

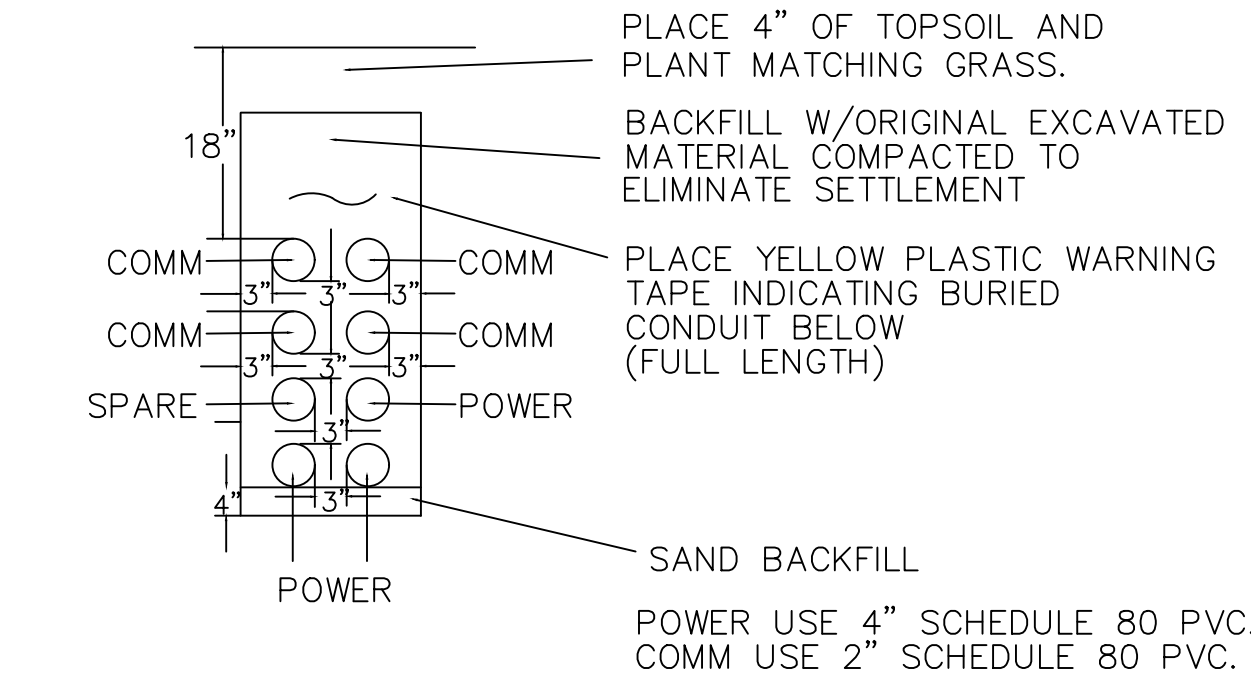
1 POWER PLAN  
E2.01 3/16" = 1'-0"

LOW VOLTAGE SYMBOL LIST	
SYMBOL	DESCRIPTION
◀	LOW VOLTAGE OUTLET, SINGLE GANG BOX WITH 3/4" ENT STUB (WITH PULL STRING) TO ACCESSIBLE CEILING SPACE.
◀	COMBINATION TELE/DATA OUTLET, 4X4 BOX WITH CAT 6 VOICE CABLE BACK TO BOARD IN COMMUNICATION CLOSET AND CAT 6 CABLE BACK TO RACK IN COMMUNICATION CLOSET, 3' SLACK EACH, CABLES TO BE LABELED (BOTH ENDS), TESTED, AND TERMINATED. COMBINATION RJ-11 AND RF-45 COVERPLATE.
⊗	ELECTRONIC LOCK SET (CARD READER/PUSH BUTTON) SYSTEM: SINGLE GANG BOX MOUNTED ON WALL WITH CAT6 CABLE, CABLE TO RUN FROM LOCATIONS TO PATCH PANEL, CABLES TO BE LABELED (BOTH ENDS), TESTED, AND TERMINATED.

POWER SYMBOL LIST	
ALL JUNCTION BOXES AND OUTLETS SHALL HAVE A MECHANICALLY PRINTED PERMANENT LABEL ATTACHED INDICATING WHICH CIRCUIT AND PANEL SERVES THE JUNCTION BOX OR OUTLET. PRINTING MINIMUM HEIGHT 3/16"	
OUTLET AND SWITCH COLOR SHALL BE AS DIRECTED BY THE ARCHITECT. OUTLET AND SWITCH PLATES SHALL BE STAINLESS STEEL.	
SYMBOL	DESCRIPTION
⊕	DUPLEX RECEPTACLE
⊕	GFCI RECEPTACLE, WP DENOTES WEATHERPROOF COVER. COORDINATE MOUNTING HEIGHT AT COUNTERS AND CASEWORK
⊕	QUAD RECEPTACLE
⊕	CEILING MOUNTED RECEPTACLE
⊕	JUNCTION BOX EQUIPMENT CONNECTION
⊕	FUSED DISCONNECT SWITCH AND MOTOR CONNECTION. PROVIDE FUSES PER NAMEPLATE DATA.
⊕	COMMERCIAL DRYER 208V
⊕	COMMERCIAL WASHER 208V
⊕	MOTOR CONNECTION (DISPOSER, EXHAUST FAN)
⊕	ABOVE CEILING FLUSH VALVE TRANSFORMER, COORDINATE WITH PLUMBING CONTRACTOR FOR LOCATION OF TRANSFORMER.
⊕	FLUSH VALVE
⊕	TV
⊕	MOUNT RECEPTACLE 60" AFF FOR WALL MOUNTED TV.
⊕	WIREMOLD 4000 WITH DUAL CHANNEL ACCESSORIES, COORDINATE MOUNTING HEIGHT WITH OWNER PRIOR TO INSTALLATION ABOVE CAGE AREAS.
⊕	208V RECEPTACLE
⊕	DENOTES SMT AND POWER WASH SYSTEM
+44	APPROXIMATE MOUNTING HEIGHT, MOUNT ABOVE COUNTER. COORDINATE WITH COUNTER INSTALLER PRIOR TO ROUGH-IN.
ACU	PROVIDE RECEPTACLE IN ATTIC SPACE FOR AIR CLEANER AT SUPPLY DUCT. COORDINATE WITH MECHANICAL CONTRACTOR.

REFER TO CIVIL DRAWINGS FOR LOCATIONS OF 200KW GENERATOR AND HOT BOX. REFER TO SHEET E3.00 FOR A.T.S AND GENERATOR WIRING ON ONE LINE DIAGRAM. REFER TO PANEL SCHEDULES FOR ASSOCIATED GENERATOR EQUIPMENT POWER CONNECTIONS AND HOT BOX CONNECTIONS ON SHEET E3.00.

NOTES	
KEY	NOTE
Ⓐ	FAN RUNS CONTINUOUS
Ⓑ	CONTROLLED VIA 60 MINUTE WALL TIMER. COORDINATE WITH MECHANICAL.
Ⓒ	REFER TO SHEET E3.00 MP PANEL SCHEDULE FOR CIRCUIT LOCATIONS OF 240V, 3 PHASE, 40A, BUCK BOOST TRANSFORMER AND (1) 15A, 1PH, BREAKER TO BE CONNECTED TO CONTROL PANEL.
Ⓓ	PROVIDE (1) 20A, 1P, BREAKER FOR SMT PUMP AND (1) 20A, 1P, BREAKER FOR POWER WASH SYSTEM. REFER TO SHEET E3.00 FOR CIRCUIT LOCATIONS ON P2 PANEL SCHEDULE.



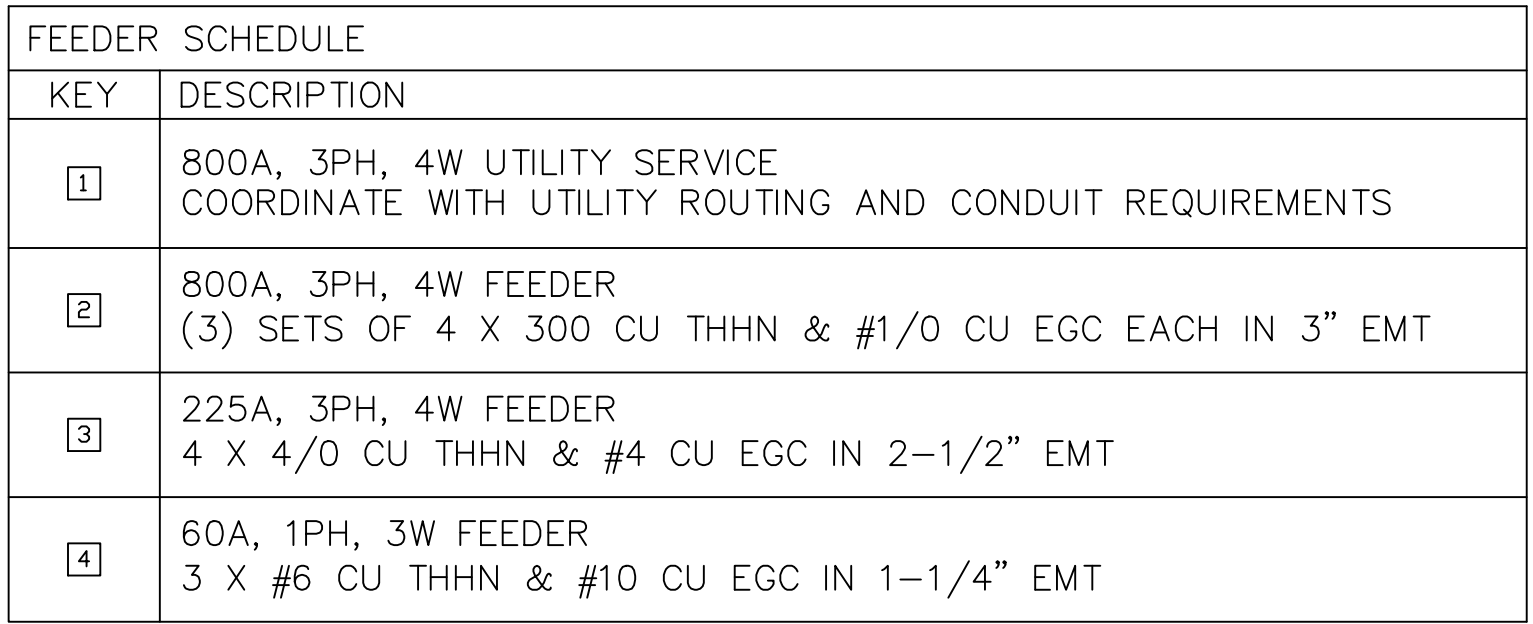
2 DUCT BANK DETAIL  
E2.01 N.T.S.



NOTES	
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Ⓐ	FAN RUNS CONTINUOUS
Ⓑ	CONTROLLED VIA 60 MINUTE WALL TIMER. COORDINATE WITH MECHANICAL.
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**rauhaus freedenfeld & associates**

ENGINE-GENERATOR SET REQUIREMENTS	
<b>GENERAL</b>	
APPLICATION	STAND-BY
RATING	200KW
VOLTAGE	208/120
FREQUENCY	60 HZ
CONFIGURATION	3PH 4 WIRE
ENVIRONMENT	500 FT ALTITUDE
BASIS	STEEL FRAME WITH PAD VIBRATION ISOLATION
LISTING	UL, NEMA
<b>ENGINE</b>	
STARTING	ELECTRIC
FUEL	DIESEL
COOLING	RADIATOR AIR COOLED CLOSED SYSTEM
LUBRICATION	GEAR PUMP
LUBE OIL FILTER	FULL FLOW WITH BYPASS VALVE
GOVERNOR	ELECTRONIC ISOCHRONOUS 0.25 PERCENT
SPEED	1800 RPM
BATTERY	LEAD ACID
BATTERY CHARGER	AUTOMATIC HEAVY DUTY INDUSTRIAL TYPE
BLOCK HEATER	THERMOSTATIC CONTROL, 120 VOLT INPUT
<b>GENERATOR</b>	
RATING	SEE ABOVE
MAIN LINE BREAKER	800A
CONSTRUCTION	SALENT POLE SYNCHRONOUS TYPE
EXCITER	BRUSHLESS
HARMONIC DISTORTION	LESS THAN 5 PERCENT
INSULATION	CLASS H
REGULATOR	DIGITAL, SOLID STATE, 1 PERCENT
<b>CONTROL PANEL</b>	
INDICATING METERS	VOLTMETER, AMMETER, FREQUENCY METER
SELECTING SWITCH	VOLTAGE, CURRENT
ENGINE SHUT-DOWN	HIGH WATER TEMP, LOW OIL PRESSURE, OVERSPEED OVERCRANK, LOW WATER LEVEL
ENGINE GAUGE	BATTERY VOLTAGE, WATER TEMP, OIL PRESSURE, RUN-TIME
ENGINE CONTROL	LOCAL MANUAL, REMOTE FROM AUTOMATIC TRANSFER SWITCH
REMOTE ALARMS	LOW COOLANT LEVEL, HIGH TEMP, LOW OIL PRESSURE OVER-CRANK, OVER-SPEED, EMERGENCY STOP LOW BATTERY
<b>HOUSING</b>	
RATING	WEATHERPROOF
ACCESS	LOCKABLE ACCESS DOORS FOR ALL MAINTENANCE
MUFFLER	CITICAL RATING
FUEL STORAGE	48 HRS
<b>COMMISSIONING</b>	
DOCUMENTATION	MANUFACTURERS SUBMITTAL DATA, FULL O&M MANUAL (2 COPIES)
TESTS	FACTORY TEST WITH DOCUMENTATION
START-UP	FACTORY AUTHORIZED TECHNICIAN TO SUPERVISE
TRAINING	FACTORY AUTHORIZED TECHNICIAN TO TRAIN OWNER REP
WARRANTY	TWO YEARS (500 HR LIMT)
<b>AUTOMATIC TRANSFER SWITCH</b>	
RATING	800A, 208/120V
POLES	THREE
EXERCISER	PROGRAMMABLE AUTOMATIC EXERCISING OF GENSET
LISTINGS	UL, NEMA
OPERATION	AUTOMATIC GENERATOR START UPON LOSS OF NORMAL POWER
CONTROL	PROGRAMMABLE TRANSFER/RE-TRANSFER DELAYS
SERVICE ENTRANCE RATED	YES
ENCLOSURE	NEMA 1
DOCUMENTATION	FACTORY SUBMITTAL DATA, O&M MANUAL (2 COPIES)
<b>BASIS OF DESIGN</b>	
KOHLER MODEL 200RE03Z 4UJ-13	

MP		800	A	FRAME	3 PH	4 W	208Y/120	VOLT								MAIN CB PANELBOARD				AIR	10KA
Q#	DESCRIPTION	CB	POL	PH	NEU	EOG	COND	VA	PH	VA	COND	EOG	PH	POL	CB	DESCRIPTION	Q#				
1	RTU-1	60	3				10	1		6000A	8160	1-1/4	8		NEU	4	30	RTU-2	2		
3	"		6							6000 B	8160				4		"	4			
5	"		6							6000 C	8160				4		"	6			
7	RTU-3	70	3			8	1-1/4			7440 A	6000	1	10		8	3	50	RTU-4	8		
9	"		4							7440 B	6000				8		"	10			
11	"		4							7440 C	6000				8		"	12			
13	RTU-5	90	3			8	1-1/4			9720 A	540	MC	12	12	1	20	ROOF TOP GFYS	14			
15	"		3							9720 B	420	MC	14	14	1	15	EF-3	16			
17	"		3							9720 C	996	1/2	10	10	2	30	EH-1 (1)	18			
19	CREMATORY		8		8	10	1			3840 A	996				10			20			
21	"		8							3840 B	996	1/2	10	10	2	30	EH-1 (2)	22			
23	CREMATORY CP		8							3840 C	996				10		"	24			
25	CREMATORY CP	15	1	14	14	14	MC	1440		1400	1/2	12	12	12	1	20	GENERATOR HTR	26			
27	EF-2	20	1	12	12	12	1/2	1176	B	100	1/2	12	12	12	1	20	GEN. BATTERY	28			
29	PROVISION									C	128	1/2	14	14	14	15	OXYGEN GEN FAN	30			
31	P1 PANEL	225	3	4/0	4/0	4	2-1/2	6781 A		11788	2-1/2	4	4/0	4/0	3	225	P2 PANEL	32			
33	"		4/0					9032 B		8371							3301	34			
35	"		4/0					6785 C		8827							340	36			
37	P3 PANEL	225	3	4/0	4/0	4	2-1/2	14099 A		120	1/2	14	14	14	3	15	SURGE PROTECT.	38			
39	"		4/0					13318 B		120							"	40			
41	"		4/0					10296 C		120							"	42			
43	LIO SCV/SCAV	60	3			10	1-1/4			3864 A	996	1/2	10	10	2	30	EH-1 (3)	44			
45	"		6					3864 B		996							"	46			
47	"		6					3864 C		996	1/2	10	10	2	30	EH-1 (4)	48				
49	PROVISION							A		996							"	50			
51	PROVISION							B									PROVISION	52			
53	PROVISION							C									PROVISION	54			
CONNECTED VA								86,272	A	719	CONNECTED AMPS				Wires based on 75° C rated CU with 75° C rated terminals						
CONNECTED VA								79,650	B	664	CONNECTED AMPS										
CONNECTED VA								73,786	C	615	CONNECTED AMPS										
TOTAL CONNECTED VA								239,708		665	AVERAGE CONNECTED AMPS										
DEMAND VA								216,668		601	N/E/C DEMAND AMPS										
Z:\Projects\cd121\HI THORIM\ PANEL (HI-THORIM).xls33c3c54																		10/15/2021 11:40			

CAPITAL PROJECT 1483  
CONSTRUCTION OF A NEW ANIMAL SHELTER FACILITY  
65 FIREMENS MEMORIAL DRIVE, POMONA, NY 10970

CHECKED BY: MTH	CONSTRUCTION SET		<input type="checkbox"/>
	DATE:	20 OCT 2021	
SCALE:	PERMIT SET		<input type="checkbox"/>
	BID SET	<input checked="" type="checkbox"/>	
PROJECT NO: # 2019 © 2019 BAIHAUS FREEDENFELD & ASSOCIATES, LLP			

**E3.00**

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ISSUE 4 SPECIFICATIONS FOR ELECTRIC INSTALLATIONS FIG. 4  
THREE PHASE PADMOUNT TRANSFORMER CONCRETE PAD SPECIFICATIONS

- NOTES:
1. SEE FIG. 3 FOR ADDITIONAL REQUIREMENTS, SPECS. AND CLEARANCE REQUIREMENTS.
  2. OPENING TO BE D X F DIMENSIONS (AFTER FORM IS REMOVED).
  3. CRUSHED STONE #3-0" BENEATH PAD.
  4. 6" X 6" X 6/6 WIRE MESH.
  5. NUMBER OF SECONDARY CONDUITS TO CUSTOMER'S EQUIPMENT TO SUIT LOAD AND SITE CONDITIONS.
  6. CONDUITS NOT TO EXTEND ABOVE PAD.
  7. PAD SHALL BE LEVEL AND ALL EDGES CHAMFERED.
  8. WHEN REQUIRED, TWO (2) PRIMARY CONDUITS IN THIS AREA.
  9. SECONDARY CONDUITS NOT TO EXCEED 1" DIMENSION.
  10. PRIMARY CONDUITS SHALL BE WITHIN DIMENSION H.
  11. ALL PAD DIMENSIONS ARE THE FINISHED PRODUCT, AFTER ALL FORMS ARE REMOVED.
  12. WARNING: DO NOT PULL IN ANY PRIMARY OR SECONDARY WIRES. YOU MUST WAIT FOR THE TRANSFORMER TO BE DELIVERED.

PAD DIMENSIONS									
TRANSFORMER SIZE-KVA	A	B	C	D	E	F	G	H	I
75-500	8'-6"	7'-3"	12"	13"	16"	42"	24"	12"	18"
750-1000	9'-0"	7'-8"	12"	18"	10"	42"	30"	12"	24"
1500-2500	11'-0"	9'-2"	18"	18"	10"	42"	42"	12"	24"

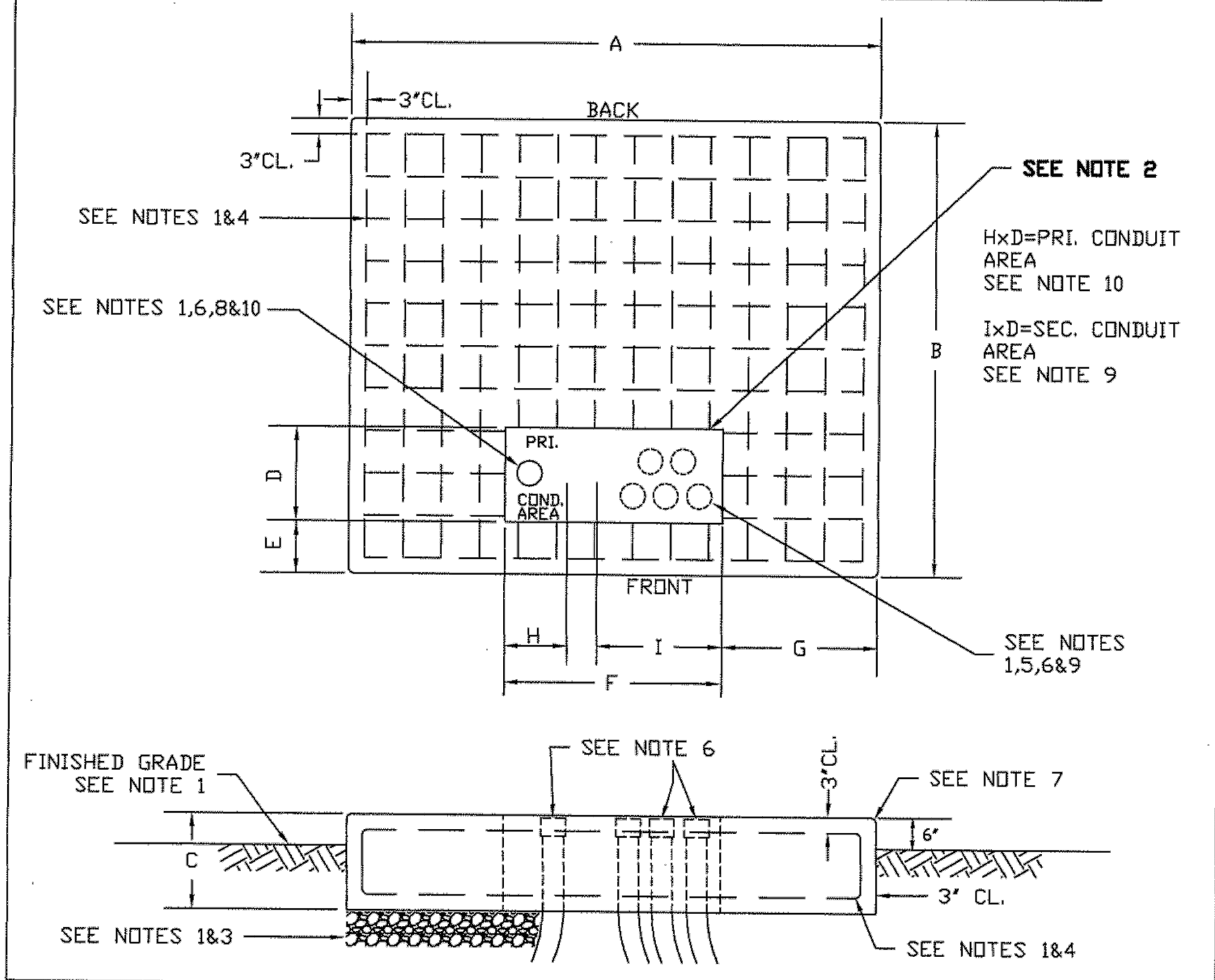


FIG. 5 SPECIFICATIONS FOR ELECTRIC INSTALLATIONS ISSUE 4  
PADMOUNT EQUIPMENT GROUND GRID

- NOTES:
1. SEE FIG. 3 AND SEC. VIII, PAGE 8 OF TEXT FOR ADDITIONAL REQUIREMENTS AND SPECIFICATIONS.
  2. TO TRANSFORMER OR EQUIPMENT GROUND PADS.
  3. COPPERCLAD GROUND ROD - 5/8" NOMINAL DIAMETER X 8' LONG.
  4. WHEN TWO OR MORE PIECES OF EQUIPMENT ARE INSTALLED WITHIN 10 FT. OF EACH OTHER, ALL GROUND GRIDS MUST BE BONDED TOGETHER WITH COMPANY AND N.E.C. APPROVED CONNECTORS.

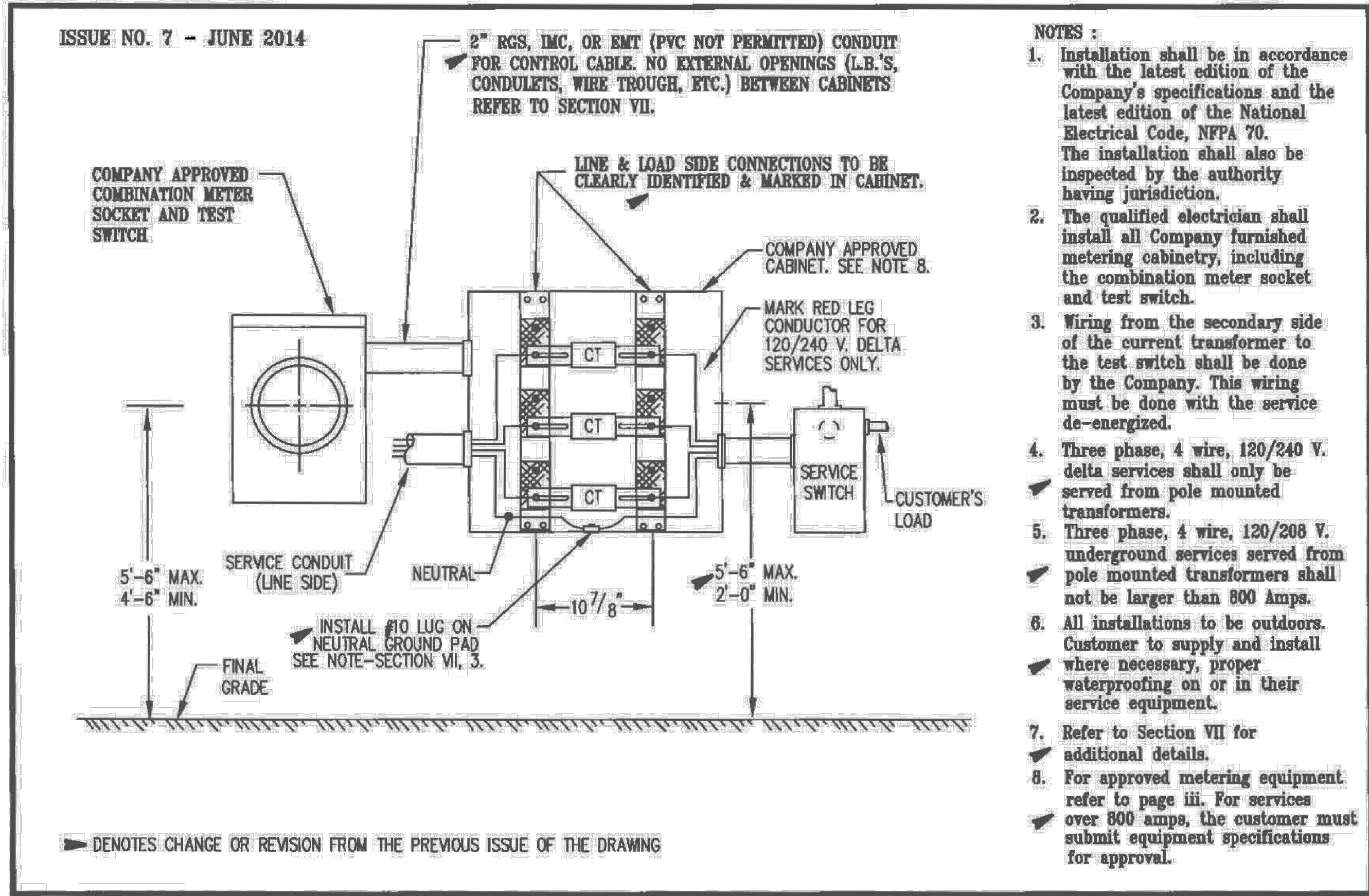
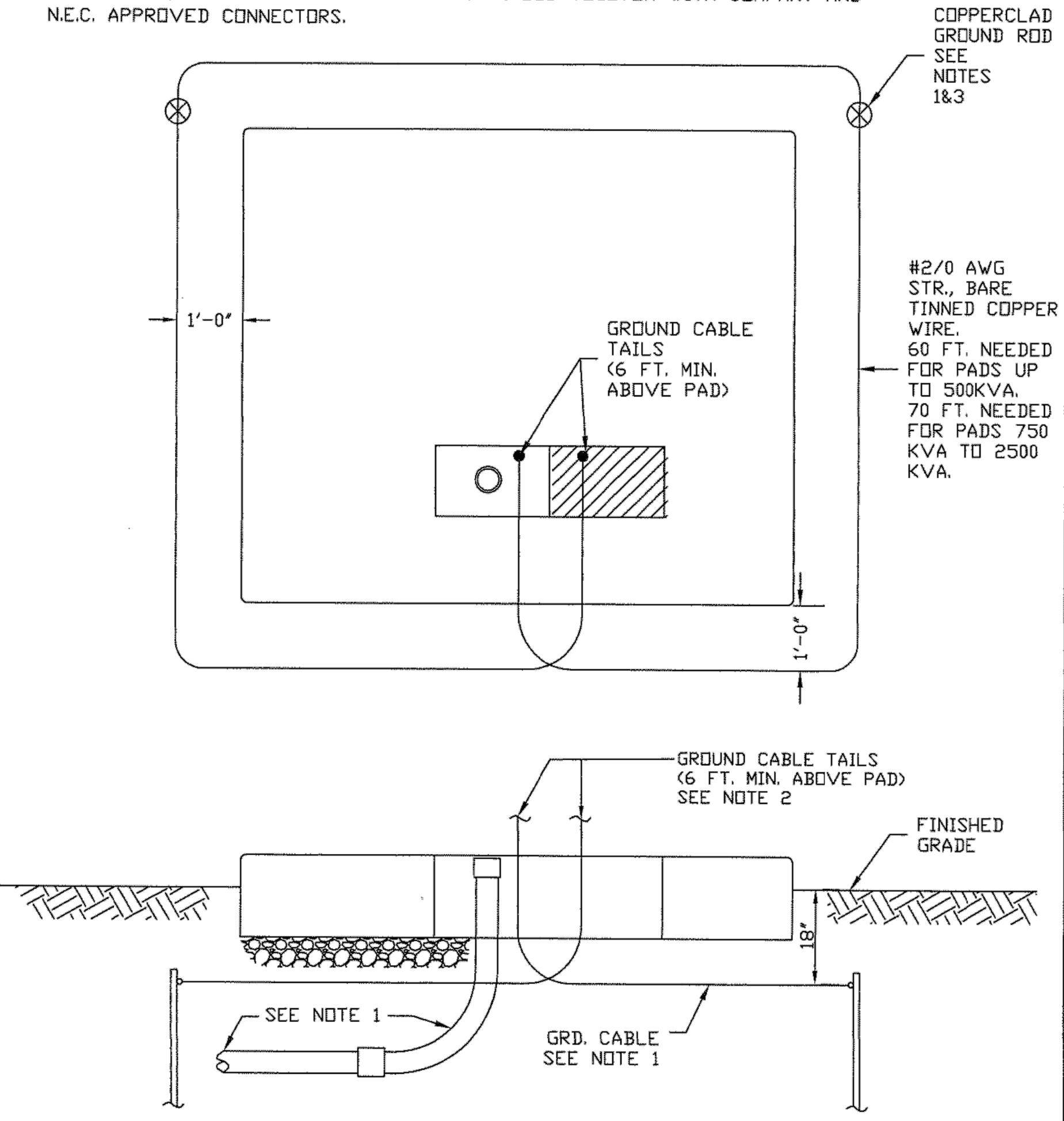
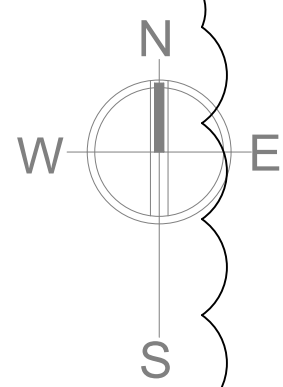


FIG. 6 INSTRUMENT TRANSFORMER RATED METER COMBINATION METER SOCKET AND TEST SWITCH

- THREE PHASE, 4 WIRE, 120/208 VOLT OVERHEAD SERVICE FROM 201 TO 400 AMPS.
- THREE PHASE, 4 WIRE, 120/208 VOLT UNDERGROUND SERVICE FROM 201 TO 800 AMPS. (SEE NOTE 5)
- THREE PHASE, 4 WIRE, 120/240 VOLT OVERHEAD SERVICE FROM 300 TO 400 AMPS. (SEE NOTE 4)
- THREE PHASE, 4 WIRE, 120/240 VOLT UNDERGROUND SERVICE FROM 300 TO 800 AMPS. (SEE NOTE 4)

Work shall be in compliance with utility standards contained in ORANGE AND ROCKLAND UTILITIES, INC.'s "GENERAL SPECIFICATIONS FOR ELECTRICAL INSTALLATIONS" and "SPECIFICATIONS FOR NON-RESIDENTIAL AND THREE PHASE RESIDENTIAL PAD-MOUNTED TRANSFORMER INSTALLATIONS "

On all customer installed underground services, the customer will be responsible to trench up to the Company's designated service connection point. The customer or his contractor will machine dig the trench to within three feet (3') of the Company's service connection point, i.e. secondary or primary junction box, transformer or switch foundation, and "hand dig" the last three feet (3'), exposing the Company's service connection point foundation. When the customer/contractor installs the service in conduit, the conduit shall be stopped three feet (3') from the bottom flange of the Company's junction box. The service conductors shall be of length to extend 15ft. beyond the company's service connection point and shall be neatly coiled on top of the ground. The Company will complete the installation. All customers/ Contractors shall have the existing below grade utilities located and marked before excavating by calling the appropriate "Call Before You Dig" number.



REVISION	DESCRIPTION	DATE
NO.	1	11-11-21

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CAPITAL PROJECT 1483  
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DRAWN BY	CHECKED BY	SCALE	DATE	PROJECT NO.
HMB	MFH		20 OCT 2021	# 2019

PROGRESS SET ☐ BID SET ☐ PERMIT SET ☐ CONSTRUCTION SET ☐

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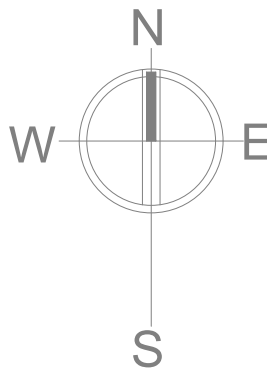
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ELECTRICAL NOTES:

BASIC METHODS AND REQUIREMENTS:

- The Electrical Contractor shall provide all labor, material, equipment, tools and services required to construct, install, complete, test, and commission the operation of the electrical systems identified within the construction documents. It is the intent of these contract documents to call for finished work, tested, and ready for operation.
- Wherever the work "provide" is used it shall mean to furnish and install complete and ready for use.
  - Provide all materials, bracing, hangers, connectors, and components as required to provide a complete operational electrical system.
  - All items not specifically shown in the design documents, but which are necessary for a complete working installation in compliance with code requirements shall be provided at no additional cost.
- The installation shall comply with applicable requirements of the International Building Code (IBC), NFPA 70 (NEC), NFPA 101 (Life Safety Code), ADA, and all local codes in effect at the project location at the time of contract award.
- The drawings indicate the extent, general location and arrangement of equipment, components, and wiring. The contractor shall review all project requirements and coordinate the electrical installation with all trades.
  - The Contractor shall become familiar with the work and verify all dimensions and locations so that the outlets, devices, raceways and equipment will be properly located and accessible. Actual field measurements shall prevail over any scaled measurements taken from these drawings.
  - The Contractor shall confirm the location of all equipment that requires electrical connections with the trade installing the equipment prior to rough in of the associated electrical devices, disconnects, raceways, and wiring.
  - The contractor shall confirm the electrical requirements and configuration (including overcurrent protective device ratings and conductor sizing) of circuits required for all equipment that requires electrical connection with the installer of such equipment prior to rough-in or installation of related electrical items.
  - Rework required that results from failure to coordinate shall be done at the contractor's expense.
- The drawings are diagrammatic only, intending to show general location of circuits, equipment, fixtures, and devices; and do not show all required details. All work shall be accurately laid out with reference to the drawings and in cooperation with other trades to avoid conflicts and to obtain a neat and workable installation which will afford maximum accessibility for operation, maintenance, and headroom. The electrical contractor is responsible for determining optimal routing of circuits and field investigations required to complete the installation in a professional workmanship manner. Refer to architectural drawings for exact dimensions and to mechanical drawings for locations of mechanical equipment. The contractor shall field determine final locations for outlets to comply with distance and spacing requirements of the NEC.
- The drawings are not intended to be rigid in specific details. In the event they are in conflict with requirements of other drawings, codes, or recommendations of the manufacturers of equipment furnished, the Electrical Contractor shall inform the General Contractor and make recommendations as required to insure that equipment is installed and connected in conformance with codes and manufacturer's recommendations for safe, proper, and efficient operation. The General Contractor shall issue a Request for Information with the proposed recommendation to the Architect.
- The contractor, by accepting the work, represents that it is qualified to successfully accomplish the work without additional direction by the design engineer. The design engineer is not responsible for means, methods, techniques, or procedures used by the contractor during construction.
- By submitting a proposal, contractor agrees it is satisfied from its own investigation of the conditions and requirements to be met, that it fully understands its obligation, and that it will not make any claim for or have the right to cancellation of or relief from the Contract because of any misunderstanding or lack of information. A submission of a bid for this work acknowledges that the contractor has read all terms and conditions for the work and that all terms and conditions are acceptable.
- In the event of conflict between various parts of the contract documents, including but not limited to drawings and general conditions, the more stringent (more costly) of the conditions shall apply for bidding purposes. The contractor shall request clarification for all conflicts prior to construction. The contractor shall make a thorough examination of the site and the contract documents. No claim for extra compensation will be recognized if difficulties are encountered which an examination of site conditions and contract documents prior to executing the contract would have revealed. Failure to request clarification shall not relieve the contractor of the requirement to provide the more costly implementation. If any conflicts occur necessitating departures from the drawings, details of and reasons for departures shall be submitted and approved prior to implementing any change.
- All wiring not furnished and installed by others but which is required to provide a complete and operational system for equipment indicated on the drawings shall be furnished and installed by the electrical contractor. Except as otherwise noted, automatic control wiring, signaling, and protective devices for mechanical equipment shall be provided and installed by the mechanical contractor. Each motor or group of motors requiring a single control shall be provided by others with a suitable controller. The electrical contractor shall install and connect the motor controllers furnished by others. Low voltage control devices (thermostats, limit switches, etc.) and wiring (24 Volts max.) will be installed by others. Control devices and wiring above 24 Volts shall be installed by the electrical contractor. Each motor shall be provided with a disconnecting means where required by NFPA 70, even if not shown on the drawings.

- Procure and pay for all permits and certificates necessary to construct and place in operation all electrical work. Pay for all legally imposed charges made by the local authorities for full inspection and approval services of the bureaus administering applicable codes and regulations. This shall include the cost and back charge of installing any portion of the work where performed by utility departments, and utility companies such as for trenching and installation on conduit. Capital improvement costs that may be imposed by the utility for new or upgraded service (such as extending primary wiring to transformers or upgrading transformers) shall be paid by the owner.

MATERIALS

- Material and equipment shall be new and shall be the standard specification grade products of established manufacturers. Materials, equipment, and installation shall conform to the requirements of ANSI, IEEE, NEMA, and UL as applicable
- Submit for approval catalog information for: Lighting Fixtures, Lighting Controls, Panelboards, and Fire Alarm System (when shown on drawings).
- Equipment and material shall be protected during shipment and storage against physical damage, dirt, moisture, cold and rain.
- Unless otherwise indicated, wiring shall consist of insulated conductors installed in conduit or tubing. Unless shown otherwise, minimum conduit size shall be 3/4". All conductors shall be copper with type THWN/THHN insulation rated 90C. Conductor sizing is based upon use of terminals rated 75C. Aluminum conductors of equivalent ampacity may be used for circuits 100 Amps or larger. The Contractor shall make all required changes to conduit sizes, terminals, and sizing for voltage drop for conductor substitutions at no additional cost. Conductors shall be color coded: Black (A), Red (B), Blue (C), White (neutral), for 208/120 and Brown (A), Orange (B), Yellow(C), Gray (Neutral) for 480/277. Ground (EGC) conductors shall be Green or Green/Yellow striped.
- Where wiring type is shown as MC, NEC compliant installation of MC cable will be permitted. For projects that include patient care areas, exam rooms, and medical equipment circuits, cable shown as MC for these areas shall be type HCF-MC-AP and the installation shall comply with NEC 517.
- Where wiring type is shown as NM, NEC compliant installation of type NM cable will be permitted.
- Wire sizes, including equipment grounding conductors, shall be adjusted for voltage drop based upon actual circuit lengths of installed wiring to achieve 3% voltage drop for branch circuits and 2% voltage drop for feeders. Raceway sizes shall be revised as needed for upsized conductors.
- Nonmetallic conduit and tubing shall be used in damp, wet, or corrosive locations. EMT may be installed only within buildings. EMT may be installed in concrete and grout in dry locations. EMT shall not be installed in damp or wet locations, or in the air space of exterior masonry cavity walls. Aluminum conduit may be used only where installed exposed in dry locations. Non-aluminum sleeves shall be used where aluminum conduit passes through concrete floors and fire walls. Conduit used in areas subject to damage shall be rigid steel up to a height of 10 ft. above finished floor. Flexible metallic cable (Type MC) may be used where allowed by NFPA 70. Non-metallic cable (Type NM-B) may only be used where allowed by NFPA 70 and when wiring type is shown as NM in panel schedules Bushings shall be of the insulating type
- Panelboards shall be completely factory assembled with molded case circuit breakers. Short circuit interrupting ratings (AIR) of all provided components shall be coordinated with the ratings of all new and any existing electrical gear. Series rated assemblies are not permitted. Panelboards and loadcenters shall be equipped with arc fault circuit interrupter, combination type, circuit breakers to provide AFCI protection per NEC requirements.
- Lighting controls shall be provided in accordance with IECC or ASHRAE requirements as enforced by state building codes. Control schemes shown on the drawings are diagrammatic only and the contractor shall finalize design details and component selection to achieve the required operational performance. Refer to functional testing requirements later in these notes.
- Receptacles and switches shall be specification grade. Standard duplex receptacles shall be single phase, 15 Ampere, 120 volts, 2 pole, 3 wire, and conform to the NEMA 5-15R in dwellings and 5-20R in commercial applications. GFCI outlets shall be provided in all locations required by the NEC whether noted on plans or not. AFCI protection is required per the NEC. Devices and cover-plates shall be of the color and material determined by the architect. Outlets shall be hospital grade in patient bed areas of health care facilities per NEC. Dimmer switches shall be specification grade and be matched to the load being served (incandescent, fluorescent, or LED)

INSTALLATION

- The work shall be laid out in advance, and where cutting, channeling, chasing, or drilling of floors, walls, partitions, ceilings, or other surfaces is necessary for the proper installation, support, or anchorage of the conduit, raceways, or other electrical work, this work shall be done and any damage to building, piping, or equipment shall be repaired by skilled tradesmen of the trades involved at no additional cost to the owner.
- During installation, enclosures, equipment, controls, controllers, circuit protective devices, and other like items, shall be protected against entry of foreign matter; and be vacuum cleaned both inside and outside before testing, operating and painting.
  - Damaged equipment shall be placed in first class operating condition or be returned to the source of supply for repair or replacement
  - Painted surfaces shall be protected with factory installed removable heavy protective paper, sheet vinyl, or equivalent covering.

- Damaged paint on equipment and materials shall be refinished with the same quality of paint and workmanship as used by the manufacturer so that repaired areas are not obvious.

- The contractor shall perform all temporary work necessary to maintain continuity of electrical service when connection is made to existing systems and facilities. Existing services shall not be interrupted without prior consent of the owner's authorized representative and may be interrupted only at and for the specified time designated by the owner's representative.
- Electrical service entrance equipment, including arrangements for temporary power, shall conform to the serving power company's requirements. Coordinate routing, trenching, and conduit requirements with the power company.
- The electrical contractor shall obtain available short circuit information from the supplying utility and perform a short circuit analysis of the available short circuit at the service equipment using the information obtained from the utility. The analysis shall include the impact of the service entrance conductors (size, material, distance) either installed by the utility or installed as part of the project. Based upon this information, the electrical contractor shall install a NEC compliant label on the service equipment stating:
  - The available fault current at the service equipment.
  - The nominal system voltage of the service equipment.
  - The clearing time of the service protection device (based upon manufacturer's data for the actual equipment installed).
  - Date that the label was installed.
- The contractor shall provide product finishes and constructions compatible with wall and ceiling types based upon the contractor's review of all project requirements.
- Penetrations of above grade floor slabs, time-rated partitions, and fire walls shall be fire stopped. Penetrations of fire rated floors, walls, and ceilings shall be installed in accordance with listed UL applications. See architectural drawings for location of fire rated assemblies. Materials and equipment shall be installed in accordance with recommendations of the manufacturer. At floor, exterior wall, and roof conduit penetrations, completely seal clearances around the conduit and make watertight
- Raceways shall be kept 6 inches away from parallel runs of flues and hot-water pipes. Raceways shall be concealed within finished walls, ceilings, and floors of finished areas. Raceways may be run exposed in non-finished areas, such as utility rooms. Install conduit in complete runs before pulling in cables or wires. Independently support conduit. Do not use other supports i.e., (suspended ceilings, suspended ceiling supporting members, lighting fixtures, mechanical piping, or mechanical ducts).
- All electrical wiring below slab on grade shall be protected by a PVC conduit system. Raceways crossing structural expansion joints shall have expansion fittings. Changes in direction of runs shall be made with symmetrical bends or fittings. Crushed or deformed raceways shall not be installed. Trapped raceways in damp and wet locations shall not be installed. Clogged raceways shall be entirely free of obstructions or shall be replaced.
- Panelboards shall be flush when installed on finished wall surfaces. Panelboards shall be surface mount when installed in unfinished rooms. Where designated on panel schedule as "space" or "spare", include all necessary bussing, device support and connections. Provide blank cover for each space.
- Placement of lighting fixtures, outlets, panelboards, transformers, disconnect switches and other items shall be located to avoid interference with mechanical or structural features.
- Lighting fixtures shall be symmetrically placed in rooms.
  - Lighting fixtures that are non-IC rated shall be installed such that no insulation is within 3 inches of the fixture and none on top so as to trap heat. Non-IC lighting fixtures shall not be installed within 1/2 inch of combustible material.
  - Lighting fixtures installed in fire rated ceilings shall be rated for equivalent fire resistance, or equipped with a boot or box-out to maintain the ceiling system fire rating.
  - The contractor shall field confirm all new and existing ceiling types to identify mounting requirements prior to order of lighting fixtures. All accessories and options required to successfully install the fixtures in the ceilings shall be provided, including those needed for fire rated applications.
  - All open bay and similar lighting fixtures shall be supported by unistrut that spans structural joists. Unistrut shall be supported by the top cord of the structural joists only. Alternative supporting schemes must be approved.
  - Connect recessed lighting fixtures to conduit runs with maximum six feet of flexible metal conduit extending from a junction box to the fixture.
  - At completion of project, re-lamp/re-ballast fixtures which have failed lamps/ballasts. Clean fixtures, lenses, diffusers and louvers that have accumulated dust/dirt/fingerprints during construction. Replace damaged lenses, diffusers and louvers with new.
- Where light switches are shown grouped together they shall be mounted under a multi-gang cover-plate. Where dimmer switched are used, the mounting box size shall be based upon thermal de-rating requirements of the dimmers.
- Outlets shall be mounted not less than 15" above finished floor per ADA guidelines. Switches shall be mounted not more than 48" above finished floor per ADA guidelines. Outlets and switches at counter top locations shall be mounted not more than 44"-46" above finished floor per ADA guidelines. Field coordinate location of counter mounted devices with counter installer.

- The Electrical contractor shall coordinate with the Mechanical contractor for the installation of electrical components required to serve mechanical equipment. The contractor shall confirm equipment circuit requirements with the Mechanical contractor prior to rough-in of electrical circuits. Any re-work required to provide the electrical installation needed for compliance with actual nameplate requirements for equipment shall be accomplished at no additional cost. Nameplate data of actual equipment supplied shall be used for final circuit configurations. Adjustments from values shown on panel schedules shall be made as part of the contract.
- The electrical contractor shall review the hardware schedule and coordinate with the door hardware installer and provide 120V electrical power at locations required for proper operation of door openers, power supplies, and controls. Low voltage wiring by door installers.
- Make final connections to equipment supplied by others. Controls and starters related to mechanical equipment shall be supplied by the mechanical contractor. Controls and starters for owner furnished equipment shall be supplied by others. Electrical contractor shall make electrical connections to equipment from point of electrical circuit shown on drawings for equipment. Electrical contractor shall make connections to owner furnished equipment serviced by either hard wiring or service cord drops. Electrical contractor shall provide means of disconnection of equipment from electrical circuit if starter or controller supplied with equipment does not meet NEC requirements for disconnect.
- Install green grounding conductors with feeders and branch circuits as indicated in panel schedules and one line diagram. Bond the grounding wires to each pullbox, junction box, outlet box, cabinets, and other enclosures through which the ground wires pass. Bond all conductive piping systems in the building to the electrical system ground. Bonding connections shall be made as close as practical to the water pipe ground or service equipment ground bus.
- Major pieces of electrical equipment shall be permanently marked with an identification nameplate. All panelboards shall have removable typewritten panel directories inserted into plastic sleeves mounted on the inside face of the panelboard door. The directory shall describe the as-built circuit configurations of the panel per NEC requirements. Marking directly on the panelboard is not permitted. All junction boxes and outlets shall have a mechanically printed permanent label attached indicating which circuit and panel serves the junction box or outlet.
- Duct smoke detector requirements shall be installed per local code requirements. The Electrical contractor shall coordinate with the Mechanical contractor for control interface requirements.
- After the electrical installation is completed, the Electrical Contractor shall conduct a safety and an operating test of the electrical system. The electrical contractor shall furnish all instruments and personnel required for the tests. No part of the electrical distribution system shall be energized prior to the testing of the grounding system. Resistance tests shall be made for service entrances and feeders installed as part of this project. Proper phase rotation shall be confirmed for all 3 phase motors.
- Functional testing or lighting controls shall be performed in accordance with IECC or ASHRAE requirements locally enforced. The testing shall demonstrate controls are calibrated, adjusted, programmed and in proper working condition. Testing shall confirm proper operation of occupancy sensors, photo sensors, and time switches. The contractor shall instruct the client as to the proper operation and programming requirements of the system. The functional testing must be made by an independent party, such as a representative of the lighting control manufacturer, who is not part of the building design engineering firm or a member of the construction contractor's team. The testing party shall provide documentation certifying operational compliance with energy code requirements.
- All work shall pass inspection by proper authorities prior to acceptance by the owner. Costs for permits, certificates, and inspections required for completion of the work shall be paid by the Electrical Contractor.
- The contractor shall warrant the complete electrical installation at the time of completion for a period of one year. During the warranty period the contractor shall replace or repair any components or work which develop defects beyond normal wear and tear. The electrical contractor shall be responsible for, and shall incur financial responsibility for any damages caused by or resulting from defects in his work.
- The contractor shall provide as-built and record drawings indicating all changes in equipment, devices, and conduit locations to the general contractor for delivery to the owner as part of the project close-out

END OF NOTES

ELECTRICAL NOTES

CAPITAL PROJECT 1483  
CONSTRUCTION OF A NEW ANIMAL SHELTER FACILITY  
65 FIREMENS MEMORIAL DRIVE, POMONA, NY 10970

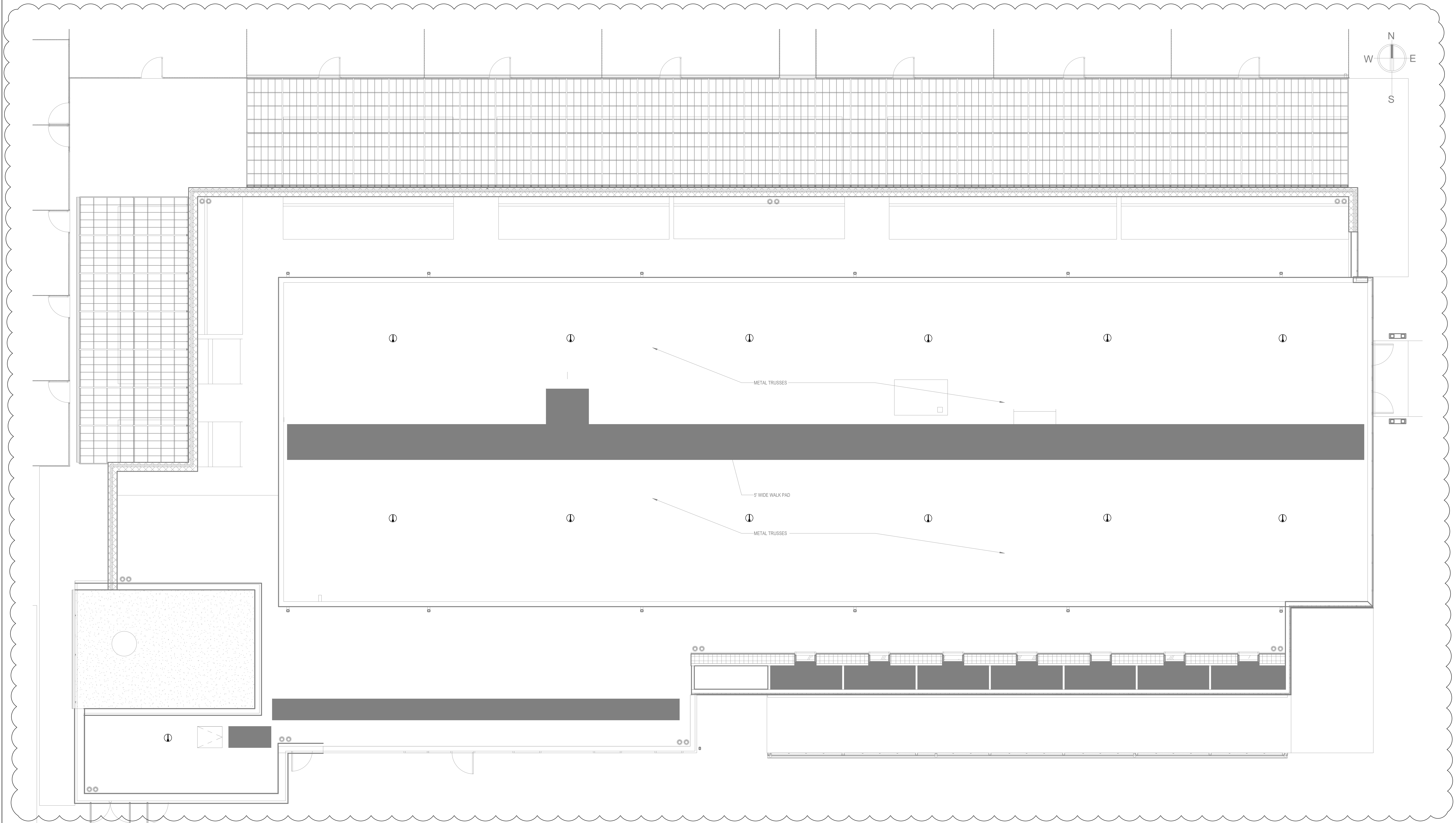
DRAWN BY: HMB	CHECKED BY: MFH	SCALE:	DATE: 20 OCT 2021	PROJECT NO: # 2019
PROGRESS SET: <input type="checkbox"/>	BID SET: <input type="checkbox"/>	PERMIT SET: <input type="checkbox"/>	CONSTRUCTION SET: <input type="checkbox"/>	
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E4.00









1 FIRE ALARM ATTIC PLAN  
FA1.01 3/16" = 1'-0"

FIRE ALARM SYMBOL LIST	
ALL JUNCTION BOXES AND OUTLETS SHALL HAVE A MECHANICALLY PRINTED PERMANENT LABEL ATTACHED INDICATING WHICH FIRE ALARM CIRCUIT SERVES THE JUNCTION BOX OR OUTLET.	
SYMBOL	DESCRIPTION
	FIRE ALARM PULL STATION
	PHOTOELECTRIC SMOKE DETECTOR
	DUCT SMOKE DETECTOR
	HEAT DETECTOR
	HORN STROBE
	STROBE
	SPRINKLER SYSTEM TAMPER SWITCH
	SPRINKLER SYSTEM FLOW SWITCH
	SPRINKLER SYSTEM EXTERIOR BELL. CONFIRM WITH FIRE MARSHAL
	FIRE ALARM CONTROL PANEL
	FIRE ALARM REMOTE ANNUNCIATOR. CONFIRM WITH FIRE MARSHAL