RENTAL PROPERTY OF NEVA CRAM & KERRY DRACH

130-132 PLEASANT STREET

PORTLAND, MAINE 04101

FIRE ALARM PLAN

CUNNINGHAM

Security Systems

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DRAWN	JPB	UNICAD JOB #12478	
CHECKED	WAYNE B. HAMS NICET IV 90496		
DATE	10/31/2012		
REVISION	0		
SCALE	1/8" = 1'-0"		

FA-1

Fire Alarm Design & Drafting Services

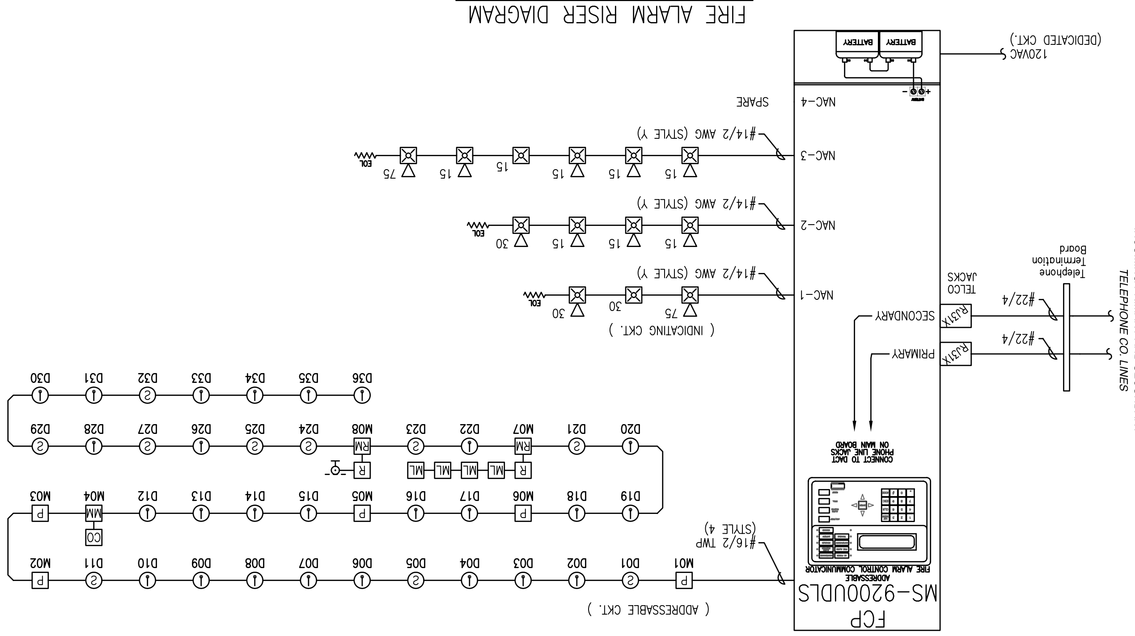
UNICAD Inc.

www.unicad.net

Input drawings created for: Roger, ST 04103 Disk: 801.356.0410 Fax: 801.706.0410

FIRE ALARM RISER DIAGRAM

SCHEMATIC: NO SCALE



FCP Battery Calculation

10/30/2012

PROJECT NAME: 130-132 PLEASANT ST. – RENTAL PROPERTY

Required Standby Time: 24 Hours

Required Alarm Time: 5 Minutes

Regulated Load in Standby

	Number of Devices		Current (Amps)		Total Current (Amps)
MS-9200UDLS Main Circuit Board	1	X	0.1450	=	0.14500
MMF-300 Monitor Module	1	X	0.00040	=	0.00040
H355 Heat Detectors	26	X	0.00030	=	0.00780
SD355 Smoke Detectors	10	X	0.00030	=	0.00300
BG-12LX Pull Stations	5	X	0.00023	=	0.00115
CRF-300 Relay Module	2	X	0.00027	=	0.00054
TOTAL STANDBY LOAD					0.15789

Regulated Load in ALARM

	Number of Devices		Current (Amps)		Total Current (Amps)
MS-9200UDLS Main Circuit Board	1	X	0.2500	=	0.27500
Maximum Alarm Draw – All Addressable Devices	1	X	0.40000	=	0.40000
NAC-1	1	X	0.37700	=	0.37700
NAC-2	1	X	0.34400	=	0.34400
NAC-3	1	X	0.34400	=	0.34400
NAC-4	1	X	0.55800	=	0.55800
TOTAL ALARM LOAD					1.93400

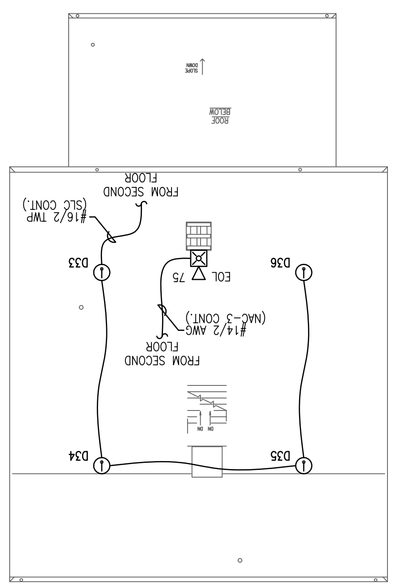
Battery Requirements

Standby Load				
Current (Amps)	0.15789	X	24.00000	= 3.78936
Alarm Load			Required Alarm Time in Hours	
Current (Amps)	1.95400	X	0.08333	= 0.16283
Total Ampere Hours (before derating factor)				3.95219
Derating Factor		X		1.2
TOTAL AMPERE HOURS REQUIRED				= 4.74263

BATTERIES TO BE PROVIDED (2 – 12v) 7 AH

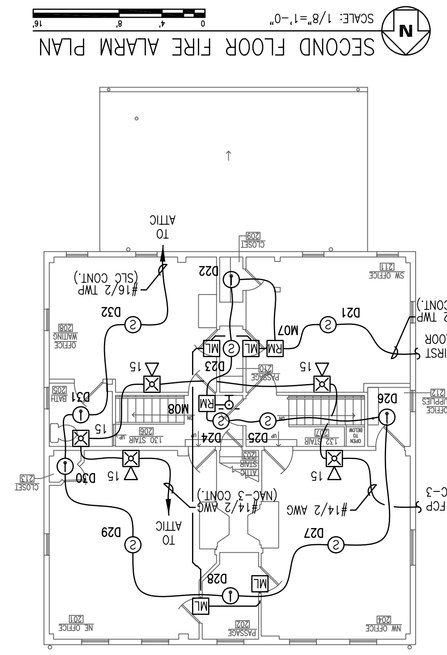
ATTIC FIRE ALARM PLAN

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



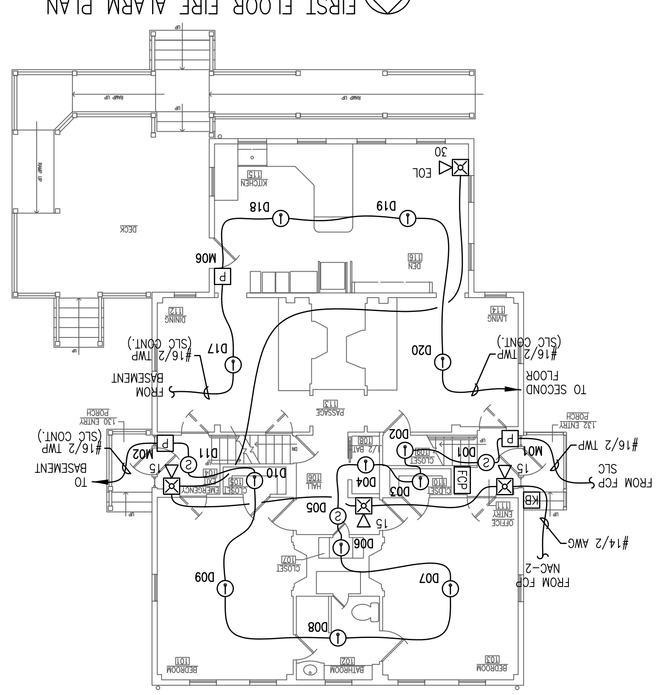
SECOND FLOOR FIRE ALARM PLAN

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



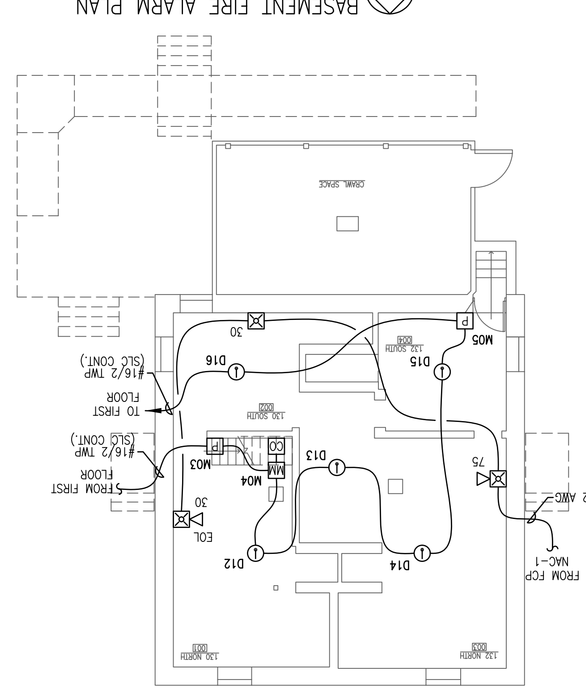
FIRST FLOOR FIRE ALARM PLAN

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



BASEMENT FIRE ALARM PLAN

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



GENERAL NOTES:

1. THESE DRAWINGS ARE DIAGRAMMATIC. REFER TO THE ARCHITECTURAL DRAWINGS FOR EXACT DIMENSIONS.
2. INSTALLATION SHALL COMPLY WITH NEC, NFPA 72 AND ALL OTHER APPLICABLE CODES AS REQUIRED BY THE LOCAL AUTHORITY HAVING JURISDICTION.
3. WIRING DEPICTED ON THESE PLANS IS SCHEMATIC – ACTUAL WIRE LOCATIONS MAY DIFFER FROM THESE PLANS. WIRING SHALL BE PERFORMED AS ACTUAL BUILDING CONSTRUCTION CONDITIONS ALLOW AND TO MINIMIZE PENETRATIONS THROUGH AREA SEPARATION WALLS AND FIRE WALLS. THE USE OF A RACEWAY IS PERMITTED AS LONG AS NO 110V OR HIGHER VOLTAGE CABLES ARE IN THE SAME RACEWAY.
4. FIRE RATINGS SHALL BE MAINTAINED FOR ALL PENETRATIONS THROUGH FIRE-RATED CONSTRUCTION.
5. POWER FOR ALL FIRE ALARM PANELS AND FIRE ALARM POWER SUPPLIES MUST BE PROVIDED BY A DEDICATED AC BRANCH CIRCUIT.
6. POWER-LIMITED AND NONPOWER-LIMITED CIRCUIT WIRING MUST REMAIN SEPARATED IN CABINET. ALL POWER-LIMITED CIRCUIT WIRING MUST REMAIN AT LEAST 0.25" AWAY FROM ANY NONPOWER-LIMITED CIRCUIT WIRING. FURTHERMORE, ALL POWER-LIMITED AND NONPOWER-LIMITED CIRCUIT WIRING MUST ENTER AND EXIT THE CABINET THROUGH DIFFERENT KNOCK OUTS AND/OR SEPARATE CONDUITS.
7. WHEN UTILIZING CLASS "A" CIRCUITS, SEPARATE OUTGOING AND RETURN CONDUCTORS OF CLASS "A" CIRCUITS BY A MINIMUM OF 12" WHERE RUN VERTICALLY AND 48" WHERE RUN HORIZONTALLY.
8. WHEN UTILIZING SHIELDED CABLE TIE SHIELDS THROUGH AND INSULATE AT EACH JUNCTION BOX. INSULATE AND TAPE BACK AT END.
9. ALL FIRE ALARM CABLING SHALL BE ACCEPTABLE TO THE FIRE ALARM EQUIPMENT MANUFACTURER FOR THE INTENDED PURPOSE.
10. SMOKE DETECTORS SHALL NOT BE INSTALLED UNTIL AFTER CONSTRUCTION CLEAN-UP IS COMPLETED AND FINAL.
11. LOCATE SMOKE DETECTORS A MINIMUM OF THREE (3) FEET FROM MECHANICAL DIFFUSERS. WALL-MOUNTED SMOKE DETECTORS SHALL BE LOCATED A MINIMUM OF 4" AND A MAXIMUM OF 12" FROM CEILING. CEILING-MOUNTED SMOKE DETECTORS SHALL BE MOUNTED ON CEILINGS AND NOT ON THE BOTTOMS OF BEAMS OR JOISTS.
12. PROVIDE SYNCHRONIZATION OF ALL VISUAL NOTIFICATION APPLIANCE CIRCUITS. PROVIDE ALL REQUIRED SYNC MODULES. PROVIDE A MULTI-SYNC MODE SLAVE CONNECTION BETWEEN ALL SYNC MODULES.
13. VERIFY ALL FIELD SELECTABLE AUDIBILITY SETTINGS OF NOTIFICATION APPLIANCES WITH FIRE ALARM CONTRACTOR.
14. UPON COMPLETION OF THE FIRE ALARM SYSTEM INSTALLATION AND PROGRAMMING, THE INSTALLING CONTRACTOR SHALL PERFORM FINAL TESTING OF THE ENTIRE SYSTEM, PER ALL APPLICABLE CODES, AND SHALL COORDINATE AND PERFORM A FINAL FIRE ALARM SYSTEM INSPECTION.
15. PROVIDE OFF-SITE MONITORING AS REQUIRED BY THE INTERNATIONAL FIRE CODE, SECTION 907.15 AND THE LOCAL AUTHORITY HAVING JURISDICTION.
16. INSTALLING CONTRACTOR SHALL PHYSICALLY LABEL ALL INITIATING DEVICES AND NOTIFICATION APPLIANCE CIRCUIT END OF LINE (WHEN WIRING CLASS "B"). THESE LABELS SHALL BE IN PLACE PRIOR TO START-UP AND TESTING.

NAC Circuit Voltage Drop Calculation

10/30/2012

Project Name: 130-132 PLEASANT ST. – RENTAL PROPERTY

Circuit Name: NAC-1

Nominal System Voltage: 24.0 volts

Minimum Device Voltage: 16 volts

Distance from source to 1st device: 20

Wire Gauge for balance of circuit: 14 Gauge; 6.14 Ω per 1000

Max Output Current: 0.5 amps

Total Circuit Current: 0.377 amps

Circuit is within limits	Device Current	Distance device	previous Device	Voltage at source	Drop from source	Percent Drop
Device 1	0.176		20.35	20.30	0.05	0%
Device 2	0.094	25	20.32	20.30	0.08	0%
Device 3	0.107	28	20.30	20.30	0.10	0%
Totals	0.377	73				

NAC Circuit Voltage Drop Calculation

10/30/2012

Project Name: 130-132 PLEASANT ST. – RENTAL PROPERTY

Circuit Name: NAC-2

Nominal System Voltage: 24.0 volts

Minimum Device Voltage: 16 volts

Distance from source to 1st device: 10

Wire Gauge for balance of circuit: 14 Gauge; 6.14 Ω per 1000

Max Output Current: 1.0 amps

Total Circuit Current: 0.344 amps

Circuit is within limits	Device Current	Distance device	previous Device	Voltage at source	Drop from source	Percent Drop
Device 1	0.079		20.38	20.29	0.02	0%
Device 2	0.079	15	20.35	20.29	0.05	0%
Device 3	0.079	19	20.33	20.29	0.07	0%
Device 4	0.107	39	20.29	20.29	0.11	1%
Totals	0.344	103				

NAC Circuit Voltage Drop Calculation

10/30/2012

Project Name: 130-132 PLEASANT ST. – RENTAL PROPERTY

Circuit Name: NAC-3

Nominal System Voltage: 24.4 volts

Minimum Device Voltage: 16 volts

Distance from source to 1st device: 15

Wire Gauge for balance of circuit: 14 Gauge; 6.14 Ω per 1000

Max Output Current: 1.0 amps

Total Circuit Current: 0.558 amps

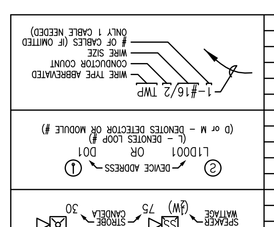
Circuit is within limits	Device Current	Distance device	previous Device	Voltage at source	Drop from source	Percent Drop
Device 1	0.079		20.35	20.29	0.05	0%
Device 2	0.079	6	20.33	20.29	0.07	0%
Device 3	0.079	16	20.29	20.29	0.11	1%
Device 4	0.066	13	20.26	20.29	0.14	1%
Device 5	0.079	6	20.25	20.29	0.15	1%
Device 6	0.176	35	20.21	20.29	0.19	1%
Totals	0.558	93				

FIRE ALARM SYMBOL LEGEND

NOTE: ALL SYMBOLS MAY NOT BE USED ON THIS PROJECT

SYMBOL	DESCRIPTION	MOUNTING
FCP	FIRE ALARM CONTROL PANEL	WALL–TOP @ 66"
FPS	FIRE ALARM POWER SUPPLY	FIELD VERIFY
FSA	FIRE SYSTEM ANNUNCIATOR	WALL–TOP @ 66"
FSD	FIRE/SMOKE DAMPER	BY OTHERS
SD	SMOKE DETECTOR	CEILING
DH	DUCT SMOKE DETECTOR	BY OTHERS
H	HEAT DETECTOR	CEILING
CO	CARBON MONOXIDE DETECTOR	FIELD VERIFY
MM	ADDRESSABLE MONITOR MODULE	FIELD VERIFY
MP	MANUAL PULL STATION	WALL–TOP @ 48"
R	CONTROL RELAY (MULTI-VOLTAGE)	FIELD VERIFY
MH	ADDRESSABLE RELAY MODULE	FIELD VERIFY
MD	MAGNETIC DOOR HOLDER	FIELD VERIFY
ML	MAGNETIC LOCK	FIELD VERIFY
KB	KNOX BOX	FIELD VERIFY
WF	WATER FLOW SWITCH	BY OTHERS
VT	VALVE TAMPER SWITCH	BY OTHERS
B	BELL	BY OTHERS
HC	CEILING MOUNT STROBE	FIELD VERIFY
HH	CEILING MOUNT HORN / STROBE	FIELD VERIFY
HS	CEILING MOUNT SPEAKER / STROBE	FIELD VERIFY
H	HORN	WALL @ 10'-0
HS	HORN / STROBE	WALL 80"–96"
S	SPEAKER / STROBE	WALL 80"–96"
S	STROBE	WALL 80"–96"

ABBREVIATION	DESCRIPTION
E	EXISTING
P	PENDENT MOUNT
G	WITH GUARD
R	RESIDENTIAL (110V)
S	SOUNDER BASE
WP	WEATHER PROOF
EOL	END OF LINE RESISTOR
AWG	AMERICAN WIRE GAUGE
TWP	TWISTED PAIR
TWSP	TWISTED SHIELDED PAIR
FPLP	FIRE POWER LIMITED PLENUM
FPLR	FIRE POWER LIMITED RISER



OPERATIONS MATRIX

OPERATIONS	MANUAL PULL STATIONS	SMOKE DETECTORS	HEAT DETECTORS	CARBON MONOXIDE DETECTORS	PULL STATIONS	FIRE ALARM AC POWER FAIL	FIRE ALARM LOW BATTERY	OPEN CIRCUIT	GROUND FAULT	NAC SHORT CIRCUIT	LOSS OF AC TO BUILDING
FIRE ALARM OUTPUT											
ACTIVATE ALARM INDICATOR	●	●									
ACTIVATE AUDIBLE ALARM	●	●									
ACTIVATE SUPERVISORY INDICATOR			●	●							
ACTIVATE AUDIBLE SUPERVISORY SIGNAL			●	●							
ACTIVATE TROUBLE INDICATOR			●	●							
ACTIVATE AUDIBLE TROUBLE INDICATOR			●	●							
TRANSMIT ALARM SIGNAL		●	●	●	●						
TRANSMIT SUPERVISORY SIGNAL						●	●	●			
TRANSMIT TROUBLE SIGNAL						●	●	●	●	●	●
RELEASE EGRESS DOORS/UNLOCK EXITS		●	●	●	●						
RELEASE MAGNETICALLY HELD SMOKE DOORS		●	●	●	●						

REVISION	DESCRIPTION	DATE
0	ISSUED FOR REVIEW & APPROVAL	10/31/2012