

# CENTRAL KITCHEN and WOODSHOP

## UNIVERSITY OF OREGON, HOUSING DEPARTMENT

### ELECTRICAL DRAWINGS

BY  
ELECTRICAL CONSTRUCTION COMPANY

#### SYMBOLS AND SCHEDULES

#### ABBREVIATIONS

ACT	ABOVE COUNTER TOP
AAP	ALARM ANNUNCIATOR PANEL
AFF	ABOVE FINISHED FLOOR
AFC	AVAILABLE FAULT CURRENT
AFG	ABOVE FINISHED GRADE
AFTB	ABOVE FINISHED FLOOR TO BOTTOM
AIC	AMPERE INTERRUPTING CAPACITY
AMP	AMPERE
AWG	AMERICAN WIRE GAGE
CU	COPPER
CAB	CABINET
CFOI	CONTRACTOR FURNISHED OWNER INSTALLED
CKT, CT	CIRCUIT
CLG	CEILING
D	DATA
(E), (N), (R)	EXISTING, NEW, BELOCATED
EC, C.O.	EMPTY CONDUIT, CONDUIT ONLY (W/PULL STRING)
ELEC	ELECTRICAL
EMER, EM	EMERGENCY
FA	FIRE ALARM
FAAP	FIRE ALARM ANNUNCIATOR PANEL
FACP	FIRE ALARM CONTROL PANEL
FPCS	FIELD CHARGER POWER SUPPLY
(F), (FUT)	FUTURE DEVICE OR PROVISION
G, GND	GROUND
GEN	GENERATOR
GFI	GROUND FAULT CIRCUIT INTERRUPTER TYPE
HP	HORSEPOWER
HPF	HIGH POWER FACTOR
IG	ISOLATED GROUND
MECH	MECHANICAL
MANF	MANUFACTURER
NEC	NATIONAL ELECTRICAL CODE
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
NL	NIGHT LIGHT
OFCI	OWNER FURNISHED CONTRACTOR INSTALLED
OFOI	OWNER FURNISHED OWNER INSTALLED
PB	PULL BOX
PH	PHASE
PWR	POWER
SWBD	SWITCHBOARD
SWGR	SWITCHGEAR
SYS	SYSTEM
T	TELEPHONE
TTB	TELEPHONE TERMINAL BOARD
TYP	TYPICAL
UON	UNLESS OTHERWISE NOTED
V	VOLT
W	WATT
WS	WATSTOPPER (BRAND)
WP	WEATHERPROOF
YEMR	TRANSFORMER
YMB	METER BASE
YME	MECH OR PROCESS EQUIPMENT IDENTIFICATION

#### ELECTRICAL SYMBOLS

	*SINGLE WALL RECEPTACLE; SINGLE T/L PENDANT RECEPTACLE
	*DUPLEX WALL RECEPTACLE; DUPLEX FLOOR RECEPTACLE
	*GROUND FAULT CIRCUIT INTERRUPTER DUPLEX WALL RECEPTACLE
	*QUAD WALL RECEPTACLE
	*RECEPTACLE ON EMERGENCY OR STANDBY POWER
	*EQUIPMENT POWER OUTLET OR CONNECTION
	*SPECIAL RECEPTACLE
	MOTOR
	NON-FUSED DISCONNECT SWITCH
	FUSED DISCONNECT SWITCH (FUSES SIZED PER EQUIPMENT MANUFACTURERS RECOMMENDATIONS UNO)
	COMBINATION MOTOR STARTER/FUSED DISCONNECT SWITCH
	MOTOR STARTER
	START-STOP PUSH BUTTON STATION
	WALL THERMOSTAT, PROVIDE 1/2" C. WITH PULL-IN LINE TO UNIT CONTROLLED (SEE MECHANICAL DRAWINGS)
	**HANDICAP CONTROL STATION
	**SINGLE POLE LIGHT SWITCH; WITH OPTIONAL PILOT LIGHT
	**THREE WAY LIGHT SWITCH; **FOUR WAY LIGHT SWITCH
	**DIMMER LIGHT SWITCH
	SWITCH IN DOOR JAMB, EDWARDS #44; CONTROLS A RELAY
	HEAT STRIP OR HEAT TAPE FOR FREEZE PROTECTION
	OCCUPANCY SENSOR, CEILING MOUNTED (OR W=HALL), CONTROLS A RELAY (IR=INFRARED, US=ULTRASONIC, DT=DUAL TECHNOLOGY)
	**OCCUPANCY SENSOR SWITCH; TWIST TIMER
	JUNCTION BOXES
	SUB-DISTRIBUTION PANEL BOARD OR SWITCHBOARD
	BRANCH CIRCUIT PANEL BOARD
	MISCELLANEOUS PANEL AS NOTED
	MAIN SWITCHBOARD
	TRANSFORMER
	HOMERUN WITH 1 NEUTRAL & 2 HOT CONDUCTORS #12 AWG
	1 NEUTRAL & 2 HOT CONDUCTORS #10 AWG

\*All low mounted devices to be at 18" AFF, UON, to center of device.  
\*\*All light switches to be at 44" AFF, UON, to center of device.

#### LIGHTING SYMBOLS

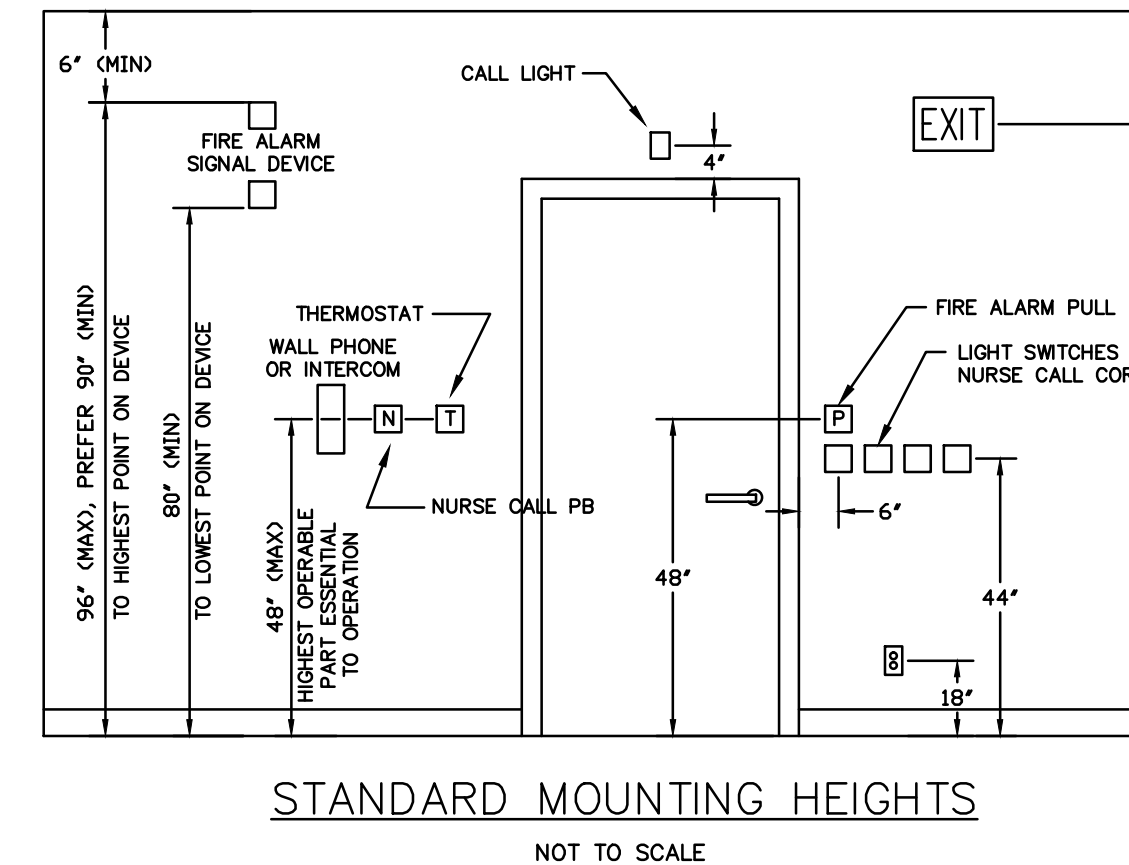
	2'X4' GRID-TYPE FLUORESCENT FIXTURE
	2'X2' GRID-TYPE FLUORESCENT FIXTURE
	1'X4' GRID-TYPE FLUORESCENT FIXTURE
	4FT SURFACE OR SUSPENDED FIXTURE
	8FT SURFACE OR SUSPENDED FIXTURE
	2'X4' PARABOLIC FIXTURE
	2'X2' PARABOLIC FIXTURE
	1'X4' PARABOLIC FIXTURE
	2' STRIP FIXTURE
	2' STRIP FIXTURE EMERGENCY
	4' STRIP FIXTURE
	4' STRIP FIXTURE EMERGENCY
	6' STRIP FIXTURE
	8' STRIP FIXTURE EMERGENCY
	8' STRIP FIXTURE
	HIGHBAY OR OTHER PENDANT FIXTURE
	PENDANT FIXTURE WITH EMERGENCY POWER
	1X4 EMERGENCY POWER INDICATOR
	2X2 EMERGENCY POWER INDICATOR
	2X4 EMERGENCY POWER INDICATOR
	MISC FIXTURE, RECESSED OR PENDANT (TYP)
	PENDANT EXIT SIGN (LIGHTED, TYP)
	TWO-SIDED EXIT SIGN
	SURFACE MOUNT EXIT SIGN W/BUG-EYE LIGHTS
	WALL MOUNTED EXIT SIGN
	RECESSED DOWN LIGHT
	RECESSED DOWNLIGHT ON EMERGENCY CIRCUIT
	2' WALL MOUNT FLUORESCENT FIXTURE
	4' WALL MOUNT FLUORESCENT FIXTURE
	WALLWASH FIXTURE
	BUG-EYE FIXTURE WITH EMERGENCY POWER
	BUG-EYE FIXTURE W/EXIT SIGN
	POLE LIGHT FIXTURE
	WALL PACK FIXTURE
	WALL SCONCE
	WALL ROUND
	TRACK LIGHTING FIXTURE
	SPOTLIGHT

#### FIRE, SECURITY, SIGNALS

	HORN
	HORN STROBES
	STROBE
	MANUAL PULL
	SMOKE DAMPER
	FIRE/SMOKE DAMPER
	DUCT DETECTOR
	SMOKE DETECTOR
	HEAT DETECTOR
	FLAME DETECTOR
	PANIC BUTTON
	PANIC DEVICE
	CARD READER
	DIGITAL KEYPAD
	DOOR STRIKE
	ACCESS CONTROL UNIT
	CONTACT SWITCH
	CONTACT SWITCH (FLUSH)
	CONTACT SWITCH (BALANCED)
	GLASS BREAKAGE DETECTOR
	VIBRATION/SHOCK SENSOR
	SOUND DETECTOR
	PAGING SPEAKER
	DOOR CONTACT
	360° MOTION
	MOTION 720°
	MOTION
	ROOF HATCH
	TAMPER SWITCH
	TAMPER FLOW VALVE
	FLOW DETECTOR
	PRESSURE DETECTOR/SWITCH
	LEVEL DETECTOR/SWITCH
	DOOR HOLDER
	FIREMAN PHONE JACK
	FIRE ALARM CONTROL PANEL
	ANNUNCIATOR
	NAC EXPANDER
	DIALER
	TRI-R INTERFACE WITH RELAY
	BELL
	MICROWAVE TRANSMITTER
	MICROWAVE RECEIVER
	CCTV CAMERA
	SECURITY CAMERA
	MONITOR
	MICROWAVE TRANSCEIVER
	PASSIVE INFRARED DETECTOR
	EMERGENCY POWER SUPPLY/BATTERY
	ADDRESSABLE POPIT POINT
	(TYP) FOR REQUEST TO EXIT
	TEMPERATURE ALARM POINT
	TV CABLE OUTLET, RG6/U CABLE

SHEET NO.	SHEET TITLE	DRAWING SCALE	REV NO.	DATE ISSUED
E0	SYMBOLS & LUMINAIRE SCHED	NTS	4	11-07-14
E1	SITE PLAN	1" = 10'-0"	4	11-07-14
E2	LIGHTING PLAN	1/8" = 1'-0"	4	11-07-14
E3	POWER PLAN	1/8" = 1'-0"	4	11-07-14
E4	LOW VOLTAGE PLAN	1/8" = 1'-0"	4	11-07-14
E5	ONE-LINE RISER DIAGRAM	NTS	4	11-07-14
E6	ROOF PLAN	1/8" = 1'-0"	4	11-07-14
E7	PANEL SCHEDULES	NTS	4	11-07-14

SYMBOL	DESCRIPTION
	TELECOM OUTLET (STANDARD HEIGHT), MULTI-PORT FACE, SINGLE GANG, CATEGORY 5E CABLE(S)
	1 VOICE (WALL-PHONE) 8308 TYPE, ELEVATION SHOWN AFF, SINGLE GANG, (1) CATEGORY 5E CABLE
	TELECOM FLOOR BOX
	COMBINATION FLOOR BOX
	INTERCOM OR OTHER A/V EQUIPMENT LOCATION SINGLE GANG, CATEGORY 5E CABLE OR AS SPECIFIED
	NETWORK WIRELESS ACCESS POINT, CEILING MOUNTED, (1) CATEGORY 5E CABLE OR AS SPECIFIED
	TELEPHONE TERMINAL BOARD, 8" HIGH (WIDTH AS SHOWN), FIRE RESISTIVE PLYWOOD WITH # 6 CU GND



#### GENERAL NOTES

- SCOPE OF PROJECT. CONSTRUCT NEW BUILDING. WORK INCLUDES SOME UNDERGROUND SITE WORK AND EXTENSION OF EXISTING COMMUNICATIONS LINES AS WELL AS A NEW POWER SERVICE. ALL DISTRIBUTION AND BRANCH CIRCUIT WORK IS NEEDED FOR RECEPTACLES, EQUIPMENT, AND LIGHTING.
- OPTIONAL STANDBY POWER SYSTEM INTERFACE SHALL BE INSTALLED USING A TRANSFER SWITCH OR A SYSTEM OF KEY-INTERLOCKED BREAKERS. POWER PANELS TO FEED EQUIPMENT REQUIRING BACKUP POWER SHALL BE SEPARATE FROM NORMAL POWER PANELS IF ENTIRE FACILITY IS NOT FED BY THE STANDBY POWER SYSTEM. THE GENERATOR MAY BE EITHER PORTABLE OR ADD-ALTERNATE.
- COORDINATE MAJOR MECHANICAL EQUIPMENT AND ALL OWNER-FURNISHED EQUIPMENT CONNECTION REQUIREMENTS. VERIFY RATINGS AND INSTALLATION DETAILS & LOCATIONS PRIOR TO ROUGH-IN OF ELECTRICAL FEEDERS OR BRANCH CIRCUITS & EQUIPMENT.
- COORDINATE WITH FIRE ALARM & BUILDING AUTOMATION SUBCONTRACTOR(S) FOR THEIR WIRING REQUIREMENTS. INSTALL CONDUIT CHASES FOR LOW VOLTAGE SYSTEMS AS REQUIRED. PROVIDE CONNECTIONS FOR FIRE/SMOKE DAMPERS WHERE REQUIRED.
- CIRCUITING IS TYPICALLY SHOWN SCHEMATICALLY. PROVIDE CIRCUITING IN THE SIMPLEST MANNER WITH CONSIDERATION FOR BUILDING CONSTRUCTION. ALSO COMPLY WITH NEC 210.4(B) WHERE MULTI-WIRE BRANCH CIRCUITS ARE RUN. RECORD ANY CHANGES TO PROPOSED PANELBOARD SCHEDULES.

PROJECT NUMBER	65575	CHECK BY	A.Gibbs
DESIGN BY	G. Anderson	DRAWN BY	A.Gibbs
DESIGN DATE	May 2, 2014		
REVISIONS			
1	06/18/14	SD CHECK	
2	07/16/14	50% DD SET	
3	08/08/14	100% DD SET	
4	09/24/14	DD UPDATE	
5	11/07/14	GMP CONFORMED	



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Robertson Sherwood  
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PROJECT  
**Central Kitchen and Woodshop,  
Univ of Oregon  
Housing Dept.**

1793 Columbia St.  
Eugene, OR 97403

SHEET TITLE  
**ELECTRICAL SYMBOLS & ABBREVIATIONS,  
LUMINAIRE SCHEDULE**

SHEET NUMBER

**E0**

**GENERAL NOTES:**

- UNIVERSITY TO REMOVE CABLES FROM EXISTING TELECOM DUCTS IN MOSS ALLEY. CONTRACTOR TO CUT DUCTS AND INSERT VAULT. INSTALL NEW TELECOM DUCTS INTO BUILDING APPROXIMATELY AS SHOWN.
- MAINTAIN MINIMUM 12" SEPARATION BETWEEN POWER AND TELECOM DUCTS WHERE RUN PARALLEL.
- MINIMUM FINISHED COVER FOR ALL CONDUITS UNDER ALLEY OR DRIVEWAYS SHALL BE 24", NO EXCEPTIONS.
- PRIMARY POWER CONDUITS TO BE ENCASED IN 2" COVER OF RED-DYED CONCRETE.
- VERIFY STUB-UP LOCATIONS FOR POWER LATERAL AND TELECOM UTILITY DUCTS ENTERING BUILDING. DIMENSIONS SHOWN ARE FOR ESTIMATING REFERENCE ONLY.
- VERIFY STUB-UP LOCATIONS FOR BRANCH CIRCUITS TO EXTERIOR DEVICES, FIXTURES, ALARMS, ETC. ALL UNDERSLAB CONDUITS OUT TO SITE SHALL BE 1" PVC UON.
- AFTER WIRING IS COMPLETED, INSTALL DUCT SEAL IN ALL CONDUITS WHERE STUBBED INTO BUILDING FROM EXTERIOR UNDERGROUND PER NEC 225.21.

**KEYED NOTES:**

- NEW VAULT. USE 444-LA CONCRETE-ENCASED WITH 6" RISER AND MANHOLE LID. VERIFY PROPOSED LOCATION WITH OWNER.
- EUEB TRANSFORMER ON NEW UTILITY VAULT #7B. VERIFY LOCATION AND REQUIREMENTS, INSTALL GROUND RING.
- EUEB SPURCE VAULT WITH TRAFFIC-RATED LID. VERIFY LOCATION, TBD BY EUEB.

PROJECT NUMBER  
**65575**

CHECK BY  
**A. Gibbs**

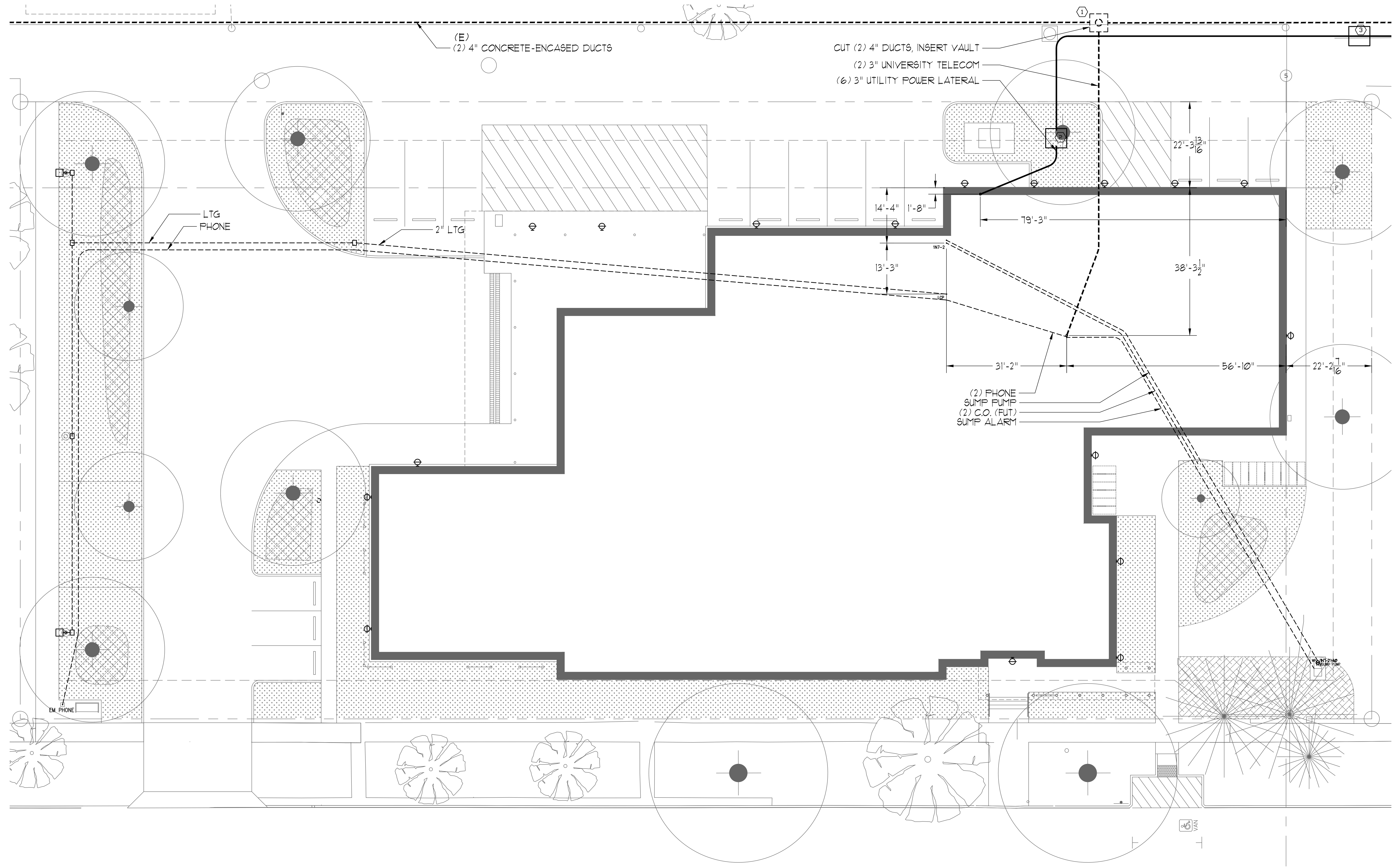
DESIGN BY  
**G. Anderson**

DRAWN BY  
**A. Gibbs**

DESIGN DATE  
**May 2, 2014**

REVISIONS

0	06/18/14	SD CHECK
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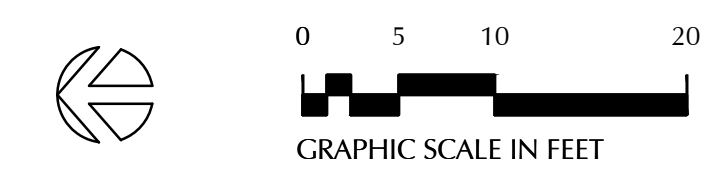
PROJECT  
**Central Kitchen  
 and Woodshop,  
 Univ of Oregon  
 Housing Dept.**

1793 Columbia St.  
 Eugene, OR 97403

SHEET TITLE  
**ELECTRICAL  
 SITE PLAN**

SHEET NUMBER  
**E1**

**SITE ELECTRICAL PLAN**  
 SCALE: 1"=10'-0"



**GENERAL NOTES:**

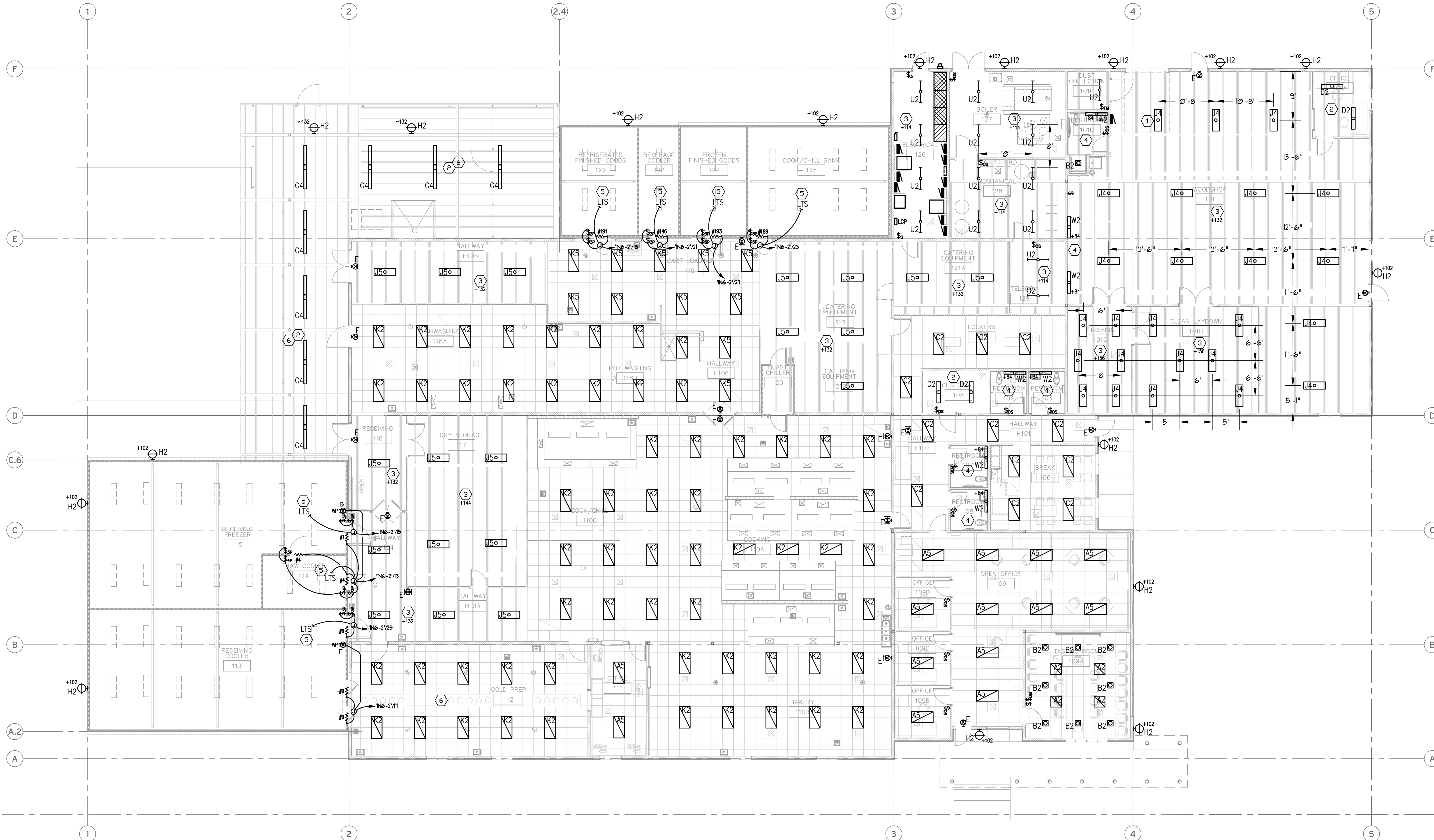
1. MOUNT WALL SWITCHES CENTER 44" AFF. SEE ARCHITECTURAL DETAILS TO VERIFY FIXTURE MOUNTING HEIGHTS, ESPECIALLY WALL-MOUNTED OVER OR UNDER CABINETS, DOORS, & MIRRORS.
2. CONNECT NEW LUMINAIRE WIRING TO SWITCH LEGS FROM LIGHTING CONTROL PANEL (LCP) AS REQUIRED. VERIFY FUNCTIONS & PROGRAMMING.
3. ALWAYS POWERED. OCCUPANCY SENSORS FOR AUTOMATIC LIGHTS IN ROOMS AS NOTED (IF ANY), AND NIGHT LIGHTS. ADDITIONAL SWITCHES IN ROOMS WITH OCCUPANCY SENSORS SHALL BE POWERED FROM THE SENSOR'S SWITCH LEG.
4. BEFORE DIMMING, OPERATE FLUORESCENT LUMINAIRES FOR 100 HRS WITH DIMMER SET AT FULL BRIGHTNESS. THIS SHOULD BE DONE ANY TIME LAMPS ARE CHANGED.
5. WIRING METHOD IS EMT FOR HOME RUNS TO PANELS, OR RMC (FVC) UNDER SLAB, WITH EMT OR TYPE MC CABLE BRANCH CIRCUITS. TERMINATE INSULATED COPPER GND CONDUCTORS IN BRANCH PANELS.
6. BRANCH HOME RUN CONDUCTORS TO BE OVERSIZED AS REQUIRED TO LIMIT VOLTAGE DROP FROM PANEL TO NO MORE THAN 3%.
7. WHERE SPACE ABOVE CEILING IS ENVIRONMENTAL AIR RETURN, COMPLY W/NEC 300.22(C).
8. INSTALL APPROVED FIRESTOP SYSTEM AROUND PENETRATIONS IN FIRE-RESISTIVE WALLS & FLOORS.
9. ALL GLASS LAMPS IN FOOD PREPARATION AND CLEAN WARE AREAS SHALL BE SHIELDED PER 2013 FOOD CODE 6-202.1.
10. MOUNTING HEIGHT FOR EXIT SIGNS ABOVE DOORS, CENTER AT 96" AFF.

LUMINAIRE SCHEDULE - FOR 'SEED' COMPLIANT DESIGN*						
TYPE	MANF	CATALOG NUMBER	VOLTS	WATTS	LAMP(S)	NOTES
A2	COLUMBIA	EPC22-217G-DL-EHLU	120-277	37	2) FO32/841/XPS/ECO	2L 2'x2' TROFFER, DELTA SHIELDED LAMPS, HI BF
A5	COLUMBIA	EPC24-232G-DL-EHLU	120-277	78	2) FO32/841/XPS/ECO	2L 2'x4' TROFFER, DELTA SHIELDED LAMPS, HI BF
B2	PRESCOLITE	DBXQL / LB6LED10L-35K-WH	120-277	12	LED 1000 LM	6" DOWNLIGHT, 3500K, ACRYLIC LENS, WH TRIM
C2	COLUMBIA	JT824-232G-FSA12-EU	120-277	55	2) FO32/841/XPS/ECO	2L 2'x4' TROFFER, ACRYLIC LENS
D2	COLUMBIA	AWN4-232-EU	120-277	55	2) FO32/841/XPS/ECO	2L 2'x4' WRAPAROUND ACRYLIC LENS
E	DUAL LITE	LEDSUEMGMW	120-277	9	6) LED HIGH OUTPUT	EXIT SIGN, GN/WH, UNIV MOUNT W/EMERG BATTERY
G4	COLUMBIA	XEM8-232-DCA-EHLU	120-277	141	4) FO32/841/XPS/ECO	4L 6"x8" T8 ENCL FIBERGLASS, ACRYLIC LENS, HI BF
H2	HUBBELL	LNC2-12LU-3K-3-1	120-277	29	LED 1824 LM	BRZ WALL-MT, LED 3000K, ACRYLIC DIFFUSER, NO UP-LT
J4	COLUMBIA	LHR4-432-GWST-4EU-F3C10/FSCPI/HHB	120-277	107	4) FO32/841/XPS/ECO	4L 2'x4' T8 HI-BAY, SOLID TOP, WIDE DISTR, LENS
J5	COLUMBIA	LHR4-432-GWST-1PSX-F3C10/FSCPI/HHB	120-277	91	4) FO32/841/XPS/ECO	4L 2'x4' T8 HI-BAY, SOLID TOP, WIDE DISTR, LENS, LO BF
K2	COLUMBIA	JT824-232G-FSA12-125-3ELWU	120-277	72	3) FO32/841/XPS/ECO	3L 2'x4' TROFFER, REVERSE HEAVY LENS, LO BF
K5	COLUMBIA	JT824-232G-FSA12-125-ELWU	120-277	48	3) FO32/841/XPS/ECO	2L 2'x4' TROFFER, REVERSE HEAVY LENS, LO BF
S1	HOLOPHANE	UGV10DMH1806 / 12 VISCO POLE (VERIFY)	208	188	1) M150/U/MED	OFFICE 'ACORN' LIGHT ON PAINTED POLE, ELEC BALLAST
U2	COLUMBIA	CSR4-232-ST-EU / CSRWG4	120-277	55	2) FO32/841/XPS/ECO	2L 4" OPEN STRIP, REFLECTOR, WIREGUARD
W2	COLUMBIA	W4-232-EU	120-277	55	2) FO32/841/XPS/ECO	2L 4" SLIM WALL BRACKET, DIFFUSE LENS

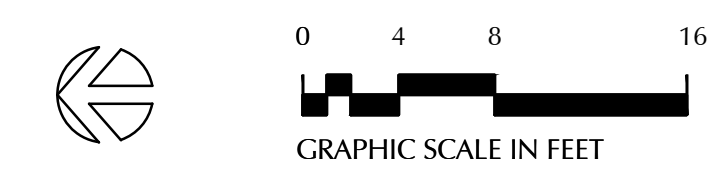
\*SEED (or State Energy Efficiency Design) requires new Oregon state buildings by law to exceed OEEEC conservation requirements by 20%.

**KEYED NOTES:**

1. MOUNT LUMINAIRE ABOVE SECTIONAL DOOR ASSEMBLY (WHEN IT IS IN ITS OPEN POSITION).
2. MOUNT LUMINAIRES IN THIS ROOM DIRECTLY ON CEILING SURFACE OR LOWER MEMBER OF TRUSS WHERE EXPOSED.
3. MOUNT LUMINAIRES IN THIS ROOM ON JACK CHAIN OR CABLE ASSEMBLY AT ELEVATION SHOWN.
4. WALL-MOUNT LUMINAIRE AT ELEVATION SHOWN.
5. LUMINAIRES INCLUDED WITH WALK-IN COOLERS/FREEZERS. CONNECT TO 208VAC CIRCUIT APPROXIMATELY AS SHOWN OR AS DIRECTED. DOOR JAMB AND EVAPORATOR DRAIN LINE HEATERS ARE PERMITTED ON SAME WALK-IN CIRCUITS SHOWN FOR LIGHTS.
6. DO NOT USE SUPERSAVER T8 LAMPS IN LUMINAIRES MOUNTED IN COOL AREAS (LESS THAN 60 DEG F).



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



PROJECT NUMBER  
**65575**

CHECK BY  
**A. Gibbs**

DESIGN BY  
**G. Anderson**

DRAWN BY  
**A. Gibbs**

DESIGN DATE  
**May 2, 2014**

- REVISIONS
- 1 06/18/14 SD CHECK
  - 2 07/16/14 50% DD SET
  - 3 08/08/14 100% DD SET
  - 4 09/24/14 DD UPDATE
  - 5 11/07/14 GMP CONFORMED



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PROJECT  
**Central Kitchen and Woodshop, Univ of Oregon Housing Dept.**

1793 Columbia St.  
Eugene, OR 97403

SHEET TITLE  
**ELECTRICAL LIGHTING PLAN**

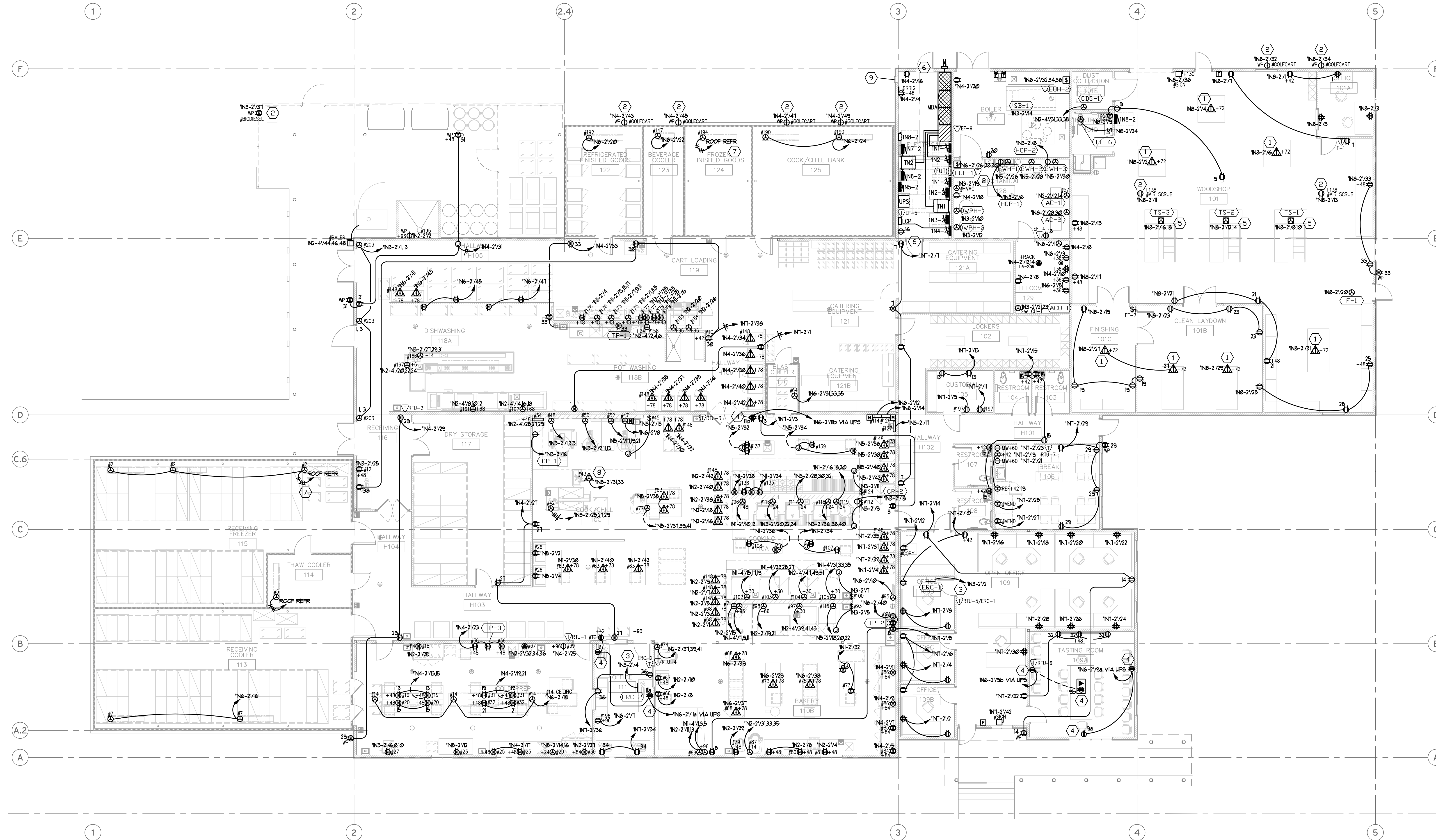
SHEET NUMBER  
**E2**

**GENERAL NOTES:**

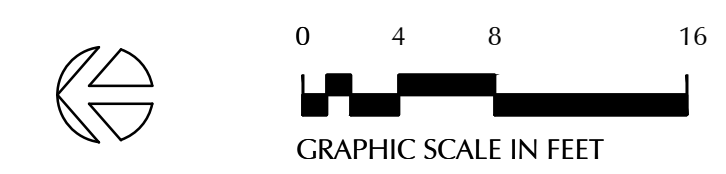
1. DEDICATED SPACE FOR SWITCHGEAR AND PANELBOARDS SHALL EXTEND FROM THEIR BASE UP TO 6 FEET ABOVE ENCLOSURES, OR UP TO STRUCTURE IF LOWER. OTHER CONSTRUCTION TRADES SHALL MAKE THEIR INSTALLATIONS OUTSIDE OF THIS SPACE EXCEPT FOR DROP CEILING ASSEMBLIES AND FIRE SPRINKLERS.
  2. GROUNDING TERMINATION CONNECTIONS SHALL NOT BE REVERSIBLE. GROUNDING CONDUCTORS 1/2" OR SMALLER SHALL HAVE GREEN INSULATION. AN EQUIPMENT GROUNDING CONDUCTOR SHALL BE PULLED IN ALL CONDUITS.
  3. WIRING METHOD IS EMT FOR OVERHEAD HOME RUNS TO PANELS. UNDER SLAB METHOD SHALL USE RMC (PVC) WITH GRC 30-DEG EL AT 6"UB UP. RUN EMT OR TYPE MC CABLE FOR BRANCH CIRCUITS. TERMINATE INSULATED COPPER GND CONDUCTORS IN BRANCH PANELS.
  4. BRANCH HOME RUN CONDUCTORS TO BE OVERSIZED AS REQUIRED TO LIMIT VOLTAGE DROP FROM PANEL TO NO MORE THAN 3%.
  5. WHERE SPACE ABOVE CEILING IS ENVIRONMENTAL AIR RETURN, COMPLY W/ANEC 300.22(C).
  6. INSTALL APPROVED FIRESTOP SYSTEM AROUND PENETRATIONS IN FIRE-RESISTIVE WALLS & FLOORS.
  7. CENTER LOU DEVICES 48" AFF. UON. CONFIRM MOUNTING HEIGHTS & LOCATIONS W/INTERIOR ELEVATIONS AND EQUIPMENT SCHEDULE, BO.
  8. ALL PENDANT CORDS SHALL BE INSTALLED WITH A MINIMUM OF 4" EXTRA LENGTH ABOVE GRIP HANGER FOR RELOCATION OR ADJUSTMENT. SEE KEYED NOTES.
  9. PROVIDE 6" MINIMUM SEPARATION AND/OR ONE STUD SPACE BETWEEN BACK TO BACK OUTLETS IN NON-FIRE RATED WALLS. INCREASE SEPARATION TO 24" IN FIRE-RATED WALLS. EXCEPTIONS TO BE APPROVED BY ARCHITECT.
  10. REFER TO FOOD SERVICE EQUIPMENT DRAWINGS FOR INDIVIDUAL EQUIPMENT CONNECTION INFORMATION, AS WELL AS NOTES ON INSTALLATION REQUIREMENTS.
- COMPLY WITH UNIVERSITY OF OREGON CAMPUS CONSTRUCTION STANDARDS, DIVISION 16 ELECTRICAL, AS BASIC SPECIFICATION. EXCEPTIONS AND MODIFICATIONS TO STANDARD MAY EXIST FOR THIS PROJECT. EXAMPLE, COPPER MAY BE REPLACED BY ALUMINUM FOR PANEL BUS, TRANSFORMERS, & FEEDER CONDUCTORS.

**KEYED NOTES:**

1. CORD DROPS IN WOOD SHOP SHALL BE INSTALLED WITH 10' EXTRA LENGTH COILED AT ROOF TRUSS FOR FUTURE RELOCATION.
2. VERIFY LOCATION.
3. LOCATE IN CEILING SPACE.
4. LABEL OUTLETS "200 WATTS MAX STANDBY POWER" OR AS DIRECTED BY OWNER. ROUTE CIRCUITS HOME VIA INVERTER OR UPS SYSTEM. CAPACITY OF SHORT-TIME STANDBY SYSTEM AND QUANTITY OF OUTPUT CIRCUITS TBD.
5. FULL #0 AUG 3-WIRE 45 CIRCUIT TO ALL FLOOR BOXES. VERIFY NEMA CONFIGURATION REQUIRED TO TRIM OUT FOR OWNER EQUIPMENT, CHANGE BREAKER AS REQUIRED.
6. PANIC DOOR HARDWARE REQUIRED PER NEC 100.26(C)(3).
7. COORDINATE WITH OWNER'S INSTALLATION OF A NORMALLY-CLOSED TIMED-OPEN TIMER ASSEMBLY FOR EVAPORATOR FANS IN THIS FREEZER.
8. CORD DROP FOR EQUIPMENT #43 SHALL BE INSTALLED WITH ENOUGH LENGTH TO MOVE EQUIPMENT AS NEEDED TO SERVE #48, #50, #52.
9. WALL OPENING FOR TEMPORARY WIRING FROM PORTABLE STANDBY POWER GENERATOR TO MAIN DISTRIBUTION PANEL. NORMALLY COVERED.



**POWER PLAN**  
SCALE: 1/8"=1'-0"



PROJECT NUMBER <b>65575</b>	CHECK BY <b>A. Gibbs</b>
DESIGN BY <b>G. Anderson</b>	DRAWN BY <b>A. Gibbs</b>
DESIGN DATE <b>May 2, 2014</b>	
REVISIONS	
1	06/18/14 SD CHECK
2	07/16/14 50% DD SET
3	08/08/14 100% DD SET
4	09/08/14 DD UPDATE
5	11/07/14 GMP CONFORMED



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PROJECT  
**Central Kitchen and Woodshop, Univ of Oregon Housing Dept.**

1793 Columbia St.  
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SHEET TITLE  
**ELECTRICAL POWER PLAN**

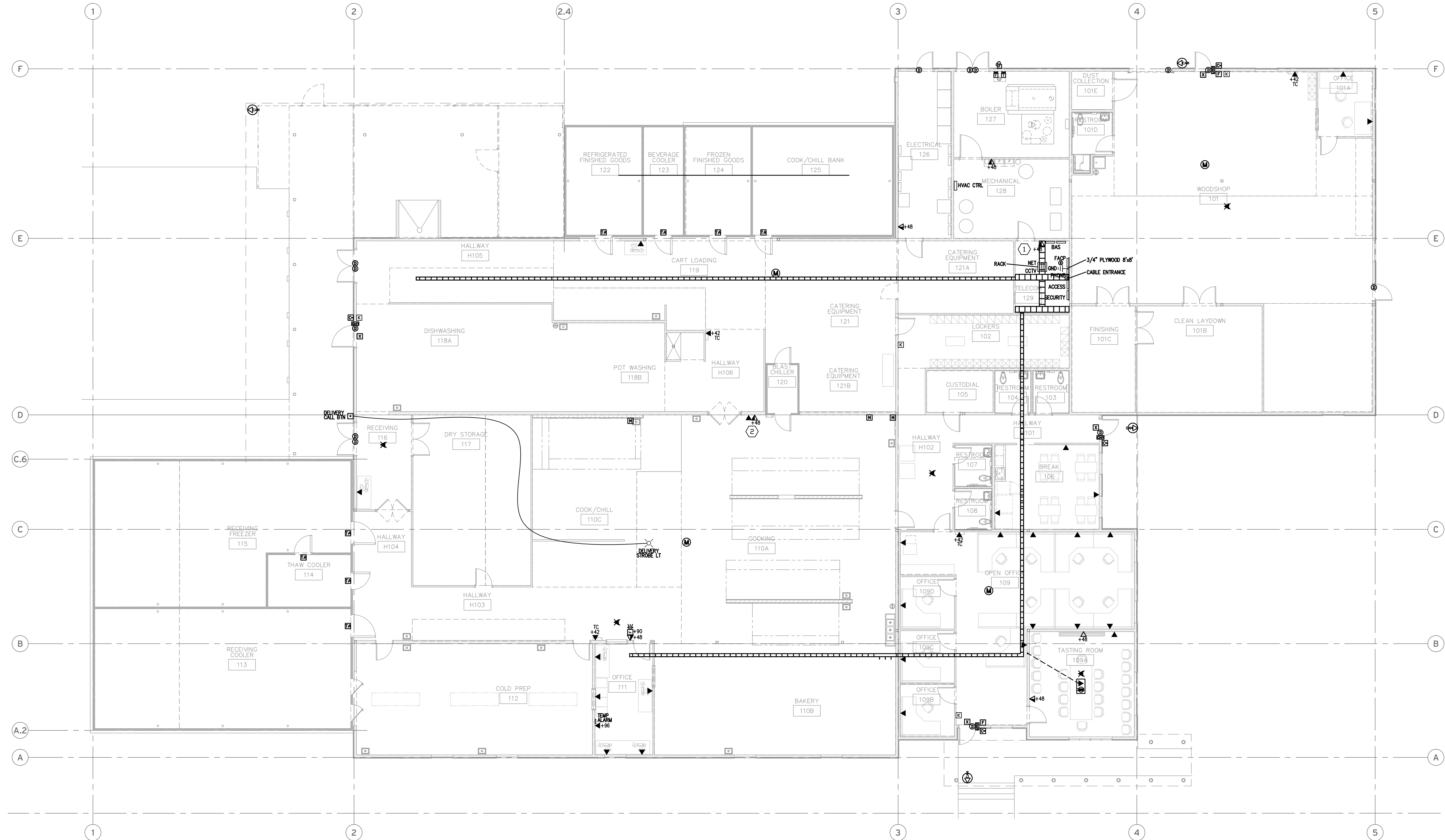
SHEET NUMBER  
**E3**

**GENERAL NOTES:**

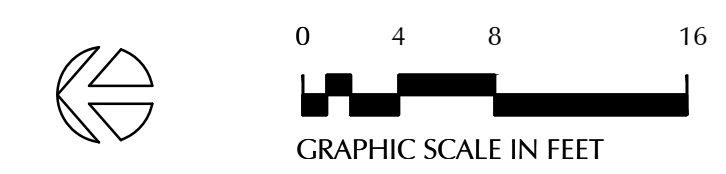
1. INSTALL 3/4" EMT, BUSHED & STUBBED INTO CEILING SPACE (TYP) FOR TELECOM CABLE(S), AND INSTALL 1-GANG MUDRING AT OUTLET LOCATIONS SHOWN. OWNER TO CLARIFY REQUIREMENTS AND PROVIDE V/D CABLING, FACEPLATE TRIMS, & EQUIPMENT.
2. VERIFY CONTROLS ROUGH-IN W/MECH CONTRACTOR. PROVIDE MUDRING AND 1/2" CONDUIT CHASE TO ACCESSIBLE SPACE FOR THERMOSTATS OR SENSORS. MECHANICAL CONTROLS & CABLING BY OTHERS. DO NOT ROUGH-IN PER THIS PLAN - COORDINATE AS REQ'D, VERIFY LOCATIONS.
3. CONFIRM REQ'TS & COORDINATE WITH CONTRACTOR FOR ROUGH-IN AS REQ'D AT DOORS OR ELSEWHERE FOR CCTV, ACCESS CONTROL, & SECURITY DEVICES. DO NOT ROUGH-IN PER THIS PLAN - SOME DEVICES SHOWN FOR REFERENCE ONLY.
4. CONFIRM REQ'TS & COORDINATE WITH CONTRACTOR FOR ROUGH-IN AS REQ'D FOR FIRE ALARM SYSTEM. DO NOT ROUGH-IN PER THIS PLAN - SOME DEVICES SHOWN FOR REFERENCE ONLY.
5. COORDINATE WITH MECHANICAL & OTHER TRADES FOR INSTALLATION OF WAP IN OPEN CEILING AREAS. PROVIDE LINE OF SIGHT FROM FLOOR TO WAP EQUIPMENT, DO NOT LOCATE ABOVE OR BEHIND DUCTS, ETC.

**KEYED NOTES:**

1. OWNER TO PROVIDE LADDER & TELECOM RACK AND WIRE MANAGEMENT IN TELECOM CLOSET.
2. LOCATION FOR OWNER-PROVIDED STAND-UP WORKSTATION FOR RECIPES AND LABELS, WITH WALL PHONE.



**SIGNAL PLAN**  
SCALE: 1/8"=1'-0"



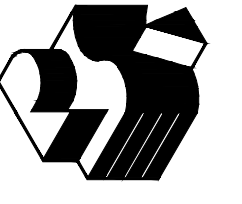
PROJECT NUMBER: 65575  
CHECK BY: A. Gibbs  
DESIGN BY: G. Anderson  
DRAWN BY: A. Gibbs  
DESIGN DATE: May 2, 2014

- REVISIONS
- 06/18/14 SD CHECK
  - 07/16/14 50% DD SET
  - 08/08/14 100% DD SET
  - 09/08/14 DD UPDATE
  - 11/07/14 GMP CONFORMED



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PROJECT  
**Central Kitchen and Woodshop, Univ of Oregon Housing Dept.**

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SHEET TITLE  
**LOW VOLTAGE ELECTRICAL PLAN**

SHEET NUMBER  
**E4**

**GENERAL NOTES:**

- SEE FLOOR PLANS FOR LOCATIONS OF EQUIPMENT.
- SERVICE & DISTRIBUTION EQUIPMENT SHALL BE FULLY RATED FOR AVAILABLE FAULT CURRENT. VERIFY WITH EUBB THAT AFC DOES NOT EXCEED 30,000 AMPS RMS AT POINT OF CONNECTION.
- PROVIDE CAT 60 LOCKS ON POWER PANEL DOORS.
- PROVIDE LIGHTING CONTROL PANEL FOR BOTH EXTERIOR & INTERIOR LIGHTING CIRCUITS. CONTROL WILL BE ARRANGED BY TIME SCHEDULE & ASTRONOMIC TIME OR PHOTO CELL WITH MANUAL OVERRIDES.
- COORDINATE MAJOR MECHANICAL EQUIPMENT REQUIREMENTS & VERIFY RATINGS WITH CONTRACTOR PRIOR TO ROUGH-IN AND PURCHASING SERVICE GEAR.
- PROVIDE SHORT-CIRCUIT AND PROTECTIVE DEVICE COORDINATION STUDY. UPON COMPLETION, PERFORM ARC FLASH HAZARD ANALYSIS TO IDENTIFY THE SHOCK HAZARD AND SUITABLE PPE REQUIRED AT ALL PANELS. PROVIDE REQUIRED LABELS. O&M DOCUMENTS SHALL INCLUDE COPY OF PDF-FORMAT FILES FOR SKM SOFTWARE.

**KEYED NOTES:**

- INSTALL TRANSFORMER VAULT & DUCTING PER EUBB REQMTS. SEE SITE PLAN.
- UNDERGROUND SERVICE LATERAL. PROVIDE CONDUCTOR LENGTH PER EUBB (EST 30') INSIDE VAULT FOR UTILITY SECONDARY CONDUCTOR CONNECTIONS. LATERAL CONSISTS OF (6) SETS OF 3" SCHED-40 PVC C. WITH (3) 400 KCHL AL PHASE & (1) 250 KCHL AL NEUTRAL EACH SET. APPLY DUCT SEAL TO ALL CONDUITS PER NEC 230.8.
- PROVIDE 1" METALLIC RACEWAY NO LONGER THAN 40'; NO JUNCTIONS OR CONDUIT BODIES FROM METERING SECTION OF SERVICE EQUIPMENT TO EXTERIOR METER BASE. CIRCLE-WAY (M415 OR EQ) AT 6"16" & EUBB TO PROVIDE CTS FOR CONTRACTOR TO INSTALL, MARKED SIDE TOWARD LINE. EUBB TO PROVIDE & INSTALL METER. REF EUBB POLICIES AND PROCEDURES MANUAL.
- PROVIDE FACTORY-INSTALLED, OWNER-APPROVED SURGE PROTECTIVE DEVICE.
- FEEDERS SIZED 100 AMPS OR LARGER MAY USE ALUMINUM CONDUCTORS UON. WIRE SIZE 300 KCHL AL MAY NOT BE AVAILABLE, SO USE 350 KCHL. USE COMPRESSION LUGS AT ALL TRANSFORMER TERMINATIONS.
- INSTALL PLAQUES PER N.E.C. ARTICLE 100.7.1.
- EXAMPLE OF OPTIONAL STANDBY POWER SOURCE IS 500 KW DIESEL ENGINE-DRIVEN, TRAILER-MOUNTED GENERATOR PROVIDED WITH WELDING LEADS FOR 4-WIRE + GROUND HOOK-UP.
- PROVIDE INTERLOCK AT MAIN BREAKER USING KIRK KEYS CONFIGURED SO THAT ONLY THE UTILITY FEED OR THE GENERATOR FEED CAN BE TURNED ON AT A TIME, THAT IS, THE BREAKERS CANNOT BE TURNED ON WITHOUT THE KEY, AND THE KEY SHALL BE CAPTIVE IN THE BREAKER ONCE IT IS TURNED ON.
- OPTIONAL QUICK-CONNECT ASSEMBLY FOR STANDBY GENERATOR LEADS.

PROJECT NUMBER: 65575  
 CHECK BY: A. Gibbs  
 DESIGN BY: G. Anderson  
 DRAWN BY: A. Gibbs  
 DESIGN DATE: May 2, 2014

- REVISIONS
- 06/18/14 SCHEM DESIGN
  - 07/10/14 50% DD SET
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  - 09/08/14 DD UPDATE
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**Central Kitchen and Woodshop, Univ of Oregon Housing Dept.**

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SHEET TITLE  
**ELECTRICAL ONE-LINE RISER DIAGRAM**

SHEET NUMBER  
**E5**

3 PHASE, 3 WIRE + GROUND

AMPS	MARK	MIN PVC CONDUIT SIZE	PHASE CONDUCTORS	GROUND (COPPER)
20A	1A	3/4"	3-#12	1-#10
30A	2A	3/4"	3-#10	1-#10
40A	3A	3/4"	3-#8	1-#10
50A	4A	3/4"	3-#6	1-#10
70A	6A	1"	3-#4	1-#8
90A	7A	1 1/4"	3-#3	1-#8
100A	8A	1 1/2"	3-#1/0 AL	1-#8
110A	9A	1 1/2"	3-#1/0 AL	1-#6
120A	10A	1 1/2"	3-#1/0 AL	1-#6
125A	11A	1 1/2"	3-#2/0 AL	1-#6
150A	12A	2"	3-#3/0 AL	1-#6
175A	13A	2"	3-#4/0 AL	1-#6
200A	14A	2"	3-250kcm AL	1-#6
225A	15A	2 1/2"	3-300kcm AL	1-#4
250A	16A	2 1/2"	3-350kcm AL	1-#4
350A	18A	2x[2"]	2x[3-#4/0]	2x[1-#3]

3 PHASE, 4 WIRE + GROUND (CURRENT CARRYING NEUTRAL)

AMPS	MARK	MIN PVC CONDUIT SIZE	PHASE, NEUTRAL CONDUCTORS	GROUND (COPPER)
40A	3B	3/4"	4-#8	1-#10
50A	4B	1"	4-#6	1-#10
70A	6B	1 1/4"	4-#4	1-#8
90A	8B	1 1/4"	4-#3	1-#8
100A	9B	1 1/2"	4-#1/0 AL	1-#8
125A	11B	2"	4-#2/0 AL	1-#6
150A	12B	2"	4-#3/0 AL	1-#6
175A	13B	2"	4-#4/0 AL	1-#6
200A	14B	2 1/2"	4-250kcm AL	1-#6
225A	15B	3"	4-300kcm AL	1-#4
250A	16B	3"	4-350kcm AL	1-#4
400A	20B	2x[2 1/2"]	2x[4-250kcm] AL	2x[1-#3]
600A	23B	2x[3 1/2"]	2x[4-500kcm] AL	2x[1-#1]
750A	24B	3x[3"]	3x[4-350kcm] AL	3x[1-#1/0]
800A	25B	3x[3"]	3x[4-400kcm] AL	3x[1-#1/0]
1000A	26B	4x[3"]	4x[4-350kcm] AL	4x[1-#2/0]
1200A	28B	4x[3 1/2"]	4x[4-500kcm] AL	4x[1-#3/0]

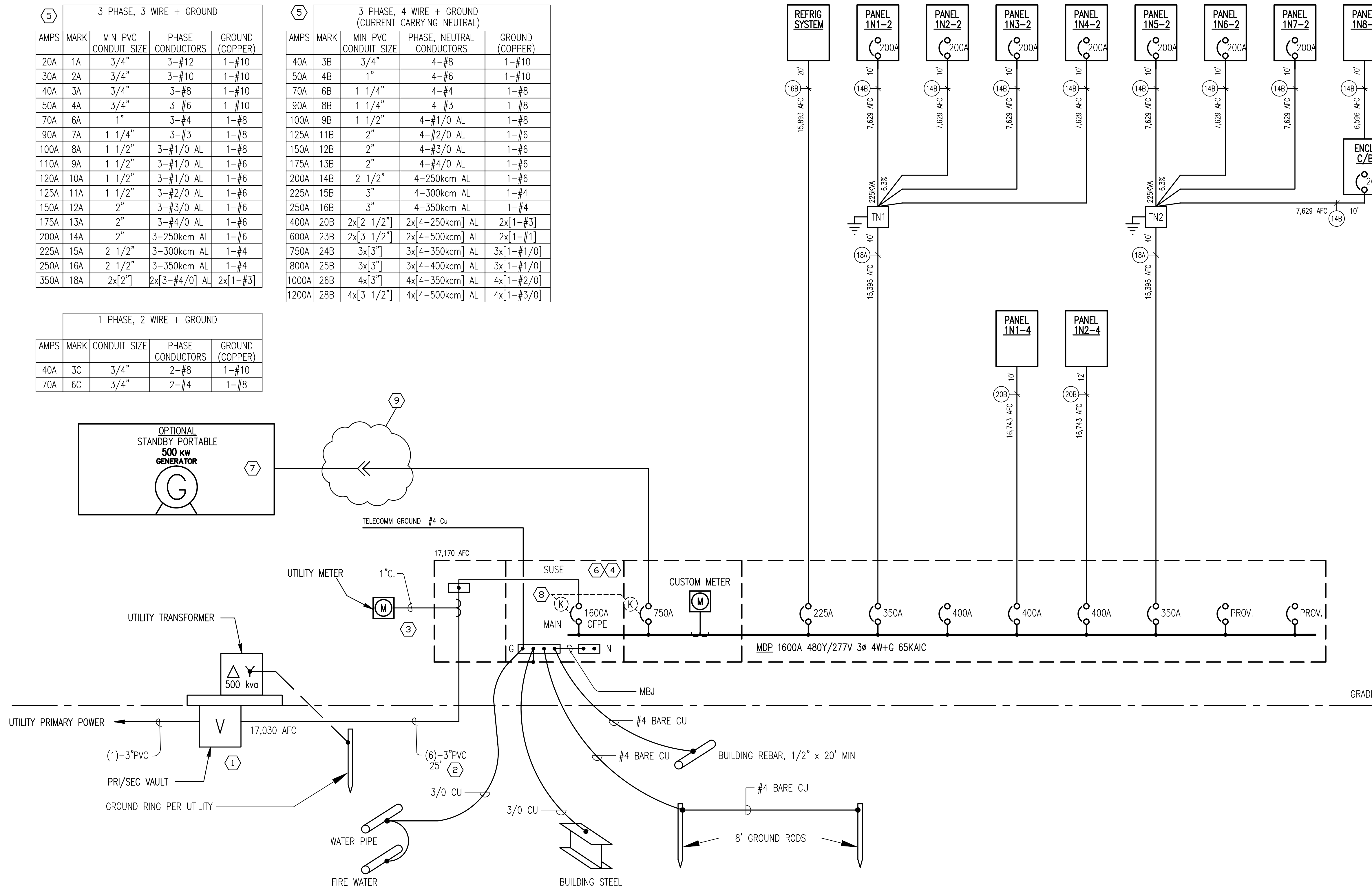
1 PHASE, 2 WIRE + GROUND

AMPS	MARK	CONDUIT SIZE	PHASE CONDUCTORS	GROUND (COPPER)
40A	3C	3/4"	2-#8	1-#10
70A	6C	3/4"	2-#4	1-#8

CONNECTED LOAD ESTIMATE SUMMARY

TYPE CLASSIFICATION	NORMAL	OPTIONAL STANDBY EQUIPMENT LOADS	TOTAL	CODE CALC* FOR SERVICE & FEEDERS
LIGHTING	13.5 KVA	14.0 KVA	27.5 KVA	62.2 KVA
RECEPTACLES/MISC	35.5 KVA	11.1 KVA	46.6 KVA	incl w/appl
EQUIPMENT/MOTORS	69.4 KVA	154.0 KVA	223.4 KVA	410.8 KVA
REFRIGERATION/HVAC	14.2 KVA	250.6 KVA	264.8 KVA	incl w/motor
RESISTANCE HEAT	427.8 KVA	193.2 KVA	621.0 KVA	405.5 KVA
RECEPT/APPLIANCES	incl above	incl above	incl above	73.6 KVA
<b>TOTAL KVA</b>	<b>560.4 KVA</b>	<b>622.9 KVA</b>	<b>1,183.3 KVA</b>	<b>952.1 KVA</b>
<b>TOTAL AMPS AT 480V, 3φ, 4W</b>	<b>674 A</b>	<b>750 A</b>	<b>1,424 A</b>	<b>1,146 A</b>

- \*CALC. NOTES:  
 1. LOADS BASED ON 2014 N.E.C. ARTICLE 220, PART III. DEMAND FACTORS ALLOWED.  
 2. SERVICE SIZE AMPERAGE INCLUDES 125% OF CONTINUOUS LOADS.



ONE-LINE RISER DIAGRAM  
 SCALE: NONE

**GENERAL NOTES:**

1. WIRING METHOD IS ENT FOR HOME RUNS TO PANELS
2. BRANCH HOME RUN CONDUCTORS TO BE OVSIZED AS REQUIRED TO LIMIT VOLTAGE DROP FROM PANEL TO NO MORE THAN 3%. PROPOSED WIRE SIZES ARE SHOWN, BUT VERIFY EQUIPMENT NAMEPLATE LOADS PRIOR TO PULLING WIRE.
3. COORDINATE WITH MECHANICAL & GENERAL CONTRACTORS FOR ROOF PENETRATIONS. USE ACCESS WITHIN EQUIPMENT CURBS WHERE POSSIBLE. RUN CONDUIT IN A MANNER TO REASONABLY MINIMIZE VISIBILITY FROM STREET.

**KEYED NOTES:**

1. INSTALL PHOTOCELL FOR EXTERIOR LIGHTS CONTROL. PLACE BEHIND MECHANICAL EQUIPMENT SCREEN.
2. EQUIPMENT #0 (REFR) PROVIDES BRANCH CIRCUITS FOR EVAPORATOR FANS AND DEFROST HEATERS IN WALK-INS ON GRADE LEVEL. SEE REFRIGERATION VENDOR DOCUMENTS AND SHEET E3 FOR CIRCUITS AND APPROXIMATE LOCATIONS.
3. COMMON HOOD EXHAUST SYSTEM RUNS TWO FANS IN PARALLEL FROM ONE VFD DRIVE. INSTALL SEPARATE RUNNING OVERLOAD PROTECTION FOR EACH MOTOR.

PROJECT NUMBER  
**65575**

CHECK BY  
**A. Gibbs**

DESIGN BY  
**G. Anderson**

DRAWN BY  
**A. Gibbs**

DESIGN DATE  
**May 2, 2014**

REVISIONS

0	06/18/14	SD CHECK
1	07/16/14	50% DD SET
2	08/08/14	100% DD SET
3	09/08/14	DD UPDATE
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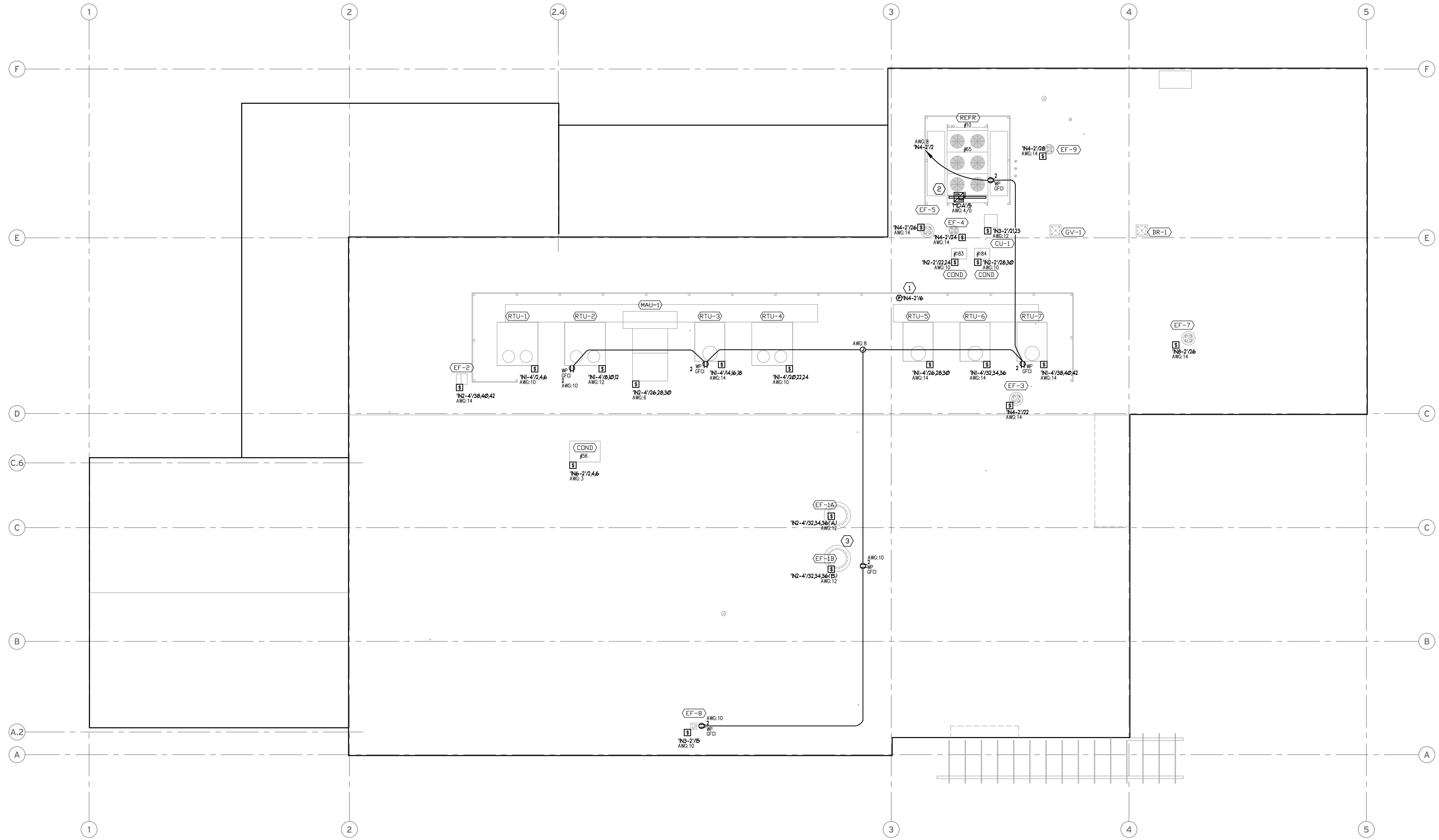
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SHEET TITLE  
**ELECTRICAL POWER DETAILS OF ROOF PLAN**

SHEET NUMBER  
**E6**



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

