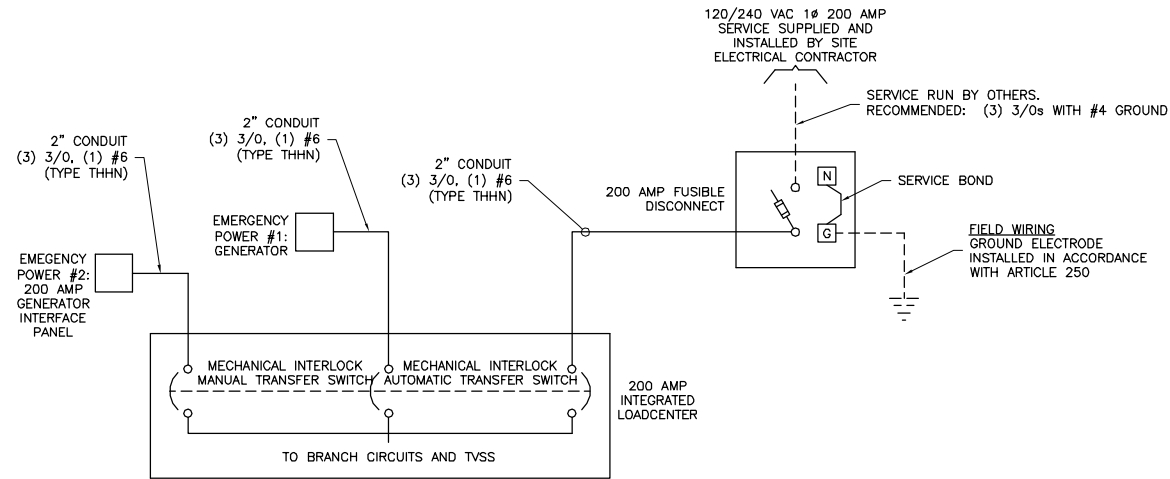


**ELECTRICAL NOTES**

- SUBMITTAL OF BID INDICATES THAT THE CONTRACTOR IS COGNIZANT OF ALL JOB SITE CONDITIONS AND WORK TO BE PERFORMED UNDER THIS CONTRACT.
- CONTRACTOR SHALL PERFORM ALL VERIFICATIONS, OBSERVATION TESTS, AND EXAMINATION WORK PRIOR TO ORDERING OF ANY EQUIPMENT AND THE ACTUAL CONSTRUCTION. CONTRACTOR SHALL ISSUE A WRITTEN NOTICE OF ALL FINDINGS TO THE PROJECT MANAGER LISTING ALL MALFUNCTIONS, FAULTY EQUIPMENT AND DISCREPANCIES.
- VERIFY HEIGHTS WITH PROJECT MANAGER PRIOR TO INSTALLATION.
- THESE PLANS ARE DIAGRAMMATIC ONLY, FOLLOW AS CLOSELY AS POSSIBLE.
- CONTRACTOR SHALL COORDINATE ALL WORK BETWEEN TRADES AND ALL OTHER SCHEDULING AND PROVISIONARY CIRCUMSTANCES SURROUNDING THE PROJECT.
- CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIALS, INSURANCE, EQUIPMENT, INSTALLATION CONSTRUCTION TOOLS, TRANSPORTATION, ETC., FOR COMPLETE AND FUNCTIONALLY OPERATING SYSTEMS ENERGIZED AND READY FOR USE THROUGHOUT AS INDICATED ON DRAWINGS, AS SPECIFIED HEREIN AND/OR AS OTHERWISE REQUIRED.
- ALL MATERIALS AND EQUIPMENT SHALL BE NEW AND IN PERFECT CONDITION WHEN INSTALLED AND SHALL BE OF THE BEST GRADE AND OF THE SAME MANUFACTURER THROUGHOUT FOR EACH CLASS OR GROUP OF EQUIPMENT. ELECTRICAL MATERIALS SHALL BE LISTED AND APPROVED BY UNDERWRITER'S LABORATORIES AND SHALL BEAR THE INSPECTION LABEL "J" WHERE SUBJECT TO SUCH APPROVAL. MATERIALS SHALL MEET WITH APPROVAL OF ALL GOVERNING BODIES HAVING JURISDICTION OVER THE CONSTRUCTION. MATERIALS SHALL BE MANUFACTURED IN ACCORDANCE WITH ALL CURRENT APPLICABLE STANDARDS ESTABLISHED BY ANSI, NEMA AND NBFU. ALL MATERIALS AND EQUIPMENT SHALL BE APPROVED FOR THEIR INTENDED USE AND LOCATION.
- ALL WORK SHALL COMPLY WITH ALL APPLICABLE GOVERNING STATE, COUNTY AND CITY CODES AND OSHA, NFPA, NEC & ASHRAE REQUIREMENTS.
- ENTIRE JOB SHALL BE GUARANTEED FOR A PERIOD OF ONE (1) YEAR AFTER THE DATE OF JOB ACCEPTANCE. ALL WORK, MATERIAL AND EQUIPMENT FOUND TO BE FAULTY DURING THAT PERIOD SHALL BE CORRECTED AT ONCE, UPON WRITTEN NOTIFICATION, AT THE EXPENSE OF THE CONTRACTOR.
- PROPERLY SEAL ALL PENETRATIONS. PROVIDE UL LISTED FIRE-STOPS WHERE PENETRATIONS ARE MADE THROUGH FIRE-RATED ASSEMBLIES. WATER-TIGHT USING SILICONE SEALANT.
- DELIVER ALL BROCHURES, OPERATING MANUALS, CATALOGS AND SHOP DRAWINGS TO THE PROJECT MANAGER AT JOB COMPLETION. PROVIDE MAINTENANCE MANUALS FOR MECHANICAL EQUIPMENT. AFFIX MAINTENANCE LABELS TO MECHANICAL EQUIPMENT.
- ALL CONDUCTORS SHALL BE COPPER. MINIMUM CONDUCTOR SIZE SHALL BE #12 AWG., UNLESS OTHERWISE NOTED. CONDUCTORS SHALL BE TYPE THHW, RATED IN ACCORDANCE WITH NEC 110-14(C).
- ALL CIRCUIT BREAKERS, FUSES AND ELECTRICAL EQUIPMENT SHALL HAVE AN INTERRUPTING RATING NOT LESS THE MAXIMUM INTERRUPTING CURRENT TO WHICH THEY MAY BE SUBJECTED.
- THE ENTIRE ELECTRICAL INSTALLATION SHALL BE GROUNDED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE, ARTICLES 250 & 810 AND THE UTILITY COMPANY STANDARDS.
- CONDUIT:
  - RIGID CONDUIT SHALL BE U.L. LABEL GALVANIZED ZINC COATED WITH ZINC INTERIOR AND SHALL BE USED WHEN INSTALLED IN OR UNDER CONCRETE SLABS, IN CONTACT WITH THE EARTH, UNDER PUBLIC ROADWAYS, IN MASONRY WALLS OR EXPOSED ON BUILDING EXTERIOR. RIGID CONDUIT IN CONTACT WITH EARTH SHALL BE 1/2 LAPPED WRAPPED WITH HUNTS WRAP PROCESS NO. 3.
  - ELECTRICAL METALLIC TUBING SHALL HAVE U.L. LABEL, FITTINGS SHALL BE GLAND RING COMPRESSION TYPE. EMT SHALL BE USED ONLY FOR INTERIOR RUNS.
  - LIQUID-TIGHT FLEXIBLE METAL CONDUIT SHALL BE U.L. LISTED AND SHALL BE USED AT FINAL CONNECTIONS TO MECHANICAL EQUIPMENT & RECTIFIERS AND WHERE PERMITTED BY CODE. ALL CONDUIT IN EXCESS OF SIX FEET IN LENGTH SHALL CONTAIN A FULL-SIZE GROUND CONDUCTOR.
  - CONDUIT RUNS SHALL BE SURFACE MOUNTED ON CEILINGS OR WALLS UNLESS NOTED OTHERWISE. ALL CONDUIT SHALL RUN PARALLEL OR PERPENDICULAR TO WALLS, FLOOR, CEILING, OR BEAMS. VERIFY EXACT ROUTING OF ALL EXPOSED CONDUIT WITH THE PROJECT MANAGER PRIOR TO INSTALLING.
  - PVC CONDUIT MAY BE PROVIDED ONLY WHERE SHOWN, OR IN UNDERGROUND INSTALLATIONS. PROVIDE UV-RESISTANT CONDUIT WHERE EXPOSED TO THE ATMOSPHERE. PROVIDE GROUND CONDUCTOR IN ALL PVC RUNS; EXCEPT WHERE PERMITTED BY CODE TO OMIT.
- ALL ELECTRICAL EQUIPMENT SHALL BE LABELED WITH PERMANENT ENGRAVED PLASTIC LABELS. BACKGROUND SHALL BE BLACK WITH WHITE LETTERS; EXCEPT AS REQUIRED BY CODE TO FOLLOW A DIFFERENT SCHEME.
- UPON COMPLETION OF WORK, CONDUCT CONTINUITY, SHORT CIRCUIT, AND FALL OF POTENTIAL GROUNDING TESTS FOR APPROVAL. SUBMIT TEST REPORTS TO PROJECT MANAGER. GROUNDING SYSTEM RESISTANCE SHALL NOT EXCEED 5 OHMS. IF THE RESISTANCE VALUE IS EXCEEDED, NOTIFY THE PROJECT MANAGER FOR FURTHER INSTRUCTION ON METHODS FOR REDUCING THE RESISTANCE VALUE.
- CLEAN PREMISES OF ALL DEBRIS RESULTING FROM WORK AND LEAVE WORK IN A COMPLETE AND UNDAMAGED CONDITION. LEGALLY DISPOSE OF ALL REMOVED, UNUSED AND EXCESS MATERIAL GENERATED BY THE WORK OF THIS CONTRACT. DELIVER ITEMS INDICATED ON THE DRAWINGS TO THE OWNER IN GOOD CONDITION. OBTAIN SIGNED RECEIPT UPON DELIVERY.
- COORDINATE WITH UTILITY COMPANY FOR CONNECTION OF TEMPORARY AND PERMANENT POWER TO THE SITE. THE TEMPORARY POWER AND ALL HOOKUP COSTS SHALL BE PAID BY THE CONTRACTOR.
- VERIFY ALL EXISTING CIRCUITRY PRIOR TO REMOVAL AND NEW WORK. MAINTAIN POWER TO ALL OTHER AREAS & CIRCUITS NOT SCHEDULED FOR REMOVAL.
- RED LINED AS-BUILT PLANS SHALL BE PROVIDED TO THE CONSTRUCTION MANAGER.

- INDOOR CONDUCTORS SHALL BE INSTALLED IN EMT UNLESS NOTED OTHERWISE. OUTDOOR CONDUCTORS SHALL BE INSTALLED IN RIGID GALVANIZED STEEL CONDUIT UNLESS NOTED OTHERWISE.
- NY SMSA TO PROVIDE SURGE SUPPRESSOR FOR TELCO BOARD SERVING NEW EQUIPMENT, THE SURGE SUPPRESSOR TO BE INSTALLED BY CONTRACTOR AND GROUNDED TO MGB.
- SEAL AROUND PENETRATIONS RESULTING FROM CONDUIT ROUTING WITH FIRE-STOPPING FOAM SEALANT HAVING A UL-LISTED RATING OF 2 HOURS. HAMMER-DRILLING IS NOT PERMITTED. CORE-DRILLING TO BE COORDINATED WITH BUILDING OWNER'S REPRESENTATIVE.
- PROVIDE (2) FUSES OF SIZE RECOMMENDED BY CONDENSING UNIT MANUFACTURER.
- PROVIDE SMOKE DETECTOR COMPATIBLE WITH EXISTING BUILDING FIRE ALARM SYSTEM. TIE TO LOCAL ZONE. COORDINATE WITH BUILDING OWNER'S FIRE ALARM SYSTEM CONTRACTOR. PROVIDE SENTROL 449CRT PHOTOELECTRIC SMOKE DETECTOR WITH AUXILIARY RELAY FOR ACU-1 SHUTDOWN.
- PROVIDE GENERATOR CONNECTOR RECEPTACLE AND ENCLOSED CIRCUIT BREAKER IN LOCATION SUITABLE FOR PORTABLE GENERATOR ACCESS. COORDINATE WITH BUILDING OWNER FOR EXACT LOCATION. PAINT TO MATCH EXISTING WALL COLOR.
- PROVIDE ALARM TERMINAL CABINET HIGH/LOW ALARMS MOUNTED ON TELCO BOARD.
- PROVIDE DOOR ALARM CONTACT.



**1 POWER DIAGRAM**  
E-2 NTS

LOAD	DESCRIPTION	QTY.	UNIT V.A.	LOAD PER PHASE (VA)		WIRE COLOR	LOADS CONTINUOUS	LOADS NON-CONT	LOADS SUB-PANEL	WIRE SIZE	GROUNDING WIRE SIZE	TRIP	TRIP	GROUNDING WIRE SIZE	WIRE SIZE	LOADS SUB-PANEL	LOADS NON-CONT	LOADS CONTINUOUS	WIRE COLOR	LOAD PER PHASE (VA)		UNIT V.A.	QTY.	DESCRIPTION	
				PHASE																PHASE					
				A	B															A	B				
1	HVAC #1	1	3324	3324		BLK		X		8	(10)	40	40	(10)	8				BLK	3324		3324	1	HVAC #2	2
3		1	3324		3324	RED													RED		3324	3324	1		4
5	RECTIFIER #1	1	800	800		BLK	X			10	10	30	20	(12)	12		X		BLK	2360		2360	1	GFCI RECEPTACLE & BLOCK HEATER BAT. CHARGER & BAT. WARMER	6
7		1	800		800	RED							20	-	12			X	RED		900	180	5	INTERIOR RECEPTACLES & CORD REEL	8
9	RECTIFIER #2	1	800	800		BLK	X			10	10	30	20	12	12			X	BLK	143		64/15	2/1	INTERIOR LIGHTS	10
11		1	800		800	RED							20	12	12			X	RED		300	150	2	EXTERIOR LIGHTS	12
13	RECTIFIER #3	1	800	800		BLK	X			10	10	30	20	(12)	12			X	BLK	360		180	2	EXTERIOR GFCI RECEPTACLES	14
15		1	800		800	RED							20						RED		-	-	-	SPARE BREAKER	16
17	RECTIFIER #4	1	800	800		BLK	X			10	10	30							BLK						18
19		1	800		800	RED													RED						20
21	RECTIFIER #5	1	800	800		BLK	X			10	10	30							BLK						22
23		1	800		800	RED													RED						24
25	RECTIFIER #6	1	800	800		BLK	X			10	10	30							BLK						26
27		1	800		800	RED													RED						28
29	RECTIFIER #7	1	800	800		BLK	X			10	10	30							BLK						30
31		1	800		800	RED													RED						32
33	RECTIFIER #8	1	800	800		BLK	X			10	10	30							BLK						34
35		1	800		800	RED													RED						36
37	RECTIFIER #9	1	800	800		BLK	X			10	10	30							BLK						38
39		1	800		800	RED													RED						40
41						BLK													BLK						42
SUBTOTAL CONTINUOUS				7200	7200															503	1200	SUBTOTAL CONTINUOUS		TOTAL KVA CONT x 1.25	20.1
SUBTOTAL NON-CONTINUOUS				3324	3324															3324	3324	SUBTOTAL NON-CONTINUOUS		TOTAL KVA NON-CONTINUOUS	13.3
SUBTOTAL SUB-PANEL				-	-															-	-	SUBTOTAL SUB-PANEL		TOTAL KVA SUB-PANEL	-
PANEL DESIGNATION: ELECTRICAL PANEL (ITEM 1)																								TOTAL KVA	33.4
MAIN LUGS/A		MAIN BREAKER: 200 AMP		MAIN BREAKER A.I.C. RATING: 22,000 A.I.C		BRANCH BREAKER A.I.C. RATING: 10,000 A.I.C		BRANCH BREAKER TYPE: SQUARE D - BOLT ON																TOTAL AMPS	139.2
VOLTAGE: 120/240		CYCLE: 60		PHASE: 1		WIRES: 3		MAIN COPPER BUS: 200 AMPS		NEUTRAL: 200 AMPS															

**2 PANEL SCHEDULE**  
E-2 NTS



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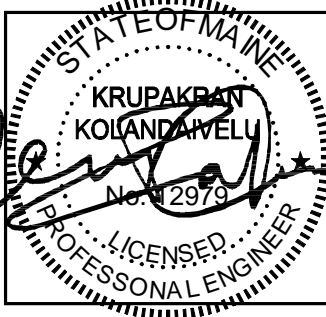


550 COCHRAN ROAD  
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ME5372  
LUCAS TREE  
636 RIVERSIDE STREET  
PORTLAND, ME 04103  
CITY OF PORTLAND

**REVISIONS**

REV	DATE	DESCRIPTION	BY
3	06/06/14	REVISED PER COMMENTS	DAK
2	05/22/14	PRELIMINARY CDs	DAK
1	03/20/14	REVISED PER COMMENTS	DAK
0	10/10/13	PRELIMINARY ZDs	DAK



KRUPAKARAN KOLANDAVELU P.E.  
ME PROFESSIONAL ENGINEER LIC. #12979

**ELECTRICAL PANEL SCHEDULE, DIAGRAM & NOTES**

**E-2**