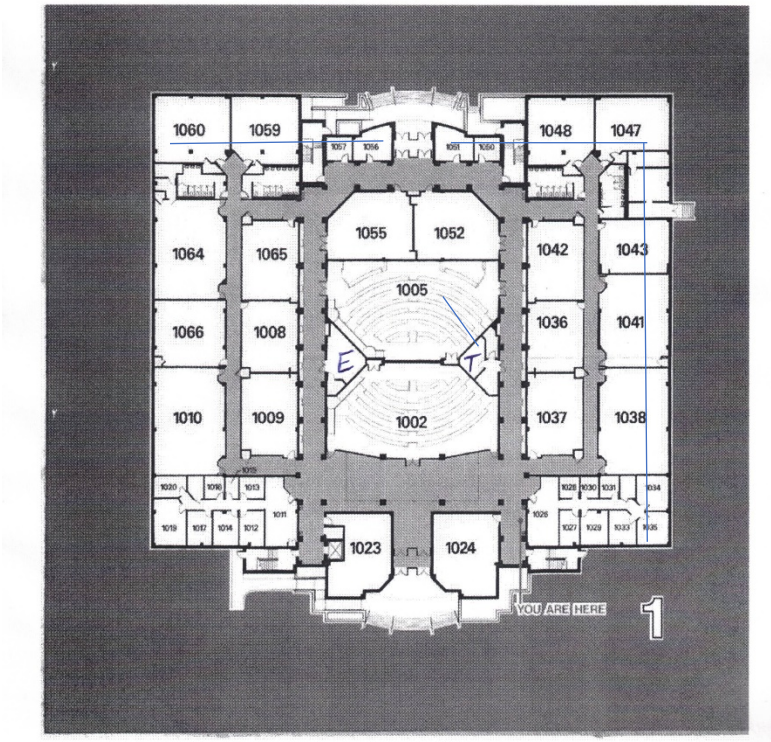
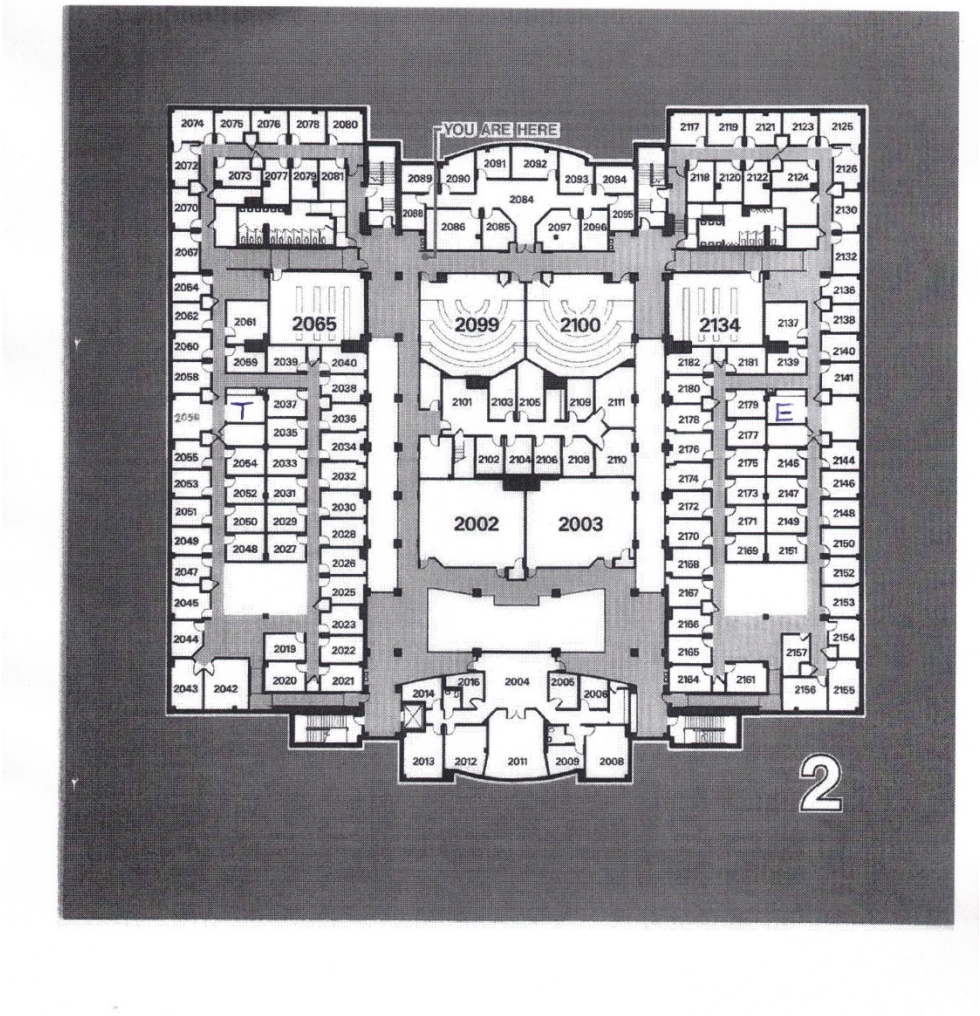
Hands-On #3

Submit:

1. A diagram of Constant Hall indicating where the equipment room and telecommunication closet(s) should be located. You may use up to 4 small rooms total for these purposes. Constant Hall was built with rooms specifically for this purpose that are shown on the floor plan without room numbers. The rooms you use must be windowless (not on the outside of the building). Your equipment room must be at least 36 square feet, but telecommunication closets can be as small as 16 square feet.

   Answer: Based on the diagram given, I selected four rooms on two floors which are big enough to be used as telecommunication closets and equipment rooms. I have marked it on the diagram below.
   T= Telecommunication
   E= Equipment room





2. An estimate of the total amount of cable that will be needed. The simplest way to estimate is to average the shortest and longest cable runs to each equipment room and telecom closet, then multiply that by the number of cables running to that room. Show the assumptions that you used about the horizontal and vertical cable runs that led you to that number (i.e., show your work).

   I need to find the shortest and longest cable runs from each equipment room and telecommunications closet to estimate the total amount of cable needed.
   For the equipment room, the shortest cable run is 55 feet away and the longest is 110 feet away. This gives me an average cable run length of 82.5 feet. I will need 56 cables to run to this room, so the total length of cable needed for the equipment room is 4,620 feet.

The shortest cable run for telecommunications closets is 35 feet and the longest is 95 feet. This gives an average cable run length of 65 feet. I will need two cables to run to each of the four telecommunications closets, so the total length of cable needed for all four closets is 1,040 feet. Therefore, the total length of cable needed is 5,660 feet.

3. A total materials budget for the cabling. Indicate the source of your price estimate.

First floor: We have 45 rooms, Total cable needed: 4,830 feet.

2nd floor: We have 144 rooms, total cable needed: 17280 feet.

Estimated total of cat6 cable: 22,110 feet.

Cat6 cable for each 1000-foot box costs $186.99, I will buy 24 boxes from Amazon just to be on the safe side. Total for the cable: 186.99 x 22 = $4,113.78

Amazon.com: fast Cat. Cat 6 Ethernet Cable 1000ft (Blue) - 23 AWG, CMR, Insulated Solid Bare Copper Wire Cat 6 Cable with Noise Reducing Cross Separator - 550MHZ / 10 Gigabit Speed UTP LAN Cat6 Cable 1000ft - CMR : Electronics

RJ-45 Connectors needed 756 each bag of 100 pcs costs $13.99 from Amazon. To be on the safe side, I will buy 9 bags which can be estimated at 13.99 x 9 = $125.91

Amazon.com: CableCreation Cat6 RJ45 Ends, 100-PACK Cat6 Connector, Ethernet Cable Crimp Connectors UTP Network Plug for Solid Wire and Standard Cable, Transparent : Electronics

Patch panels needed 5 (48 port), each costing about $ 89.99 from Amazon. 5 x 89.99 = $449.95

https://www.amazon.com/Rapink-Keystone-Support-Shielded-Removable/dp/B0BFRJ5LV9/ref=sr_1_1_sspa?crid=YID20E8L16AS&keywords=Patch%2Bpanels%2B48%2Bport&qid=1696180535&s=electronics&sprefix=patch%2Bpanels%2B48%2Bport%2Celectronics%2C85&sr=1-1-spons&sp_csd=d2lkZ2V0TmFtZT1zcF9hdGY&th=1

Grand total: $ 4,689.64