

Exhibit K

**Mechanical, Electrical, Plumbing, and Fire Protection Assessment for Reuse Scenarios by
Edwards & Zuck Consulting Engineers**

This exhibit has been amended from the original October 29, 2015 application submission to limit the scope of the exhibit to 1918-1920 Sansom Street.



1918-20 SANSOM MEP/FP Reuse Building Narratives

October 12th 2015





1918-20 SANSOM MEP/FP Narrative Option 1 (Restaurant-Retail):

DESCRIPTION

The function of the new building is understood to be Retail/Restaurant type occupancy and is comprised of 2 separate tenants each making up about 2,156 USF, and a storage area located in the cellar. The total square footage of the building is listed as 4,312 based on SCB sketches of September 21st, 2015. The existing services and infrastructure do not have sufficient capacity to serve the new programs and will be demolished.

1) Electrical

- a) A new Electrical service shall be coordinated with PECO and installed in the back of house area of the proposed building. The new service shall be 120/208v, 3-phase, 4-wire, 1000-amps. The distribution equipment shall be circuit breaker construction rated at 65KAIC.
- b) Direct metering shall be provided for each of the 2 restaurant tenants via two utility meters located in the main electrical service room.
- c) An additional direct meter configuration shall be provided for the house loads (elevator, hallway lighting, storage, BOH areas, etc.)
- d) A tap ahead of the main service switch shall be provided to serve the new fire alarm electrical distribution.

2) Fire Alarm

- a) A new addressable fire alarm system shall be installed to serve the new base building architectural layout. The system shall be comprised of manual and automatic initiation devices, as well as audio/visual alarms throughout.
- b) An elevator re-call system shall be included.
- c) New ansul systems shall be monitored by the new Fire Alarm system via monitoring modules. Fan shutdown relays shall be provided for all fans over 2000 CFM.

3) Mechanical

- a) A 10 ton VRF system with heat recovery for each retail/restaurant floor. The air cooled condensers will be located on the roof, with the indoor ceiling concealed units ducted to diffusers.
- b) An outside air ERV unit (+/- 1,750 CFM) to provide ventilation to each restaurant/retail floor, basement & a duct riser from each floor to each unit.
- c) A 4 ton VRF system with heat recovery the Basement storage room. The air cooled condenser will be located on the roof, with the indoor ceiling concealed units ducted diffusers.



- d) A toilet exhaust fan (+/-1,000 CFM) & duct riser to both restaurant floors. Terminate with gravity damper & gooseneck on roof.
- e) A BOH basement general exhaust fan (+/- 350 CFM) & duct riser. Terminate with gravity damper & gooseneck on roof.
- f) An elevator machine room heat pump split unit (+/- 2 tons).
- g) A mechanical equipment room unit heater (4KW).
- h) If the space is a restaurant, a 10,000 CFM kitchen exhaust hood system for each restaurant floor. Exhaust fan & indirect gas fired make up air unit with DX cooling on the roof.

4) Plumbing

- a) A new combined Domestic Water & Fire Water service shall be installed within the storage area of the proposed building. The Domestic Water service shall be provided with a water meter & backflow preventer. Domestic cold water shall be provided to each retail/restaurant tenant & metered, by means of street pressure.
- b) A new Natural Gas service shall be installed within the storage area. One gas meter shall be installed for each restaurant tenant.
- c) A complete sanitary & venting system shall be provided for all plumbing fixtures within the building. Sanitary waste will exit the building by means of a new house drain, house trap & connection to the city municipal sewer. Duplex ejector pumps shall be provided for all fixtures below grade unable to connect to the house drain line by gravity.
- d) A complete storm water system shall be provided for all areas within the property line. Storm water will be detained, as required by the authority having jurisdiction, and released to the city municipal sewer by means of a new house drain & house trap, or as required by the site civil discharge location.

5) Fire Protection

- a) Fire Water for the building shall be provided by means of a new Combined Domestic Water & Fire Water service. The Fire Water service shall be provided with a backflow preventer. All sprinklers in the building shall be fed from street pressure.
- b) The building will be fully sprinklered throughout. Design criteria shall be light hazard occupancy (0.10 gpm/sq.ft.).



1918-20 SANSOM MEP/FP Narrative Option 2 (Residential-Single Family):

DESCRIPTION

The function of the new building is understood to be Residential type occupancy and is comprised of 2 single family dwelling units each about 2,642 USF, and a storage area located in the cellar. The total square footage of the building is listed as 5,284 based on SCB sketches of September 21st, 2015. The existing services and infrastructure do not have sufficient capacity to serve the new programs and will be demolished.

1) Electrical

- a) A new Electrical service shall be coordinated with PECO and installed in the back of house area of the proposed building. The new service shall be 120/208v, 3-phase, 4-wire, 250-amps. The distribution board shall be circuit breaker construction rated at 65KAIC.
- b) Direct metering shall be provided for each of the 2 residential apartments via service taps located in the main electrical service room.
- c) One additional direct meter configuration shall be provided for the leasing area and the house loads (hallway lighting, storage, BOH areas, etc.)
- d) A tap ahead of the main service switch shall be provided to serve the new fire alarm electrical distribution.

2) Fire Alarm

- a) A new addressable fire alarm system shall be installed to serve the new base building architectural layout. The system shall be comprised of manual and automatic initiation devices, as well as audio/visual alarms throughout.
- b) Local Smoke/CO detectors shall be wired locally to each rental unit and shall be stand-alone from the rest of the addressable base building system.

3) Mechanical

- a) An 8 ton VRF system with heat recovery for each residential floor. The air cooled condensers will be located on the roof, with the indoor ceiling concealed units ducted to diffusers.
- b) An outside air ERV unit (+/- 500 CFM) to provide ventilation to each residential floor, basement & a duct riser from each floor to each unit.
- c) A 3 ton VRF system for the Basement storage room. The air cooled condenser will be located on the roof, with the indoor ceiling concealed units ducted diffusers.
- d) A toilet exhaust fan (+/-300 CFM) & duct riser to both residential floors. Terminate with gravity damper & gooseneck on roof.
- e) A kitchen exhaust fan (+/-200 CFM) & duct riser to both residential floors. Terminate with gravity damper & gooseneck on roof.



- f) A BOH basement general exhaust fan (+/- 250 CFM) & duct riser. Terminate with gravity damper & gooseneck on roof.

4) Plumbing

- a) A new combined Domestic Water & Fire Water service shall be installed within the storage area of the proposed building. The Domestic Water service shall be provided with a water meter & backflow preventer. Domestic cold water shall be provided to each residence & metered., by means of street pressure.
- b) An electric or gas hot water storage heater will be provided for each residential tenant.
- c) A new Natural Gas service shall be installed within the storage area. One gas meter shall be installed for each residence.
- d) A complete sanitary & venting system shall be provided for all plumbing fixtures within the building. Sanitary waste will exit the building by means of a new house drain, house trap & connection to the city municipal sewer. Duplex ejector pumps shall be provided for all fixtures below grade unable to connect to the house drain line by gravity.
- e) A complete storm water system shall be provided for all areas within the property line. Storm water will be detained, as required by the authority having jurisdiction, and released to the city municipal sewer by means of a new house drain & house trap, or as required by the site civil discharge location.

5) Fire Protection

- a) Fire water for the building shall be provided by means of a new Combined Domestic Water & Fire Water service. The Fire Water service shall be provided with a backflow preventer. All sprinklers in the building shall be fed from street pressure.
- b) The building will be fully sprinklered throughout. Design criteria shall be light hazard occupancy (0.10 gpm/sq.ft.).



1918-20 SANSOM MEP/FP Narrative Option 3 (Office):

DESCRIPTION

The function of the new building is understood to be commercial type occupancy and is going to be comprised of two office tenants totaling 4,104 usable square feet. The design includes a storage and mechanical space, along with an elevator to serve the upper tenant. This square footage is based upon the SCB sketches of September 21st, 2015. The existing services and infrastructure do not have sufficient capacity to serve the new programs and will be demolished.

1) Electrical

- a) A new Electrical service shall be coordinated with PECO and installed in the back of house area of the proposed building. The new service shall be 120/208v, 3-phase, 4-wire, 400-amps. The distribution board shall be circuit breaker construction rated at 65KAIC.
- b) The incoming service shall be monitored by one utility and customer meter. Each of the office floors shall be sub-metered. The respective office tenants shall be charged for their electrical usage by the base-building.
- c) A tap ahead of the main service switch shall be provided to serve the new fire alarm electrical distribution.

2) Fire Alarm

- a) A new addressable fire alarm system shall be installed to serve the new building architectural layout. The system shall be comprised of manual and automatic initiation devices, as well as audio/visual alarms throughout.
- b) All initiation and indication devices installed throughout office floors shall be tied into base-building system.

3) Mechanical

- a) An 8 ton VRF system with heat recovery for each office floor. The air cooled condensers will be located on the roof, with the indoor ceiling concealed units ducted to diffusers.
- b) An outside air ERV unit (+/- 1000 CFM) to provide ventilation to each office floor, basement & a duct riser from each floor to each unit.
- c) A 4 ton VRF system with heat recovery the Basement storage room. The air cooled condenser will be located on the roof, with the indoor ceiling concealed units ducted diffusers.
- d) A toilet exhaust fan (+/-600 CFM) & duct riser to office floors. Terminate with gravity damper & gooseneck on roof.
- e) A BOH basement general exhaust fan (+/- 250 CFM) & duct riser. Terminate with gravity damper & gooseneck on roof.



- f) An elevator machine room heat pump split unit (+/- 2 tons).
- g) A mechanical equipment room unit heater (4KW).

4) Plumbing

- a) A new combined Domestic Water & Fire Water service shall be installed within the storage area of the proposed building. The Domestic Water service shall be provided with a water meter & backflow preventer. Domestic cold water shall be provided to each office floor, by means of street pressure.
- b) An electric hot water heater shall be provided for each office floor toilet room.
- c) A complete sanitary & venting system shall be provided for all plumbing fixtures within the building. Sanitary waste will exit the building by means of a new house drain, house trap & connection to the city municipal sewer. Duplex ejector pumps shall be provided for all fixtures below grade unable to connect to the house drain line by gravity.
- d) A complete storm water system shall be provided for all areas within the property line. Storm water will be detained, as required by the authority having jurisdiction, and released to the city municipal sewer by means of a new house drain & house trap, or as required by the site civil discharge location.

5) Fire Protection

- a) Fire water for the building shall be provided by means of a new Combined Domestic Water & Fire Water service. The Fire Water service shall be provided with a backflow preventer. All sprinklers in the building shall be fed from street pressure.
- b) The building will be fully sprinklered throughout. Design criteria shall be light hazard occupancy (0.10 gpm/sq.ft.).