

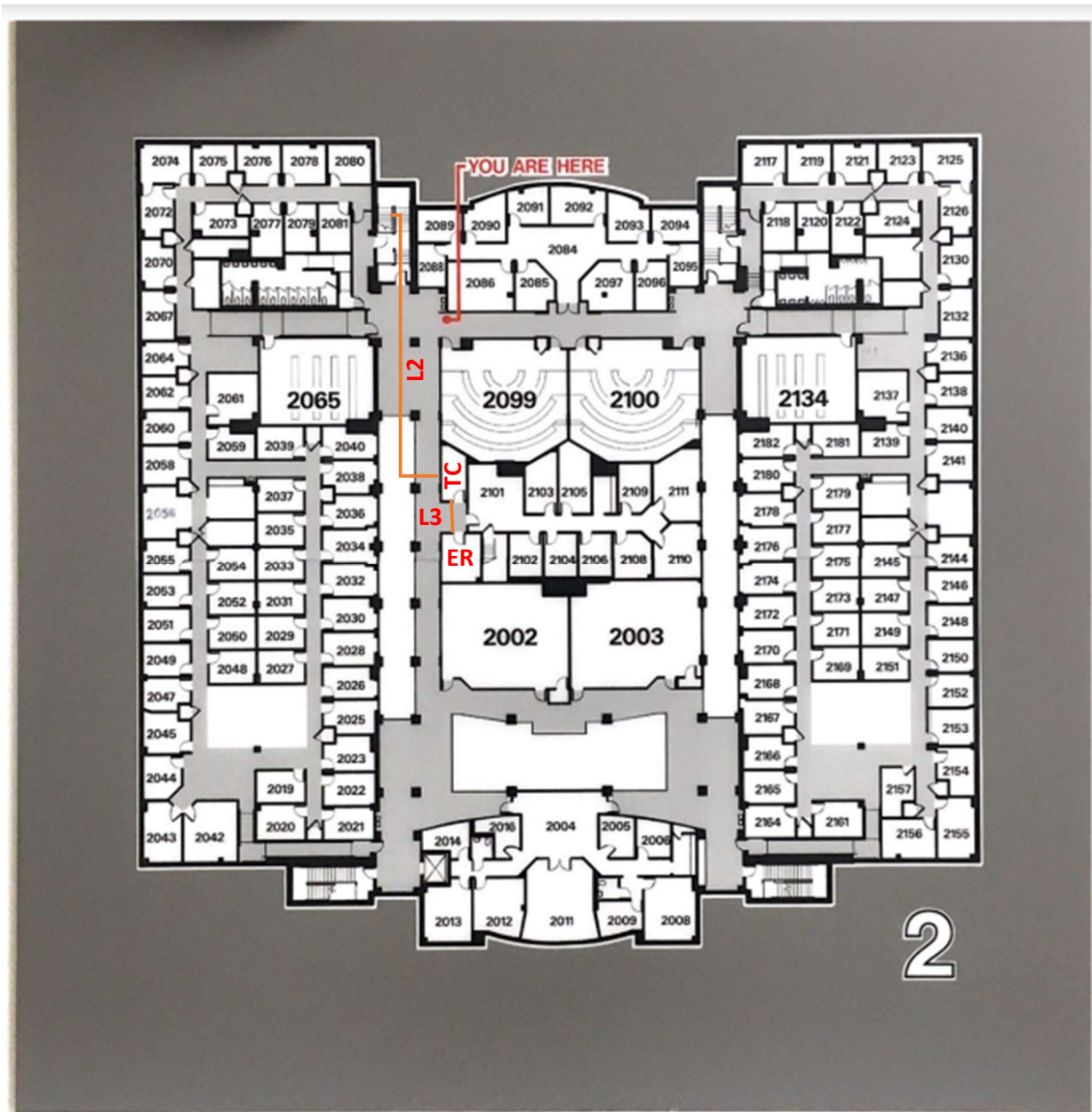
First Floor:

TC stand for Telecomm closet; **ER** stands for equipment room

Total classrooms and offices: 44 rooms (not include room without number)

Total RJ45 outlets: 88 outlets (2 for each classroom and offices)

Total patch panels: 46 panels (included 2 panels of selected room)



Second Floor:

TC stand for Telecomm closet; **ER** stands for equipment room

Total classroom and offices: 144 rooms (not included rooms without number)

Total RJ45 outlets: 288 outlets (2 for each classroom and offices)

Total patch panels: 146 panels (included 2 panels of selected room)

Total Cat6 horizontal and vertical cables of two floors:

- First floors: 88 horizontal cables (2 for each classroom and office)
- Second floor: 288 horizontal cables (2 for each classroom and office)
- 4 selected room (**each floor has 1 TC & 1 ER**): 3 vertical cables
 - o Vertical cables labeled in **orange line** in both plan floor diagrams

The real-life measure of the building is 215 ft wide (6553 cm); scale of diagram of 1st floor is 12 cm x 14 cm (2nd floor is 12.5 cm x 14.5 cm); 10 ft tall = 3m

- Scale factor: $6553 \text{ cm} / 12 \text{ cm} = 546 \text{ cm} = 5.46 \text{ m}$ (2nd floor: $6553 \text{ cm} / 12.5 \text{ cm} = 524 \text{ cm}$)
- Scale ratio= 1: 546, so 1 cm also equal to 5.46m (2nd floor 1:524)

Length of vertical cable label:

- **L1 = 3 + 4.5 + 3 = 10.5 cm x 5.46 m = 57.33 m**
- **L2 = (5 x 5.46 m) + (5 x 5.24 m) + 3 m tall = 27.3 + 26.2 + 3 = 56.5 m**
- **L3 = 0.5 cm = 5.46/2 = 2.62 m**

Material budget for cabling:

Cat6 cable:

- Total 188 cables run into ER and TC
- Average 30m x 188 cables= 5640 m
 - o 5640m / 90m cable = 63 horizontal cables 90m
- 2 vertical cable 90m
- Total cat6 90m cable= 65 cables
- 300 ft. High Grade Bare Copper 23AWG CAT6 Cable with Snagless Cable Boot: \$49.55
 - o <https://www.homedepot.com/p/Revo-300-ft-High-Grade-Bare-Copper-23AWG-CAT6-Cable-with-Snagless-Cable-Boot-R300CAT6/310016106?source=shoppingads&locale=en-US>
- **Total cost= \$49.55 x 65= \$3220.75**

RJ45 outlet:

- Total 376 outlets
- HuaHengHT cat6 Ethernet Wall Plate Outlet 2 Port RJ45 Network Female to Female Keystone Wall Coupler Jack Plate (2 Cat6 2 Packs, Blue): \$10.98
 - o https://www.amazon.com/HuaHengHT-Ethernet-Network-Keystone-Coupler/dp/B091KP69FJ/ref=sr_1_4?keywords=rj45%2Boutlet&qid=1644118233&s=electronics&srefix=rj45%2Boutle%2Celectronics%2C93&sr=1-4&th=1
- Total cost= (376/4) x \$10.98= \$1032.12

Patch panels:

- Total 192 panels
- 24PORT CAT6 UNSHIELDED HALF-U PATCH PANEL: \$11.23
 - o https://www.walmart.com/ip/24PORT-CAT6-UNSHIELDED-HALF-U-PATCH-PANEL/46179423?wmlspartner=wlp&selectedSellerId=1131&&adid=2222222227033639145&w10=&w11=g&w12=c&w13=82711687809&w14=aud-1308651922056:pla-141026829849&w15=9008543&w16=&w17=&w18=&w19=pla&w10=112562428&w11=online&w12=46179423&veh=sem&gclid=Cj0KCQiA3fiPBhCCARIsAFQ8QzVoKnsOUC9PTVleO-SX4uBfKcva-W1zDMCRhLAISUJPErGn5DPdg-gaAqZFEALw_wcB&gclsrc=aw.ds
- Total cost= 192 panels x \$11.23= \$2156.16