

149

**NEWBURY
STREET**



Capital

**BBAC PRESENTATION
Mechanical Equipment**

October 11, 2023

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EXISTING CONDITIONS



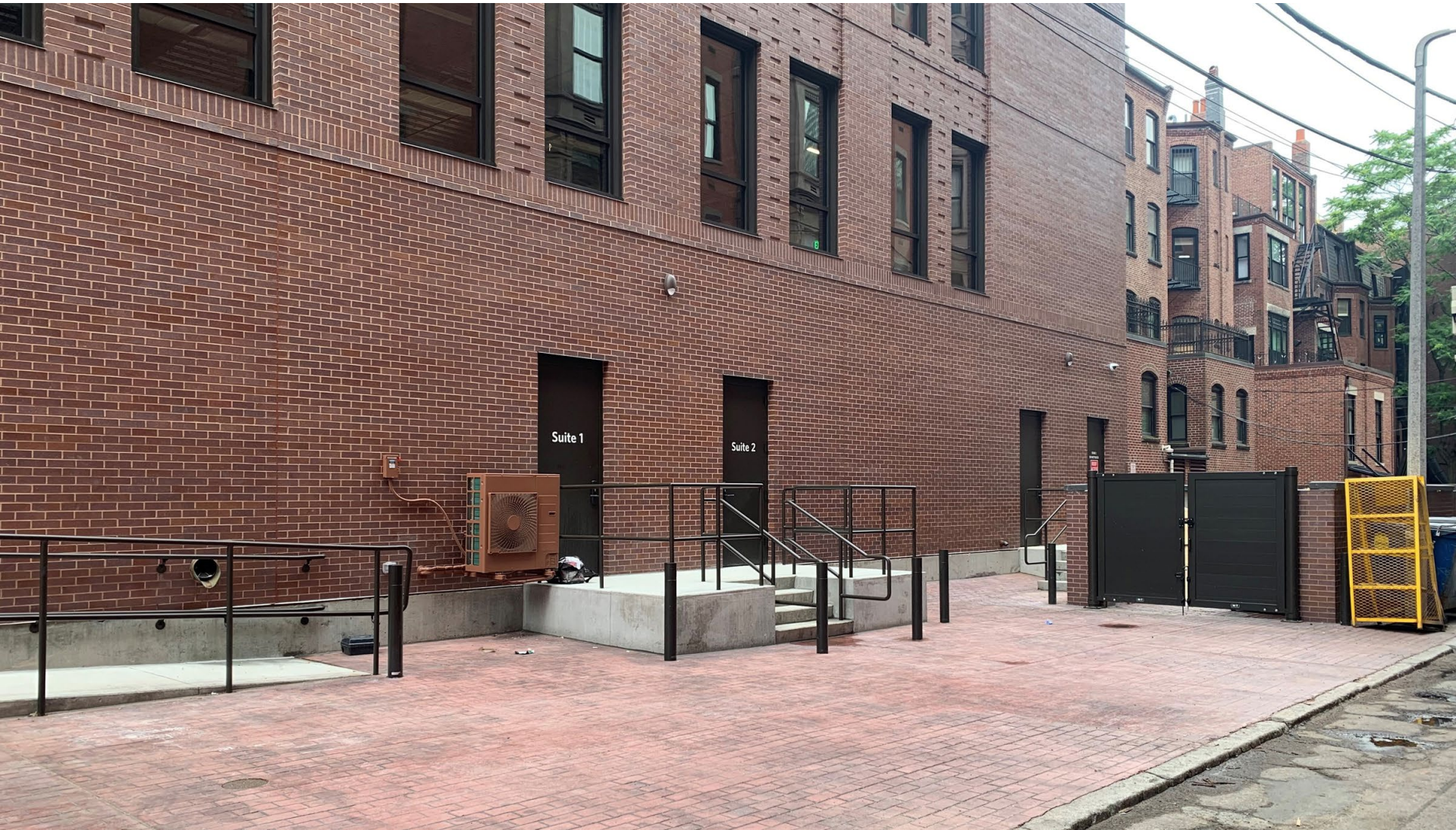
EXISTING CONDITIONS



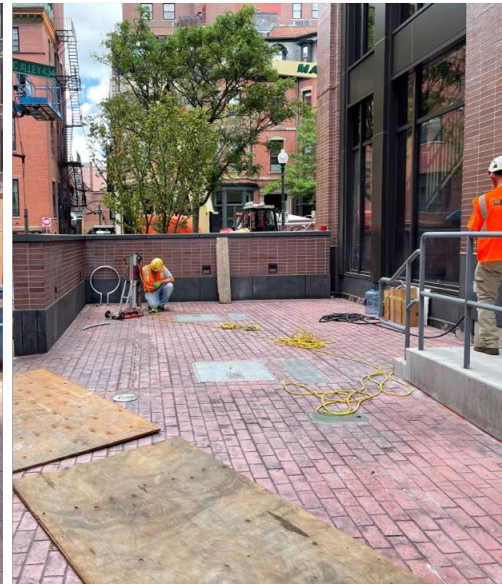
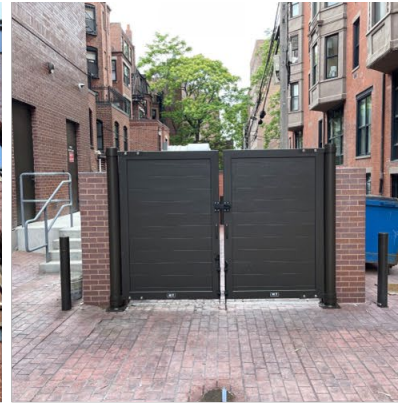
EXISTING CONDITIONS



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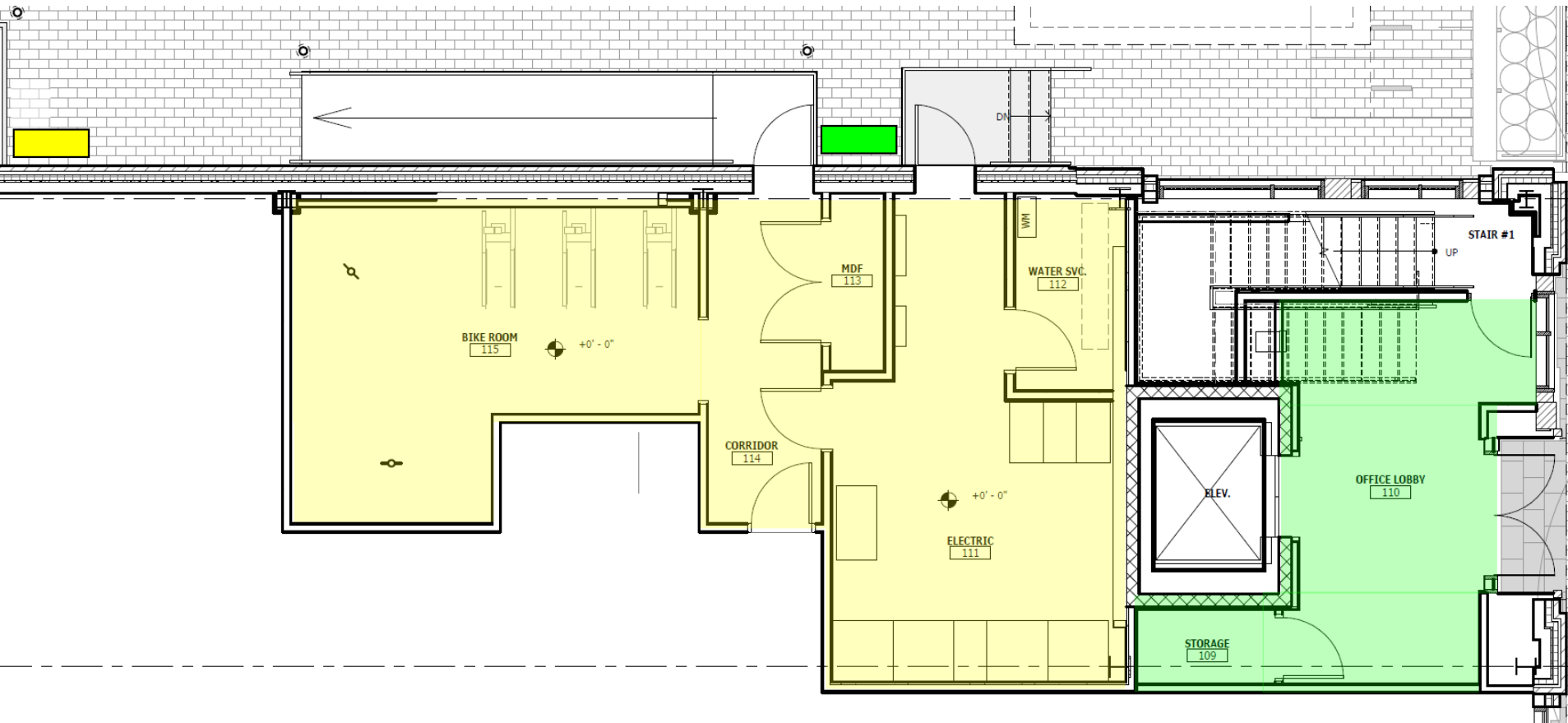
UNIT SPECIFICATIONS

Existing Mechanical Equipment		
Unit	#1	#2
Serves	Bike Room Electrical Room	Office Lobby
Area SF	350	195
Make	Samsung	Samsung
Model	AC024JXADCH/AA (CXH24ADJ)	AC009BXADCH/AA (CXH09ADB)
Service Type	Electric	Electric
Tonnage	2.50	1.00
Maximum (ft.)	164.0	65.6
Maximum Vertical Separation (ft.)	98.0	49.2
Calculated / Required BTU	30,000	12,000
Calculated / Required Tonnage	2.50	1.00
Engineering Considerations	The bike and electrical room unit was sized to properly handle the heat load of the transformers in the electrical room. It provides cooling to these areas at all times.	The lobby unit was designed to provide heating and cooling as needed. The lobby has a glass/wall heat gain of 6765 BTU/hr and a lighting heat gain of 4506 BTU/hr

UNIT SPECIFICATIONS

Unit #1 (Yellow)
Serves the Bike/Electrical Room

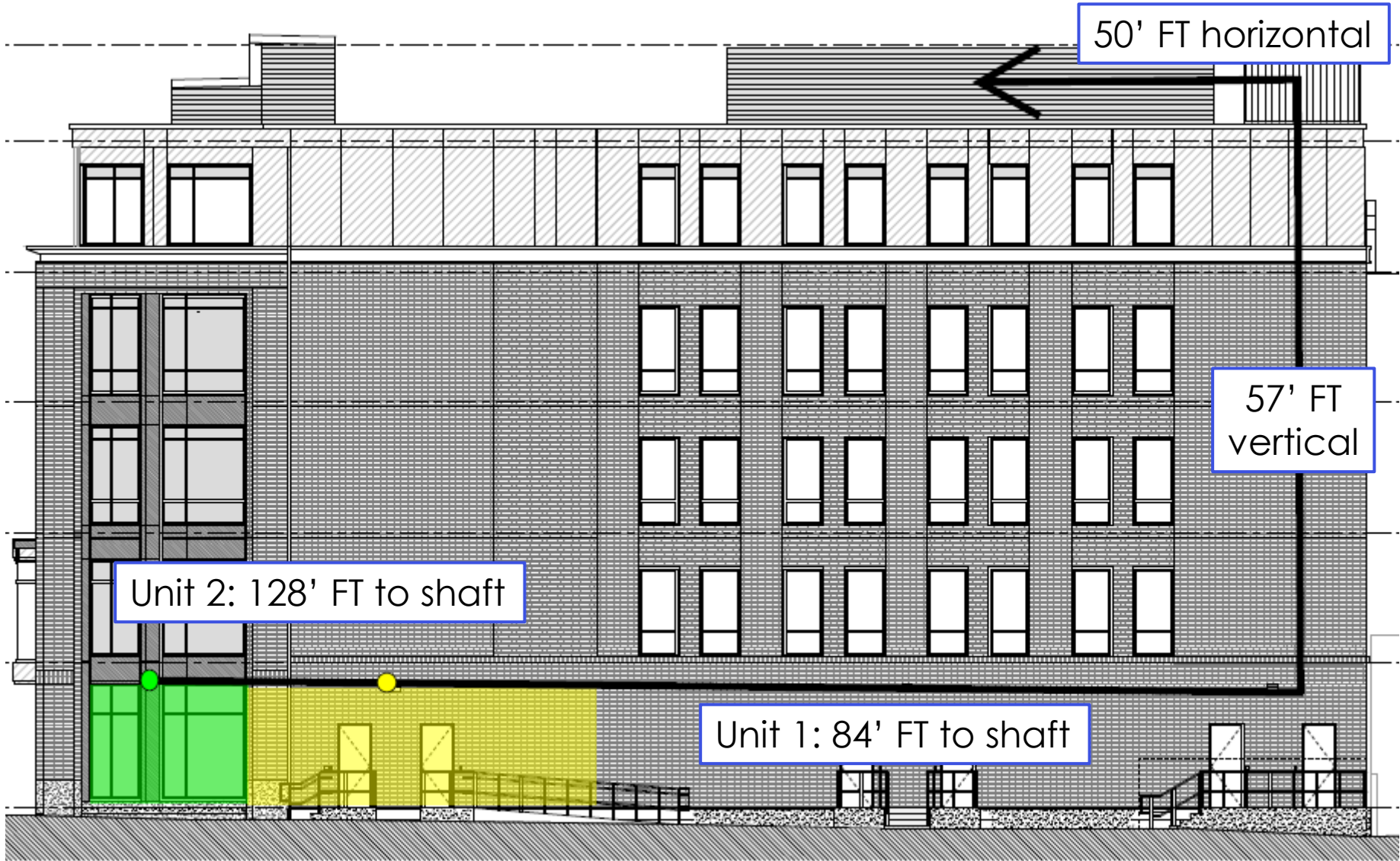
Unit #2 (Green)
Serves the Office Lobby



DISTANCE CALCULATION

Existing Mechanical Equipment vs. Distance Calculation		
Unit	#1	#2
Serves	Bike Room Electrical Room	Office Lobby
Tonnage	2.50	1.00
Maximum (ft.)	164.0	65.6
Maximum Vertical Separation (ft.)	98.0	49.2
Distance Calculation to the Roof		
Horizontal Distance to Shaft	84.0	128.0
Vertical Distance to Roof in Shaft	57.0	57.0
Horizontal Distance in Enclosure	50.0	50.0
Total Distance to Roof Enclosure	191.0	235.0
Maximum (ft.) per unit	164.0	65.6
Variance (Total Distance)	-27.0	-169.4
Maximum Vertical Separation (ft.)	98.0	49.2
Variance (Vertical Distance)	41.0	-7.8
Conclusion	The bike room/electrical room would require a 2.50-ton unit that has a maximum distance of 191 FT or greater. Unit 1's maximum distance is only 164.0 FT	The lobby would require a 1.0-ton unit that has a maximum distance of 235 FT or greater. Unit 2's maximum distance is only 65.6 FT.

DISTANCE DIAGRAM



50' FT horizontal

57' FT vertical

Unit 2: 128' FT to shaft

Unit 1: 84' FT to shaft

ALTERNATIVE STUDIES

OPTION 1 – RELOCATE UNITS TO THE EXISTING ROOFTOP MECHANICAL PENTHOUSE

Question 1: Can the existing mechanical units be relocated to the existing enclosure?

- **No.**
- Refer to the information previously provided.

Question 2: Are there any units on the market today that meet the exact tonnage requirements (1.0 and 2.5 tons) and the minimum distance requirements?

- **No.**
- NB Kenney (mechanical contractor) cannot find any units on the market today that meet the required specifications for both tonnage and distance.

ALTERNATIVE STUDIES

OPTION 1 – RELOCATE UNITS TO THE EXISTING ROOFTOP MECHANICAL PENTHOUSE

Question 3: Are there any units on the market today that can achieve the minimum distance requirements?

- NB Kenney has found a 3.0-ton unit heat pump model available on the market that would meet the minimum distance requirements, **but this will not work mechanically** because:
 - 1) We need exactly 3.5 tons – no more, no less.
 - 2) This 3.0-ton heat pump model only allows for both areas to be in either only cooling mode or only heating mode at the same time. Our current system is designed so each area can be in different heating and cooling modes.
 - Unit #1 allows for cooling of the electrical room, which is always needed because the equipment in the electrical room generates heat. The cooling function of the mechanical equipment helps ensure that the electrical equipment can operate without overheating.
 - Unit #2 allows for comfort heating and cooling of the office lobby as needed.
 - Using this heat pump model would mean that in the winter when the lobby requires heat, the electrical room would also be provided heat and no cooling at all. Since the electrical equipment generates heat and requires cooling, this system would push the temperature of the room above the operational conditions of the equipment.
 - Alternatively, we would never have heat provided in the office lobby if this alternative system was set to always provide cooling so that the electrical room does not overheat.

ALTERNATIVE STUDIES

OPTION 1 – RELOCATE UNITS TO THE EXISTING ROOFTOP MECHANICAL PENTHOUSE

Question 4: Can we consolidate the two (2) units into one (1) larger unit and locate it on the roof within the existing enclosure?

- **No.**
- There are larger tonnage units on the market that could meet the minimum distance requirements, but not the mechanical requirements.
- The maximum combined tonnage for these areas is only 3.5 tons.
- A larger ton unit will be oversized causing it to short cycle, which will decrease the life expectancy of the unit.
- The areas that these units service need to be zoned independently so they can operate in either heating or cooling modes as needed.

ALTERNATIVE STUDIES

OPTION 2 – CREATE NEW MECHANICAL PENTHOUSE ON THE ROOF

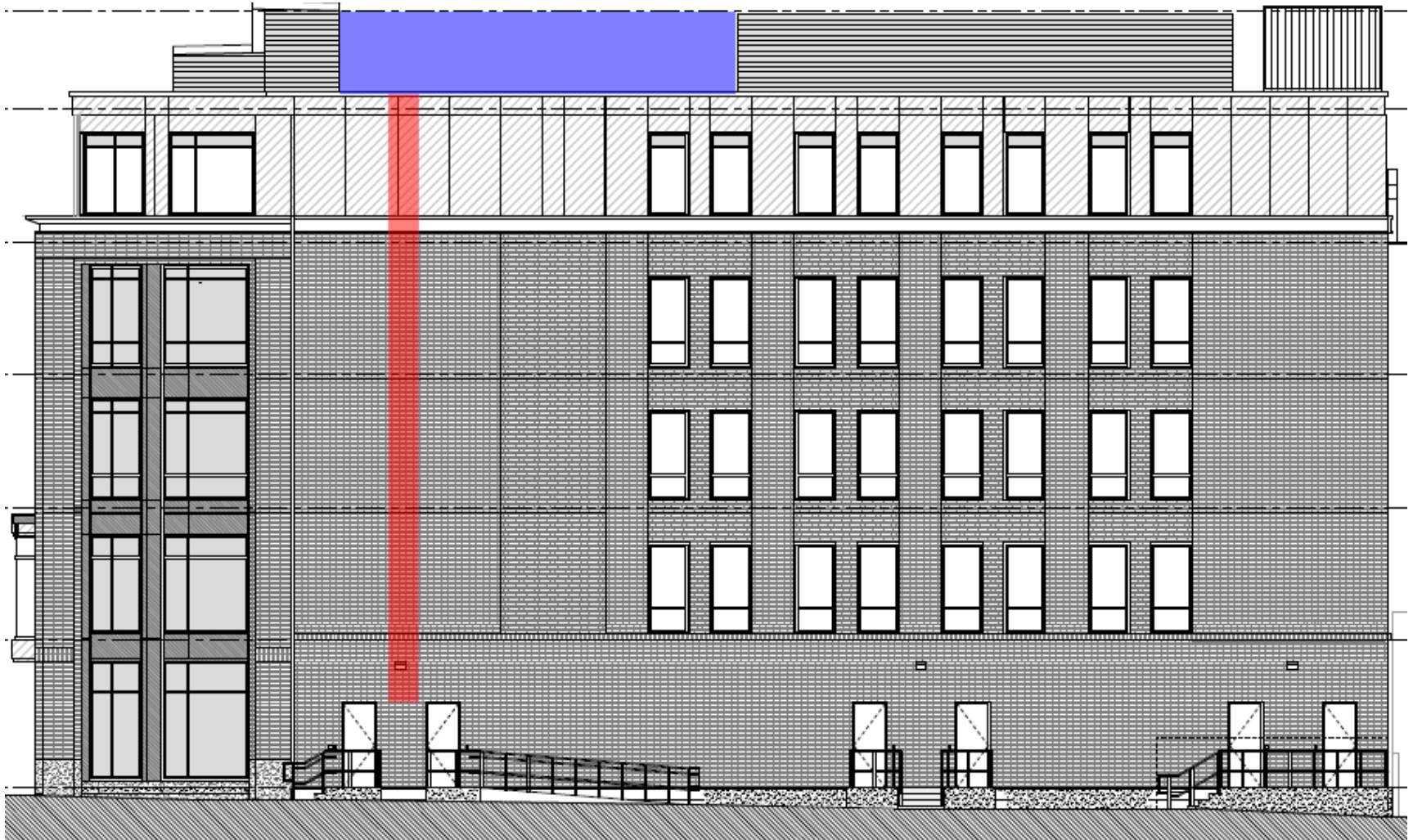
- Utilizing the existing mechanical penthouse is not an option.
- **We would need to construct a new enclosure on the roof to screen/hide the units.**
- Unit #1 does have the allowable distance to reach the roof. Unit #2 does not, so a new 1.0-ton unit would need to be procured that can achieve the distance.
- A conduit and two (2) refrigerant lines would need to run on the exterior of the building up to the roof. **There is no feasible location within the building to run an interior shaft through all the tenant spaces.**
- The new enclosure would need to be located between the existing mechanical penthouse and the elevator penthouse.
- **This option would create additional roof clutter and further obstruct views for the residents of the Vendome.**

ALTERNATIVE STUDIES

OPTION 2 – CREATE NEW MECHANICAL PENTHOUSE ON THE ROOF

Red area indicates approximate location of exterior conduit and refrigerant lines.

Blue area indicates new penthouse enclosure



ALTERNATIVE STUDIES

OPTION 3 – RELOCATE UNITS TO THE TRASH ENCLOSURE

- Both units would be able to fit inside of the trash enclosure, hidden from public view.
- The trash enclosure provides enough space to house six (6) trash and recycling containers, sufficient for a fully-occupied retail and office building of this size.
- **Reducing available space within the trash enclosure would require refuse containers to be located outside of the trash enclosure area.**
- Unit #1 has the proper horizontal length to reach the trash enclosure.
- Unit #2 does not have the property horizontal length to reach the trash enclosure; a new unit would need to be procured.

ALTERNATIVE STUDIES

OPTION 4 – RELOCATE UNITS INSIDE THE BUILDING

- The only feasible location would be inside of the bike room.
- This would reduce the number of secured interior bike parking spaces available.
- **The building would be forced out of compliance with the bike parking requirements.**
- An enormous louvre would need to be installed on the back of the building.

ALTERNATIVE STUDIES

OPTION 5 – SHARE AND UTILIZE A TENANT UNIT

- **This is not feasible because there is not enough capacity for any individual tenant's unit to service other areas of the building besides their own premises.**
- All the existing units within the rooftop penthouse service individual tenant floors.
- Each floor's mechanical unit is tied to its individual electrical panel.
- Tenants contract with Eversource directly and pay for their own electrical service.
- Institutionally owned and managed buildings are not designed for any single tenant's mechanical system to service common areas of a building.

ALTERNATIVE STUDIES

OPTION 6 – RELOCATE UNITS BEHIND GARDEN WALL NEAR DARTMOUTH.

- This is **not feasible** because the units needs to be elevated and would be higher than the wall.

CONCLUSION

OPTION 7 – MECHANICAL UNITS REMAIN IN THE REAR OF THE BUILDING / SCREEN EXISTING UNITS

- Two (2) existing mechanical units to remain in place.
- Furnish and install two (2) screens to cover the three (3) exposed sides of the units.
- Screens to match design intent and color of existing trash enclosure gate.
- **Units will be screened from public view.**

CONCLUSION



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CONCLUSION

OPTION 8 – MECHANICAL UNITS REMAIN IN THE REAR OF THE BUILDING / RELOCATE UNIT #1

- Unit #1 can be relocated near the trash enclosure.
- Unit #2 cannot be relocated near the trash enclosure.
 - **There is only enough space near the trash enclosure to fit one of the units.**
- Furnish and install two (2) screens to cover the three (3) exposed sides of the units.
- Screens to match design intent and color of existing trash enclosure gate.
- Both units will be more symmetrically located in the back of the building.
- **Units will be screened from public view.**

CONCLUSION



CONCLUSION



CONCLUSION



THANK YOU