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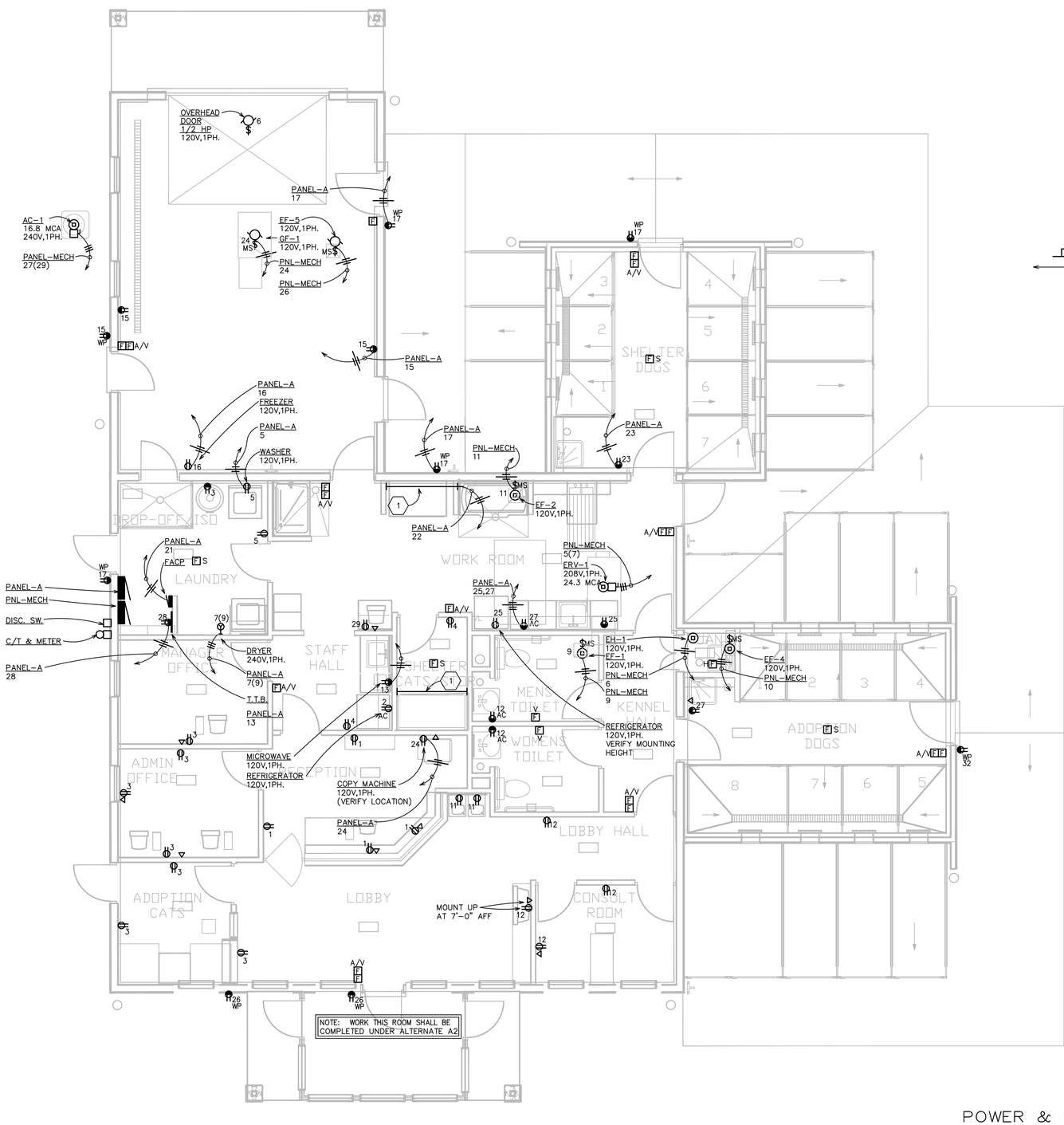

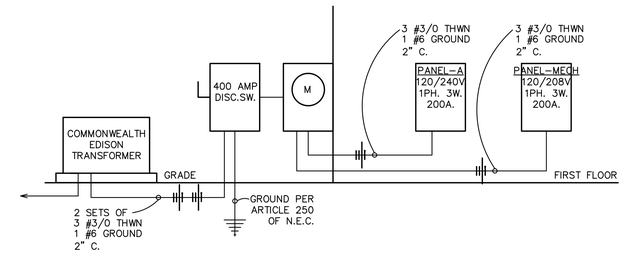

ELECTRICAL RISER DIAGRAM

NO SCALE — PURELY DIAGRAMMATIC

REFERENCE NOTES:

1. WIREMOLD WITH RECEPTACLES 12" O.C. VERIFY COLOR AND WIREMOLD SERIES PRIOR TO ORDERING. VERIFY MOUNTING WITH ARCHITECTURAL DETAIL. PROVIDE 20 AMP/ 1 POLE BREAKER FOR CIRCUIT. VERIFY PRIOR TO WIRING.

POWER & SYSTEMS
FIRST FLOOR PLAN

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

STATE OF ILLINOIS — ROGER A. LOGESON — 062-024878 — LICENSED PROFESSIONAL ENGINEER

10/12/15
EXP. 11/30/15

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PROFESSIONAL DESIGN FIRM NO. 184-003483

A NEW FACILITY FOR BOONE COUNTY ANIMAL SERVICES AND ADOPTION CENTER
BELVIDERE, ILLINOIS

REVISIONS

COMMISSION NUMBER
215102

DATE
October 12, 2015

SHEET NO.
E1
OF 4 SHEETS

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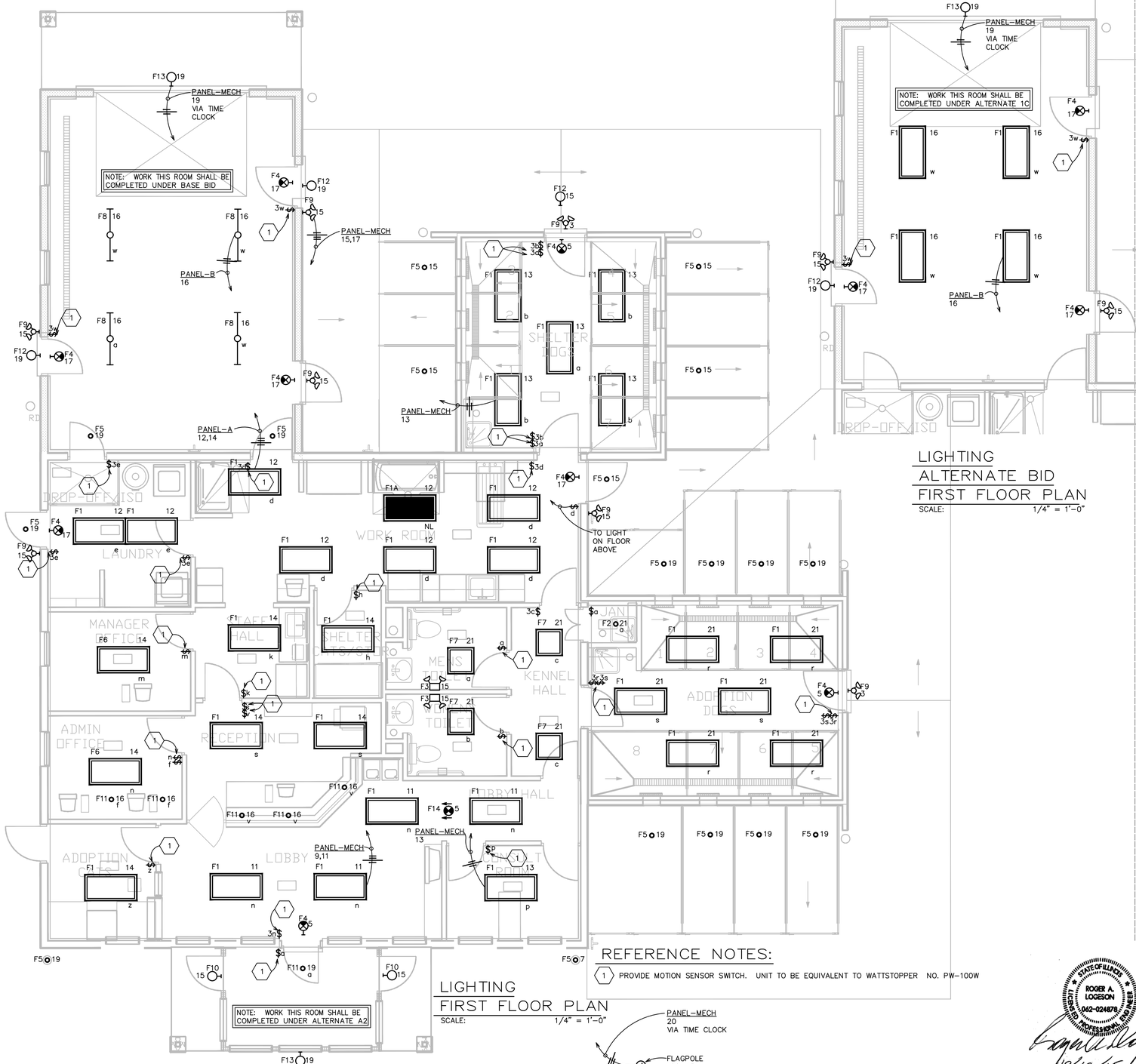

LIGHTING
FIRST FLOOR PLAN
SCALE: 1/4" = 1'-0"

LIGHTING
ALTERNATE BID
FIRST FLOOR PLAN
SCALE: 1/4" = 1'-0"

REFERENCE NOTES:

1. PROVIDE MOTION SENSOR SWITCH. UNIT TO BE EQUIVALENT TO WATTSTOPPER NO. PW-100W

PANEL-MECH
20
VIA TIME CLOCK

FLAGPOLE
120V,1PH.
VERIFY LOCATION
PRIOR TO ROUGH-IN
ALTERNATE #3

PANEL-MECH
22
VIA TIME CLOCK

SIGNAGE
120V,1PH.
VERIFY LOCATION
PRIOR TO ROUGH-IN

3/4" EMPTY C.
TO T.T.B. IN
GARAGE

LIGHTING FIXTURE SCHEDULE				
FIXTURE NUMBER	LAMP SIZE AND TYPE	MOUNTING	MANUFACTURERS NUMBER	REMARKS
F1	LED LAMPS FURNISHED WITH FIXTURE	SURFACE AT CEILING	LITHONIA NO. 2FSL4-48L-EZ1 LP840 ACCEPTABLE MANUFACTURERS OR APPROVED EQUAL	2'X4'FS"SERIES FIXTURE WITH LED LAMPS
F1A	LED LAMPS FURNISHED WITH FIXTURE	SURFACE AT CEILING	LITHONIA NO. 2FSL4-48L-EZ1 LP840-EM ACCEPTABLE MANUFACTURERS OR APPROVED EQUAL	2'X4'FS"SERIES FIXTURE WITH LED LAMPS WITH 90 MINUTE BATTERY EMERG UNIT
F2	1 - 23 WATT COMPACT FLUORESCENT	CEILING	PASS & SEYMOUR 272-120V	KEYLESS PORCELAIN LAMPHOLDER
F3	LAMPS FURNISHED WITH FIXTURE	SURFACE CENTER OF FIXTURE TO BE MOUNTED AT 7'-0" AFF	LITHONIA NO. 6ELM2P-1207V ACCEPTABLE MANUFACTURERS OR APPROVED EQUAL	BATTERY 6 VOLT EMERGENCY LIGHT WITH 2 HEADS. WHITE HOUSING LEAD CALCIUM BATTERY
F4	LED LAMPS D.C. LAMPS WITH FIXTURE	UNIVERSAL MOUNT. SEE PLANS FOR MOUNTING TYPE AND LOCATION.	LITHONIA NO. LHQMLEDSW1HO WRS-120/277 ACCEPTABLE MANUFACTURERS OR APPROVED EQUAL	SINGLE FACE EXIT LIGHT POLYCARBONATE HOUSING WHITE FINISH RED LETTERS NICKEL CADMIUM BATTERY 120V SELF CONTAINED INSIDE FIXTURE ARROWS AS INDICATED ON PLANS
F4A	LED LAMPS D.C. LAMPS WITH FIXTURE	UNIVERSAL MOUNT. SEE PLANS FOR MOUNTING TYPE AND LOCATION.	LITHONIA NO. LHQMLEDSW2HO WRS-120/277 ACCEPTABLE MANUFACTURERS OR APPROVED EQUAL	DOUBLE FACE EXIT LIGHT POLYCARBONATE HOUSING WHITE FINISH RED LETTERS NICKEL CADMIUM BATTERY 120V SELF CONTAINED INSIDE FIXTURE ARROWS AS INDICATED ON PLANS
F5	1 - 35 WATT LED	RECESSED	LITHONIA NO. REAL6C-A-ESL 3500K-120 ACCEPTABLE MANUFACTURERS OR APPROVED EQUAL	6" APERATURE RECESSED DOWNLIGHT DIFFUSE LENS
F6	LED LAMPS FURNISHED WITH FIXTURE	RECESSED LAY-IN GRID CEILING	LITHONIA NO. 2PM334018LD-120V-EB ACCEPTABLE MANUFACTURERS OR APPROVED EQUAL	2'X4' GRID TROFFER WITH 18 CELL, 3" DEEP PARABOLIC LOW IRIDESCENCE LOUVER W/ELECTRONIC BALLAST
F7	NOT USED			
F8	2 - 32 WATT T8 F032/35K	SURFACE	LITHONIA NO. C232-120V-EB ACCEPTABLE MANUFACTURERS EQUAL	4'-0", 2 LAMP SURFACE MOUNT STRIP WITH ELECTRONIC BALLAST
F9	FURNISHED WITH FIXTURE	SURFACE AT HEIGHT DIRECTED	LITHONIA NO. ELAW-T-MH-120V ACCEPTABLE MANUFACTURERS OR APPROVED EQUAL	WEATHERPROOF EGRESS TWIN HEAD LIGHT WITH REMOTE BATTERY
F10	FURNISHED WITH FIXTURE	SURFACE	LITHONIA NO. AFN-W-120V ACCEPTABLE MANUFACTURERS OR APPROVED EQUAL	WEATHERPROOF EGRESS TWIN HEAD LIGHT NI-CAD BATTERY WET LOCATION DECORATIVE
F11	1 - 35 WATT LED	RECESSED	LITHONIA NO. LP6LN-MW-A-ESL 3500K-120 ACCEPTABLE MANUFACTURERS OR APPROVED EQUAL	6" APERATURE RECESSED DOWNLIGHT MATTE WHITE LENS
F12	1 - 40 WATT LED 4000K LAMPS	SURFACE MOUNT AS HIGH AS POSSIBLE & CENTERED ON WALL	E-CONOLIGHT E-WF1L04MZ120V ACCEPTABLE MANUFACTURERS OR APPROVED EQUAL	WALL PACK FLOOD LIGHT
F13	1 - 40 WATT LED 4000K LAMPS	SURFACE MOUNT AS HIGH AS POSSIBLE & CENTERED ON WALL	E-CONOLIGHT E-WF2L15NW120V ACCEPTABLE MANUFACTURERS OR APPROVED EQUAL	WALL PACK FLOOD LIGHT

STATE OF ILLINOIS
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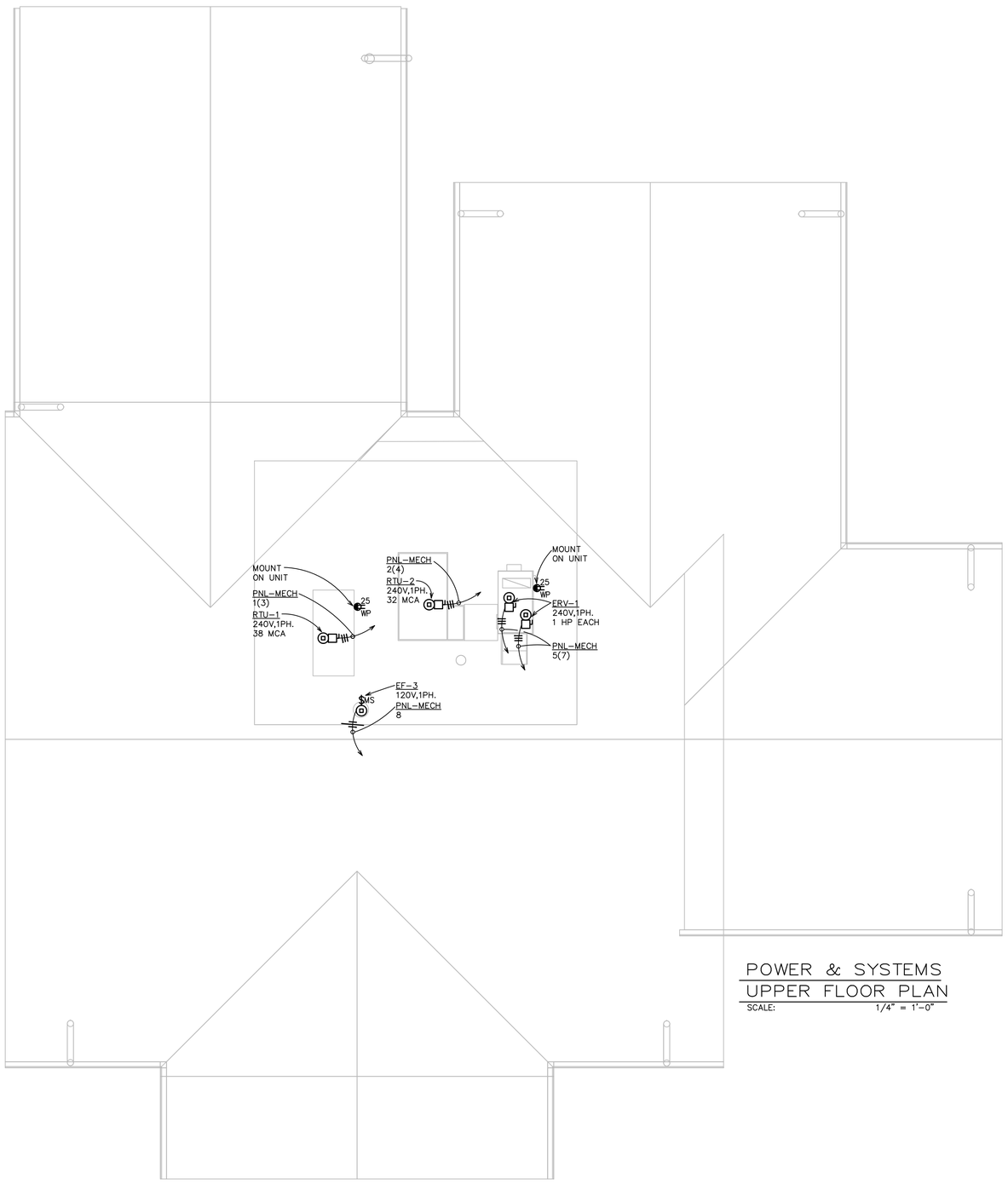

POWER & SYSTEMS
UPPER FLOOR PLAN
SCALE: 1/4" = 1'-0"

STATE OF ILLINOIS
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SHEET NO.
E3
OF 4 SHEETS

ELECTRICAL SPECIFICATIONS:

1. GENERAL

A. INTENT
1. It is the intent of the contract documents to provide for complete work as indicated on the drawings.
2. The work shall be in accordance with all applicable codes, laws ordinances and redulations which govern the installation.

B. APPROVAL OF MATERIALS
1. Where the words "similiar to", "as selected", "approved make", or other non-specific terms are used in reference to materials, used in reference to materials, quality methods, or apparatus in lieu of or in addition to others specific references, it is to be distinctly understood that the approval of any such substitution is vested in the Owner, whose decisions shall be final.

C. REGULATIONS
1. All work shall be installed in strict accordance with all applicable rules and regulations of local and state and federal governments including
a: International Building Code
b. National Electrical Code
c: Applicable NFPA Rules and Regulations
2. All materials shall bear the label of Inspection and approval of the Underwriter' s Laboratories or other recognized testing agency U.S. make and quality specified.

D. GUARANTEE
1. Guarantee all work under the contractor against any defect due to faulty materials or workmanship for one year completion, or longer, as specified. Correction or replacement are contractor's expense.

E. COORDINATION
1. Before any work is installed and before any equipment is purchased, contractor shall carefully check specifications and drawings for every trade and job conditions (including references to conduit/wire installed underground) and any lack of coordination between his work and the drawings or job conditions shall be immediately reported to the Owner in writing. The Owner shall work out conflicts and adjustments in contract prices. Changes in equipment shall be reported to the Owner. If the contractor fails to call such lack of coordination between specifications, drawings and job conditions to the Owner's attention before any work is done or before equipment is purchased, it will be assumed no conflicts exist. IF conflicts arise during the construction period, they shall be immediately reported t the Owner in writing and they will be worked out by the Owner, but no increase in contract price will be allowed. The Owner's decisions shall be final. When electrical equipment is operated by the Electrical Contractor the Electrical Contractor shall be solely responsible for operation and safety of the equipment. When electrical equipment is operated by the owner (or other contractors) shall be solely responsible for operation and safety of the equipment.

1.01. WORK INCLUDES
A. Raceways.
B. Wires and cables.
C. Boxes.
D. Supporting devices.

1.02. REGULATORY REQUIREMENTS
A. National Electrical Code, NEC (2009)
1. Comply with NEC/NFPA No. 70, for construction and installation of basic materials.
2. NEC 300-21: Wiring Methods; Spread of Fire or Products of Combustion.
3. Building code for the city of Rockford.
B. Underwriter's Laboratories, UL:
1. All basic materials listed and labeled by UL.

1.03. REFERENCED
A. American National Standards Institute, ANSI:
1. C80.3: Specification for Electrical Metallic Tubing, Zinc Coated.
B. National Electrical Manufacturer's Association, NEMA:
1. Enclosures: Publication 250.
a. Type 1: Indoor use, atmospheric conditions normal.
C. Underwriter's Laboratories, UL

1.04. SUBMITTALS
A. Shop Drawings:
1. Submit drawings for:
a. Lighting fixtures.
b. Electrical Panel.
c. Receptacles.

1.05. PROJECT RECORD DOCUMENTS
A. Accurately record on mylar sepia copy of actual locations and wiring methods and "As-built" record documents.
B. Submit for Architect's review.

1.06. DRAWINGS AND SPECIFICATIONS
A. With the exception of systems and equipment furnished by Owner, it is intended that work covered by Specifications and Drawings includes systems complete and operative, irrespective of whether or not every item is specifically shown on plans and/or specified. Any omission of direct reference herein to any essential item shall not excuse contractor from complying with above intent.
B. In case of error or inconsistency, between Specifications and Drawings or within either document itself the item or arrangement of better quality, greater quantity or highest cost shall take precedence over drawings as directed by Owner. Figured dimensions supersede scaled dimensions. Contractor shall take no advantage of, and shall promptly call Owner's attention to any error, omission or inconsistency in Specifications and Drawings prior to submitting bid.
C. Material shall be new. Seconds or damaged materials will be rejected by Owner, who reserves the right to disapprove and reject any materials, proposed or installed which, in their opinion, fail to meet quality standards specified. Contractor shall, at his expense, remove any rejected materials and replace with approved materials.

2. PRODUCTS

2.01. RACEWAYS
A. Conduit Materials, Components:
1. Conduit:
a. Electrical Metallic Tubing: ANSI C80.3.
2. Couplings:
a. EMT Conduit: Gland compression.

2.02. WIRES AND CABLES
A. Building Wiring: 98% conductivity copper, 600 volt insulation, THWN or THHN.
B. Branch Circuit Wiring: Conductors smaller than #12 AWG not permitted.
C. Provide permanent plastic name tag indicating load fed.

2.03. WIRING SYSTEM IDENTIFICATION
A. Wire Insulation Color:

120/208 v., 3 phase, 4 wire

1. Phase A Black
2. Phase B Red
3. Phase C Blue
4. Neutral White
5. Ground Green

2.04. BOXES
A. Outlet Boxes: Hot dipped galvanized, 1.25 oz./sq. ft. or cadmium plated.
1. Interior Boxes: Pressed sheet steel, with knockouts for conduit; attached lugs for locating.
2. Ceiling Boxes: 4 inch octagon boxes for 1 fixture; including fixture studs and maximum 2 connecting conduits.
3. Flush Mounted in Walls:
a. Boxes with matching plaster cover for single or two gang outlets.
b. Two gang box or larger for conductors, conductor joints, conduit terminations and wiring devices.
B. Pull Boxes and Junction Boxes: NEC metal construction; with screw-on or hinged cover.
1. Flush Mounted Pull Boxes: Overlapping covers with flush-head cover retaining screws; prime coated.

2.05. SUPPORTING DEVICES
A. Conduit Supports:
1. Single Runs: Galvanized conduit straps or ring bolt type hangers with specialty spring clips.
2. Vertical Runs: Channel support with conduit fittings.
B. Anchors
1. Hollow Masonry: Toggle bolts or spider type expansion anchors.
2. Solid Masonry: Lead expansion anchors or preset inserts
3. Metal Surfaces: Machine screws, bolts, or welded studs.
4. Wood Surfaces: Wood screws.
5. Concrete Surfaces: Self-drilling anchors or power-driven studs.

2.06. PANELBOARD
A. ACCEPTABLE MANUFACTURERS
1. Square D.
2. Cutler. Hammer.
3. ITE-Siemens.
4. G.E.

B. FABRICATION
1. Panels: Flush or Surface mounted complete with panel trim having concealed hinges and trim mounting screws. Provide locking door with flush catch.
2. Tub: Galvanized.
3. Keys: Provide two keys for each panel. Make keys interchangeable for panels of same voltage.
4. Branch circuit panelboards shall be of size and capacity as indicated on the drawings.
5. Branch non-interchangeable trip thermal magnetic circuits for lighting and small motors shall consist of molded case, bolt-on circuit breakers.
6. Branch circuits for feeders and power loads over 100 amperes shall consist of thermal magnetic non- interchangeable trip molded case bolt-on type circuit breakers of rating, type and capacity indicated.
7. Breakers shall have thermal ratings as indicated on the drawings. Breakers shall be rated for local switching duty.
8. Each conductor terminal shall be provided with a bolted clamp type solderless lug.
9. Breakers shall be back connected to bus bars with studs. All spaces for future breakers in all panels shall be equipped with proper buss connecting links to facilitate the installation of future breakers. Breakers shall have trip elements calibrated in accordance with the drawings. The trip element shall insure constant calibration and be capable of withstanding excessive short current conditions without injury to the breaker.
10. Breakers shall have inverse time limit characteristics so that tripping will be prevented on momentary overloads, but will clear before dangerous values are reached and shall have quick-make and quick-break toggle mechanism and a position between manual "on" and "off" positions when breaker is tripped.
11. Each breaker shall be provided with a numerical designation strip to properly identify the circuit served. Buss bars for all panels shall be hard drawn electrolytic copper of 98% conductivity rated 1000 amperes per square inch and shall be of size in strict accordance with NEMA requirements.
12. Multi-pole breakers shall have common trip with single handle. Tieing single pole breaker handles together is not acceptable.
13. Neutrals shall be grouped on a common bar and each terminal on the neutral bar shall be stamped with the number of the circuit with which it is associated.
14. Panel cabinets shall not be less than 20" wide, 5-3/4" deep and shall have gutters at each side and at top and bottom of ample width to accommodate branch circuit feeder conductors. All gutters shall be minimum 4" width except that gutters where cables are connected to panelboard main lugs and gutters used for through feed of feeder conductors shall be sized in accordance with the following schedule:

Up to #1/0 4" minimum

15. Enclosure shall be of code gauge steel with ample wiring space on all sides. Trim and door shall be of #12 gauge steel fastened to the tub with adjustable clamps. Door shall be provided with flush type hinges and chrome plated flush type combination catch and cylinder lock masterkeyed. Panel shall be provided with a circuit directory under glass in a metal frame. Panel tub shall be galvanized. Trim and door shall be painted standard factory finish for final painting on job by General Contractor.
16. Cabinets for panels shall comply with all NEMA standards and shall be of the dead front type suitable for surface or recessed mountings as indicated on drawings.
17. All panelboard equipment shall include a ground bus. Provide isolated ground bus where called for under panel schedules.

2.07. FIRE AND SMOKE PENETRATION SEALANT
A. NEC 300-21; UL rated flexible sealant.

2.08. CORROSION PREVENTION
A. Protect all metallic materials against corrosion.
1. All equipment enclosures given rust-inhibiting treatment and standard finish by manufacturer.
2. Ferrous Metal Parts: Hot dip galvanized, ASTM A123 or ASTM A153.
a. Includes anchors, bolts, braces, boxes, bodies, clamps, fittings, guards, nuts, pins, rods, shims, thimbles, washers, and miscellaneous parts; other than stainless steel or non-ferrous materials.
B. Isolation of Dissimilar Metals: Separate dissimilar metals with NEC approved material.

2.09. LUMINAIRES
A. Manufacturer: See lighting fixture schedule on floor plans.

2.10. EXIT SIGNS
A. Manufacturers: See lighting fixture schedule on floor plans.

2.11. BALLASTS
A. Fluorescent Ballast - Rapid Start Electronic:
1. Magna Tek.
2. Description: ANSI C82.1A, high power factor type (above .95) electronic ballast, Class P, sound rating A.
3. FCC Regulation - RFI and EMI - CFR 47 Part 18 NEMA.
4. Transient Protection - ANSI C62.41, CAT. A.
5. Voltage: 108 to 132 for 120 volt circuit; 249 to 305 for 277 volt circuit at input frequency of 60 HZ light output to remain constant for voltage fluctuation of plus or minus 5%.
6. Frequency - 25 Khz of higher with less than 2% lamp flicker.
7. Lamp current crest factor - maximum 1.5.
8. Total harmonic distortion - 10% or less.
9. Ballast efficiency - above 91% (power out/power in).
10. Ballast shall not contain PCBs.

3. EXECUTION

3.01. INSTALLATION
A. Drawings are diagrammatic and are intended to convey scope of work and indicate general arrangement of conduit, boxes, equipment, fixtures and other work included in contract.

3.02. RACEWAYS
A. Locations:
1. Above-Grade Interior Locations: Electrical metallic tubing.
2. Install liquid-tight flexible conduit where subjected to one or more of the following conditions.
a. Moist or humid atmosphere where condensate can be expected or accumulate.
b. Corrosive atmosphere.
c. Subjected to water spray.
d. Subjected to dripping oil, grease, or water.
3. Size raceways in accordance with NEC for TW wire regardless of wire type used.
B. Installation of Conduit:
1. Install conduit and tubing products indicated, in accordance with manufacturer's written instructions and requirements of NEC and NECA, Standard of Installation.
2. Conceal conduit in all areas excluding mechanical, electrical and other unfinished rooms, connections to motors, and connections to surface cabinets.
3. Attach conduit with clamps.
4. Coordinate installation of conduit in partition work.
5. Install conduit free from dents and bruises.
6. Plug conduit ends to prevent entry of dirt or moisture.
7. Clean out conduit before installation of conductor(s).
8. Alter conduit routing to avoid structural obstructions, minimize cross-overs; and where possible, install raceways above water and steam piping.
9. Allow minimum 6 inch clearance at flues, steam pipes, and heat sources.
10. Route all exposed conduits parallel or perpendicular to building lines.
11. Fire rated walls, partitions, floors, ceiling penetrations: Sealed in accordance with NEC 300-21.
a. Flexible conduit sufficient length to avoid vibration transmission.
12. Building Expansion Joints: Install UL listed expansion fittings complete with grounding jumpers where conduits cross building expansion joints.
a. Provide bends or offsets in conduit adjacent to building expansion joints where conduit is installed above suspended ceiling.

3.03. RACEWAY SYSTEM IDENTIFICATION
A. Identify all exposed conduits and boxes as follows:
1. Boxes, on face of coverplate.
a. Power - Show panel, voltage and circuit number, painted stenciled letters. (Black letters, yellow background).
b. Systems - Indicate system, such as sound, clock, telephone, etc., (black letters, yellow background).
B. Identify all conduit and boxes above accessible ceilings.
1. Follow steps A.1. above.
C. Lettering to be as large as possible for each conduit size.

3.04. WIRE AND CABLES
A. Installation:
1. Make conductor length for parallel feeders identical.
2. Lace or clip groups of feeder conductors at distribution center, pull boxes and wireways.
3. Conductor size indicated on drawings indicates ampacity requirements using copper conductors.

3.05. BOXES
A. Installation:
1. Provide knockout closures to cap unused knockout holes where blanks have been removed.
2. Support all boxes independently of conduit.
3. Outlet Boxes:
a. Flush mount outlet boxes in areas other than mechanical rooms, electrical rooms, and above removable ceilings.
b. Masonry Walls:
1) Adjust position of outlets in finished masonry walls to suit masonry course lines.
2) Coordinate cutting of masonry walls to achieve neat openings for boxes.
3) Locate boxes in masonry walls so that only corner need be cut from masonry units.
c. Do not use sectional boxes unless approved by Architect/Engineer.
d. Adjust outlet mounting height to grade with specified location for equipment served.
4. Pull Boxes and Junction Boxes: Locate pull boxes and junction boxes above removable ceilings or in electrical rooms, utility rooms, or storage areas.

3.06. SUPPORTING DEVICES
A. Installation:
1. Maintain headroom, neat mechanical appearance, and support equipment loads specified.

4. FIRE ALARM AND DETECTION SYSTEM
A. Electrical Contractor provide a zone, none-coded, continuous sounding, U.L. listed, electrically supervised system, fully installed and tested.
B. Requirements of regulatory agencies:
1. National Fire Protection Association (NFPA):
a. NFPA-70 National Electrical Code (NEC)
b. NFPA-101 Life Safety Code
c. Local codes and ordinances
d. Underwriters Laboratories, Inc. (UL)
C. Reference Standards:
1. National Fire Protection Association (NFPA)
a. NFPA-72A Local Protection Signaling Systems
b. NFPA-72B Auxiliary Signaling Systems
c. Remote Station System
d. NFPA-72D Proprietary Signaling System
e. NFPA-72E automatic Fire Detectors
2. National Electrical Manufacturer's Association (NEMA).
3. All equipment specified shall be U.L. listed and cross listed for use with the main fire alarm control panel and shall bear the same manufacturer's name on the main control panel as well as all the remote devices. Systems having equipment with various manufacturer's names will not be acceptable.
4. The Fire Alarm System specified is manufactured by the Simplex Time Recorder Co. Catalog and model numbers are intended to establish the type and quality of equipment and system design as well as exact operating features required. The manufacturer's specification sheets of each item so listed shall be considered to be part of the specification and binding therein.
5. Acceptable as equal:
a. Pyrotronics
b. Gamewell
c. Edwards
6. System Operation
a. Actuation of any alarm initiating device shall cause all alarm devices to sound continuously. Alarm initiating device shall be grouped in zones. A zone in alarm conditions shall be indicated by a red LED on the proper zone module.
b. Actuation of any alarm initiating device shall automatically cause the following operations when furnished as a part of this system.
(1) Sound or audio-visual devices continuously (NOTE: A one (1) minute inhibit shall not allow the audible signals to be prematurely silenced until one (1) minute after the alarm has sounded.
(2) Indicate on the control panel the zone initiating the alarm and/or trouble condition.
(3) Indicate the zone of the reporting device on the remote annunciator.
(4) Be arranged to transmit a signal to the local fire department (via leased telephone lines).

STATE OF ILLINOIS
ROGER LOGESON
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ELECTRICAL SYMBOLS

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TYPICAL: ALL MOUNTING HEIGHTS ARE TO DEVICE CENTERLINE U.N.O.

LIGHTING
SURFACE OR PENDANT CEILING FIXTURE
WALL MOUNTED FIXTURE
RECESSED FLUORESCENT FIXTURE (SHADING INDICATES EMER.)
SURFACE OR PENDANT FLUORESCENT FIXTURE
EXIT LIGHT WALL MOUNTED (SHADING INDICATES FACE)
EXIT LIGHT CEILING MOUNTED (SHADING INDICATES FACE)
BATTERY EMERGENCY FIXTURE
DOUBLE HEAD EMERGENCY REMOTE FIXTURE

NUMBER=CIRCUIT
LETTER = SWITCH
F1,F2,F3 = FIXTURE
SEE SPECIFICATIONS AND FIXTURE SCHEDULE

SWITCHES
SINGLE POLE SWITCH - 4'-0" AFF UNLESS NOTED OTHERWISE

RECEPTACLES
DUPLEX RECEPTACLE
DUPLEX RECEPTACLE, GROUND FAULT TYPE

18" AFF UNLESS NOTED OTHERWISE

MISCELLANEOUS
MOTOR OUTLET BOX (* HP, KW OR KVA). VERIFY EXACT LOCATION AND HEIGHT OF ALL MOTORS BEFORE ROUGH-IN.
OUTLET WITH FINAL CONNECTIONS TO EQUIPMENT. WHICH IS FBO. VERIFY EXACT LOCATION AND HEIGHT BEFORE ROUGH-IN.
SAFETY SWITCH (F = FUSED) 4'-6" AFF
SURFACE ELECTRICAL PANEL 36" AFF TO BOTTOM UNO
RECESSED ELECTRICAL PANEL 36" AFF TO BOTTOM UNO
WIRING IN CONDUIT CONCEALED, ABOVE CEILINGS OR IN WALLS
WIRING IN CONDUIT CONCEALED IN OR UNDER FLOORS (UNO)
WIRING HOMERUN TO PANEL

CHARACTER MARKS= NUMBER OF WIRES, IF NONE ARE SHOWN PROVIDE TWO EXCEPT IF A GROUND CONDUCTOR IS REQUIRED PROVIDE THREE

GROUND CONDUCTOR
REFERENCE NOTE

FIRE ALARM SYSTEM
NOTE: NUMBER BY SYMBOL INDICATES ZONE TO WHICH DEVICES ARE WIRED IN FIRE ALARM CONTROL PANEL. UNLESS NOTED OTHERWISE
F — FIRE ALARM SYSTEM WIRING,IN CONDUIT,CONCEALED
—X—F— FIRE ALARM SYSTEM WIRING,IN CONDUIT,EXPOSED
F — WALL FIRE ALARM MANUAL STATION - UP 4'-0" AFF
H F — HEAT DETECTOR (135°) CEILING TYPE.
S F — SMOKE DETECTOR - CEILING MOUNTED TYPE

ELECTRICAL ABBREVIATIONS

AC	ABOVE COUNTER
AFF	ABOVE FINISHED FLOOR
AM	AMMETER
A	AMPERES
AMP	AMPLIFIER
ASC	ABOVE SUSPENDED CEILING
C	CONDUIT
℄	CENTER LINE
DP	DISTRIBUTION PANEL
DISC	DISCONNECT
EC	ELECTRICAL CONTRACTOR
E	EMERGENCY
FAAP	FIRE ALARM ANNUNCIATOR PANEL
FACP	FIRE ALARM CONTROL PANEL
FBO	FURNISHED BY OTHER THAT ELECTRICAL CONTRACTOR. COMPLETELY WIRED, WITH FINAL CONNECTIONS TO EQUIPMENT AND DEVICES, BY ELECTRICAL CONTRACTOR.
FL	FLUORESCENT
FLA	FULL LOAD AMPS
GFI	GROUND FAULT INTERRUPTER
HP	HORSEPOWER
HT	HEIGHT
IBEC	INSTALLED BY EC
INC	INCANDESCENT
JB	JUNCTION BOX
KW	KILOWATTS
KWHR	KILOWATT-HOUR
LTG	LIGHTING
LV	LOW VOLTAGE
MAG	MAGNETIC
MAX	MAXIMUM
MDP	MAIN DISTRIBUTION PANEL
MFR	MANUFACTURER
MIN	MINIMUM
MTD	MOUNTED
MTG	MOUNTING
NC	NEW CONNECTIONS TO PRESENT RACEWAY, DEVICE, WIRING, EQUIPMENT, ETC, INSTALL, TEST, COVER, PAINT, ETC., SAME AS NEW WORK

PANEL DESIGNATION : PANEL-A PROJECT NO.
120 / 240 VOLT LOCATION: RM.
1 PHASE 200 AMP MAIN LUGS ONLY SURFACE MOUNTED
3 WIRE FAULT CURRENT RATING AIC.

CCT PH	AMP/ POLE	REMARKS	WATTS LEFT	WATTS RIGHT	REMARKS	AMP/ POLE	CCT PH
1 A	20/1	RECEPTACLES	1260	1000	REFRIGERATOR	20/1	2 A
3 B	20/1	RECEPTACLES	1080	1080	RECEPTACLES	20/1	4 B
5 A	20/1	WASHER	1100	1000	OVERHEAD DOOR	20/1	6 A
7 B	30 /	DRYER	2000	1260	RECEPTACLES	20/1	8 B
9 A	/ 2	*	2000	1000	MICROWAVE	20/1	10 A
11 B	20/1	EWC	750	1080	RECEPTACLES	20/1	12 B
13 A	20/1	DISHWASHER	1000	200	EF-1	20/1	14 A
15 B	20/1	RECEPTACLES	1080	1200	FREEZER	20/1	16 B
17 A	20/1	WP RECEPTACLES	360	1800	RECEPTACLES	30/1	18 A
19 B	20/1	WP RECEPTACLES	360	1800	RECEPTACLES	30/1	20 B
21 A	20/1	FACP *	1000	1800	RECEPTACLES	30/1	22 A
23 B	20/1	RECEPTACLES	1000	1200	COPY MACHINE	20/1	24 B
25 A	20/1	REFRIGERATOR	1000	1000	RECEPTACLES	20/1	26 A
27 B	20/1	RECEPTACLES	1000	1000	TTB	20/1	28 B
29 A	20/1	RECEPTACLES	1000	0	SPACE	20/1	30 A
31 B	20/1	SPACE	0	0	SPACE	20/1	32 B
33 A	20/1	SPACE	0	0	SPACE	20/1	34 A
35 B	20/1	SPACE	0	0	SPACE	20/1	36 B
37 A	20/1	SPACE	0	0	SPACE	20/1	38 A
39 B	20/1	SPACE	0	0	SPACE	20/1	40 B
41 A	20/1	SPACE	0	0	SPACE	20/1	42 A

PHASE A = 15320
PHASE B = 15890
TOTAL CONNECTED LOAD (WATTS) = 31210

* PROVIDE HANDLE LOCK ON BREAKER

PANEL DESIGNATION : PANEL-MECH PROJECT NO.
120 / 240 VOLT LOCATION: RM.
1 PHASE 200 AMP MAIN LUGS ONLY MOUNTED
3 WIRE FAULT CURRENT RATING AIC.

CCT PH	AMP/ POLE	REMARKS	WATTS LEFT	WATTS RIGHT	REMARKS	AMP/ POLE	CCT PH
1 A	50 /	RTU-1 38 MCA	4560	3840	RTU-2 32 MCA	45 /	2 A
3 B	/ 2	* *	4560	3840	* *	/ 2	4 B
5 A	50 /	ERV-1 24.3 MCA	2916	1200	EH-1 1.5KW	20/1	6 A
7 B	/ 2	* *	2916	1200	EF-3	20/1	8 B
9 A	20/1	EF-1	100	1416	EF-4	20/1	10 A
11 B	20/1	EF-2	100	1200	LIGHTING	20/1	12 B
13 A	20/1	LIGHTING	1200	1000	LIGHTING	20/1	14 A
15 B	20/1	EM LIGHTING *	1000	1000	LIGHTING	20/1	16 B
17 A	20/1	EXIT SIGNS*	500	1000	LIGHTING	20/1	18 A
19 B	20/1	DOWNLIGHTS**	1000	1000	FLAGPOLE LTG**	20/1	20 B
21 A	20/1	LIGHTING	1000	1000	SIGNAGE **	30/1	22 A
23 B	20/1	LIGHTNG	1000	864	GF-1	20/1	24 B
25 A	20/1	LIGHTING	1000	500	EF-5	20/1	26 A
27 B	50 /	AC-1 16.3 MCA	2016	0	SPACE	20/1	28 B
29 A	/ 2	* *	2016	0	SPACE	20/1	30 A
31 B	20/1	SPACE	0	0	SPACE	20/1	32 B
33 A	20/1	SPACE	0	0	SPACE	20/1	34 A
35 B	20/1	SPACE	0	0	SPACE	20/1	36 B
37 A	20/1	SPACE	0	0	SPACE	20/1	38 A
39 B	20/1	SPACE	0	0	SPACE	20/1	40 B
41 A	20/1	SPACE	0	0	SPACE	20/1	42 A

PHASE A = 21048
PHASE B = 21696
TOTAL CONNECTED LOAD (WATTS) = 42744

*PROVIDE HANDLE LOCK ON BREAKER
** CIRCUIT VIA TIME CLOCK

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1-815-484-4710 fax
PROFESSIONAL DESIGN FIRM NO. 184-003483

A NEW FACILITY FOR
BOONE COUNTY ANIMAL SERVICES
AND ADOPTION CENTER
BELVIDERE, ILLINOIS

REVISIONS

COMMISSION NUMBER
215102

DATE
October 12, 2015

SHEET NO.
E4
OF 4 SHEETS