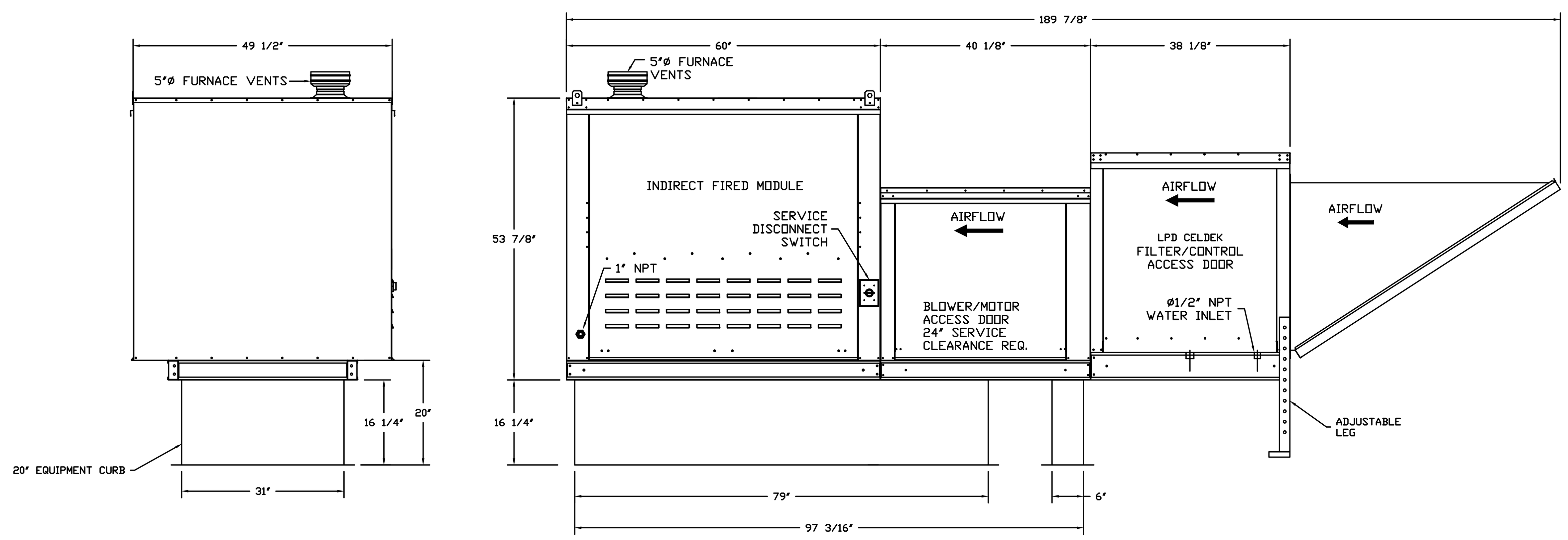
NO.	ON FAN	WEIGHT	ITEM	SIZE
1	# 1	76 LBS	Curb	31.000"W x 79.000"L x 20.000"H Insulated
	# 1		Rail	6.000"W x 31.000"L x 20.000"H
	# 1		Rail	4.000"W x 4.000"L x 36.000"H

FAN #1 A2-IBT-300-G15 - HEATER
1. INDIRECT BENT TUBE GAS FIRED HEATER WITH 15" BLOWER, 1 FURNACE, ELECTRONIC FULL MODULATION, CONSTANT 80% EFFICIENCY, AND 6:1 MAX TURNDOWN FOR NG, (5:1 MAX TURNDOWN FOR LP). STAINLESS STEEL BURNER AND HEAT EXCHANGER.
2. EVAP COOLER (LPD CELDEK) W/INTAKE HOOD W/EZ FILTERS
3. DOWN DISCHARGE - AIR FLOW RIGHT -> LEFT
4. SEPARATE 120V ELECTRICAL CONNECTION FOR ALL IBT HEATERS WITH 1 MODULE FOR STANDING POWER. 120V MUST BE RUN BY ELECTRICIAN FROM BUILDING PANEL TO MUA SWITCH.
5. MOTORIZED BACK DRAFT DAMPER 22.75" X 24" FOR SIZE 2 STANDARD & MODULAR HEATER UNITS W/EXTENDED SHAFT, STANDARD GALVANIZED CONSTRUCTION, 3/4" REAR FLANGE, LF120S ACTUATOR INCLUDED
6. GAS PRESSURE GAUGE, 0-35", 2.5" DIAMETER, 1/4" THREAD SIZE
7. GAS PRESSURE GAUGE, 0 TO +10 INCHES WC., 2.5" DIAMETER, 1/8" THREAD SIZE, REAR THREAD
8. LAYER CONTROL FOR IBT EVAP
9. FREEZE PROTECTION DRAIN CONTROL KIT FOR EVAPORATIVE COOLERS. INCLUDES 3-WAY WATER SOLENOID VALVE 8316G064 (SHIPPED LOOSE), PRESSURE SWITCH INSTALLED UPSTREAM OF 2WAY SOLENOID IN UNIT, BRASS TEE AND 2 NPT HALF INCH NIPPLES. FIELD WIRING REQUIRED BY OTHERS FOR 3-WAY VALVE. FOR BOTH CELDEK AND STANDARD V-BANK TYPE CONFIGURATIONS.
IBT - US Patent 877119 B2

SUPPLY SIDE HEATER INFORMATION:

WINTER TEMPERATURE = 32°F. TEMP. RISE = 43°F.
BTUs CALCULATED OFF STANDARD AIR DENSITY
OUTPUT BTUs AT ALTITUDE OF 0.0 ft. = 111456
INPUT BTUs AT ALTITUDE OF 0.0 ft. = 139320





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	DESCRIPTION	DATE:
△		
△		
△		
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7351 West Charleston Blvd., Suite 130, Las Vegas, NV, 89117 PHONE: (702) 509-0455 FAX: (919) 227-5902 EMAIL: reg84@captiveaire.com

LV Senior Center HVAC Upgrades
LAS VEGAS, NV, 89101

DATE: 11/14/2017
DWG.#: 3213184
DRAWN BY: DRS-84
SCALE: 3/4" = 1'-0"
MASTER DRAWING
SHEET NO. 1

PROFESSIONAL ENGINEER - STATE OF NEVADA
BRYAN OSAMU NEKOBA
Exp. 12-31-19
MECHANICAL
No. 18520

LAS VEGAS SENIOR CENTER HVAC REPLACEMENT

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ISSUE	DATE	DESCRIPTION

ISSUE DATE: 12.08.2017
PROJECT NO: L17138
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513-45Q

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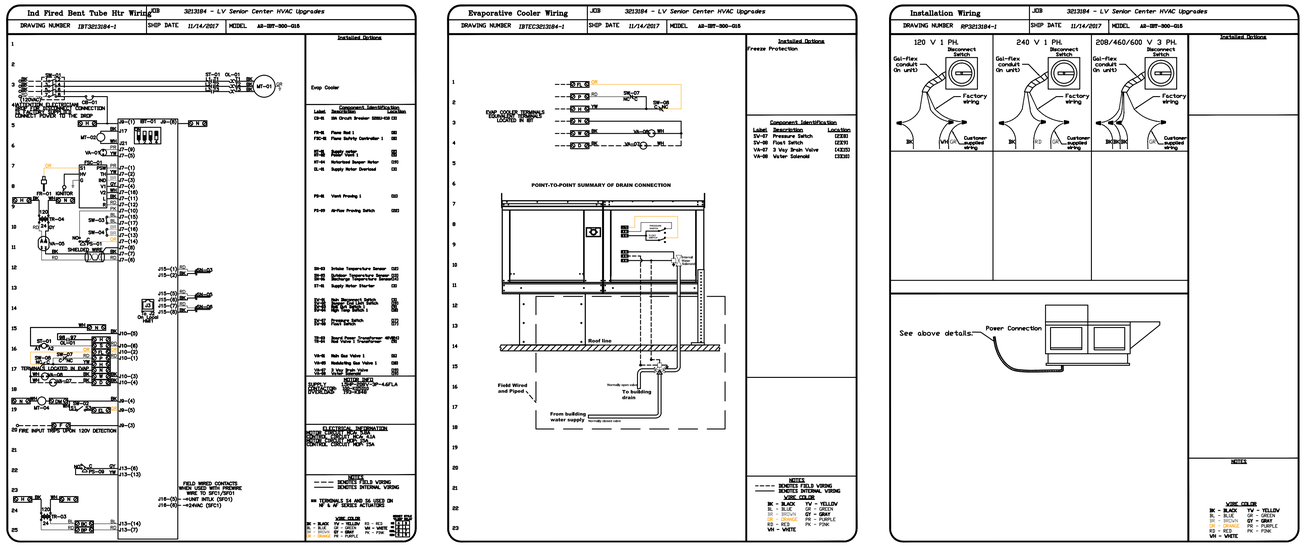

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LV Senior Center HVAC Upgrades
LAS VEGAS, NV, 89101

DATE: 11/14/2017

DWG.#: 3213184

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SCALE: 3/4" = 1'-0"

MASTER DRAWING

SHEET NO. 2

PROFESSIONAL ENGINEER - STATE OF NEVADA
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Exp. 12-31-19
MECHANICAL
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ISSUE	DATE	DESCRIPTION

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513-45Q

MFS-2

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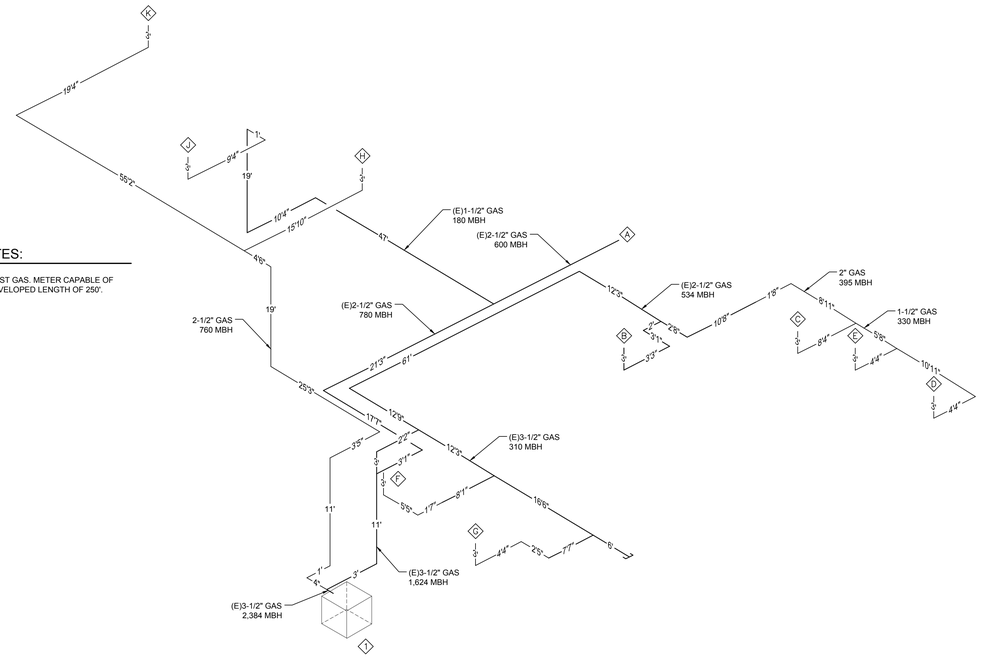

A GAS ISOMETRIC DIAGRAM
P0.1 NOT TO SCALE

GAS DIAGRAM NOTES:

1. GAS METER BY SOUTHWEST GAS. METER CAPABLE OF 2,384 MBH AT A TOTAL DEVELOPED LENGTH OF 250'.

GAS EQUIPMENT SCHEDULE

LINE ID	TOTAL DEVELOPED LENGTH	EQUIPMENT	MBH	CONNECTION PIPE SIZE	WATER COLUMN	DIRT LEG	GAS COCK & UNION	NOTES
A	95'11"	KITCHEN EQUIP	600	(E)2-1/2"	7" WC	PROVIDE	PROVIDE	
B	118'6"	MAU-1	139	(E)1-1/2"	7" WC	PROVIDE	PROVIDE	
C	140'5"	AC-1	65	1"	7" WC	PROVIDE	PROVIDE	
D	153'9"	AC-2	160	1-1/4"	7" WC	PROVIDE	PROVIDE	
E	142'1"	AC-3	150	1-1/4"	7" WC	PROVIDE	PROVIDE	
F	49'6"	AC-4	160	1-1/4"	7" WC	PROVIDE	PROVIDE	
G	65'3"	AC-5	150	1-1/4"	7" WC	PROVIDE	PROVIDE	
H	83'4"	AC-6	250	1-1/2"	7" WC	PROVIDE	PROVIDE	
J	145'7"	AC-7	180	1-1/2"	7" WC	PROVIDE	PROVIDE	
K	142'0"	AC-8	530	2"	7" WC	PROVIDE	PROVIDE	
		TOTAL	2384					

NOTES

1. PROVIDE GAS REGULATOR FOR 5 PSI INLET TO 7" W.C. OUTLET.
2. PROVIDE GAS REGULATOR FOR 2 PSI INLET TO 7" W.C. OUTLET.
3. VENT REGULATOR PORT FULL SIZE PROVIDE WITH GOOSENECK VENT. VENT SHALL BE A MINIMUM OF 10' FROM ANY FRESH AIR INTAKE.
4. PROVIDE UNION, VALVE AND SOLENOID VALVE FOR ANSUL SYSTEM. REFER TO HOOD MANUFACTURER FOR INSTALLATION REQUIREMENTS.
5. REFER TO FIREPLACE INSTALLATION REQUIREMENTS FOR SHUT-OFF VALVE.

GAS METER INFORMATION

PIPE SIZING FROM METER TO OUTLETS H,K BASED ON A TOTAL DEVELOPED LENGTH OF 225'
PIPE SIZING FROM METER TO OUTLETS A-G, J BASED ON A TOTAL DEVELOPED LENGTH OF 250'
SIZED PER TABLE 1216.2(1) OF THE 2012 UPC. GAS METER 7" W.C. BY SOUTHWEST GAS CORPORATION.

PROFESSIONAL ENGINEER - STATE OF NEVADA
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Exp. 12-31-19
MECHANICAL
No. 18520
01/09/2018

LAS VEGAS SENIOR CENTER HVAC REPLACEMENT

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SHEET TITLE

NATURAL GAS DIAGRAM

513-45Q

P0.1

SHEET - OF -

A PD2.2 PLUMBING DEMOLITION ROOF PLAN 1/8" = 1'-0"

GENERAL NOTES:

1. WHERE DUCT OR PIPING IS TO BE REMOVED AT A SPECIFIC POINT, DUCT OR PIPE IS TO BE BLANKED OFF OR CAPPED AND REPAIRED TO LIKE NEW CONDITION.
2. PIPING AND EQUIPMENT LOCATIONS SHOWN ARE FROM BEST AVAILABLE INFORMATION. CONTRACTOR TO FIELD VERIFY SPECIFIC LOCATION.
3. PIPING DISCONNECTED FROM EQUIPMENT REMOVED SHALL BE BLANKED OFF OR CAPPED IN CEILING, FLOORS OR WALLS.
4. ANY EQUIPMENT OR COMPONENT REMOVED SHALL BE DISPOSED OF PROPERLY BY THE CONTRACTOR AND REMOVED FROM THE PROJECT SITE.

SHEET NOTES:

1. REMOVE GAS PIPING UP TO POINT SHOWN. FIELD VERIFY EXACT LOCATION.
2. EXISTING GAS LINE TO ROOF TO REMAIN.

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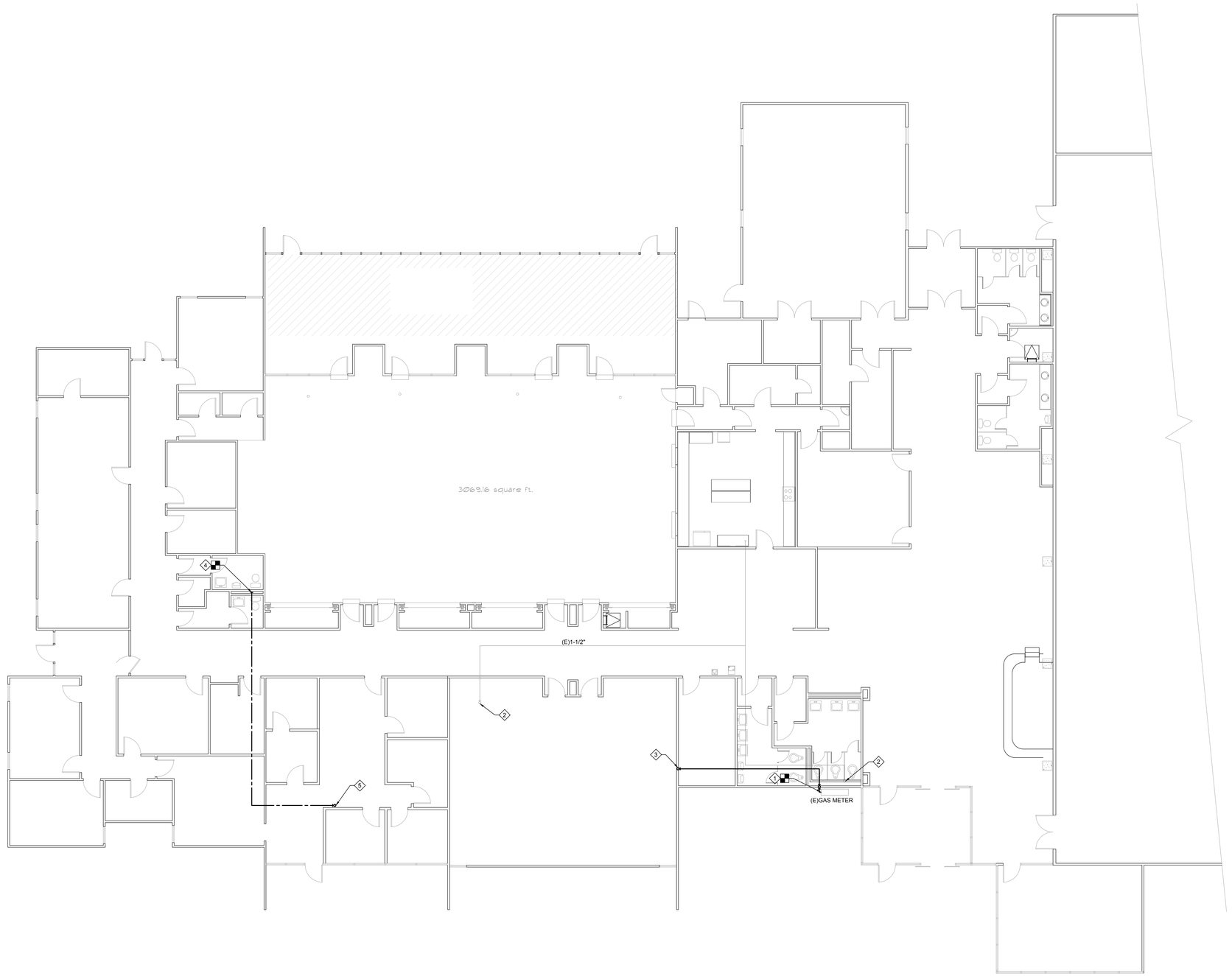
PLUMBING DEMOLITION ROOF PLAN

513-45Q



A P2.1 PLUMBING FLOOR PLAN
1/8" = 1' 0"

GENERAL NOTES:

1. PRIOR TO PERFORMING WORK, CONTRACTOR TO COORDINATE EXACT PIPE SIZES, INVERT ELEVATIONS, PRESSURES FOR LOCATIONS OF ANY SEWER, WATER PIPING AND WATER METER WITH CIVIL UTILITIES DRAWINGS, AND ANY OTHER ENGINEER AS APPLICABLE.
2. PRIOR TO PERFORMING WORK, CONTRACTOR COORDINATE PIPE ROUTING WITH ALL OTHER TRADES AND EXISTING FIELD CONDITIONS.
3. REFER TO MECHANICAL PLANS FOR PLUMBING SPECIFICATION OF MATERIAL, INSULATION AND INSTALLATION REQUIREMENTS.
4. CONTRACTOR IS RESPONSIBLE FOR ROUGH-IN COORDINATION AND LOCATIONS. REFER TO ARCHITECTURAL PLANS FOR LOCATIONS AND FIXTURES.
5. CONTRACTOR IS RESPONSIBLE FOR ANY REQUIRED CUTTING AND PATCHING.
6. ALL NOTCHING, BORING, AND CUTTING OF HOLES IN WALL STUDS AND FLOOR JOISTS SHALL BE PERFORMED BASED ON THE LATEST ADOPTED AND APPROVED EDITION OF THE BUILDING CODE.
7. ALL PLUMBING FIXTURES SHALL BE OF WATER CONSERVATION TYPE AS REQUIRED BY LOCAL AUTHORITY HAVING JURISDICTION.
8. ALL WATER CLOSETS IDENTIFIED AS ACCESSIBLE SHALL HAVE THE FLUSH VALVE ACTUATOR INSTALLED ON THE WIDE SIDE.
9. ALL WATER PIPING SHALL BE INSTALLED ON INTERIOR SIDE OF THE BUILDING WALL INSULATION.
10. CONTRACTOR SHALL PROVIDE VALVES LOCATED ABOVE LAY-IN CEILING OR 24"X24" CEILING ACCESS PANEL COORDINATE FINAL LOCATION AND SIZE WITH ARCHITECT. PROVIDE BALANCING VALVES FOR HOT WATER RETURN SYSTEM AS REQUIRED.
11. ALL SANITARY DRAINAGE PIPING 3" AND SMALLER SHALL BE SLOPED AT 1/4" PER FOOT. PIPING 4" AND LARGER SHALL BE SLOPED AT 1/8" PER FOOT.
12. ALL CONDENSATE DRAIN PIPING SHALL BE SLOPED AT 1/8" PER FOOT AND PROVIDE ACCESSIBLE CLEANOUTS AT ALL CHANGES OF DIRECTION.
13. VENTS THAT TERMINATE AT THE ROOF SHALL BE A MINIMUM OF 10' FROM ANY FRESH AIR INTAKE.
14. REFER TO THE PLUMBING DIAGRAMS FOR GUIDANCE OF INSTALLATION INTENT. CONTRACTOR IS TO PROVIDE ALL COMPONENTS NECESSARY TO MEET THE DESIGN INTENT, WHETHER SHOWN IN DIAGRAM OR NOT.
15. SECONDARY CONDENSATE DRAIN FROM MECHANICAL UNIT DRAIN PAN ROUTE AND DISCHARGE AT A POINT THAT IS READILY OBSERVED. COORDINATE FINAL LOCATION WITH ARCHITECT.

SHEET NOTES:

1. CONNECT NEW GAS LINE TO EXISTING GAS METER. FIELD VERIFY EXACT LOCATION.
2. EXISTING GAS RISE TO ROOF TO REMAIN.
3. REFER TO SHEET P2.2 FOR CONTINUATION.
4. CONNECT NEW 3/4" DCW TO EXISTING. FIELD VERIFY EXACT LOCATION.
5. 3/4" DCW RISE TO ABOVE.

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PLUMBING FLOOR PLAN

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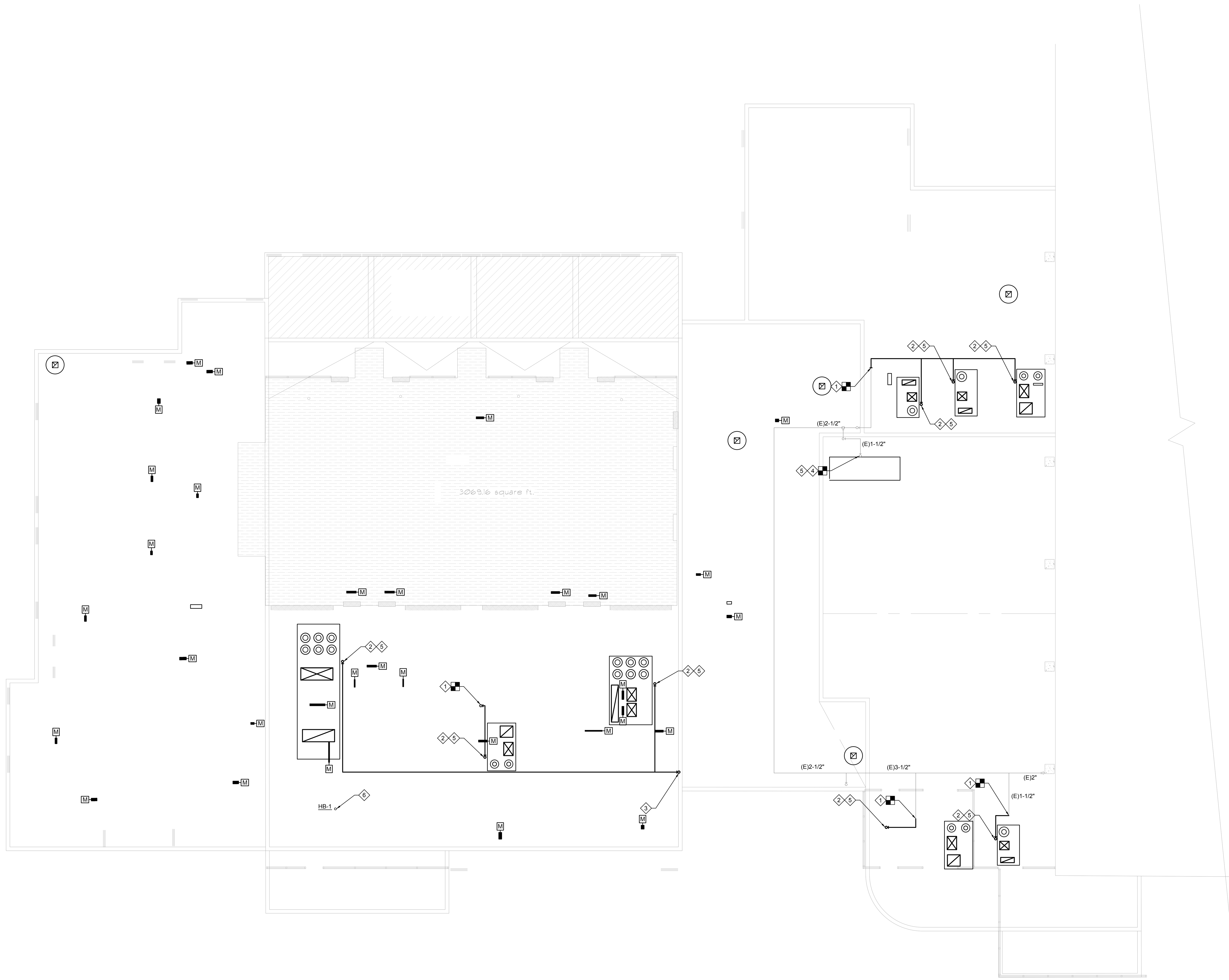

A P2.2 PLUMBING ROOF PLAN
1/8" = 1'-0"

GENERAL NOTES:

1. PRIOR TO PERFORMING WORK, CONTRACTOR TO COORDINATE EXACT PIPE SIZES, INVERT ELEVATIONS, PRESSURES FOR LOCATIONS OF ANY SEWER, WATER PIPING AND WATER METER WITH CIVIL UTILITIES DRAWINGS, AND ANY OTHER ENGINEER AS APPLICABLE.
2. PRIOR TO PERFORMING WORK, CONTRACTOR COORDINATE PIPE ROUTING WITH ALL OTHER TRADES AND EXISTING FIELD CONDITIONS.
3. REFER TO MECHANICAL PLANS FOR PLUMBING SPECIFICATION OF MATERIAL, INSULATION AND INSTALLATION REQUIREMENTS.
4. CONTRACTOR IS RESPONSIBLE FOR ROUGH-IN COORDINATION AND LOCATIONS. REFER TO ARCHITECTURAL PLANS FOR LOCATIONS AND FIXTURES.
5. CONTRACTOR IS RESPONSIBLE FOR ANY REQUIRED CUTTING AND PATCHING.
6. ALL NOTCHING, BORING, AND CUTTING OF HOLES IN WALL STUDS AND FLOOR JOISTS SHALL BE PERFORMED BASED ON THE LATEST ADOPTED AND APPROVED EDITION OF THE BUILDING CODE.
7. ALL PLUMBING FIXTURES SHALL BE OF WATER CONSERVATION TYPE AS REQUIRED BY LOCAL AUTHORITY HAVING JURISDICTION.
8. ALL WATER CLOSETS IDENTIFIED AS ACCESSIBLE SHALL HAVE THE FLUSH VALVE ACTUATOR INSTALLED ON THE WIDE SIDE.
9. ALL WATER PIPING SHALL BE INSTALLED ON INTERIOR SIDE OF THE BUILDING WALL INSULATION.
10. CONTRACTOR SHALL PROVIDE VALVES LOCATED ABOVE LAY-IN CEILING OR 24"X24" CEILING ACCESS PANEL COORDINATE FINAL LOCATION AND SIZE WITH ARCHITECT. PROVIDE BALANCING VALVES FOR HOT WATER RETURN SYSTEM AS REQUIRED.
11. ALL SANITARY DRAINAGE PIPING 3" AND SMALLER SHALL BE SLOPED AT 1/4" PER FOOT. PIPING 4" AND LARGER SHALL BE SLOPED AT 1/8" PER FOOT.
12. ALL CONDENSATE DRAIN PIPING SHALL BE SLOPED AT 1/8" PER FOOT AND PROVIDE ACCESSIBLE CLEANOUTS AT ALL CHANGES OF DIRECTION.
13. VENTS THAT TERMINATE AT THE ROOF SHALL BE A MINIMUM OF 10' FROM ANY FRESH AIR INTAKE.
14. REFER TO THE PLUMBING DIAGRAMS FOR GUIDANCE OF INSTALLATION INTENT. CONTRACTOR IS TO PROVIDE ALL COMPONENTS NECESSARY TO MEET THE DESIGN INTENT, WHETHER SHOWN IN DIAGRAM OR NOT.
15. SECONDARY CONDENSATE DRAIN FROM MECHANICAL UNIT DRAIN PAN ROUTE AND DISCHARGE AT A POINT THAT IS READILY OBSERVED. COORDINATE FINAL LOCATION WITH ARCHITECT.

SHEET NOTES:

1. CONNECT NEW GAS TO EXISTING GAS. FIELD VERIFY EXACT LOCATION.
2. GAS CONNECT TO MECHANICAL UNIT.
3. REFER TO SHEET P2.1 FOR CONTINUATION.
4. RECONNECT EXISTING GAS TO NEW MECHANICAL UNIT.
5. RECONNECT EXISTING CONDENSATE TO NEW MECHANICAL UNIT.
6. 3/4" DCW RISE FROM BELOW.

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SHEET TITLE
PLUMBING ROOF PLAN

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ELECTRICAL S□ECI□ICATIONS

1. DO NOT SCALE DRAWINGS. VERIFY DIMENSIONS IN FIELD PRIOR TO COMMENCEMENT OF WORK.

2. ALL WORK SHALL BE PERFORMED IN COMPLIANCE WITH THE LATEST EDITIONS OF THE ADOPTED CODES AND THEIR LOCAL AMENDMENTS AS IDENTIFIED BY THE AUTHORITY HAVING JURISDICTION.

3. WHEREVER THE WORD "PROVIDE" IS USED, IT SHALL MEAN TO "PROVIDE AND INSTALL".

4. FINAL CONNECTIONS TO EQUIPMENT SHALL BE PER MANUFACTURER'S APPROVED WIRING DIAGRAMS, DETAILS AND INSTRUCTIONS. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE MATERIALS AND EQUIPMENT COMPATIBLE WITH EQUIPMENT ACTUALLY SUPPLIED.

5. IT IS THE INTENT OF THESE DRAWINGS AND SPECIFICATIONS TO ESTABLISH A STANDARD OF QUALITY. THE ENGINEER RESERVES THE RIGHT TO APPROVE METHODS AND MATERIALS NOT REFLECTED HEREIN.

6. CONTRACTOR SHALL REVIEW STRUCTURAL, MECHANICAL AND OTHER RELATED DRAWINGS PRIOR TO BID.

7. CONTRACTOR SHALL VISIT SITE PRIOR TO BID AND VERIFY THAT CONDITIONS ARE AS INDICATED IN THE CONTRACT DOCUMENTS. CONTRACTOR SHALL INCLUDE IN HIS BID, ANY COSTS REQUIRED TO MAKE HIS WORK MEET THE CONTRACT SCOPE UTILIZING EXISTING CONDITIONS.

8. WORK SHALL BE PERFORMED IN A WORKMANLIKE MANNER TO THE SATISFACTION OF THE PROJECT REPRESENTATIVE.

9. WORK, MATERIALS AND EQUIPMENT SHALL CONFORM TO THE LATEST EDITIONS OF LOCAL, STATE AND NATIONAL CODES AND ORDINANCES.

10. GUARANTEE THE INSTALLATION AGAINST DEFECTS IN MATERIALS AND WORKMANSHIP WHICH MAY OCCUR UNDER NORMAL USAGE FOR A PERIOD OF ONE YEAR AFTER OWNER'S ACCEPTANCE. DEFECTS SHALL BE PROMPTLY REMEDIED WITHOUT COST TO THE OWNER.

11. PROVIDE RECORD DRAWINGS TO ENGINEER. DRAWINGS SHALL INCLUDE ALL ADDENDUM ITEMS, CHANGE ORDERS, ALTERATIONS, REROUTINGS, ETC.

12. VERIFY SPECIFIC LOCATION OF EQUIPMENT TO BE FURNISHED BY OTHERS PRIOR TO ROUGH-IN.

13. ELECTRICAL SYSTEMS SHALL BE TESTED FOR PROPER OPERATION. IF TESTS SHOW THAT WORK IS DEFECTIVE, CONTRACTOR SHALL MAKE CORRECTIONS NECESSARY AT NO COST TO OWNER.

14. JUNCTION BOXES SHALL BE MINIMUM 4" SQUARE.

15. SEE DIVISION 15 DRAWINGS FOR LOCATION OF MECHANICAL EQUIPMENT. PROVIDE SERVICE TO AND CONNECT EQUIPMENT AS REQUIRED.

16. CIRCUIT BREAKERS SHALL BE BOLT-ON TYPE AND FUSES SHALL BE BUSSMANN CLASS "J", 300KAIC, DUAL ELEMENT, TIME DELAY OR EQUIVALENT FOR UP TO 600A AND CLASS "L" FUSES ABOVE 600A.

17. ALL WIRING SHALL BE INSTALLED IN LISTED STEEL METALLIC RACEWAYS WITH INSULATED THROAT TYPE CONNECTORS. RACEWAYS IN SLAB-ON-GRADE OR BELOW GRADE SHALL BE SCHEDULE 40 PVC. PVC-COATED RIGID STEEL FACTORY ELBOWS SHALL BE PROVIDED FOR BENDS IN PVC RUNS LONGER THAN 100 FEET.

18. PROVIDE EQUIPMENT GROUNDING CONDUCTOR IN ALL CONDUITS.

19. ALL ELECTRICAL SYSTEMS COMPONENTS SHALL BE LISTED OR LABELED BY U.L. OR OTHER RECOGNIZED TESTING FACILITY.

20. WIRE TERMINATION PROVISIONS FOR PANELBOARDS, CIRCUIT BREAKERS, SAFETY SWITCHES, AND ALL OTHER ELECTRICAL APPARATUS SHALL BE LISTED AS SUITABLE FOR 75 DEGREE C.

21. THE FOLLOWING CONDUCTOR SIZES SHALL BE UTILIZED FOR 20 AMP CIRCUITS PERTAINING TO DISTANCES (IN FEET) INDICATED:

120VOLT, 1PH	CONDUCTOR	208VOLT, 3PH
0-64	#12AWG	0-129
65-106	#10AWG	130-212
107-160	#8AWG	213-321

22. NOTE: BASED ON 75 c COPPER CONDUCTORS INSTALLED IN EMT WITH 16AMP LOAD @ 85 P.F.

23. ELECTRICAL CONTRACTOR SHALL PROVIDE CONTROLS, INTERLOCKS, ACCESSORIES, ETC., IN MOTOR CONTROL STARTERS AS REQUIRED BY THE TEMPERATURE CONTROL CONTRACTOR. STARTERS SHALL CONTAIN 120V CONTROL TRANSFORMER, PILOT LIGHT, AND PUSH BUTTONS OR SELECTOR SWITCH AS REQUIRED, IN ADDITION TO OTHER ITEMS (AUXILIARY CONTACTS, DOOR SWITCHES, RELAYS, ETC.) REQUIRED. SUBMIT ELEMENTARY CONTROL DIAGRAMS FOR APPROVAL. SUBMITTALS SHALL INCLUDE INDICATION OF PRIOR REVIEW AND ACCEPTANCE BY TEMPERATURE CONTROL CONTRACTOR. REFER TO DIV. 15 DRAWINGS AND TEMPERATURE CONTROL DIAGRAMS FOR ADDITIONAL CONDUIT, WIRE, RELAYS, TRANSFORMERS, CONNECTIONS, ETC. REQUIRED FOR A COMPLETE AND OPERABLE SYSTEM.

24. ALL EMPTY RACEWAY SYSTEMS SHALL HAVE A PULL STRING OR EQUIVALENT AND SHALL BE IDENTIFIED AT ALL JUNCTION, PULL AND TERMINATION POINTS, USING PERMANENT METALLIC TAGS. TAG SHALL INDICATE INTENDED USE OF CONDUIT, ORIGINATION AND TERMINATION POINTS OF EACH INDIVIDUAL CONDUIT.

25. CONTRACTOR SHALL REVIEW STRUCTURAL AND MECHANICAL DRAWINGS AND SHALL PROVIDE EQUIPMENT CONNECTIONS AND ASSOCIATED CIRCUITING IN NEW AND REMODELED AREAS, EVEN IF SUCH AREAS ARE NOT SHOWN ON ELECTRICAL DRAWINGS. LAYOUTS, FIXTURE TYPES, QUANTITIES AND SPACING SHALL BE IN ACCORDANCE WITH SIMILAR AREAS ON THIS PROJECT. CONTRACTOR SHALL INCLUDE COSTS FOR THE ABOVE IN HIS BID. IN ADDITION, CONTRACTOR SHALL PROVIDE LAYOUT DRAWINGS FOR WORK IN SUCH AREAS AND SUBMIT FOR APPROVAL PRIOR TO ROUGH-IN.

26. PROPOSED SUBSTITUTIONS OF ELECTRICAL EQUIPMENT OR REQUEST FOR "OR EQUIVALENT" OR "APPROVED EQUIVALENT" LISTING SHALL BE SUBMITTED TO ARCHITECT NOT LESS THAN TEN (10) WORKING DAYS PRIOR TO BID. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION.

27. PROVIDE ELECTRICAL DEMOLITION REQUIRED. REFER TO DEMOLITION DRAWINGS FOR LOCATION AND EXTENT OF DEMOLITION REQUIRED. CONTRACTOR SHALL VISIT SITE PRIOR TO BID TO DETERMINE EXTENT OF WORK INVOLVED. PROVIDE LABOR AND MATERIALS AS REQUIRED TO MAINTAIN AND/OR RESTORE CONTINUITY OF SERVICE TO EXISTING CIRCUITS.

28.

29. CONTRACTOR SHALL BE RESPONSIBLE TO FIELD VERIFY EXISTING EQUIPMENT OR CIRCUITS THAT ARE REMAINING AND TO BE RECONNECTED TO NEW OR EXISTING SWITCHBOARDS/PANELBOARDS. PROVIDE CONDUIT, WIRE, ETC., AS REQUIRED TO RESTORE CONTINUITY OF CIRCUIT(S).

30. CONTRACTOR SHALL PROVIDE ALL NECESSARY DEMOLITION TO REMOVE EXISTING UNUSED CONDUIT, WIRE, J-BOXES, RECEPTACLES, SWITCHES, LIGHTS, FIRE ALARM DEVICES, ETC., COMPLETE WITH ASSOCIATED CIRCUITING TO SOURCE. WHERE IT IS NOT FEASIBLE TO REMOVE THE ABOVE, OUTLET SHALL BE ABANDONED, WIRE REMOVED, AND BLANK COVER PLATES PROVIDED.

31. SYSTEM OUTAGES SHALL BE PERMITTED ONLY AT TIMES APPROVED BY OWNER, IN WRITING. WORK WHICH COULD RESULT IN AN ACCIDENTAL OUTAGE (BEYOND BRANCH CIRCUITS) SHALL BE PERFORMED WITH THE OWNER'S MAINTENANCE PERSONNEL ADVISED OF SUCH WORK.

32. ELECTRICAL SERVICE SHALL BE MAINTAINED TO EXISTING AREAS DURING CONSTRUCTION. CONTRACTOR SHALL PROVIDE PORTABLE GENERATORS, CABLES, OUTLETS, ETC., AS REQUIRED TO MAINTAIN CONTINUITY OF SERVICE. PLACEMENT OF SUCH PORTABLE EQUIPMENT SHALL BE SUBJECT TO OWNER APPROVAL.

33. WIRE SHALL BE COPPER, 75 DEGREES C RATED FOR GENERAL USE. FOR HID FIXTURES AND WIRING WITHIN 3 INCHES OF FLUORESCENT BALLASTS WIRE SHALL BE COPPER, MINIMUM 90 DEGREES C RATED. SIZES INDICATED ARE FOR INSTALLATION IN A MAXIMUM 30 DEGREES C AMBIENT. CONDUCTOR AMPACITY SHALL BE DERATED FOR HIGHER AMBIENT INSTALLATIONS. 600 VOLT COMPACT ALUMINUM WIRE AND CABLE IN SIZES 1/0 AND LARGER MAY BE SUBSTITUTED FOR COPPER ON SERVICES AND FEEDERS IF AMPACITY IS EQUIVALENT TO OR GREATER THAN COPPER AND VOLTAGE DROP IS EQUIVALENT TO OR LESS THAN COPPER.

34. SPLICES IN EXTERIOR PULLBOXES AND MANHOLES SHALL BE MADE WATERPROOF USING "SCOTCHCAST" SPLICE KIT OR APPROVED EQUIVALENT. SEAL ENDS OF CONDUITS AND DUCTS WITH "DUCTSEAL" OR APPROVED EQUIVALENT.

35. PROVIDE SHOP DRAWING SUBMITTAL DATA AT ONE TIME, BOUND IN ELECTRONIC PDF FILE, INDEXED IN A NEAT AND ORDERLY MANNER. PARTIAL SUBMITTALS WILL NOT BE ACCEPTED. SUBMITTALS SHALL INCLUDE BUT NOT BE LIMITED TO: WIRING DEVICES, SAFETY SWITCHES, FUSES, MOTOR STARTERS, CONDUIT, CONDUIT FITTINGS AND TRANSFORMERS.

36. CONTRACTOR SHALL BE RESPONSIBLE FOR REPLACING EQUIPMENT WHICH IS DAMAGED DUE TO INCORRECT FIELD WIRING PROVIDED UNDER THIS SECTION OR FACTORY WIRING IN EQUIPMENT PROVIDED UNDER THIS SECTION.

37. CONTRACTOR'S FAILURE TO ORDER OR RELEASE ORDER FOR MATERIALS AND/OR EQUIPMENT WILL NOT BE ACCEPTED AS A REASON TO SUBSTITUTE ALTERNATE MATERIALS, EQUIPMENT OR INSTALLATION METHODS.

38. ELECTRICAL SYSTEMS SHALL BE COMPLETE, OPERABLE AND READY FOR CONTINUOUS OPERATION AT COMPLETION OF PROJECT.

39. PULLBOXES, CABINETS, ETC., MOUNTED ON THE EXTERIOR AT GRADE LEVEL, SHALL BE WEATHERPROOF TYPE WITH HINGED LOCKABLE COVERS SECURED WITH TAMPER-PROOF SCREWS.

40. CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLETE GROUNDING SYSTEMS OF INDIVIDUAL UNIT PANELS AND COMBINATION MAIN/METER SECTIONS. EACH INDIVIDUAL UNIT SHALL HAVE A NO. 6 BARE COPPER GROUNDING CONDUCTOR FROM THE COLD WATER PIPING OF THAT PARTICULAR UNIT TO THE PANEL GROUND BUS.

41. PANEL DIRECTORIES SHALL BE REMOVABLE. SUBMIT PROPOSED SCHEDULE OF DIRECTORIES TO OWNER FOR APPROVAL. ROOM NAMES AND NUMBERS SHALL BE AS DIRECTED BY OWNER. DIRECTORIES SHALL BE TYPED AND INSTALLED UNDER CLEAR PLASTIC COVERS.

42. DISCONNECT SWITCHES SHALL BE HEAVY DUTY TYPE. FUSIBLE SWITCHES SHALL ACCEPT CLASS 'R' FUSES ONLY AND REJECT ALL OTHERS.

43. PROVIDE DYMO-TAPE TAG INSIDE COVER OF EACH FUSIBLE SWITCH, INDICATING SIZE AND TYPE OF FUSES PROVIDED.

44. PROVIDE TWO (2) SETS OF THREE (3) SPARE FUSES FOR EACH SIZE AND TYPE PROVIDED ON THIS PROJECT. INSTALL FUSES IN A HINGED DOOR, SHEET METAL STORAGE CABINET EQUIPPED WITH CLIPS OR CUBICLES, EACH MARKED WITH THE SIZE AND TYPE FUSE STORED THEREIN. PROVIDE NAMEPLATE "SPARE FUSES". INSTALL IN LOCATIONS AS DIRECTED BY OWNER.

45. IMMEDIATELY AFTER AWARD OF CONTRACT, CONTRACTOR SHALL VERIFY AVAILABLE PHYSICAL SPACE AND AMPACITY OF EXISTING PANELBOARDS, SWITCHBOARDS, DISTRIBUTION BOARDS, MOTOR CONTROL CENTERS, ETC., AND PROVIDE WRITTEN DOCUMENTATION OF FINDINGS TO THE ARCHITECT/ENGINEER. DOCUMENTATION SHALL INCLUDE A MINIMUM 30 DAY RECORDING (THREE PHASE AMPERES, KW, KVAR AND PF) READING ON ALL EXISTING SWITCHGEAR BEING UTILIZED FOR THIS PROJECT.

46. CONTRACTOR SHALL PROVIDE NEW UPDATED PANELBOARD DIRECTORIES FOR EXISTING AND NEW CIRCUITS BEING UTILIZED AT COMPLETION OF PROJECT.

47. CONDUITS PENETRATING THRU ROOF SHALL HAVE ROOF FLASHING WITH CAULK TYPE COUNTER FLASHING SLEEVE. INSTALLATION SHALL BE WATERTIGHT.

48. FINAL CONNECTIONS TO VIBRATING EQUIPMENT SHALL BE WITH FLEX (LIQUIDTIGHT FOR EXTERIOR APPLICATIONS) AND APPROVED FITTINGS. DO NOT SECURE CONDUITS, DISCONNECTS OR DEVICES TO DUCTWORK OR MECHANICAL EQUIPMENT.

49. THE ENGINEER OF RECORD HAS PERFORMED SHORT CIRCUIT CALCULATIONS AND THE AIC RATINGS INDICATED FOR EACH DEVICE IS ADEQUATE TO PROTECT THE EQUIPMENT AND THE ELECTRICAL SYSTEM.

50. THE ENGINEER OF RECORD HAS PERFORMED VOLTAGE DROP CALCULATIONS AND ALL BRANCH CIRCUITS AND FEEDERS COMPLY WITH NEC 210-19(A).

51. THE CONTRACTOR SHALL PROVIDE 120V CONNECTION TO NEAREST MAINTENANCE RECEPTACLE WHERE REQUIRED FOR CONDENSATE PUMPS ASSOCIATED WITH FAN COIL UNITS. COORDINATE WITH MECHANICAL CONTRACTOR.

52. THE CONTRACTOR SHALL COORDINATE THE SPECIFIC LOCATION, MOUNTING HEIGHT, ROTATION, TYPE, COLOR, ETC. OF ALL DEVICES PRIOR TO INSTALLATION.

53. DO NOT INSTALL JUNCTION BOXES BACK-TO-BACK IN WALLS. PROVIDE A MINIMUM 6 INCH (150MM) SEPARATION EXCEPT PROVIDE A MINIMUM 24 INCH (600MM) SEPARATION IN ACOUSTIC AND FIRE RATED WALLS. WHERE A 24 INCH SEPARATION IN ACOUSTIC AND/OR FIRE RATED WALLS IS NOT POSSIBLE, PROVIDE LISTED SOUND PUTTY PAD OR FIRE RATED PUTTY PAD WHERE APPLICABLE. THE CONTRACTOR SHALL BE REQUIRED TO COORDINATE THE JUNCTION BOX SIZE AND THE DERATING OF CONDUCTORS WHEN USING AN INSERT TYPE PUTTY PAD WITHIN THE INTERIOR OF THE JUNCTION BOX. THESE MATERIALS SHALL BE SUBMITTED TO THE ARCHITECT AND THE ENGINEER FOR APPROVAL.

54. THE CONTRACTOR SHALL COLOR CODE THE FOLLOWING RACEWAY SYSTEMS, JBOXES AND A 1" WIDE STRIPE EVERY 20' ON CONTINUOUS CONDUIT RUNS:
    EMERGENCY (E) - YELLOW
    OPTIONAL STANDBY (X) - BLUE
    UPS (U) - GREEN
    NORMAL - WHITE
    FIRE ALARM - RED

55. JUNCTION BOXES THAT CONNECT TO CONDUITS GREATER THAN 1 1/4" SHALL BE SIZED PER NEC 314.28.

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SHEET TITLE
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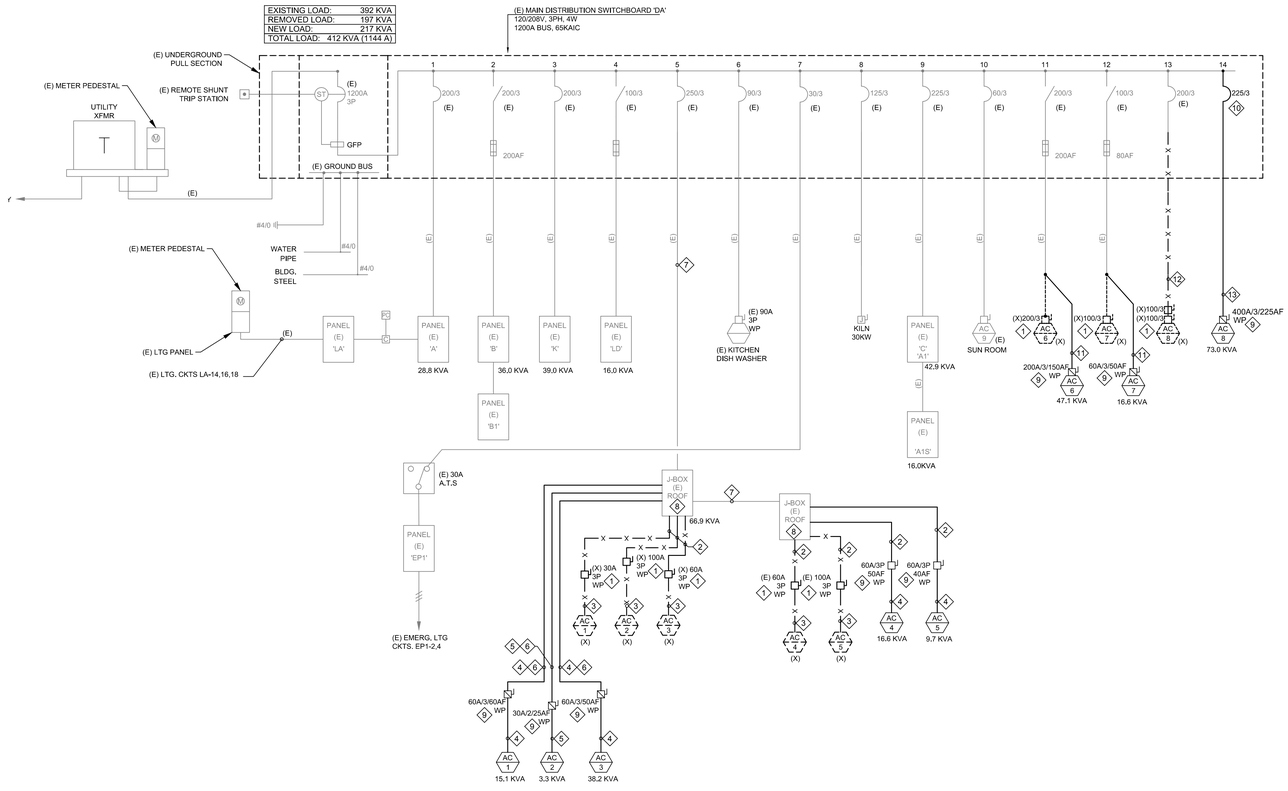
SHEET - OF -

ELECTRICAL SIN□LE LINE □IA□RAMS



A SINGLE LINE DIAGRAM
E0.2 NTS

GENERAL NOTES:

1. EXISTING TO REMAIN SHOWN LIGHT AND/OR DESIGNATED WITH AN '(E)'. EXISTING TO BE REMOVED SHOWN LIGHT AND/OR DESIGNATED WITH A '(R)'. NEW SHOWN BOLD.
2. EXISTING SINGLE LINE DIAGRAMS ARE BASED UPON EXISTING DRAWINGS AND INFORMATION AVAILABLE AT THE TIME OF DESIGN. CONTRACTOR TO VERIFY EXISTING TO BE REUSED SWITCH BOARDS, DISTRIBUTION BOARDS, MOTOR CONTROL CENTERS, PANELS AND NOTIFY DESIGN ENGINEER OF ANY DISCREPANCIES PRIOR TO COMMENCEMENT OF WORK.
3. THE ENGINEER OF RECORD HAS PERFORMED VOLTAGE DROP CALCULATIONS AND ALL BRANCH CIRCUITS AND FEEDERS COMPLY WITH NEC 210-19(A) FPN NO 4.

SHEET NOTES:

1. EXISTING DISCONNECT SWITCHED TO BE REMOVED AND REPLACED WITH NEW. REFER TO ELECTRICAL ROOF PLAN FOR LOCATION.
2. EXISTING CONDUCTORS TO BE REMOVED AND REPLACED WITH NEW. CONDUIT MAY BE REUSED IF IT MEETS CURRENT CODE AND CITY OF LAS VEGAS STANDARDS.
3. EXISTING CONDUIT AND CONDUCTORS TO BE REMOVED AND REPLACE.
4. ROUTE 1¼" CONDUIT WITH 4#6 THWN, AND 1#10 THWN COPPER GROUND.
5. ROUTE 3/4" CONDUIT WITH 4#10 THWN, AND 1#10 THWN COPPER GROUND.
6. CONDUIT MAY BE REUSED IF IT MEETS CURRENT CODE AND CITY OF LAS VEGAS STANDARDS.
7. EXISTING CONDUIT AND CONDUCTORS FEEDING TAP JUNCTION BOX TO REMAIN.
8. EXISTING EXTERIOR, NEMA 3R, TAP/SPLICE JUNCTION BOX TO REMAIN.
9. FURNISH AND INSTALL NEW WEATHER PROOF FUSED DISCONNECT. FUSE PER MANUFACTURERS NAMEPLATE. COORDINATE WITH MECHANICAL CONTRACTOR FOR SPECIFIC LOCATION AND POINT OF CONNECTION.
10. PROVIDE NEW CIRCUIT BREAKER IN EXISTING MAIN SERVICE BOARD. ITE IMPERIAL CORPORATION FC-20 SERIES. PROVIDE ALL MOUNTING HARDWARE AND BRACKETS AS REQUIRED FOR A COMPLETE INSTALLATION.
11. TEMPORALLY DISCONNECT EXISTING FEEDER SERVING MECHANICAL UNIT AND CONNECT TO NEW UNIT INSTALLED IN SAME LOCATION. PROVIDE ADDITIONAL CONDUIT, CONDUCTOR, JUNCTIONS BOXES, ETC. AS REQUIRED TO CONNECT UNIT AND DISCONNECT.
12. EXISTING FEEDER SERVING MECHANICAL UNIT TO BE REMOVED AND REPLACED WITH NEW.
13. ROUTE 2½" CONDUIT WITH 4#4/0 THWN AND 1#4 THWN COPPER GROUND

Panel: A (EXISTING)

SLD: X FLOOR PLAN: X LOCATION: ELECTRICAL ROOM
PANEL VOLTAGE: 120/208 3Ø, 4W BUS: 225 AMPS MAIN: L.O. 225 AMPS AIC RATING: 10,000 AMPS MOUNTING: FLUSH
CIRCUIT CODE: N: NON-CONTINUOUS C: CONTINUOUS R: DEMANDABLE RECEPTS K: KITCHEN: (0) M: MOTOR P: PANEL E: ELEV: (0)

CKT NO	CODE	TRIP	POLE	DESCRIPTION	NOTE	MISC	RECP	LTG	ØA	ØB	ØC	A	B	C	ØA	ØB	ØC	LTG	RECP	MISC	NOTE	DESCRIPTION	TRIP	POLE	CODE	CKT NO
1	C	20	1	(E) SERVICE AREA LTG	1		11		1,100						600				14		1	(E) SNAKE BAR LTG	20	1	C	2
3	C	20	1	(E) KITCHEN LTG	1		3			800						1,500			9		1	(E) STORAGE, CORR LTG	20	1	C	4
5	N	20	1	(E) EXTERIOR RECEPTS N.W.	1	1					500						500			1	1	(E) POWER N.W.	20	1	N	6
7	N	20	1	(E) EXTERIOR RECEPTS S.E.	1	1			500						500					1	1	(E) POWER S.E.	20	1	N	8
9	N	20	1	(E) SPARE	1											540			3		3	**ROOF RECEPTS**	20	1	N	10
11	N	20	1	(E) SPARE	1																1	(E) SPARE	20	1	N	12
13	N	20	1	(E) SPARE	1																1	(E) SPARE	20	1	N	14
15	N	20	1	(E) SPARE	1																1	(E) SPARE	20	1	N	16
17	R	20	1	(E) BATTERY PACK	1	1					1,500						360		2		1	(E) EXTERIOR RECEPTS	20	1	R	18
19	R	20	1	(E) MULTI USER RM.	1		3		540						360				2		1	(E) TOILET RM AREA	20	1	R	20
21	R	20	1	(E) MULTI USER RM.	1		2			360						540			3		1	(E) TOILET RM AREA	20	1	R	22
23	R	20	1	(E) MULTI USER RM.	1		2				360						540		3		1	(E) TOILET RM AREA	20	1	R	24
25	R	20	1	(E) MULTI USER RM.	1		3		540						360				2		1	(E) TOILET RM AREA	20	1	R	26
27	R	20	1	(E) TELE BOARD	1		1			180						360			2		1	(E) CORRIDOR RECEPTS	20	1	R	28
29	N	20	1	(E) EF	1	1					200						180		1		1	(E) SOUND SYSTEM	20	1	R	30
31	N	20	1	(E) SPARE	1																1	(E) SPARE	20	1	N	32
33	N	20	1	(E) SPARE	1											222					1	(E) WH - CIRC PUMP	20	1	N	34
35	N	20	1	(E) WATER COOLER	1	2					400						**100**			**#**	**2**	**VAV'S**	20	1	N	36
37	P	70		(E) PANEL 'LA'	1				3,419						**100**					**#**	**2**	**VAV'S**	20	1	N	38
39	P			....	1					3,938						2,225				1	1	(E) WATER HEATER	30		N	40
41	P		3	....	1						2,000						2,225			1	1	....		2	N	42

PANEL NOTES: PHASE TOTALS **ØA: 8,219** **ØB: 10,665** **ØC: 8,865**

1 **EXISTING CIRCUIT BREAKER / LOAD**
2 **REPLACED LOAD WITH NEW ON EXISTING CIRCUIT**
3 **NEW LOAD ON EXISTING SPARE BREAKER.**

PANEL(S) TOTAL CONNECTED VA:	**25,877**
PANEL(S) DEMAND KVA:	**28.8**
PANEL(S) DEMAND AMPS:	**79.9**
LARGEST Ø DEMAND AMPS:	**93.7**

Panel: C (Also labeled 'A1')

SLD: X FLOOR PLAN: X LOCATION: ELECTRICAL ROOM
PANEL VOLTAGE: 120/208 3Ø, 4W BUS: 225 AMPS MAIN: L.O. 225 AMPS AIC RATING: 10,000 AMPS MOUNTING: SURFACE
CIRCUIT CODE: N: NON-CONTINUOUS C: CONTINUOUS R: DEMANDABLE RECEPTS K: KITCHEN: (0) M: MOTOR P: PANEL E: ELEV: (0)

CKT NO	CODE	TRIP	POLE	DESCRIPTION	NOTE	MISC	RECP	LTG	ØA	ØB	ØC	A	B	C	ØA	ØB	ØC	LTG	RECP	MISC	NOTE	DESCRIPTION	TRIP	POLE	CODE	CKT NO
1	N	20	1	(E) CARD READER	1				1,400						1,080				6		1	(E) CARD ROOM RECEPTS	20	1	R	2
3	N	20	1	(E) LIGHT REC ROOM	1					1,400						1,000					1	(E) CARD ROOM RECEPTS	20	1	N	4
5	N	20	1	(E) LIGHT REC ROOM	1						1,600						600				1	(E) CARD ROOM RECEPTS	20	1	N	6
7	N	20	1	(E) LIGHT REC ROOM	1				1,500						1,500						1	(E) LIGHTING POOL RM	20	1	N	8
9	N	20	1	(E) VESTIBULES	1					1,600						1,500					1	(E) LIGHTING POOL RM	20	1	N	10
11	N	20	1	(E) CLASSROOM	1						1,700						1,200				1	(E) LIGHTING POOL RM	20	1	N	12
13	N	20	1	(E) UTIL SPACES	1				700						720						1	(E) RECEPTS	20	1	R	14
15	R	20	1	(E) DUCT SMOKE RECEPTS	1					900						900					1	(E) RECEPTS	20	1	R	16
17	R	20	1	(E) RECEPTS	1						720						900				1	(E) DUCT SMOKE RECEPTS	20	1	R	18
19	R	20	1	(E) RECEPTS	1				720						500						1	(E) EWC	20	1	N	20
21	N	20	1	(E) DOOR OPREATOR	1					1,200						1,500					1	(E) VEND. MACH	20	1	N	22
23	N	15		**MAU-1**	2						**552**						1,500				1	(E) VEND. MACH	20	1	N	24
25	N			**---**	2				**552**						3,000						1	(E) WH	40		N	26
27	N		3	**---**	2					**552**						3,000					1	---		2	N	28
29	N	15		**KEF-1**	2						**1,272**						200				1	(E) H.W.C.P.	20	1	N	30
31	N			**---**	2				**1,272**												1	(E) SPARE	20	1	N	32
33	N		3	**---**	2					**1,272**						360			2		1	(E) DATA BOX RECEPTS	20	1	R	34
35	N	20	1	**EF-3**	2						**510**						720		4		1	(E) DATA BOX RECEPTS	20	1	R	36
37	R	20	1	(E) COMPUTRIER LAB RECEPT	1		4		720						720				4		1	(E) DATA BOX RECEPTS	20	1	R	38
39	R	20	1	(E) COMPUTRIER LAB RECEPT	1		4			720						720			4		1	(E) DATA BOX RECEPTS	20	1	R	40
41	R	20	1	(E) COMPUTRIER LAB RECEPT	1		4				720											SPACE			N	42

PANEL NOTES: PHASE TOTALS **ØA: 14,384** **ØB: 16,624** **ØC: 12,194**

1 **EXISTING CIRCUIT BREAKER / LOAD.**
2 **EXISTING EQUIPMENT REPLACED WITH NEW ON SAME CIRCUIT.**

PANEL(S) TOTAL CONNECTED VA:	**43,202**
PANEL(S) DEMAND KVA:	**42.9**
PANEL(S) DEMAND AMPS:	**119.1**
LARGEST Ø DEMAND AMPS:	**137.7**

Panel: K (EXISTING)

SLD: X FLOOR PLAN: X LOCATION: **ELECTRICAL ROOM**
PANEL VOLTAGE: 120/208 3Ø, 4W BUS: 225 AMPS MAIN: L.O. 225 AMPS AIC RATING: 10,000 AMPS MOUNTING: FLUSH
CIRCUIT CODE: N: NON-CONTINUOUS C: CONTINUOUS R: DEMANDABLE RECEPTS K: KITCHEN: (28) M: MOTOR P: PANEL E: ELEV: (0)

CKT NO	CODE	TRIP	POLE	DESCRIPTION	NOTE	MISC	RECP	LTG	ØA	ØB	ØC	A	B	C	ØA	ØB	ØC	LTG	RECP	MISC	NOTE	DESCRIPTION	TRIP	POLE	CODE	CKT NO
1	K	20	1	(E) VENDING MACHINE	1				500						180				1		1	(E) KITCHEN RECEPTACLE	20	1	K	2
3	K	20	1	(E) VENDING MACHINE	1					500						180			1		1	(E) KITCHEN RECEPTACLE	20	1	K	4
5	K	20	1	(E) VENDING MACHINE	1						500						500		1		1	(E) KITCHEN RECEPTACLE	20	1	K	6
7	K	20	1	(E) VENDING MACHINE	1				500						180				1		1	(E) KITCHEN RECEPTACLE	20	1	K	8
9	K	20	1	(E) LOBBY	1					400						180			1		1	(E) KITCHEN RECEPTACLE	20	1	K	10
11	K	20	1	(E) REFRIG	1						200						180		1		1	(E) KITCHEN RECEPTACLE	20	1	K	12
13	K	20	1	(E) REF-FREEZER	1				200						180				1		1	(E) COUNTER RECEPTS	20	1	K	14
15	K	20	1	(E) DISHWASHER	1					500						180			1		1	(E) COUNTER RECEPTS	20	1	K	16
17	K	20	1	(E) DISHWASHER	1						500						360		1		1	(E) TRASH COMPACTOR	20	1	K	18
19	K	20		(E) BUN WARMER	1				750						2,160				1		1	(E) ICE MAKER	30		K	20
21	K		2	....	1					750						2,160			1		1	....		2	K	22
23	K	20	1	**EF-4**	**1**	**1**					**1,656**						800		1		1	(E) EF-5	20	1	K	24
25	K	20		(E) GARBAGE DISPOSAL	1	1			1,920						1,920				1		1	(E) GARBAGE DISPOSAL	20		K	26
27	K			....	1	1				1,920						1,920			1		1	....			K	28
29	K		3	....	1	1					1,920						1,920		1		1	....		3	K	30
31	K	70		(E) COOK TOP	1	1			2,000						2,000				1		1	(E) COOK TOP	70		K	32
33	K			....	1	1				2,000						2,000			1		1	....			K	34
35	K		3	....	1	1					2,000						2,000		1		1	....		3	K	36
37	K	70		(E) DOUBLE OVEN	1	1			2,000						2,000				1		1	(E) DOUBLE OVEN	70		K	38
39	K			....	1	1				2,000						2,000			1		1	....			K	40
41	K		3	....	1	1					2,000						2,000		1		1	....		3	K	42

PANEL NOTES: PHASE TOTALS **ØA: 16,490** **ØB: 16,690** **ØC: 16,536**

1- EXISTING CIRCUIT BREAKER / LOAD

PANEL(S) TOTAL CONNECTED VA:	**49,716**
PANEL(S) DEMAND KVA:	**32.3**
PANEL(S) DEMAND AMPS:	**89.7**
LARGEST Ø DEMAND AMPS:	**90.4**

Panel: B1

SLD: X FLOOR PLAN: X LOCATION: X
PANEL VOLTAGE: 120/208 3Ø, 4W BUS: 100 AMPS MAIN: L.O. ### AMPS AIC RATING: 10,000 AMPS MOUNTING: SURFACE
CIRCUIT CODE: N: NON-CONTINUOUS C: CONTINUOUS R: DEMANDABLE RECEPTS K: KITCHEN: (0) M: MOTOR P: PANEL E: ELEV: (0)

CKT NO	CODE	TRIP	POLE	DESCRIPTION	NOTE	MISC	RECP	LTG	ØA	ØB	ØC	A	B	C	ØA	ØB	ØC	LTG	RECP	MISC	NOTE	DESCRIPTION	TRIP	POLE	CODE	CKT NO
1	N	20	1	(E) MEN-VEST CORR					360						80							(E) FAN	20	1	N	2
3	N	20	1	(E) FIRE ALARM PANEL						360						540						(E) REC ROOM 9	20	1	N	4
5	N	20	1	(E) FIRE ALARM PANEL							360											SPARE	20	1	N	6
7	N	20	1	SPARE																		SPARE	20	1	N	8
9	N	20	1	**FANS #3**	**1**					**624**												SPARE	20	1	N	10
11	N	20	1	**FANS #2**	**1**						**624**											SPARE	20	1	N	12
13	N	20	1	**FANS #1**	**1**				**696**													SPARE	20	1	N	14
15	N	20	1	**FANS #5**	**1**					**624**												SPARE	20	1	N	16
17	N	20	1	**ROOF RECEPTS EAST**			**3**				**540**											SPARE	20	1	N	18

PANEL NOTES: PHASE TOTALS **ØA: 1,136** **ØB: 2,148** **ØC: 1,524**

1 **EXISTING EQUIPMENT REPLACED WITH NEW ON SAME CIRCUIT.**

PANEL(S) TOTAL CONNECTED VA:	**4,808**
PANEL(S) DEMAND KVA:	**4.8**
PANEL(S) DEMAND AMPS:	**13.3**
LARGEST Ø DEMAND AMPS:	**17.9**

PROFESSIONAL ENGINEER — KARL W. PILS — Exp. 12-31-19 — ELECTRICAL — No. 20508 — STATE OF NEVADA
01/09/2018

LAS VEGAS SENIOR CENTER HVAC REPLACEMENT

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Project #: L17138

CONSULTANTS

ISSUE	DATE	DESCRIPTION

ISSUE DATE: 12.08.2017
PROJECT NO: L17138
CAD DWG FILE: E0.2 ELECTRICAL SINGLE LINE DIAGRAMS AND PANEL SCHEDULES.DWG
DRAWN BY: HPA
BID NUMBER: 18.69111.02

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SHEET TITLE

ELECTRICAL SINGLE LINE DIAGRAMS AND PANEL SCHEDULES

513-45Q

E0.2

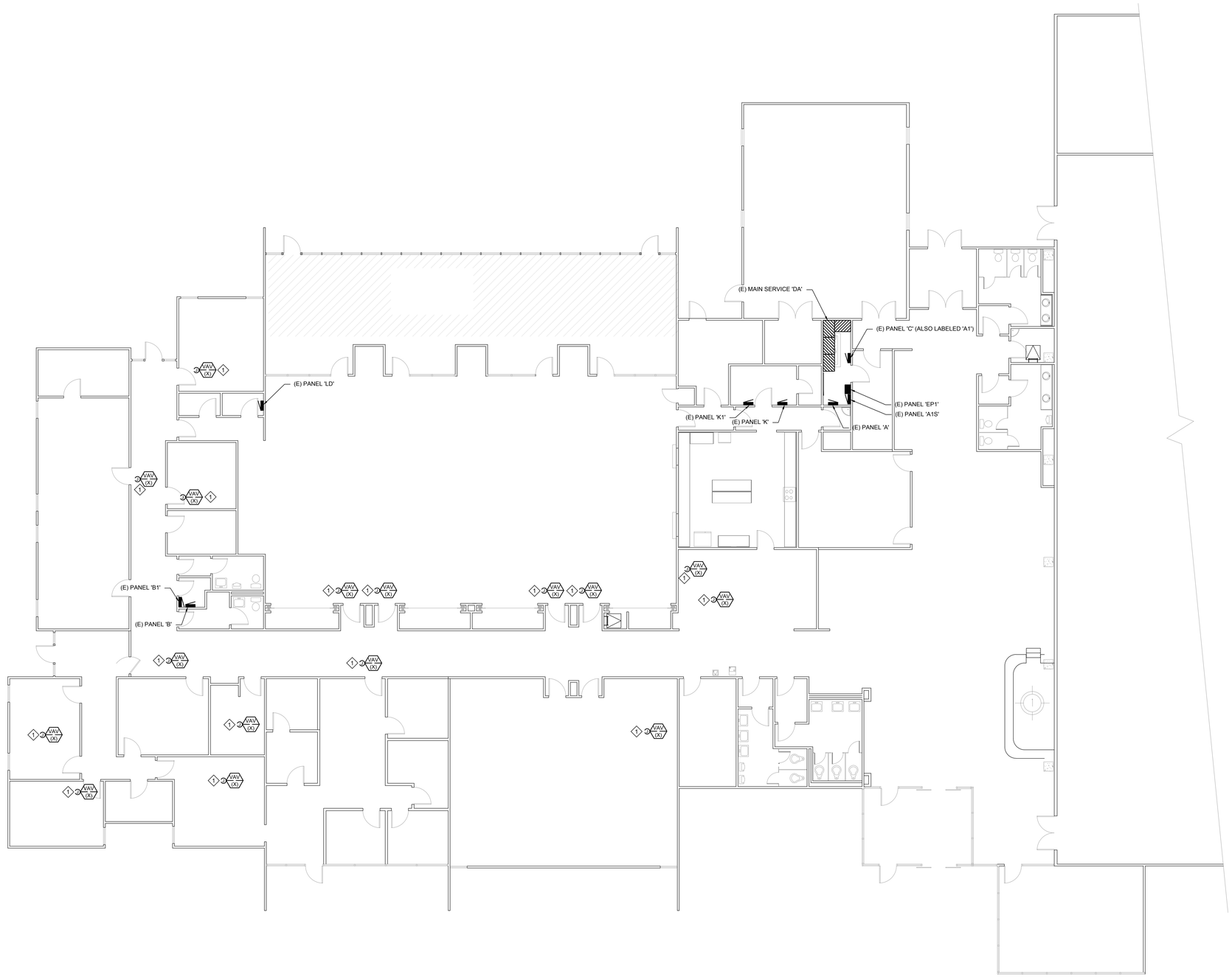
SHEET - OF -

GENERAL NOTES:

1. EXISTING TO REMAIN SHOWN SOLID AND/OR DESIGNATED WITH AN (E), EXISTING TO BE REMOVED SHOWN DASHED AND/OR DESIGNATED WITH A (X), EXISTING TO BE RELOCATED DESIGNATED WITH AN (R).
2. EXISTING ITEMS AND CONDUIT ARE BASED UPON EXISTING DRAWINGS AND INFORMATION AVAILABLE AT THE TIME OF DESIGN. CONTRACTOR TO VERIFY EXISTING LOCATIONS.
3. EXISTING TO BE REMOVED ITEMS SHALL HAVE ASSOCIATED CONDUIT, JUNCTION BOXES, WIRE, CABLE, ETC REMOVED TO SOURCE OR FIRST EXISTING TO REMAIN ITEM.
4. EXISTING TO REMAIN ITEMS AND ITS ASSOCIATED CONDUIT, JUNCTION BOXES, WIRE, CABLE, ETC. SHALL BE INSPECTED FOR PROPER OPERATION AND CONDITION AS PER THEIR RESPECTIVE MANUFACTURER RECOMMENDATIONS AND LOCAL/NATIONAL CODES. IF ANY SUCH ITEM IS FOUND TO NOT MEET THESE REQUIREMENTS, IT SHALL BE REPLACED WITH EQUIVALENT ITEM.
5. EXISTING TO BE RELOCATED LIGHT FIXTURES SHALL BE CLEANED AND RELAMPED PRIOR TO ROUGH-IN. IF ANY LIGHT FIXTURE IS DAMAGED OR DEFECTIVE, IT SHALL BE REPLACED WITH EQUIVALENT FIXTURE OF SAME TYPE, LAMP QUANTITY, AND ACCESSORIES.

SHEET NOTES:

1. DISCONNECT EXISTING VAV AND CIRCUITING BACK TO AN ACCESSIBLE POINT. MAINTAIN CONTINUITY OF DOWNSTREAM DEVICES.



A ED2.1 ELECTRICAL DEMOLITION FLOOR PLAN
1/8" = 1'-0"

01/09/2018

LAS VEGAS SENIOR CENTER HVAC REPLACEMENT

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CONSULTANTS

ISSUE	DATE	DESCRIPTION

ISSUE DATE: 12.08.2017
PROJECT NO: L17138
CAD DWG FILE: ED2.1 ELECTRICAL DEMOLITION FLOOR PLAN.DWG
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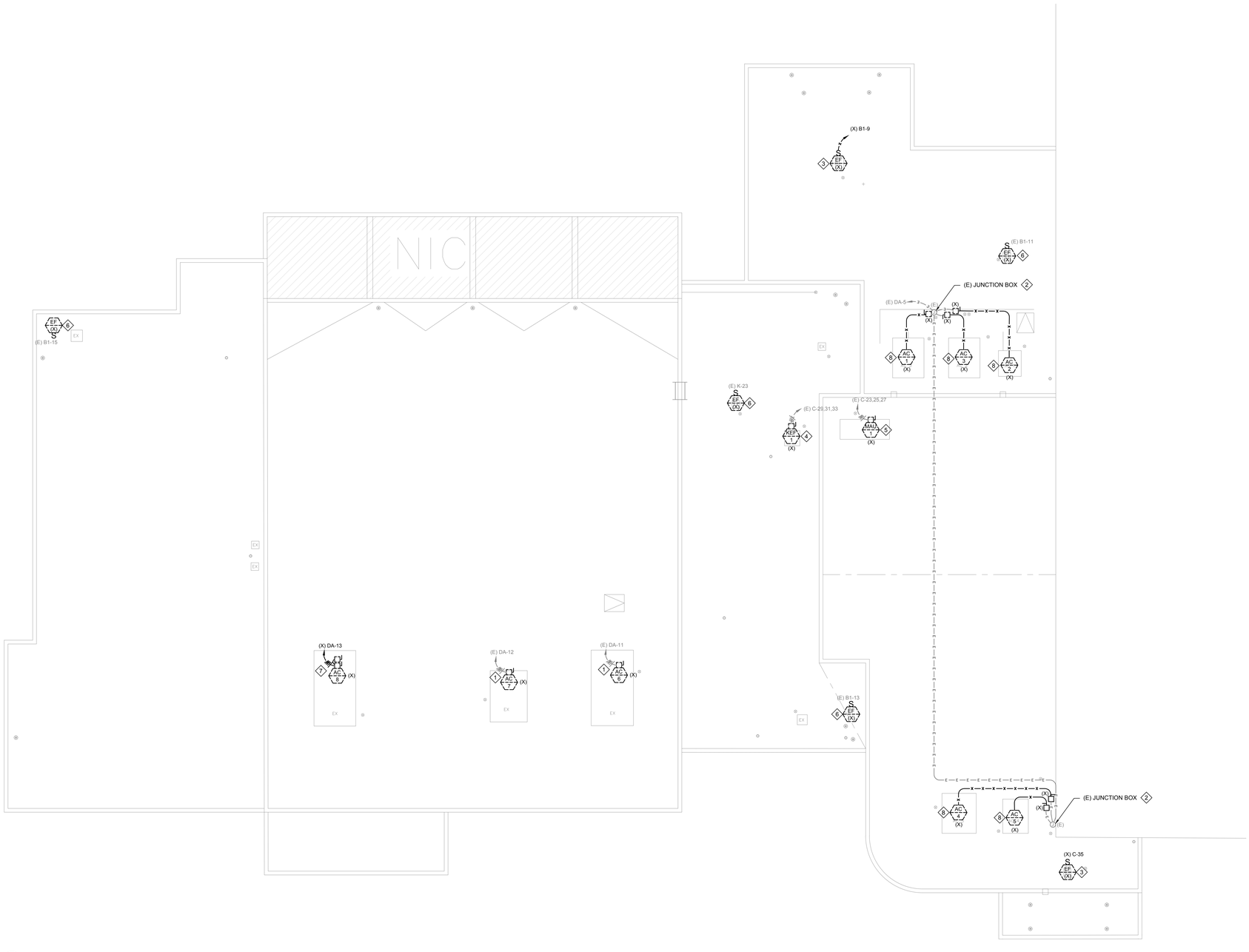
SHEET TITLE

ELECTRICAL DEMOLITION FLOOR PLAN

513-45Q

ED2.1

SHEET - OF -



A ED2.2 ELECTRICAL DEMOLITION ROOF PLAN
1/8" = 1'-0"

GENERAL NOTES:

1. EXISTING TO REMAIN SHOWN SOLID AND/OR DESIGNATED WITH AN (E), EXISTING TO BE REMOVED SHOWN DASHED AND/OR DESIGNATED WITH A (X), EXISTING TO BE RELOCATED DESIGNATED WITH AN (R).
2. EXISTING ITEMS AND CONDUIT ARE BASED UPON EXISTING DRAWINGS AND INFORMATION AVAILABLE AT THE TIME OF DESIGN. CONTRACTOR TO VERIFY EXISTING LOCATIONS.
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4. EXISTING TO REMAIN ITEMS AND ITS ASSOCIATED CONDUIT, JUNCTION BOXES, WIRE, CABLE, ETC. SHALL BE INSPECTED FOR PROPER OPERATION AND CONDITION AS PER THEIR RESPECTIVE MANUFACTURER RECOMMENDATIONS AND LOCAL/NATIONAL CODES. IF ANY SUCH ITEM IS FOUND TO NOT MEET THESE REQUIREMENTS, IT SHALL BE REPLACED WITH EQUIVALENT ITEM.
5. EXISTING TO BE RELOCATED LIGHT FIXTURES SHALL BE CLEANED AND RELAMPED PRIOR TO ROUGH-IN. IF ANY LIGHT FIXTURE IS DAMAGED OR DEFECTIVE, IT SHALL BE REPLACED WITH EQUIVALENT FIXTURE OF SAME TYPE, LAMP QUANTITY, AND ACCESSORIES.

SHEET NOTES:

1. EXISTING ROOF TOP UNIT TO BE REMOVED AND REPLACED WITH NEW IN SAME LOCATION. EXISTING CIRCUITING TO REMAIN FOR NEW UNIT.
2. EXISTING NEMA 3R JUNCTION BOX ON ROOFWITH MECHANICAL UNIT FEEDERS TO REMAIN.
3. EXISTING EXHAUST FAN TO BE REMOVED. REMOVE DISCONNECT, CONDUIT AND CIRCUITING BACK TO SOURCE.
4. EXISTING KITCHEN EXHAUST FAN TO BE REMOVED AND REPLACED WITH NEW IN SAME LOCATION. EXISTING CIRCUITING TO REMAIN FOR NEW UNIT.
5. EXISTING MAKE UP AIR UNIT TO BE REMOVED AND REPLACED WITH NEW IN SAME LOCATION. EXISTING CIRCUITING TO REMAIN FOR NEW UNIT.
6. EXISTING EXHAUST FAN TO BE REMOVED AND REPLACED WITH NEW IN SAME LOCATION. EXISTING CIRCUITING TO REMAIN FOR NEW UNIT.
7. EXISTING ROOF TOP UNIT TO BE REMOVED AND REPLACED WITH NEW LARGER UNIT IN SAME LOCATION. REMOVE EXISTING CIRCUITING BACK TO SOURCE.
8. EXISTING ROOF TOP UNIT TO BE REMOVED AND REPLACED WITH NEW IN SAME LOCATION. REMOVE DISCONNECT SWITCH, CONDUIT, AND CONDUCTORS, BACK TO EXISTING TAP JUNCTION BOX.

PROFESSIONAL ENGINEER
KARL W. PILS
Exp. 12-31-19
ELECTRICAL
No. 20508
STATE OF NEVADA
01/09/2018

LAS VEGAS SENIOR CENTER HVAC REPLACEMENT

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CONSULTANTS

ISSUE	DATE	DESCRIPTION

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PROJECT NO: L17138
CAD DWG FILE: ED2.2 ELECTRICAL DEMOLITION ROOF PLAN.DWG
DRAWN BY: HPA
BID NUMBER: 18.69111.02

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SHEET TITLE
ELECTRICAL DEMOLITION ROOF PLAN

513-45Q

ED2.2

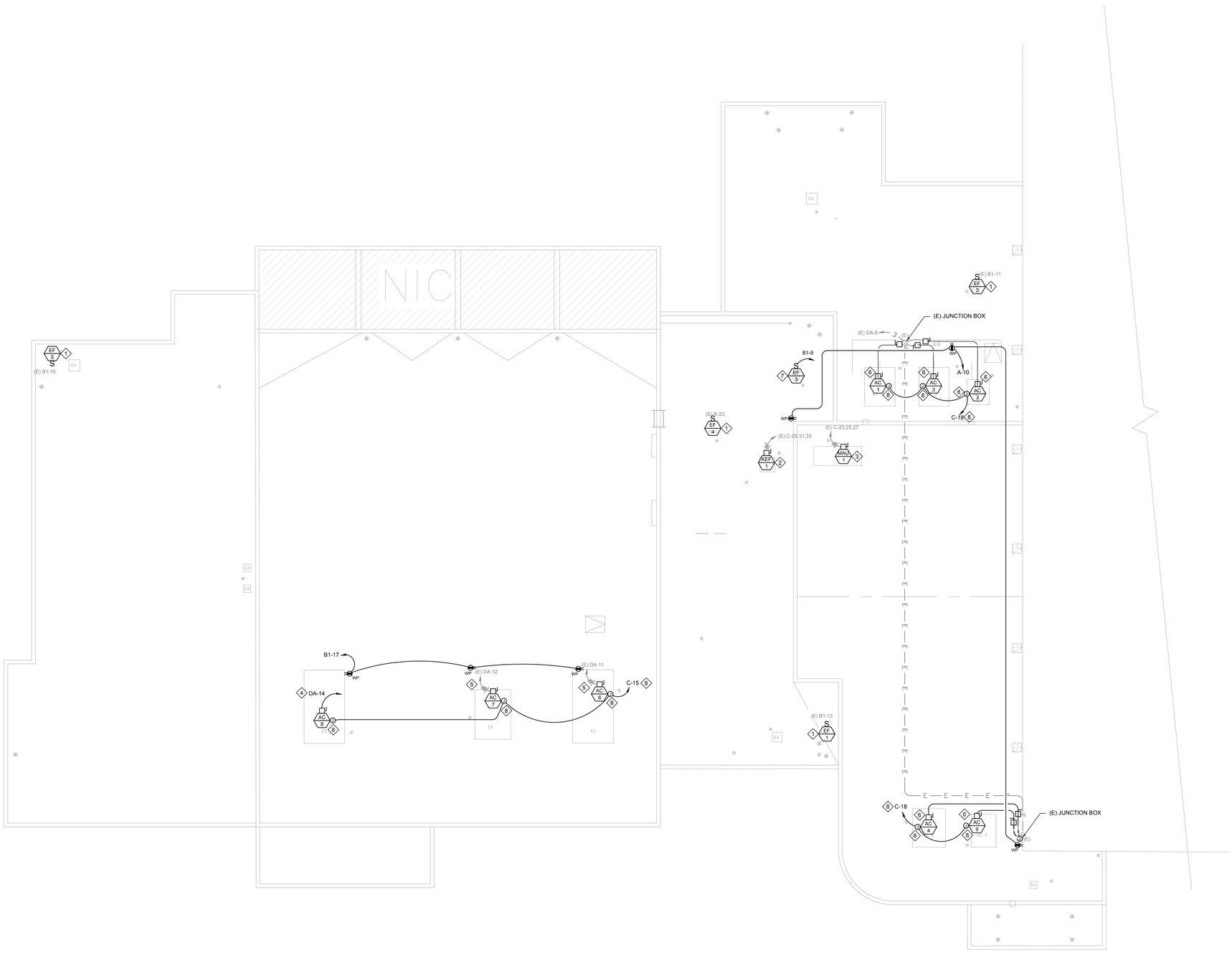
SHEET - OF -

GENERAL NOTES:

1. EXISTING ITEMS SHOWN LIGHT AND/OR DESIGNATED WITH AN (E), RELOCATED ITEMS SHOWN DARK AND DESIGNATED WITH A (R), NEW SHOWN DARK.

SHEET NOTES:

1. EXISTING EXHAUST FAN TO BE REMOVED AND REPLACED WITH NEW IN SAME LOCATION. INTERCEPT EXISTING CIRCUITING AND ROUTE TO NEW FAN. PROVIDE ALL JUNCTION BOXES, CONDUITS, CONDUCTORS, ETC AS REQUIRED FOR A COMPLETE INSTALLATION.
2. EXISTING KITCHEN EXHAUST FAN TO BE REMOVED AND REPLACED WITH NEW IN SAME LOCATION. INTERCEPT EXISTING CIRCUITING AND ROUTE TO NEW FAN. PROVIDE ALL JUNCTION BOXES, CONDUITS, CONDUCTORS, ETC AS REQUIRED FOR A COMPLETE INSTALLATION.
3. MAKE UP AIR UNIT TO BE REMOVED AND REPLACED WITH NEW IN SAME LOCATION. INTERCEPT EXISTING CIRCUITING AND ROUTE TO NEW FAN. PROVIDE ALL JUNCTION BOXES, CONDUITS, CONDUCTORS, ETC AS REQUIRED FOR A COMPLETE INSTALLATION.
4. REFER TO SINGLE LINE DIAGRAM FOR FEEDER SIZING.
5. INTERCEPT EXISTING CIRCUIT SERVING REMOVED UNIT AND ROUTE TO NEW UNIT. PROVIDE ALL JUNCTION BOXES, CONDUIT CONDUCTORS AS REQUIRED FOR COMPLETE INSTALLATION.
6. FURNISH AND INSTALL NEW DISCONNECT SWITCH, CONDUIT AND CONDUCTORS. REFER TO SINGLE LINE DIAGRAM, SHEET E0.2 FOR ADDITIONAL REQUIREMENTS.
7. NEW EXHAUST FAN AND CIRCUITING. COORDINATE SPECIFIC LOCATION AND POINT OF CONNECTION WITH MECHANICAL CONTRACTOR.
8. CONNECT TO DUCT SMOKE DETECTOR PER MANUFACTURERS WIRING DIAGRAM. COORDINATE POINT OF CONNECTION WITH MECHANICAL CONTRACTOR. UTILIZE EXISTING CIRCUIT SERVING REMOVED DUCT DETECTORS.



A ELECTRICAL ROOF PLAN
E2.2 1/8" = 1' 0"

PROFESSIONAL ENGINEER
KARL W. PILS
Exp. 12-31-19
ELECTRICAL
No. 20508
STATE OF NEVADA
01/09/2018

LAS VEGAS SENIOR CENTER HVAC REPLACEMENT

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CONSULTANTS

ISSUE	DATE	DESCRIPTION

ISSUE DATE: 12.08.2017
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CAD DWG FILE: E2.2 ELECTRICAL ROOF PLAN.DWG
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SHEET TITLE

ELECTRICAL ROOF PLAN

513-45Q

E2.2

SHEET - OF -

ELECTRICAL SYMBOLS

(NOT ALL USED IN PROJECT)

- FLUORESCENT LIGHT FIXTURE - ACRYLIC LENSED RECESSED
- FLUORESCENT LIGHT FIXTURE - ACRYLIC LENSED RECESSED EMERGENCY
- FLUORESCENT LIGHT FIXTURE - PARABOLIC RECESSED
- FLUORESCENT LIGHT FIXTURE - PARABOLIC RECESSED EMERGENCY
- FLUORESCENT LIGHT FIXTURE - INDIRECT RECESSED
- FLUORESCENT LIGHT FIXTURE - INDIRECT RECESSED EMERGENCY
- FLUORESCENT LIGHT FIXTURE - CEILING SURFACE
- FLUORESCENT LIGHT FIXTURE - CEILING SURFACE EMERGENCY
- FLUORESCENT LIGHT FIXTURE - STRIP WITH WIREGUARD
- FLUORESCENT LIGHT FIXTURE - STRIP WITH WIREGUARD EMERGENCY
- FLUORESCENT LIGHT FIXTURE - PENDANT
- FLUORESCENT LIGHT FIXTURE - PENDANT EMERGENCY
- FLUORESCENT LIGHT FIXTURE - WALL MOUNTED
- FLUORESCENT LIGHT FIXTURE - WALL MOUNTED EMERGENCY
- NEON FIXTURE
- DOWNLIGHT FIXTURE
- DOWNLIGHT FIXTURE - EMERGENCY
- WALL WASHER FIXTURE
- WALL WASHER FIXTURE - EMERGENCY
- LIGHT FIXTURE - WALL MOUNTED @ +78" AFF UNLESS NOTED
- LIGHT FIXTURE - WALL MOUNTED @ +78" AFF UNLESS NOTED - EMERGENCY
- SPOT OR FLOOD LIGHT
- POLE MOUNTED FIXTURE - OVAL/CIRCULAR
- POLE MOUNTED FIXTURE - SQUARE/RECTANGULAR
- PENDANT FIXTURE
- TRACK LIGHT
- LETTER INDICATES FIXTURE TYPE PER FIXTURE SCHEDULE
- EMERGENCY BATTERY LIGHTING UNIT WITH TWIN HEADS - WALL MOUNTED @ +78" AFF UNLESS NOTED
- EXIT LIGHT FIXTURE SINGLE FACE AND DIRECTIONAL ARROW - CEILING MOUNTED
- EXIT LIGHT FIXTURE DOUBLE FACE - CEILING MOUNTED
- EXIT LIGHT FIXTURE SINGLE FACE - WALL MOUNTED @ +78" AFF UNLESS NOTED
- EXIT LIGHT FIXTURE DOUBLE FACE - WALL MOUNTED @ +78" AFF UNLESS NOTED
- GROUND MOUNTED FIXTURE
- S — LIGHT SWITCH - WALL MOUNTED @ +48" AFF UNLESS NOTED SUBSCRIPTS:
  - 2 = 2-POLE SWITCH
  - 3 = 3 WAY SWITCH
  - 4 = 4 WAY SWITCH
  - D = DIMMER SWITCH
  - K = KEY OPERATED SWITCH
  - M = MOMENTARY CONTACT SWITCH
  - P = SWITCH WITH PILOT LIGHT
  - T = THERMAL OVERLOAD SWITCH
- PUSHBUTTON SWITCH - WALL MOUNTED @ +48" AFF UNLESS NOTED
- PUSHBUTTON TYPE CONTROL STATION - WALL MOUNTED @ +48" AFF UNLESS NOTED
- SINGLE RECEPTACLE - WALL MOUNTED @ +18" AFF UNLESS NOTED
- DUPLEX RECEPTACLE - WALL MOUNTED @ +18" AFF UNLESS NOTED
- DOUBLE DUPLEX RECEPTACLE - WALL MOUNTED @ +18" AFF UNLESS NOTED
- GFI RECEPTACLE - WALL MOUNTED @ +18" AFF UNLESS NOTED
- 1/2 SWITCHED (BOTTOM HALF) DUPLEX RECEPTACLE - WALL MOUNTED @ +18" AFF UNLESS NOTED
- SPECIAL RECEPTACLE - WALL MOUNTED @ +18" AFF UNLESS NOTED
- IG — ISOLATED GROUND TYPE (ORANGE) DUPLEX RECEPTACLE - WALL MOUNTED +18" UNLESS NOTED
- IG — ISOLATED GROUND TYPE (ORANGE) DOUBLE DUPLEX RECEPTACLE - WALL MOUNTED @ +18" AFF UNLESS NOTED (ONE NORMAL DEVICE, ONE ISOLATED GND DEVICE UON)
- CLOCK RECEPTACLE - WALL MOUNTED @ +78" AFF UNLESS NOTED
- MULTI-OUTLET PLUG STRIP - WALL MOUNTED @ +18" UNLESS NOTED
- SINGLE RECEPTACLE - FLUSH FLOOR
- DUPLEX RECEPTACLE - FLUSH FLOOR
- DOUBLE DUPLEX RECEPTACLE - FLUSH FLOOR
- SPECIAL RECEPTACLE - FLUSH FLOOR
- IG — ISOLATED GROUND TYPE (ORANGE) DUPLEX RECEPTACLE - FLUSH FLOOR
- IG — ISOLATED GROUND TYPE (ORANGE) DOUBLE DUPLEX RECEPTACLE - FLUSH FLOOR (ONE NORMAL DEVICE, ONE ISOLATED GND DEVICE UON)
- SINGLE RECEPTACLE - CEILING MOUNTED
- DUPLEX RECEPTACLE - CEILING MOUNTED
- DOUBLE DUPLEX RECEPTACLE - CEILING MOUNTED
- SPECIAL RECEPTACLE - CEILING MOUNTED
- IG — ISOLATED GROUND TYPE (ORANGE) DUPLEX RECEPTACLE- CEILING MOUNTED
- X — TELEPHONE OUTLET - WALL MOUNTED @ +18" AFF UNLESS NOTED - PROVIDE 4-SQUARE STANDARD J-BOX WITH SINGLE GANG MUD RING. X INDICATES NUMBER OF VOICE JACKS. STANDARD DEVICE WITH NO NUMBERS IS (1) 4 PAIR CATEGORY 6 VOICE CABLE WITH SINGLE-PORT FACEPLATE UNLESS NOTED. PROVIDE STAINLESS STEEL FACEPLATE FOR ALL OUTLETS IN FOODSERVICE AREAS.
- X — DATA OUTLET - WALL MOUNTED @ +18" AFF UNLESS NOTED - PROVIDE 4-SQUARE STANDARD J-BOX WITH SINGLE GANG MUD RING. X INDICATES NUMBER OF DATA JACKS. STANDARD DEVICE WITH NO NUMBERS IS (2) 4 PAIR CATEGORY 6 DATA CABLES WITH TWO-PORT FACEPLATE UNLESS NOTED. PROVIDE STAINLESS STEEL FACEPLATE FOR ALL OUTLETS IN FOODSERVICE AREAS. (P) INDICATES POINT OF SALES OUTLET.
- X/Y — TELEPHONE/DATA OUTLET - WALL MOUNTED @ +18" AFF UNLESS NOTED - PROVIDE 4-SQUARE STANDARD J-BOX WITH SINGLE GANG MUD RING. X INDICATES NUMBER OF VOICE JACKS AND Y INDICATES NUMBER OF DATA JACKS. STANDARD DEVICEWITH NO NUMBERS IS (2) 4 PAIR CATEGORY 6 DATA CABLES, (1) 4 PAIR CATEGORY 6 VOICE CABLE AND (1) BLANK WITH FOUR-PORT FACEPLATE UNLESS NOTED. PROVIDE STAINLESS STEEL FACEPLATE FOR ALL OUTLETS IN FOODSERVICE AREAS.
- X — TELEPHONE OUTLET - FLUSH FLOOR - HUBBELL #B2527 OR EQUIVALENT. PROVIDE FLANGE AND TRIM COMPATIBLE FOR FLOOR COVERING, COORDINATE WITH ARCHITECTURALS/INTERIORS. X INDICATES NUMBER OF VOICE JACKS. STANDARD DEVICE WITH NO NUMBERS IS (1) 4 PAIR CATEGORY 6 VOICE CABLE WITH SINGLE-PORT FACEPLATE UNLESS NOTED.
- X — DATA OUTLET - FLUSH FLOOR - HUBBELL #B2527 OR EQUIVALENT. PROVIDE FLANGE AND TRIM COMPATIBLE FOR FLOOR COVERING, COORDINATE WITH ARCHITECTURALS/INTERIORS. X INDICATES NUMBER OF DATA JACKS. STANDARD DEVICE WITH NO NUMBERS IS (2) 4 PAIR CATEGORY 6 DATA CABLES WITH TWO-PORT FACEPLATE UNLESS NOTED.
- X/Y — TELEPHONE/DATA OUTLET - FLUSH FLOOR - HUBBELL #B2527 OR EQUIVALENT. PROVIDE FLANGE AND TRIM COMPATIBLE FOR FLOOR COVERING, COORDINATE WITH ARCHITECTURALS/INTERIORS. X INDICATES NUMBER OF VOICE JACKS AND Y INDICATES NUMBER OF DATA JACKS. STANDARD DEVICE WITH NO NUMBERS IS (2) 4 PAIR CATEGORY 6 DATA CABLES, (1) 4 PAIR CATEGORY 6 VOICE CABLE AND (1) BLANK WITH FOUR-PORT FACEPLATE UNLESS NOTED.
- X — TELEPHONE OUTLET - CEILING MOUNTED - HUBBELL #B2527 OR EQUIVALENT. X INDICATES NUMBER OF VOICE JACKS. STANDARD DEVICE WITH NO NUMBERS IS (1) 4 PAIR CATEGORY 6 VOICE CABLE WITH SINGLE-PORT FACEPLATE UNLESS NOTED.
- X — DATA OUTLET - CEILING MOUNTED - HUBBELL #B2527 OR EQUIVALENT. X INDICATES NUMBER OF DATA JACKS. STANDARD DEVICE WITH NO NUMBERS IS (2) 4 PAIR CATEGORY 6 DATA CABLES WITH TWO-PORT FACEPLATE UNLESS NOTED.
- X/Y — TELEPHONE/DATA OUTLET - CEILING MOUNTED - HUBBELL #B2527 OR EQUIVALENT. X INDICATES NUMBER OF VOICE JACKS AND Y INDICATES NUMBER OF DATA JACKS. STANDARD DEVICE WITH NO NUMBERS IS (2) 4 PAIR CATEGORY 6 DATA CABLES, (1) 4 PAIR CATEGORY 6 VOICE CABLE AND (1) BLANK WITH FOUR-PORT FACEPLATE UNLESS NOTED.
- M — AUDIO MICROPHONE - WALL MOUNTED @ +48" AFF UNLESS NOTED
- V — VOLUME CONTROL - WALL MOUNTED @ +48" AFF UNLESS NOTED
- S — SPEAKER - CEILING MOUNTED
- S — SPEAKER - WALL MOUNTED @ +78" AFF UNLESS NOTED
- TV — TELEVISION OUTLET - CEILING MOUNTED. PROVIDE 4-SQUARE STANDARD J-BOX WITH SINGLE GANG MUD RING AND RG-6 CABLE WITH SINGLE PORT FACEPLATE UNLESS NOTED.
- TV — TELEVISION OUTLET - WALL MOUNTED. PROVIDE 4-SQUARE STANDARD J-BOX WITH SINGLE GANG MUD RING AND (1) RG-6 CABLE WITH SINGLE PORT FACEPLATE UNLESS NOTED.
- F — FIRE ALARM MANUAL PULL STATION - WALL MOUNTED @ +48" AFF UNLESS NOTED
- FS — FIRE ALARM SPEAKER - CEILING MOUNTED
- FS — FIRE ALARM SPEAKER - WALL MOUNTED @ +80" AFF UNLESS NOTED
- COMBINATION FIRE ALARM SPEAKER OR HORN/STROBE - WALL MOUNTED @ +80" AFF UNLESS NOTED
- FIRE ALARM STROBE LIGHT - WALL MOUNTED @ +80" AFF UNLESS NOTED
- S E — SELF CONTAINED SMOKE DETECTOR/ANNUNCIATOR (120V W/ BATTERY BACKUP) - WALL MOUNTED @ +80" AFF UNLESS NOTED
- S — SMOKE DETECTOR
- S D — DUCT DETECTOR
- H — HEAT DETECTOR
- F — FIRE SMOKE DAMPER - PROVIDED BY MECHANICAL
- FACP — FIRE ALARM CONTROL PANEL
- FS — FLOW SWITCH
- TS — TAMPER SWITCH
- DL — DOOR LOCK - ELECTRONIC - WALL MOUNTED @ +48" AFF UNLESS NOTED
- CR — CARD READER - ELECTRONIC - WALL MOUNTED @ +48" AFF UNLESS NOTED
- OS — OCCUPANCY SENSOR - CEILING MOUNTED
- OS — OCCUPANCY SENSOR - WALL MOUNTED @ +48" AFF UNLESS NOTED
- TC — TIMECLOCK - WALL MOUNTED @ +48" AFF UNLESS NOTED
- M — DOOR HOLDER - CEILING MOUNTED
- M — DOOR HOLDER - WALL MOUNTED
- IC — INTERCOM STATION - WALL MOUNTED @ +48" AFF UNLESS NOTED
- J — JUNCTION BOX
- J — JUNCTION BOX - WALL MOUNTED - HEIGHT AS INDICATED
- J — JUNCTION BOX - FLOOR FLUSH
- J — SIGNAGE JUNCTION BOX
- J — SIGNAGE JUNCTION BOX - WALL MOUNTED - HEIGHT AS INDICATED
- NON-FUSED DISCONNECT SWITCH - SIZE AS INDICATED
- FUSED DISCONNECT SWITCH - SIZE AS INDICATED
- COMBINATION NON-FUSED/FUSED SWITCH AND STARTER - SPECIFIED ON DRAWINGS
- VARIABLE FREQUENCY DRIVE - PROVIDED BY MECHANICAL
- MAGNETIC MOTOR STARTER
- MOTOR
- C — CONTACTOR
- R — RELAY
- PC — PHOTOCELL
- T — THERMOSTAT OUTLET - PROVIDED BY MECHANICAL
- TRANSFORMER
- 277/480V, 3PH, 4W PANELBOARD
- 120/208V, 3PH, 4W PANELBOARD
- 120/240V, 1PH, 3W LOAD CENTER
- MEDIA CONSOLIDATION CENTER
- A — AUTOMATIC TRANSFER SWITCH
- HVAC EQUIPMENT - PROVIDED BY MECHANICAL
- ELEVATOR CONTROLLER - FURNISHED BY OTHERS
- L — FOOD SERVICE EQUIPMENT - FURNISHED BY OTHERS
- PULL BOX
- MAIN SWITCHBOARD, MOTOR CONTROL CENTER OR DISTRIBUTION BOARD
- ELECTRICAL RISER
- FIXED CAMERA - FURNISHED BY OTHERS
- PAN/TILT CAMERA WITH DOME - FURNISHED BY OTHERS
- FUSED SWITCH
- POTENTIAL TRANSFORMER
- CURRENT TRANSFORMER
- CIRCUIT BREAKER
- PANELBOARD ON SINGLE LINE DIAGRAMS
- M — METER
- ST — SHUNT TRIP
- GFP — GROUND FAULT PROTECTION
- NOTE CALLOUT
- +18" — MOUNTING HEIGHT TO CENTERLINE OF DEVICE AFF OR AFG
- #/# — HOMERUN CONDUIT - STROKES INDICATE QUANTITY OF CONDUCTORS
- CONDUIT RUN EXPOSED
- CONDUIT RUN CONCEALED IN WALL OR ABOVE CEILING
- CONDUIT BELOW FLOOR OR GRADE
- E — EXISTING CONDUIT AND WIRE TO REMAIN
- X — EXISTING CONDUIT AND WIRE TO BE REMOVED
- 1/2"-2 #12 & 1 #12 GND THWN UNLESS NOTED
- #/# — 1/2"-3 #12 & 1 #12 GND THWN UNLESS NOTED
- #/# — 1/2"-4 #12 & 1 #12 GND THWN UNLESS NOTED
- CABLE TRAY - TYPE SPECIFIED ON DRAWINGS
- J — RISER UP - SEE RISER DIAGRAM FOR WIRE SIZE, CABLE TYPE AND/OR QUANTITIES
- J — RISER DOWN - SEE RISER DIAGRAM FOR WIRE SIZE, CABLE TYPE AND/OR QUANTITIES

ELECTRICAL ABBREVIATIONS

(NOT ALL USED IN PROJECT)

AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AIC	AMP INTERRUPTING CURRENT
AL	ALUMINUM
ATS	AUTOMATIC TRANSFER SWITCH
BFG	BELOW FINISHED GRADE
BKBD	BACKBOARD
C	CONDUIT
CU	COPPER
DB	DISTRIBUTION BOARD
(E)	EXISTING TO REMAIN
EA	EACH
EM	EMERGENCY
EMCS	ENERGY MANAGEMENT CONTROL SYSTEM
EWC	ELECTRIC WATER COOLER
F	FUSE (DUAL ELEMENT, TIME DELAY)
FBO	FURNISHED BY OTHERS
FPN	FUSE PER NAMEPLATE
GFI	GROUND FAULT CIRCUIT INTERRUPTER
GND	GROUND
HOA	HAND-OFF-AUTOMATIC
HP	HORSEPOWER
IG	ISOLATED GROUND
JBOX	JUNCTION BOX
KVA	KILOVOLT-AMPS
KW	KILOWATT
MCC	MOTOR CONTROL CENTER
MPC	MINI POWER CENTER
NC	NORMALLY CLOSED
NEC	NATIONAL ELECTRIC CODE
NF	NON-FUSED
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
NIC	NOT IN CONTRACT
NL	NIGHT LIGHT
NO	NORMALLY OPEN
NTS	NOT TO SCALE
PB	PULLBOX
PNL	PANEL BOARD
(R)	EXISTING TO BE RELOCATED
RGS	RIGID GALVANIZED STEEL
SWBD	SWITCH BOARD
SQFT	SQUARE FEET
TL	TWISTLOCK
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSION
TYP	TYPICAL
UG	UNDERGROUND
UMC	UNIFORM MECHANICAL CODE
UON	UNLESS OTHERWISE NOTED
UPS	UNINTERRUPTIBLE POWER SUPPLY
V	VOLTS
VA	VOLT-AMPS
V/PH/A	VOLTS/PHASE/AMPS
V/PH/HZ	VOLTS/PHASE/HERTZ
VFD	VARIABLE FREQUENCY DRIVE - PROVIDED BY MECHANICAL
WP	WEATHER PROOF (NEMA 3R)
(X)	EXISTING TO BE REMOVED
XFMR	TRANSFORMER
XP	EXPLOSION PROOF

DRAWING INDEX

SHEET NUMBER	SHEET TITLE	PERMIT 12/08/2017	CLARIFICATIONS 08/21/2018
			1
E0.0	ELECTRICAL SYMBOLS, ABBREVIATIONS AND DRAWING INDEX	X	X
E0.1	ELECTRICAL SPECIFICATIONS	X	
E0.2	ELECTRICAL SINGLE LINE DIAGRAMS AND PANEL SCHEDULES	X	
ED2.1	ELECTRICAL DEMOLITION FLOOR PLAN	X	
ED2.2	ELECTRICAL DEMOLITION ROOF PLAN	X	
E2.1	ELECTRICAL FLOOR PLAN	X	X
E2.2	ELECTRICAL ROOF PLAN	X	
TOTAL		7	2

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ISSUE	DATE	DESCRIPTION
1	08.21.18	CLARIFICATIONS

ISSUE DATE: 12/08/2017
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SHEET TITLE

ELECTRICAL SYMBOLS, ABBREVIATIONS AND DRAWING INDEX

513-45Q

E0.0

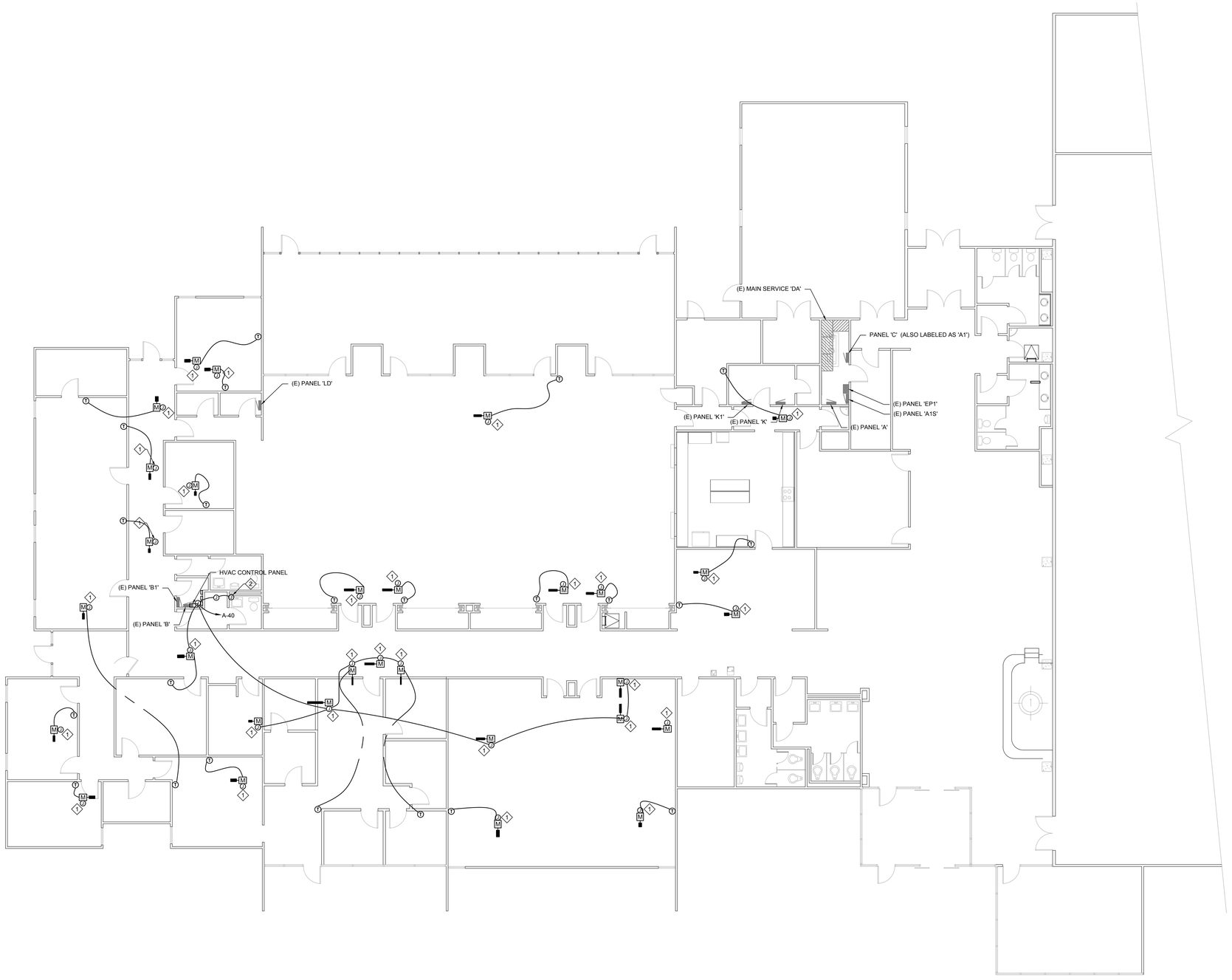
SHEET - OF -

GENERAL NOTES:

1. EXISTING ITEMS SHOWN LIGHT AND/OR DESIGNATED WITH AN (E), RELOCATED ITEMS SHOWN DARK AND DESIGNATED WITH A (R), NEW SHOWN DARK.

SHEET NOTES:

1. ROUTE CONTROL CABLING TO HVAC CONTROL PANEL CONNECT TO MOTORIZED DAMPER PER MANUFACTURERS WIRING DIAGRAM. COORDINATE SPECIFIC LOCATION AND POINT OF CONNECTION WITH MECHANICAL CONTRACTOR.
2. PROVIDE POWER TO (3) CONTROL PANELS AND 24V TRANSFORMER. REFER TO DIAGRAM B AND C ON MECHANICAL SHEET M2.1 FOR ADDITIONAL REQUIREMENTS.



A ELECTRICAL FLOOR PLAN
E2.1 1/8" = 1'-0"

1 REVISED MOTORIZED DAMPER WIRING

LAS VEGAS SENIOR CENTER HVAC REPLACEMENT

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CONSULTANTS

ISSUE	DATE	DESCRIPTION
1	08.21.18	CLARIFICATIONS

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SHEET TITLE

ELECTRICAL FLOOR PLAN

513-45Q

E2.1

SHEET - OF -