PETERSBURG MEDICAL CENTER

PETERSBURG, ALASKA

FACILITY CONDITION ASSESSMENT

November 2, 2015

JENSEN YORBA LOTT ARCHITECTS

ARCHITECTURE ● INTERIOR DESIGN ● CONSTRUCTION MANAGEMENT

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Petersburg Medical Center Facility Condition Survey

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Petersburg Medical Center
Condition Assessment

EXECUTIVE SUMMARY

On July 27, 28 and 29, 2015 the Jensen Yorba Lott design team provided a building condition assessment. The purpose of the condition assessment was to document the overall condition of the facility to assist Petersburg Medical Center in future facility planning and maintenance.

Petersburg Medical Center was built 30 years ago and included renovation of the existing structure which now houses Long Term Care. There have been small renovations and improvements since, but essentially the infrastructure of the building is at least 30 years old. The report finds that a majority of the systems, components and finishes have exceeded or are near the end of their service life and should be replaced. It also finds that functional improvements are needed, to better support the services provided and to assure compliance with Guidelines for Health Care Facilities in regard to issues of infection control, patient safety, patient privacy, food service and sanitation.

The facility in general is well maintained. However, due to the age of the facility, many systems are no longer manufactured or supported. These systems and components will become increasingly difficult to maintain or repair, because parts and knowledgeable personnel are no longer available. Technology changes also have put a strain on the existing facility systems. The use of personal computers, laptops, cell phones, etc has increased the need for power service, server capacity and data access. Business is conducted daily via equipment connected to the internet and interconnected within the facility including medical equipment, which was not the case when this facility was built. Current infrastructure is not adequate to support these increased demands and must be replaced completely or expanded.

The Petersburg Medical Center facility has not changed significantly for 30 years, yet health care services, technology, health care guidelines and building codes have changed. Due to changes in health care delivery some spaces are no longer used for the intended purpose and are underutilized and inefficient. Due to changes in Health Care Guidelines and building codes existing spaces are now inadequately sized, poorly located and not properly equipped.

The following report was prepared by Architect Joann Lott of Jensen Yorba Lott Inc. in collaboration with Mechanical Engineer, Doug Murray of Murray and Associates and Electrical Engineer, Barry Begenyi of Begenyi Engineering.

The assessment included a thorough building walk through with facilities maintenance personnel. This was followed with individual close inspections of each area and system components. We also met with several department heads to discuss existing facility issues and needs as well as functional changes that could improve operation and service delivery.

The assessment lists all major components of the facility and documents the age, expected life, condition and code compliance. A recommendation for each component is provided along with a "cost opinion" for each recommendation. The costs are tallied in the cost opinion spread sheet at the end of the report. This spread sheet factors in; over head, profit, escalation (assumed 5 years) and an estimating contingency.

Petersburg Medical Center Condition Assessment

General Facility Description

The Petersburg Medical Center is one large building made up of three buildings constructed at various time periods. We identify these buildings in the report as:

A. Long Term Care Wing (LTC)
B. Hospital
C. Clinic

Long Term Care Wing

The original hospital occupied what is now the Long Term Care wing as well as an adjacent structure since demolished. The structure remaining after demolition, now occupied by the Long Term Care unit is a 2 story concrete structure built in the 1950's or early 1960's. Each floor is approximately 3,925 gsf. The structure is built on piles. The first floor is a structural reinforced concrete slab on grade. The second floor is a structural reinforced concrete slab supported by reinforced concrete beams and columns with reinforced concrete exterior bearing walls. Some interior walls are also concrete or concrete block walls. Existing floor to floor heights are 9'-4" on the first floor and 10'-7" from the second floor to the attic floor. The roof at one time was a flat roof on a reinforced concrete slab. As part of the subsequent Hospital expansion, the concrete slab was roofed over with a structure of steel trusses and steel purlins, sloped to form a gable roof with metal roofing. The concrete slab roof structure is still in place under the new roof. Attic space was created with the steel roof structure which is used to house some mechanical equipment. The attic is un-heated. Roof insulation occurs in the attic at the attic floor level.

Hospital (Acute care) Expansion

The Hospital Expansion was constructed 1983-1984, adjacent to and connected to the existing Long term care concrete building. It is a steel structure with steel columns and steel beams. The first floor is reinforced concrete slab on grade and the second floor is structural reinforced concrete spanning between steel beams. The roof structure is comprised of steel trusses and steel purlins sloped to form a gable roof with metal roofing. Exterior walls are not load bearing. The second floor level aligns with the second floor level of the long term care wing. The first floor level is 2'-8" lower than the first floor level of the long term care wing. A ramp and stair provides the transition between floor levels. The first floor area is 17,320gsf which is slightly smaller than the second floor area of 17,850 gsf.

Clinic

The clinic was added in the mid 1990's. The second floor is comprised of 5 wood framed modules that were constructed outside Petersburg and shipped to the site. The modules were placed on site built reinforced concrete basement/foundation with wood columns and wood beams to support the modules. The modules are structurally linked together. Wood trusses form a sloped gable roof structure

with plywood decking and metal roofing. Exterior walls are wood framed load bearing walls. A concrete block 4 hour rated wall separates the clinic from the hospital. Each floor of the clinic is approximately 3,777gsf.

Total area of all existing facilities:

Long Term Care	7,850 gsf
Hospital	35,170 gsf
Clinic	7,554 gsf
TOTAL	50,574 gsf

This excludes canopies and over hangs and does not include the attic space which is not occupied but is used to house mechanical and electrical systems.

Changes since original construction

A major renovation of the long term care facility occurred when the 1984 Hospital Addition was constructed. The second floor aluminum sun room was added at some time after the 84 addition. Since then only minor changes have taken place. A new bathing room is planned for the long term care wing in the near future.

In 2004 in the Hospital Addition, the acute care nurse station and adjacent support areas were remodeled, including an infant nursery. Due to changes in medical providers in Petersburg, the infant nursery is no longer used for its intended purpose.

In 2012-2015 a new metal roof was installed over both the long term care wing and the hospital.

In 2010 the clinic underwent a major renovation expanding into the basement to include additional exam rooms, offices and a conference room. On the upper floor the entrance was relocated to provide a better flow and allow addition of provider offices without reduction in the number of exam rooms. The renovation included addition of a new elevator.

Apart from these isolated renovations the facility materials, finishes, systems and equipment are original to the Hospital Expansion in 83/84. Most everything in the facility is 30 years old at a minimum. In some areas such as the Long Term Care Wing, components are 40 -50 years old.

The following facility assessment will describe each component, note the age if known and expected life, the condition, any code or safety issues and ADA compliance. A recommendation will be provided.

We will suggest upgrades that may offer energy conservation or may provide other efficiencies. Since so much has changed with technology in the past 30 years, there are systems and modes of operation enhanced by technology, that are not currently provided in the facility. We will identify current technology that could be implemented.

Facility Description

STRUCTURAL SYSTEMS

Sub Structure/Foundation

The long term care building has concrete footings supported by a pile foundation. The remainder of the structure (Hospital and Clinic) is built on spread footings. The site was over excavated and a structural fill installed to support the spread footing concrete foundation.

Soil subsidence under the concrete stairs on the south side of the Long term care unit was noted. The stairs are cracking and sloped. This subsidence appears to affect only the stair and not the sun room structure itself. No other structural concerns were observed.

Superstructure

The long term care building is comprised of load bearing concrete walls with structural concrete floor slabs and roof slab. The Hospital is constructed of steel columns and beams. The first floor is constructed of concrete slab on grade. The second floor is comprised of structural metal decking spanning from beam to beam with concrete fill creating a composite steel and concrete structural floor. The Clinic is a wood framed structure with wood framed load bearing walls. The first floor is structural concrete slab on grade. The second floor is comprised of wood floor joists and ply wood decking supported by wood beams and wood columns. The roof structure is wood trusses with plywood roof deck.

The structural systems are intact and no evidence of structural distress was observed.

Recommendation

Seismic codes have changed since construction of the facility, requiring more stringent seismic reinforcing. Since medical facilities are considered “essential facilities” by code and are the back bone to a community’s survival of and recovery from natural disasters, we recommend that a full structural analysis be executed to determine what, if any upgrades are needed to bring the facility up to current seismic code.

An upgrade is not required by code unless significant renovation work occurs in the facility, however as noted above it may be prudent to do an analysis to determine what improvements would be needed to meet current code.

Cost: Structural engineering analysis approximately $30,000. Construction costs cannot be defined until the structural analysis is complete.

ARCHITECTURAL SYSTEMS

EXTERIOR ENCLOSURE:

Roof- The metal roof consists of a formed rib metal panel that laps each subsequent panel and is mechanically fastened to the structure with concealed fasteners. The roof was replaced on the Long Term Care Building and the Hospital in 2014. The expected life of the metal roofing is 20-30 years. The finish is warranted for 20 years.

Roof eave soffits – The roof eave soffits are constructed of metal soffit panel and a continuous eave vent covered with insect screen. The metal soffits with the exception of one or two bent panels are in good condition. The insect screen at the eave vent is rusted and torn and needs replacement.

Recommendation

Remove and replace all the insect screens at the eave vents. Cost $10,000

Exterior walls - The building cladding consists of an insulation and synthetic stucco system called EIFS (Exterior Insulation and Finish System). It is made up of metal studs, exterior gypsum sheathing on the studs and 2" of rigid insulation adhered to the sheathing with several coats of stucco applied to the rigid insulation. The metal studs are insulated with batt insulation. This system became very popular in the early 80's and then began to see failures due to cracking of the stucco and water penetration. The exterior cladding of a building expands and contracts with temperature changes. The stucco finish forms cracks and allows water penetration. With these failures the system fell from popularity. It has failed in particular in Southeast Alaska because temperatures hover around freeze thaw for much of the year causing continual expansion and contraction of the stucco skin. Combine that with heavy rain seeping into the cracks and systems have failed consistently. When initially marketed the expected life of EIFS was 40 - 50 years. However, in Southeast we would not project more than 15 years. The installation at PMC is a very good installation and seems to have held up well. It is 30 years old at the time of this report and only a few portions of the structure are showing signs of failure from water penetration. The cladding has been painted which has extended its life. Some areas of the cladding are stained by roof run off.

Recommendation

Given its known failures, we do not suggest waiting another 10 -20 years before replacement of the EIFS. Areas that are failing (sun room siding) need to be removed and replaced promptly to prevent further water penetration and damage. The siding has been known to fall off the wall if left un- attended after signs of water penetration appear. This poses a danger to passersby. Photo A1&A2.

We recommend repair of the failing portions in the short term and complete replacement of the cladding with insulated metal siding or installation of metal siding over the existing siding, in the next 5-10 years. Cost for Hospital and LTC: $330,000. Cost for Clinic: $41,000

Exterior Windows

Exterior windows are either, vinyl clad wood framed windows with insulated glass or they are aluminum framed with insulated glass. Some have single pane glass. The vinyl clad wood framed windows were installed in 1984. Photo A3. The aluminum framed windows vary in age. The newest were installed with the garage infill on the first floor. Photo A4. The oldest occur in the long term care wing and may be over 30 years old. Photo A5. The expected life of the vinyl clad wood framed window as well as the aluminum window is 20-30 years. Products are usually warranted for 20 years. We expect glass seals to begin failing beyond that time frame. The aluminum framed sun room at the south end of the long term care unit showed seal failure in a couple of the glass units. Photo A6. In spite of the age, the windows are in fairly good condition. Operable units show signs of wear but for the most part can still be opened.

Recommendation

Due to age and improved insulation technology, we recommend replacement of all window units (frames and glass). We recommend insulated windows with a thermal break, fiberglass frames and thermal glazing such as low E glass and argon gas insulation. Cost for Hospital and LTC: $63,000 Cost for Clinic $26,000.

Exterior Doors

Exterior doors consist of both hollow metal doors in hollow metal frames and wood doors in hollow metal frames. Some have windows. Also at the first floor level entries, aluminum doors in aluminum frames occur. The aluminum doors in aluminum frames and most of the hollow metal doors in hollow metal frames have endured well. They are still in reasonably good condition though they are 30 years old. The highly used wood doors such as the pair of doors at the Emergency Department Entry canopy show extreme wear. Finishes and surfaces are damaged. Photo A7 & A8. All doors are in need of weather stripping refurbishment. Additionally there is a limited electronic security system (access control system) provided. Expansion of the access control system to all exterior doors would greatly increase facility security, control and monitoring.

Recommendation

Replace all wood exterior doors with insulated hollow metal or aluminum doors. Cost : $6,000 Replace weather stripping hardware on all doors including thresholds and door sweeps. Cost: $8,000

Provide a programmable access control system for exterior doors and the few interior doors that require electronic security. The cost for the access control system is included in the electrical estimate.

Thermal enclosure (R values)

Roof insulation: insulation occurs at the floor of the attic. Most areas have 2 layers of batt insulation. The first layer is presumed to be the original insulation called out as R30 (10”) on the drawings. The second layer, observed in the attic space, is R19 or 5 1/2”. Where two layers of insulation are provided

in the attic the total R value is R49. This level of insulation meets current requirements of the 2012 International Energy Code (yet to be adopted in Alaska). This code stipulates that Petersburg is in climate zone 7 which requires R47 roof insulation.

Wall insulation for the Hospital: There is R19 batt insulation in metal studs with a vapor barrier on the interior and 2"of EIFS (exterior insulation and finish system) on the exterior of the studs along with gypsum sheathing. EIFS consists of a stucco finish over rigid insulation board. The insulation board generally has an R value of 5 per inch so R 10 in this installation. Total R value of the exterior wall is R29. This level of insulation exceeds current requirements of the 2012 International Energy Code (yet to be adopted in Alaska). This code stipulates a value of R16 for exterior walls.

Wall insulation for the Long Term Care Building: The LTC building is comprised of 8" concrete with 2" of EIFS. Total R value of the exterior wall is R10. This level of insulation does not meet current requirements of the 2012 International Energy Code (yet to be adopted in Alaska).

Recommendation

Add insulation to the interior or exterior of the LTC exterior walls to increase the R value to required minimums. Cost $19,000.

INTERIOR CONSTRUCTION

Partitions:

Interior partition construction varies within the facility and match the age of the facility in which they occur. In the long term care building there are concrete walls, concrete block walls and metal stud walls. The long term care wing has concrete or block walls in many places which prevents upgrades to wiring, communications plumbing etc form occurring without surface mounted conduit and devices. Consequently LTC has a menagerie of surface mounted systems. This does not create a beautiful home. On the contrary it is industrial in character and distracting and leaves one with a sense that people are having to "make do". The hospital partitions are constructed primarily of metal studs with gypsum wall board each side. If partitions are required to be fire rated, multiple layers of gypsum wall board are provided. The Clinic is constructed of wood stud walls with gypsum wall board each side.

Where plumbing or electrical repair work has taken place, walls have been cut and patched. Otherwise, partitions are generally in good condition and the expected life is unlimited. Replacement of mechanical and electrical components within the partition, renovations for functional changes and expansion of areas needing more space, will impact partitions.

If functional changes are addressed many partitions will be removed and others constructed. New partitions should address sound isolation.

Interior Doors & Relites (windows):

Interior doors in the public and patient care areas are wood doors in hollow metal frames. Doors in service areas are hollow metal in hollow metal frames. High use doors have been damaged at the leading edge of the door and where door hardware has been installed and removed, doors are marred and damaged. Photo A9 & A10.

If functional changes are addressed many doors will be removed and relocated or new doors installed. If this occurs doors widths, clearances and hardware can be revised to comply with building codes and the ADA.

Recommendation

Replace damaged doors frames and hardware. Cost $30,000

INTERIOR FINISHES

Flooring

Long Term Care and Hospital Flooring:. A variety of flooring types are provided in the facility including sheet vinyl, vinyl tile, quarry tile, carpet and painted concrete. The flooring is 30 years old. The sheet vinyl and vinyl tile show significant wear. Flooring is cracked and damaged. Cracking has occurred at integral cove base at the juncture of wall and floor and vinyl tile has cracked in isolated locations. Photo A11, A12, A13. Cracked marred flooring makes it difficult to clean and maintain an infection free environment. Carpet is worn in isolated locations. The quarry tile has endured fairly well but appears dated. In some areas such as diagnostics, flooring is patchy where old equipment was removed and new installed, leaving unfinished portions exposed.

The expected life of flooring is 15 – 20 years with the exception of concrete flooring.

Clinic flooring: Clinic flooring consists of sheet vinyl and carpet tiles. It was installed in 2010 so it has significant remaining service life.

Recommendation

Replace flooring throughout the LTC and Hospital. Provide heat welded sheet vinyl in all patient care areas, food service areas and areas requiring sanitation. Water exposure areas such as bathrooms and toilet rooms should either be heat welded sheet vinyl or ceramic tile. Cost: $340,000

Walls.

Walls of the LTC and Hospital have painted gypsum wall board in the majority of areas. The OR has vinyl wall covering of which the seams have begun to pull away leaving gaps in the wall covering. Photo A14 & A15. The kitchen has plastic laminate wall panel.

Walls in health care facilities are required to be of hard durable and scrub-able surfaces. Gypsum wall board is not generally considered a material that meets the criteria. Food service areas or areas of critical infection control such as the OR and ED, as well as patient rooms, require a hard scrub-able surface. Toilet rooms require a similar surface at the side and back of all toilets according to building code.

Recommendation

Remove existing vinyl wall covering where it occurs. Install vinyl acrylic wall protection or similar hard scrub-able surface material in patient care areas as prescribed by current guidelines for health care facilities. Additionally a vinyl acrylic wainscot, wall bumper/handrail is recommended in public areas, patient corridors and service halls to protect walls from carts, wheel chairs and stretchers. Cost $175,000

Ceilings

The majority of the hospital and clinic has acoustical tile ceilings in metal suspension grids. Isolated spaces have painted gypsum wall board ceilings. Ceilings tend to last well, since they do not endure the daily physical activity that walls and floors endure in a health care facility. Water leakage or impacts of equipment tend to be what damages acoustical tile and they are easily replaced. The ceilings appear to be in good condition throughout with a few exceptions. Areas where cut and patch work has occurred require tile replacement or painting.

R**ecommendation**

Provide a fresh coat of paint for hard surface ceilings and replace damaged ceiling tile. Cost: $18,000

CASEWORK AND COUNTERTOPS

The long term care building and hospital have plastic laminate clad wood cabinets and counter tops. These include enclosures for base board heat pipe, wardrobes and even patient headwalls. Some isolated cabinets and counters have been damaged. All others have endured fairly well. These cabinets and counters are 30 years old. The service life of plastic laminate clad wood counters and cabinets is 25 to 30 years. Though most are still in fairly good condition, the colors and style are dated.

Recommendation

Replace the counters and cabinets when a renovation occurs. Cost: $180,000

ACCESSORIES

Wall bumpers, heat enclosures, bed bumpers and corridor handrails are constructed of wood with a clear finish. The finish on the wood trim has not held up well under cleaning solutions leaving porous wood exposed. A porous surface such as this could compromise infection control efforts. Photo A16 & A17

Recommendation

Remove the wood products and replace with acrylic or other similar material, able to withstand cleaning solutions and prohibit bacterial growth. Cost: $80,000

MEDICAL ACCESSORIES

Head walls are provided in patient care spaces where medical gases are supplied. The head wall is custom built of wood trim and plastic laminate face. Cleaning products have worn off the finish on the wood. Health care suppliers such as Hill Rom supply a variety of head wall units designed to serve in various patient care areas. These units provide a variety of attachments and accessories and are fabricated of durable easily cleaned materials that endure cleaning products and do not promote growth of bacteria.

Recommendation

Replace all head wall units with pre manufactured medical head wall units. Cost: $40,000

Psychiatric security room

The psychiatric security room does not comply with current safety and patient protection requirements. The room requires evaluation and renovation to remove all hazards such a sharp corners, wall and ceiling mounted devices that can be tampered with or could potentially be a support for hanging including sprinklers, camera covers, vents, head wall cover plates and outlets.

Recommendation

Evaluate the use of the room. Remove hazards and upgrade the room to meet current psychiatric observation safety recommendations. Cost $28,000

CONVEYING SYSTEMS (elevators)

There are 3 elevators in the Petersburg Medical Center. The elevator in the LTC building is original. It is 55 years old. Elevators, in large part due to changes in technology, have a life expectance of 30 years. Though it continues to function it does not allow full functionality in call stations and movement from floor to floor and does not have fire safety features or security features available with new elevators. Replacement parts are no longer available and competent mechanics for this age of equipment are rare.

The elevator in the Hospital is also original, so it is about 30 years old. It is functioning fine but nearing the end of its service life. The elevator in the Clinic is new as of the 2010 renovation.

Recommendation

We recommend complete replacement of the LTC elevator and associated components. Along with this replacement it might be cost effective to also replace the Hospital Elevator. Though it has reached what is considered its service life many additional years of service could be had. However, replacement of both elevators at the same time could bring some cost savings for both construction and maintenance. Cost $200,000.

FOOD SERVICE EQUIPMENT

The kitchen was renovated as part of the 1984 renovation and addition. Food service equipment as far as we could determine, was new at that time, making the majority of the equipment 30 years old. Food service equipment includes stainless steel work surfaces, food preparation sinks and counters, commercial ranges and ovens, a fire suppression hood (over the ranges and oven), reach in refrigerators, both a walk in cooler and freezer, a 3 pot sink, and a dish washer with stainless steel counters and grease trap. Some items such as the walk in cooler and freezer have been added since the original construction. The kitchen storage space, work space and work flow suffer due to inadequate space. Storage is spread to several rooms and rolling cabinets in the hall are also used for storage on occasion. Work space within the kitchen is cramped and does not allow for proper staging of food service trays. The required two sinks at the food preparation counter are not provided. Additionally the age of the finishes and condition of the facility in the food service space hamper the ability to provide proper cleaning and sanitation. Power, lighting, ventilation, air conditioning, water supply and drain piping as well as floor wall and ceiling finishes are so old they are difficult to maintain and are in a damaged or unreliable state.

Recommendation

We recommend a complete remodel of the kitchen and support spaces to increase kitchen work space and dish wash space and provide adequate storage and staging. As part of the renovation the kitchen infrastructure needs replacement including supply and waste piping, power service, lighting and new durable easily cleaned finishes. Additionally some food service equipment should be replaced with new equipment providing better features to improve sanitation, fire safety and reduce energy use. Cost $450,000.

FUNCTIONAL ASPECTS & GUIDELINE COMPLIANCE:

Petersburg Medical Center continues to evolve to provide the best health care possible to the community of Petersburg. Changes in health care services, operational processes and medical equipment have occurred. Over the 30 years this facility has been in existence many things have changed resulting in rooms that no longer serve the function originally intended. Rooms have more equipment in them than anticipated. Equipment has changed and has required additional power and

data connection. Alcoves no longer serve a purpose. Storage space is in adequate. Care delivery rooms are cramped with equipment and room adjacencies are no longer beneficial.

Over all reorganization of departments and individual spaces is needed in order to make better use of the space available to serve the functions needed.

Petersburg Medical Center must comply with State of Alaska regulations regarding health care facilities. The State of Alaska has adopted "Guidelines for Design and Construction of Hospitals and Outpatient Facilities" and "Guidelines for Design and Construction of Residential Health, Care and Support Facilities". Existing configurations are allowed to remain until renovations occur, then the renovated portion of the facility must comply with the current Guidelines. The Guidelines under go changes to address trends in health care delivery, infection control, security, patient privacy, new procedures and new equipment as well as the associated space requirements. These documents define the various spaces and associated details to be included in health care facility design. In some instances minimum sizes are dictated as well as adjacencies and support components. In large part these requirements are driven by the facilities functional program which is determined and generated by the facility.

We have briefly reviewed the 2014 edition of these guidelines and note the following items which are not currently addressed in the Petersburg Medical Center Facility. These guidelines indicate what is required of a new facility and create a picture of the standard of care. Renovation of the Petersburg Medical Center should lean toward meeting these guidelines according to the functional program.

1. Hand washing stations (number and location) have been greatly increased. A hand wash sink is required in the patient toilet room in addition to a hand wash sink in the patient room. Hand wash stations are required in more frequent locations at nurse stations, and patient care areas such as ER, Diagnostics and Laboratory. PMC has one sink in the patient room and there are no sinks in the patient room toilet room.
2. Private patient rooms are preferred. Shared patient rooms with a maximum of two beds per room are allowed on approval. PMC has 3 two bed acute care rooms and 2 or 3 two bed LTC rooms.
3. Patient Rooms for hospitals require 120 sf of clear floor area with specific clearances required around the bed. This is preferred. In a renovation the space can be reduced to 100 sf. PMC currently has 92 sf of clear floor area.
4. A food service dining room for ambulatory patients, visitors and staff is required.
5. Staff areas for all staff with lockers for personal items, staff toilet rooms and space to change clothes.
6. The Surgery Suite requires decontamination and sterile supply to be accessed directly from the surgical suite without traversing public corridors. Currently PMC would not comply
7. Equipment supply storage space is required and must be at least the size equal to 10 sf per patient bed.
8. The kitchen requires 2 sinks at the food processing work area exclusive of the required hand wash sink in the kitchen.
9. Pharmacy requires a separate counseling room.

10. Emergency Department Exam Rooms must be a minimum 120 sf of clear space, with a minimum dimension of 10'. The exam table can be within this space. PMC ED rooms range from 90sf - 115sf of clear floor space. Rooms are narrow and the narrow dimension is less than 10'.

Recommendation

Planning for functional upgrades should encompass an overall facility plan to meet current and future service and health care delivery goals of the Petersburg Medical Center. Development or update of the facility functional program is the first step in addressing functional aspects needing improvement. A facility functional program, will identify the services to be provided, spaces needed to support delivery of such services, number of spaces, size and relative location. The functional program will inform development of a space program which will describe room size, quantity and relative location for each room required. A facility master plan is recommended to assure the upgrades can be implemented efficiently and effectively and result in a facility that will serve Petersburg for the next 20-30 years. Costs for functional improvements will vary depending on the direction of the facility and facility goals. Minimum anticipated cost $4,500,000.

AMERICAN S WITH DISABILITIES ACT COMPLIANCE

1. An accessible path from the street to at least one hospital entry is provided.
2. Access between floors is provided by elevator.
3. Entries are accessible with power operated doors.
4. In general public toilet rooms are of adequate size. Minor changes can be made to make them accessible where they are not already.
5. None of the staff toilet rooms, patient room toilet rooms, or patient toilet rooms for diagnostics, Emergency or Laboratory are adequately sized and configured to be accessible.
6. The clinic toilet rooms are accessible.
7. Some areas of the hospital have narrow halls and alcoves which do not provide ADA required push and pull clearances at the doors. Future renovation work should address door widths and push pull clearances to provide a fully accessible facility.

Recommendation

At a minimum, provide fully accessible public toilet rooms on both floors. As other renovation work occurs address all aspects of compliance including clearances, door hardware, signage, counter and fixture heights. Cost : $450,000.

A1 Sun Room Siding

A2 Sun Room Siding

A3 Windows 1984

A4 Windows Infill

A5 Windows LTC

A6 Window Failed Seals

A7 Entry Door at Emergency

A8 Service Doors

A9 Interior doors

A10 Interior doors

A11 Sheet Vinyl Flooring

A12 Vinyl Tile

A 13 OR Floor Seams

A14 OR wall covering seams

A15 OR wall covering seams

A16 Wood Railings

A17 Wood Head Walls

Mechanical Systems

Executive Summary

The Hospital and Long Term Care Facility mechanical systems are functioning but are old with many systems approaching the end of their service life. The Medical Clinic mechanical systems have a mix of relatively new mechanical systems on the first floor and older systems on the second floor.

Description of Existing Systems

Heating

Heating Plant: The Hospital heating plant currently consists of an electric boiler (Cole 20CWB-2, 540 KW/1,843 MBH) and a fire tube type boiler (Cleaver Brooks CBH-11-60, 2511 MBH) that supplies hot water to the heating systems. The fire tube boiler is over 30 years old and has severe tube failures such that the Owner has purchased another electric boiler (540 KW KW/1,843 MBH) to replace the fire tube boiler. That work of replacing the oil-fired boiler is scheduled to occur in 2015. Recently the Long Term Care Wing oil-fired boiler plant was removed and the heating system was connected to the Hospital heating plant. Oil supply pumps (3) are located in the Hospital boiler room and transfer oil from the aboveground storage tank and oil-fired boiler and hot water heater. Tank also serves the emergency generator.

Hospital

Heating Water Circulation: All pumps are the pipe mounted type and supply heating water to the building at a constant volume rate. For the most part all the pumps appear to be original installed in 1983 with some parts replaced in the interim. The pumps serve heating units and ventilation coils particular areas of the building

Pumps P-1 and P-2: Heating circulation pumps for AHU-5 and AH-6 in Long Term Care Wing Attic. Pumps are utilized in a Lead and standby configuration. Pumps P-1 and P-2 are located in the Boiler Room.

Pump P-3 and P-4: Heating circulation pumps for duct reheat zones. Pumps are utilized in a Lead and standby configuration. Pumps P-3 and P-4 are located in the Boiler Room.

Pump P-5 and P-6: Heating circulation pumps for heating coil HC-1 and perimeter radiation. Pumps are utilized in a Lead and standby configuration. Pumps P-5 and P-6 are located in the Boiler Room.

Pump P-9 is the heat recovery pump and circulates tempered glycol fluid between the exhaust air and outside plenums. Pump P-9 is located in the 1st floor Fan Room adjacent to the Boiler room.

CP-1 and CP-2 are located in the Boiler room and supply heating water to the second floor fan units (CF) in the Clinic. CP-1 and CP-2 pumps are utilized in a Lead and standby configuration.

Oil pumps, P-11 A and P-11B are not functioning and have been abandoned. Oil pump P-13 is still functioning and provided oil to the oil-fired hot water heater.

Long Term Care Facility

Pipe mounted pumps P-14, 15, & 16 had provided circulation of heating water in the LTC facility but have been shut off as part of the recent boiler plant decommissioning and connection to the Hospital heating plant. The Hospital circulation pumps reportedly provide adequate circulation of heating water for the facility from the Hospital system and thus the LTC pumps have been shut off but could be used for boosting flow in the building if needed.

Pump P-17, pipe mounted and located in LTC Boiler Room, provided circulation of domestic hot water between the LTC oil-fired heater and the storage tank which has been removed. P-17 has been abandoned.

Air-conditioning Systems

Hospital

Chilled Water

Chiller: A chilled water unit with exterior condensers provides cooling water for three cooling coils in the ventilation units that serve the second floor areas of the Hospital; AHU-2, AHU-3, and AHU-4 ventilation zones. The unit is original installed during the 1980's and is a TRANE CRHM200C-2JAT. The chiller unit has gone through long periods of inactivity due to maintenance problems but is presently operating.

Pump P-7 and P-8: Chilled water circulation pumps for duct cooling zones. Pumps are utilized in a Lead and standby configuration and are pipe mounted located in the Chiller room.

Room Air-conditioning

Server Rooms: Two ductless split air conditioning units (Fujitsu AOU 24RC and AOU24CL) provide cooling to IT Server/electrical room on first floor of Hospital.

Ventilation/Exhaust

Hospital

Four air handling units provide ventilation air for the Hospital and are located in the 1st floor Fan Room adjacent to the Boiler room; AHU-1 AHU-2, AHU-3, and AHU-4. Three Return/Exhaust fans provide return air from these areas back to the respective AHU for recirculation or exhaust it; R/E-1, R/E-2, and R/E-3. S-3 is a make-up air fan located in the attic and supplies make-up air for the Lab area. S-3 make-up fan has been turned off due to its ineffectiveness and noise. Exhaust fan E-3 is located in the Attic and serves the Hospital first floor general exhaust air requirements. Exhaust fans E-4 and E-5 are located in the Attic and provides exhaust air needs for the second floor west and east areas respectively. Exhaust fan E-6 is located in the Attic and provides exhaust air needs for the critical care area of the second floor. Duct humidification units were originally installed for the surgery area but have been

abandoned in place, steam humidifier has been removed from the Fan Room. Ductwork is generally not sealed at the seams.

The Hospital Fan Room has two outside air intakes. One intake plenum has a heat recovery coil (glycol) and heating coil (water). The other plenum with

Additional Hospital fans include:
S-1: Boiler Room combustion supply air.
E-1: Chiller Room exhaust air ventilation.
E-7: BTS Hood exhaust fan
E-8: General Lab exhaust. Fan is located in Attic.
E-9: Lab fume hood exhaust. Fan is located in Attic.
E-10: Elevator Machine Room exhaust. Fan is located in Elevator Machine Room.
SF: Circulation fan is an air-source heat pump, located above the CT room, and circulates cooling air.
An individual Exhaust Fan in Patient Room used for Isolation if needed. Exhaust fan is connected to existing attic exhaust air ductwork.

Long Term Care Facility

Two air handling units provide ventilation air for the Long Term Care Wing and are located in the Attic area above; AHU-5 and AHU-6. A heat recovery loop is located between exhaust air from E-13 exhaust fan and outside ductwork to recover some heating.

Additional Long Term Care Facility fans include:
E-11: Kitchen dishwasher exhaust. Fan is located in Attic above kitchen.
E-12: Kitchen range hood exhaust. Fan is located at roof level.
E-13: Long Term Care general duty exhaust air needs. Fan is located in Attic.

Medical Clinic

The clinic is served by four ventilation units, one air handling unit AHU with electric coil in the first floor Fan Room supplying ventilation and heating air to the first floor area of the clinic, and three above ceiling ventilation units (CF-1, CF-2, CF-3) that supply heating and ventilation air to the second floor areas of the clinic. AHU has an electric coil and is supplying air to four heating/ventilation zones that all duct electric heating coils controlled by room thermostats. The three second floor ceiling fan units are controlled by wall mounted thermostats that control the hydronic heating coils to maintain set point temperature.

Additional Clinic fans include:

EF-1: Ceiling mounted fan serving Med 223, controlled by wall switch.
EF-2: Ceiling mounted fan serving Lab 226, controlled by wall switch.
EF-3: Ceiling mounted fan serving Toilet 228, controlled by wall switch.
EF-4: Ceiling mounted fan serving Proc 2 on first floor, controlled by wall switch.
EF-5: Ceiling mounted fan serving Proc 3 on first floor, controlled by wall switch.

EF-6: Ceiling mounted fan serving Proc 1 on second floor, controlled by wall switch.
EF-7: Ceiling mounted fan serving Toilet 219 on second floor, controlled by wall switch.
EF-8: Ceiling mounted fan serving Elec/Data 213 on second floor, controlled by wall thermostat.
EF-9: Ceiling mounted fan serving Conf 104 on first floor, controlled by wall speed control switch.
EF-10: Ceiling mounted fan serving Elev Mach 116 on first floor (In Hospital), controlled by wall thermostat.
EF-11: Ceiling mounted fan serving Toilet 107 on first floor, controlled by wall switch.
EF-12: Ceiling mounted fan serving Elec 108 on first floor, controlled by thermostat.

Controls

Hospital/Long Term Care Facility

The controls for the hospital and Long Term Care Facility are a mix of electronic and direct digital controls (DDC). Electronic controls are original and the DDC controls were installed approximately 10 years ago. A computer station located in the Fan Room displays graphics pages of the mechanical DDC systems and parameters.

Medical Clinic

The clinic controls for the first floor ventilation and heating zones are direct digital controls (DDC) installed in 2011. The controls for the second floor ceiling fan units and heating units are electronic.

Plumbing

Plumbing Systems

Domestic cold water for the entire facility is supplied from the Hospital water service. A single 6-inch water main supplies water for the sprinkler and domestic water systems. A 4-inch water service taps off the underground 6-inch main for domestic water. The water header is located in southwest corner of the Hospital Fan Room. Domestic water piping aboveground is copper and was observed to be Type L for the most part. Long Term Care Facility underground waste and vent piping is reported to be cast-iron hub-n-spigot and for the Hospital it was reported to be cast-iron No-hub piping. Long Term Care sanitary drainage suffers from age and use with frequent problems.

Hospital domestic hot water production is from an oil-fired heater with storage pumped into the original electric hot water tank (350 gal) that has been decommissioned, located in the Boiler Room. Original tank is used for storage. A tempering valve is located above the storage tank to temper the delivered water to plumbing fixtures. Domestic hot water is circulation by several pipe mounted pumps located above the oil-fired unit.

Long Term Care Facility domestic hot water production is accomplished from two electric hot water tanks located in the old Boiler room of the 1967 building. The tanks are AO Smith 100 nominal gallons each with 5 elements at 15 kW each. There is no tempering valve on the outlet of the two tanks. A

nominal 50 gallon electric hot water heater is located in the corner of the kitchen and supplies boosted 140F temperature water for kitchen dishwasher and kitchen use.

Laundry facility has three washers, four dryers, and a wall mounted service sink. Two of the dryers and one washer are commercial type. Dryers are ducted to exterior wall individually. Washer supply water piping and trim are exposed behind the washers. Washers discharge waste into a formed concrete sump which discharges into a 4-inch sanitary waste recently installed.

Medical Clinic plumbing system is a mix of original (1994) and first addition (20010) plumbing with copper domestic water piping and cast-iron drainage piping. Plumbing fixtures are in fair to good condition.

Plumbing Fixtures

The plumbing fixtures are mostly original and generally functional but are old with most non-water saving type. Hospital plumbing fixtures are in fair condition. Long Term Care facility plumbing fixtures are in fair to poor condition. Individual showers in the Long Term Care Facility have been mostly abandoned. One Shower room is currently used for showering many of the residents and a second shower room was under construction during the visit.

Long Term Care Facility Kitchen: One triple pot sink is located in the kitchen. A second triple pot sink is located in the adjacent Dishwash room**.** No vegetable prep sink is installed. Minimal floor drains and floor sinks are located in the Kitchen.

Medical Gases

A vacuum compressor system is located in the Boiler room and is original – OXE Equip Model SP-5357AP. A medical air system is located in the Med Gas room along with an oxygen generator and bottles of oxygen (O2) for back up purposes.

Sprinkler

A wet and dry sprinkler system serves the facility. Satellite dry systems are located for the first floor exterior canopies. Evidence of leakage was visible on a few sprinkler fittings with one active leak in Boiler Room.

Condition Description and Recommendation

Heating

Heating Plant

The second electric boiler should provide a reliable heating for 20-30 years, but there is no back-up fuel to the electric. Heating piping should be modified as ventilation systems are upgraded and spaces are modified. Heating piping and heating units are old but with regular maintenance should have a life left of 20 years.

Heating Water Circulation

The various pipe mounted pumps are inefficient and maintenance heavy. Recommend revising the Hospital Boiler Rom pipe mounted to lead lag variable speed pumps for variable heating water flow according to demand. Replace all three-way valves with two-way for compatibility with variable speed system.

Heating Water Circulation Refurbishment to Variable Flow - Estimated construction cost: $ 80,000.

Air-conditioning Systems

Hospital

Server Room Air Conditioning

The two ductless air-conditioning systems in the hospital are about half way through their life with an estimated 5-10 years left before replacement. Recommend consider moving the exterior condensers to interior and capture rejected heat in a larger renovation scenario, otherwise recommend replacement of the units within 5 years.

Server Room Air-conditioning Systems Replacement - Estimated construction cost: $ 40,000.

Chilled Water

The chiller is the original unit and past its service life. There is evidence of repeated maintenance work on the unit, and when onsite a service tech was working on it. The chiller does not provide cooing water for the entire facility and is undersized for that role.

Recommend replacing the entire chilled water system including piping with a larger system that can serve the Hospital and Long Term Care Facility.

Hospital Chilled Water System - Estimated construction cost: $ 170,000.

Ventilation/Exhaust

Hospital

Hospital ventilation systems are constant volume systems with no ability to vary airflow volumes and typically operate 24/7. The first floor area ventilation system AHU-1 does not provide any cooling air to the spaces and ventilation rates are minimal for modern standards. Regulation of interior air temperatures is poor throughout the building resulting in hot interior areas and lack of ventilation in some areas. The lab areas in particular suffer greatly from lack of air conditioning and make-up air. Much of the ductwork joints are not sealed resulting in uncontrolled ventilation and decreased rates in

occupied areas. Original air balancing report listed many of the ventilation and exhaust systems under delivering from design amounts with no record of correcting the deficiencies. Code requirements for ventilation rates have increased significantly and many of the rooms and areas will not meet current code requirements for outside air, ventilation air, and exhaust air rates.

The Fan Room is under a negative pressure and draws air in from the outside but is not tightly sealed so infiltration of interior air is drawn in from other areas of the hospital resulting in poor distribution of tempered air to all fan inlets. The ventilation systems and their respective piping systems are approaching the end of their service lives with less than 10 years left.

Recommend replacing all four ventilation systems (AHU-1, AHU-2, AHU-3 & AHU-4) with new variable speed ventilation systems with heating, cooling, humidification and heat recovery systems. Also recommend replacing all exhaust fans and incorporating many of them into heat recovery systems for better energy efficiency. Considering combining AHU-s into Redesign the Fan Room and eliminate the negative pressure aspect with direct connections to OSA plenums and heat recovery. Incorporate current code required filtration in the ventilation systems. Estimate that approximately 50% of the ventilation and exhaust systems can be reused with modifications of sealing joints otherwise install new. Test and balance entire Hospital facility.

Hospital Ventilation - Estimated construction cost: $ 575,000

Hospital Exhaust Air Systems

The Hospital exhaust air systems are mostly original over 30 years old. The fans and ductwork are dirty from the years of use. Recommend replacing all exhaust fans and incorporating many of them into heat recovery systems for better energy efficiency. Recommend cleaning all exhaust ductwork. Recommend sealing as much of the exhaust air ductwork joints as possible.

Hospital Exhaust Air Systems Refurbishment - Estimated construction cost: $ 110,000.

Hospital Exhaust Air for Isolation Room

The Hospital exhaust fan for isolation room does not current code requirements. A new separate fan with ducting to roof should be installed in a designated patient room for isolation purposes. The fan should be a variable speed type with controls for controlling and monitoring. A differential pressure panel should be mounted on wall outside Isolation Room.

Hospital Exhaust Air for Isolation Room - Estimated construction cost: $ 25,000.

Hospital Make-up air Systems

The Lab area make-up air system have been removed and thus the area is subject to large negative pressures from fume hoods resulting in an uncontrolled infiltration of air. Similar the Laundry Make-up air system has been removed resulting large negative pressures from fume hoods and dryers resulting in uncontrolled infiltration of air. Recommend installing make-up air for the Lab and Laundry with connection to heat recovery systems for energy efficiently if possible.

Hospital Make-up Air Systems - Estimated construction cost: $ 100,000.

Long Term Care Ventilation

The LTC area is poorly ventilated with one of the two ventilation system (AHU-5) not operational. Both AHU-5 and AHU-6 are in poor condition past their service life. Even with both systems operational the design air flow rates do not meet current code requirements for health facility required ventilation rates. There are few supply and return air grilles and ductwork sizes are too small for increasing air flow rates. No cooling/air-conditioning is available to the LTC ventilation systems. Many areas suffer from lack of exhaust air systems and exhibit odor smells and high humidity. There is limited area for increasing ventilation rates without further exposing ductwork particularly on the first floor.

Recommend that both floors of the LTC facility ventilation systems should be renovated with entirely new variable volume ventilation systems, ductwork, heat recovery and cooling systems, and controls.
LTC Ventilation - Estimated construction cost: $ 220,000

Recommend that all exhaust air systems be replaced and additional be installed in the LTC facility. Incorporate as many exhaust systems as practical into heat recovery.
LTC Exhaust Air - Estimated construction cost: $ 60,000

Long Term Care Kitchen Ventilation and Exhaust Systems

The LTC kitchen hood exhaust system and dishwasher exhaust systems are old and antiquated. Make-up air for both systems is inadequate.

Recommend that both kitchen exhaust systems and hoods to be replaced. Recommend installing variable speed make-up air systems for both exhaust systems and controls.
LTC Ventilation - Estimated construction cost: $ 50,000

Medical Clinic Ventilation

The first floor medical clinic ventilation system is in good condition and has an estimate life left of 25-35 years with regular maintenance. The second floor ventilation systems are I poor condition and don't have much room for servicing. They have an estimated service life left of 5-10 years. The various exhaust fans are relatively new and have an estimated service life left of 15-25 years. Recommend a new ventilation system be installed in the first floor or in the attic to serve the second floor of the Medical Clinic.
Med Clinic Ventilation - Estimated construction cost: $85,000

Controls

Controls are old and antiquated including the direct digital systems. The existing electronic controls are in poor condition and need replacing. The direct digital controls are of an older version and are not being officially supported anymore. Recommend that the entire facility (Hospital, Long Term Care Facility, and Medical Clinic) get upgraded with modern direct digital controls.
Modern DDC Upgrade - Estimated construction cost: $300,000.

Plumbing

Hospital

Plumbing systems in Hospital are old and approaching their service life. Plumbing issues keep coming up and will only be increasing with age. Recommend when any renovation occurs that all domestic water piping be replaced in that project area. The plumbing piping is showing its age and experiencing leaks. Expect increasing problems and fixes required on the plumbing system. Estimate 10-15 years life left.

Recommend the oil-fired hot water tank and storage be renovated to electric heating of domestic water. Also recommend that new tempering valve and circulating pumps be installed with a re-working of the piping between the electric tank and its storage.

Hospital Plumbing Domestic Hot Water Generation Renovation - *Estimated construction cost: $ 35,000*

Recommend several areas of the Hospital for replacement of plumbing piping systems for immediate and near term refurbishment.

Hospital Plumbing Spot Refurbishment - *Estimated construction cost: $ 100,000*

Long Term Care Facility

Plumbing systems in Long Term Care Facility and in many locations are over 50 years old. Recommend that the entire plumbing system, domestic water and sanitary piping, be replaced including the kitchen. Plumbing issues will keep coming up with increasing problems and maintenance requirements. Plumbing fixtures are old and most do not meet ADA requirements.

Long Term Care Plumbing Piping Replacement - *Estimated construction cost: $ 150,000*

Long Term Care Plumbing Fixtures Replacement - *Estimated construction cost: $ 60,000*

Medical Clinic

Plumbing systems in Medical clinic are approaching 20 years old for the most part. They should have 15-25 years life left.

Medical Gases

Hospital Vacuum system is original and has an estimate of 5-10 years left. The medical air system is relatively new and has an estimated life of 15-20 years left. The piping should have a service life left of 15-20 years but recommend that a certified testing agency inspect and test the existing system.

Recommend replacement of the vacuum generation plant.

Medical Vacuum Compressor Replacement - Estimated construction cost: $ 25,000

Recommend Certified Med Gas Testing.

Med Gas Certification - Estimated construction cost: $ 4,500

Sprinkler

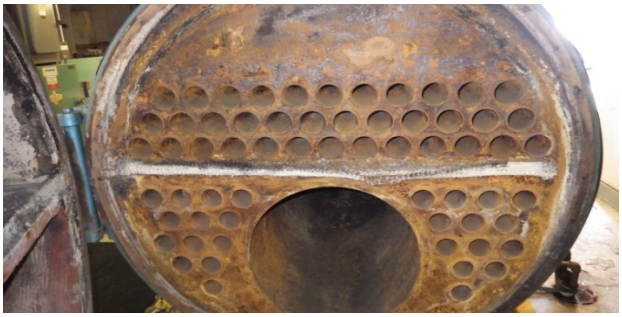
Sprinkler system is old but should have a service life left of 15-20 years. Recommend replacing sprinkler heads in entire Hospital and Long Term Care Facility.

Sprinkler Head Replacement - Estimated construction cost: $ 20,000

End of Mechanical Survey Report

Photos

1. HOSPITAL
   OIL FIRED BOILER



2. HOSPITAL
   OIL FIRED BOILER FIRE TUBES

3. HOSPITAL
   ELECTRIC BOILERS

4. HOSPITAL
   OIL PUMPS

5. HOSPITAL
   HEATING PUMPS

6. MEDICAL CLINIC
   HEATING PUMPS

7. HOSPITAL
CHILLER

8. HOSPITAL
CHILLER

9. HOSPITAL
CHILLED WATER PUMPS

10. HOSPITAL
CHILLER EXTERIOR CONDENSERS

11. HOSPITAL
OIL FIRED HOT WATER HEATER

12. HOSPITAL
DOMESTIC HOT WATER
RECIRCULATION PUMPS

13. LONG TERM CARE FACILITY
ELECTRIC HOT WATER TANKS

14. HOSPITAL KITCHEN
HOT WATER TANK

15. HOSPITAL FAN ROOM
INTAKE PLENUM WITH HEAT
RECOVERY COIL

16. HOSPITAL FAN ROOM
HEAT RECOVERY PIPING,
AHU BEYOND

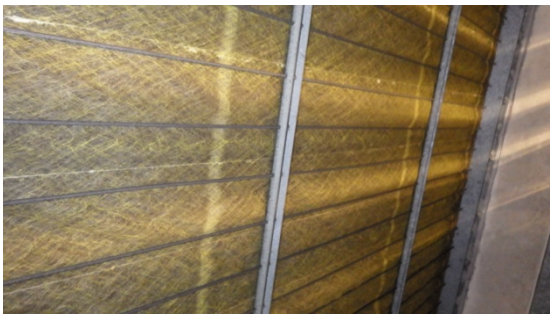
17. HOSPITAL FAN ROOM
HEAT RECOVERY PUMP

18. HOSPITAL FAN ROOM HEAT
RECOVERY HEAT EXCHANGER

19. HOSPITAL FAN ROOM AHU-4 AIR HANDLING UNIT

20. HOSPITAL FAN ROOM AHU-4 SUPPLY FAN

21. HOSPITAL FAN ROOM AIR HANDLING UNIT AHU-4HEATING COIL



22. HOSPITAL FAN ROOM OUTSIDE AIR INTAKE ROLL FILTER

23. LONG TERM CARE FACILITY ATTIC AHU-5

24. LONG TERM CARE FACILITY ATTIC AHU-5 INTAKE PLENUM

25. LONG TERM CARE FACILITY ATTIC AHU-6

26. LONG TERM CARE FACILITY ATTIC AHU-6 PIPING

27. LONG TERM CARE FACILITY ATTIC AHU-5 & 6 HEAT RECOVERY PUMP

28. LONG TERM CARE FACILITY ATTIC AHU-5 & 6 HEAT EXCHANGER

29. LONG TERM CARE FACILITY ATTIC KITCHEN GREASE EXHAUST DUCT

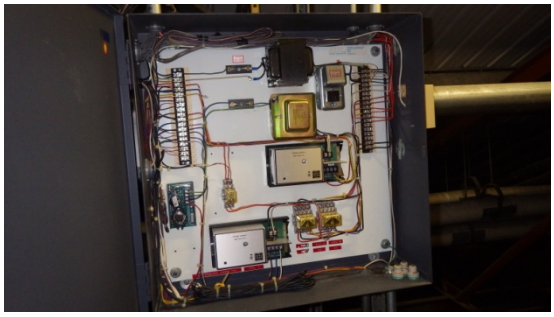
30. HOSPITAL LAB CT ROOM HEAT PUMP AIR-CONDITIONING RECIRCULATION FAN

31. HOSPITAL ATTIC TYPICAL EXHAUST FAN

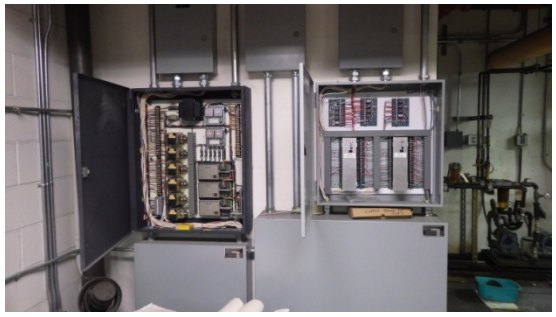
32. HOSPITAL ATTIC TYPICAL EXHAUST FAN

33. HOSPITAL ATTIC RETURN FAN RF-3

34. HOSPITAL ATTIC RETURN FAN RF-2



35. LONG TERM CARE FACILITY ATTIC ELECTRONIC CONTROL PANEL



36. HOSPITAL BOILER ROOM MIX OF ELECTRONIC AND DDC CONTROLS

37. KITCHEN TYPE 1 HOOD ON LEFT

38. KITCHEN DISHWASHING ROOM

39. HOSPITAL BOILER ROOM
VACUUM PUMP

40. HOSPITAL MEDICAL GAS ROOM
MEDICAL AIR COMPRESSOR

41. HOSPITAL MEDICAL GAS ROOM

42. HOSPITAL STERILIZER

43. HOSPITAL SATELLITE DRY SPRINKLER HEADER

44. HOSPITAL SATELLITE DRY SPRINKLER HEADER

45. HOSPITAL SPRINKLER HEADER

End of Mechanical Survey Photos

Electrical Systems

Description of Existing Systems:

Distribution Equipment

Electrical 105 is the main electrical room for the facility and houses most of the service distribution equipment. Service feeders from an exterior pad mounted transformer terminate at a Main Switchboard with a 2000 amp, 480 volt, 3-phase main bolted pressure switch. The Main Switchboard provides overcurrent protection for three sub-feeders (see photo 1). A 400 amp, 3-pole circuit breaker feeds the emergency distribution system through a transfer switch. The alternate source of power is a 250kW diesel generator located in Generator 104. The transfer switch feeds distribution, lighting, and appliance panelboards throughout the facility that serve equipment, life safety, and critical loads. A second 400 amp, 3-pole circuit breaker feeds Panelboard DH. Panelboard DH provides normal power to lighting and appliance panelboards throughout the facility (see photo 2). The third overcurrent protection device is a 1600 amp, 3-pole bolted pressure switch that feeds Distribution Panel M in Mechanical 107A. Distribution Panel M feeds the electric boiler and other ancillary mechanical loads in Mechanical 107A. All of the overcurrent protection devices are equipped with ground fault detection.

The clinic is fed by two feeders that originate at Panelboard M, located in the hospital, Mechanical 170A. A 225 amp, 480 volt, 3-phase feeder provides power to Panelboard CH1 that serves the mechanical equipment and controls. The second feeder has the same rating and feeds a 150kVA transformer. The secondary side of the transformer routes through a 400 amp, 120/208 volt, 3-phase automatic transfer switch. The alternate source of power is a packaged, exterior, 80kW diesel generator. The load side of the transfer switch feeds (5) 120/208 volt, 3-phase panelboards that serve convenience and equipment receptacles and lighting loads.

There is one large motor control center for the facility, located in the hospital, which provides power to the air handling units, pumps, and other miscellaneous equipment in Mechanical Rooms 170 and 170A (see photo 3). The limited equipment located outside of the mechanical rooms and in the clinic is equipped with independent combination starters.

Light Fixtures, Controls, and Branch Circuits

Interior lighting consists primarily of T12 fluorescent light fixtures in surface and recessed configurations (see photo 4). The light fixtures are controlled by line voltage switches. High pressure sodium downlights are recessed in exterior canopies. Site and parking lot illumination is provided by high pressure sodium pole mounted units (see photo 5). The exterior lighting controls consist of a photocell, hand-off-auto switch, time clock, and contactor, located in General Storage 128. Branch circuits are single conductors in conduit. The fluorescent and high-pressure sodium circuits are rated 277 volt. There are limited incandescent light fixtures, which are rated 120 volt. Egress lighting circuits are routed in separate conduits to emergency panels.

The clinic light fixtures predominately utilize T8 linear lamps in recessed and surface mounted configurations. The light fixtures are controlled by line voltage switches. Branch circuits are single conductors in conduit. The circuits are rated 120 volt. Emergency batteries integral to the light fixtures provide egress illumination and stand-by task illumination.

Devices and Branch Circuits

Receptacles are located throughout the facility for convenience, cleaning, and patient beds. Special devices and connections are provided for miscellaneous equipment. Branch circuits are single conductors in conduit. Emergency circuits are provided to the patient beds and critical equipment locations. Devices in the clinic are connected to stand-by power.

Fire Alarm System

The main fire alarm control panel is a microprocessor-based, addressable unit (see photo 6). It is located in General Storage 128 (see photo 6). The initiating and indicating devices are analog style, connected through zone modules for monitoring by the fire alarm control panel. A booster power supply provides power to indicating circuits. Initiating devices consist of smoke detectors in the corridors and patient rooms, heat detectors in the mechanical and utility spaces, and manual pull stations at exterior exits and exits from the second floor. Bells are utilized for occupant notification.

The clinic fire alarm circuits are connected to the main fire alarm control panel located in the hospital. The initiating and indicating devices are addressable. A booster power supply provides power to indicating circuits. Initiating devices consist of smoke detectors in the corridors and storage rooms, heat detectors in the conference room and utility spaces, and manual pull stations at exterior exits. Combination horn/strobe units are utilized for occupant notification.

Telephone and Network Systems

The outside plant telephone and optical fiber cables terminate at a communications backboard in General Storage 128. The communications backboard contains service entrance terminations, 110-blocks, a telephone switch, and intercom equipment and terminations (see photo 7). A secondary communications backboard is located in Storage Room 242. Most of the network equipment is located in Files 142 (see photo 8). Small network racks are located in Storage Room 242 and Histo 331. The telephone system wiring is Category 3 vintage, or older. The network cables are mostly Category 5. Many of the cables are routed unsupported in the accessible ceilings.

The clinic communications backboard is located in Mechanical/Electrical 108. A backbone cable is routed from the clinic to the hospital for telephone service. A data rack is located in Electrical 213 that supports patch panels, network switches, and an uninterruptible power supply. Cables for both the telephone and network are Category 6 and routed in conduit or supported with J-hooks in accessible ceilings.

Television System

The television terminal cabinet is located in Storage Room 242. Outlets are provided in each of the patient rooms. The system is configured with (3) trunk cables daisy-chained from outlet to outlet. The clinic does not have any television outlets.

Intercom System

The intercom system amplifier is located on the communication backboard in General Storage 128 (see photo 9). The system is connected to corridor speakers and the telephone system speakers. Pages are accomplished with telephone handsets.

The clinic has a stand-alone intercom system that is supported from the telephone and network rack in Electrical 213. Flush, ceiling mounted speakers are located in the corridors and common spaces. Pages are accomplished with telephone handsets.

Camera Surveillance System

The camera surveillance system is very limited. There is an exterior camera, and a couple interior cameras that store images on a digital video recorder. The clinic does not have any cameras.

Nurse Call

The nurse call system head-end equipment and terminal cabinet are located in Storage Room 242. The system covers the patient rooms and the surgery area. The system consists of a central control unit, desk-mounted master station, bedside and toilet stations, dome lights, and code blue buttons. The clinic does not have a nurse call system.

Access Control

The facility has a few sensitive areas that are secured with electronic door locks. Access is gained with the use of proximity sensor key cards. The keypads are believed to be stand-alone, single-entry. We did not locate a master control panel during our survey. The clinic does not have an access control system.

The Long Term Care Wing has a Wander Guard departure alert system in use. The system monitors the corridor and exit stairs. The system controls are located in Storage Room 242.

Master Clock

The facility does not have a master clock system. Battery operated clocks have been installed in various locations.

Condition Assessment

Distribution Equipment

Four panelboards remain in the long term care wing from the existing 1960's construction. Most of the other distribution equipment was installed with the 1983 renovation and addition. There have been a few pieces of equipment installed in the last 10-years to serve minor renovations. Several code deficiencies were identified. The most significant is that the essential electrical system does not have separate transfer switches for equipment, life safety, and critical branches. The distribution equipment

installed with the 1983 renovation and 1960 original construction is nearing or has surpassed its service life.

Panelboards CL1 and CL2, and Transformer CL1 in the clinic were installed in 1994 with the original medical center construction and were placed back in service with the 2010 renovation. They have approximately 10-years of remaining service life. All of the other equipment in the clinic was installed in 2010 and has approximately 25-years of remaining service life.

Recommendation: Demolish the Hospital and Long Term Care Wing power distribution system. Provide a new system that includes service entrance equipment, emergency generator, transfer switches, distribution boards, panelboards, and associated feeders.
Cost: $766,000

Light Fixtures, Controls, and Branch Circuits
Most of the light fixtures are from the original 1960's construction and the 1983 renovation and addition, except for the areas where minor renovations have occurred. The light fixtures are inefficient and use obsolete lamps and ballasts. Maintenance of the existing light fixtures will become increasingly difficult as the lamps and ballasts become more difficult to obtain. The facility does not have a lighting control system or any automatic control devices to promote energy efficiency. Lighting quality is not adequate in much of the facility. The lighting system has surpassed its service life.

The clinic lighting system is in good condition with approximately 25-years of remaining service life.

Recommendation: Demolish the Hospital and Long Term Care Wing lighting systems. Provide new systems that comply with current energy efficiency standards and illumination recommendations.
Cost: $429,000

Devices and Branch Circuits
The devices and branch circuits are from the original construction and the 1983 renovation and addition, except for the areas where minor renovations have occurred. There is a general lack of devices throughout the facility and at most patient beds. The devices have surpassed their expected service life. The equipment, life safety, and critical branch circuits are not terminated at independent panelboards or installed separate raceways as required by current code.

The clinic devices and branch circuits are in good condition with approximately 25-years of remaining service life.

Recommendation: Demolish the Hospital and Long Term Care Wing devices and branch circuits. Provide sufficient quantity of receptacles for convenience, equipment, and patient beds. Provide separate branch circuits for equipment, life safety, and critical devices.
Cost: $323,000

Fire Alarm System

The fire alarm control panel was replaced with the 2010 clinic renovation. The initiating and indicating devices, and wiring, remain from the 1983 renovation and addition. The fire alarm system does not comply with the American's with Disabilities Act for device mounting heights or occupant notification. The initiating and indicating devices have surpassed their service life. The wiring system is nearing the end of service life.

The clinic fire alarm system is in good condition with approximately 15-years of remaining service life.

Recommendation: Demolish the initiating and indicated devices and associated circuits in the Hospital and Long Term Care Wing. Provide new addressable fire alarm devices connected to the existing control panel. Maintain addressable connections to the clinic.
Cost: $148,000

Telephone and Network Systems

The telephone system was installed in 1983. The telephone system utilizes an obsolete analog switch. The system cannot be upgraded to current technology because the cabling system will not support a digital telephone system. The network system was retrofitted into the building over the last 15-years as digital technologies evolved. The network and equipment racks are installed in spaces that were not intended for communications equipment. These systems do not have adequate space, raceways, supports, wire management, or cooling. The telephone system has surpassed its service life. The network system is incapable of supporting emerging technologies.

The clinic telephone handsets would be upgraded to digital technology with improvements to the hospital telephone system. The cables in the clinic are in good condition with approximately 15-years of remaining service life.

Recommendation: Demolish the Hospital and Long Term Care Wing telephone and network systems. Provide new systems that support the transition to current technologies. Provide new telecommunications spaces, racks, raceway systems, and cabling.
Cost: $211,000

Television System

The television system was installed in 1983. The daisy-chain topography and cabling system does not support the use of modern programming equipment or the ability to stream digital content.

Recommendation: Demolish television system cabling and outlets. Provide new cables from the communications room to each outlet location. Provide central television distribution equipment.
Cost: $42,000

Intercom System

The intercom system was installed in 1983. System coverage is limited to corridors. The system does not have the ability to interface with other systems during codes or other emergency situations. The system is antiquated.

The clinic intercom system is not connected to the hospital. It would be beneficial to provide a trunk between the hospital and clinic for emergency communications. The clinic intercom system and wiring are in good condition with approximately 15-years of remaining service life.

Recommendation: Demolish the intercom system in the Hospital and Long Term Care Wing. Provide new rack mounted equipment integrated with the telephone, nurse call, and access control systems. Provide a trunk cable between the Hospital and Clinic.
Cost: $153,000

Camera Surveillance System
The camera surveillance system was likely installed in the last 10-years. The system only has a few cameras monitoring a limited amount of the facility. The system is inadequate and should be expanded to include the entire facility.

Recommendation: Demolish the limited camera surveillance system. Provide a facility wide camera surveillance system that monitors building entries, corridors, and common areas.
Cost: $50,000

Nurse Call
The nurse call system was replaced in 2005. According to the maintenance supervisor, the system is obsolete and has been difficult to maintain. It was also mentioned that there is a desire to extend the nurse call system to the clinic so that all available personnel can respond to codes.

Recommendation: Demolish the obsolete nurse call system. Provide a new system for the Hospital and Long Term Care Wing. Expand the system to the Clinic.
Cost: $149,000

Access Control
The access control keypads were likely installed in the last 15-years. The keypads appear to provide door locking function, only. The doors do not appear to be monitored for status, or report to a master controller. The system is inadequate. Provide appropriate access control system for the hospital and long term care wing.

Recommendation: Provide an appropriate access control system for the Hospital and Long Term Care Wing to monitor the facility. Provide electronic locks with proximity sensor keypads at all exterior doors and select interior doors where required. Provide door contacts to monitor door status. Provide new Wander Guard system for the Long Term Care Wing.
Cost: $73,000

Master Clock System
A master clock system is required for the Hospital and Long Term Care Wing.

Recommendation: Provide a new master clock system with wireless synchronization for the Hospital and Long Term Care Wing. The system may include analog or digital clocks.
Cost: $21,000
End of Electrical Survey Report

Photo 1: Main Switchboard

Photo 2: Motor Control Center

Photo 3: Typical Distribution Equipment

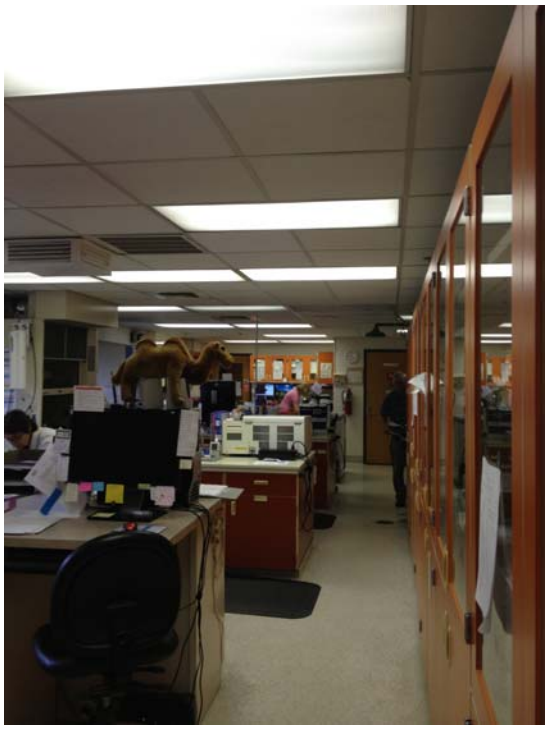


Photo 4: Typical Recessed Troffers

Photo 5: Exterior Light Pole Standard

Photo 6: Fire Alarm Control Panel and Accessories

Photo 7: Telephone Switch and System Interconnections

Photo 8: Data Network Equipment

Photo 9: Intercom System Amplifier

End of Electrical Survey Photos

PETERSBURG MEDICAL CENTER

Facility Condition Survey 2015

Jensen Yorba Lott

COMPONENT	year installed	Replacement Cost (todays $)	Total Replacement Cost with O&P/conting
STRUCTURAL			
Foundation LTC	1960	$0	$0
Foundation Hospital	1984	$0	$0
Foundation Clinic	1990	$0	$0
Super structure LTC	1960	$0	$0
Super structure Hospital	1984	$0	$0
Super structure Clinic	1990	$0	$0
Structural Analysis		$30,000	$43,500
SUB TOTAL STRUCTURAL		$30,000	$43,500
ARCHITECTURAL			
Roof LTC & Hospital -soffit vent	2014	$10,000	$14,500
Roof Clinic	1990	$0	$0
Exterior Walls LTC & Hospital	1984	$330,000	$478,500
Exterior Walls Clinic	1990	$41,000	$59,450
Thermal enclosure LTC	1984	$19,000	$27,550
Exterior Windows LTC & Hospital	1984	$63,000	$91,350
Exterior Windows Clinic	1990	$26,000	$37,700
Exterior Doors LTC & Hospital	1984	$14,000	$20,300
Exterior Doors Clinic	2010	$0	$0
Partitions LTC & Hospital	1984	$0	$0
Partitions Clinic	2010	$0	$0
Flooring LTC & Hospital	1984	$340,000	$493,000
Flooring clinic	2010	$0	$0
Wall finishes LTC & Hospital	1984	$175,000	$253,750
Wall finishes Clinic	2010	$0	$0
Ceiling Finishes LTC & Hospital	1984	$18,000	$26,100
Ceiling Finishes Clinic	2010	$0	$0
Doors /Relites LTC & Hospital	1984	$30,000	$43,500
Doors /Relites Clinic	2010	$0	$0
Cabinets/Counters LTC & Hosp.	1984	$180,000	$261,000
Cabinets/Counters Clinic	2010	$0	$0
Accessories/Specialties	1984	$80,000	$116,000
Accessories/Specialties Clinic	2010	$0	$0
Medical Accessories	1984	$40,000	$58,000
Psych secure room modifications	1984	$28,000	$40,600
Elevator - LTC	1960	$100,000	$145,000
Elevator- Hospital	1984	$100,000	$145,000
Elevator - Clinic	2010	$0	$0
Kitchen Equipment & renovation	1984	$450,000	$652,500
Functional Improvement	100/sf	$4,500,000	$6,525,000
ADA modifications		$450,000	$652,500
SUBTOTAL ARCHITECTURAL		ROUNDED $6,994,000	$10,141,000

PETERSBURG MEDICAL CENTER

Facility Condition Survey 2015

Jensen Yorba Lott

COMPONENT	year installed	Base Replacement Cost	Total Replacement Cost with O&P/conting
MECHANICAL			
Heating Plant Fuel Boiler	1984	$0	$0
Heating Plant Elec Boiler	2015	$0	$0
Heating Piping	1984	$0	$0
Heating Water Circulation	1984	$80,000	$116,000
Air Conditioning	1984	$170,000	$246,500
Air Conditioning - ductless	2004?	$40,000	$58,000
Ventilation - Hospital	1984	$575,000	$833,750
Exhaust - Hospital	1984	$135,000	$195,750
Make up air - Hospital	1984	$100,000	$145,000
Ventilation - LTC	1984	$220,000	$319,000
Exhaust - LTC	1984	$60,000	$87,000
Kitchen ventilation/exhaust	1984	$50,000	$72,500
Ventilation Clinic 1st floor	2010	$0	$0
Ventilation Clinic 2nd floor	1990	$85,000	$123,250
Controls	1984	$300,000	$435,000
Plumbing Hospital	1984	$135,000	$195,750
Plumbing LTC	1960	$210,000	$304,500
Plumbing Clinic	1990	$0	$0
Medical Gases		$30,000	$43,500
Sprinklers	1984	$20,000	$29,000
Associated cut & patch work		$221,000	$320,450
Subtotal Mechanical		$2,431,000	$3,524,950
ELECTRICAL			
Distribution Equipment LTC	1960	$766,000	$1,110,700
Distribution Equipment Hospital	1984		
Distribution Equipment Clinic	1990		
Lights, controls, circuits LTC	1960	$429,000	$622,050
Lights, controls, circuits Hospital	1984		
Lights, controls, circuits Clinic	2010	$0	$0
Devices & Circuits LTC & Hospital	1984	$323,000	$468,350
Devices & Circuits Clinic	2010	$0	$0
Fire Alarm Panel & Clinic	2010	$0	$0
Fire Alarm Devices	1984	$148,000	$214,600
Telephone & Net Work Hosp LTC	1984	$211,000	$305,950
Telephone & Net Work Clinic	1990	$0	$0
TV	1984	$42,000	$60,900
Intercom	1984	$153,000	$221,850
Camera Surveillence	2005	$50,000	$72,500
Nurse Call	2005	$150,000	$217,500
Access control	2000	$73,000	$105,850
Master Clock System		$21,000	$30,450
Associated cut & patch work		$236,600	$343,070
Subtotal Electrical		$2,602,600	$3,773,770
TOTAL			
Total Cost Summary			
Structural		$30,000	$43,500
Architectural		$6,994,000	$10,141,000
Mechanical		$2,431,000	$3,524,950
Electrical		$2,602,600	$3,773,770
TOTAL	Rounded	$12,057,600	$17,483,000
Estimated Hospital LTC and Clinic replacement (building construction only)	52000 gsf $650/sf		$33,000,000