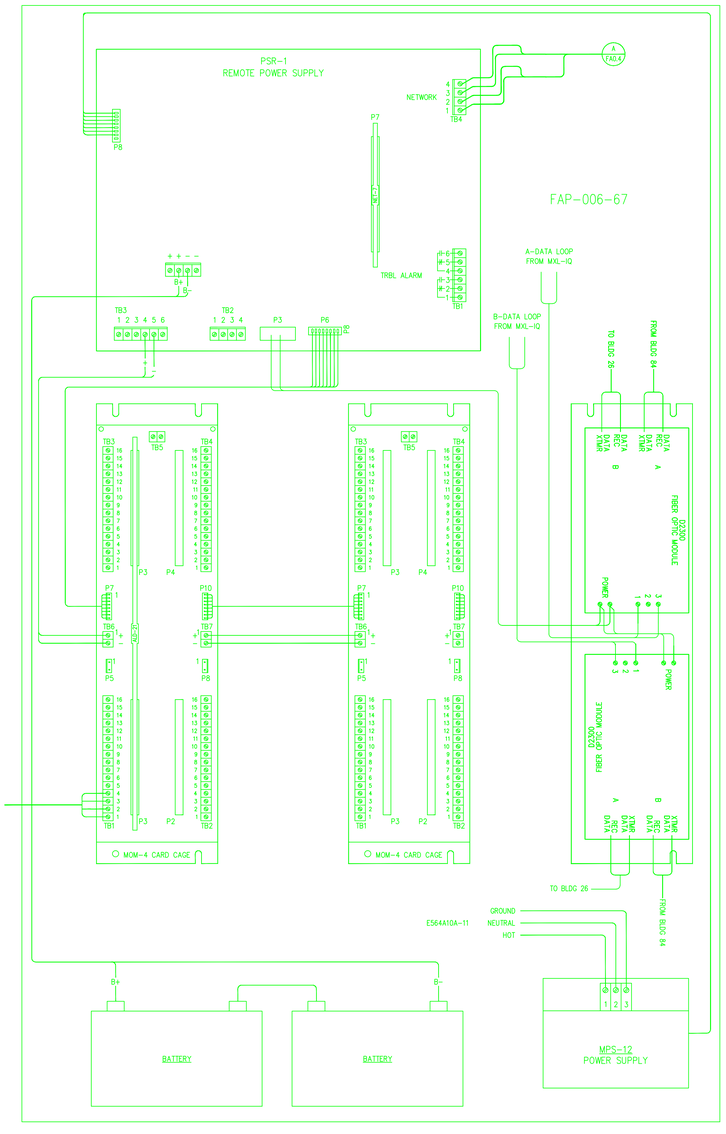
MXLR (FAP-007-67) ARRANGEMENT – DETAIL 1



BATTERY CALCULATIONS – DETAIL 2

FACU POWER SUPPLY & BATTERY FAP-001-67 (MXL) – 12 AMP

Device	Qty.	Standby Current (amp)	Alarm Current (amp)	Notes
1 MMB-2 Control Board	1	0.175	0.0	
2 Analog Loop	13	0.858	0.0	0.66 A Per Loop
3 Notification Appliance Circuit	2	0.0	0.798	
4 NET-7 Network Module	1	0.030	0.0	
5 MKB-2 Keyboard Annunciator	1	0.005	0.0	
6 NA	NA	NA	NA	
7 NA	NA	NA	NA	
Total		1.068	0.798	

Notification Appliances	Current (amp)
Circuits A1 & A2	0.798
Total (Insert Into #3, Above)	

Minimum Battery Capacity = [Total Standby Current X Standby Time] + [Total Alarm Current X Alarm Time] X 1.2
Minimum Battery Capacity = [1.068 A X 24 Hr] + [0.798 A X 0.083Hr] 1.2
Minimum Battery Capacity = [25.632 AHr] + [0.066 AHr] X 1.2 = 30.85 AHr

FACU POWER SUPPLY & BATTERY FAP-002-67 (MXLR) – 12 AMP

Device	Qty.	Standby Current (amp)	Alarm Current (amp)	Notes
1 PSR-1 Remote Power Supply	1	0.070	0.0	
2 CSM-4 Signal Module	4	0.040	0.0	0.010 Per Module
3 Notification Appliance Circuit	6	0.0	1.64	
4 NET-7 Network Module	1	0.030	0.0	
5 NA	NA	NA	0.0	
6 NA	NA	NA	NA	
7 NA	NA	NA	NA	
Total		0.140	1.64	

Notification Appliances	Current (amp)
Circuits A3 Through A8	1.64
Total (Insert Into #3, Above)	

Minimum Battery Capacity = [Total Standby Current X Standby Time] + [Total Alarm Current X Alarm Time] X 1.2
Minimum Battery Capacity = [0.140 A X 24 Hr] + [1.64A X 0.083Hr] 1.2
Minimum Battery Capacity = [3.36 AHr] + [0.136 AHr] X 1.2 = 4.2 AHr

FACU POWER SUPPLY & BATTERY FAP-003-67 (Power Panel) – 12 AMP

Device	Qty.	Standby Current (amp)	Alarm Current (amp)	Notes
1 CSM-4 Signal Module	4	0.040	0.0	0.010 Per Module
2 Notification Appliance Circuit	7	0.0	5.347	
3 NA	NA	0.0	0.0	
4 NA	NA	NA	0.0	
5 NA	NA	NA	0.0	
6 NA	NA	NA	NA	
7 NA	NA	NA	NA	
Total		0.040	5.347	

Notification Appliances	Current (amp)
Circuits V1 Through V7	5.347
Total (Insert Into #2, Above)	

Minimum Battery Capacity = [Total Standby Current X Standby Time] + [Total Alarm Current X Alarm Time] X 1.2
Minimum Battery Capacity = [0.040 A X 24 Hr] + [5.34A X 0.083Hr] 1.2
Minimum Battery Capacity = [0.96 AHr] + [0.444 AHr] X 1.2 = 1.68 AHr

FACU POWER SUPPLY & BATTERY FAP-004-67 (Power Panel) – 12 AMP

Device	Qty.	Standby Current (amp)	Alarm Current (amp)	Notes
1 CSM-4 Signal Module	4	0.040	0.0	0.010 Per Module
2 Notification Appliance Circuit	7	0.0	4.77	
3 NA	NA	0.0	0.0	
4 NA	NA	NA	0.0	
5 NA	NA	NA	0.0	
6 NA	NA	NA	NA	
7 NA	NA	NA	NA	
Total		0.040	4.77	

Notification Appliances	Current (amp)
Circuits V8 Through V14	4.77
Total (Insert Into #2, Above)	

Minimum Battery Capacity = [Total Standby Current X Standby Time] + [Total Alarm Current X Alarm Time] X 1.2
Minimum Battery Capacity = [0.040 A X 24 Hr] + [4.77 A X 0.083Hr] 1.2
Minimum Battery Capacity = [0.96 AHr] + [0.396 AHr] X 1.2 = 1.63 AHr

FACU POWER SUPPLY & BATTERY FAP-005-67 (Power Panel) – 12 AMP

Device	Qty.	Standby Current (amp)	Alarm Current (amp)	Notes
1 CSM-4 Signal Module	4	0.040	0.0	0.010 Per Module
2 Notification Appliance Circuit	6	0.0	4.148	
3 Analog Loop	1	0.660	0.0	0.66 A Per Loop
4 CRM-4 Relay Module	2	0.030	0.015	0.015 A Per Module/0.015 A Alarm
5 NA	NA	NA	0.0	
6 NA	NA	NA	NA	
7 NA	NA	NA	NA	
Total		0.730	4.163	

Notification Appliances	Current (amp)
Circuits V15 Through V20	4.148
Total (Insert Into #2, Above)	

Minimum Battery Capacity = [Total Standby Current X Standby Time] + [Total Alarm Current X Alarm Time] X 1.2
Minimum Battery Capacity = [0.730 A X 24 Hr] + [4.163 A X 0.083Hr] 1.2
Minimum Battery Capacity = [17.52 AHr] + [0.346 AHr] X 1.2 = 21.44 AHr

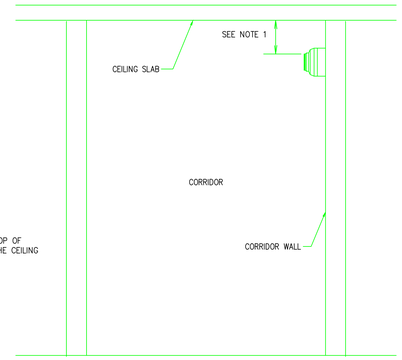
FACU POWER SUPPLY & BATTERY FAP-006-67 (MXLR) – 12 AMP

Device	Qty.	Standby Current (amp)	Alarm Current (amp)	Notes
1 PSR-1 Remote Power Supply	1	0.070	0.0	
2 Analog Loop	1	0.66	0.0	0.66 A Per Loop
3 NET-7 Network Module	1	0.030	0.0	
4 NA	NA	NA	NA	
5 NA	NA	NA	NA	
6 NA	NA	NA	NA	
7 NA	NA	NA	NA	
Total		0.76	0.0	

Notification Appliances	Current (amp)
NA	0

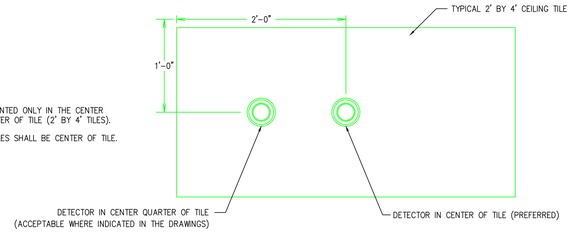
Minimum Battery Capacity = [Total Standby Current X Standby Time] + [Total Alarm Current X Alarm Time] X 1.2
Minimum Battery Capacity = [0.76 A X 24 Hr] + [0A X 0.083Hr] 1.2
Minimum Battery Capacity = [18.24 AHr] + [0 AHr] X 1.2 = 21.8 AHr

SIDE WALL MOUNTED SMOKE DETECTOR DETAIL – DETAIL 3



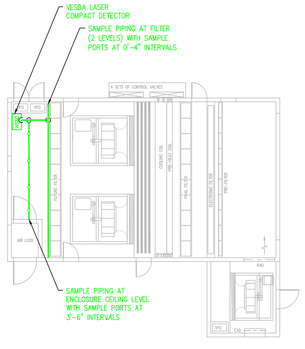
NOTE 1
DETECTOR SHALL BE MOUNTED SUCH THAT TOP OF THE DETECTOR IS NO LESS THAN 4" FROM THE CEILING AND NO MORE THAN 12" FROM THE CEILING.

DETECTOR LOCATION DETAIL – DETAIL 4

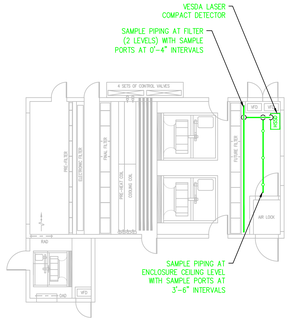


NOTES
1. DETECTORS SHALL BE MOUNTED ONLY IN THE CENTER OF TILE OR CENTER QUARTER OF TILE (2' BY 4' TILES).
2. DETECTORS IN 2' BY 2' TILES SHALL BE CENTER OF TILE.

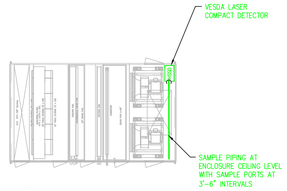
HVAC HSSD DETECTION ARRANGEMENT – DETAIL 5



A FAO.11 AHU-001 SCALE: 1/8"=1'-0"



B FAO.11 AHU-002 SCALE: 1/8"=1'-0"



C FAO.11 AHU-003 SCALE: 1/8"=1'-0"

Lawrence Berkeley National Laboratory

Molecular Building 67

Issued for	Rev	Date
RECORD DRAWINGS		18 JAN 2007

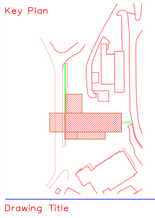
Seals and Signatures

RECORD DRAWINGS

SPECIAL NOTE:
THE INFORMATION SHOWN IN THIS DRAWING WAS DEVELOPED USING THE RECORD DRAWINGS PROVIDED BY SIEMENS BUILDING TECHNOLOGIES, INC. FOLLOWING THE COMPLETION OF THIS PROJECT (IDENTIFIED AS JOB NUMBER 107739, SHEETS 1 THROUGH 24). SPECIFICALLY, SEE SHEETS 7, 9, & 10 FOR INFORMATION

LBNL Project Title: MOLECULAR FOUNDRY
LBNL Building Number: 67

Key Plan



Drawing Title
FIRE ALARM SYSTEM DETAILS & POWER CALCULATIONS

Scale

SG Project Number: MF1212
LBNL Project Number: FA0.11
Drawing Number: 11 OF 20
LBNL Drawing Number: 5N67E020
IFB 841

Plot Sheet Filename: .\DGS\<DRNUMBER>\<FILENAME>
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LBNL Date: