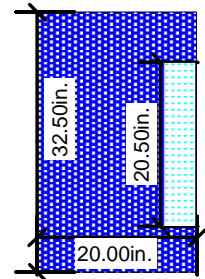
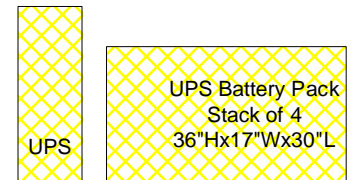
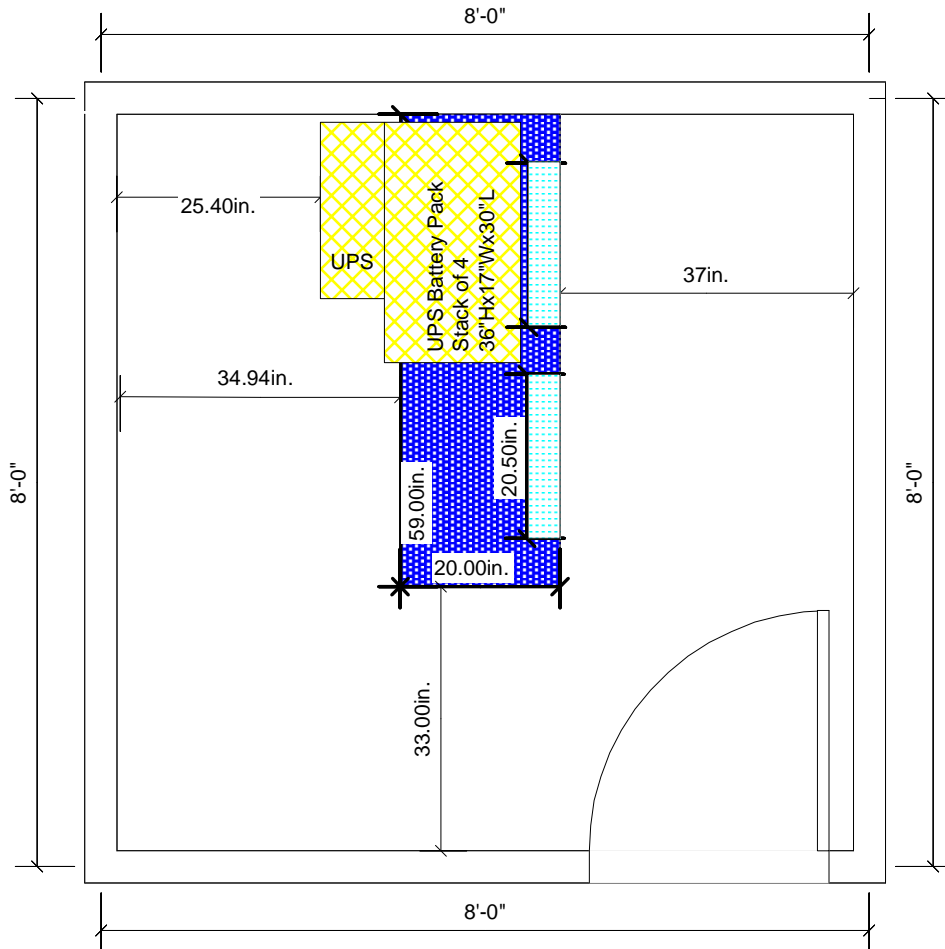


Medium Density IDF/MDF



This represents a standard 19" telecom rack which has a total width of 20.5". It allows for a 32.5" of total width that includes 6" vertical wire management tray that will be added on either side of a single rack. It also allows for a total of 20" in depth based on the average depth of the equipment that will be installed in the racks.

* If two racks are installed side by side only one 6" vertical wire management tray will be installed between the two racks. This will reduce the combined rack width by 6" for each rack in the row.



This represents an APC SmartUPS XL 2200 with 4 Ultra Battery Packs. Each battery pack is 12" high X 17" wide X 30" in length and can be stacked on top of one another. The UPS is 17" high X 8" wide X 22" in length. This will sit behind the battery packs. Assume about 8" of space between the wall and UPS or battery packs for cables.

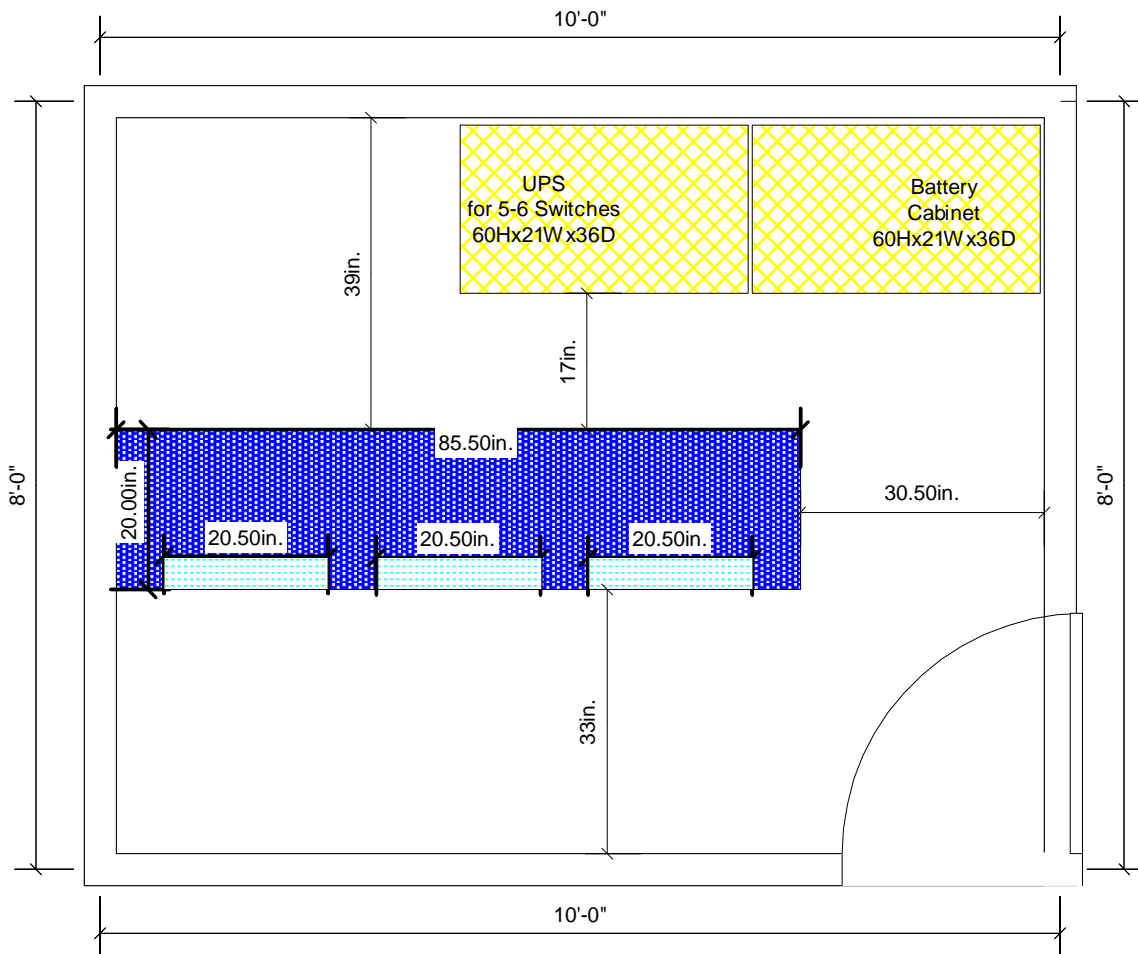
This UPS should be able to power 3-48port PoE Switches fully loaded with IP telephones for 6-8 hours.

Medium Size MDF/IDF (8X8 minimum)

- 2 Floor Mounted 19" Racks 96"H
- Vertical Cable Mgt: 6" each side and inbetween
- SmartUPS XL 2200 : 17"Hx22"Dx8"W
 - + Placed on floor behind the rack
- UPS Battery Pack: 12"Hx30"Dx17"W
 - + Placed on floor behind the PoE rack stacked upto 4
 - + Max 3 PoE Switches

Drawing Scale is 1/2" = 1'

High Density MDF/IDF



Large MDF/IDF (preferred 10x10, minimum 10x8)

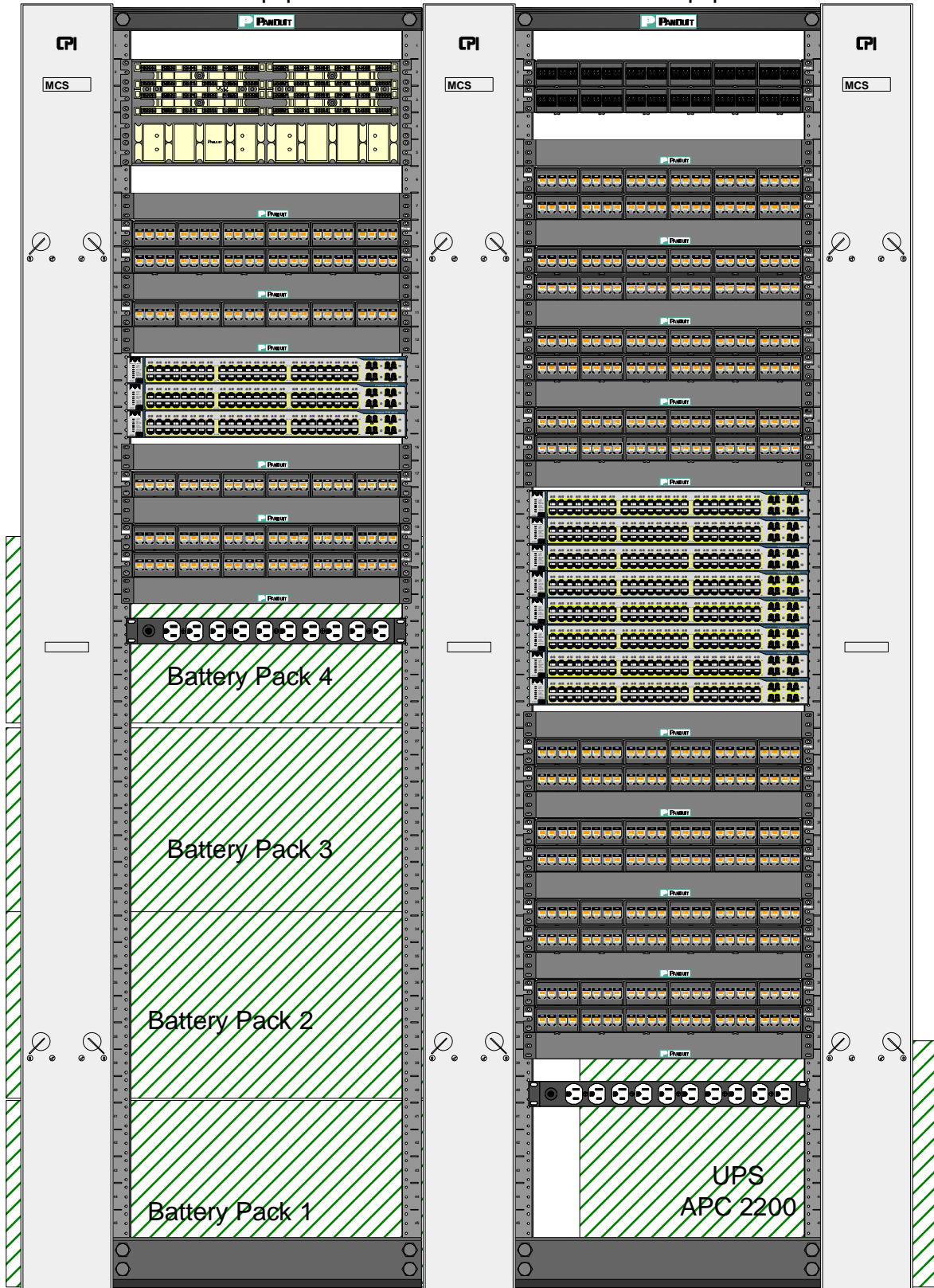
- 3 Floor Mounted 19" Racks 96"H
- Vertical Cable Mgt: 6" each side and in-between
- SmartUPS VT 10kva with Battery Cabinet: 60Hx21Wx36D each.
 - + Placed behind the rack s
 - + Max 6 PoE switches (288 PoE connections)
 - For 5-6 PoE Switches it would be better if the IDF/MDF was 10x10
 - + Max 16 non-PoE Switches (768 connections)
 - + These Maximums allow no room for growth, which would be undesirable.

Drawing Scale is 1/2" = 1'

Racks at full capacity using 48 port switches for both PoE and non-PoE

VoIP Rack PoE Equipment

Data Rack non-PoE Equipment

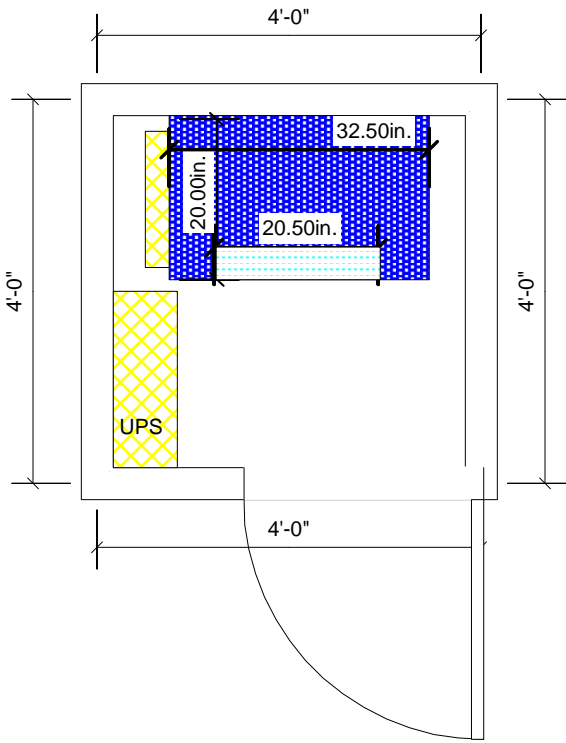



 UPS Battery Pack
 12"Hx30"Lx17"W

Patch Panel and cable management tray combos should be split evenly above and below the switches. If the split is not even, the extra Patch Panel should go below the switches. If the data (non-PoE) rack is not full to capacity and space allows, then a 1U Panduit horizontal cable management tray should be installed for each 24 port Panduit patch panel.

4 X 4 IDF Closet

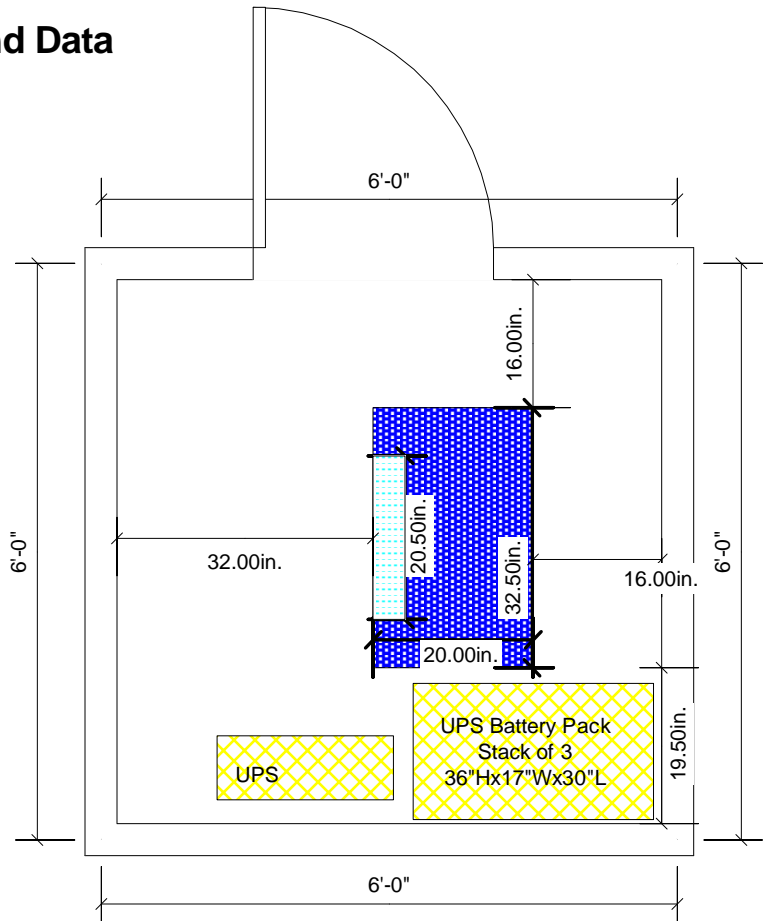
- Wall Mount Rack: 36"Hx20"Dx20.5"W
- Vertical Cable Mgt: 4-6" each side
- SmartUPS XL 750 : 9"Hx17"Dx7"W
- UPS Battery Pack: 12"Hx30"Dx17"W
- + Placed on floor beneath the wall mounted rack
- An IDF of this size is only suitable when there are less than 48 ports of Voice and/or 48 ports of data. In other words no more than two switches total (1 PoE switch, and 1 non-PoE switch).

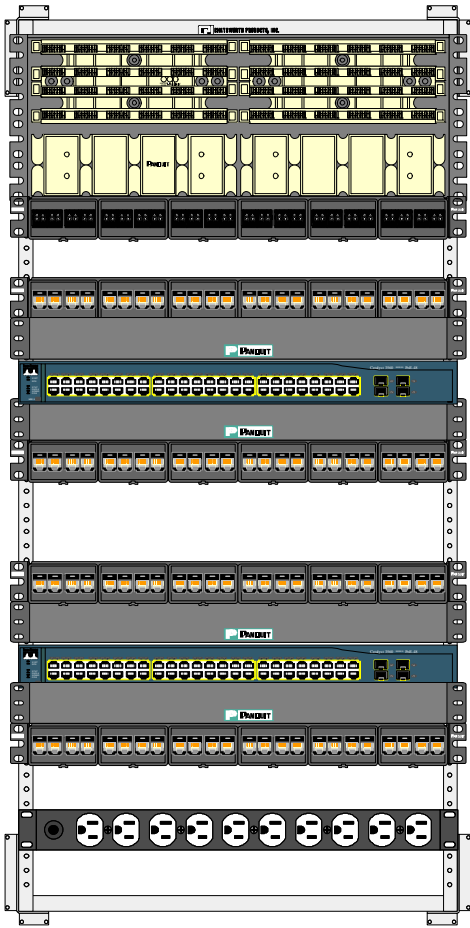


Small IDF Low Density of both Voice and Data

6 X 6 IDF Room

- 1 Floor Mounted 19" Rack: 96"H
- Vertical Cable Mgt: 6" each side
- SmartUPS XL 2200 : 17"Hx22"Dx8"W
- + Placed on floor beside the rack
- UPS Battery Pack: 12"Hx30"Dx17"W
- + Placed on floor beside the rack
- An IDF of this size is only suitable when there are less than 96 PoE ports (2 switches) and no more than 4 switches total.





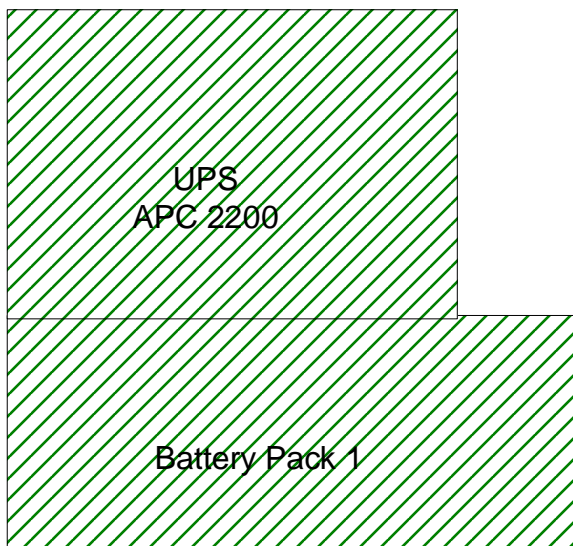
A wall mount rack is to be used only in a small low density IDF. The use of a wall mounted rack instead of a Floor mounted rack, must be approved by ITS.

The rack should be 36" in height, with a depth of 24". Although this picture does not show it, Panduit vertical cable management trays should be mounted on both sides of the rack.

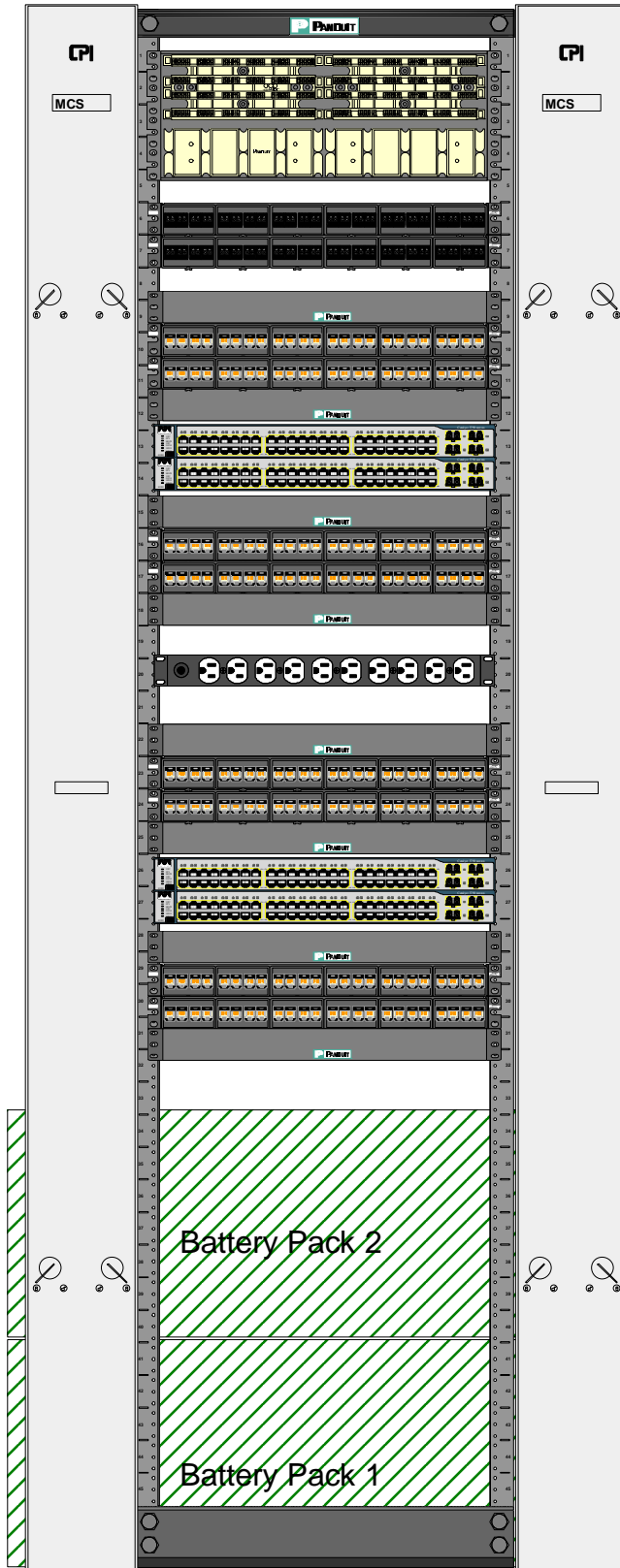
A low density IDF should have no more than 48 VoIP connections and/or Data connections.

If there are more than 48 VoIP or Data connections then a floor mounted rack must be used and the IDF must be sized appropriately.

The UPS and Battery pack will be placed on the floor beneath the wall mount rack.



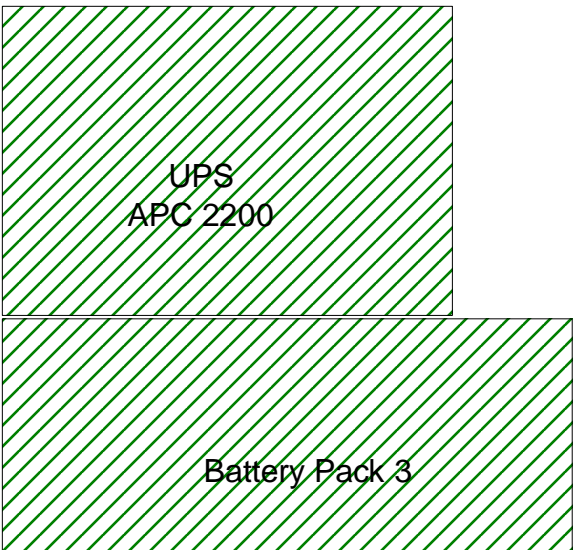
Single Rack Configuration for small IDF.



All total there should be ≤ 4 switches. Only 96 or fewer PoE Devices are to be connected (two 48port switches) or the UPS requirements are to large for the IDF.

VoIP/PoE Equipment

Data/non-PoE Equipment



UPS Battery Pack
12"Hx30"Lx17"W

Patch Panel and cable management tray combos should be split evenly above and below the switches. If the split is not even, the extra Patch Panel should go below the switches. If the data (non-PoE) rack is not full to capacity and spaces allows, then a 1U Panduit horizontal cable management tray should be installed for each 24 port Panduit patch panel.