

OEST Associates, Inc.

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October 16, 2008

Kevin Whitney, Project Manager
Casaccio Architects
1950 Lawrence Road
Havertown, Pennsylvania 19083

SUBJECT: Review of Building
Thomas Memorial Library
Cape Elizabeth, Maine

Dear Kevin:

OEST Associates, Inc (OEST) visited the Library on October 7, 2008 at your request. The purpose of the site visit was provide an initial review of the structural, mechanical, electrical and alarm systems in order to determine the condition and suitability of the existing library structures to support the requirements of the Town's library needs.

OEST employees participating in the review were Jeff Walker (structural), Roger Pience (electrical) and Joel Stilphen (mechanical). The following are summaries of each discipline reviewed.

STRUCTURAL

Description:

The Pond Cove Annex is the primary space for the Thomas Memorial library and houses most of the stacks and office space. It's a one story structure with a fully occupied basement, and was constructed with cast in place concrete foundations with rough sawn wood framed floors, walls, and roof. Steel beams and columns were added in the basement to support the additional weight of the books on the first floor. Even with these additional supports, the floor is bouncy and transmits vibrations into the metal stacks.

The Spurwink School and Annex houses the children's section, offices, and meeting space. Like the Pond Cove Annex, it is a one story structure with an occupied basement, and was built with concrete foundations and rough sawn wood framing. There is a noticeable musty smell in the basement of the Annex section, and there is visible water damage to the walls around the windows on the upper floor. It is also our understanding that the capacity of the 1st floor framing limits the spacing and height of the stacks.

The Connector is the main entrance as well as the corridor between the two wings of the library. It's a one story structure with no basement, and is constructed of a concrete slab on grade and conventional wood framing. This section of the facility appears to be in acceptable condition.

Summary:

The wood framing of the older sections of the library have been in service beyond the normal design life for a building, and are being used to support loads larger than originally intended for this type of construction. Wood framed floors are not ideal for the requirements for modern libraries, both in terms of

strength and vibrations. The low headroom in both basements limits the ability to reinforce or replace these floors to ensure necessary performance in the future. The presence of moisture in the basements is an issue for library operations, and will be difficult to adequately address. Finally the water damage to the walls and floor of the Spurwink School Annex need to be addressed soon. Water has obviously been infiltrating the building envelope for some time. Therefore it's possible that significant structural damage has occurred, as well as the possibility of mold growth in the wall cavity.

MECHANICAL

Description:

The library buildings are heated by no. 1 and 2 oil fired hot water systems utilizing a combination of cast iron radiators, wall hung fin tube radiation and cabinet unit heaters. Systems are well over 20 years old and have limited temperature controllability. Ventilation is limited to toilet exhaust fans and operable windows. Mechanical cooling is provided by through wall air conditioning units located around the buildings. The Historical Storage room has a dedicated mini-split cooling system and a separate humidifier.

Summary:

The existing systems are at the end of their useful life and not capable of providing the ventilation and operating efficiencies required by current ASHRAE (American Society of Heating, Refrigerating and Air-Conditioning Engineers) standards. ASHRAE also makes recommendations regarding the air filtration, temperature and humidity control requirements for public library facilities. The physical layout and construction of the existing structure would make it very difficult if not impossible to provide replacement systems that would meet these standards.

The plumbing facilities are over 20 years old and while functional do not meet current standards for water usage and efficiency. The limited numbers of plumbing fixtures is inadequate for public gatherings and are not conveniently located.

ELECTRICAL

Description:

The electrical system feeding the buildings begins with a ground-mounted 100 KVA transformer supplied by CMP. The transformer primary from CMP is 7,200 volts, single phase and the secondary is 120V/240V single phase. The kWh meter is mounted on the west side of the Pond Cove Annex building and feeds a raceway located in the Records and Preservation area of the lower level. There are four (4) disconnect switches connected to the raceway: Two (2) 200A, 240V single phase Federal Pacific Electric (FPE); One (1) Square-D 100A, 240V, 2-pole, single phase breaker; and, One (1) FPE 30A, 240V, 2-pole switch, painted red for the fire alarm panels.

The two FPE 200A disconnect switches each feed a FPE 225A, 120/240V, single phase 42-breaker, main-lugs-only panel. Disconnect switches P-1 and L-1 each feed load panels P-1 and L-1 respectively in the utility area. The 100A, 2-pole Square-D breaker is labeled "Old Library" and feeds a load panel in the Spurwink School Annex, lower level closet.

Summary:

The electrical system, while marginally adequate for current use, is nearing or at capacity. No further expansion could be expected without major rework and rebuilding. Three-phase power is available on

adjacent street easements and could be extended underground to the present location for expansion. It appears that most of the wiring is non-metallic sheathed cable and needs to be brought-up to current National Electrical Code.

However, the present main disconnect switches and load (breaker) distribution panels were manufactured by the Federal Pacific Electric company in the 1970's and early 1980's and are a known and documented fire and electrical hazards. The Consumer Product Safety Commission (CPSP) and other independent research laboratories confirm that over 60% of the FPE products are defective. While FPE products may have performed over the years and are operational at this time, there is a high probability of failure if called upon to perform the requisite task of tripping under excessive load. FPE circuit breakers, panels and panel busses are known hazards. Most insurance companies will not insure buildings with FPE products installed.

Without regard to future library upgrades or usage these FPE electrical disconnect switches and circuit breaker panels must be replaced as soon as possible for safety.

FIRE ALARM

Description:

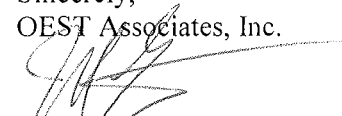
The fire alarm system is a compilation of three systems added as the library expanded. The original analog system consisted of four zones using rate of rise heat and smoke detectors. The newest system is an addressable digital system integrating the first two in order to provide a workable entity.

Summary:

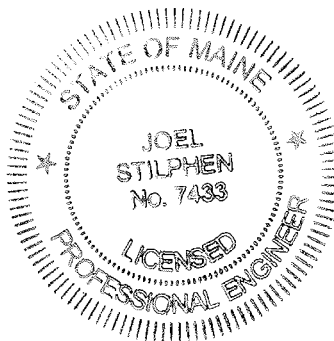
The entire system should be replaced with a new totally digital-addressable system in order to bring it up to code and ADA compliance.

Please contact us if you have any questions regarding this review.

Sincerely,
OEST Associates, Inc.



Joel Stilphen, P.E.
Project Manager



JS:tjp

Enclosures

cc: Steve Harding, OEST Associates, Inc.
Sue Colby, OEST Associates, Inc.
Harvey Oest, OEST Associates, Inc.