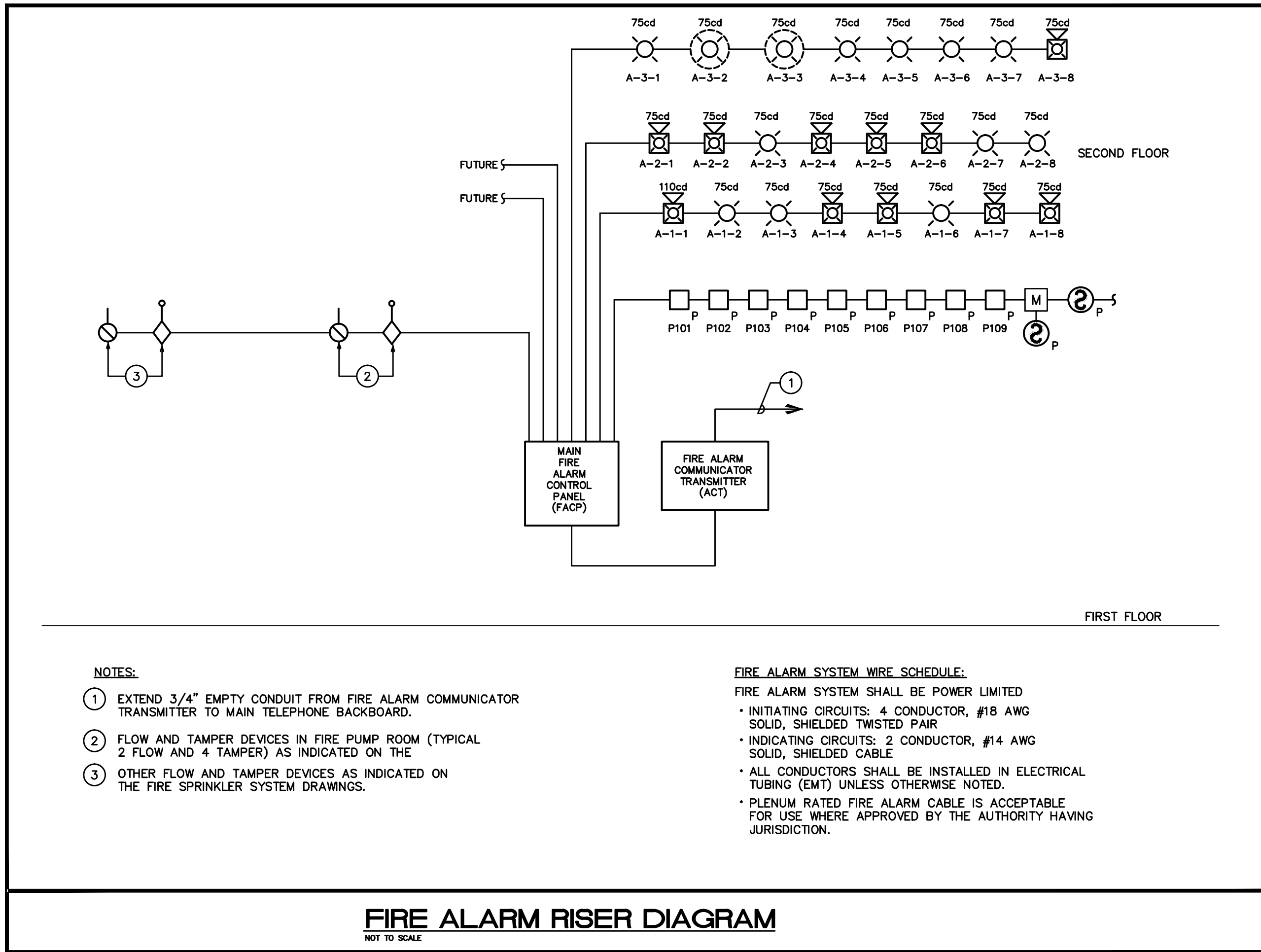


### FIRE ALARM SYMBOLS

	FIRE ALARM MANUAL PULL STATION. NOTIFIER #NBG12LX
	PHOTOELECTRIC SMOKE DETECTOR. NOTIFIER #SDX751/BX501
	IONIZATION SMOKE DETECTOR. NOTIFIER #CPX551/BX501
	DUCT SMOKE DETECTOR. NOTIFIER #DH100ADCP, 24 VOLT
	HEAT DETECTOR AND FIXED TEMPERATURE COMBINATION. NOTIFIER #DXT40RE OF RISE
	ADDRESSABLE FIRE ALARM CONTROL PANEL. NOTIFIER #NFS-320
	REMOTE POWER SUPPLY. NOTIFIER #FPCS 24
	FIRE ALARM SYSTEM ANNUNCIATOR. NOTIFIER #FDU-80
	ALARM COMMUNICATOR TRANSMITTER. NOTIFIER #411
	EMERGENCY WARNING LIGHT. NOTIFIER "EL1" SERIES
	FIRE ALARM HORN / STROBE COMBINATION. NOTIFIER #S2415, S2475 & S24110 HWR. NUMERAL ADJACENT TO DEVICE INDICATES CANDELA RATING.
	CEILING MOUNTED FIRE ALARM STROBE. NOTIFIER #S2415, S2475 & S24110 HWR. NUMERAL ADJACENT TO DEVICE INDICATES CANDELA RATING.
	FIRE ALARM STROBE. NOTIFIER #S2415, S2475 & S24110 HWR. NUMERAL ADJACENT TO DEVICE INDICATES CANDELA RATING.
	FIRE ALARM MINI-HORN. NOTIFIER #HG24WR. MOUNT AT 80" A.F.F. OR 6" BELOW CEILING WHICHEVER IS LOWER.
	FIRE ALARM FLOW SWITCH (FURNISHED BY SPRINKLER CONTRACTOR)
	FIRE ALARM TAMPER SWITCH (FURNISHED BY SPRINKLER CONTRACTOR)
	REMOTE TEST. NOTIFIER #RTS451
	CONTROL RELAY MODULE. NOTIFIER #CMX-2 (FAN SHUT DOWN)
	MONITOR MODULE. PROVIDE ONE FOR EACH FLOW SWITCH, TAMPER SWITCH AND AIR DUCT SMOKE DETECTOR. NOTIFIER #MMX-101.
	BUILDING KNOX BOX. FLUSH MOUNTED +60" AFG. KNOX COMPANY 4400 SERIES.



### FIRE ALARM SHEET INDEX

SHEET#	DESCRIPTION
FA0.1	FIRE ALARM RISER DIAGRAM, NOTES, LEGEND, & INDEX
FA2.1	FIRE ALARM PLAN

- ### FIRE ALARM NOTES
- THE MAIN FIRE ALARM CONTROL PANEL SHALL BE A MICROPROCESSOR BASE SYSTEM WITH ADDRESSABLE, INTELLIGENT DETECTORS, ADDRESSABLE CONTROL RELAY AND MONITOR MODULES, VISIBLE AND AUDIBLE SYSTEM ANNUNCIATORS AND OTHER SYSTEM CONTROLLED DEVICES AS REQUIRED.
  - PROVIDE REMOTE POWER SUPPLY AS INDICATED FOR EACH FLOOR FOR FUTURE TENANT BUILDOUT. THE FIRE ALARM SHALL BE CAPABLE OF FUTURE EXPANSION AS REQUIRED IN THE TENANT TENANT SPACES.
  - ALL WIRING AND CONDUIT TO CONFORM TO N.F.P.A. 72 AND N.E.C. ARTICLE 760. WIRING SHALL BE SOLID COPPER OR STRANDED COPPER WITH A MAX. OF 72 STRANDS FOR 16 GA AND 18 GA, STRANDED COPPER WITH A MAX. OF 19 STRANDS FOR SIZES 14 AND LARGER AS REQUIRED BY N.E.C. 760 AND N.F.P.A. 70.
  - ALL FIRE STOP PENETRATIONS SHALL BE MADE WITH APPROVED (NEC) METALLIC CONDUIT AND SHALL BE SEALED WITH A U.L. APPROVED FIRE STOP MATERIAL. (SEE FIRE STOP DETAIL)
  - ROUTING OF THE FIRE ALARM SYSTEM CONDUIT IS DIAGRAMMATIC ONLY, VERIFY EXACT LOCATIONS PRIOR TO STARTING WORK.
  - ALL FIRE ALARM NOTIFICATION APPLIANCES SHALL ACTIVATE UPON INITIATION OF THE GENERAL ALARM.
  - ALL FIRE ALARM AUDIBLE SIGNALS SHALL HAVE A THREE PLUS TEMPORAL PATTERN.
  - ALL FIRE ALARM AUDIBLE SIGNALS SHALL HAVE A SOUND LEVEL OF AT LEAST 15 dba ABOVE THE AVERAGE AMBIENT SOUND LEVEL.
  - MANUAL STATIONS SHALL BE INSTALLED AT 48" INCHES A.F.F.
  - WALL MOUNTED FIRE ALARM SYSTEM AUDIBLE/VISUAL SIGNALS (COMBINATION DEVICES) SHALL BE MOUNTED SUCH THAT THE ENTIRE STROBE LENS IS 80" A.F.F. OR 6" BELOW CEILING, WHICHEVER IS LOWER.
  - SMOKE DETECTORS TO BE INSTALLED AS REQUIRED BY N.F.P.A. 72.
  - THE FIRE ALARM PANEL SHALL HAVE AN EARTH GROUND CONNECTION AS REQUIRED BY THE SYSTEM MANUFACTURER, AND N.E.C. ARTICLE 760. MINIMUM WIRE SIZE IS #8 AWG FOR GROUND CONNECTION. (NOTE PANEL NEUTRAL OR CONDUIT GROUND IS NOT ACCEPTABLE).
  - A GENERAL ALARM SHALL BE ANNUNCIATED UPON ACTIVATION OF ANY PULL STATION, FLOW SWITCH OR DETECTION DEVICE.
  - A TROUBLE SIGNAL SHALL BE ANNUNCIATED UPON FAILURE OR REMOVAL OF ANY DETECTION OR MANUAL DEVICE.
  - A SUPERVISORY SIGNAL SHALL BE ANNUNCIATED UPON ACTIVATION OF ANY FIRE SPRINKLER SYSTEM TAMPER SWITCH.
  - HVAC DUCT SMOKE DETECTORS SHALL BE CONNECTED TO THE FIRE ALARM CONTROL PANEL AND SHALL INITIATE A SUPERVISORY SIGNAL ONLY.
  - FIRE ALARM SYSTEM SHALL BE U.L. CERTIFIED.
  - ALL FIRE ALARM INITIATING DEVICES SHALL BE ADDRESSABLE AND ALL FIRE ALARM CIRCUITS SHALL BE CLASS "B", STYLE "C".
  - SECURITY LOCK SYSTEM (BY OTHERS) SHALL BE TIED INTO FIRE ALARM SYSTEM. EMERGENCY EXITS SHALL UNLOCK UPON RECEIPT OF ANY FIRE SIGNAL OR LOSS OF PRIMARY POWER.
  - PROVIDE CERTIFICATE OF COMPLETION AT THE FINAL INSPECTION OF THE FIRE ALARM SYSTEM.
  - FIRE ALARM CONTRACTOR SHALL PROVIDE A DETAILED SET OF SHOP DRAWINGS (INCLUDING DEVICE CUT SHEETS), A COMPLETE POINT TO POINT WIRING DIAGRAM, FLOOR PLAN DRAWINGS INDICATING ALL DEVICE LOCATIONS AND NUMBERS, COMPLETE BATTERY CALCULATIONS AND COMPLETE NOTIFICATION APPLIANCE CIRCUIT CALCULATIONS (FOR THE SYSTEM TO BE INSTALLED) TO THE BUILDING DEPARTMENT (AUTHORITY HAVING JURISDICTION) AT THE TIME OF APPLICATION FOR BUILDING PERMIT.
  - PROVIDE THE OWNER WITH A COMPLETE FIRE ALARM SYSTEM AND INSTALLATION MANUAL COVERING ALL SYSTEM EQUIPMENT INSTALLED FOR THIS PROJECT. KEEP AT THE MAIN FIRE ALARM CONTROL PANEL.

### SYSTEM OPERATION MATRIX

SYSTEM INPUTS	CONTROL UNIT ANNUNCIATION														SYSTEM OUTPUTS	
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	NOTIFICATION	ANNUNCIATION
1 MANUAL FIRE ALARM BOXES																
2 SMOKE DETECTORS																
3 SMOKE DETECTOR - 1ST FL. ELEV LOBBY																
4 SMOKE DETECTOR - 2ND FL. ELEV LOBBY																
5 HEAT DETECTORS ELEV. MACH ROOM																
6 IN-DUCT SMOKE DETECTORS																
7 WATERFLOW																
8 SPRINKLER VALVE CONTROL																
9 FIRE ALARM AC POWER FAILURE																
10 FIRE ALARM SYSTEM LOW BATTERY																
11 OPEN CIRCUIT																
12 GROUND FAULT																
13 NOTIFICATION APPLIANCE CIRCUIT SHORT																

### FIRE ALARM BATTERY CALCULATION

ITEM	DESCRIPTION	STANDBY CURRENT PER UNIT (AMPS)	QTY	TOTAL STANDBY CURRENT PER ITEM (AMPS)	ALARM CURRENT PER UNIT (AMPS)	QTY	TOTAL ALARM CURRENT (AMPS)
	MANUAL PULL STATION	.0	X 9	= .0	.000230	X 9	= .0021
	PHOTOELECTRIC SMOKE DETECTOR	.000230	X 1	= .000230	.0065	X 1	= .0065
	DUCT DETECTOR	.015	X 1	= .015	.07	X 1	= .07
	HEAT DETECTOR	.00015	X 0	= .0	.005	X 0	= .0
	FIRE ALARM CONTROL PANEL	.1	X 1	= .1	.15	X 1	= .15
	FIRE ALARM SYSTEM POINT ANNUNCIATOR	.04	X 1	= .04	.056	X 1	= .056
	HORN/STROBE (15 CANDELA)	.0	X 0	= .0	.078	X 0	= .0
	HORN/STROBE (75 CANDELA)	.0	X 10	= .0	.148	X 10	= 1.48
	HORN/STROBE (110 CANDELA)	.0	X 0	= .0	.165	X 0	= .0
	STROBE (15 CANDELA)	.0	X 0	= .0	.053	X 0	= .0
	STROBE (75 CANDELA)	.0	X 13	= .0	.123	X 13	= 1.599
	STROBE (110 CANDELA)	.0	X 0	= .0	.140	X 0	= .0
	<b>TOTAL SYSTEM STANDBY CURRENT (AMPS)</b>			<b>0.2</b>			<b>3.4</b>

REQUIRED OPERATING TIME OF SECONDARY POWER SOURCE FROM NFPA 72 4.4.1.5.3:

STANDBY: 24 HOURS      ALARM: 5 MINUTES X 1/60 = 0.0833 HOURS

REQUIRED STANDBY TIME (HOURS)	TOTAL SYSTEM STANDBY CURRENT (AMPS)	REQUIRED STANDBY CAPACITY (AMP-HOURS)	REQUIRED ALARM TIME (HOURS)	TOTAL SYSTEM ALARM CURRENT (AMPS)	REQUIRED ALARM CAPACITY (AMP-HOURS)
24	X 0.2	= 4.8	0.0833	X 3.4	= 0.283

REQUIRED STANDBY CAPACITY (AMP-HOURS)	REQUIRED ALARM CAPACITY (AMP-HOURS)	REQUIRED AMPERE HOUR BATTERY	DERATING FACTOR @ 1.2	MINIMUM AMP-HOUR BATTERY REQUIRED
4.8	+ 0.283	= 5.08	X 1.2	= 6.099

### NOTIFICATION APPLIANCE CIRCUIT CALCULATIONS

DEVICE	CIRCUIT #1			CIRCUIT #2			CIRCUIT #3			CIRCUIT #4		
	DEVICE COUNT	DRAW (AMPS)	TOTAL DRAW (AMPS)	DEVICE COUNT	DRAW (AMPS)	TOTAL DRAW (AMPS)	DEVICE COUNT	DRAW (AMPS)	TOTAL DRAW (AMPS)	DEVICE COUNT	DRAW (AMPS)	TOTAL DRAW (AMPS)
STROBE (15cd)	-	0.053	-	-	0.053	-	-	0.053	-	-	0.053	-
STROBE (75cd)	3	0.123	0.369	3	0.123	0.369	7	0.123	0.861	-	0.123	-
STROBE (110cd)	-	0.140	-	-	0.140	-	-	0.140	-	-	0.140	-
HORN/STROBE (15cd)	-	0.078	-	-	0.078	-	-	0.078	-	-	0.078	-
HORN/STROBE (75cd)	4	0.148	0.592	5	0.148	0.74	1	0.148	0.148	-	0.148	-
HORN/STROBE (110cd)	1	0.156	0.156	-	0.156	-	-	0.156	-	-	0.156	-
	<b>TOTAL DRAW (AMPS) FOR CIRCUIT #1</b>	<b>1.1</b>	<b>TOTAL DRAW (AMPS) FOR CIRCUIT #2</b>	<b>1.1</b>	<b>TOTAL DRAW (AMPS) FOR CIRCUIT #3</b>	<b>1.0</b>	<b>TOTAL DRAW (AMPS) FOR CIRCUIT #4</b>	<b>1.8</b>	<b>TOTAL DRAW (AMPS) FOR CIRCUIT #4</b>	<b>1.8</b>	<b>TOTAL DRAW (AMPS) FOR CIRCUIT #4</b>	<b>1.8</b>
	<b>AMPS REMAINING</b>	<b>0.7</b>	<b>AMPS REMAINING</b>	<b>0.7</b>	<b>AMPS REMAINING</b>	<b>0.8</b>	<b>AMPS REMAINING</b>	<b>-</b>	<b>AMPS REMAINING</b>	<b>-</b>	<b>AMPS REMAINING</b>	<b>-</b>

REVISIONS	BY

**Slattery & Associates**  
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BIDDING NOT FOR CONSTRUCTION  
DATE OF SEAL: 4/2/08  
SLATTERY & ASSOCIATES  
FLORIDA REGISTRATION # AA0003381

### FIRE ALARM NOTES

DRAWN	JWC/PG/AE
CHECKED	AK/MP
DATE	10-21-16
SCALE	AS NOTED
JOB NO.	2011-64
SHEET	FA0.1

ISSUED FOR PERMIT  
ISSUED FOR CONSTRUCTION

KAMM CONSULTING PROJECT # 2016-0024  
PROJECT MANAGER: JOHN CHIRGWIN

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Deerfield Beach, Florida 33442  
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**KAMM Consulting**

date: 10.21.16  
signed: \_\_\_\_\_

PHASE: C.D. SET 10-21-16