

PLOTTED: DANIEL DERHEIMER 9/7/2021 4:34 PM  
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POWER DEVICES	
	DUPLEX RECEPTACLE [± 18"]
	HALF-SWITCH RECEPTACLE [± 18"]
	ISOLATED RECEPTACLE [± 18"]
	DUPLEX RECEPTACLE [ABOVE COUNTER]
	DOUBLE DUPLEX RECEPTACLE [± 18"]
	DOUBLE DUPLEX RECEPTACLE [ABOVE COUNTER]
	SINGLE RECEPTACLE [± 18"]
	DUPLEX RECEPTACLE IN CEILING
	DOUBLE DUPLEX RECEPTACLE IN CEILING
	PEDESTAL MOUNTED DUPLEX RECEPTACLE
	FLUSH FLOOR BOX DUPLEX RECEPTACLE
	SPECIAL PURPOSE POWER RECEPTACLE [± 18"]
	ELECTRICAL EQUIPMENT CONNECTION
	POWER/DATA POLE
	MAGNETIC STARTER
	SAFETY SWITCH
	FUSED SAFETY SWITCH
	ELECTRICAL MOTOR CONNECTION
	SINGLE-POINT ELECTRICAL CONNECTION
	PUSH BUTTON CONTROL [± 45"]
	UP/DOWN/STOP PUSH BUTTON CONTROL [± 45"]
	TRANSFORMER
	COMBINATION POWER/DATA/TELE FLUSH FLOOR BOX
	JUNCTION BOX
	J-BOX - W/ EMERGENCY CIRCUIT
	FLUSH AUTOMATIC DOOR ACTUATOR [±45"]
	CONTROL RELAY

DISTRIBUTION & EQUIPMENT	
	FLUSH ELECTRICAL PANEL [MAX 6'-6" TO TOP]
	SURFACE ELECTRICAL PANEL [MAX 6'-6" TO TOP]
	FLUSH CONTROL PANEL [MAX 6'-6" TO TOP]
	SURFACE CONTROL PANEL [MAX 6'-6" TO TOP]
	U.G. VAULT
	METER BASE & SOCKET

REFERENCE SYMBOLS & WIRING	
	CONDUIT WITH GROUND CONDUCTOR
	NEUTRAL CONDUCTOR
	PHASE CONDUCTOR
	HOMERUN ARROW
	PLAN NOTE MARK
	SHEET REFERENCE MARK
	MECHANICAL EQUIPMENT NOTE MARK
	SHOP EQUIPMENT NOTE MARK
	KITCHEN EQUIPMENT NOTE MARK
	FEEDER MARK
[± XX"]	STANDARD MOUNTING HEIGHT UNLESS OTHERWISE NOTED ON DRAWINGS

LIGHTING DEVICES	
	SURFACE MOUNTED LIGHT FIXTURE
	SURFACE MOUNTED EMERGENCY LIGHT FIXTURE
	SURFACE MOUNTED LIGHT FIXTURE
	SURFACE MOUNTED EMERGENCY LIGHT FIXTURE
	RECESSED FLUORESCENT LIGHT FIXTURE
	RECESSED EMERGENCY LIGHT FIXTURE
	RECESSED FLUORESCENT LIGHT FIXTURE
	RECESSED EMERGENCY LIGHT FIXTURE
	PENDANT LIGHT FIXTURE
	PENDANT EMERGENCY LIGHT FIXTURE
	TRACK LIGHTING SYSTEM
	STRIP LIGHT FIXTURE
	EMERGENCY STRIP LIGHT FIXTURE
	RECESSED DOWNLIGHT
	RECESSED EMERGENCY DOWNLIGHT
	WALL WASH FIXTURE
	WALL MOUNTED LIGHT FIXTURE
	WALL MOUNTED EMERGENCY LIGHT FIXTURE
	PENDANT MOUNTED LIGHT FIXTURE
	PENDANT MOUNTED EMERGENCY LIGHT FIXTURE
	SURFACE MOUNTED LIGHT FIXTURE
	SURFACE MOUNTED EMERGENCY LIGHT FIXTURE
	LINEAR WALL MOUNTED LIGHT FIXTURE
	LINEAR WALL MOUNTED EMERGENCY FIXTURE
	FLOOD LIGHT FIXTURE
	POLE ARM MOUNT LIGHT FIXTURE
	LIGHTED BOLLARD
	EMERGENCY LIGHTED BOLLARD
	POLE TOP MOUNT LIGHT FIXTURE
	BATTERY PACK EMERGENCY LIGHT FIXTURE
	REMOTE EMERGENCY BATTERY BALLAST
	STEP LIGHT
	CEILING MOUNTED EXIT SIGN (SIGN FACE)
	WALL MOUNTED EXIT SIGN [± 18" ABOVE DOOR]
	COMBO EXIT SIGN/ EMERGENCY LIGHT [± 18" ABOVE DOOR]
	SINGLE-POLE SWITCH [± 45"]
	TWO-POLE SWITCH [± 45"]
	THREE-WAY SWITCH [± 45"]
	FOUR-WAY SWITCH [± 45"]
	SINGLE POLE-KEY SWITCH [± 45"]
	SWEEP SWITCH [± 45"]
	SWEEP SWITCH - 3 WAY [± 45"]
	LOW VOLTAGE SWITCH [± 45"]
	MOMENTARY LOW VOLTAGE SWITCH [± 45"]
	KEYED MOMENTARY LOW VOLTAGE SWITCH [± 45"]
	DIMMER SWITCH [± 45"]
	OCCUPANCY SENSOR SWITCH [± 45"]
	SINGLE-POLE SW. W/PILOT LIGHT [± 45"]
	LIGHTING RELAY
	OCCUPANCY SENSOR ONE WAY CEILING MOUNT
	OCCUPANCY SENSOR TWO WAY CEILING MOUNT
	OCCUPANCY SENSOR 360° CEILING MOUNT
	OCCUPANCY SENSOR WALL MOUNT
	OCCUPANCY SENSOR POWER PACK
	PHOTOCELL
	AUTO-TRANSFORMER DIMMER
	BALLAST LOAD TRANSFER EMERGENCY RELAY
	LIGHTING CONTACTOR

TELECOMMUNICATION DEVICES	
	DATA OUTLET [± 18"]
	DATA OUTLET [ABOVE COUNTER]
	DATA OUTLET ON CEILING
	TELEPHONE OUTLET [± 18"]
	TELEPHONE OUTLET [ABOVE COUNTER]
	COMBO, TELE/DATA OUTLET [± 18"], 2 CAT 6 CABLES
	COMBO, TELE/DATA OUTLET [ABOVE COUNTER], 2 CAT 6 CABLES
	FLUSH FLOOR BOX DATA OUTLET
	DATA OUTLET FOR WIRELESS NODE ,1 CAT 6 CABLE
	SPECIAL DATA OUTLET [± 18"]
	PEDESTAL MOUNTED DATA OUTLET

SIGNAL DEVICES	
	VOLUME CONTROL [± 45"]
	AUDIO/VISUAL OUTLET [± 18"]
	VIDEO OUTLET [± 18"]
	MICROPHONE OUTLET [± 18"]
	CLOCK [+96]
	TIME CLOCK (TIME SWITCH)
	CLOCK/SPEAKER WALL UNIT
	SPEAKER-CEILING MOUNTED
	SPEAKER-WALL MOUNTED [+84]
	THERMOSTAT [+45]
	BUZZER

FIRE ALARM DEVICES	
	FIRE ALARM HORN/STROBE [± 88"]
	FIRE ALARM PULL STATION [± 45"]
	INTERCOM HORN [± 88"]
	FIRE ALARM STROBE [± 88"]
	HEAT DETECTOR
	MAGNETIC DOOR HOLDER
	CONTROL MODULE
	ALARM MODULE
	DUCT SMOKE DETECTOR
	PHOTO ELECTRIC TYPE SMOKE DETECTOR
	IONIZATION TYPE SMOKE DETECTOR
	FIRE/SMOKE DAMPER
	FIRE DOOR RELEASE
	BEAM DETECTOR TRANSMITTER
	BEAM DETECTOR RECEIVER
	SPRINKLER FLOW SWITCH
	SPRINKLER TAMPER SWITCH
	BELL
	KNOX BOX
	120V IONIZATION TYPE SMOKE DETECTOR W/ INTEGRAL HORN. PROVIDE WITH STROBE WHERE REQUIRED.
	120V PHOTO ELECTRIC TYPE SMOKE DETECTOR W/ INTEGRAL HORN. PROVIDE WITH STROBE WHERE REQUIRED.

SECURITY DEVICES	
	BREAK GLASS DETECTOR
	SECURITY MOTION SENSOR
	FOUR WAY SECURITY MOTION SENSOR
	SECURITY CAMERA
	INFRARED DOOR ACCESS [ABOVE DOOR]
	SECURITY KEYPAD [± 45"]
	MAGNETIC DOOR SWITCH
	ELECTRIC STRIKE
	PANIC DEVICE ELECTRIC LATCH HOLD OPEN
	MAGNETIC DOOR LOCK
	CENTRONIC DOOR CLOSER
	CARD READER [± 45"]
	REQUEST TO EXIT DEVICE

ABBREVIATIONS	
(E)	EXISTING TO REMAIN
(F)	FUTURE
(R)	EXISTING TO BE RELOCATED
(D)	EXISTING TO BE DEMOLISHED
AB	ABOVE COUNTER BACKSPLASH
AC	ALTERNATING CURRENT
A, AMP	AMPERES
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AFI	ARC-FAULT CIRCUIT INTERRUPTER
AHJ	AUTHORITY HAVING JURISDICTION
AIC	EQUIPMENT SHORT CIRCUIT INTERRUPT RATING.
AL	ALUMINUM
ALC	AUTOMATIC LIGHTING CONTROL
ATS	AUTOMATIC TRANSFER SWITCH
AUX	AUXILIARY
AWG	AMERICAN WIRE GAUGE
C	CONDUIT
CB	CIRCUIT BREAKER
CKT	CIRCUIT
CLG	CEILING
CT	CURRENT TRANSFORMER
CU	COPPER
DC	DIRECT CURRENT
DISC	DISCONNECT
DIA	DIAMETER
DIV	DIVISION
DP	DISTRIBUTION PANEL
DWG	DRAWING
EF	EXHAUST FAN
EMT	ELECTRICAL METALLIC TUBING
ENCL	ENCLOSURE
FA	FIRE ALARM
FAA	FIRE ALARM ANNUNCIATOR
FBO	FURNISHED BY OTHERS
FC	FOOT CANDLES
FLA	FULL LOAD AMPERES
FSD	FIRE/SMOKE DAMPER
GEN	GENERATOR
GFI	GROUND FAULT CIRCUIT INTERRUPTER
GND	GROUND
HP	HORSEPOWER
HTR	HEATER
IG	ISOLATED GROUND
KCMIL	THOUSAND CIRCULAR MILS
KW	KILOWATTS
KVA	KILOVOLT-AMPERES
LTG	LIGHTING
LCP	LIGHTING CONTROL PANEL
MAX	MAXIMUM
MB	MAIN BREAKER
MCA	MINIMUM CIRCUIT AMPERES
MDP	MAIN DISTRIBUTION PANEL
MFR	MANUFACTURER
MIN	MINIMUM
MISC	MISCELLANEOUS
MLO	MAIN LUGS ONLY
MSP	MAIN SERVICE PANEL
MTD	MOUNTED
NEC	NATIONAL ELECTRICAL CODE
NEMA	NATIONAL ELECTRICAL MFG'R'S ASSOCIATION.
NL	NIGHT LIGHT
NTS	NOT TO SCALE
OFCI	OWNER FURNISHED, CONTRACTOR INSTALLED
OFOI	OWNER FURNISHED, OWNER INSTALLED
OS	OCCUPANCY SENSOR
PH, Ø	PHASE
PNL	PANEL
SDP	SUB DISTRIBUTION PANEL
SWBD	SWITCHBOARD
SWGR	SWITCHGEAR
TB	TERMINAL BOARD
TEL	TELEPHONE
TK	INSTALL TOE KICK
TYP	TYPICAL
UPS	UNINTERRUPTIBLE POWER SUPPLY
V	VOLTS
VA	VOLT-AMPERES
VFD	VARIABLE FREQUENCY DRIVE
VR	VANDAL RESISTANT
W	WATT
W/	WITH
W/O	WITHOUT
WG	WIRE GUARD
WP	WEATHERPROOF
XFMR	TRANSFORMER

NURSE CALL	
	NURSE CALL CORRIDOR LIGHT CEILING MOUNTED
	NURSE CALL CORRIDOR LIGHT WALL MOUNTED
	NURSE CALL ANNUNCIATOR PANEL
	NURSE CALL EMERGENCY STATION (PULL CORD)
	NURSE CALL PATIENT STATION (TWO-WAY COMM)
	NURSE CALL DUTY STATION
	NURSE CALL MASTER STATION

LINETYPE LEGEND	
	UNDER GROUND
	ABOVE GROUND, IN WALL, CEILING, ETC.
	NEW EQUIPMENT (TYPICAL)
	EXISTING EQUIPMENT (TYPICAL)
	DEMOLISHED EQUIPMENT (TYPICAL)

DRAWING INDEX	
DWG	DESCRIPTION
E0.1	TITLE SHEET - ELECTRICAL
E1.0	SITE PLAN - ELECTRICAL
E2.0	FLOOR PLAN EAST - POWER
E2.1	FLOOR PLAN WEST - POWER
E2.2	ROOF PLAN - POWER
E3.0	FLOOR PLAN EAST - LIGHTING
E3.1	FLOOR PLAN WEST - LIGHTING
E4.0	ONE-LINE POWER DISTRIBUTION DIAGRAM
E4.1	EQUIPMENT SCHEDULES
E4.2	PANEL SCHEDULES
E4.3	PANEL SCHEDULES

LIGHTING SCHEDULE	
TYPE	DESCRIPTION
A	DIRECT/INDIRECT CABLE SUSPENDED LED LUMINAIRE, 1000 LUMENS/FT, 10 WATTS PER FOOT, 4000K, FINISH AS SELECTED BY ARCHITECT, MULTI-VOLT DRIVER, FLUSH LENS. LENGTH AS SHOWN ON DRAWINGS. MARK SILD-LCB-X-MSL8-80-4000-1000LMF-DBW
A1	DIRECT CABLE SUSPENDED LED LUMINAIRE, PATTERN INSTALLATION AS OUTLINED ON DRAWINGS, FINISH AS SELECTED BY ARCHITECT, MULTI-VOLT DRIVER, 4000K, 1000 LUMENS/FT, 10 WATTS PER FOOT, FLUSH LENS MARK SILIDP-RPP-90CRI-40K-1000LMF-MINI-DBW
B	DIRECT LED CABLE SUSPENDED LED LUMINAIRE, 24" LENGTH, 1000 LUMENS/FT, 10 WATTS PER FOOT, 4000K, MULTI-VOLT DRIVER, FLUSH LENS, FINISH AS SELECTED BY ARCHITECT MARK SILD-LCB-24-MSL2-90CRI-40K-1000LMF-DBW
C	PENDANT MOUNT LED 6" CYLINDER, ROUND, BLACK FINISH, 4000K, 2500 LUMENS, 26 WATTS, MULTI-VOLT, CLEAR TRIM, 35" SPREAD GOTHAM 'INCITO' ICO CYL-40-25-6AR-LD-35D-MV/VOLT
D	RECESSED LED LUMINAIRE, 6" ROUND, 1000 LUMENS, 10 WATTS, 4000K, MULTI-VOLT DRIVER, CLEAR TRIM/REFLECTOR, LITHONIA LDN SERIES.
F/FE	LED HIGH BAY LUMINAIRE, 4000K, 18,000 LUMENS, 133 WATTS, MEDIUM DISTRIBUTION, MOUNT AT 25FT, ACRYLIC LENS. LITHONIA CPHB-18LM-MV/VOLT-40K.
G	48" LED STRIP LIGHT, 4000K, 4000 LUMEN, 36 WATTS, MULTI-VOLT, ACRYLIC LENS. LITHONIA CSS-L48-4000LM-MV/VOLT-40K.
H	SURFACE MOUNT IP69 RATED LED LUMINAIRE, 4300 LUMENS, 30 WATTS, 4000K, MULTI-VOLT DRIVER, ALUMINUM HOUSING W/ POLYCARBONATE LENS, 60" BEAM PATTERN, 48" LONG. SONORAY LB-4030-M-M-F-8-40-BLK-U-SS.
I	RECESS LED DIRECT LUMINAIRE, LENGTH AND QUANTITY AS SHOWN ON BID DOCUMENTS, 4000K, 1000 LUMEN/FT, 10 WATTS PER FOOT, FLUSH LENS, CONSTANT CURRENT DIMMING. MARK SLIL-LOP-X-TG-90CRI-40K-1000LMF-MINI.
J	WALL MOUNT 48" LED VANITY LUMINAIRE, 4000K, 17.6W, 2480 LUMENS, BLACK FINISH. EUREKA 'EXPO' 74545.
K	SURFACE MOUNT COLOR CHANGING LED LUMINAIRE AND CONTROLLER, RECESSED 24" X 48" LUMINAIRE, 277V, FLANGE FOR MOUNTING IN SHEETROCK. FROSTED ACRYLIC, 4200 LUMEN, 27 WATTS, 4000K SILEA SC2184-FL-40K-042-2X4-FCA-WHT-UNV  CONTROLLER: DMX CONTROL KEYPAD, USB & ETHERNET PROGRAMMING. PROGRAMMABLE, RJ45 CABLE, INSIGHT LIGHTING 'LIGHT DIAL'.
L	RECESSED LED DOWNLIGHT, 4000K, 60% CUTOFF, 900 LUMENS 12 WATTS, 10% DIMMING, 277V, 3.5" REFLECTOR. FOCAL POINTE FLC3W-RO-SW-900L-UNV-LD1-T-BH OR EQUIVALENT
M	RECESSED LED COLOR CHANGING LUMINARIES, 4000K, 277V, DAMP LABEL, 9 WATTS PER FOOT, FLANGE FOR MOUNTING ON METAL CEILING. LENGTH AS SHOWN INSIGHT ME-MO-RGBW-AD-SMB-48-UNV-DMX-1HL-MOD CONTROLLER: DMX CONTROL KEYPAD, USB AND ETHERNET PROGRAMMING, RJ45 CABLE, INSIGHT 'LIGHT DIAL'. COORDINATE LOCATION.
X	WALL MOUNT LED EXIT SIGN, BRUSHED ALUMINUM WITH RED LETTERS, 277V DRIVER, 1 WATTS UNIVERSAL MOUNT. LITHONIA TLE SERIES.
SA	POLE MOUNT LED, 24,642 LUMENS, 182 WATTS 70CRI, 40K, TYPE 4 FORWARD THROW. COORDINATE FIXTURE FINISH WITH ARCHITECT MOUNTED AT 30' ABOVE FINISHED GRADE. EATON: STREETWORKS GLAN SA6 A 740 U T4FT AP OR APPROVED EQUAL
SB	BOLLARD LED, 1,300 LUMENS, 15.5 WATTS, 4000K, 0-10V DIMMING PEDESTRIAN 3FT, COOPER: LUMIERE EON 303 B1-LEDB2 4000K UNV T4 DIM10 CS 36 PC1 OR APPROVED EQUAL
SC	WALL MOUNTED LED 1,208 LUMENS, DIRECT, 15.5 WATTS, 4000K, 0-10V DIMMING TYPE 5 EXTRA WIDE DISTRIBUTION COOPER: LUMIERE EON 303 W1-LEDB2 4000K UNV TSX DIM10 CS LCF OR APPROVED EQUAL
SF	WALL MOUNTED LED 1,192 LUMENS, DIRECT/INDIRECT, 15.5 WATTS, 4000K, 0-10V DIMMING TYPE 5 DISTRIBUTION COOPER: LUMIERE EON 303 W2 LED82 4000K UNV TSX DIM10 CS LCF OR APPROVED EQUAL

6915 S MACADAM AVE  
 SUITE 200  
 PORTLAND, OREGON 97219  
 CONTACT: HANK BARLEEN  
 PHONE: (503) 892-1188  
 engineering@mke-inc.com  
 Since 1979



AKAAN  
 architecture + design llc



PROJECT TEAM:

CIVIL ENGINEER:  
 AKS ENGINEERING & FORESTRY  
 12965 SW Herman Road, Suite 100  
 Tualatin, OR 97062  
 P: 503.563.6151  
 F: 503.563.6152

STRUCTURAL ENGINEER:  
 PETERSON STRUCTURAL ENGINEERS  
 9400 SW Barnes Road, Suite 100  
 Portland, OR 97225  
 P: 503.292.1635

MEP ENGINEER:  
 MKE & Associates, Inc.  
 6915 SW Macadam Ave, Suite 200  
 Portland, OR 97219  
 P: 503.892.1188

OWNER:  
 OMIC R&D / OREGON TECH.  
 Procurement and Contract Services  
 27500 SW Parkway Avenue  
 Wilsonville, OR 97070

OWNER'S REPRESENTATIVE:  
 CRAIG CAMPBELL, Executive Director  
 OMIC R&D  
 33701 Charles T. Parker Way  
 Scappoose, Oregon 97056  
 503-983-0573

OMIC R&D - Building 2  
 Additive Manufacturing Center  
 33701 Charles T. Parker Way  
 Scappoose, Oregon 97056

SCALE: AS NOTED  
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Δ	DATE	DESCRIPTION

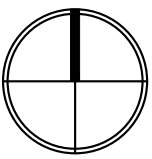
CONTENTS:

TITLE SHEET  
 - ELECTRICAL

SHEET NO:

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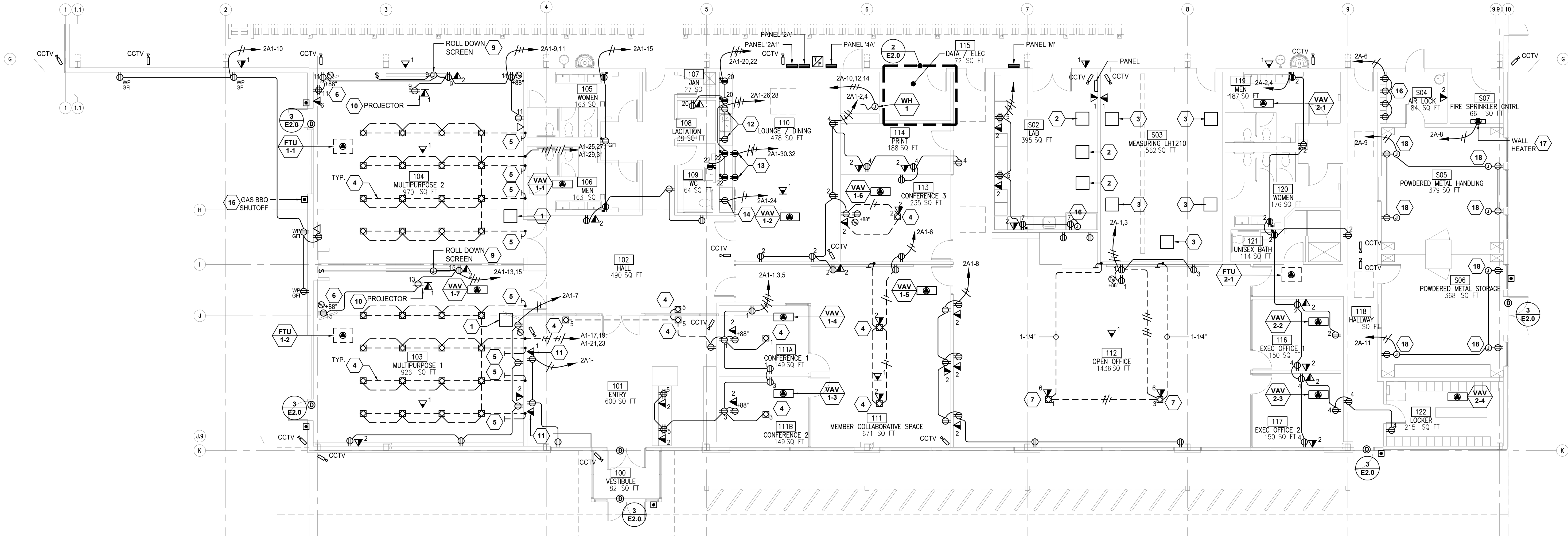


- 6915 S MACADAM AVE  
SUITE 200  
PORTLAND, OREGON 97219  
CONTACT: HANK BARLEEN  
PHONE: (503) 892-1188  
engineering@mke-inc.com  
Since 1979
- MKE**  
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CONSULTING ENGINEER  
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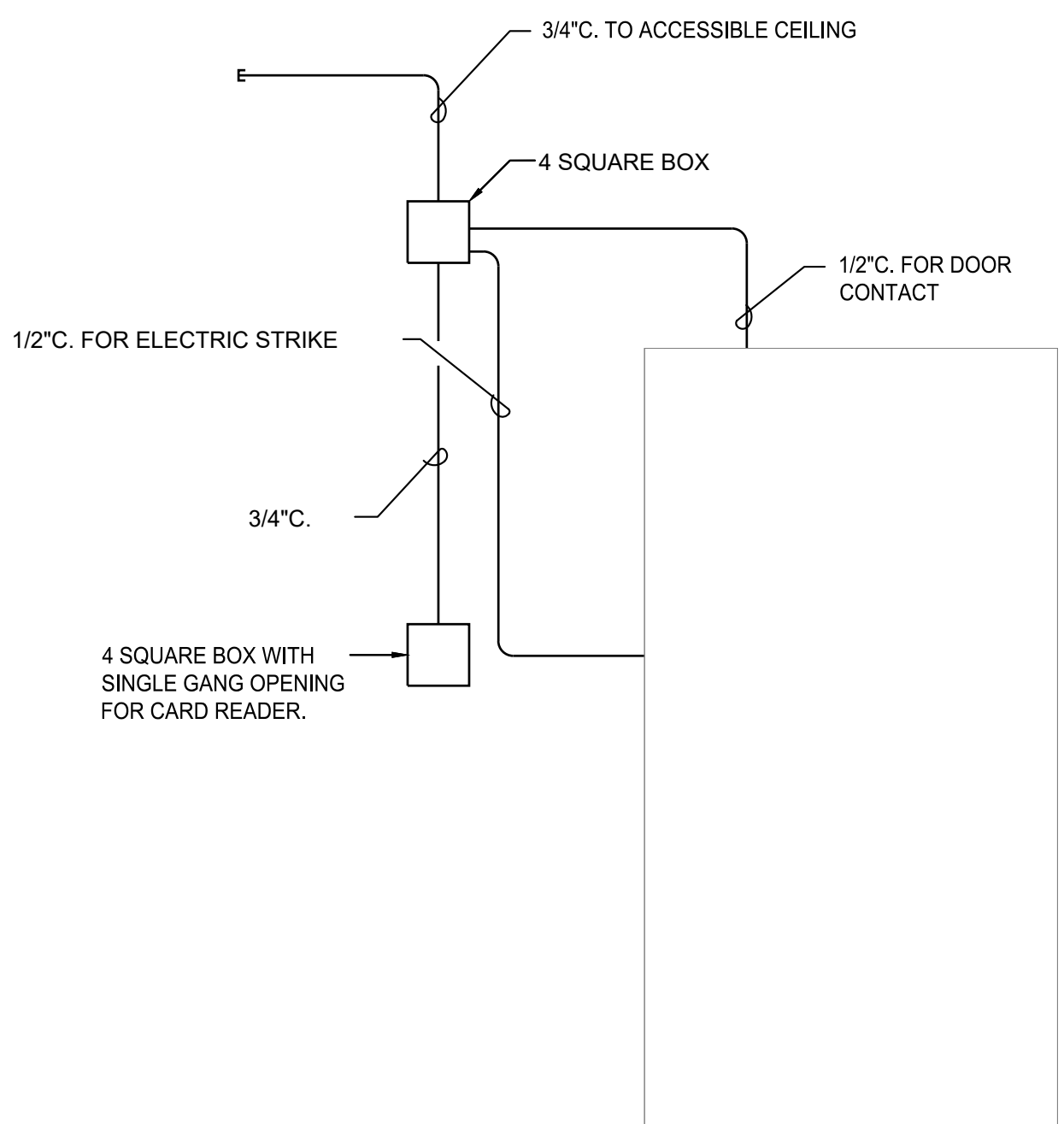
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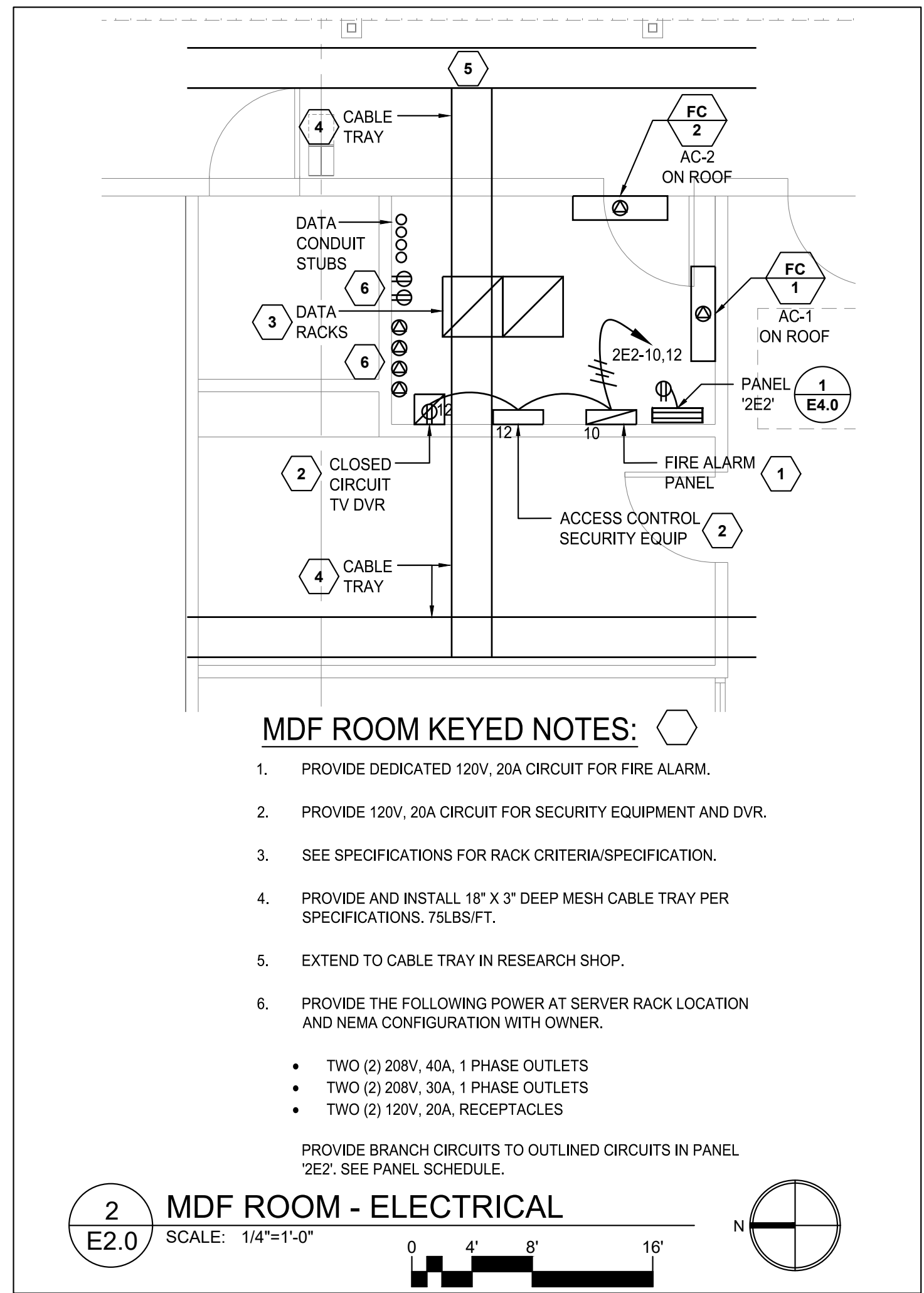
1  
 E2.0  
 FLOOR PLAN WEST - POWER & SIGNAL PLAN  
 SCALE: 1/8"=1'-0"



3  
 E2.0  
 CARD READER ROUGH-IN FOR DOORS WITH ELECTRIC STRIKE  
 SCALE: N.T.S.

NOTES:

- ADD 1/2" CONDUIT BETWEEN J-BOX ABOVE DOOR AND ANY ASSOCIATED DOOR LEAVES WITH ELECTF STRIKES.
- VERIFY EXACT LOCATION OF CARD READER.



2  
 E2.0  
 MDF ROOM - ELECTRICAL  
 SCALE: 1/4"=1'-0"

KEYED NOTES:

- PROVIDE AND INSTALL THE FOLLOWING DEVICES/DATA IN CEILING MOUNTED STEEL PLATE W/KO'S. PROVIDE CIRCUITS: SEE PANEL SCHEDULE.
  - 2 NEMA 5-15R (1-20A CIRCUIT)
  - NEMA L5-20R (1-20A CIRCUIT)
  - NEMA L6-20R (1-20A CIRCUIT)
  - 2 NEMA L11-20R (1-20A CIRCUIT)
  - NEMA L11-30R (1-30A, 120V CIRCUIT)
  - 2 CAT6 JACKS/CABLES
- PROVIDE AND INSTALL THE FOLLOWING DEVICES/DATA IN CEILING MOUNTED STEEL PLATE W/KO'S. PROVIDE CIRCUITS: SEE PANEL SCHEDULE.
  - 2 NEMA 5-15R (1-20A CIRCUIT)
  - NEMA L5-15R (1-20A CIRCUIT)
  - NEMA L6-15R (1-20A CIRCUIT)
  - NEMA L6-20R (1-20A, 480V, 3Ø CIRCUIT)
  - 2 CAT6 JACKS/CABLES
- PROVIDE AND INSTALL THE FOLLOWING DEVICES/DATA IN CEILING MOUNTED STEEL PLATE W/KO'S. PROVIDE CIRCUITS:
  - 2 NEMA 5-15R (1-20A CIRCUIT)
  - NEMA L5-15R (1-20A CIRCUIT)
  - NEMA L6-15R (1-20A CIRCUIT)
  - NEMA L6-20R (1-20A, 480V, 3Ø CIRCUIT)
  - 2 CAT6 JACKS/CABLES
- PROVIDE AND INSTALL FLOOR BOX TO ACCOMMODATE 1-20A DUPLEX OUTLET AND 2 CAT6 DATA JACKS. TYP OF A TOTAL OF 32 FLOOR BOXES FOR 103 AND 104. PROVIDE 1" EMT BETWEEN BOXES TO ACCOMMODATE CAT6 CABLE INSTALLATION. PROVIDE 1" EMT TO EACH BOX FOR POWER. 4 FLOOR BOXES PER 20A CIRCUIT.
- STUB 1 1/2" EMT TO ACCESSIBLE CEILING AREA FOR EACH 4 FLOOR BOXES.
- PROVIDE FOUR (4) GANG JUNCTION BOX TO ACCOMMODATE THE FOLLOWING:
  - 1 QUAD OUTLET
  - 4 CAT6 CABLES
  - SINGLE GANG SPACE FOR WHISKER PLATE/SOUND CABLES
- PROVIDE AND INSTALL 8 GANG FLOOR BOX FOR THE FOLLOWING:
  - 3 DUPLEX RECEPTACLES
  - 6 CAT6 CABLES
  - PROVIDE AND INSTALL COMPLETE
- SEE SPECIFICATIONS FOR DATA RACK INFORMATION.
- PROVIDE 120V, 20A CONNECTION TO OVERHEAD SCREEN. PROVIDE 1" EMT TO CONTROL STATION AND INSTALL ALL CONDUCTORS FOR UP-DOWN-STOP OPERATION. CONTROL STATION PROVIDED WITH SCREEN.
- PROVIDE 120V CONNECTION TO PROJECTOR. PROVIDE RAPID-PULL CONTROL CABLE BETWEEN PROJECTOR TO PODIUM STATION (NOTE 6).
- PROVIDE POWER AND DATA TO WALL MONITORS. COORDINATE WITH ARCHITECTURAL ELEVATIONS.
- PROVIDE 120V, 20A CIRCUITS FOR DISHWASHER.
- PROVIDE 120V, 20A CIRCUITS FOR MICROWAVES. SEE ARCHITECTURAL ELEVATIONS.
- PROVIDE 120V, 20A CIRCUIT FOR REFRIGERATOR.
- PROVIDE BACK-BOX AND 1" CONDUIT TO GAS SOLENOID AT EACH FIRE PIT. PROVIDE "EMERGENCY" GAS SHUT OFF PUSH BUTTON AND ASSOCIATED CONTROL CONDUCTORS TO EACH SOLENOID.
- PROVIDE DUPLEX RECEPTACLE IN EACH LOCKER FOR RESPIRATOR CHARGERS.
- PROVIDE AND INSTALL 1000W, 120V WALL HEATER, INTEGRAL THERMOSTAT. SET AT 45 DEGREES. CADET, KING, OR APPROVED EQUAL.
- PROVIDE AND INSTALL KILLARC KRAJC-220 120V, 20A RECEPTACLES FOR HAZARDOUS LOCATION USE. PROVIDE EXPOSED RIGID STEEL CONDUIT AT EACH LOCATION TO SEAL OFF LOCATED ABOVE CEILING. NO HORIZONTAL CONDUIT ALLOWED IN ROOM. ENTIRE INSTALLATION SHALL BE RATED FOR HAZARDOUS LOCATION USE.

6915 S MACADAM AVE  
 SUITE 200  
 PORTLAND, OREGON 97219  
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 PHONE: (503) 892-1188  
 engineering@mke-inc.com  
 Since 1979



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 architecture + design llc



PROJECT TEAM:

CIVIL ENGINEER:  
 AKS ENGINEERING & FORESTRY  
 12965 SW Herman Road, Suite 100  
 Tualatin, OR 97062  
 P: 503.563.6151  
 F: 503.563.6152  
 STRUCTURAL ENGINEER:  
 PETERSON STRUCTURAL ENGINEERS  
 9400 SW Barnes Road, Suite 100  
 Portland, OR 97225  
 P: 503.292.1635  
 MEP ENGINEER:  
 MKE & Associates, Inc.  
 6915 SW Macadam Ave, Suite 200  
 Portland, OR 97219  
 P: 503.892.1188  
 OWNER:  
 OMIC R&D / OREGON TECH.  
 Procurement and Contract Services  
 27500 SW Parkway Avenue  
 Wilsonville, OR 97070

OWNER'S REPRESENTATIVE:  
 CRAIG CAMPBELL, Executive Director  
 OMIC R&D  
 33701 Charles T. Parker Way  
 Scappoose, Oregon 97056  
 503-983-0573

OMIC R&D - Building 2  
 Additive Manufacturing Center  
 33701 Charles T. Parker Way  
 Scappoose, Oregon 97056

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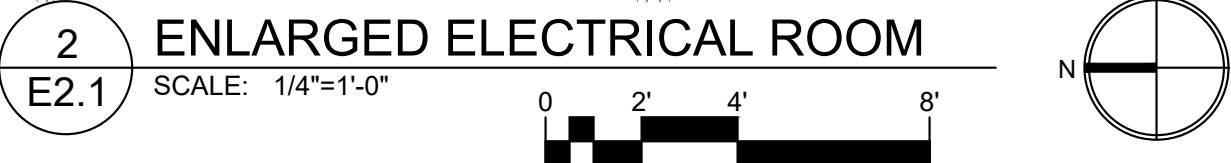
CONTENTS:

FLOOR PLAN  
 WEST - POWER

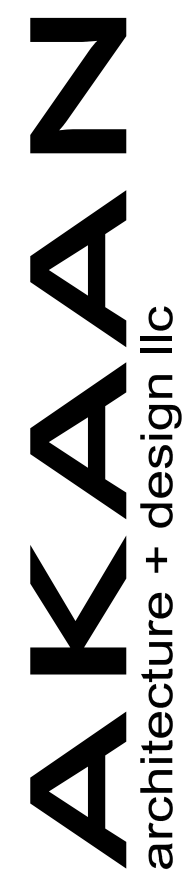
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SUITE 200  
PORTLAND, OREGON 97219  
CONTACT: HANK BARLEEN  
PHONE: (503) 892-1188  
[engineering@mke-inc.com](mailto:engineering@mke-inc.com)



CIVIL ENGINEER:  
AKS ENGINEERING & FORESTRY  
12965 SW Herman Road, Suite 100  
Tualatin, OR 97062  
P: 503.563.6151  
F: 503.563.6152

STRUCTURAL ENGINEER:  
PETERSON STRUCTURAL ENGINEERS  
9400 SW Barnes Road, Suite 100  
Portland, OR 97225

MEP ENGINEER:  
MKE & Associates, Inc.  
6915 SW Macadam Ave, Suite 200  
Portland, OR 97219  
P: 503.892.1188

OWNER:  
OMIC R&D / OREGON TECH.  
Procurement and Contract Services  
27500 SW Parkway Avenue  
Wilsonville, OR 97070

OWNER'S REPRESENTATIVE:  
CRAIG CAMPBELL, Executive Director  
OMIC R&D  
33701 Charles T. Parker Way  
Scappoose, Oregon 97056  
503-983-0573

OMIC R&D - Building 2  
Additive Manufacturing Center  
33701 Charles T. Parker Way  
Scappoose, Oregon 97056

SCALE: AS NOTED  
DRAWN BY: DD/JK  
CHECKED BY: SL  
CAD FILE:  
DATE: 09/07/2021

## CONTENTS

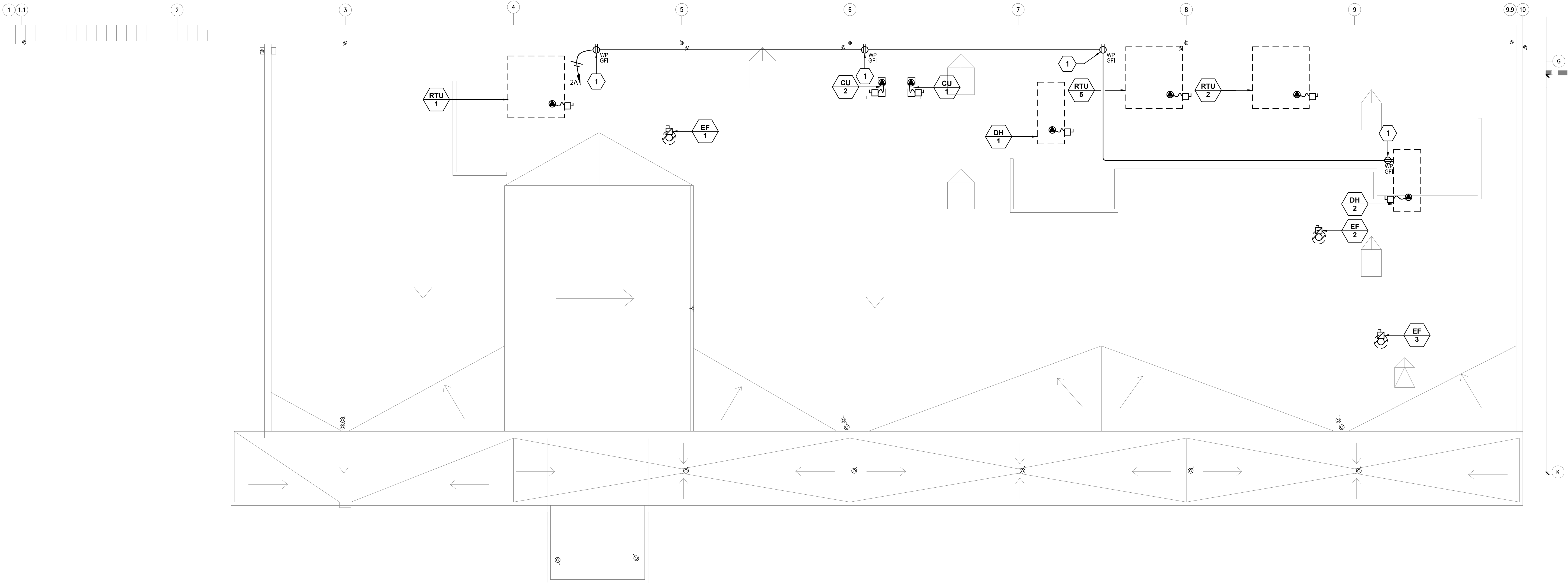
FLOOR PLAN  
EAST - POWER

SHEET NO:

## E2.1



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1  
 E2.2  
 ROOF PLAN WEST - POWER  
 SCALE: 1/8"=1'-0"  
 0 4' 8' 16'

KEYED NOTES:

1. PROVIDE GFI RECEPTACLES IN WEATHERPROOF BOXES FOR CODE COMPLIANCE MAINTENANCE.

6915 S MACADAM AVE  
 SUITE 200  
 PORTLAND, OREGON 97219  
 CONTACT: HANK BARLEEN  
 PHONE: (503) 892-1188  
 engineering@mke-inc.com



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PROJECT TEAM:

CIVIL ENGINEER:  
 AKS ENGINEERING & FORESTRY  
 12965 SW Herman Road, Suite 100  
 Tualatin, OR 97062  
 P: 503.563.6151  
 F: 503.563.6152

STRUCTURAL ENGINEER:  
 PETERSON STRUCTURAL ENGINEERS  
 9400 SW Barnes Road, Suite 100  
 Portland, OR 97225  
 P: 503.292.1635

MEP ENGINEER:  
 MKE & Associates, Inc.  
 6915 SW Macadam Ave, Suite 200  
 Portland, OR 97219  
 P: 503.892.1188

OWNER:  
 OMIC R&D / OREGON TECH.  
 Procurement and Contract Services  
 27500 SW Parkway Avenue  
 Wilsonville, OR 97070

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 CRAIG CAMPBELL, Executive Director  
 OMIC R&D  
 33701 Charles T. Parker Way  
 Scappoose, Oregon 97056  
 503-983-0573

OMIC R&D - Building 2  
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 33701 Charles T. Parker Way  
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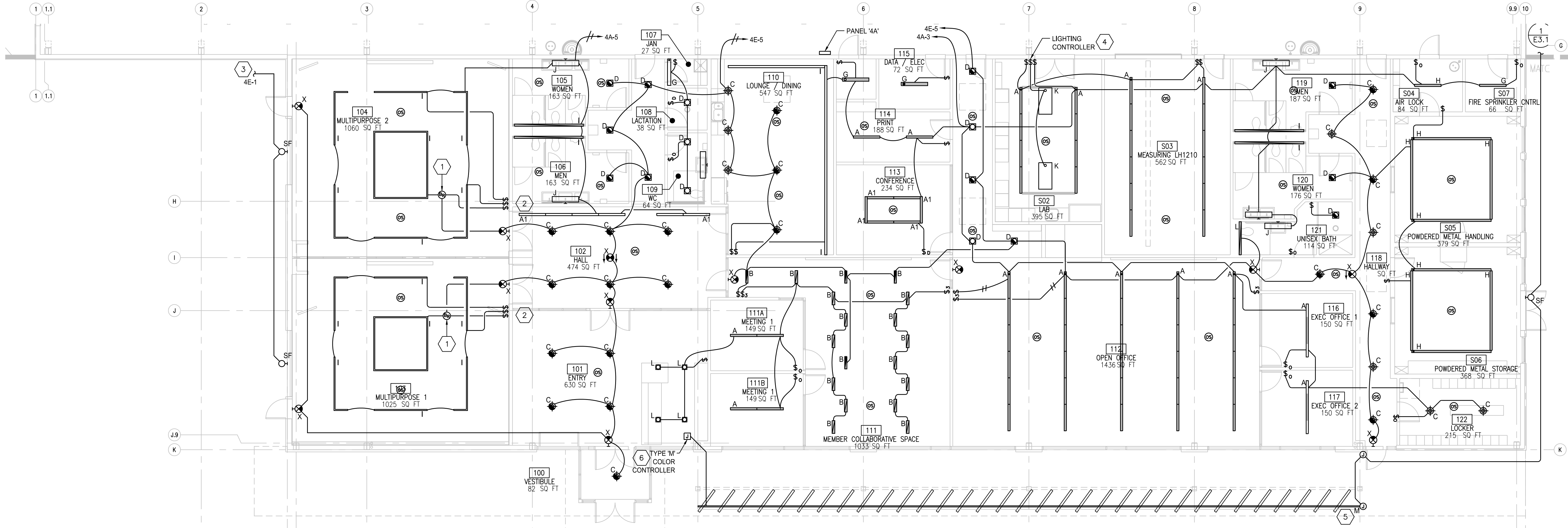
ROOF PLAN  
 WEST - POWER

SHEET NO:

E2.2



PLOTTED: JORDAN KLOSTER 9/7/2021 6:00 PM  
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1 FLOOR PLAN WEST - LIGHTING  
 SCALE: 1/8"=1'-0"

KEYED NOTES:

1. PROVIDE UL924 EMERGENCY BYPASS RELAY TO CONTROL NORMAL LUMINAIRES WINORMAL.
2. PROVIDE CONTROLLER TO PROVIDE DIMMING TO THREE SEPARATE ZONES IN EACH MULTI-PURPOSE ROOM.
3. EXTEND CIRCUIT TO ADJACENT WALL LUMINAIRE. SEE 1/E3.1.
4. SEE LUMINAIRE SCHEDULE FOR SPECIFICATION RELATING TO COLOR CHANGING CONTROLLER. PROVIDE ALL CONTROL CABLES BETWEEN LUMINAIRES AND CONTROLLER.
5. SEE ARCHITECTURAL DETAILS FOR EXACT LOCATION FOR INSTALLATION OF TYPE 'M' LUMINAIRE.
6. COORDINATE LOCATION OF COLOR CONTROLLER PRIOR TO ROUGH-IN

6915 S MACADAM AVE  
 SUITE 200  
 PORTLAND, OREGON 97219  
 CONTACT: HANK BARLEEN  
 PHONE: (503) 892-1188  
 engineering@mke-inc.com  
 Since 1979



OMC R&D - Building 2  
 Additive Manufacturing Center  
 33701 Charles T. Parker Way  
 Scappoose, Oregon 97056

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REVISIONS	DATE	DESCRIPTION
△		

CONTENTS:  
 FLOOR PLAN  
 WEST - LIGHTING

SHEET NO:

E3.0

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PROJECT TEAM:

CIVIL ENGINEER:  
 AKS ENGINEERING & FORESTRY  
 12965 SW Herman Road, Suite 100  
 Tualatin, OR 97062  
 P: 503.563.6151  
 F: 503.563.6152

STRUCTURAL ENGINEER:  
 PETERSON STRUCTURAL ENGINEERS  
 9400 SW Barnes Road, Suite 100  
 Portland, OR 97225  
 P: 503.292.1635

MEP ENGINEER:  
 MKE & Associates, Inc.  
 6915 SW Macadam Ave, Suite 200  
 Portland, OR 97219  
 P: 503.892.1188

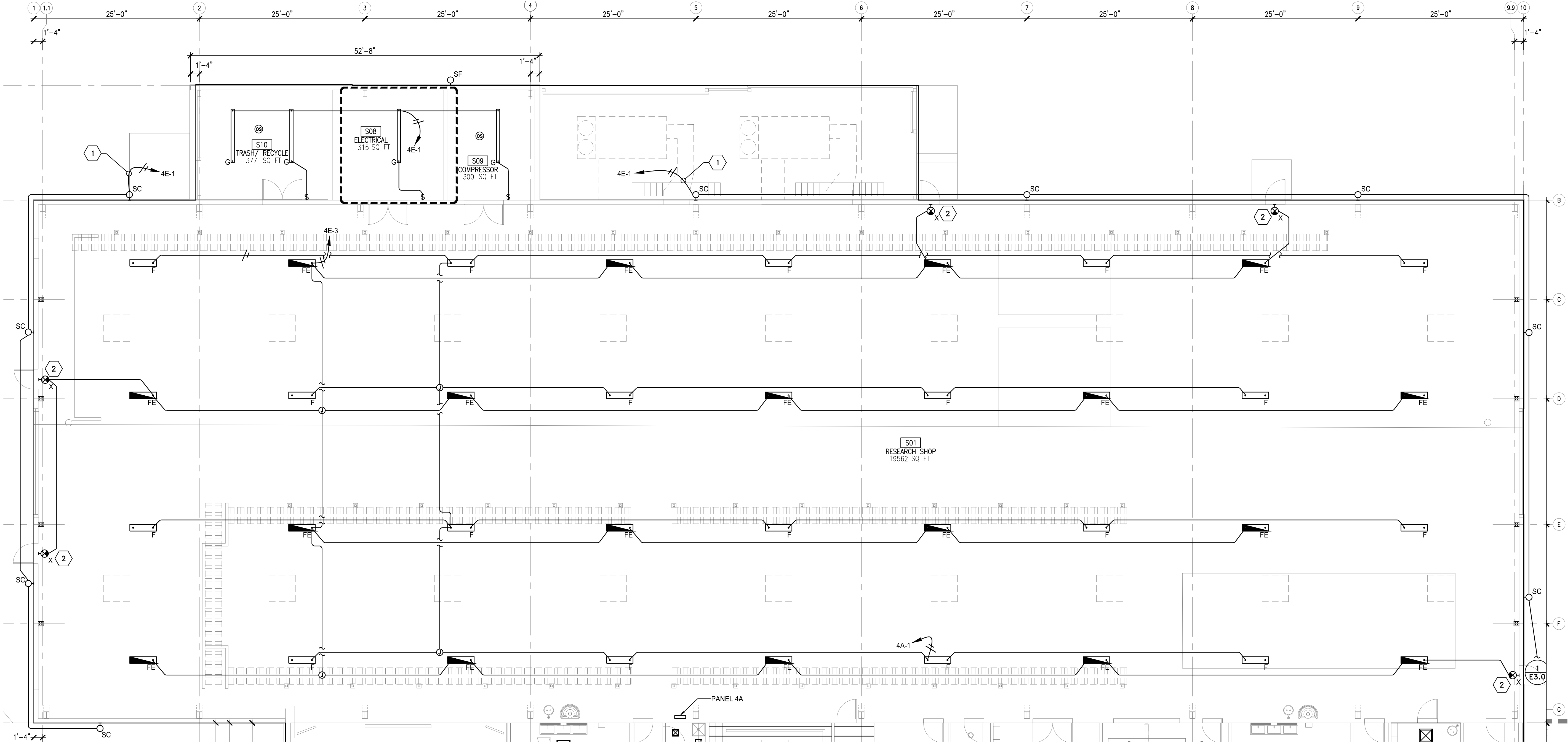
OWNER:  
 OMC R&D / OREGON TECH.  
 Procurement and Contract Services  
 27500 SW Parkway Avenue  
 Wilsonville, OR 97070

OWNER'S REPRESENTATIVE:  
 CRAIG CAMPBELL, Executive Director  
 OMC R&D  
 33701 Charles T. Parker Way  
 Scappoose, Oregon 97056  
 503-983-0573

101 ST HELENS ST  
 ST HELENS, OR 97051  
 T: 503.368.3050 F: 503.366.3055



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1  
 E3.1 FLOOR PLAN EAST - LIGHTING  
 SCALE: 1/8"=1'-0"

- KEYED NOTES:
- ROUTE VIA EXTERIOR LIGHTING CONTROL.
  - MAINTAIN 277V POWER TO EXIT SIGNS ON 24/7 BASIS.

6915 S MACADAM AVE  
 SUITE 200  
 PORTLAND, OREGON 97219  
 CONTACT: HANK BARLEEN  
 PHONE: (503) 892-1188  
 engineering@mke-inc.com  
 Since 1979



OMC R&D - Building 2  
 Additive Manufacturing Center  
 33701 Charles T. Parker Way  
 Scappoose, Oregon 97056

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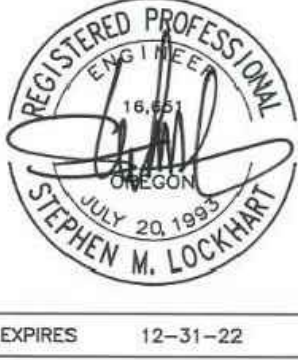
REVISIONS	
△	DESCRIPTION

CONTENTS:  
 FLOOR PLAN  
 EAST - LIGHTING

SHEET NO:

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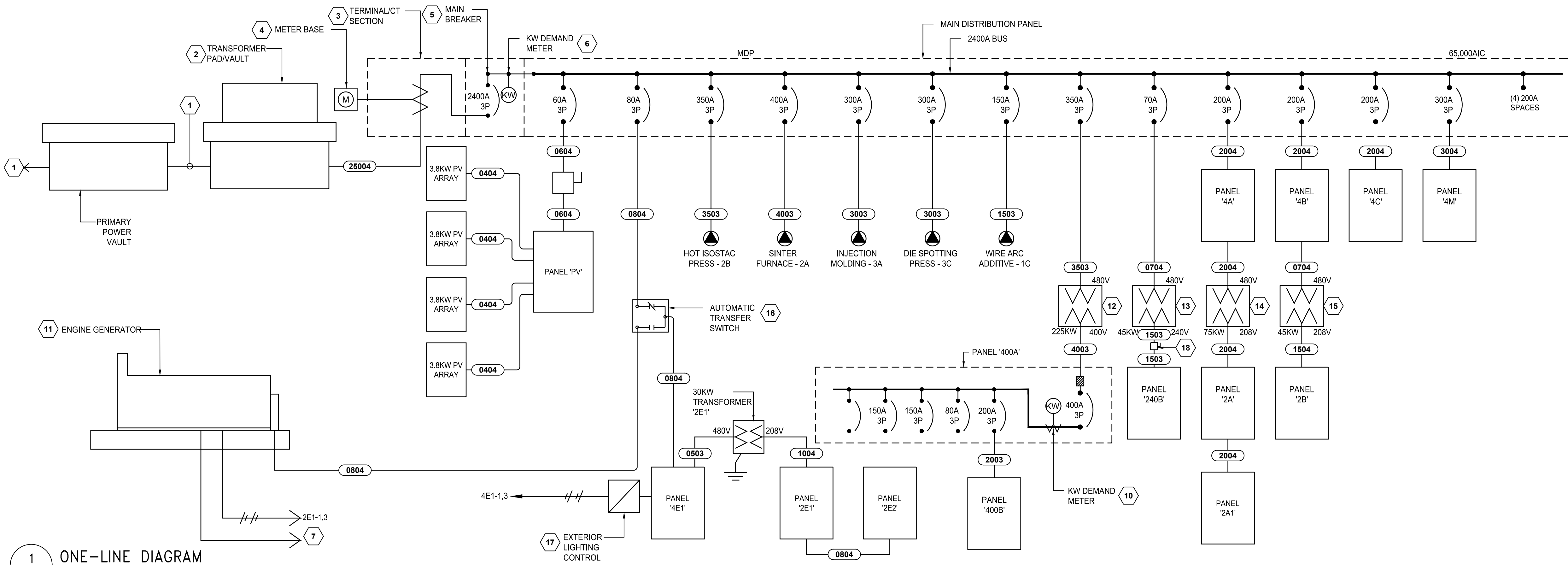
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PROJECT TEAM:  
 CIVIL ENGINEER:  
 AKS ENGINEERING & FORESTRY  
 12965 SW Herman Road, Suite 100  
 Tualatin, OR 97062  
 P: 503.563.6151  
 F: 503.563.6152  
 STRUCTURAL ENGINEER:  
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 9400 SW Barnes Road, Suite 100  
 Portland, OR 97225  
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 OMC R&D  
 33701 Charles T. Parker Way  
 Scappoose, Oregon 97056  
 503-983-0573

101 ST HELENS ST.  
 ST HELENS, OR 97051  
 T: 503.368.3050 F: 503.366.3055





COPPER 2&3-WIRE FEEDER CONDUCTOR SCHEDULE (THHN/THWN COPPER PHASE & NEUTRAL*) CONDUCTOR ONLY) (THHN/THWN COPPER GROUND CONDUCTOR)			
TAG	CONDUIT	CONDUCTOR	EQUIPMENT GROUND
0202	1/2"	2 #12	#12
0303	1/2"	3 #10	#10
0403	3/4"	3 #8	#10
0503	3/4"	3 #6	#10
0603	3/4"	3 #6	#10
0703	1"	3 #4	#8
0803	1 1/4"	3 #3	#8
0903	1 1/4"	3 #3	#8
1003	1 1/4"	3 #2	#8
1253	1 1/2"	3 #1	#6
1503	1 1/2"	3 #1/0	#4
1753	2"	3 #2/0	#6
2003	2"	3 #3/0	#6
2253	2"	3 #4/0	#4
2503	2 1/2"	3 #250KCM	#4
3003	3"	3 #350KCM	#4
4003	3"	3 #600KCM	#3
6003	(2) 3" EACH W/	3 #350KCM	#1
8003	(2) 3" EACH W/	3 #600KCM	#1/0
10003	(4) 2 1/2" EACH W/	3 #250KCM	#2/0
12003	(4) 3" EACH W/	3 #350KCM	#3/0
16003	(5) 3" EACH W/	3 #400KCM	#4/0
20003	(6) 3" EACH W/	3 #400KCM	#250KCM
25003	(7) 3" EACH W/	3 #500KCM	#350KCM
30003	(8) 3" EACH W/	3 #500KCM	#400KCM
* NOTE: WHERE FEEDER TYPE IS USED ON A SINGLE PHASE FEEDER THE CONDUCTOR SHOWN IS TWO PHASE CONDUCTORS AND FULL SIZE NEUTRAL CONDUCTOR			

ALUMINUM 2&3-WIRE FEEDER CONDUCTOR SCHEDULE (ALUMINUM PHASE & NEUTRAL*) CONDUCTOR ONLY) (ALUMINUM GROUND CONDUCTOR)		
CONDUIT	CONDUCTOR	EQUIPMENT GROUND
1-1/2"	3 #1/0	#6
2"	3 #2/0	#4
2"	3 #3/0	#4
2"	3 #4/0	#4
2"	3 #250KCM	#4
2-1/2"	3 #300KCM	#2
3"	3 #350KCM	#2
3"	3 #500KCM	#2
(2) 3" EACH W/	3 #250KCM	#1
(2) 3" EACH W/	3 #500KCM	#2/0
(3) 3" EACH W/	3 #500KCM	#3/0
(4) 3" EACH W/	3 #350KCM	#4/0
(4) 3" EACH W/	3 #500KCM	#250KCM
(5) 4" EACH W/	3 #600KCM	#350KCM
(6) 4" EACH W/	3 #600KCM	#400KCM
(7) 4" EACH W/	3 #750KCM	#600KCM
(8) 4" EACH W/	3 #750KCM	#600KCM
WHERE FEEDER TYPE IS USED ON A SINGLE PHASE FEEDER THE CONDUCTOR SHOWN IS TWO PHASE CONDUCTORS AND FULL SIZE NEUTRAL CONDUCTOR		

COPPER 4-WIRE FEEDER CONDUCTOR SCHEDULE (THHN/THWN COPPER PHASE & NEUTRAL CONDUCTOR ONLY) (THHN/THWN COPPER GROUND CONDUCTOR)			
TAG	CONDUIT	CONDUCTOR	EQUIPMENT GROUND
0304	1/2"	4 #10	#10
0404	3/4"	4 #8	#10
0504	1"	4 #6	#10
0604	1"	4 #6	#10
0704	1 1/4"	4 #4	#8
0804	1 1/4"	4 #3	#8
0904	1 1/4"	4 #3	#8
1004	1 1/2"	4 #2	#8
1254	1 1/2"	4 #1	#6
1504	2"	4 #1/0	#6
1754	2"	4 #2/0	#6
2004	2"	4 #3/0	#6
2254	2 1/2"	4 #4/0	#4
2504	3"	4 #250KCM	#4
3004	3"	4 #350KCM	#4
4004	4"	4 #600KCM	#3
6004	(2) 3" EACH W/	4 #350KCM	#1
8004	(2) 4" EACH W/	4 #600KCM	#1/0
10004	(4) 3" EACH W/	4 #250KCM	#2/0
12004	(4) 3" EACH W/	4 #350KCM	#3/0
16004	(5) 4" EACH W/	4 #400KCM	#4/0
20004	(6) 4" EACH W/	4 #400KCM	#250KCM
25004	(7) 4" EACH W/	4 #500KCM	#350KCM
30004	(8) 4" EACH W/	4 #500KCM	#400KCM

ALUMINUM 4-WIRE FEEDER CONDUCTOR SCHEDULE (ALUMINUM PHASE & NEUTRAL CONDUCTORS) (ALUMINUM GROUND CONDUCTOR)		
CONDUIT	CONDUCTOR	EQUIPMENT GROUND
2"	4 #1/0	#6
2"	4 #2/0	#4
2"	4 #3/0	#4
2"	4 #4/0	#4
2-1/2"	4 #250KCM	#4
3"	4 #300KCM	#2
3"	4 #350KCM	#2
4"	4 #500KCM	#2
(2) 4" EACH W/	4 #250KCM	#1
(2) 4" EACH W/	4 #500KCM	#2/0
(3) 4" EACH W/	4 #500KCM	#3/0
(4) 3" EACH W/	4 #350KCM	#4/0
(4) 4" EACH W/	4 #500KCM	#250KCM
(5) 4" EACH W/	4 #600KCM	#350KCM
(6) 4" EACH W/	4 #600KCM	#400KCM
(7) 4" EACH W/	4 #750KCM	#600KCM
(8) 4" EACH W/	4 #750KCM	#600KCM

MDP							TOTAL
PANEL	LIGHTS	RECEPT	HEATING	KITCHEN	EQUIP	MOTORS	
240B	0	0	0	0	13,680	0	13,680 VA
4A	5,300	0	0	0	68,040	0	73,340 VA
4B	0	0	10,800	0	0	24,560	35,360 VA
4C	0	0	0	0	89,835	0	89,835 VA
4M	0	0	36,770	0	0	132,623	169,393 VA
4E1	4,040	0	0	0	31,400	0	35,440 VA
PV	0	0	0	0	15,200	0	15,200 VA
HOT ISOSTAC PRESS	0	0	0	0	232,960	0	232,960 VA
SINSTER FURNACE	0	0	0	0	221,440	0	221,440 VA
INJECT MOLD	0	0	0	0	241,280	0	241,280 VA
DIE SPOTTING	0	0	0	0	241,280	0	241,280 VA
WIRE ARC	0	0	0	0	99,840	0	99,840 VA
							0 VA
							0 VA
							0 VA
TOTAL	9,340	0	47,570	0	1,165,120	222,458	1,469,048 VA
CODE FACTOR	1.25	*	1.00	1.00	1	**	1
CODE LOAD	11,675	0	47,570	0	1,165,120	222,458	1,471,383 VA
LARGEST MOTOR	LOCATED ON PANEL: 4C						
* 10 KVA + 50% OF BALANCE					1,773 A 277/480V, 3 PH, 4 WIRE		
** 125% OF LARGEST MOTOR + 100% OF BALANCE							

#### KEYED NOTES:

- PROVIDE AND INSTALL (3) 2" SCHEDULE 40 PVC CONDUIT FOR PRIMARY CONDUCTORS. PROVIDE LONG RADIUS FIBERGLASS ELLS. INSTALL MULE TAPE PROVIDED BY COLUMBIA RIVER PUD.
- PROVIDE AND INSTALL OLD CASTLE #575-B VAULT WITH 84/112-T-25P-1660-PCORP LID FOR TRANSFORMER. TRANSFORMER TO BE PROVIDED AND INSTALLED BY COLUMBIA RIVER PUD.
- PROVIDE AND INSTALL 2400A, 277/480V, 3 PHASE TERMINAL/CT SECTION TO MEET ALL CURRENT CODES.
- PROVIDE AND INSTALL NEMA 3R METER BASE PER LOCAL PUD REQUIREMENTS.
- PROVIDE AND INSTALL 2400A, 277/480V, GFI CIRCUIT BREAKER. ELECTRICAL CONTRACTOR, MANUFACTURER TO PROVIDE FAULT CURRENT AND SHORT CIRCUIT ANALYSIS. CONTRACTOR TO PROVIDE BREAKER SETTINGS THROUGH-OUT TO MATCH ANALYSIS.
- PROVIDE AND INSTALL KILOWATT DEMAND METER IN FACE OF SWITCH GEAR TO MONITOR BUILDING PEAK DEMAND.
- EXTEND 1-1/2" PVC CONDUIT TO AUTOMATIC TRANSFER SWITCH FOR CONTROL/MONITORING CABLES.
- PROVIDE (2) 120V DEDICATED CIRCUITS FOR BATTERY CHARGER AND BLOCK HEATER IN DIESEL GENERATOR.
- PROVIDE AND INSTALL 60A-3P NEMA 3R DISCONNECT ON EXTERIOR OF BUILDING FOR PHOTOVOLTAIC DISCONNECT.
- PROVIDE DIGITAL KILOWATT DEMAND METER FOR PANEL 400A. INSTALL ADJACENT TO PANEL.
- PROVIDE AND INSTALL 50KW, 277/480V, 3 PHASE DIESEL ENGINE GENERATOR. SEE ELECTRICAL SPECIFICATIONS. PROVIDE 4" CONCRETE PAD OVERSIZED 12" ON ALL SIDES.
- PROVIDE AND INSTALL 225KW, 480/400V, 3 PHASE, 3 WIRE TRANSFORMER. SEE ELECTRICAL SPECIFICATIONS.
- PROVIDE AND INSTALL 45KW, 480/240V, 3 PHASE, 4 WIRE TRANSFORMER. SEE ELECTRICAL SPECIFICATIONS.
- PROVIDE AND INSTALL 75KW, 480/208V, 3 PHASE, 4 WIRE TRANSFORMER. SEE ELECTRICAL SPECIFICATIONS.
- PROVIDE AND INSTALL 45KW, 480/208V, 3 PHASE, 4 WIRE TRANSFORMER. SEE ELECTRICAL SPECIFICATIONS.
- PROVIDE AND INSTALL 277/480V, 3 PHASE, 4 WIRE, 100A AUTOMATIC TRANSFER SWITCH. SEE ELECTRICAL SPECIFICATIONS.
- PROVIDE AND INSTALL (4) ZONE LIGHTING CONTROLLER FOR EXTERIOR LIGHTING. INTEGRAL DIGITAL TIME CLOCK. WATT STOPPER LPS PENDANT PANEL OR APPROVED EQUAL.
- PROVIDE 150A-3P CIRCUIT BREAKER DISCONNECT ON SECONDARY SIDE OF TRANSFORMER.

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CIVIL ENGINEER:  
AKS ENGINEERING & FORESTRY  
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Tualatin, OR 97062  
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#### CONTENTS:

ONE-LINE POWER  
DISTRIBUTION DIAGRAM

SHEET NO:

6915 S MACADAM AVE  
SUITE 200  
PORTLAND, OREGON 97219  
CONTACT: HANK BARLEEN  
PHONE: (503) 892-1188  
engineering@mke-inc.com  
Since 1979




**E4.0**

101 ST HELENS ST.  
ST HELENS, OR 97051  
T: 503.368.3050 F: 503.366.3055



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<div>  OWNER EQUIPMENT SCHEDULE </div>										
MARK	EQUIPMENT DESCRIPTION	H.P.	LOAD	VOLT	PHASE	C.	WIRE	CIRCUIT	PANEL	NOTES
1C	3DPM ARC WELDER		150A	480	3	-	-	-	MDP	SEE ONE-LINE
1I	CONTINUOUS FIBER		2A	120	1	1/2"	(3) #12	13	2B	
1P	DLP		7.5A	120	1	1/2"	(3) #12	11	2B	
1S	DIRECT METAL LASER (SLM)									
1Sa	(PRINTER)		16A	240	3	3/4"	(3) #10	1,3,5	240B	
1Sb	(CHILLER)		17A	240	1	3/4"	(3) #10	2,4	240B	
1Sc	(DRYER)		20A	120	1	1/2"	(2) #12	1	2B	
1Sd	(SIEVE STATION)		13A	120	1	1/2"	(2) #12	3	2B	
1Se	(VACCUUM)		16	240	1	3/4"	(3) #10	6,8	240B	
1T	VARIOUS PLASTIC PRINTER x (20)		5A	120	1	3/4"	(3) #12	12,14,16	2B	2D PRINTERS (7 PER 20A CIRCUIT)
1U	BINDER JET - METAL									
1Ua	(PRINTER)		12A	208	3	3/4"	(3) #12	2,4,6	2B	
1Ub	(RECYCLER)		5A	240	1				240B	
1Uc	(DEPOWDERING)		5A	120	1	1/2"	(3) #12	5	2B	
1Od	(OVEN)		15A	480	3	3/4"	(3) #12	1,3,5	4B	
1Ud	(DUST) x (2)		5A	120	1	1/2"	(3) #12	2,9	2B	TOTAL OF 2
1V	DLP		6A	120	1	1/2"	(3) #12			
1W	DLP		6A	120	1	1/2"	(3) #12			
2A	SINTER FURNACE		400A	480	3	-	-	-	MDP	SEE ONE-LINE
2B	ISOSTATIC PRESSING (HIP)		350A	480	3	-	-	-	MDP	SEE ONE-LINE
2G	PRE-SETTER/HEAT SHRINK		20A	120	1	1/2"	(3) #12			
2H	TOOL STORAGE		5A	120	1	1/2"	(3) #12			
2I	TOOL SETUP STATION		5A	120	1	1/2"	(3) #12			
2J	VENDING		5A	120	1	1/2"	(3) #12			
3A	INJECTION MOLDING		290	480	3	-	-	-	MDP	SEE ONE-LINE
3C	400T HYDRAULIC PRESS		50A	480	3	-	-	-	MDP	SEE ONE-LINE
4B	3D OPTICAL		16A	480	3					

PANEL SCHEDULE												
PANEL: PV			MKE & ASSOCIATES, INC.					MOUNTING: SURFACE				
FED BY: PHOTOVOLTAIC SYSTEM								BUS/MAIN: 100A BUS (60A 3P MAIN)				
LOC:		VOLTS		PHASE			WIRE					
		120/208		3			4					
C	DESCRIPTION	VA	A/P	No.	A	B	C	No.	A/P	VA	DESCRIPTION	C
5	PV #1	1,900	30/2	1	*			2	30/2	1900	PV #3	5
5	*	1,900	*	3	*			4	*	1900	*	5
5	PV #2	1900	30/2	5	*			6	30/2	1900	PV #4	5
5	*	1,900	*	7	*			8	*	1,900	*	5
	SPACE			9	*			10			SPACE	
	SPACE			11	*			12			SPACE	
	SPACE			13	*			14			SPACE	
	SPACE			15	*			16			SPACE	
	SPACE			17	*			18			SPACE	
LOAD CODE (VA)		PH A	PH B	PH C	TOTAL (VA)			FACTOR		CODE LOAD		
1. LIGHTS:		0	0	0	0			1.25		0		
2. RECEPTACLE:		0	0	0	0			*		0		
3. HEATING:		0	0	0	0			1.00		0		
4. KITCHEN:		0	0	0	0			1.00		0		
5. EQUIPMENT:		7,600	3,800	3,800	15,200			1.00		15,200		
6. MOTORS:		0	0	0	0			**		0		
7. MISC.		0	0	0	0			1.00		0		
TOTAL (VA):		7,600	3,800	3,800	15,200					15,200		
LARGEST MOTOR:		0 VA	TOTAL LOAD:		42 A			CODE DEMAND:		42 A		
# KITCHEN EQUIPMENT		0										
NOTES:								* FIRST 10 KVA + 50% OF THE BALANCE				
								** 125% OF THE LARGEST MOTOR + THE BALANCE				

<div> <div>MECHANICAL EQUIPMENT SCHEDULE</div> </div>										
MARK	EQUIPMENT DESCRIPTION	H.P.	LOAD	VOLT	PHASE	C.	WIRE	CIRCUIT	PANEL	NOTES
DH-1	WHEEL DEHUMIDIFIER		55A	480	3	1-1/2"	(4) #4	1,3,5	4M	
DH-2	WHEEL DEHUMIDIFIER		99A	480	3	2"	(4) #1	38,40,42	4M	
RTU-1	DX/GAS HVAC		56.9A	480	3	1-1/2"	(4) #4	5,7,9	4M	
RTU-2	DX/GAS HVAC		18.8A	480	3	1"	(4) #10	11,13,15	4M	
RTU-3	DX/GAS HVAC		66.5A	480	3	1-1/2"	-	-	MDP	SEE RISER DIAGRAM
RTU-4	DX/GAS HVAC		66.5A	480	3	1-1/2"	-	-	MDP	SEE RISER DIAGRAM
RTU-5	HEAT PUMP ROOFTOP		27.7A	480	3	3/4"	(4) #10	17,19,21	4M	
EF-1	EXHAUST FAN - RR		1.2A	277	1	3/4"	(3) #12	2	4M	
EF-2	EXHAUST FAN - RR		1.2A	277	1	3/4"	(3) #12	2	4M	
EF-3	EXHAUST FAN - LOCKER		.5A	120	1	3/4"	(3) #12	38	2A	
EF-4	EXHAUST FAN - METAL		7.6A	480	3	3/4"	(3) #12	24,26,28	4M	
EF-5	EXHAUST FAN - ARGON		1.8A	277	1	3/4"	(3) #12	31	4M	
EF-6	EXHAUST FAN - ARGON		1.8A	277	1	3/4"	(3) #12	31	4M	
EF-7	EXHAUST FAN - ELECTRICAL		6.0A	277	1	3/4"	(3) #12	13	4A	
FTU 1-1	PARALLEL FAN		1.3A	277	1	3/4"	(3) #12	20	4M	
FTU 1-2	PARALLEL FAN		2.9A	277	1	3/4"	(3) #12	20	4M	
FTU 2-1	PARALLEL FAN		2.9A	277	1	3/4"	(3) #12	22	4M	
VAV 1-1	VARIABLE AIR	-	9KW	480	3	1/2"	(3) #10	25,27,29	4M	
VAV 1-2	VARIABLE AIR	-	4KW	480	3	1/2"	(3) #12	25,27,29	4M	
VAV 1-3	VARIABLE AIR	-	2KW	277	1	1/2"	(2) #12	4	4M	
VAV 1-4	VARIABLE AIR	-	1KW	277	3	1/2"	(2) #12	4	4M	
VAV 1-5	VARIABLE AIR	-	4KW	480	3	1/2"	(3) #10	4	4M	
VAV 1-6	VARIABLE AIR	-	3KW	480	3	1/2"	(3) #10	14,16,18	4M	
VAV 1-7	VARIABLE AIR	-	6KW	480	3	1/2"	(3) #10	14,16,18	4M	
VAV 2-1	VARIABLE AIR	-	8KW	277	1	1/2"	(3) #10	8,10,12	4M	
VAV 2-2	VARIABLE AIR	-	1KW	277	1	1/2"	(2) #10	6	4M	
VAV 2-3	VARIABLE AIR	-	2KW	277	1	1/2"	(2) #10	6	4M	
VAV 2-4	VARIABLE AIR	-	1KW	277	1	1/2"	(2) #10	6	4M	
WH-1	WATER HEATER	-	12KW	480	3					
FC-1	DUCTLESS SYSTEM	-	18A	208	1	3/4"	3 #10	2,4	2E2	1
AC-1										
FC-2	DUCTLESS SYSTEM	-	18A	208	1	3/4"	3 #10	2,4	2E2	1
AC-2										
NOTES: 1. PROVIDE ALL POWER AND CONTROL CONNECTIONS BETWEEN INDOOR AND OUTDOOR UNIT.										

6915 S MACADAM AVE  
 SUITE 200  
 PORTLAND, OREGON 97219  
 CONTACT: HANK BARLEEN  
 PHONE: (503) 892-1188  
 engineering@mke-inc.com  
 Since 1979



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architecture + design llc



EXPIRES 12-31-22

PROJECT TEAM:

CIVIL ENGINEER:  
 AKS ENGINEERING & FORESTRY  
 12965 SW Herman Road, Suite 100  
 Tualatin, OR 97062  
 P: 503.563.6151  
 F: 503.563.6152

STRUCTURAL ENGINEER:  
 PETERSON STRUCTURAL ENGINEERS  
 9400 SW Barnes Road, Suite 100  
 Portland, OR 97225  
 P: 503.292.1635

MEP ENGINEER:  
 MKE & Associates, Inc.  
 6915 SW Macadam Ave, Suite 200  
 Portland, OR 97219  
 P: 503.892.1188

OWNER:  
 OMIC R&D / OREGON TECH.  
 Procurement and Contract Services  
 27500 SW Parkway Avenue  
 Wilsonville, OR 97070

OWNER'S REPRESENTATIVE:  
 CRAIG CAMPBELL, Executive Director  
 OMIC R&D  
 33701 Charles T. Parker Way



PLOTTED: DANIEL DERHEIMER 9/7/2021 2:19 PM  
 X:\DWG\AD\5459\5459E42

PANEL SCHEDULE										
PANEL: 4A			MKE & ASSOCIATES, INC.				MOUNTING: SURFACE			
FED BY: MDP			BUS/MAIN: 200A							
LOC:		VOLTS 277/480		PHASE 3		WIRE 4				
C	DESCRIPTION	VA	A/P	No.	A B C	No.	A/P	VA	DESCRIPTION	C
1	L - RESEARCH	2720	20/1	1	*	2	125/	19180	PANEL 2A/2A1	5
1	L - OFFICE	1230	20/1	3	*	4	*	20480	*	5
1	L - OFFICE	1350	20/1	5	*	6	*	24780	*	5
	SPARE	20/1		7	*	8			SPARE	
	SPARE	20/1		9	*	10	20/1		SPARE	
	SPARE	20/1		11	*	12	20/1		SPARE	
	SPACE			13	*	14			SPACE	
	SPACE			15	*	16			SPACE	
	SPACE			17	*	18			SPACE	
	SPACE			19	*	20			SPACE	
	SPACE			21	*	22			SPACE	
	SPACE			23	*	24			SPACE	
	SPACE			25	*	26			SPACE	
	SPACE			27	*	28			SPACE	
	SPACE			29	*	30			SPACE	
	SPACE			31	*	32			SPACE	
	SPACE			33	*	34			SPACE	
	SPACE			35	*	36			SPACE	
	SPACE			37	*	38	20/3	1200	SO2 OUTLET	5
	SPACE			39	*	40	*	1200	*	5
	SPACE			41	*	42	*	1200	*	5
LOAD CODE (VA)		PH A	PH B	PH C	TOTAL (VA)		FACTOR		CODE LOAD	
1. LIGHTS:		2,720	1,230	1,350	5,300		1.25		6,625	
2. RECEPTACLE:		0	0	0	0		*		0	
3. HEATING:		0	0	0	0		1.00		0	
4. KITCHEN:		0	0	0	0		1.00		0	
5. EQUIPMENT:		20,380	21,680	25,980	68,040		1.00		68,040	
6. MOTORS:		0	0	0	0		**		0	
7. MISC.		0	0	0	0		1.00		0	
TOTAL (VA):		23,100	22,910	27,330	73,340				74,665	
LARGEST MOTOR:		0 VA	TOTAL LOAD:		88 A		CODE DEMAND:		90 A	
# KITCHEN EQUIPMENT		0								
NOTES:										
* FIRST 10 KVA + 50% OF THE BALANCE										
** 125% OF THE LARGEST MOTOR + THE BALANCE										

PANEL SCHEDULE																																																																					
PANEL: 4B			MKE & ASSOCIATES, INC.			MOUNTING: SURFACE																																																															
FED BY: MDP			BUS/MAIN: 200A MLO																																																																		
LOC: RESEARCH		VOLTS 277/480		PHASE 3		WIRE 4																																																															
C	DESCRIPTION	VA	A/P	No.	A B C	No.	A/P	VA	DESCRIPTION	C																																																											
3	OVEN 1UD	3600	20/3	1	*	2	70/3	9,260	PANEL 2B	7																																																											
3	*	3600	*	3	*	4	*	7,760	*	7																																																											
3	*	3600	*	5	*	6	*	7,540	*	7																																																											
	SPARE 1A		50/3	7	*	8			SPACE																																																												
	*		*	9	*	10			SPACE																																																												
	*		*	11	*	12			SPACE																																																												
	SPACE			13	*	14			SPACE																																																												
	SPACE			15	*	16			SPACE																																																												
	SPACE			17	*	18			SPACE																																																												
	SPACE			19	*	20			SPACE																																																												
	SPACE			21	*	22			SPACE																																																												
	SPACE			23	*	24			SPACE																																																												
	SPACE			25	*	26			SPACE																																																												
	SPACE			27	*	28			SPACE																																																												
	SPACE			29	*	30			SPACE																																																												
	SPACE			31	*	32			SPACE																																																												
	SPACE			33	*	34			SPACE																																																												
	SPACE			35	*	36			SPACE																																																												
	SPACE			37	*	38			SPACE																																																												
	SPACE			39	*	40			SPACE																																																												
	SPACE			41	*	42			SPACE																																																												
<table><tr><th>LOAD CODE (VA)</th><th>PH A</th><th>PH B</th><th>PH C</th><th>TOTAL (VA)</th></tr><tr><td>1. LIGHTS:</td><td>0</td><td>0</td><td>0</td><td>0</td></tr><tr><td>2. RECEPTACLE:</td><td>0</td><td>0</td><td>0</td><td>0</td></tr><tr><td>3. HEATING:</td><td>3,600</td><td>3,600</td><td>3,600</td><td>10,800</td></tr><tr><td>4. KITCHEN:</td><td>0</td><td>0</td><td>0</td><td>0</td></tr><tr><td>5. EQUIPMENT:</td><td>0</td><td>0</td><td>0</td><td>0</td></tr><tr><td>6. MOTORS:</td><td>0</td><td>0</td><td>0</td><td>0</td></tr><tr><td>7. MISC.</td><td>9,260</td><td>7,760</td><td>7,540</td><td>24,560</td></tr><tr><td>TOTAL (VA):</td><td>12,860</td><td>11,360</td><td>11,140</td><td>35,360</td></tr></table>							LOAD CODE (VA)	PH A	PH B	PH C	TOTAL (VA)	1. LIGHTS:	0	0	0	0	2. RECEPTACLE:	0	0	0	0	3. HEATING:	3,600	3,600	3,600	10,800	4. KITCHEN:	0	0	0	0	5. EQUIPMENT:	0	0	0	0	6. MOTORS:	0	0	0	0	7. MISC.	9,260	7,760	7,540	24,560	TOTAL (VA):	12,860	11,360	11,140	35,360	<table><tr><th>FACTOR</th><th>CODE LOAD</th></tr><tr><td>1.25</td><td>0</td></tr><tr><td>*</td><td>0</td></tr><tr><td>1.00</td><td>10,800</td></tr><tr><td>1.00</td><td>0</td></tr><tr><td>1.00</td><td>0</td></tr><tr><td>**</td><td>0</td></tr><tr><td>1.00</td><td>24,560</td></tr></table>		FACTOR	CODE LOAD	1.25	0	*	0	1.00	10,800	1.00	0	1.00	0	**	0	1.00	24,560
LOAD CODE (VA)	PH A	PH B	PH C	TOTAL (VA)																																																																	
1. LIGHTS:	0	0	0	0																																																																	
2. RECEPTACLE:	0	0	0	0																																																																	
3. HEATING:	3,600	3,600	3,600	10,800																																																																	
4. KITCHEN:	0	0	0	0																																																																	
5. EQUIPMENT:	0	0	0	0																																																																	
6. MOTORS:	0	0	0	0																																																																	
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1.00	0																																																																				
**	0																																																																				
1.00	24,560																																																																				
LARGEST MOTOR: 0 VA				TOTAL LOAD: 43 A			CODE DEMAND: 43 A																																																														
# KITCHEN EQUIPMENT 0																																																																					
NOTES:						* FIRST 10 KVA + 50% OF THE BALANCE ** 125% OF THE LARGEST MOTOR + THE BALANCE																																																															

PANEL SCHEDULE										
PANEL: 2A			MKE & ASSOCIATES, INC.			MOUNTING: SURFACE				
FED BY: 4A			BUS/MAIN: 200A-3P MB							
LOC: OFFICE		VOLTS 120/208		PHASE 3		WIRE 4				
C	DESCRIPTION	VA	A/P	No.	A B C	No.	A/P	VA	DESCRIPTION	C
2	R - 112	900	20/1	1	*	2	20/1	900	R - RESTROOM	2
2	R - 112	900	20/1	3	*	4	20/1	900	R - 116/117	2
2	R - LAB 502	720	20/1	5	*	6	20/1	720	R - AME LOCK	2
2	R - LAB 502	720	20/1	7	*	8	20/1	1,000	WALL HEATER	3
2	R - 505	720	20/1	9	*	10	40/3	4,000	WH-1	6
2	R - 505	720	20/1	11	*	12	*	4,000	*	6
	SPARE		20/1	13	*	14	*	4000	*	6
	SPARE		20/1	15	*	16			SPACE	
	SPARE		20/1	17	*	18			SPACE	
	SPARE		20/1	19	*	20			SPACE	
	SPARE		20/1	21	*	22			SPACE	
	SPARE		20/1	23	*	24			SPACE	
	SPARE		20/1	25	*	26			SPACE	
2	503 - NEMA 5-15R	720	20/1	27	*	28	20/1		SPARE	
2	503 - NEMA 5-15R	720	20/1	29	*	30	20/1		SPARE	
2	503 - NEMA 15-15R	720	20/1	31	*	32	20/1		SPARE	
2	502 - NEMA 5-15R	720	20/1	33	*	34	20/1		SPARE	
2	502 - NEMA 5-15R	720	20/1	35	*	36	20/1	720	FIRE VAULT/SUMP	6
2	NEMA 5-15R	720	20/1	37	*	38	20/1	120	EF-3	6
5	208V OUTLET	1200	20/2	39	*	40	40/2	3200	VEHICLE CHARGER	5
5	*	1200	*	41	*	42	*	3200	*	5
LOAD CODE (VA)		PH A	PH B	PH C	TOTAL (VA)		FACTOR		CODE LOAD	
1. LIGHTS:		0	0	0	0		1.25		0	
2. RECEPTACLE:		3,960	3,960	3,600	11,520		*		10,760	
3. HEATING:		1,000	0	0	1,000		1.00		1,000	
4. KITCHEN:		0	0	0	0		1.00		0	
5. EQUIPMENT:		0	4,400	4,400	8,800		1.00		8,800	
6. MOTORS:		4,120	4,000	4,720	12,840		**		15,840	
7. MISC.		0	0	0	0		1.00		0	
TOTAL (VA):		9,080	12,360	12,720	34,160				36,400	
LARGEST MOTOR:		4,000 VA	TOTAL LOAD:		95 A		CODE DEMAND:		101 A	
# KITCHEN EQUIPMENT		0								
NOTES: PROVIDE FEED THRU LUGS							* FIRST 10 KVA + 50% OF THE BALANCE ** 125% OF THE LARGEST MOTOR + THE BALANCE			

PANEL SCHEDULE										
PANEL: 2B			MKE & ASSOCIATES, INC.			MOUNTING: SURFACE				
FED BY: 4B			BUS/MAIN: 150A-3P MB							
LOC: RESEARCH		VOLTS 120/208		PHASE 3		WIRE 4				
C	DESCRIPTION	VA	A/P	No.	A B C	No.	A/P	VA	DESCRIPTION	C
5	ISC DRYER	1600	20/1	1	*	2	20/3	1440	IUS PRINTER	5
5	ISD SIEVE	1600	20/1	3	*	4	*	1440	*	5
5	IVE DESPONDER	600	20/1	5	*	6	*	1440	*	5
5	IUE DUST	600	20/1	7	*	8	20/1	720	DLP IV	5
5	IUE DUST	600	20/1	9	*	10	20/1	720	DLP IW	5
5	DLP IP	900	20/1	11	*	12	20/1	1100	PRINTERS	5
5	FIBER IL	300	20/1	13	*	14	20/1	1100	PRINTERS	5
5	HEAT SHRINK 2G	900	20/1	15	*	16	20/1	1100	PRINTERS	5
5	STORAGE 2H	900	20/1	17	*	18	30/2	2600	CHARGER	5
5	TOOL STATION 2I	900	20/1	19	*	20	*	2600	*	5
5	VENDING 2J	1400	20/1	21	*	22			SPACE	
	SPARE	20/1		23	*	24			SPACE	
	SPARE	20/1		25	*	26			SPACE	
	SPARE	20/1		27	*	28			SPACE	
	SPARE	20/1		29	*	30			SPACE	
	SPARE	20/1		31	*	32			SPACE	
	SPARE	20/1		33	*	34			SPACE	
	SPARE	20/1		35	*	36			SPACE	
	SPARE IN	50/3		37	*	38	40/3		SPACE	
	*		*	39	*	40	*		*	
	*		*	41	*	42	*		*	
LOAD CODE (VA)		PH A	PH B	PH C	TOTAL (VA)		FACTOR		CODE LOAD	
1. LIGHTS:		0	0	0	0		1.25		0	
2. RECEPTACLE:		0	0	0	0		*		0	
3. HEATING:		0	0	0	0		1.00		0	
4. KITCHEN:		0	0	0	0		1.00		0	
5. EQUIPMENT:		9,260	7,760	7,540	24,560		1.00		24,560	
6. MOTORS:		0	0	0	0		**		0	
7. MISC.		0	0	0	0		1.00		0	
TOTAL (VA):		9,260	7,760	7,540	24,560				24,560	
LARGEST MOTOR:		0 VA	TOTAL LOAD:		68 A		CODE DEMAND:		68 A	
# KITCHEN EQUIPMENT		0								
NOTES: PROVIDE FEED THRU LUGS							* FIRST 10 KVA + 50% OF THE BALANCE ** 125% OF THE LARGEST MOTOR + THE BALANCE			



PLOTTED: DANIEL DERHEIMER 9/7/2021 2:26 PM  
 X:\DWG\AD\5459\5459E43

PANEL SCHEDULE												
PANEL: 4E			MKE & ASSOCIATES, INC.				MOUNTING: SURFACE					
FED BY: ATS							BUS/MAIN: 100A MLO					
LOC:			VOLTS 277/480		PHASE 3		WIRE 4					
C	DESCRIPTION	VA	A/P	No.	A B C	No.	A/P	VA	DESCRIPTION	C		
1	L - EXTERIOR	960	20/1	1	*	2	50/3	11540	PANEL 2E1	5		
1	L - RESEARCH	1960	20/1	3	*	4	*	8780	*	5		
1	L - OFFICE	1120	20/1	5	*	6	*	7480	*	5		
	SPARE		20/1	7	*	8	20/3	1200	SO2 OUTLET	5		
	SPARE		20/1	9	*	10	*	1200	*	5		
	SPARE		20/1	11	*	12	*	1200	*	5		
	SPACE			13	*	14			SPACE			
	SPACE			15	*	16			SPACE			
	SPACE			17	*	18			SPACE			
	SPACE			19	*	20			SPACE			
	SPACE			21	*	22			SPACE			
	SPACE			23	*	24			SPACE			
	SPACE			25	*	26			SPACE			
	SPACE			27	*	28			SPACE			
	SPACE			29	*	30			SPACE			
	SPACE			31	*	32			SPACE			
LOAD CODE (VA)		PH A	PH B	PH C	TOTAL (VA)		FACTOR		CODE LOAD			
1. LIGHTS:		960	1,960	1,120	4,040		1.25		5,050			
2. RECEPTACLE:		0	0	0	0		*		0			
3. HEATING:		0	0	0	0		1.00		0			
4. KITCHEN:		0	0	0	0		1.00		0			
5. EQUIPMENT:		12,740	9,980	8,680	31,400		1.00		31,400			
6. MOTORS:		0	0	0	0		**		0			
7. MISC.		0	0	0	0		1.00		0			
TOTAL (VA):		13,700	11,940	9,800	35,440				36,450			
LARGEST MOTOR:		0 VA	TOTAL LOAD:		43 A		CODE DEMAND:		44 A			
# KITCHEN EQUIPMENT		0										
NOTES:							* FIRST 10 KVA + 50% OF THE BALANCE ** 125% OF THE LARGEST MOTOR + THE BALANCE					

PANEL SCHEDULE												
PANEL: 240B			MKE & ASSOCIATES, INC.				MOUNTING: SURFACE					
FED BY: MDP							BUS/MAIN: 200A MLO					
LOC: RESEARCH		VOLTS 240		PHASE 3		WIRE 3						
C	DESCRIPTION	VA	A/P	No.	A	B	C	No.	A/P	VA	DESCRIPTION	C
5	ISA PRINTER	1,920	30/3	1	*		2		30/2	2040	ISB CHILLER	5
5	*	1,920	*	3	*		4		*	2040	*	5
5	*	1,920	*	5	*		6		30/2	1920	ISE VACUUM	5
	SPARE		40/3	7	*		8		*	1,920	*	5
	*	*		9	*		10				SPACE	
	*	*		11	*		12				SPACE	
	SPARE		40/3	13	*		14				SPACE	
	*	*		15	*		16				SPACE	
	*	*		17	*		18				SPACE	
	SPACE			19	*		20				SPACE	
	SPACE			21	*		22				SPACE	
	SPARE			23	*		24				SPACE	
	SPACE			25	*		26				SPACE	
	SPACE			27	*		28				SPACE	
	SPACE			29	*		30				SPACE	
	SPACE			31	*		32				SPACE	
	SPACE			33	*		34				SPACE	
	SPACE			35	*		36				SPACE	
	SPACE			37	*		38				SPACE	
	SPACE			39	*		40				SPACE	
	SPACE			41	*		42				SPACE	
LOAD CODE (VA)		PH A	PH B	PH C	TOTAL (VA)			FACTOR		CODE LOAD		
1. LIGHTS:		0	0	0	0			1.25		0		
2. RECEPTACLE:		0	0	0	0			*		0		
3. HEATING:		0	0	0	0			1.00		0		
4. KITCHEN:		0	0	0	0			1.00		0		
5. EQUIPMENT:		5,880	3,960	3,840	13,680			1.00		13,680		
6. MOTORS:		0	0	0	0			**		0		
7. MISC.		0	0	0	0			1.00		0		
TOTAL (VA):		5,880	3,960	3,840	13,680					13,680		
LARGEST MOTOR:		0 VA	TOTAL LOAD:		34 A			CODE DEMAND:		34 A		
NUM. KITCHEN EQUIPMENT		0										
NOTES: RECONNECT EXISTING CIRCUITS IDENTIFIED WITH (E)								* FIRST 10 KVA + 50% OF THE BALANCE				
^ NEW LOAD, # PROVIDE LOCK-ON DEVICE, +1 ALT. -1, +2 ALT. -2								** 125% OF THE LARGEST MOTOR + THE BALANCE				

PANEL SCHEDULE												
PANEL: 2E1			MKE & ASSOCIATES, INC.				MOUNTING: SURFACE					
FED BY: 4E							BUS/MAIN: 100A					
LOC:	ELECTRICAL ROOM		VOLTS 120/208		PHASE 3		WIRE 4					
C	DESCRIPTION	VA	A/P	No.	A	B	C	No.	A/P	VA	DESCRIPTION	C
5	GEN - BLOCK HTR	1000	20/1	1	*			2	100/3	10540	PANEL 2E2	5
5	GEN - BLOCK HTR	720	20/1	3	*			4	*	8060	*	5
5	DATA RACK	200	20/1	5	*			6	*	7280	*	5
	SPARE		20/1	7	*			8			SPACE	
	SPARE		20/1	9	*			10			SPACE	
	SPARE		20/1	11	*			12			SPACE	
	SPARE		20/1	13	*			14			SPACE	
	SPARE		20/1	15	*			16			SPACE	
	SPARE		20/1	17	*			18			SPACE	
	SPARE		20/1	19	*			20			SPACE	
	SPACE			21	*			22			SPACE	
	SPACE			23	*			24			SPACE	
	SPACE			25	*			26			SPACE	
	SPACE			27	*			28			SPACE	
	SPACE			29	*			30			SPACE	
	SPACE			31	*			32			SPACE	
LOAD CODE (VA)		PH A	PH B	PH C	TOTAL (VA)		FACTOR			CODE LOAD		
1. LIGHTS:		0	0	0	0		1.25			0		
2. RECEPTACLE:		0	0	0	0		*			0		
3. HEATING:		0	0	0	0		1.00			0		
4. KITCHEN:		0	0	0	0		1.00			0		
5. EQUIPMENT:		11,540	8,780	7,480	27,800		1.00			27,800		
6. MOTORS:		0	0	0	0		**			0		
7. MISC.		0	0	0	0		1.00			0		
TOTAL (VA):		11,540	8,780	7,480	27,800					27,800		
LARGEST MOTOR:		0 VA	TOTAL LOAD:		77 A		CODE DEMAND:			77 A		
# KITCHEN EQUIPMENT		0										
NOTES:												
* FIRST 10 KVA + 50% OF THE BALANCE												
** 125% OF THE LARGEST MOTOR + THE BALANCE												