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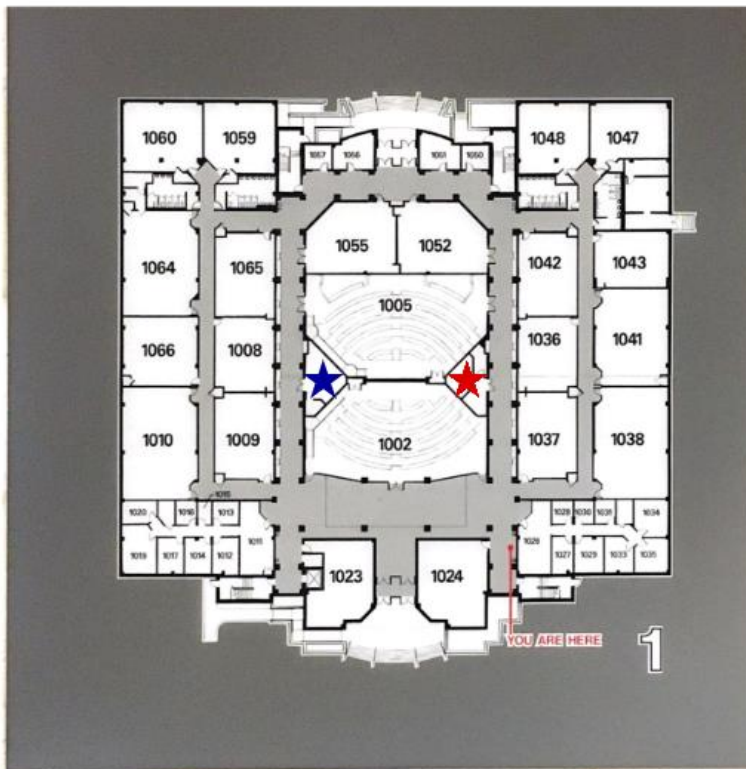
2/10/2023

IT315

Hands On #3

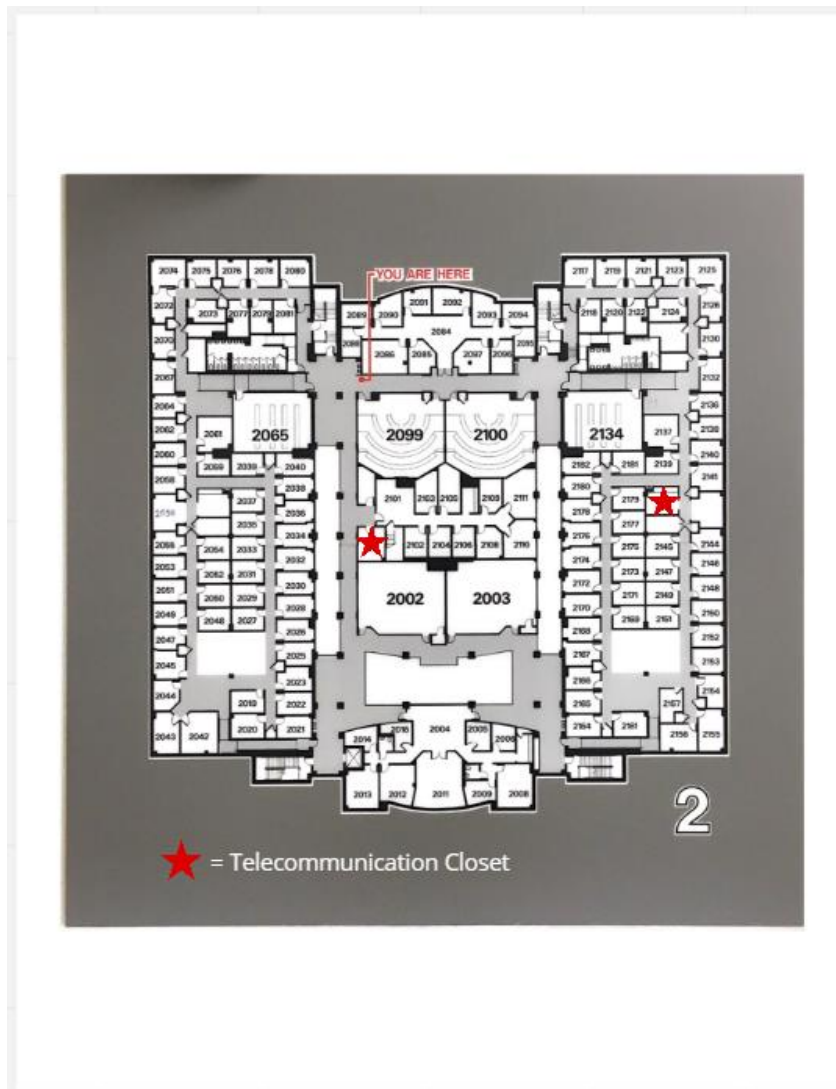
My Diagrams of Constant Hall indicating where the equipment room and telecommunication closet(s) should be located:

Floor 1:



- ★ = Telecommunication Closet
- ★ = Equipment Room

## Floor 2:



## Floor 1:

### Equipment Room:

- $6.32\text{m} + 6\text{m}$  (Ceiling Run) =  $12.32\text{m}$  [Closest Connection to Equipment Room]
- $47.36\text{m} + 6\text{m}$  (Ceiling Run) =  $53.36\text{m}$  [Farthest Connection to Equipment Room]
- $(12.32\text{m} + 53.36) / 2 = 32.84\text{m}$  [Average Connection Length]
- 22 rooms (1<sup>st</sup> floor) \* 2 cables (per room) = 44 [Cables Needed]
- $32.84\text{m}$  [Average Connection Length] \* 44 [Cables Needed] =  $1445\text{m}$  [Total Cable Length]

#### Telecommunication Closet:

- $6.32\text{m} + 6\text{m (Ceiling Run)} = 12.32\text{m}$  [Closest Connection to Telecommunication Closet]
- $7.36\text{m} + 6\text{m (Ceiling Run)} = 53.36\text{m}$  [Farthest Connection to Telecommunication Closet]
- $(12.32\text{m} + 53.36\text{m}) / 2 = 32.84\text{m}$  [Average Connection Length]
- $\{22 \text{ rooms (1st floor)} * 2 \text{ cables (per room)}\} + 1 \text{ (Cable from Telecommunication Closet to Equipment Room)} = 45$  [Cables Needed]
- $32.84\text{m [Average Connection Length]} \times 45 \text{ cables [Cables Needed]} = 1478\text{m}$  [Total Cable Length]

#### Floor 2:

#### Telecommunication Closet:

- $3.16\text{m} + 6\text{m (Ceiling Run)} = 9.16\text{m}$  [Closest Connection to Telecommunication Closet]
- $66.31\text{m} + 6\text{m (Ceiling Run)} = 72.31\text{m}$  [Farthest Connection to telecommunication Closet]
- $(9.16\text{m} + 72.31\text{m}) / 2 = 40.74\text{m}$  [Average Connection Length]
- $\{91 \text{ rooms (2nd floor)} * 2 \text{ cables (per room)}\} + 1 \text{ (Cable from Telecommunication Closet to Equipment Room)} = 183$  [Cables Needed]
- $40.74\text{m [Average Connection Length]} \times 183 \text{ cables [Cables Needed]} = 7456\text{m}$  [Total Cable Length]

#### Telecommunication Closet:

- $3.16\text{m} + 6\text{m (Ceiling Run)} = 9.16\text{m}$  [Closest Connection to Telecommunication Closet]
- $41.05\text{m} + 6\text{m (Ceiling Run)} = 47.05\text{m}$  [Farthest Connection to Telecommunication Closet]
- $(9.16\text{m} + 47.05\text{m}) / 2 = 28.11\text{m}$  [Average Connection Length]
- $\{53 \text{ rooms (2nd floor)} * 2 \text{ cables (per room)}\} + 1 \text{ (Cable from Telecommunication Closet to Telecommunication Closet)} = 107$  [Cables Needed]
- $28.11\text{m [Average Connection Length]} \times 107 \text{ cables [Cables Needed]} = 5145\text{m}$  [Total Cable Length]

#### Total Cable Length for Both Floors:

$1445\text{m (Equipment Room)} + 1478\text{m (Telecommunication Closet)} + 7456\text{m (Telecommunication Closet)} + 5145\text{m (Telecommunication Closet)} = 15,524\text{m (50,932ft)}$  [Total Cable Length Needed]

#### Cable Brand:

[https://www.cablewholesale.com/specs/10x6-822nh.php?utm\\_source=bing&utm\\_medium=cpc&utm\\_campaign=\\*\\*LP%20-%20Shop%20-%20Network%20%26%20Phone%20-%20Network%20Cables%20-%20Bulk%20-%20Auto&utm\\_term=4577060748522761&utm\\_content=Good%20Perf-%20\(Mid\)%20-%2010X6-822NH%20-](https://www.cablewholesale.com/specs/10x6-822nh.php?utm_source=bing&utm_medium=cpc&utm_campaign=**LP%20-%20Shop%20-%20Network%20%26%20Phone%20-%20Network%20Cables%20-%20Bulk%20-%20Auto&utm_term=4577060748522761&utm_content=Good%20Perf-%20(Mid)%20-%2010X6-822NH%20-)

[%201000ft%20Bulk%20Cat5e%20Black%20CMX%20Ethernet%20Cable,%20Gel,%20Solid,%20Spool%20-%20%24132.16 \(\\$157.84/1000ft\)](#)

**How Many Bundles Needed:**

50,932ft [Total Cable Length Needed] / 1000ft [Bundles] = 50.93 = 51 [Bundles Needed]

**Total Amount:**

\$157.84 [CableWholeSale] \* 51 [Bundles] = **\$8,049.84 + Tax**