

FACP Battery Calculation 3/12/2016

PROJECT NAME: ROSA TRUE APARTMENTS
 Required Standby Time: 24 Hours
 Required Alarm Time: 5 Minutes

AC Branch Current: _____ Amps @ 120V

Device Type	Number of Devices	Current (Amps)	Total Current (Amps)
FL-MS9200ULD - FACP MAINBOARD	1	0.13700	0.13700
FL-S0355 - SMOKE DETECTOR	20	0.00000	0.00000
FL-S0355 - HEAT DETECTOR	2	0.00038	0.00076
FL-MS301 - MICO DET. MODULE	3	0.04000	0.12000
BK-C01224TP - ANNUNCIATOR	1	0.01500	0.01500
TOTAL STANDBY LOAD			0.27485

Device Type	Number of Devices	Current (Amps)	Total Current (Amps)
FL-MS9200ULD - FACP MAINBOARD	1	0.36000	0.36000
FL-ANR80 - ANNUNCIATOR	1	0.40000	0.40000
FL-ANR80 - ANNUNCIATOR	1	0.04000	0.04000
FACP_NAC-1 (See Voltage Drop Calculations)	1	1.31800	1.31800
TOTAL ALARM LOAD			2.11800

Battery Requirements

Standby Load Current (Amps)	0.27485	X	Required Standby Time in Hours	24.00000	=	6.59640
Alarm Load Current (Amps)	2.11800	X	Required Alarm Time in Hours	0.08333	=	0.17650
Total Ampere Hours (before derating factor)						6.77290
Derating Factor						X
BATTERIES TO BE PROVIDED (2 - 12V)						8.12748

Point to Point NAC Voltage Drop Calculation 3/12/2016

Project Name: ROSA TRUE APARTMENTS
 Circuit Number: FACP-1

Nominal System Voltage: 20.4 volts
 Minimum Device Voltage: 16.0 volts
 Distance from source to 1st device: 100 feet
 Wire Gauge for balance of circuit: 14

Max Output Current: 3.00 amps
 Total Circuit Current: 1.318 amps
 End of Line Voltage: 19.09 volts

Device	V/O	Current	Distance	Drop	Drop %	Percent Drop
Device 1	A/V 15	0.077	100	0.09	0.45%	3.07%
Device 2	A/V 135	0.277	15	0.025	1.52%	4.53%
Device 3	A/V 177	0.325	35	0.134	7.64%	5.58%
Device 4	A/V 177	0.325	35	0.134	7.64%	6.24%
Device 5	A/V 177	0.325	20	0.082	4.84%	6.44%
Totals		1.318	205			

Notes: Wire resistance is doubled in the calculations for two wires (Positive and Negative). The voltage calculated to the last device must not be lower than the manufactures listed minimum operating voltage (IE: rated operating voltage 16-33 VDC (24 VDC nominal)).

FCPS Battery Calculation 3/12/2016

PROJECT NAME: ROSA TRUE APARTMENTS
 Required Standby Time: 24 Hours
 Required Alarm Time: 5 Minutes

AC Branch Current: _____ Amps @ 120V

Device Type	Number of Devices	Current (Amps)	Total Current (Amps)
FCPS MAINBOARD	1	0.06500	0.06500
FCPS MAINBOARD	1	0.06500	0.06500
FCPS-1 (See Voltage Drop Calculations)	1	0.96000	0.96000
FPS-1 (See Voltage Drop Calculations)	1	0.96000	0.96000
FPS-3 (See Voltage Drop Calculations)	1	1.26100	1.26100
FPS-4 (See Voltage Drop Calculations)	1	0.63700	0.63700
TOTAL STANDBY LOAD			3.35900

Device Type	Number of Devices	Current (Amps)	Total Current (Amps)
FCPS MAINBOARD	1	0.06500	0.06500
FCPS MAINBOARD	1	0.06500	0.06500
FCPS-1 (See Voltage Drop Calculations)	1	0.96000	0.96000
FPS-1 (See Voltage Drop Calculations)	1	0.96000	0.96000
FPS-3 (See Voltage Drop Calculations)	1	1.26100	1.26100
FPS-4 (See Voltage Drop Calculations)	1	0.63700	0.63700
TOTAL ALARM LOAD			3.35900

Battery Requirements

Standby Load Current (Amps)	0.06500	X	Required Standby Time in Hours	24.00000	=	1.56000
Alarm Load Current (Amps)	3.35900	X	Required Alarm Time in Hours	0.08333	=	0.27992
Total Ampere Hours (before derating factor)						1.83992
Derating Factor						X
BATTERIES TO BE PROVIDED (2 - 12V)						2.20790

REVISION

REVISION	DESCRIPTION	DATE
0	ISSUED FOR REVIEW & APPROVAL	3/12/2016

SEACOAST SECURITY
 4 Summer Street - Freeport, Maine 04032
 Office: (207) 706-3369 - Fax: (207) 865-0852

Point to Point NAC Voltage Drop Calculation 3/12/2016

Project Name: ROSA TRUE APARTMENTS
 Circuit Number: FPS-2

Nominal System Voltage: 20.4 volts
 Minimum Device Voltage: 16.0 volts
 Distance from source to 1st device: 45 feet
 Wire Gauge for balance of circuit: 14

Max Output Current: 3.00 amps
 Total Circuit Current: 0.769 amps
 End of Line Voltage: 19.57 volts

Device	Current	Distance	Drop	Drop %	Percent Drop
Device 1	0.079	45	0.12	1.58%	1.98%
Device 2	0.107	45	0.12	1.13%	2.11%
Device 3	0.079	15	0.04	0.52%	2.64%
Device 4	0.066	45	0.09	1.32%	2.92%
Device 5	0.066	15	0.03	0.40%	3.12%
Device 6	0.079	35	0.09	1.17%	3.51%
Device 7	0.079	25	0.07	0.91%	3.73%
Device 8	0.107	35	0.10	1.32%	3.96%
Device 9	0.107	35	0.10	1.32%	4.07%
Totals	0.769	295			

Notes: Wire resistance is doubled in the calculations for two wires (Positive and Negative). The voltage calculated to the last device must not be lower than the manufactures listed minimum operating voltage (IE: rated operating voltage 16-33 VDC (24 VDC nominal)).

Point to Point NAC Voltage Drop Calculation 3/12/2016

Project Name: ROSA TRUE APARTMENTS
 Circuit Number: FPS-3

Nominal System Voltage: 20.4 volts
 Minimum Device Voltage: 16.0 volts
 Distance from source to 1st device: 75 feet
 Wire Gauge for balance of circuit: 14

Max Output Current: 3.00 amps
 Total Circuit Current: 1.261 amps
 End of Line Voltage: 19.10 volts

Device	Current	Distance	Drop	Drop %	Percent Drop
Device 1	0.325	75	0.05	1.55%	2.85%
Device 2	0.079	45	0.10	1.32%	4.11%
Device 3	0.277	35	0.04	1.43%	5.02%
Device 4	0.079	15	0.03	0.38%	5.28%
Device 5	0.079	35	0.03	0.38%	5.81%
Device 6	0.079	35	0.03	0.38%	6.17%
Device 7	0.079	35	0.03	0.38%	6.31%
Device 8	0.277	10	0.01	0.36%	6.59%
Totals	1.261	260			

Notes: Wire resistance is doubled in the calculations for two wires (Positive and Negative). The voltage calculated to the last device must not be lower than the manufactures listed minimum operating voltage (IE: rated operating voltage 16-33 VDC (24 VDC nominal)).

Point to Point NAC Voltage Drop Calculation 3/12/2016

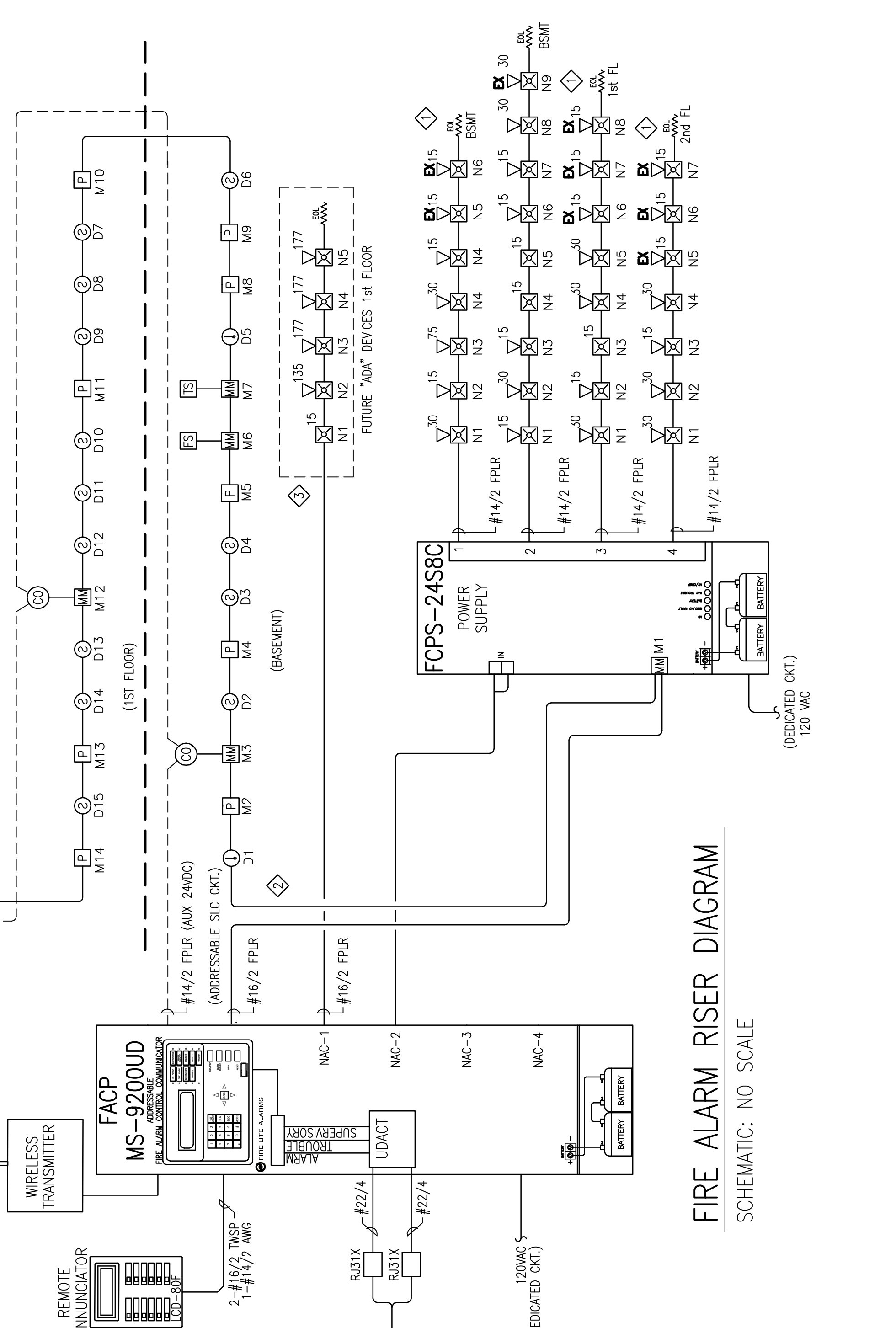
Project Name: ROSA TRUE APARTMENTS
 Circuit Number: FPS-4

Nominal System Voltage: 20.4 volts
 Minimum Device Voltage: 16.0 volts
 Distance from source to 1st device: 100 feet
 Wire Gauge for balance of circuit: 14

Max Output Current: 3.00 amps
 Total Circuit Current: 0.637 amps
 End of Line Voltage: 19.70 volts

Device	Current	Distance	Drop	Drop %	Percent Drop
Device 1	0.107	100	0.10	0.61%	1.92%
Device 2	0.107	35	0.03	0.30%	2.48%
Device 3	0.107	10	0.01	0.10%	2.60%
Device 4	0.107	45	0.03	0.28%	3.07%
Device 5	0.079	25	0.02	0.26%	3.25%
Device 6	0.079	45	0.02	0.26%	3.52%
Device 7	0.079	45	0.02	0.26%	3.43%
Totals	0.637	275			

Notes: Wire resistance is doubled in the calculations for two wires (Positive and Negative). The voltage calculated to the last device must not be lower than the manufactures listed minimum operating voltage (IE: rated operating voltage 16-33 VDC (24 VDC nominal)).



ROSA TRUE APARTMENTS
 140 PARK ST.
 PORTLAND, ME
 FIRE ALARM - BAT CALC & RISER

Point to Point NAC Voltage Drop Calculation 3/12/2016

Project Name: ROSA TRUE APARTMENTS
 Circuit Number: FPS-1

Nominal System Voltage: 20.4 volts
 Minimum Device Voltage: 16.0 volts
 Distance from source to 1st device: 90 feet
 Wire Gauge for balance of circuit: 14

Max Output Current: 3.00 amps
 Total Circuit Current: 1.827 amps
 End of Line Voltage: 19.73 volts

Device	Current	Distance	Drop	Drop %	Percent Drop
Device 1	0.079	90	0.05	0.54%	2.40%
Device 2	0.178	45	0.19	1.07%	3.00%
Device 3	0.178	15	0.06	0.34%	3.12%
Device 4	0.178	15	0.06	0.34%	3.26%
Device 5	0.079	30	0.07	0.73%	3.30%
Device 6	0.079	15	0.03	0.17%	
Totals	0.827	310			

Notes: Wire resistance is doubled in the calculations for two wires (Positive and Negative). The voltage calculated to the last device must not be lower than the manufactures listed minimum operating voltage (IE: rated operating voltage 16-33 VDC (24 VDC nominal)).

Point to Point NAC Voltage Drop Calculation 3/12/2016

Project Name: ROSA TRUE APARTMENTS
 Circuit Number: FPS-2

Nominal System Voltage: 20.4 volts
 Minimum Device Voltage: 16.0 volts
 Distance from source to 1st device: 45 feet
 Wire Gauge for balance of circuit: 14

Max Output Current: 3.00 amps
 Total Circuit Current: 0.769 amps
 End of Line Voltage: 19.57 volts

Device	Current	Distance	Drop	Drop %	Percent Drop
Device 1	0.079	45	0.12	1.58%	1.98%
Device 2	0.107	45	0.12	1.13%	2.11%
Device 3	0.079	15	0.04	0.52%	2.64%
Device 4	0.066	45	0.09	1.32%	2.92%
Device 5	0.066	15	0.03	0.40%	3.12%
Device 6	0.079	35	0.09	1.17%	3.51%
Device 7	0.079	25	0.07	0.91%	3.73%
Device 8	0.107	35	0.10	1.32%	3.96%
Device 9	0.107	35	0.10	1.32%	4.07%
Totals	0.769	295			

Notes: Wire resistance is doubled in the calculations for two wires (Positive and Negative). The voltage calculated to the last device must not be lower than the manufactures listed minimum operating voltage (IE: rated operating voltage 16-33 VDC (24 VDC nominal)).

Point to Point NAC Voltage Drop Calculation 3/12/2016

Project Name: ROSA TRUE APARTMENTS
 Circuit Number: FPS-3

Nominal System Voltage: 20.4 volts
 Minimum Device Voltage: 16.0 volts
 Distance from source to 1st device: 75 feet
 Wire Gauge for balance of circuit: 14

Max Output Current: 3.00 amps
 Total Circuit Current: 1.261 amps
 End of Line Voltage: 19.10 volts

Device	Current	Distance	Drop	Drop %	Percent Drop
Device 1	0.325	75	0.05	1.55%	2.85%
Device 2	0.079	45	0.10	1.32%	4.11%
Device 3	0.277	35	0.04	1.43%	5.02%
Device 4	0.079	15	0.03	0.38%	5.28%
Device 5	0.079	35	0.03	0.38%	5.81%
Device 6	0.079	35	0.03	0.38%	6.17%
Device 7	0.079	35	0.03	0.38%	6.31%
Device 8	0.277	10	0.01	0.36%	6.59%
Totals	1.261	260			

Notes: Wire resistance is doubled in the calculations for two wires (Positive and Negative). The voltage calculated to the last device must not be lower than the manufactures listed minimum operating voltage (IE: rated operating voltage 16-33 VDC (24 VDC nominal)).

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 Office: 831.865.5410
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FA-3

REVISION

REVISION	DESCRIPTION	DATE
0	ISSUED FOR REVIEW & APPROVAL	3/12/2016

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SCALE: 1/8"=1'-0"

- SHEET NOTES:**
- REPLACE EXISTING DEVICE WITH NEW AND REUSE EXISTING WIRING IF COMPATIBLE WITH NEW DEVICE AND MEETS ALL NFPA CODE REQUIREMENTS FOR CLASS "B" CIRCUIT WIRING.
 - S/C KT. CONTINUE TO ALL NEW ADDRESSABLE INITIATING DEVICES. SPLICE INTO EXISTING WIRING IF WIRE MEETS ALL MANUFACTURERS REQUIREMENTS FOR ADDRESSABLE DEVICES.
 - PENDING CHANGE ORDER, DO NOT INSTALL UNTIL APPROVAL FROM OWNER. VERIFY ADA LOCATION WITH OWNER.