SCOPE OF WORK:

1. BUILDING AND FIRE ALARM SYSTEM ARE EXISTING. BUILDING HAS FOUR STORIES AND DO NOT HAVE SPRINKLER SYSTEM.
2. THE EXISTING FIRE ALARM SYSTEM HAS AN ADDRESSABLE PANEL MS-9600, SUPPORTS UP TO 318 ADDRESSABLE DEVICES (159 DETECTORS AND 159 MODULES PER LOOP) AND 4 NOTIFICATION CIRCUITS. AN ADDITIONAL 318 ADDRESSABLE DEVICES CAN BE ADDED IN A SECOND LOOP.
3. PURPOSE OF THIS PERMIT IS TO ADD NEW INITIATING DEVICES INSIDE UNITS SHOWN AT 2nd, 3rd & 4th FLOORS; BECAUSE INTERIOR RENOVATION OR MISSING FROM SEVERAL AREAS.
4. ALL VOLTAGE DROPS, FACP AND POWER SUPPLIES BATTERY CALCULATIONS WERE UPDATED.
5. PLEASE FOLLOW FLOOR PLAN AND RISER DIAGRAM FOR DEVICES/EQUIPMENT LOCATIONS AND INTERCONNECTION.
6. THE FIRE ALARM SYSTEM IS MONITORED BY AN EXISTING "LISTED CENTRAL STATION".
7. SYSTEM IS A CERTIFICATED OR PLACARDED CENTRAL STATION SERVICE (NFPA 72:26.3.8.3)
8. DESIGN SHALL CONFORM REQUIREMENTS OF NFPA-72, 2016 EDITION (NATIONAL FIRE ALARM CODE), FFPC 7th EDITION (FLORIDA FIRE PREVENTION CODE), NFPA 1, 2018 EDITION (FIRE CODE), NFPA 101, 2018 EDITION, (LIFE SAFETY CODE), NFPA 70, 2017 EDITION (NATIONAL ELECTRICAL CODE) AND FBC 2020 EDITION (FLORIDA BUILDING CODE).
9. VOLTAGE DROP AND BATTERY BACK-UP CALCULATIONS PROVIDED FOR 24 HOURS STANDBY PLUS 5 MINUTES IN ALARM CONDITION.
10. THE FACP AND POWER SUPPLY ARE LOCATED INSIDE MECHANICALLY VENTILATED ROOM.
11. OCCUPANCY TYPE PER FFPC 7th EDITION IS BUSINESS.

FIRE ALARM SPECIFICATIONS AND NOTES:

1. INSTALLATION SHALL BE IN ACCORDANCE WITH THE 2017 EDITION OF NEC-760. NFPA & ALL LOCAL AND FBC 2020 Edition. BUILDING AND FIRE ALARM SYSTEM ARE EXISTING. THE EXISTING FIRE ALARM SYSTEM IS POWER LIMITED.
2. ALL MATERIALS SHALL BE UL LISTED AND COMPATIBLE FOR THE PURPOSE INTENDED.
3. CONTRACTOR SHALL PROVIDE ALL REQUIRED PERMITS.
4. MINIMUM CONDUIT SIZE WILL BE 1/2". MAX CONDUIT FILL SHALL BE 40%.
5. CONTRACTOR SHALL WARRANTEE ALL WORKMANSHIP AND MATERIALS FOR ONE YEAR FROM FINAL INSPECTION.
6. CONTRACTOR SHALL REPORT ANY DISCREPANCIES TO THE ENGINEER FOR CLARIFICATION.
7. CONTRACTOR SHALL INVESTIGATE THE PROJECT SITE AND ALL EXISTING SYSTEMS PRIOR TO CONSTRUCTION.
8. SUBMIT SHOP DRAWINGS TO FIRE MARSHALL FOR APPROVAL PRIOR TO ROUGH-IN.
9. VERIFY LOCATION OF ALL DEVICES WITH FIRE MARSHALL AND OWNER REPRESENTATIVE AT ROUGH-IN.
10. A BREAK IN ANY FIELD WIRING OR GROUNDING OF ANY CONDUCTOR WILL RESULT IN THE ACTIVATION OF THE FIRE ALARM PANEL TROUBLE BUZZER WHICH CAN BE SILENCED BY THE "TROUBLE SILENCE" BUTTON ON THE FACP.
11. FIRE ALARM INSPECTOR HAS ULTIMATE JURISDICTION AS TO LOCATION AND NUMBER OF DEVICES.
12. BUILDING DO NOT HAVE SPRINKLER SYSTEM.
13. SYSTEM IS GOING MONITORED BY AN EXISTING "LISTED CENTRAL STATION".
14. BATTERY BACK-UP IS GOING TO BE PROVIDED FOR 24 HOURS STANDBY AND 5 MINUTES IN ALARM.
15. FIRE ALARM CONTROL PANEL SHALL BE CROSS LISTED WITH OTHER COMPONENTS USED.
16. ALL INITIATING AND INDICATION CIRCUITS MUST BE SUPERVISED.
17. INITIATING DEVICES ARE CLASS 'B', LEVEL "0". NOTIFICATION CIRCUITS ARE CLASS 'B', LEVEL (0)'.
18. EVACUATIONS SIGNALS SHALL BE TEMPORAL IN ACCORDANCE WITH NFPA 72 18.4.2.1, 2016 Edition.
19. CIRCUIT BREAKER SUPPLYING POWER TO THE FIRE ALARM PANEL, COMPONENTS NEED TO BE CLEARLY MARKED WITH RED PAINT, AND MECHANICALLY PROTECTED TO AVOID ACCIDENTAL CIRCUIT BRAKER DISCONNECT.
20. MAXIMUM MOUNTING HEIGHT FOR FACP AND POWER SUPPLIES IS 6' TO TOP OF ENCLOSURE.
21. POWER UP AND POWER DOWN OF THE FIRE ALARM PANEL MUST BE DONE IN THE PROPER SEQUENCE:
    POWER DOWN: DISCONNECT BATTERY AND THEN TURN OFF THE AC POWER AT THE BREAKER.
    POWER UP: TURN ON THE AC POWER AT THE BREAKER AND THEN CONNECT THE BATTERY.
    NOTE: DO NOT DISCONNECT THE AC POWER FEED FROM THE TERMINAL BLOCK TO DISCONNECT POWER.
22. THE SOUND LEVEL WILL BE AT LEAST 15dbA ABOVE THE EQUIVALENT SOUND LEVEL OR 5 DBA ABOVE THE MAXIMUM SOUND LEVEL HAVING A DURATION OF AT LEAST 60 SECONDS, MEASURED 5 FT. ABOVE THE FLOOR IN THE OCCUPIED AREA.
23. CONTRACTOR SHALL HAVE A CERTIFICATE OF COMPLETION FOR EACH FIRE ALARM SYSTEM INSTALLED AND SHALL PROVIDE A COPY TO THE OWNER AND THE FIRE RESCUE DEPARTMENT.
24. FIRE ALARM PANEL ROOM IS MECHANICALLY VENTILATED.
25. VISUAL NOTIFICATION APPLIANCES SHALL FLASH IN SYNCHRONIZATION PER NFPA-72 18.5.5.4.2(2) & (3) 2016 Edition.
28. IN CORRIDORS WHERE MORE THAN TWO VISIBLE NOTIFICATION APLPIANCES ARE IN ANY FIELD OF VIEW, THEY SHALL FLASH IN SYNCHRONIZATION PER NFPA-72 18.5.5.5.7, 2016 Edition.

FIRE ALARM SYSTEM SEQUENCE OF OPERATION.

THE ACTUATION OF THE FIRE ALARM INITIATING DEVICES SHALL AUTOMATICALLY INITIATE THE FOLLOWING FUNCTIONS THROUGHOUT THE BUILDING:

SYSTEMS IS NEW AND IS "GENERAL ALARM".
FOR ANY INCIDENCE: ANNUNCIATE THE "ALARM, TROUBLE OR SUPERVISORY" SIGNAL AT FACP.
FOR ANY INCIDENCE: TRANSMIT THE "ALARM, TROUBLE OR SUPERVISORY" SIGNAL TO THE LISTED CENTRAL STATION BY A "WIRELESS COMMUNICATOR" AND/OR ONE PHONE LINE ALSO AVAILABLE TO SEND SIGNALS TO THE CENTRAL STATION.

A. MANUAL FIRE ALARM PULL STATION:

ACTIVATION OF THE MANUAL PULL STATION SHALL INITIATE THE FOLLOWING FUNCTIONS:
1. GENERATE AN AUDIBLE ALARM SIGNAL AT THE FIRE ALARM CONTROL PANEL AND THE REMOTE ANNUNCIATOR.
2. GENERATE AN AUDIO VISUAL SIGNAL SIMULTANEOUSLY THROUGHOUT THE BUILDING BY THE USE OF STROBES AND/OR COMBINATION OF HORN/STROBES APPLIANCES.
3. INDICATE THE LOCATION OF THE PULL STATION BY DISPLAYING THE ALARMED DEVICE ON THE FACP LCD DISPLAY, AND THE REMOTE ANNUNCIATOR.

B. SMOKE AND HEAT DETECTORS:

ACTIVATION OF ANY DETECTORS SHALL INITIATE THE FOLLOWING FUNCTIONS:
1. GENERATE AN AUDIBLE ALARM SIGNAL AT THE FIRE ALARM CONTROL PANEL AND THE REMOTE ANNUNCIATOR.
2. GENERATE AN AUDIO VISUAL SIGNAL SIMULTANEOUSLY THROUGHOUT THE BUILDING BY THE USE OF STROBES AND/OR COMBINATION OF HORN/STROBES APPLIANCES.
3. INDICATE THE LOCATION OF THE DETECTOR BY DISPLAYING THE ALARMED DEVICE ON THE FACP LCD DISPLAY, AND THE REMOTE ANNUNCIATOR.

C. DUCT DETECTORS:

ACTIVATION OF DUCT DETECTORS SHALL INITIATE THE FOLLOWING FUNCTIONS:
1. GENERATE AN AUDIBLE "SUPERVISORY" SIGNAL AT THE FIRE ALARM CONTROL PANEL AND THE REMOTE ANNUNCIATOR.
2. INDICATE THE LOCATION OF THE DUCT DETECTOR BY DISPLAYING THE ADDRESS ON THE FACP LCD DISPLAY.
3. SHUT OFF THE AIR HANDLING UNIT AND A/C EQUIPMENT ASSOCIATED WITH THE DUCT DETECTOR.

D. ELEVATOR LOBBY SMOKE DETECTOR.

1- ACTIVATION OF ANY SINGLE ELEVATOR LOBBY DETECTOR SHALL INITIATE THE FOLLOWING FUNCTIONS:
2- GENERATE AN AUDIBLE ALARM SIGNAL AT THE FIRE ALARM CONTROL PANEL AND THE REMOTE ANNUNCIATOR.
3- GENERATE AN AUDIO VISUAL ALARM SIGNAL SIMULTANEOUSLY THROUGHOUT THE BUILDING BY THE USE OF STROBES AND/OR COMBINATION OF HORN/STROBES APPLIANCES.
4- INDICATE THE LOCATION OF THE DETECTOR BY DISPLAYING THE ALARMED DEVICE AND ITS LOCATION ON THE FACP ALPHANUMERIC DISPLAY AND THE REMOTE ANNUNCIATOR.
5- INITIATE THE AUTOMATIC ELEVATOR RECALL FUNCTION AS FOLLOW:
a) IF THE FIRST FLOOR ELEVATOR LOBBY DETECTOR GOES OFF IN ALARM, RECALL IS GOING TO SEND ELEVATOR CAB TO THE ALTERNATE OR SECOND FLOOR.
b) IF ANY FLOOR ELEVATOR LOBBY DETECTOR OTHER THAN THE FIRST FLOOR, GOES OFF IN ALARM, RECALL IS GOING TO SEND ELEVATOR CAB TO THE FIRST FLOOR.

E. ELEVATOR MACHINERY ROOM SMOKE DETECTOR .

ACTIVATION OF ELEVATOR MECHANICAL ROOM SMOKE DETECTOR IS GOING TO PERFORM ALL STEPS DESCRIBED ON "D1,2,3 & 4" ABOVE AND;
1-a) ACTIVATION OF ELEVATOR MECHANICAL ROOM SMOKE DETECTOR IS GOING TO ACTIVATE THE ELEVATOR WARNING LIGHT RELAY AND THE ELEVATOR WARNING LIGHT IS GOING TO FLASH INDICATING NOT TO USE ELEVATORS.

F. TROUBLE" CONDITION.
1. GENERATE AN AUDIBLE TROUBLE SIGNAL AT THE FIRE ALARM CONTROL PANEL IF ANY OPEN, SHORT OR GROUND CIRCUIT OCCUR IN WIRING.

-THE MAXIMUM TIME PERIOD FROM ACTUATION OF THE INITIATING DEVICE UNTIL INITIATION OF ALL RELATED FUNCTIONS AS LISTED ABOVE SHALL BE TEN (10) SECONDS. NFPA-72 10.12.1 (2016 Edition).
-THE MAXIMUM TIME PERIOD TO REPORT A TROUBLE CONDITION IS 200 SECONDS. NFPA-72 10.15.1 (2016 Edition).

MANDATORY ADDITIONAL SMOKE DETECTION IN THE BUILDING NOTE:

The reason for the mandatory additional smoke detection in the building. Because the building does not comply with the Life Safety Code requirements for existing business occupancies in regards to remoteness of exits and common paths of travel, the smoke detectors are required as an alternative level of safety. The smoke detection is not required by prescriptive code but they are being installed as an alternative/equivalency to provide an equivalent level of safety and are therefore mandatory.

Per NFPA 1 –Sections 1.4.5, 1.12.3, 1.14, 4.5.5.1, 4.5.8, 5.1.4, and 72 –Sections 7.3.2, 7.3.5.2, and 17.7.1.1.

The documentation serves as evidence that they are required and cannot be removed at some future date without prior approval by BSO (the AHJ).

FIRE ALARM DEVICE SYMBOL LEGEND.

SYMBOL	DESCRIPTION	MODEL NUMBER	MOUNTING HEIGHTS	MANUFACTURER
FACP	EXISTING FIRE ALARM CONTROL PANEL	MS-9600	72" A.F.F TO TOP OF ENCLOSURE.	FIRE.LITE
PS	EXISTING POWER SUPPLY	FCPS-24FS8	72" A.F.F TO TOP OF ENCLOSURE.	FIRE.LITE
S or	SMOKE DETECTOR	SD365		FIRE.LITE
	HORN-STROBE INDOOR	P2RL	80" A.F.F TO BOTTOM OF DEVICE.	SYSTEM SENSOR
or	STROBE INDOOR	SRL	80" A.F.F TO BOTTOM OF DEVICE.	SYSTEM SENSOR
IM	ISOLATOR MODULE	I300		FIRE.LITE
	HORN-STROBE INDOOR	PC2RL	CEILING MOUNTED	SYSTEM SENSOR
	STROBE INDOOR	SCRL	CEILING MOUNTED	SYSTEM SENSOR
	HEAT DETECTOR	H365		FIRE.LITE
FAC	FIRE ALARM COMMUNICATOR	HW-AV-LTE-M	5.5' A.F.F. TO TOP OF ENCLOSURE	HONEYWELL
M	MONITOR MODULE	FMM-101		FIRE.LITE
R	ADDRESSABLE RELAY	CRF-300		FIRE.LITE
VSS	120V SURGE SUPPRESSOR	DTK-120HW		DITEK OR EQUIVALENT
PLSS	PHONE LINE SUPPRESSOR	DTK-MRJ31XSCPWP		DITEK OR EQUIVALENT
FAAP	FIRE ALARM ANNUNCIATOR PANEL	LCD-80F	56"~64" AFF TO CENTER	FIRE.LITE
DD	DUCT DETECTOR	SD355PL		FIRE.LITE
	PULL STATION	NBG-12LX	48" A.F.F. TO CENTER	FIRE.LITE

FCPS-24FS8 P.S.-"1"

ITEM	DESCRIPTION	STANDBY CURRENT PER UNIT (AMPS)		QTY		TOTAL STANDBY CURRENT PER UNIT (AMPS)	ALARM CURRENT PER UNIT (AMPS)		QTY		TOTAL ALARM CURRENT PER UNIT (AMPS)
1	Mother Board	0.0650	X	1	=	0.0650	0.1450	X	1	=	0.1450
2	NAC-1	0.0000	X	1	=	0.0000	0.8880	X	1	=	0.8880
3	NAC-2	0.0000	X	1	=	0.0000	1.0510	X	1	=	1.0510
4	NAC-3	0.0000	X	1	=	0.0000	2.3060	X	1	=	2.3060
5	NAC-4	0.0000	X	1	=	0.0000	1.9280	X	1	=	1.9280
	TOTAL STANDBY CURRENT					0.0650	TOTAL ALARM CURRENT				6.3180

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

REQUIRED STANDBY TIME (HOURS)		TOTAL STANDBY CURRENT (AMPS)		REQUIRED STANDBY CAPACITY (AMP HOURS)	REQUIRED ALARM TIME (HOURS)		TOTAL SYSTEM ALARM CURRENT (AMPS)		REQUIRED ALARM CAPACITY (AMP HOURS)
24	X	0.0650	=	1.5600	0.0833	X	6.3180	=	0.5265

REQUIRED STANDBY CAPACITY (AMP HOURS)		REQUIRED ALARM CAPACITY (AMP HOURS)	TOTAL REQUIRED CAPACITY (AMP HOURS)	OPTIONAL FACTOR OF SAFETY	TOTAL REQUIRED BATERRY CAPACITY (AMP HOURS)	BATTERIES PROVIDED
1.5600	+	0.5265	2.0865	1.2000	2.5038	7.0 AH

PROVIDE 2-7.0AH, 12V D.C. BATTERIES

FCPS-24FS8 P.S.-"2"

ITEM	DESCRIPTION	STANDBY CURRENT PER UNIT (AMPS)		QTY		TOTAL STANDBY CURRENT PER UNIT (AMPS)	ALARM CURRENT PER UNIT (AMPS)		QTY		TOTAL ALARM CURRENT PER UNIT (AMPS)
1	Mother Board	0.0650	X	1	=	0.0650	0.1450	X	1	=	0.1450
2	NAC-1	0.0000	X	1	=	0.0000	1.9490	X	1	=	1.9490
3	NAC-2	0.0000	X	1	=	0.0000	1.9200	X	1	=	1.9200
4	NAC-3	0.0000	X	1	=	0.0000	1.7270	X	1	=	1.7270
5	NAC-4	0.0000	X	1	=	0.0000	1.1980	X	1	=	1.1980
	TOTAL STANDBY CURRENT					0.0650	TOTAL ALARM CURRENT				6.9390

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

REQUIRED STANDBY TIME (HOURS)		TOTAL STANDBY CURRENT (AMPS)		REQUIRED STANDBY CAPACITY (AMP HOURS)	REQUIRED ALARM TIME (HOURS)		TOTAL SYSTEM ALARM CURRENT (AMPS)		REQUIRED ALARM CAPACITY (AMP HOURS)
24	X	0.0650	=	1.5600	0.0833	X	6.9390	=	0.5782

REQUIRED STANDBY CAPACITY (AMP HOURS)		REQUIRED ALARM CAPACITY (AMP HOURS)	TOTAL REQUIRED CAPACITY (AMP HOURS)	OPTIONAL FACTOR OF SAFETY	TOTAL REQUIRED BATERRY CAPACITY (AMP HOURS)	BATTERIES PROVIDED
1.5600	+	0.5782	2.1382	1.2000	2.5659	7.0 AH

PROVIDE 2-7.0AH, 12V D.C. BATTERIES

FCPS-24FS8 P.S.-"3"

ITEM	DESCRIPTION	STANDBY CURRENT PER UNIT (AMPS)		QTY		TOTAL STANDBY CURRENT PER UNIT (AMPS)	ALARM CURRENT PER UNIT (AMPS)		QTY		TOTAL ALARM CURRENT PER UNIT (AMPS)
1	Mother Board	0.0650	X	1	=	0.0650	0.1450	X	1	=	0.1450
2	NAC-1	0.0000	X	1	=	0.0000	0.9900	X	1	=	0.9900
3	NAC-2	0.0000	X	1	=	0.0000	0.9090	X	1	=	0.9090
4	NAC-3	0.0000	X	0	=	0.0000	0.0000	X	0	=	0.0000
5	NAC-4	0.0000	X	0	=	0.0000	0.0000	X	0	=	0.0000
	TOTAL STANDBY CURRENT					0.0650	TOTAL ALARM CURRENT				2.0440

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

REQUIRED STANDBY TIME (HOURS)		TOTAL STANDBY CURRENT (AMPS)		REQUIRED STANDBY CAPACITY (AMP HOURS)	REQUIRED ALARM TIME (HOURS)		TOTAL SYSTEM ALARM CURRENT (AMPS)		REQUIRED ALARM CAPACITY (AMP HOURS)
24	X	0.0650	=	1.5600	0.0833	X	2.0440	=	0.1703

REQUIRED STANDBY CAPACITY (AMP HOURS)		REQUIRED ALARM CAPACITY (AMP HOURS)	TOTAL REQUIRED CAPACITY (AMP HOURS)	OPTIONAL FACTOR OF SAFETY	TOTAL REQUIRED BATERRY CAPACITY (AMP HOURS)	BATTERIES PROVIDED
1.5600	+	0.1703	1.7303	1.2000	2.0764	7.0 AH

PROVIDE 2-7.0AH, 12V D.C. BATTERIES

NAC P1-10

NAC #	Model:	SYSTEM SENSOR		Starting Voltage, V:		20.4
P1-10	Loop Length, ft:	195		Circuit amps	Separation	Voltage
Appliance	Number of App:	6		current draw.	in between	drop Volts.
Number	Appliance type	Candelas	Ampacity	(Amps)	(Feet)	#14 AWG
P1-10.1	L-Str W/M	75	0.136	0.136	32.5	20.39
P1-10.2	L-Horn/Str W/M	75	0.156	0.292	65.0	20.34
P1-10.3	L-Str C/M	75	0.142	0.434	97.5	20.27
P1-10.4	L-Str C/M	75	0.142	0.576	130.0	20.17
P1-10.5	L-Horn/Str W/M	75	0.156	0.732	162.5	20.03
P1-10.6	L-Horn/Str W/M	75	0.156	0.888	195.0	19.87

NAC P1-20

NAC #	Model:	SYSTEM SENSOR		Starting Voltage, V:		20.4
P1-20	Loop Length, ft:	145		Circuit amps	Separation	Voltage
Appliance	Number of App:	7		current draw.	in between	drop Volts.
Number	Appliance type	Candelas	Ampacity	(Amps)	(Feet)	#14 AWG
P1-20.1	L-Horn/Str W/M	75	0.156	0.156	20.7	20.39
P1-20.2	L-Horn/Str C/M	30	0.135	0.291	41.4	20.36
P1-20.3	L-Horn/Str W/M	75	0.156	0.447	62.1	20.31
P1-20.4	L-Horn/Str W/M	75	0.156	0.603	82.9	20.25
P1-20.5	L-Horn/Str W/M	75	0.156	0.759	103.6	20.16
P1-20.6	L-Horn/Str W/M	75	0.156	0.915	124.3	20.05
P1-20.7	L-Str W/M	75	0.136	1.051	145.0	19.93

NAC P1-30

NAC #	Model:	SYSTEM SENSOR		Starting Voltage, V:		20.4
P1-30	Loop Length, ft:	440		Circuit amps	Separation	Voltage
Appliance	Number of App:	18		current draw.	in between	drop Volts.
Number	Appliance type	3	Ampacity	(Amps)	(Feet)	#14 AWG
P1-30.1	L-Str W/M	75	0.136	0.136	24.4	20.39
P1-30.2	L-Horn/Str W/M	75	0.156	0.292	48.9	20.36
P1-30.3	L-Horn/Str W/M	15	0.083	0.375	73.3	20.32
P1-30.4	L-Horn/Str W/M	75	0.156	0.531	97.8	20.24
P1-30.5	L-Str W/M	75	0.136	0.667	122.2	20.15
P1-30.6	L-Str W/M	75	0.136	0.803	146.7	20.04
P1-30.7	L-Horn/Str W/M	15	0.083	0.886	171.1	19.93
P1-30.8	L-Str W/M	15	0.060	0.946	195.6	19.83
P1-30.9	L-Str W/M	75	0.136	1.082	220.0	19.67
P1-30.10	L-Horn/Str W/M	75	0.156	1.238	244.4	19.47
P1-30.11	L-Horn/Str W/M	75	0.156	1.394	268.9	19.25
P1-30.12	L-Str W/M	75	0.136	1.530	293.3	19.02
P1-30.13	L-Str W/M	75	0.136	1.666	317.8	18.77
P1-30.14	L-Horn/Str W/M	75	0.156	1.822	342.2	18.49
P1-30.15	L-Horn/Str W/M	75	0.156	1.978	366.7	18.17
P1-30.16	L-Str C/M	30	0.086	2.064	391.1	17.92
P1-30.17	L-Str C/M	30	0.086	2.150	415.6	17.66
P1-30.18	L-Horn/Str W/M	75	0.156	2.306	440.0	17.29

NAC P1-40

NAC #	Model:	SYSTEM SENSOR		Starting Voltage, V:		20.4
P1-40	Loop Length, ft:	290		Circuit amps	Separation	Voltage
Appliance	Number of App:	13		current draw.	in between	drop Volts.
Number	Appliance type	Candelas	Ampacity	(Amps)	(Feet)	#14 AWG
P1-40.1	L-Horn/Str W/M	75	0.156	0.156	22.3	20.39
P1-40.2	L-Str W/M	75	0.136	0.292	44.6	20.36
P1-40.3	L-Horn/Str W/M	75	0.156	0.448	66.9	20.31
P1-40.4	L-Horn/Str W/M	75	0.156	0.604	89.2	20.23
P1-40.5	L-Str W/M	75	0.136	0.740	111.5	20.15
P1-40.6	L-Horn/Str W/M	75	0.156	0.896	133.8	20.03
P1-40.7	L-Str W/M	75	0.136	1.032	156.2	19.91
P1-40.8	L-Str W/M	75	0.136	1.168	178.5	19.76
P1-40.9	L-Horn/Str W/M	75	0.156	1.324	200.8	19.58
P1-40.10	L-Horn/Str W/M	75	0.156	1.480	223.1	19.39
P1-40.11	L-Str W/M	75	0.136	1.616	245.4	19.18
P1-40.12	L-Horn/Str W/M	75	0.156	1.772	267.7	18.94
P1-40.13	L-Horn/Str W/M	75	0.156	1.928	290.0	18.68

NAC P3.-10

NAC #	Model:	SYSTEM SENSOR		Starting Voltage, V:		20.4
P3.-10	Loop Length, ft:	205		Circuit amps	Separation	Voltage
Appliance	Number of App:	11		current draw.	in between	drop Volts.
Number	Appliance type	Candelas	Ampacity	(Amps)	(Feet)	#14 AWG
P3.-10.1	L-Horn/Str W/M	75	0.156	0.156	18.6	20.39
P3.-10.2	L-Horn/Str C/M	15	0.107	0.263	37.3	20.37
P3.-10.3	L-Horn/Str W/M	30	0.107	0.370	55.9	20.34
P3.-10.4	L-Horn/Str W/M	75	0.156	0.526	74.5	20.28
P3.-10.5	L-Str C/M	15	0.060	0.586	93.2	20.23
P3.-10.6	L-Horn/Str W/M	30	0.107	0.693	111.8	20.16
P3.-10.7	L-Str C/M	15	0.060	0.753	130.5	20.10
P3.-10.8	L-Str W/M	15	0.060	0.813	149.1	20.03
P3.-10.9	L-Str W/M	15	0.060	0.873	167.7	19.95
P3.-10.10	L-Str C/M	15	0.060	0.933	186.4	19.87
P3.-10.11	L-Str W/M	15	0.060	0.993	205.0	19.78

NAC P3.-20

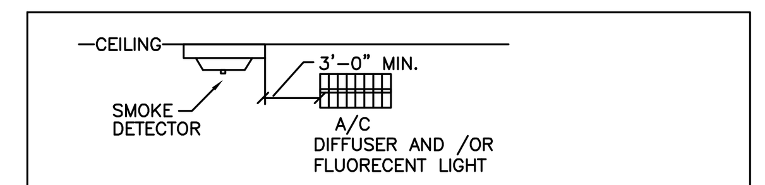
NAC #	Model:	SYSTEM SENSOR		Starting Voltage, V:		20.4
P3.-20	Loop Length, ft:	130		Circuit amps	Separation	Voltage
Appliance	Number of App:	8		current draw.	in between	drop Volts.
Number	Appliance type	Candelas	Ampacity	(Amps)	(Feet)	#14 AWG
P3.-20.1	L-Horn/Str W/M	75	0.156	0.156	16.3	20.39
P3.-20.2	L-Horn/Str C/M	15	0.107	0.263	32.5	20.37
P3.-20.3	L-Horn/Str C/M	15	0.107	0.370	48.8	20.34
P3.-20.4	L-Str W/M	15	0.060	0.430	65.0	20.31
P3.-20.5	L-Str W/M	15	0.060	0.490	81.3	20.28
P3.-20.6	L-Horn/Str W/M	75	0.156	0.646	97.5	20.21
P3.-20.7	L-Horn/Str W/M	30	0.107	0.753	113.8	20.14
P3.-20.8	L-Horn/Str W/M	75	0.156	0.909	130.0	20.04

PAGES INDEX:

WIRE LEGEND:

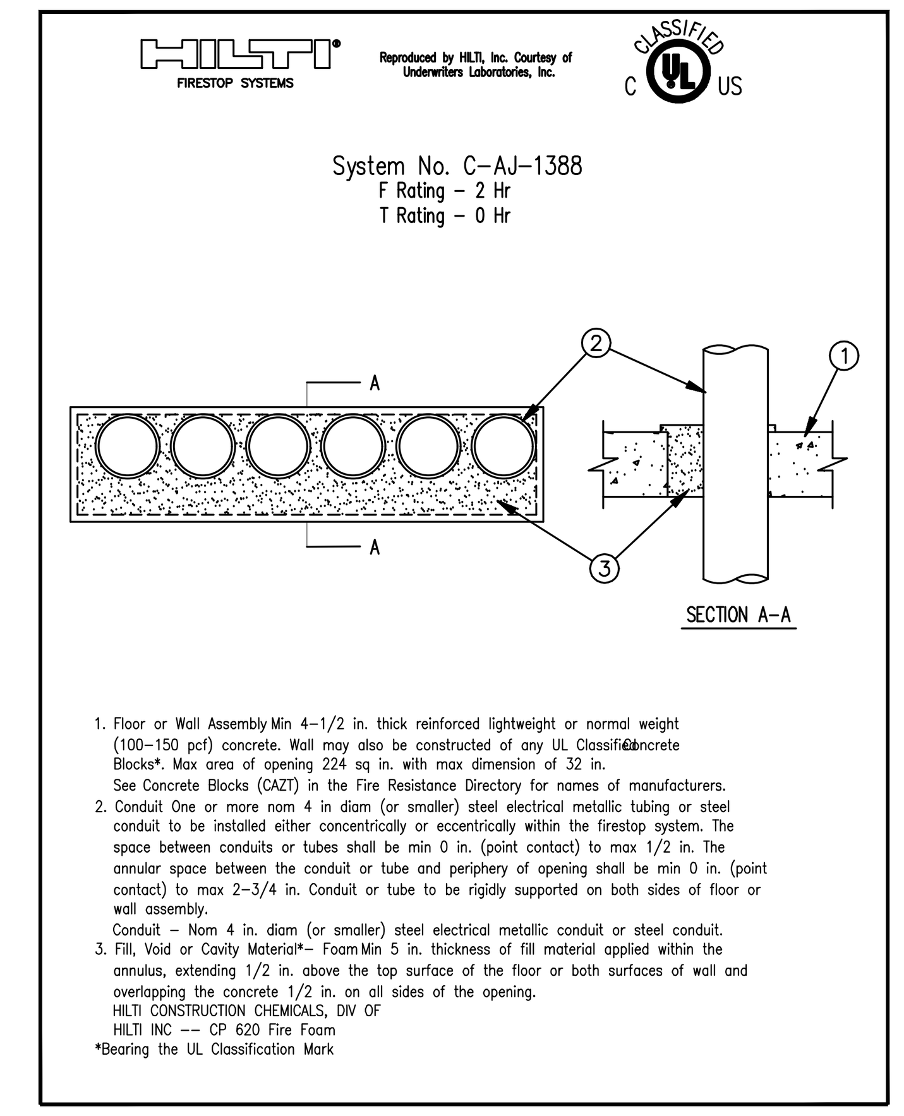
A – 18/2 FPL (SLC) SIGNALING LINE CIRCUIT
B – 14/2 FPL or THHN (AUDIO/VISUAL NOTIFICATION).
F 18/4 THWN (DATA AND POWER FOR ANNUNCIATOR).
G – 1#12 THHN OR THWN (GROUND).
AC – 2#12 THHN OR THWN (POWER 120V A.C).

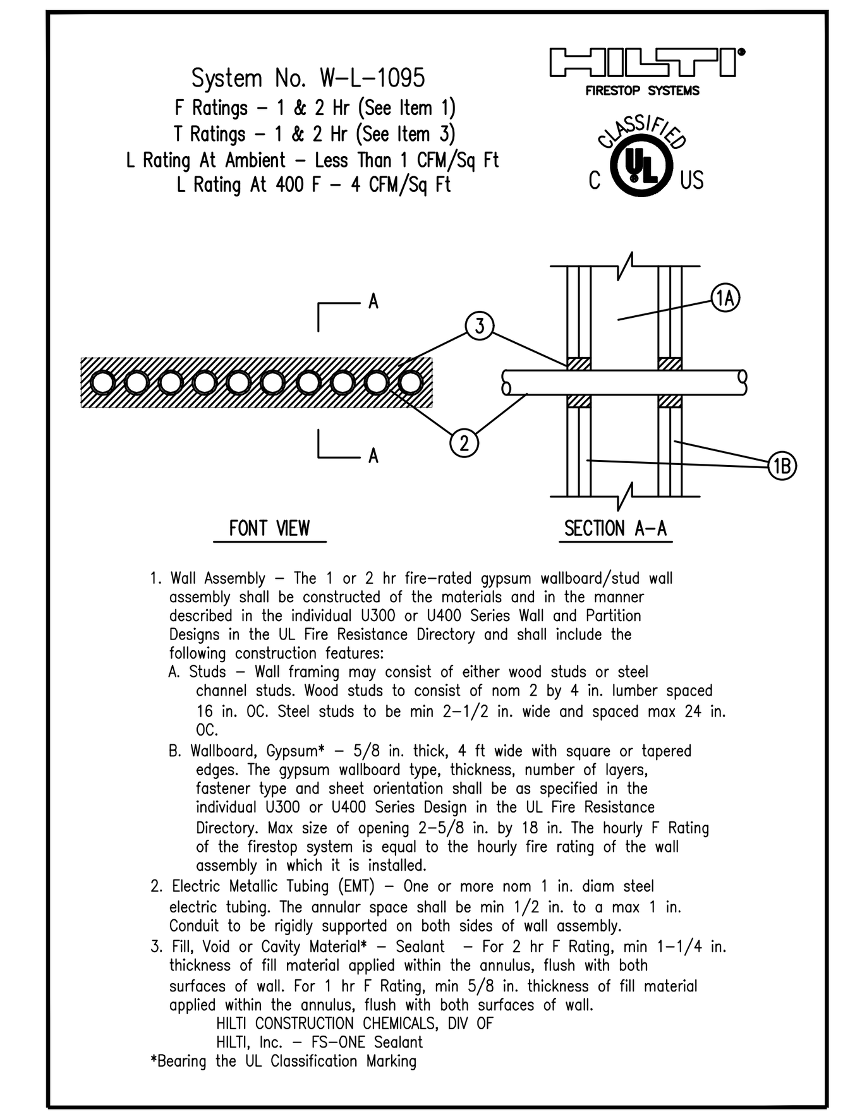
ALL CONDUITS 1/2" EMT. MINIMUM UNLESS OTHER WISE NOTED, 40% FILLED MAX.
NOTE: USE PLENUM RATED CABLE WHERE REQUIRED.
FREE WIRE IS PERMITTED IF PROTECTED FROM MECHANICAL DAMAGE.



NOTE: DO NOT INSTALL AN SMOKE DETECTOR IN DIRECT AIRFLOW DUCT.

SMOKE DETECTOR MOUNTING DETAIL





TWO-WAY RADIO COMMUNICATIONS ADDITIONAL NOTE:

LS.01-04: "Minimum radio signal strength for fire department communications shall be maintained at a level determined by the AHJ and, if signal strength is not sufficient, a two-way radio communication enhancement system complying with NFPA 72, NFPA 780, and NFPA 1221 shall be installed with building/ORCAT permits, tested, and approved before any new TCO/occupancy may occur", per NFPA 1 - Section 11.10 and Broward County Amendments To the Florida Building Code - Section 118-Two-Way Radio Communication Enhanced Public Safety Signal Booster Systems.

HONEYWELL HW-AV-LTE-M

ITEM	DESCRIPTION	STANDBY CURRENT PER UNIT (AMPS)		QTY		STANDBY CURRENT PER UNIT (AMPS)	ALARM CURRENT PER UNIT (AMPS)		QTY		TOTAL ALARM CURRENT PER UNIT (AMPS)
1	HW-AV-LTE-M power consumption	0.06000	X	1	=	0.0600	0.20000	X	1	=	0.2000
	TOTAL STANDBY CURRENT					0.0600	TOTAL ALARM CURRENT				0.2000

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

REQUIRED STANDBY TIME (HOURS)		TOTAL STANDBY CURRENT (AMPS)		REQUIRED STANDBY CAPACITY (AMP HOURS)	REQUIRED ALARM TIME (HOURS)		TOTAL SYSTEM ALARM CURRENT (AMPS)		REQUIRED ALARM CAPACITY (AMP HOURS)
24	X	0.0600	=	1.4400	0.0833	X	0.2000	=	0.0167

REQUIRED STANDBY CAPACITY (AMP HOURS)		REQUIRED ALARM CAPACITY (AMP HOURS)	TOTAL REQUIRED CAPACITY (AMP HOURS)	OPTIONAL FACTOR OF SAFETY	TOTAL REQUIRED BATTERY CAPACITY (AMP HOURS)	BATTERIES PROVIDED
1.4400	+	0.0167	1.4567	1.2000	1.7480	7.0AH, 12V D.C.

NAC P2-10

NAC #	Model:	SYSTEM SENSOR		Starting Voltage, V:		20.4
P2-10	Loop Length, ft:	310		Circuit amps	Separation	Voltage
Appliance	Number of App:	14		current draw.	in between	drop Volts.
Number	Appliance type	Candelas	Ampacity	(Amps)	(Feet)	#14 AWG
P2-10.1	L-Horn/Str W/M	75	0.156	0.156	22.1	20.39
P2-10.2	L-Horn/Str W/M	75	0.156	0.312	44.3	20.36
P2-10.3	L-Str W/M	75	0.136	0.448	66.4	20.31
P2-10.4	L-Horn/Str W/M	75	0.156	0.604	88.6	20.24
P2-10.5	L-Horn/Str W/M	75	0.156	0.760	110.7	20.14
P2-10.6	L-Horn/Str W/M	30	0.107	0.867	132.9	20.05
P2-10.7	L-Horn/Str W/M	75	0.156	1.023	155.0	19.91
P2-10.8	L-Horn/Str W/M	75	0.156	1.179	177.1	19.76
P2-10.9	L-Str W/M	75	0.136	1.315	199.3	19.60
P2-10.10	L-Horn/Str W/M	15	0.083	1.398	221.4	19.45
P2-10.11	L-Horn/Str W/M	75	0.156	1.554	243.6	19.24
P2-10.12	L-Horn/Str W/M	75	0.156	1.710	265.7	19.01
P2-10.13	L-Horn/Str W/M	15	0.083	1.793	287.9	18.82
P2-10.14	L-Horn/Str W/M	75	0.156	1.949	310.0	18.55

NAC P2-20

NAC #	Model:	SYSTEM SENSOR		Starting Voltage, V:		20.4
P2-20	Loop Length, ft:	370		Circuit amps	Separation	Voltage
Appliance	Number of App:	15		current draw.	in between	drop Volts.
Number	Appliance type	Candelas	Ampacity	(Amps)	(Feet)	#14 AWG
P2-20.1	L-Str W/M	75	0.136	0.136	24.7	20.39
P2-20.2	L-Horn/Str W/M	75	0.156	0.292	49.3	20.36
P2-20.3	L-Horn/Str W/M	30	0.107	0.399	74.0	20.31
P2-20.4	L-Horn/Str W/M	75	0.156	0.555	98.7	20.23
P2-20.5	L-Str W/M	75	0.136	0.691	123.3	20.14
P2-20.6	L-Horn/Str W/M	75	0.156	0.847	148.0	20.02
P2-20.7	L-Horn/Str W/M	75	0.156	1.003	172.7	19.87
P2-20.8	L-Str W/M	15	0.060	1.063	197.3	19.76
P2-20.9	L-Str W/M	75	0.136	1.199	222.0	19.58
P2-20.10	L-Horn/Str W/M	30	0.107	1.306	246.7	19.41
P2-20.11	L-Horn/Str W/M	30	0.107	1.413	271.3	19.22
P2-20.12	L-Horn/Str W/M	30	0.107	1.520	296.0	19.02
P2-20.13	L-Str W/M	75	0.136	1.656	320.7	18.77
P2-20.14	L-Str W/M	75	0.136	1.792	345.3	18.50
P2-20.15	L-Str W/M	75	0.136	1.928	370.0	18.21

NAC P2-30

NAC #	Model:	SYSTEM SENSOR		Starting Voltage, V:		20.4
P2-30	Loop Length, ft:	280		Circuit amps	Separation	Voltage
Appliance	Number of App:	13		current draw.	in between	drop Volts.
Number	Appliance type	Candelas	Ampacity	(Amps)	(Feet)	#14 AWG
P2-30.1	L-Horn/Str W/M	75	0.156	0.156	21.5	20.39
P2-30.2	L-Horn/Str W/M	75	0.156	0.312	43.1	20.36
P2-30.3	L-Horn/Str W/M	75	0.156	0.468	64.6	20.31
P2-30.4	L-Str W/M	75	0.136	0.604	86.2	20.24
P2-30.5	L-Horn/Str W/M	75	0.156	0.760	107.7	20.15
P2-30.6	L-Horn/Str W/M	75	0.156	0.916	129.2	20.04
P2-30.7	L-Str W/M	75	0.136	1.052	150.8	19.91
P2-30.8	L-Horn/Str W/M	30	0.107	1.159	172.3	19.79
P2-30.9	L-Str W/M	15	0.060	1.219	193.8	19.67
P2-30.10	L-Str W/M	15	0.060	1.279	215.4	19.55
P2-30.11	L-Str W/M	75	0.136	1.415	236.9	19.37
P2-30.12	L-Horn/Str W/M	75	0.156	1.571	258.5	19.15
P2-30.13	L-Horn/Str W/M	75	0.156	1.727	280.0	18.92

NAC P2-40

NAC #	Model:	SYSTEM SENSOR		Starting Voltage, V:		20.4
P2-40	Loop Length, ft:	280		Circuit amps	Separation	Voltage
Appliance	Number of App:	14		current draw.	in between	drop Volts.
Number	Appliance type	Candelas	Ampacity	(Amps)	(Feet)	#14 AWG
P2-40.1	L-Horn/Str W/M	30	0.107	0.107	20.0	20.39
P2-40.2	L-Str W/M	15	0.060	0.167	40.0	20.38
P2-40.3	L-Str W/M	75	0.136	0.303	60.0	20.34
P2-40.4	L-Horn/Str W/M	30	0.107	0.410	80.0	20.30
P2-40.5	L-Horn/Str W/M	15	0.083	0.493	100.0	20.25
P2-40.6	L-Str W/M	15	0.060	0.553	120.0	20.20
P2-40.7	L-Str W/M	15	0.060	0.613	140.0	20.14
P2-40.8	L-Horn/Str W/M	75	0.156	0.769	160.0	20.02
P2-40.9	L-Horn/Str W/M	15	0.083	0.852	180.0	19.93
P2-40.10	L-Horn/Str W/M	15	0.083	0.935	200.0	19.83
P2-40.11	L-Str W/M	15	0.060	0.995	220.0	19.73
P2-40.12	L-Str C/M	15	0.060	1.055	240.0	19.62
P2-40.13	L-Str C/M	15	0.060	1.115	260.0	19.51
P2-40.14	L-Horn/Str W/M	15	0.083	1.198	280.0	19.37

MS-9600 Secondary Power Source (Battery) Requirements

Device Type	Standby Current (A) Qty		Current Draw		Total	Secondary Alarm Current (A) Qty		Current Draw		Total
Main Circuit Board	1	x	0.12000	=	0.12000	1	x	0.17000	=	0.17000
SLC-2 Expander Module	1	x	0.08500	=	0.08500	1	x	0.08500	=	0.08500
UDACT-F (1 maximum)	1	x	0.04000	=	0.04000	1	x	0.10000	=	0.10000
LCD-80F	1	x	0.02500	=	0.02500	1	x	0.06400	=	0.06400
Addressable Devices										
SD-365	210	x	0.00030	=	0.06300					
H365	2	x	0.00030	=	0.00060					
D350PL	12	x	0.00030	=	0.00360					
MMF-301	3	x	0.00038	=	0.00113					
BG-12LX	21	x	0.00023	=	0.00483					
CRF-300	16	x	0.00027	=	0.00432					
I300	8	x	0.00040	=	0.00320					
	Maximum alarm draw for all Addressable devices ------------>									0.40000
NAC 1 5						0	x	0.00000	=	
Sum each column for totals 7	Total Standby Current				0.35068	Total Alarm Current				0.81900

MS-9600 Ampere-Hour Calculations

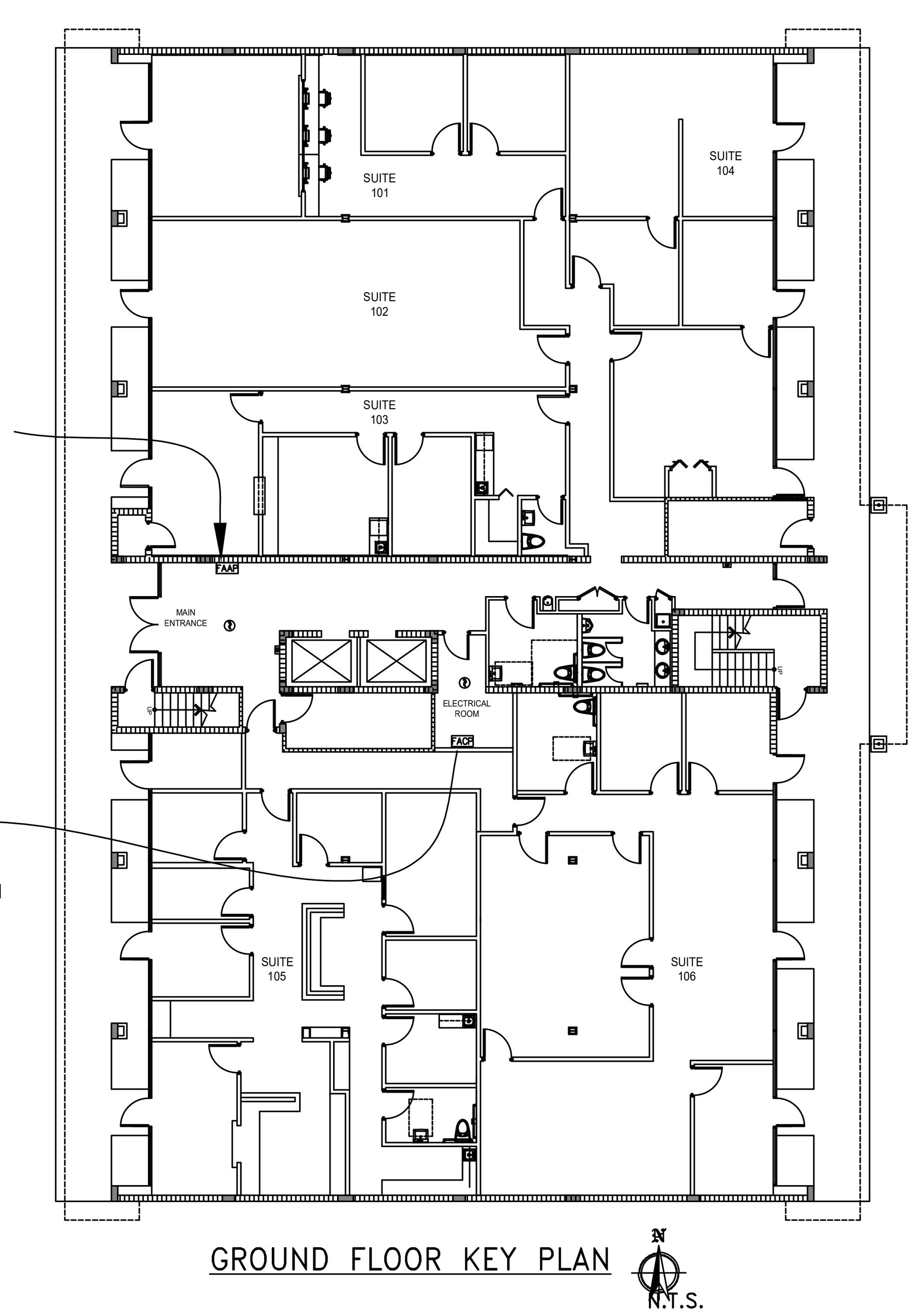
			Required Standby Time in Hours (24 or 60 Hrs.)		
Standby Load Current (A)	0.351 A	x	24	=	8.416 AH
			Required Alarm Time in Hours (5 minutes = 0.084)(10 minutes = 0.168)		
Alarm Load Current (A)	0.819 A	x	0.084	=	0.069 AH
			Standby and Alarm Load Subtotal	=	8.485 AH
			Derating Factor	=	x 1.2
			Total Ampere Hours Required	=	10.182 AH

PROVIDE 2-12.0AH, 12V D.C. BATTERIES

NO WORK HAS BEEN DONE ON THE GROUND FLOOR.
THE KEY PLAN SHOW THE LOCATION OF THE EXISTING REMOTE ANNUNCIATOR AND FIRE ALARM PANEL.

EXISTING REMOTE ANNUNCIATOR LOCATED AT MAIN ENTRANCE.

EXISTING FIRE ALARM CONTROL PANEL, POWER SUPPLIES AND WIRELESS COMMUNICATOR LOCATED INSIDE ELECTRICAL ROOM



GROUND FLOOR KEY PLAN

REVISION NO.	DATE	COMMENTS
1	2-10-23	AS BUILT
2		
3		
4		
5		
6		

COMPREHENSIVE FIRE ALARMS & SECURITY SYSTEMS, Inc.
20160 NW 13th Avenue, Miami Gardens, Florida, 33169.
Phone: (305) 652-4138
Fax: (305) 652-9160
QUALIFIER: Anthony Clarke.
LICENSE: EF 001178

T.E.S.
TUCHMAN ENGINEERING SERVICES, Inc.
MECHANICAL, ELECTRICAL, PLUMBING, FIRE ALARM AND SYSTEM INTEGRATORS.
3209 McKINLEY Street
Hollywood, FL., 33021.
TEL: (786) 423-5511
Email: TuchmanEngineering@gmail.com
CA#27930

PROJECT NAME AND ADDRESS:
Sopher Center.
Second, Third & 4th Floors.
Fire Alarm System.
4000 N. State Road 7
Lauderdale Lakes, Florida, 33319.

DRAWN BY: TUCHMAN	DATE: 3-12-2021
SCALE: AS NOTED	REVISED BY: TUCHMAN

PROJECT NUMBER: 20210312-6

PAGE TITLE: SCOPE OF WORK, SYMBOL LEGEND, CALCULATONS AND NOTES.

JAVIER TUCHMAN LICENSE NO. 60285 * STATE OF FLORIDA PROFESSIONAL ENGINEER

GROUND FLOOR PLAN
SCALE: 1/8" = 1'-0"

SECOND FLOOR PLAN
SCALE: 1/8" = 1'-0"

REVISION NO.	DATE	COMMENTS
1	2-10-23	AS BUILT
2		
3		
4		
5		
6		

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DRAWN BY:	DATE:
TUCHMAN	3-12-2021
SCALE:	REVISED BY:
AS NOTED	TUCHMAN

PROJECT NUMBER: 20210312-6

PAGE TITLE: GROUND & 2nd FLOOR PLANS

JAVIER TUCHMAN LICENSE NO. 60285 STATE OF FLORIDA PROFESSIONAL ENGINEER

PAGE NUMBER:
FA-2 OF 4

THIRD FLOOR PLAN
SCALE: 1/8" = 1'-0"

FOURTH FLOOR PLAN
SCALE: 1/8" = 1'-0"

REVISION NO.	DATE	COMMENTS
A	2-10-23	AS BUILT
A		
A		
A		
A		
A		

T.E.S.
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DRAWN BY:	DATE:
TUCHMAN	3-12-2021
SCALE:	REVISED BY:
AS NOTED	TUCHMAN

PROJECT NUMBER: 20210312-6

PAGE TITLE: 3rd & 4th FLOOR PLANS

JAVIER TUCHMAN
LICENSE
NO. 60285
STATE OF FLORIDA
PROFESSIONAL ENGINEER

PAGE NUMBER:
FA-3 OF 4

SCOPE OF WORK ENCLOSED INSIDE CLOUDS.

FOURTH FLOOR

THIRD FLOOR

SECOND FLOOR

FIRST FLOOR

FACP CIRCUIT #1
1. 94 AMPS USED
3 AMPS MAX.

PS2 CIRCUIT #4
1. 19 AMPS USED
3 AMPS MAX.

PS2 CIRCUIT #3
1. 72 AMPS USED
3 AMPS MAX.

PS2 CIRCUIT #2
1.92 AMPS USED
3 AMPS MAX.

PS2 CIRCUIT #4
1. 92AMPS USED
3 AMPS MAX.

PS1 CIRCUIT #3
2. 30AMPS USED
3 AMPS MAX.

PS1 CIRCUIT #1
0.88 AMPS USED
3 AMPS MAX.

PS1 CIRCUIT #2
1.05 AMPS USED
3 AMPS MAX.

PS3 CIRCUIT #1
0.993 AMPS USED
3 AMPS MAX.

3 AMPS MAX.
0.909 AMPS USED
PS3 CIRCUIT #2

ELEVATOR RECALL RELAYS

POWER SUPPLIES MONITOR MODULES

"RA"
FAAP

ONE PHONE LINE
(BY OTHERS)

MS-9600
"A"
FACP

"WC"

THE COMMUNICATOR A.C. POWER IS HARD WIRED AND DEDICATED FROM SAME CIRCUIT BREAKER AS THE FACP.

THE POWER FEED FOR THE FIRE PANEL MUST BE A DEDICATED CIRCUIT AND THE BREAKER MUST BE IDENTIFIED "FIRE ALARM CIRCUIT" AND HAVE A LOCK ON IT.

3 #12 AWG THHN
CONDUCTOR PANEL #EM
20 AMP.

P1 P2 P3

THE FACP AND POWER SUPPLIES ARE EXISTING AND ARE LOCATED INSIDE THE ELECTRICAL ROOM

RISER DIAGRAM

N.T.S.

10-23

REVISION NO.	DATE	COMMENTS
1	2-10-23	AS BUILT
2		
3		
4		
5		
6		

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PAGE TITLE: RISER DIAGRAM.

JAVIER TUCHMAN LICENSE NO. 60285 STATE OF FLORIDA PROFESSIONAL ENGINEER

PAGE NUMBER: FA-4 OF 4