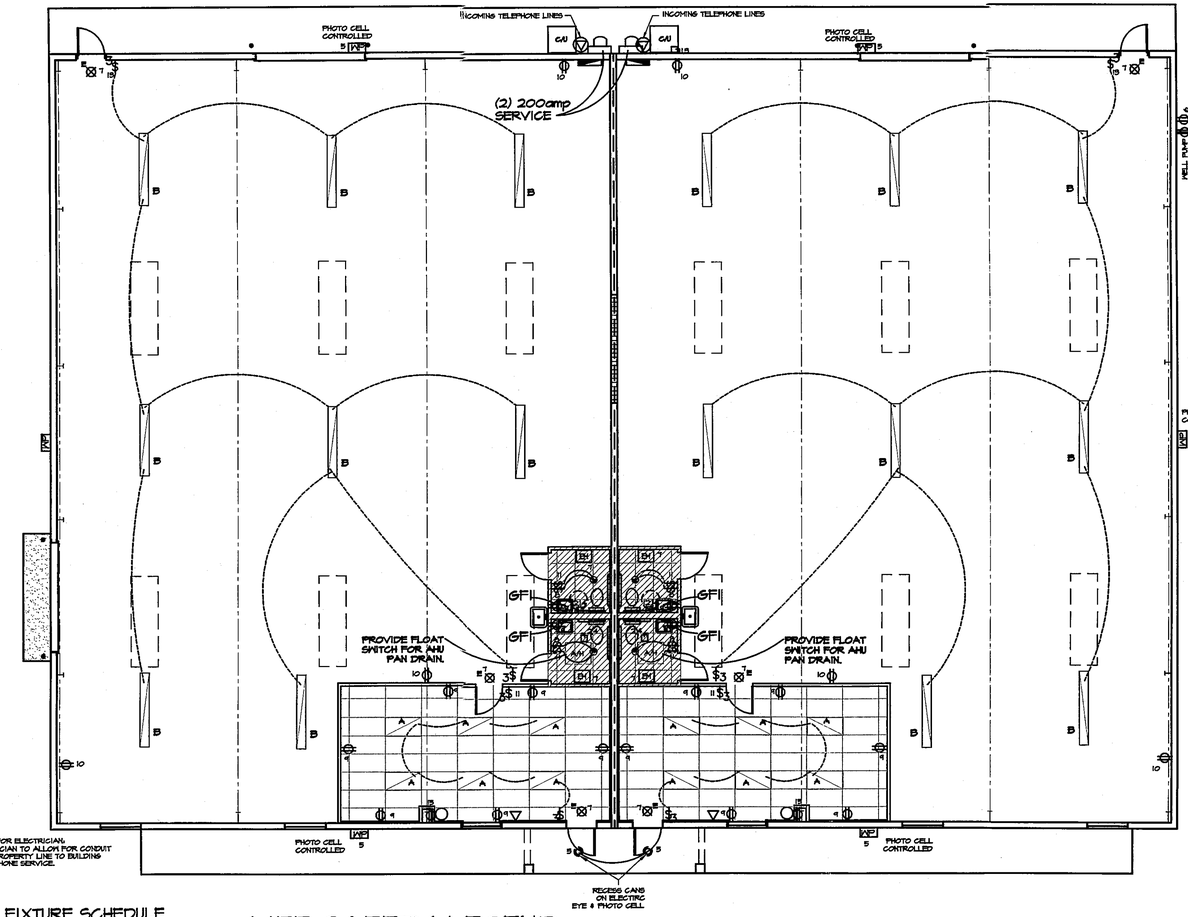
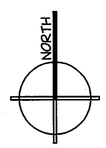
ELECTRICAL NOTES

1. Installation shall meet all requirements of the latest Edition of the National Electrical Code; NFPA 101, and all other applicable Codes and Ordinances.
2. Grounding shall be in accordance with the National Electrical Code, Article 250
3. All wire shall be THH or THHN Copper #12 minimum unless otherwise noted. Green ground conductor not shown; all conduits require copper ground conductor. Two conductors plus ground required, as a minimum.
4. Wire sizes not shown on drawings shall be selected in accordance with National Electrical Code Ampacity and derating requirements.
5. All equipment shall be U.L. listed.
6. Schedule 40 PVC is to be used underground or in floor slabs to first outlet box, panelboard, switchboard or junction box if it is concealed. No PVC conduit is allowed exposed in building interiors. Exposed IPVC conduit may be used in protected locations on the exterior and other locations when the conduit is exposed to the elements. Conduit sizes shown on the drawings are for metallic. When the Contractor uses nonmetallic conduits, such conduits shall be resized per NEC to accommodate the ground wire at no additional cost to the owner. "EMUSRF" conduit is not permitted.
7. All "homeruns" 100 feet or over for lighting and receptacle circuits shall be #10 minimum.
8. All conduit shall be sized to accommodate the required size and number of conductors. " Homeruns" shall be 3/4" conduit minimum.
9. Maximum length of flexible conduit shall be six (6) feet and 0 inches with strain relief.
10. Coordinate all lighting fixtures and equipment locations with the Architect and Mechanical Contractor before installation.
11. Coordinate telephone requirements with the telephone company.
12. All circuit breakers shall be rated for switching duty when used for switching lighting.
13. Pull and junction boxes shall meet requirements of the National Electrical Code.
14. The Electrical Contractor shall visit and examine carefully the areas affected by this work to become familiar with existing conditions and difficulties that will attend the execution of this work. The Contractor shall perform this prior to submitting his as evidence that such an examination for extra labor, equipment, or materials required because of difficulties encountered which could have been foreseen had such an examination been made.
15. All work shall be designed and in compliance with the "Fair Housing Act" and the "Americans with Disabilities Act".
16. Any deviations from the electrical plans or specifications must be approved in writing by the Engineer.
17. Drawings are diagrammatic and do not indicate exact location of wiring, fixtures, receptacles, equipment, etc.. It is the responsibility of the contractor to make this installation in compliance with all applicable codes superseding all drawings and notes.
18. All exterior lights are to be controlled by a photocell facing north and a timer in series. In this manner the lighting can be turned on as needed but switched off as desired during the night.
19. Calculations have been provided based upon equipment KW ratings as identified at the time of proto type issue. Any deviation of equipment KW ratings at time of construction must be accommodated for in calculations.
20. Disconnect switches shall be labeled with corresponding panel being fed.
21. Lighting fixtures shall be installed using approved fasteners, stems, chains, etc., to meet the requirements of the Engineer. All mounting provisions are the responsibility of the Electrical Contractor. Lighting fixtures are to be U.L. approved. Conductors run through lighting fixtures shall be rated for temperatures specified by the fixture manufacturer, and in no event less than 90% C. Fixtures mounted in fire rated surfaces shall be installed with the surface materials surrounding the back and sides in accordance with U.L. procedures. Such fixtures shall be manufactured specifically to handle the resultant build-up of that, without undue lessening of ballast or lamp life. Fixtures installed in ceilings which are insulated shall be specifically rated by U.L. for direct contact with insulation. All fixtures are to be grounded. All recessed incandescent fixtures shall be thermally protected unless they are identified as suitable for installation where thermal insulation will be in direct contact with the fixture. Fluorescent ballast's shall be U.L. approved, rated by the Certified Ballast Manufacturers Association high power factor type, with maximum noise level of 24DB related to 0.0002 microbars as measured by the Engineer. Class A noise level required. A complete set of lamps shall be installed throughout the project at the time of final acceptance.
22. Fire wall, ceiling and floor penetrations are to be made with metallic raceways. Do not make openings into void spaces or otherwise degrade firewalls. All passages into or through fire wall are to be performed in a manner acceptable to the building department, and sealed as required by the local fire department and/or building department.
23. Install 1/2" PVC conduit for each telephone outlet, from the junction box to above the ceiling, and at the backboard to above the ceiling. Each conduit is to contain a pull string.
24. Revisions to these Drawings and any necessary certification required for permitting as the result of a Contractor requested revision shall be compensated to the Engineer by the requesting Contractor. Payment will be required at the time of delivery of certified Drawings.
25. Aluminum electrical conductors of any kind are not to be used anywhere in this work.
26. All outdoor lighting fixtures and installation shall meet 120 mph wind load criteria.
27. All panelboards, disconnects, etc. which are mounted on the exterior are to be flashed and/or caulked by the Electrical Contractor to prevent seepage of water into the interior.
28. Circuits have been provided for on panel schedules according to equipment with electrical connections as identified at the time of proto type issue. Any deviation from schedule equipment at time of construction must be accommodated for on panel schedules and for electrical installation.
29. All bathroom outlets and outside receptacle outlets shall be G.F.I..
30. All A/C equipment shall be fused as per manufacture specifications.
31. Coordinate available fault current with local utility company and modify prototype service distribution accordingly. Power distribution equipment shall have A.I.C. and withstanding rating as required for site specific available fault values.
32. Coordinate location of all Life Safety equipment with the Fire Marshall.
33. Coordinate location of Meter Bank and Disconnects with the Local Power Company.
34. Contractor shall NOT use Romex on this project.

ABBREVIATIONS & ACRONYMS

A/C	AIR CONDITIONING
AIC	AMPS INTERRUPTING CURRENT
AHU	AIR HANDLING UNIT
AFF	ABOVE FINISHED FLOOR
ART	ARTICLE
ASSO.	ASSOCIATION
C	CELSIUS
CKT	CIRCUIT
CU	CONDENSING UNIT
CU	COPPER
DB	DECIBELS
DISC	DISCONNECT
EQUIP	EQUIPMENT
EXT	EXTERIOR
FIXT	FIXTURE
FLEX	FLEXIBLE
GFI	GROUND FAULT INTERRUPT
GND	GROUND
JB	JUNCTION BOX
KW	KILOWATTS
LTG	LIGHTING
LTS	LIGHTS
MB	MAIN BREAKER
MPH	MILED PER HOUR
NEC	NATIONAL ELECTRICAL CODE
NEMA	NATIONAL ELECTRICAL MATERIAL ASSO.
NFPA	NATIONAL FIRE PROTECTION AGENCY
NTS	NOT TO SCALE
PNL	PANEL
PVC	POLYVINYL CHLORIDE
RECEPT	RECEPTACLE
SW	SWITCH
TYP	TYPICAL
U.L.	UNDERWRITERS LABORATORIES
VA	VOLT AMP
W	WATTS
WH	WATTER HEATER
WP	WATERPROOF





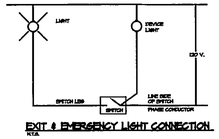
NOTE FOR ELECTRICIAN: ELECTRICIAN TO ALLOW FOR CONDUIT FROM PROPERTY LINE TO BUILDING FOR PHONE SERVICE

LIGHTING FIXTURE SCHEDULE

- BATH FAN & LIGHT COMBO
- WP — 175 WATT WALL PACK, 215W INPUT MAX
- A — 2'x4' LAY IN LIGHT FIXTURE, 3 LAMPS, 40W EACH
- B — 8' STRIP LIGHT, 2 LAMPS, 110W EACH
- C — RECESSED CAN (100W MAX)

LIFE SAFETY LEGEND

- Combo Exit/Emergency Light w/ Battery Backup
- EM — Emergency Light w/ Battery Backup



EXIT & EMERGENCY LIGHT CONNECTION
N.T.S.

ELECTRICAL SYMBOLS

- AH — AIR HANDLING UNIT
- FAN / LIGHT
- WH — ELECTRIC WATER HEATER
- RECEPTACLE
- $ — SWITCH
- $3 — 3 WAY SWITCH
- $4 — 4 WAY SWITCH
- PANEL
- METER
- Fused Disconnect Switch

LOAD CALCULATIONS

CONTINUOUS LOAD

LIGHTING	
OFFICE AREA	9.2 K.W.
WHAREHOUSE	2.9 K.W.
EXTERNAL	2.2 K.W.
TOTAL CONTINUOUS LOAD	8.3 K.W.

NON-CONTINUOUS LOAD

FIXED HEAT / COOL	
HEAT	6.0 K.W.
AHU-1	
HEAT STRIP = 5.0 K.W	
BLOWER = 1.0 K.W.	
FIXED EQUIPMENT	
IRRIGATION	2.0 K.W.
WATER HEATER	9.0 K.W.
MOTORS	
SUMP PUMP	6.0 K.W.
SPRINKLER PUMP	4.4 K.W.
EXHAUST FAN	0.5 K.W.
LARGEST (6.0 K.W. X 25%)	1.5 K.W.
RECEPTICALS (NEC 220.13) (20 @ 180 W. = 3.6 K.W.)	
FIRST 10 K.W. @ 100%	3.6 K.W.
0.0 K.W. @ 50%	0.0 K.W.
TOTAL NON-CONTINUOUS LOAD	27.0 K.W.

TOTAL LOAD
[PER NEC 210.19(A)(1)]

NON-CONTINUOUS LOAD	27.0 K.W.
CONTINUOUS LOAD X 125%	10.4 K.W.
8.3 K.W. X 125%	
TOTAL LOAD	37.4 K.W.
37.4 K.W. / 220 V = 170.0 AMPS	

LIGHTING LOAD CALCULATION (ACTUAL)

OFFICE

FIXTURE TYPE	RATED LOAD	QUANTITY	TOTAL
A	150 W	6	900 W
EF	100 W	2	200 W
TOTAL LIGHTING LOAD			1100 W

WAREHOUSE

FIXTURE TYPE	RATED LOAD	QUANTITY	TOTAL
B	250 W	4	1000 W
TOTAL LIGHTING LOAD			1000 W

EXTERNAL

FIXTURE TYPE	RATED LOAD	QUANTITY	TOTAL
WP	215 W	9	1935 K.W.
C	100 W	2	200 K.W.
TOTAL LIGHTING LOAD			2135 K.W.

LIGHTING LOAD CALCULATIONS (NEC T220.3A)

OFFICE (UNIT 1) (3.5 W X 900 SQ. FT.)	9.2 K.W.
STORAGE (UNIT 1) (0.25 W X 11700 SQ. FT.)	2.9 K.W.

SHEET NOTES

1. ELECTRICIAN TO ALLOW FOR CONDUIT FROM PROPERTY LINE TO BUILDING FOR PHONE SERVICE.
2. REFERENCE SHEET E1 FOR ELECTRICAL NOTES, ABBREVIATIONS & ACRONYMS, RISER DIAGRAM, LIGHTING FIXTURE LEGEND, PANEL SCHEDULES, SYMBOLS, AND LOAD CALCULATIONS.
3. COORDINATE LOCATION AND TYPE OF ALL LIFE SAFETY EQUIPMENT WITH FIRE MARSHAL. REFERENCE SHEET E1 FOR LIFE SAFETY LEGEND AND SMOKE ALARM CONNECTION DIAGRAM.

PANEL SCHEDULE (UNIT #1)

LOAD	WIRE	POLES	AMP				AMP	POLES	WIRE	LOAD
CU	10	2	30	1	2		60	2	6	AHU
				3	4					
EXTERIOR LIGHTING	10	1	20	5	6		20	1	12	BOTTLED WATER
EMERGENCY LIGHTING	12	1	20	7	8		20	1	12	EXHAUST FAN
RECEPTACLES	12	1	20	9	10		20	1	12	RECEPTACLES
OFFICE LIGHTS	12	1	20	11	12		50	2	10	WATER HEATER
WAREHOUSE LIGHTS	12	1	20	13	14					
				15	16					
				17	18					
				19	20					
				21	22					
				23	24					
				25	26					
				27	28					
				29	30					
				31	32					
				33	34					
				35	36					
				37	38					
				39	40					
				41	42					

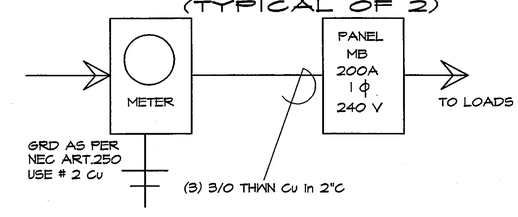
RATED VOLTAGE ■ 240 | 1 PHASE 3 WIRE | BRANCH POLES ☐ 12 ☐ 20 ☐ 30 ☐ 42
RATED AMPS ☐ 100 ☐ 150 ■ 200 ☐ 400 | CABINET: ☐ SURFACE ■ FLUSH
FULL NEUTRAL BUS ☐ GROUND BUS ☐ KEYED DOOR LATCH ☐ MAIN LUGS ____ SETS SIZE ____
☐ FUSED ■ BRANCH DEVICES | FEED IS TO BE: ☐ BOTTOM ☐ TOP
MAIN LUGS ONLY ☐ MAIN 200AMP BREAKER ☐ ____ TO BE 6FI BREAKER(S)
ALL BREAKERS MUST BE RATED TO INTERRUPT A SHORT CIRCUIT OF ____ AMPS ASYMMETRICAL
APPROVED MFRS: WESTINGHOUSE, ITE, ALLEN BRADLEY, GE, CUTLER-HAMMER ONLY

PANEL SCHEDULE (UNIT #2)

LOAD	WIRE	POLES	AMP				AMP	POLES	WIRE	LOAD
CU	10	2	30	1	2		60	2	6	AHU
				3	4					
EXTERIOR LIGHTING	10	1	20	5	6		20	1	12	IRRIGATION TIMER
EMERGENCY LIGHTING	10	1	20	7	8		20	1	12	EXHAUST FAN
RECEPTACLES	12	1	20	9	10		20	1	12	RECEPTACLES
RECEPTACLES	12	1	20	11	12		50	2	10	WATER HEATER
WAREHOUSE LIGHTS	12	1	20	13	14					
BOTTLED WATER	12	1	20	15	16		20	2	10	SPRINKLER PUMP
				17	18					
				19	20					
				21	22					
				23	24					
				25	26					
				27	28					
				29	30					
				31	32					
				33	34					
				35	36					
				37	38					
				39	40					
				41	42					

RATED VOLTAGE ■ 240 | 1 PHASE 3 WIRE | BRANCH POLES ☐ 12 ☐ 20 ☐ 30 ☐ 42
RATED AMPS ☐ 100 ☐ 150 ■ 200 ☐ 400 | CABINET: ☐ SURFACE ■ FLUSH
FULL NEUTRAL BUS ☐ GROUND BUS ☐ KEYED DOOR LATCH ☐ MAIN LUGS ____ SETS SIZE ____
☐ FUSED ■ BRANCH DEVICES | FEED IS TO BE: ☐ BOTTOM ☐ TOP
MAIN LUGS ONLY ☐ MAIN 200AMP BREAKER ☐ ____ TO BE 6FI BREAKER(S)
ALL BREAKERS MUST BE RATED TO INTERRUPT A SHORT CIRCUIT OF ____ AMPS ASYMMETRICAL
APPROVED MFRS: WESTINGHOUSE, ITE, ALLEN BRADLEY, GE, CUTLER-HAMMER ONLY

ELECTRICAL RISER DIAGRAM (TYPICAL OF 2)



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JRA
Rost Associates, Inc.
1154 Lee Blvd. #3, Lehigh Acres, Florida 33936
PH.(239)368-3400 • FAX:(239) 368-8498

APPROVED
3/24/06
John F. Kilian
FLORIDA P.E. #52684
VALID ONLY WITH LIVE/RAISED SEAL

J.F.K. & Associates, Inc.
Real Estate Professional-Engineers-Builders-Property Managers
3031 Northeast 20th Court
Cape Coral, FL 33909
Telephone: (239)574-6226
Facsimile: (239)574-6231
Cell Phone: (239)340-6571

Sox Development, Inc.
14565 Eagle Ridge Drive
Fort Myers, Florida 33912

Phase 2 Lot 2
Bayshore Industrial Park, North Fort Myers, FL

ELECTRICAL PLAN

SCALE: 1/8" = 1'-0"
DATE: MARCH 24, 2005
SHEET
E1