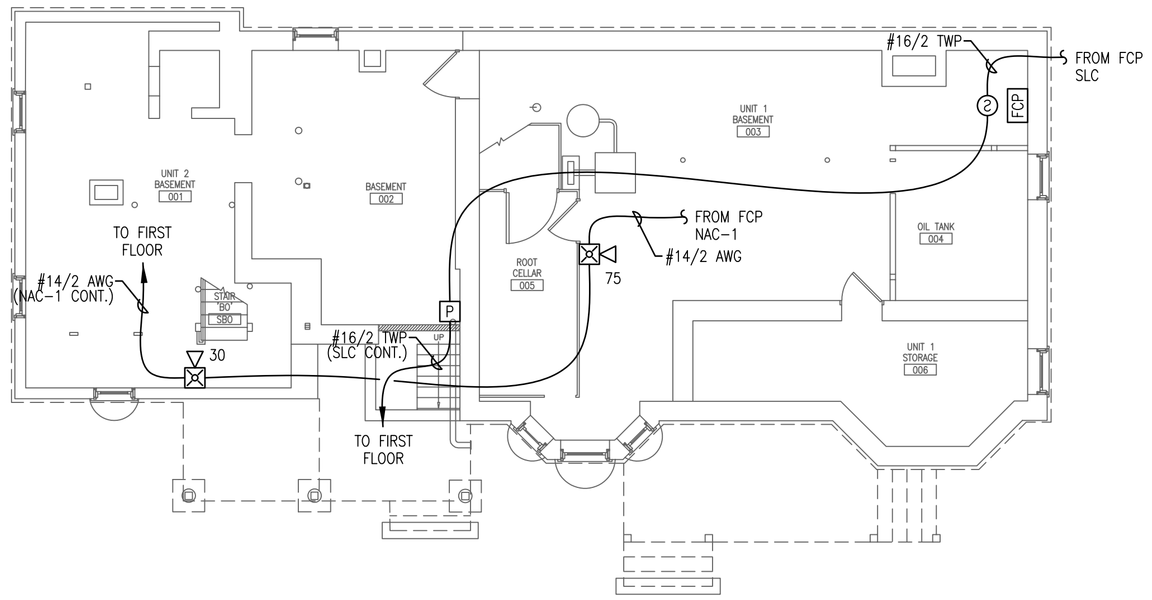


BASEMENT FIRE ALARM PLAN

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

OPERATIONS MATRIX — FIRE ALARM INPUT	FIRE ALARM OUTPUT	ACTIVATE ALARM INDICATOR	ACTIVATE AUDIBLE ALARM	ACTIVATE TROUBLE INDICATOR	ACTIVATE AUDIBLE TROUBLE INDICATOR	TRANSMIT ALARM SIGNAL	TRANSMIT TROUBLE SIGNAL
SMOKE DETECTORS		●	●			●	
PULL STATIONS		●	●			●	
FIRE ALARM AC POWER FAIL				●	●		●
FIRE ALARM LOW BATTERY				●	●		●
OPEN CIRCUIT				●	●		●
GROUND FAULT				●	●		●
NAC SHORT CIRCUIT				●	●		●
LOSS OF AC TO BUILDING				●	●		●

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.

FIRE ALARM SYMBOL LEGEND

NOTE: ALL SYMBOLS MAY NOT BE USED ON THIS PROJECT

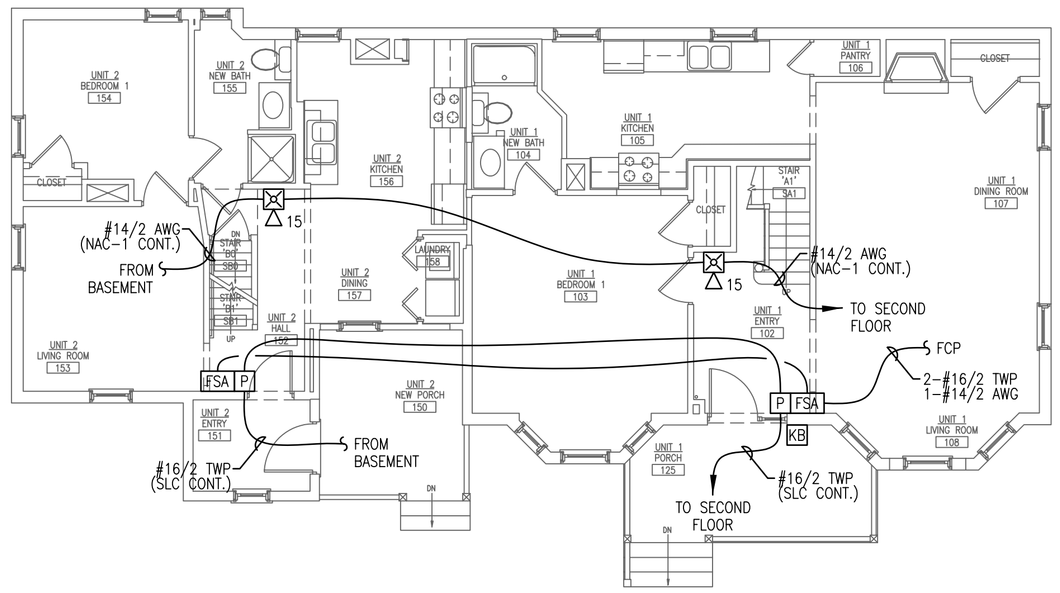
SYMBOL	DESCRIPTION	MOUNTING
FCP	FIRE ALARM CONTROL PANEL	WALL-TOP @ 66"
FPS	FIRE ALARM POWER SUPPLY	FIELD VERIFY
FSA	FIRE SYSTEM ANNUNCIATOR	WALL-TOP @ 66"
FSD	FIRE/SMOKE DAMPER	BY OTHERS
S	SMOKE DETECTOR	CEILING
S	DUCT SMOKE DETECTOR	BY OTHERS
H	HEAT DETECTOR	CEILING
CM	ADDRESSABLE CONTROL MODULE	FIELD VERIFY
MM	ADDRESSABLE MONITOR MODULE	FIELD VERIFY
P	MANUAL PULL STATION	WALL @ 48"
R	CONTROL RELAY (MULTI-VOLTAGE)	FIELD VERIFY
RM	ADDRESSABLE RELAY MODULE	FIELD VERIFY
	MAGNETIC DOOR HOLDER	FIELD VERIFY
	HORN	WALL @ 10'-0
	HORN / STROBE	WALL 80"-96"
	STROBE	WALL 80"-96"

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

STROBE CANDELA 30

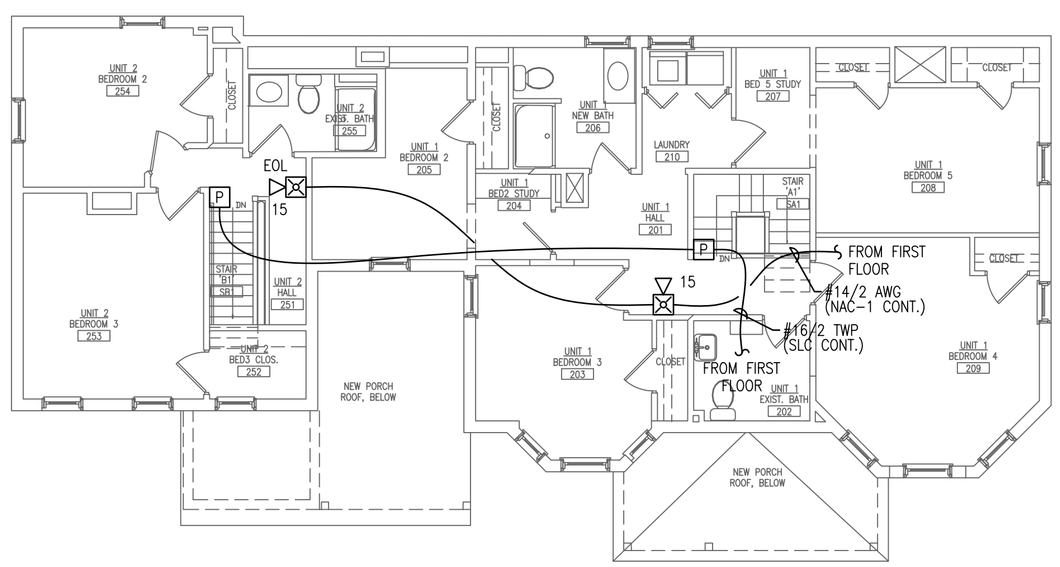
DEVICE ADDRESS — L1D001 OR D01 (L – DENOTES LOOP #) (D or M – DENOTES DETECTOR OR MODULE #)

1-#16/2 TWP — WIRE TYPE ABBREVIATED; CONDUCTOR COUNT; WIRE SIZE; # OF CABLES (IF OMITTED ONLY 1 CABLE NEEDED)



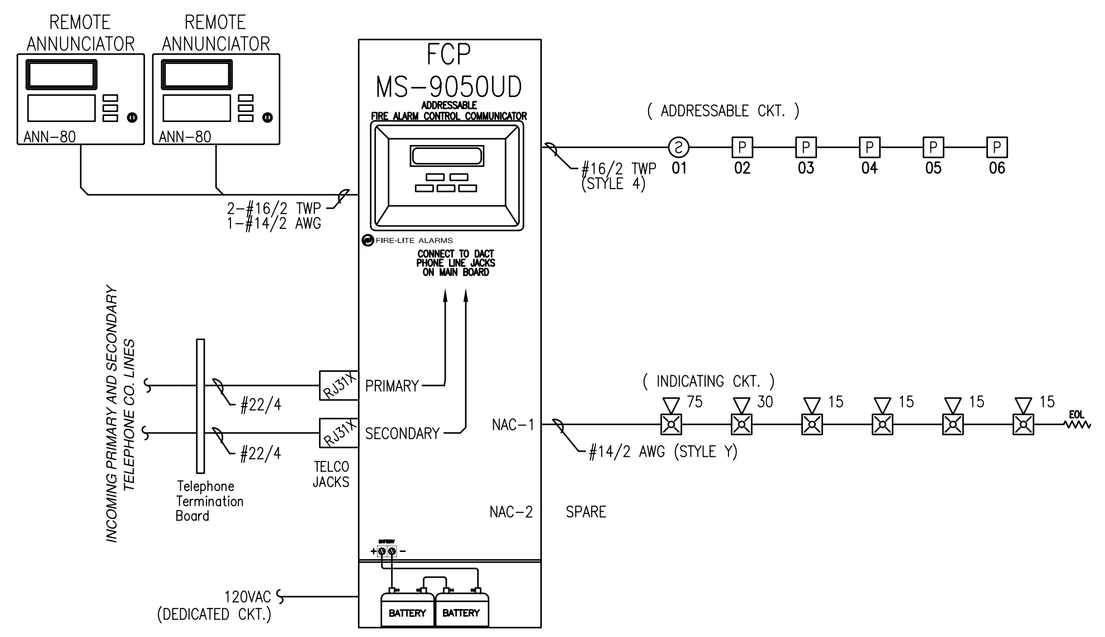
FIRST FLOOR FIRE ALARM PLAN

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



SECOND FLOOR FIRE ALARM PLAN

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



FIRE ALARM RISER DIAGRAM

SCHEMATIC: NO SCALE

NAC Circuit Voltage Drop Calculation 2/16/2012

Project Name	B.E.H. REDEVELOPMENT HOUSING		
Circuit Number	NAC-1		
Nominal System Voltage	20.4 volts	Wire Gauge	Resistance Per 1000
Minimum Device Voltage	16 volts		
Distance from source to 1st device	45	14	6.14
Wire Gauge for balance of circuit		14	6.14
Max Output Current	1.5 amps		
Total Circuit Current	0.599 amps		

Circuit is within limits	Device Current	Distance previous device	Voltage at Device	Drop from source	Percent Drop
Device 1	0.176		20.23	0.17	1%
Device 2	0.107	40	20.13	0.27	1%
Device 3	0.079	30	20.07	0.33	2%
Device 4	0.079	38	20.02	0.38	2%
Device 5	0.079	17	20.00	0.40	2%
Device 6	0.079	37	19.98	0.42	2%
Totals	0.599	207			

FCP Battery Calculation

2/16/2012

PROJECT NAME: B.E.H. REDEVELOPMENT HOUSING
Required Standby Time: 24 Hours
Required Alarm Time: 5 Minutes

Regulated Load in Standby

Device Type	Number of Devices		Current (Amps)		Total Current (Amps)
MS-9050UD Main Circuit Board	1	X	0.12000	=	0.12000
ANN-80 Remote Annunciator	2	X	0.01500	=	0.03000
SD355 Smoke Detector	1	X	0.00030	=	0.00030
BG-12LX Pull Stations	5	X	0.00023	=	0.00115
TOTAL STANDBY LOAD					0.15145

Regulated Load in ALARM

Device Type	Number of Devices		Current (Amps)		Total Current (Amps)
MS-9050UD Main Circuit Board	1	X	0.20000	=	0.20000
ANN-80 Remote Annunciator	2	X	0.04000	=	0.08000
All Addressable Devices – Maximum Draw	1	X	0.40000	=	0.40000
NAC-1	1	X	0.59900	=	0.59900
TOTAL ALARM LOAD					1.27900

Battery Requirements

Standby Load			Required Standby Time in Hours		
Current (Amps)	0.15145	X	24.00000	=	3.63480
Alarm Load			Required Alarm Time in Hours		
Current (Amps)	1.27900	X	0.08333	=	0.10658
Total Ampere Hours (before derating factor)					3.74138
Derating Factor				X	1.2
TOTAL AMPERE HOURS REQUIRED				=	4.48966
BATTERIES TO BE PROVIDED (2 – 12v)					7 AH

shop drawings created by:
5794 W. 4600 So.
Hooper, UT 84315
Office: 801.985.0410
Fax: 801.704.0410
www.unicad.net
UNICAD Inc.
Fire Alarm Design & Drafting Services

REVISION	DESCRIPTION	DATE
0	ISSUED FOR DESIGN REVIEW & APPROVAL	2/2/2012
1	REVISED DESIGN PER CLIENT REVIEW	2/9/2012
2	ISSUED FOR REVIEW & APPROVAL	2/17/2012

CUNNINGHAM
Security Systems
10 Princes Point Road, Yarmouth, Maine 04096
Office: 207.846.3350 • Fax: 207.846.6080

B.E.H. REDEVELOPMENT HOUSING
325 BRACKETT STREET
PORTLAND, ME 04101
FIRE ALARM LAYOUT

DRAWN	CWH UNICAD JOB #12033
CHECKED	WAYNE B. HAWS NICET IV 90496
DATE	2/1/2012
REVISION	2
SCALE	3/16"=1'-0"

FA-1