

Hands On #3 Wiring Constant Hall

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CYSE 495

BLUF

This presentation purpose to display a detailed plan for rewiring Constant Hall at Old Dominion University. Each office and classroom will receive two network outlets with Cat5e cables. The design will feature one main equipment room and three telecom closets using a extended star configuration for building setup. The total price for this project will be \$6,024.54.

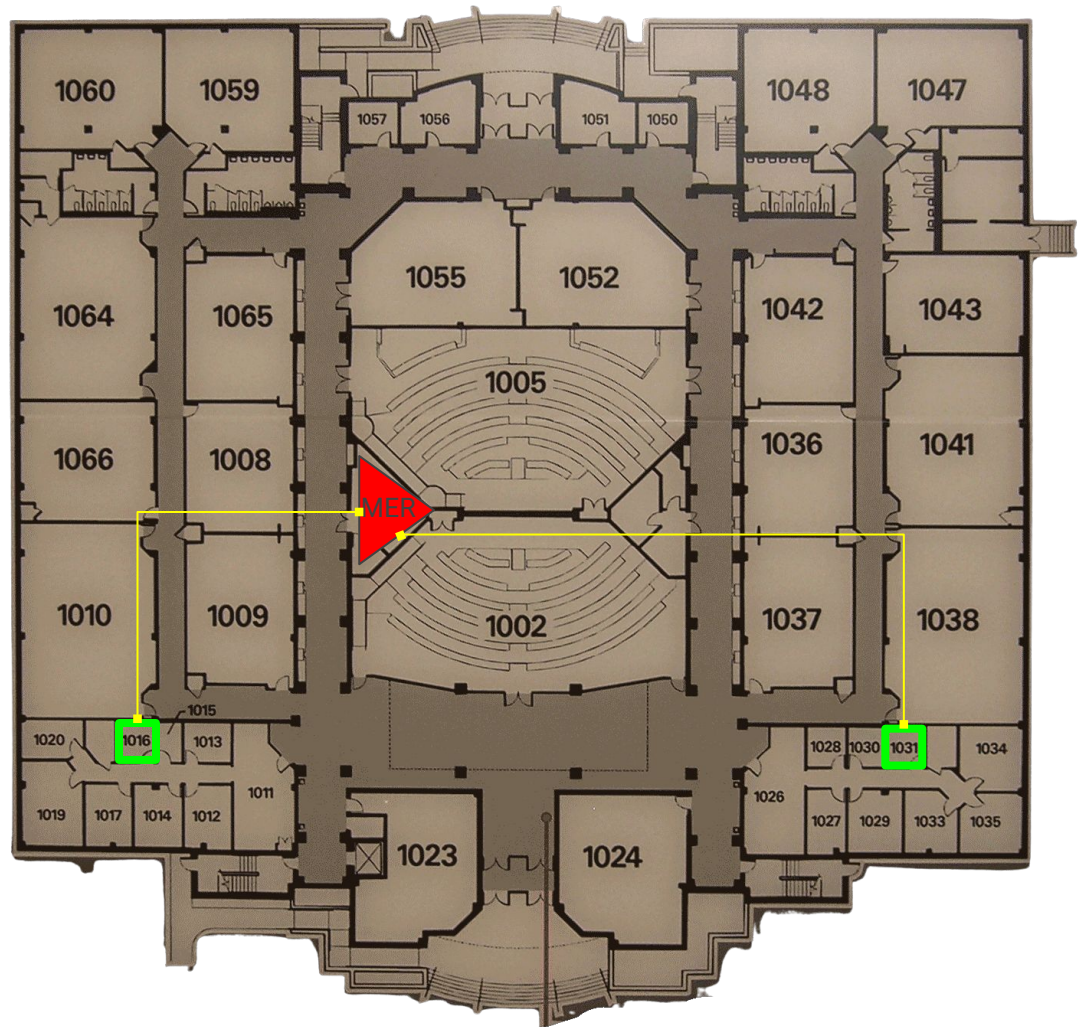
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Layout from MER to TC

1st Floor:

- Main equipment room(MER) location
 - Room currently numbered. Will relabel to room #1067
 - Equipment in room consist
 - 1 Router
 - 1 Core Switch
 - 1 Patch Panels
- Telecom closet (TC) #1 and #2
 - TC #1 room #1016
 - TC# 2 room #1031
 - Equipment in Each:
 - 1 Switch
 - 1 Patch Panels

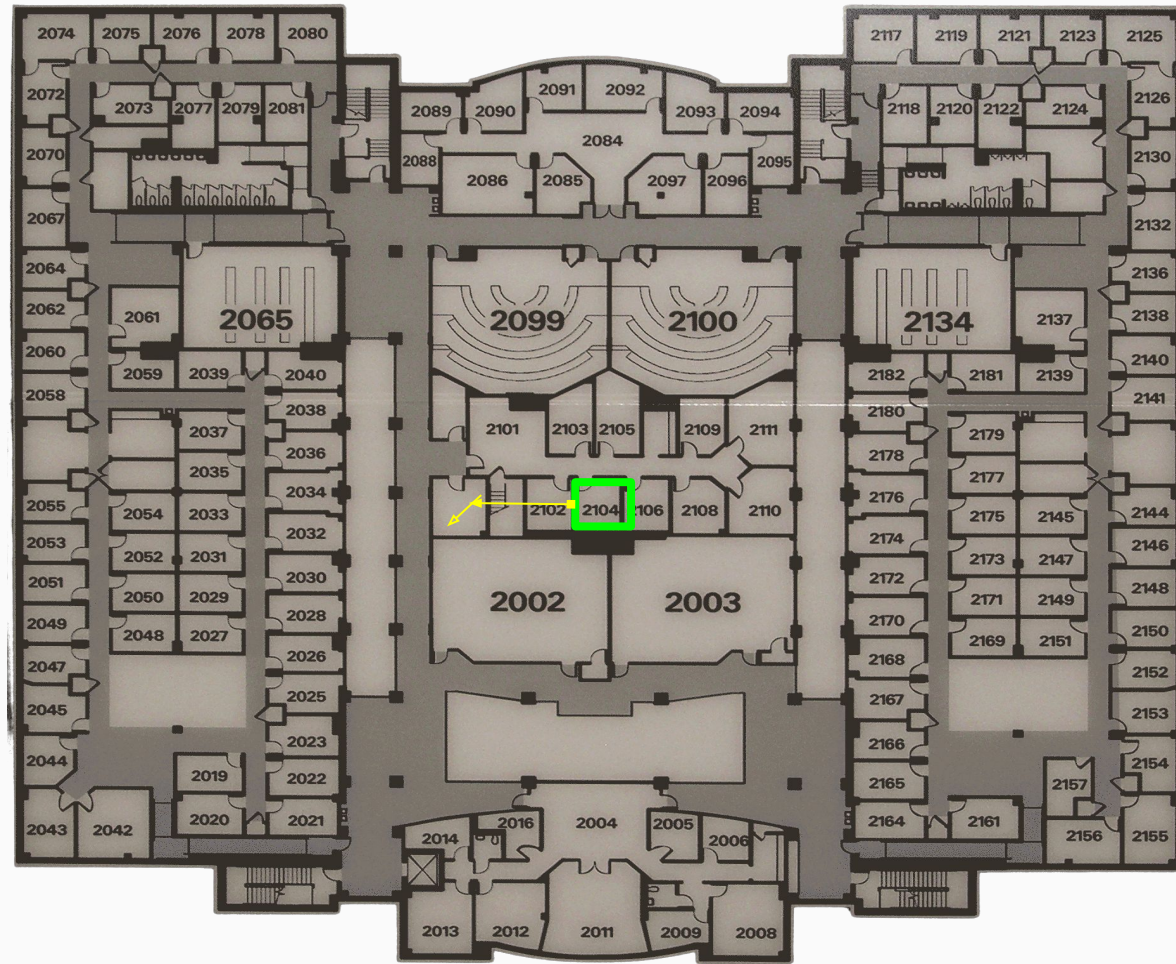
- Cat5e



2nd Floor:

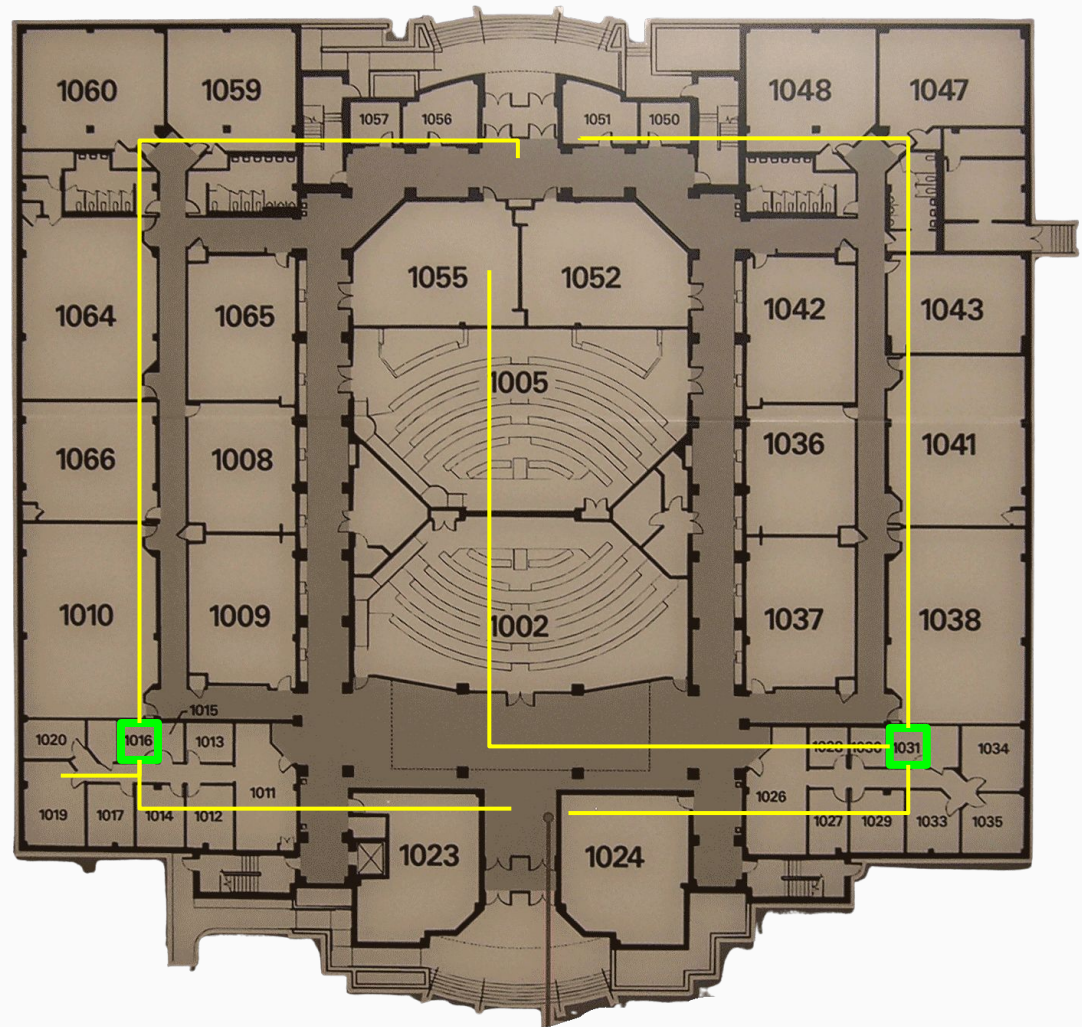
- **Telecom Closet (TC) #3**

- NOTE: Telecom will connect to First Floor MEC
- Equipment in room:
 - 3 Switches
 - Patch panels



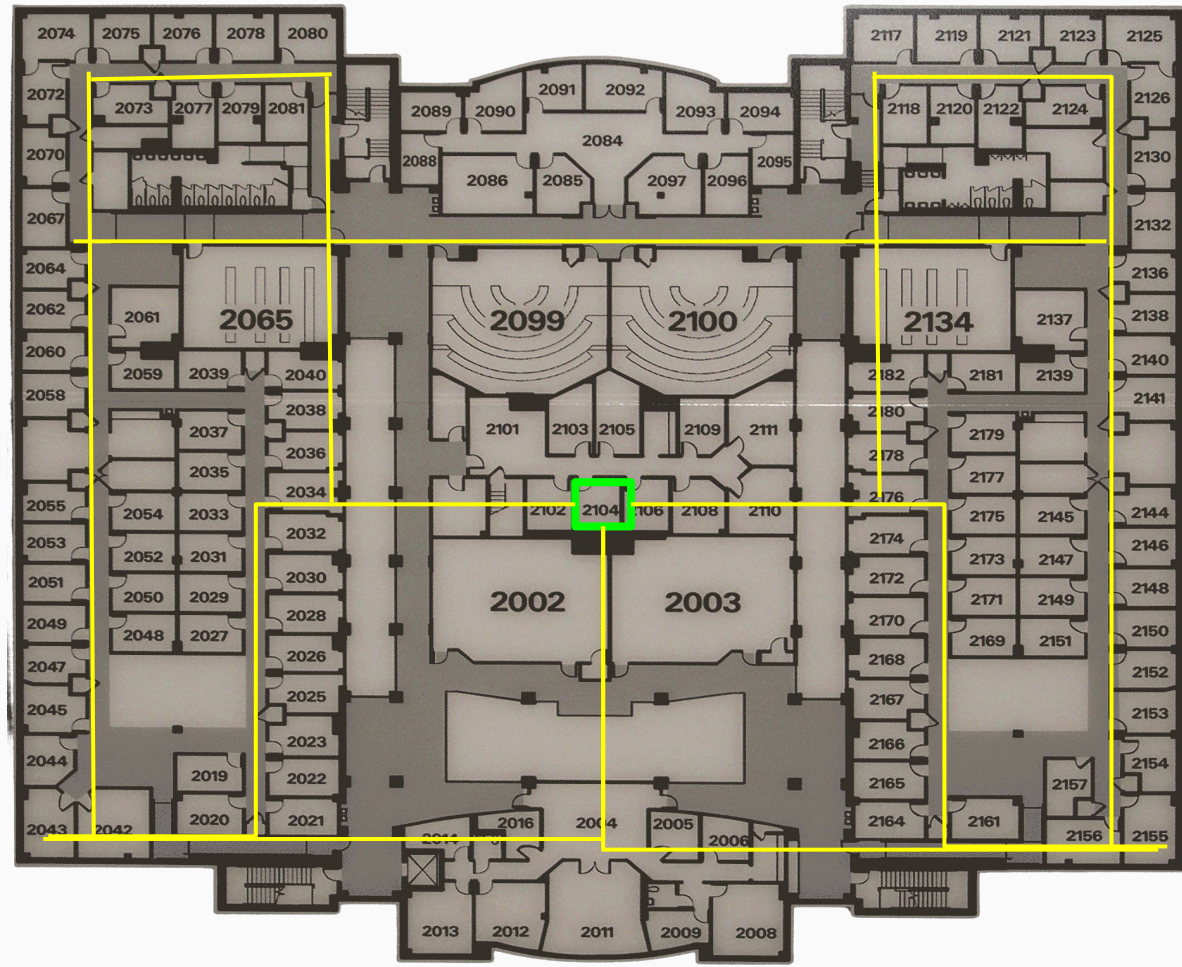
1st Floor TC to Drop 2
Jack Outlets per offices

*Note for organizational
purposes the ethernet
cable will be shown where
the main runs will be*



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Cost and Quantity Table

ITEM	QTY	Unit Price	Total
<u>Cat5e Bulk Cable (1000ft)</u>	41	\$67.95	\$2,785.00
<u>Keystone Jacks (50 pack)</u>	5	\$31.99	\$159.95
<u>Dual-wall Ports (12 Pack)</u>	12	\$8.99	\$107.88
<u>24-Port Patch Panel</u>	12	\$29.29	\$351.48
<u>Patch Cables (3ft)(50 Pack)</u>	6	\$49.49	\$296.94
<u>48-Port Gigabit Switch</u>	6	\$239.99	\$1439.94
		GRAND TOTAL:	\$6,024.54

Calculations

- **Ethernet Cable Run**

- (10m) Shortest Cable run + (70m) Longest Cable run divided by 2 to get avg cable run 40m.
- Added an additional 10 for vertical run and slack. 50m.
- 112 rooms that need 2 cables each equals 224 cables.
- $224 \times 50\text{m} = 11,200\text{m}$
- Add another 10% for installation slack $\times 1.10$.
 $= 12,320\text{m}$ convert to feet = 41,010.5ft

- **Network Capacity**

- Total drops $112 \times 2 = 224$
- 6x 48-port switch = 288 ports
- $288 - 224 = 64$ available ports for future use

- Conclusions

- Cost: \$6,024.54
- Extended Star topology used
- 1 Main equipment room
- 3 Telecom closets
- No run will go beyond 90m

This design also features space for future expansion to the network system.