December 9th, 2009

Mr. Gerald Traub
Traub Architecture + Design, Inc
328A West Morgan St
Raleigh, NC 27601

RE: Bank of Warrenton
GTA-0901

Dear Jerry,

Lighthouse Engineering was asked to provide a description of the building mechanical, electrical, and plumbing systems for Phase I of the Bank of Warrenton project in Warrenton, North Carolina. Phase I consists of installing the 1st floor systems as previously designed and providing minimally for the 2nd floor systems to be installed in the future. In the sections below you will find a description of our MEP designs. In addition, please reference the current MEP drawings dated 12-09-09 for further information on Phase I and Phase II systems.

Building Plumbing Systems

1. All spaces in the project are to be served by individual water meters. All meters are to be installed during Phase I. Piping serving the second floor spaces is to be capped just above the second floor.
2. Water piping will be CPVC.
3. The building is served by two 4" waste services. One is to be designated for greasy waste from the Kitchen, the other will serve all other fixtures in the building.
4. The existing lines must be examined to determine if they are in operable condition. The Town of Warrenton has strongly suggested using a camera to photograph the lines. If the lines require replacement, the Town has also stated that the new lines must be 6" diameter with a clean-out at the connection to the lateral.
5. Waste piping will be PVC.
6. The grease interceptor for Kitchen waste shall be installed in Phase I.
7. The two 3" waste risers meant to serve the residential bathrooms should be stubbed up to the second floor for Phase I. The 2" waste risers will be installed at a later time, however these should be stubbed above the first floor to avoid having to cut into the flooring when the risers are installed.
8. The only vent piping to be installed in Phase I is the required piping for the first floor fixtures.
9. Propane gas piping to the cooking appliances and water heater are to be installed in Phase I.
10. Gas piping will be schedule 40 steel pipe.
11. The kitchen water heater is to be mounted in the basement and be propane fired and power direct vent. The office space water heater is to be mounted above ceiling and have an electric heating element.
12. All plumbing fixtures and equipment to be as specified on the drawings or approved equals.

Building HVAC Systems

1. All spaces will be served by Split System Heat Pumps, 14 SEER or better. Only the 1st floor systems are to be installed during Phase I.
2. Heat Pump units will be located on the ground at the rear of the building.
3. Two Air Handlers will be located in the crawlspace: one serving the front of the pie shop space; the other serving the retail space. The ductwork from these two Air Handlers will be located in the crawl space serving floor grilles/diffusers for the space above.
4. One Air Handler will be located above the ceiling in the Pie Shop kitchen.
5. Outside air will be ducted from exterior wall louvers or similar intakes to the Air Handler returns.
6. Ductwork will consist of galvanized metal duct mains with flex duct branches to the diffuser/grille connections.
7. Thermostats will be 7-day programmable type.
8. Bathroom exhaust fans will be standard 100 CFM ceiling mounted fans. Bathroom exhaust ducts will be routed up through the 2nd floor to a roof termination.

9. A janitor closet exhaust fan will be a standard 50 CFM ceiling mounted fan. The exhaust duct will be routed up through the 2nd floor to a roof termination.
10. The kitchen will be provided with a 9' grease hood. The grease exhaust duct will be routed up through the 2nd floor to the exhaust fan located on the roof.
11. Grease exhaust duct will consist of 16 gauge black iron duct with continuous external liquid-tight welds. The duct shall be wrapped with ASME 814 approved firewrap from hood connection to termination at exhaust fan.
12. The grease exhaust fan will be an upblast type roof fan. The hood make-up air fan will be an inline type providing outside air to the hood from an wall intake louver.

Building Electrical Systems

General

1. The utility delivery voltage will be 240V-1Φ for the building. The main electrical service size is estimated to be 600A and will be a Main Lug Only meter center. The house service (HP) will be 100A and will serve building lighting, receptacles, and any common space HVAC equipment not associated with the tenants. The pie shop electrical service (K) will be 200A. The upper and lower office electrical services (P1 and P2) will each be 150A.
   (Please note all electrical service and panel sizes are provided for bidding purposes only. Final size may change.)
2. Panels K, P1 and HP shall be installed during Phase I. Only conduits (with pull string) for Panels P2, R1 and R2 shall be provided during Phase I. Conduits shall be capped and labeled for future use. The electrical panels for these areas will be installed during Phase II.
3. Service laterals shall be run by the EC from utility transformer(s) located on the site in locations as determined by the Utility Provider. Feeders to the house panel may be aluminum, particularly Stabiloy type MC cable, or copper type THHN/THWN single conductors in conduit depending on cost considerations at the time of construction.
4. The electrical service requires 36" of clearance in front of the equipment.
5. Devices (switches, receptacles, etc.) shall be commercial grade in common and commercial areas. Device and cover plate materials and colors shall be selected by the project interior designer.
6. Devices (switches, receptacles, etc.) may be residential grade in the residential units.

Lighting

1. The lighting design will be required to comply with the 2009 North Carolina Energy Conservation Code (NCECC).
2. Emergency lighting will be provided via "bug-eye" fixtures or emergency ballasts in fluorescent fixtures. The fixtures will be specified such that under normal conditions they can be controlled with the local lighting group as required.

Residential Units

1. Each unit shall have a dedicated load center for branch circuit distribution within the unit.
2. Unit load centers (R1 and R2) are expected to range from 100A at 240/120V 1-phase to 125A at 240/120V 1-phase. This will be dependent upon the square footages of the units and their respective mechanical and plumbing requirements.

Telephone, Data and Cable Television

1. Telephone service shall be extended from a utility distribution point to each floor as required.
2. Telephone outlets will be provided in common spaces as required.
3. All cabling shall be provided by the telephone service provider or a sub-contractor under separate contract.
4. CATV service shall be extended from a utility distribution point to each floor as required.
5. CATV outlets will be provided in common spaces as required.
6. All cabling shall be provided by the CATV service provider or a sub-contractor under separate contract.

Respectfully,
Lighthouse Engineering,
Danny Brush, PE