

The Peterborough Town Library Master Plan Study

Peterborough, New Hampshire



Prepared by:

- ◆ Tennant/Wallace Architects AIA PA
- ◆ Tirey & Associates, P.C.
- ◆ WV Engineering Associates PA
- ◆ American Construction, Inc

June 22, 2004



The Peterborough Town Library
Master Plan Study

1. Engineering survey of the Library was made in 2003, the finished report published in June 2004.
2. Four major areas surveyed:
 - a. Structural
 - b. Mechanical/Electrical
 - c. Building Code analysis
 - d. A.D.A. (Am. Disabilities Act) analysis
3. Most of the Code and Safety deficiencies noted in the Report have since been corrected and updated. Other noted deficiencies such as the Portico and Heating plant have also been addressed.

- a. Other conclusions:

The Library, as it stands, is too small for present use largely because much of the floor space is dedicated to non-library use and mechanical/storage areas are larger than in a new facility.

Vertical expansion (to add room) "very difficult and expensive".

Upgrading disability access for Historical Room more costly (separate elevator/improved stairs) than building a new space on main level.

Library useable space could be duplicated with a 10,000sf new building.

Attached are copies of pages 18 and 19 concerning 'ideal' Library space based on population and those areas presently in need of expansion. Thrown into this mix is the trend toward the "Green Building" concept.

Although the space program prepared for this report indicates that a library of 13,736 square feet is adequate for a town the size of Peterborough for the next 25 years, and the present facility has approximately 16,500 square feet of space, the existing building is, in fact, too small for its present use because of the following:

- A large portion of the building is dedicated to non library use.
- The mechanical/storage areas in the lower level are much larger than would be built in a new stand alone facility. (This is necessary in the present library due to the configuration of the spaces and their size, location, and height limitations.)
- In order to make the "Historical Room Level" accessible to those with disabilities and provide proper egress, it would be necessary to spend more in remedial measures (separate elevator and improved stairs) than it would cost to build a new space of the same size on the Main Level.

The "library usable" area of the present Peterborough Town Library could be duplicated in a new, one story facility, of approximately 10,000 square feet. This means that the present facility is approximately 27% smaller than is required.

In particular, the following areas are in need of expansion:

- The present Collection Space should be 13% larger than it presently is.
- The present User Seating Space should be 51% larger than it presently is.
- The present Staff Work Space should be 24% larger than it presently is.
- The present overall Meeting Space (including a conference room which does not presently exist) should be 17% larger than it presently is.
- The present Children's Program Space should be 31% larger than it presently is.

PROGRAM STUDY

A conceptual program study roughly based on the "Wisconsin Formula" has been prepared as follows.

This information is meant to be used as an approximate guideline and not as a "final" space program for the Peterborough Town Library. The space program presented assumes a facility that will serve the town for the next twenty years, which is standard library planning.

| | | | |
|---------------------------------------|------------------------------------|---------------|----------|
| STEP 1 DESIGN POPULATION | | | |
| A | CURRENT LOCAL POPULATION 2002 EST. | 5988 people | |
| B | PROJECTED LOCAL POPULATION 2025 | 7500 people | |
| C | PROJECTED NONRESIDENT POPULATION | 0 people | |
| D | DESIGN POPULATION (B+C) | 7500 people | |
| STEP 2 COLLECTION SPACE | | | |
| A | BOOKS ((POP X 6) | 45000 volumes | 4500 SF |
| B | RECORDINGS (133/1000) | 998 volumes | 100 SF |
| C | PERIODICAL DISPLAY (16/1000) | 120 volumes | 80 SF |
| D | PERIODICAL STORAGE (.75 OF C) | | 60 SF |
| E | TOTAL | 46118 volumes | 4740 SF |
| STEP 3 USER SEATING SPACE | | | |
| A | SEATS ((POP/1000) *10) * 30SF/SEAT | 75 seats | 2250 SF |
| STEP 4 STAFF WORK SPACE | | | |
| A | STATIONS (STATIONS X 150SF) | 8 stations | 1200 SF |
| STEP 5 MEETING ROOM SPACE | | | |
| A | GENERAL MEETING SPACE | 100 seats | 1000 SF |
| B | CONFERENCE ROOM SPACE (SEATS) | 16 seats | 400 SF |
| C | CHILDREN'S PROG. SPACE (SEATS) | 40 seats | 400 SF |
| D | TOTAL (A+B+C) | | 1800 SF |
| STEP 6 SPECIAL USE SPACE | | | |
| A | COLLECTION SPACE | | 4740 SF |
| | USER SEATING SPACE | | 2250 SF |
| | STAFF WORK SPACE | | 1200 SF |
| | MEETING ROOM TOTAL | | 1800 SF |
| B | SUBTOTAL 1 | | 9990 SF |
| C | MULTIPLY 1 BY 0.1 | | 999 SF |
| STEP 7 NONASSIGNABLE SPACE | | | |
| A | SUBTOTAL 1 (6B) | | 9990 SF |
| B | SPECIAL USE SPACE (6C) | | 999 SF |
| C | SUBTOTAL 2 (A+B) | | 10989 SF |
| D | MULTIPLY SUBTOTAL 2 BY 0.25 | | 2747 SF |
| STEP 8 PUTTING IT ALL TOGETHER | | | |
| A | COLLECTION SPACE (FROM 2.E) | | 4740 SF |
| B | USER SEATING SPACE (FROM 3.A) | | 2250 SF |
| C | STAFF WORK SPACE (FROM 4.A) | | 1200 SF |
| D | MEETING ROOM SPACE (FROM 5.D) | | 1800 SF |
| E | SPECIAL USE SPACE (FROM 6.C) | | 999 SF |
| F | NON ASSIGNABLE SPACE (FROM 7.D) | | 2747 SF |
| G | GROSS AREA NEEDED (A+B+C+D+E+F) | | 13736 SF |

Meeting of the Peterborough Town Library Trustees
Thursday, April 17, 2008
DRAFT

A meeting of the trustees of the Peterborough Town Library was held on the above date beginning at 5:30 PM at the library.

Present were Trustees Martie Majoros, Ron McIntire and Audrey White; Michael Price, Director; Architect Peter Tennant; and Friends board chair Al Johnson. The meeting was called to order at 5:30 PM by Mr. McIntire.

Minutes. The minutes of the meeting of March 20, 2008, were approved as circulated.

Report of the Treasurer. The checking account balance is \$3,382.84. The following bills were approved for payment: Aesop's Tables for catering the anniversary tea, \$500; Michael Price, reimbursement for conference lodging, \$117.72; and Martie Majoros for expenses relating to the 175th anniversary, \$136.89.

Report of the Director.

- Michael and Linda attended a seminar recently on fraud prevention; he will report further next month;
- the reference librarian had requested two computers during budget season; two used ones will be delivered;
- in checking the oil bill from Irving, Michael discovered they are and possibly have been over-charging the library and possibly the town; the bill for the library was \$400 too high; Finance is looking into it;

Ron McIntire will write a thank-you note to the Friends for the luncheon on April 9, which was a big success; he also read a thank-you note from Annagreta Swanson regarding the day's festivities. Audrey will write a letter to the editor thanking the town and others for their participation in the April 9 festivities.

Walkway. The walkway is now open.

Signatures. Martie will do what she can in advance of the election of two trustees.

New Credit Card Policy. This is problematic, and Martie and Ronnie will meet with Pam as Michael feels the policy is against the law as it pertains to public libraries.

Revising trustee timetable to sync with new fiscal year. Tabled until the new trustees are on board.

Audit Preparation. Everything will be organized and sent to the Town; Michael will find out the due date.

Spending Freeze. There is no discretionary spending at the moment because of the severe winter and oil prices. However, books that were ordered before the freeze are being delivered and must be paid for.

Purchasing Policy. All office supplies will now be ordered through W. B. Mason.

PLA Conference. The conference was very good, and Michael came back with lots of free materials. He attended seminars on marketing, community surveys, how internet usage has affected public libraries (people seem to be using libraries more), and "green" building.

Report of the Architect. Peter expressed his disappointment at the most recent BAG meeting; it was not a positive experience—he was hoping people would be excited at seeing preliminary drawings, but not all were and some were quite outspoken. A lengthy discussion followed about how to proceed and what to present at Town Meeting on May 14. The trustees will get together on April 28 to discuss this.

The meeting adjourned at 7:30 in order to enter into **Executive Session**.

Under a motion made/seconded by Majoros/McIntire, the board voted to move into a non-public session held under RSA 91-A:3, II(a) to discuss a personnel issue.

Roll Call Vote

| | |
|------------------|-----|
| Trustee McIntire | Yes |
| Trustee Majoros | Yes |
| Trustee White | Yes |

Upon a motion made/seconded by Majoros/McIntire, the board voted to seal the minutes of the non-public session held under RSA 91-A:3, II (1).

Roll Call Vote

| | |
|------------------|-----|
| Trustee McIntire | Yes |
| Trustee Majoros | Yes |
| Trustee White | Yes |

Upon a motion made/seconded by Majoros/McIntire, the board voted to close the non-public session held under RSA 91-A:3, II (a).

Roll Call Vote

| | |
|------------------|-----|
| Trustee McIntire | Yes |
| Trustee Majoros | Yes |
| Trustee White | Yes |

The meeting was adjourned at 8:00 PM.

Respectfully submitted,

Audrey M. White
Secretary

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OVERVIEW

The "Master Plan Study" contained herein in connection with the Peterborough Town Library has been prepared by Tennant/Wallace Architects AIA PA. Working in conjunction with Tennant/Wallace Architects AIA PA are the consulting firms of Tiry & Associates, P.C., Consulting Structural Engineers, WV Engineering Associates, PA (Mechanical and Electrical Engineers), and American Construction Inc., (General Contractor/Construction Managers). This study addresses the existing facility and potential maintenance issues, future growth of the library, staff opinions and thoughts regarding the library, as well as photographs of the existing facility.

THE EXISTING FACILITY

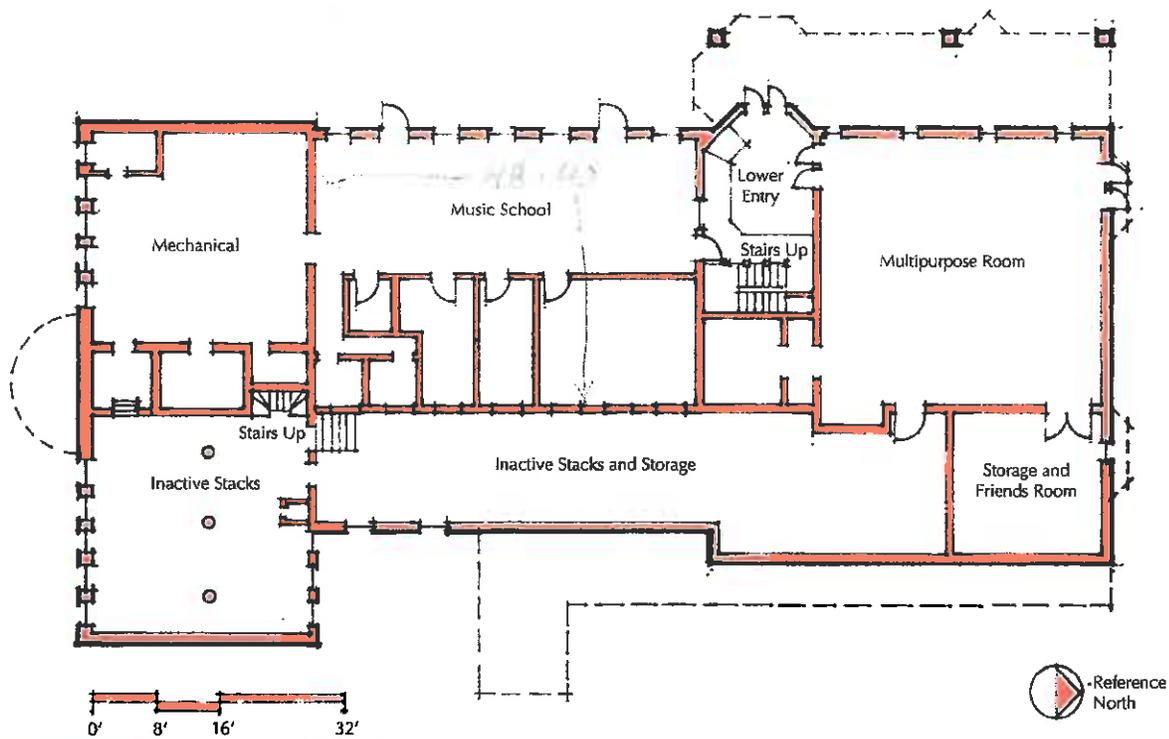
The existing Peterborough Town Library is a two story building with a partial third level and additional unoccupied attic space. A square footage breakdown of the library is as follows:

| | | | | |
|-----------------------|---|---------------|-------------------|----------------------|
| Lower Level | = | approximately | 7,443 square feet | } totals = 16,500 |
| Main Level | = | approximately | 8,180 square feet | |
| Historical Room Level | = | approximately | 877 square feet | |

There are three major components to the facility consisting of the "original" library constructed in 1892, an addition constructed in 1956 and an addition constructed in 1978.

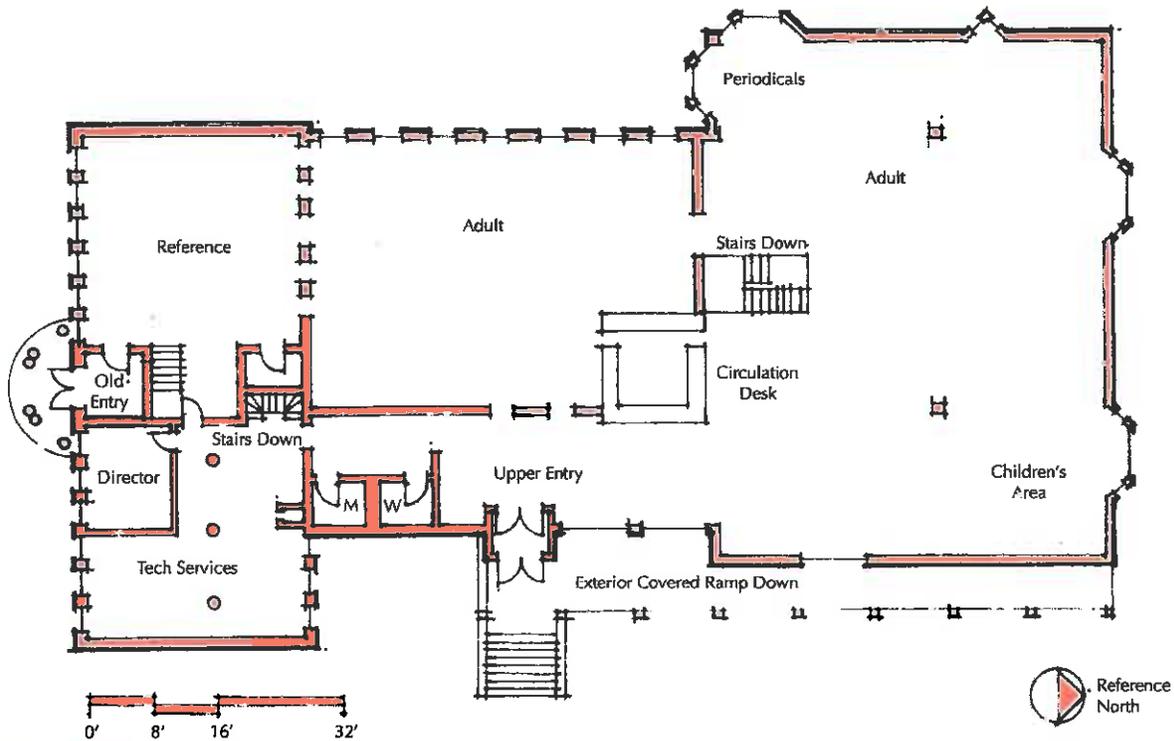
*MONAD MUSIC 1920
(11.6%)*

The plans that follow indicate the general layout of the Main and Lower Levels.



PETERBOROUGH TOWN LIBRARY
CONCEPT STUDY

EXISTING LOWER LEVEL
JANUARY 2004



PETERBOROUGH TOWN LIBRARY
CONCEPT STUDY

EXISTING UPPER LEVEL
JANUARY 2004

STRUCTURAL REPORT

At your request, I visited the existing Peterborough Library on Sept. 25, 2003, to examine and evaluate its general structural condition relative to proposed planning for future modifications and capital expense planning. You and I looked at the building together, being joined later by Ed Betz, P.E., public works director for the Town.

There are several areas and issues that you have requested us to examine and evaluate. These include: the feasibility of vertical expansion; can current non-stack areas become stack areas; verification of existing footing presence and size; the need for performing soil borings; visible defects in the building structure.

The building is comprised of an original building and two additions. The original building was constructed around 1892. The first addition was designed and constructed around 1956 while the second addition was designed and constructed around 1978.

Existing Foundations

The interest in verifying the presence and size of existing footings is derived from the discovery of mis-construction of portions of the wood roof framing of the 1978 addition. A review of the existing building drawings indicates exterior wall footings of varied sizes. The footings in the area of the main floor concrete waffle slab are 3'-0" wide while other areas have narrower footings. Based on the weight of the structure and the live load currently in place (stacks), the building structure would be showing significant signs of distress if the footings were not present or were constructed smaller than specified. One would expect to see extensive cracking and differential settlements in the building if the foundations were mis-constructed. The condition of the building is generally very good with no cracking or differential settlement visible in the 1978 addition. The joint between the 1956 and 1978 addition does not show signs of movement. The lack of distress indicates that the building foundation structure was constructed as specified on the drawings. This leads me to the opinion that an investigation of the existing foundations for verification of their presence and size is not necessary.

The need to perform soil borings should be contingent on construction of any new additions to the building. Soil borings for purposes of evaluating the general performance of the existing foundation systems does not appear to be necessary given the lack of structural distress signs. Soil borings would be useful solely for purposes of evaluating if the design soil bearing pressures that can be utilized at the site could be increased in an effort to accommodate a vertical expansion. Any potential increase in the soil bearing pressure that can be used for design does not indicate that vertical expansion is possible because there are other components of the structure which may limit that option.

Floor Use for Stacks

At the 1978 addition, the main portion of that framed floor structure was designed for 150 psf of live load per Dudley, Walsh & Moyer drawing S-2. However, there is an area 15'-0

x 49'-10" at the main entry and restroom area where the floor live load capacity is only 100 psf. This approximately 750 square foot area is not suitable for stack usage. If it is desired to place stacks in this area at a future date, then the floor structure would need to be changed to accommodate the higher live load demand. The floor is constructed of precast concrete plank with topping supported on steel floor beams. While the capacity of the steel could be increased with the addition of structure to its bottom flanges, the precast concrete plank can not have its capacity increased. The addition of new beams between the existing beams to reduce the span of the precast plank is not a recommended method to increase the capacity. Adding beams will change the plank from single, simple spans to two span continuous members with negative bending moment over the new added beam. This will cause the plank to crack at the new beam since it does not have reinforcing in the top of the plank where the tension forces will occur. Therefore, it would be more prudent to remove and replace the existing floor system in this area with one which has the required live load capacity.

The drawings for the 1956 addition to the original building do not provide any information regarding the design live loads for the structure. The actual framed floor construction differs completely from that shown on the drawings. The drawings indicate an 8" precast prestressed concrete Flexicore plank for the floor system. The floor area at the northeast corner of this addition is framed with steel bar joists and a Steel-Tex slab system. The same substitution has been made at the original main floor landing area of a stair that has been removed and infilled. The infill area itself has been made with wood floor joists and what appears to be a 2" nominal tongue and groove wood deck. Therefore, a load capacity analysis would need to be performed for the framing in order to determine its live load capacity.

Vertical Expansion Feasibility

The consideration of a vertical expansion poses several structural issues. First, over what area would an expansion be considered? Second, if the new addition loads are brought down on existing structural elements, do those existing elements have the capacity to carry the additional loads? Usually the answer is no, the existing structure does not have that level of additional capacity reserve, thereby requiring the structure to be upgraded. This is particularly difficult and expensive for the foundations for the building. A large portion of the 1956 and 1978 additions use bearing walls for support with strip footing foundations. The size of these footings would need to be increased which would require underpinning them or installing a supplementary type of foundation support provided loads can be transferred. This effort would require removal of interior floor slabs and exterior excavation down to footings to perform this work.

The 1978 roof structure would need to be completely replaced since neither the wood or steel framing has sufficient capacity to sustain the live load demands of library or public assembly use. The floor joists are a combustible material which is not appropriate for this type of building. Further, the roof joists have been set at varying elevations in order to create drainage slope on the roof surface. This slope of the framing would have to be compensated for. The steel roof beams which support the wood framing also do not have

WHY DO WE NEED A NEW BUILDING?

- Although the present Peterborough Town Library is approximately 16,500 square feet, the "library usable" area of the building is only about 10,000 square feet. Two factors contributing to this are inefficient mechanical and storage areas and an Historical Room which is not accessible to those with disabilities.
- Based on a standard library program for a town the size of Peterborough, the following space deficiencies exist in the current library:
 1. The collection space should be 15% larger than it currently is.
 2. The overall Meeting Space (including a conference room which does not currently exist) should be 15% larger than it is.
 3. The Staff Work Space should be 25% larger than it currently is.
 4. The Children's Program Space should be 33% larger than it currently is.
 5. The User Seating Space should be 50% larger than it currently is.
- The existing lack of space and older building infrastructure limits the ability to incorporate new technology.
- The existing lighting is poor and inefficient.
- The existing heating system is an amalgamation of three systems and operates inefficiently.
- The existing 1956 and 1978 additions are significantly under-insulated compared to today's requirements.
- There are existing structural issues which limit the ability to locate book stacks.

WHAT ARE THE ADVANTAGES OF A NEW BUILDING?

- A new building can be added to the existing 1892 structure in such a way that will address today's needs and allow for maximum future flexibility.
- A new building will be designed with extensive community input.
- A new building will be designed with much greater energy efficiency than the existing 1956 and 1978 structures.
- A new building will incorporate enhanced "green" features.
- A new building will have significantly less future maintenance costs.
- A new building will eliminate some existing short-term maintenance costs.
- A new building can incorporate a space plan with flexibility that is currently impractical due to existing structural configurations.
- Contingent upon soil testing, it may be possible to build in an allowance for future expansion (e.g., a third storey).

sufficient live load capacity which, when combined with a likely increase in the dead loads of the roof becoming a floor, would necessitate the replacement of these members. Given that the existing roof structure of the 1978 addition would need to be removed and replaced, the operations of the library would be significantly restricted during the construction process.

Another issue which would be created by vertical expansion is drifted snow loads on lower roofs. The new higher roof areas would require that the remaining lower roofs be structurally upgraded to accommodate drifted snow loads which would be created. This can sometimes be difficult to achieve while maintaining the architectural aesthetic of the interior of the building.

It is our opinion that, given the way the original building and the additions were designed and constructed, it will be both very difficult and expensive to expand the building structures vertically. We believe the Town would be better advised to consider other alternatives to vertical expansion of the existing facility based on relative costs.

Structure Deficiencies

The original front entry to the 1892 portion of the building has severe deterioration of the brick walls which support the roof columns and which form the wing walls on both sides of the stairs leading from the ground surface to the porch level. The brick is spalling and crumbling apart. We recommend that the roof structure be shored in place and the brick walls be removed and replaced. This effort may require removal and replacement of the porch floor and the concrete stairs not only for access but also to gain an entire structure which will have the same approximate lifespan. Interestingly, the entry appears to be an add-on to the original building since it does not appear on the 1892 drawings. We also recommend that the bushes which are located on either side of the stair wing walls be cut back to provide an open air space of at least 18" between the bushes and the walls. These bushes are holding water and moisture in the brick and contributing significantly to their deteriorated condition.

At the rear wall of the building where the 1956 addition joins the original 1892 building, the roof shapes combine with a very short overhang that causes water to flow down the brick wall of the 1956 building. In addition to the moss and algae that has grown on the wall at the water streak location, absorption of water in the brick has caused cracking through the entire thickness of the brick and block wall at the ground floor window. This problem should be corrected so that water flows off the roof without running down the wall face. An extension of the roofing would solve this problem. The roof edge detailing is similar on the opposite side of the building, but the water streaking is not as visible. A similar extension of the roofing material at this second location is also recommended to avoid damaging the brick and block wall.

One of the precast concrete floor planks in the 1978 addition is cracked. The cause of the crack should be determined and an appropriate repair developed to restore the integrity of this plank. See the attached photos.

MECHANICAL/ELECTRICAL REPORT

Executive Summary

The mechanical, electrical and fire alarm systems installed at the Peterborough Library are in acceptable condition for their age, but some equipment is at the end of its service life (especially the boiler plant) and may be nearing failure. Building, Mechanical and Fire Alarm Codes have changed in some instances that would require different performance of some equipment if installed new today (e.g., toilet exhaust system). Or upgraded components (e.g., fire alarm).

While some issues may continue as grandfathered conditions, the affected systems may not achieve their intended purpose, and will require correction/corrective action during a major building renovation or addition. Plans should be made to replace equipment at the end of its life.

General

Our comments are based on our field visit of September 25, 2003 and a review of the drawings available, listed below:

1. Original Construction - Elevations and structural details noted on (5) black and white reproducible's taken from original drawings (appear to be linen blueprints) prepared by George S. Morrison, Civil Engineer, The Rookery, Chicago, dated April 28, 1892, titled "Library Building".
2. Air Conditioning Renovation - Drawing M1 prepared by Design Day Mechanical for Precision Temperature of Bedford, NH, dated May 18, 1998 (installation of air conditioning for first floor).
3. 1956 Addition - A Series, E Series and HP Series Drawings, dated June 14, 1956, prepared by John R. Holbrook, 37 Main Street, Keene, NH. These drawings also include (2) preliminary drawings dated January 3, 1956.
4. 1978 Addition - A, S, P, H and E Series Drawings prepared by Dudley, Walsh, and Moyer, 194 North Main Street, Concord, NH.

Architectural

The issues below are not intended to completely describe the architectural arrangement of the building but rather indicate architectural features that are significant or conditions relative to the performance and behavior of the mechanical systems.

The original library dates to 1892 and is of a brick and block/heavy construction. This portion of the facility still remains and consists of a basement level and first floor covered

by a pitched roof. The roofing system includes slate roofs on top of roofing boards, and approximately 2 - 3" thick cinder concrete panels laid on top of 8" deep I-beams. Additional features of the structure include 1-1/8" diameter horizontal tie-rods and other steel structural members.

Exterior walls are primarily brick and stone, and incorporate an air space as well as a brick interior finish. As is typical for this era of construction, no significant amounts of building envelope insulation are noted on the drawings.

The original building features a fireplace in the west end of the reading room which is no longer used. The flue has been effectively sealed off. This condition should be checked and maintained over time to minimize air exfiltration from the facility.

The first addition to the library took place in 1956/1957. This addition consisted of a brick and block structure, with face brick on the exterior and concrete masonry units behind. No significant amount of building envelope insulation is indicated on the drawings. However, blown-in cellulose insulation is apparent in the attic as it stands today. The latest addition to the library took place in approximately 1978 and added meeting and stack areas to the building on the basement and first floor levels. Additionally, a new entry and wheelchair access ramp was added on the east side.

The fenestration in place consists of predominantly double glazed windows, or single glazed windows with exterior storm sashes.

Heating, Ventilating and Air Conditioning Systems

The existing heating plant consists of (2) HB Smith Mills Boilers. Boiler No. 1 is a 25 Mills Series rated to fire 2 gallons per hour of # 2 oil with a Beckett burner. This boiler is believed to have been installed with the 1956 addition, when it replaced an existing unit. The second smaller boiler (Boiler B2) is an HB Smith 20 Mills Series fitted with a Carlin 200 CRD burner rated to fire 2 to 5 gallons per hour of # 2 oil. Both boilers are located in the basement of the original 1892 building. These boilers are cleaned and serviced annually, based on information provided by the owner. Documentation in place in the vicinity of the boilers indicates that the combustion efficiency of boiler No. 1 is approximately 84% based on test results dated October 2000, and 80% combustion efficiency collected at the same time for Boiler # 2. Water was slowly leaking through a relief valve downstream of the pressure regulator for boiler B-1, into relief discharge piping where it was ponding on the floor. This valve should be repaired or replaced.

Based on the age of the existing boilers, they should be considered for replacement in the event that an addition to this facility is planned. No external evidence supports this recommendation, however, the boilers are near or at the end of their service life, and funds should be set aside for their replacement in the next 1 to 3 years. We note that the presence of 2 boilers provides for limited redundancy in the event that one boiler fails in advance of the other

Each boiler is separately vented to the chimney. No interior flue clean-out was noted. Based on the age of the facility, the chimney should be inspected and lined if not already so equipped.

The boiler room is provided with combustion air but not ventilation air, as presently required by code. Correcting this condition can be relatively easily accommodated using existing masonry openings to the space.

The owner reports that an underground oil storage tank once in place to supply the heating plant has been removed. (The original tank level indicating equipment is still in place, however, behind the boilers). This was replaced with a pair of vertical oil storage tanks, with a nominal capacity of 275 gallons each, located in the boiler room. These should be placed within a diked enclosure when the boilers are replaced.

The boiler room in the basement also is not properly contained relative to the required fire ratings and current codes. This condition is also easily remedied with fire rated doors readily available in the industry.

Electrical devices are located on one of the boiler jackets. This is not recommended since it will result in premature failure of electrical devices, and delay repairs to the affected boiler should they be necessary.

The facility is heated with a mix of radiation, cabinet unit heaters and other miscellaneous terminal heating equipment. The system is zoned with separate zone circulation pumps, with thermostats in the areas served by each pump to control the heat transferred where terminal heating equipment is installed.

The library was upgraded with air conditioning on the first floor in 1998. (4) air handlers are located in the attic space of the 1956 addition with ductwork that extends into the original 1892 building with exposed spiral ductwork (AHU-3); in the attic space of the 1956 addition and the entry area of the 1978 addition (AHU-4); and two separate air handlers for the east and west sides of the 1978 addition (AHU-1 and AHU-2). The air cooled condensing units for these air handlers are located at grade on the west side of the building between the building and the river.

Ductwork serving the Fiction and Children's areas from AHU-1 and AHU-2 is generally as shown on the design drawings, with slight deviations to simplify layout. This ductwork is exposed to the weather elements and deterioration has already started to take place. Joints in the black rubber membrane covering the ductwork have come apart at several locations, most notably where duct supports are in place. The covering has fallen away from the bottom of several sections of duct, exposing the rigid fiber board insulation (and smaller sections of bare duct) to the weather elements. A metal 5 gallon tar roofing pail is in place in one location to support ductwork in lieu of a duct support. Two ~12' sections of 10" round duct do not have an intermediate support. The main duct trunks between the attic and where ductwork penetrates the roof is rectangular, and covered with a black

rubber membrane. Round ductwork is recommended, since it does not permit water to pool on top of the duct. Internally insulated, spiral ductwork is more effective than the black rubber covering, since it will reflect radiant heat better than the black rubber membrane installed.

Branch ductwork extends from the bottom of the ductwork on the roof into the interstitial attic space between the flat roof and the ceiling above the stack area, and is distributed into the stack and reading areas by ceiling mounted diffusers. Return air registers for the system consist of ceiling mounted "egg crate" registers located in the 1956 area.

A ceiling fan has been added in the circulation and check-out desk. This unit is noted by library staff to be effective in improving the overall comfort at this station.

We noted the existence of an air handling unit in the attic of the 1956 building, near the attic access hatch. Based on the 1956 design drawings, this appears to be an exhaust fan that exhausted the previous spaces below that included 2 study rooms and a smoking room. Label plate information on the unit supports this idea. The motor on this unit was running during our visit, although the belt for the fan was missing. If no longer servicing a current function, this unit should be removed.

The special collections area of the library is served by a ductless split air conditioning system. Library staff indicated that one of the systems that had been previously installed in this area included a pump that was used to transfer condensate from the cooling coil into the sanitary waste system. This pump had failed which resulted in leakage of water onto the carpet in this space, and the subsequent presence of mold. We noted a musty odor in this room upon entry. A system for introducing and removing air to this space would mitigate this condition. The insulation on the refrigerant piping between the air cooled condensing unit on the adjacent roof to the north has been damaged by sliding snow, and should be replaced.

The exposed spiral ductwork in the north side of the 1892 building differs from the design drawings, but is acceptable. It should be painted to match adjacent surfaces.

The basement of the 1956 building appears to be only exhausted with a ventilation fan located on the roof, with the various offices on this level heated with radiation. (During our visit of January 26, 2004, the belt on the exhaust fan had broken, and the motor was running). The spaces served are occupied offices adjacent to a room that appears to be used for meetings and other gatherings. Ventilation to provide outside air is required by code.

We also noted a space in the southwest corner of the 1956 addition basement that has been isolated from the area controlled by the thermostat for this zone. Efflorescence was also present on the bottom 36" of the west (exterior) wall of this space, indicative of damage due to water ingress (accumulated snow against the wall in this location in the winter?).

The owner has complained of foul odors in the basement and upper level bathroom areas and made comments that suggest that the toilet exhaust system does not work well. The exhaust fan and duct system installed on the roof above the first floor toilets was originally designed to remove approximately 53% of the amount of air required to be exhausted by current codes. As time goes by, the effectiveness of the original system has further degraded. A ceiling fan has been installed in the upper bathrooms, but odors persist. The system should be replaced with a larger system with the proper capacity.

We note that steam radiators in the original 1892 construction have been converted for use to hot water, which is appropriate.

We noted damage to the roof support system in the closet at the upper level of the original building on the south side of the stairs that lead to the special collections room.

Plumbing

The building sanitary waste system is a mix of cast iron, copper and PVC that exits the building on the east side. Domestic water for the building also enters the building on the east side of the building, north of the electric service near the floor, at 3/4". Water is distributed throughout the building at 1" downstream of the water meter.

Domestic hot water is generated by a tankless coil located in each boiler. A domestic hot water heater separate from the heating plant is not in place, which necessitates operation of the boilers in order to generate water for hand washing and other cleaning requirements. This results in large energy use and boiler standby losses during the summer, since the boiler must be heated to supply relatively small domestic hot water needs. Heat is lost from the boiler jackets, and up the chimney as the boiler cools. Current energy codes require that a water heater separate from the boiler be in place to reduce these losses. A small domestic hot water heater will eliminate the need to fire the boilers in the summer.

Some accommodations for handicapped patrons have been made, including extended deck lavatories, and elevated bowl water closets, however, clearances now required by ADA may require additional modifications. Tank type water closets appear to use in excess of the 1.6 gallons per flush limitation now in place. Plumbing fixtures should be considered for replacement based on age and a check of ADA requirements.

A roof drain system is in place to drain water from flat roof areas. Plastic domes on several drains have been damaged, allowing leaves and foreign matter to enter the rain leader piping. These should be replaced with metallic covers. Scuppers or a secondary roof drain system should be installed as required by current codes if renovations are performed. Gutters exist in several other areas.

Fire Protection

The building is not presently sprinklered. Any future work in the library should include the installation of a sprinkler system throughout the entire facility. Director Michael Price

noted support among his peers in the industry for sprinkler systems in libraries, and noted that this was not always the case. Books subjected to water damage can be at least partially preserved with quick drying technologies. We also note that while water can subject collections to damage, sprinkler systems can contain a fire to the area of ignition, and mitigate if not altogether eliminate the spread of fire to an entire facility. In addition to protection of the library's collections, an area of special concern is the overhang on the west side of the building under which vehicles are presently parked. Special arrangements for sprinkling this area should be considered.

Electrical Service

Existing electrical service is provided by PSNH from utility pole located on the Street to the east of the building. Existing electric service originates on PSNH utility pole No. 45/1. (Also labeled as Verizon pole 8/1). The service extends underground from pole mounted transformers. (3) 10 kva pole mounted units are provided, (1) 4" conduit runs underground.

Other underground electrical services include telephone in 2" sleeve and fire alarm within a 1" conduit.

The "original" electrical service conduit is still installed exposed along the north exterior of the eastern portion of the original building. This conduit should be removed for aesthetic reasons as part of any retrofit project.

There are underground conduits extended one length up the next utility pole north at the traffic island for the building. These conduits are extended on PSNH pole 45/2, Verizon pole 2. These conduits include (1) 4" and (2) 3" conduits. These conduits appears to extend to the adjacent annex for the library. They are stubbed up and had once been capped by duct tape. The duct tape has deteriorated. One conduit appears to be actively used for some service. Use is unclear.

The master box No. for this building is No. 31. Surface mounted Gamewell master box.

The main electric service is a 3 phase, 120/208 volt, 400 amp service which comes in underground to a wireway within the 1978 addition.

The conductors run from the wireway through a Square D main fusible disconnect switch.

The fuses within the main switch are Buss one-time fuses. Dual element/time delay fuses are recommended to address "surge" loads which would occur with larger air handler or elevator motors.

Phase marking tape on the conductors entering the disconnect appear to be incorrectly color coded. A center phase is identified with a white tape suggesting a neutral conductor. This should corrected.

The service disconnect into a transformer rated self-contained meter socket. The meter socket includes a PSNH meter, Serial No. 01 510 571. The service then continues on to the main distribution panel which is a Square D main lug only panel.

There is little or no room for expansion in the panel. It appears that (1) 125 amp, 3 pole breaker could be installed at the top of the panel.

Based on demand information from PSNH, there is a fair amount of capacity available in the 400 amp service.

The peak historic demand over the time period listed is 36.5 kW. At the service voltage (120/208 volt, 3 phase, 4-wire), this demand equates to 101 amps.

The present electrical service size - 400 amp, 3 phase, 4-wire - has a total capacity of 144 kW. Allowing for reasonable load capacity of 80% of the full rating of the gear, we would budget the electrical capacity of the gear at approximately 115 kW (80% of 144).

The difference between this rated load and the peak historic demand for the building is approximately 78 kW. This equates to just over 200 amps available for added load.

This would allow for a fairly significant addition to the library or some additional air handling/air conditioning equipment to be added without the need for an electric service upgrade.

Power Distribution

One older portion of the building where the storage is located includes a wooden cabinet electrical switchboard. This wooden cabinet with glass doors has open buss bars and fuses. The cabinet door was unlocked on the day of our visit. The panel is not dead front protected as is required by current codes. The busses would be exposed to anyone opening those doors with a risk of injury. The cabinet should be locked and some "danger - high voltage" or similar warning should be applied.

The cabinet is beautiful, and should be preserved in some fashion for some electrical equipment museum.

Panelboards within the 1978 addition includes panel L1 located in the vestibule immediately outside the two restrooms. This panel is used for some switching of circuit breakers for lighting control. There are no circuit breaker locks. Some breakers are taped "on" to prevent accidental turning off.

The panel is a Square D main lug only, 225 amp, 120/208 volt, 3 phase 4-wire plug-in, bolt on and QOB panel. Circuit loads have been documented, the panel appears to be full:

The last (4) circuits on the schedule are labeled 36 north air handlers in attic, 38 north air handlers in attic, 40 south air handlers in attic, 42 south air handlers in attic. There appears to have been a change from (4) 20/2 circuit breakers to only (2) now. The change has not been adequately documented.

The panel is unlocked in a publicly accessible corridor. One breaker position (41) is missing and has been taped over with electrical tape. A legitimate circuit breaker panelboard filler should be provided at this location.

Panels, feeders and branch circuits should all be replaced.

Lighting

Lighting within the library consists predominantly 48" fluorescent lamp fixtures in continuous rows. Fixtures are either surface mounted or pendant mounted depending on the various portions of building in which they are located. In the high space within the original building, pendant mounted fixtures that appear to date to the 1960's are installed. The lenses have yellowed considerably over time, and some are broken.

Surface mounted "low brightness" wraparound fixtures - reasonably high quality fixtures for the 1978 era in which they were installed - remain in place. These fixtures are in need of cleaning. The lenses do not appear to have discolored considerably over time.

Some track lighting in the main lobby includes incandescent fixtures.

Surface cylinders in the main lobby and wall sconces throughout the children's area/Elizabeth room are incandescent style fixtures with compact fluorescent "look alike" lamps.

Lighting in the lower level storage areas is predominantly surface fluorescent strips with T-12 lamps. These fixtures are exposed single or 2-tube utility type fixtures.

Some light fixtures within the 1978 addition have lenses missing. These fixtures are a 4-lamp fixture with (2) 2-lamp ballasts. Those exposed are provided with F-34CWRSEEV8 "Value Brite Cool White Lamps".

Lighting within the staff areas includes surface mounted fluorescent fixtures with down light and side light components. These again appear to be from the 1978 construction era.

As part of the renovation work, we would recommend that these lights be controlled via toggle switches in some convenient location. Consideration should be given to a central lighting control to allow staff to control lights from one or more locations in an organized and zoned fashion.

Lighting throughout should be replaced with quality direct/indirect fluorescent lighting with electronic ballasts and T8 lamps.

Fire Alarm System

The fire alarm control panel is a 2-zone Harrington fire alarm control panel located just inside the main lobby entry adjacent to the staff checkout desk. The panel appears to be a 2-zone with the zones being identified as "First Floor" and "Second Floor". The panel appears to be connected to a variety of existing equipment which would have been installed in the 1978 renovation. The panel appears to be newer than that installation. The panel includes a label indicating security system as well as fire alarm from Atlantic Security Industries, 1-888-225-3116.

There are pull stations likely dating from the 1978 or perhaps the 1957 addition which have break glass stations. These pull stations include a Simplex label. Fire alarm horn and strobe coverage is not complete and does not comply with current ADA or NFPA 72 Guidelines.

The building appears to be protected throughout by automatic fire detectors including smoke detectors in the main stack areas with heat detectors in the storage rooms and mechanical spaces.

The fire alarm appears to connect to the Town of Peterborough via the fire alarm master box located at the front ramp of the building.

The break glass stations appear to be part of the 1978 addition. Lighting within the gathering room at the lower level includes fluorescent fixtures located up within the coffers of the exposed concrete ceiling.

Replacement fire alarm horn strobes within the building appear to have been provided with the new panel. Replacement units appear to be ADA compliant appliances. They are not provided throughout the building nor are they provided in quantities and locations that comply with the spacing requirements of ADA Guidelines and NFPA 72.

The fire alarm system should be completely replaced as part of a major renovation or 5 year improvement plan.

Exterior Lighting

Exterior lighting includes decorative style Shepard's Hook pole lights, approximately 14' tall with an inverted globe installation. There are a quantity of (4) around the perimeter of the triangular shaped parking lot. The staff/employee parking area underneath the 1978 addition is provided with (5) recessed down lights located flush within the ceiling. These down lights have PAR type incandescent lamps.

The north exit from the lower level is provided with a small utility light which has a yellowed lense. Surface conduit has been installed to extend wiring from this light to a self-contained 50 or 75 watt HID light with an integral light sensor located on the northwest corner of the building.

The utility pole located in front of the building does have a utility provided cobra head light fixture. The soffit roof area above the ramp leading into the building is provided with down lights at approximately 10' on center. These down lights are incandescent with PAR reflector type lamps.

There is one additional pole mounted Shepard's hook style fixture located just inside the main entry to the library. The fixtures are Sternberg Lantern.

The southern (original) entry to the library building includes a round entry covered by a rounded porch. There is a single globe style incandescent fixture located at the center of this area. The fixture should be considered for replacement due to obsolescence. Recessed down lighting or other opportunities to high light this beautiful entrance should be considered.

Lightning Protection

The building does not have a lightning protection system. A risk analysis form from NFPA should be completed to allow owner to consider roof mounted lightning protection system. At this time, in a conceptual review, the building appears to be at a low lightning risk. However, prior to substantial work at the library, the above mentioned NFPA review should occur.

BUILDING CODE ANALYSIS

The present Peterborough Town Library does not meet the present requirements of current building codes, (IBC and NFPA). This is not unusual as the last major construction project at the facility was completed over 25 years ago and the codes have changed significantly since then.

In general, the following major areas need to be addressed for code compliance issues:

- A multi level assembly occupancy with areas of combustible construction such as the Peterborough Town Library should be provided with an NFPA compliant sprinkler system.
- Fire separation should be provided between the car parking area and the rest of the facility.
- An appropriate, up to date, fire alarm system should be installed.
- Electrical systems should be upgraded to reflect current requirements.
- New construction must be insulated as per current energy codes.

These items are further discussed under the "Potential Implementation Plan."

ADA (AMERICANS WITH DISABILITIES ACT) ANALYSIS

The present Peterborough Town Library does not meet the present requirements of the ADA guidelines. This is not unusual as the last major construction project at the facility was completed before ADA legislation was implemented. It should be noted that the 1978 addition made significant modifications to address access to the facility which were, at the time of construction, appropriate and effective.

In general, the following major areas need to be addressed for ADA purposes:

- Vertical transportation needs to be provided between the levels. (Elevator.)
- Bathrooms complying with current ADA requirements need to be provided.
- Stack locations allowing a minimum of 36 inches clear between stacks must be maintained.
- The fire alarm system must be ADA compliant.

These items are further discussed under the "Potential Implementation Plan."

PROGRAM STUDY

A conceptual program study roughly based on the "Wisconsin Formula" has been prepared as follows.

This information is meant to be used as an approximate guideline and not as a "final" space program for the Peterborough Town Library. The space program presented assumes a facility that will serve the town for the next twenty years, which is standard library planning.

| | | | |
|---------------------------------------|------------------------------------|---------------|----------|
| STEP 1 DESIGN POPULATION | | | |
| A | CURRENT LOCAL POPULATION 2002 EST. | 5988 people | |
| B | PROJECTED LOCAL POPULATION 2025 | 7500 people | |
| C | PROJECTED NONRESIDENT POPULATION | 0 people | |
| D | DESIGN POPULATION (B+C) | 7500 people | |
| STEP 2 COLLECTION SPACE | | | |
| A | BOOKS ((POP X 6) | 45000 volumes | 4500 SF |
| B | RECORDINGS (133/1000) | 998 volumes | 100 SF |
| C | PERIODICAL DISPLAY (16/1000) | 120 volumes | 80 SF |
| D | PERIODICAL STORAGE (.75 OF C) | | 60 SF |
| E | TOTAL | 46118 volumes | 4740 SF |
| STEP 3 USER SEATING SPACE | | | |
| A | SEATS ((POP/1000) *10) * 30SF/SEAT | 75 seats | 2250 SF |
| STEP 4 STAFF WORK SPACE | | | |
| A | STATIONS (STATIONS X 150SF) | 8 stations | 1200 SF |
| STEP 5 MEETING ROOM SPACE | | | |
| A | GENERAL MEETING SPACE | 100 seats | 1000 SF |
| B | CONFERENCE ROOM SPACE (SEATS) | 16 seats | 400 SF |
| C | CHILDREN'S PROG. SPACE (SEATS) | 40 seats | 400 SF |
| D | TOTAL (A+B+C) | | 1800 SF |
| STEP 6 SPECIAL USE SPACE | | | |
| A | COLLECTION SPACE | | 4740 SF |
| | USER SEATING SPACE | | 2250 SF |
| | STAFF WORK SPACE | | 1200 SF |
| | MEETING ROOM TOTAL | | 1800 SF |
| B | SUBTOTAL 1 | | 9990 SF |
| C | MULTIPLY 1 BY 0.1 | | 999 SF |
| STEP 7 NONASSIGNABLE SPACE | | | |
| A | SUBTOTAL 1 (6B) | | 9990 SF |
| B | SPECIAL USE SPACE (6C) | | 999 SF |
| C | SUBTOTAL 2 (A+B) | | 10989 SF |
| D | MULTIPLY SUBTOTAL 2 BY 0.25 | | 2747 SF |
| STEP 8 PUTTING IT ALL TOGETHER | | | |
| A | COLLECTION SPACE (FROM 2.E) | | 4740 SF |
| B | USER SEATING SPACE (FROM 3.A) | | 2250 SF |
| C | STAFF WORK SPACE (FROM 4.A) | | 1200 SF |
| D | MEETING ROOM SPACE (FROM 5.D) | | 1800 SF |
| E | SPECIAL USE SPACE (FROM 6.C) | | 999 SF |
| F | NON ASSIGNABLE SPACE (FROM 7.D) | | 2747 SF |
| G | GROSS AREA NEEDED (A+B+C+D+E+F) | | 13736 SF |

Although the space program prepared for this report indicates that a library of 13,736 square feet is adequate for a town the size of Peterborough for the next 25 years, and the present facility has approximately 16,500 square feet of space, the existing building is, in fact, too small for its present use because of the following:

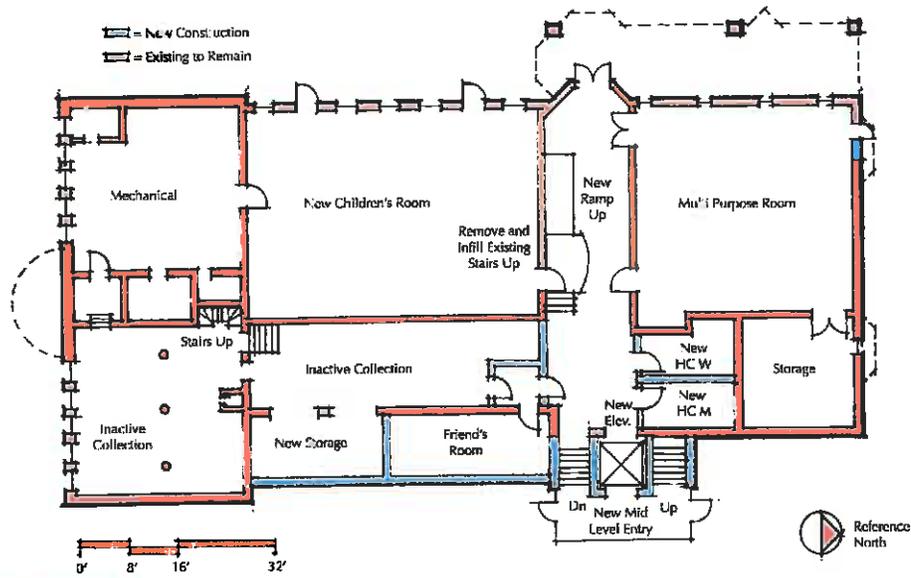
- A large portion of the building is dedicated to non library use.
- The mechanical/storage areas in the lower level are much larger than would be built in a new stand alone facility. (This is necessary in the present library due to the configuration of the spaces and their size, location, and height limitations.)
- In order to make the "Historical Room Level" accessible to those with disabilities and provide proper egress, it would be necessary to spend more in remedial measures (separate elevator and improved stairs) than it would cost to build a new space of the same size on the Main Level.

The "library usable" area of the present Peterborough Town Library could be duplicated in a new, one story facility, of approximately 10,000 square feet. This means that the present facility is approximately 27% smaller than is required.

In particular, the following areas are in need of expansion:

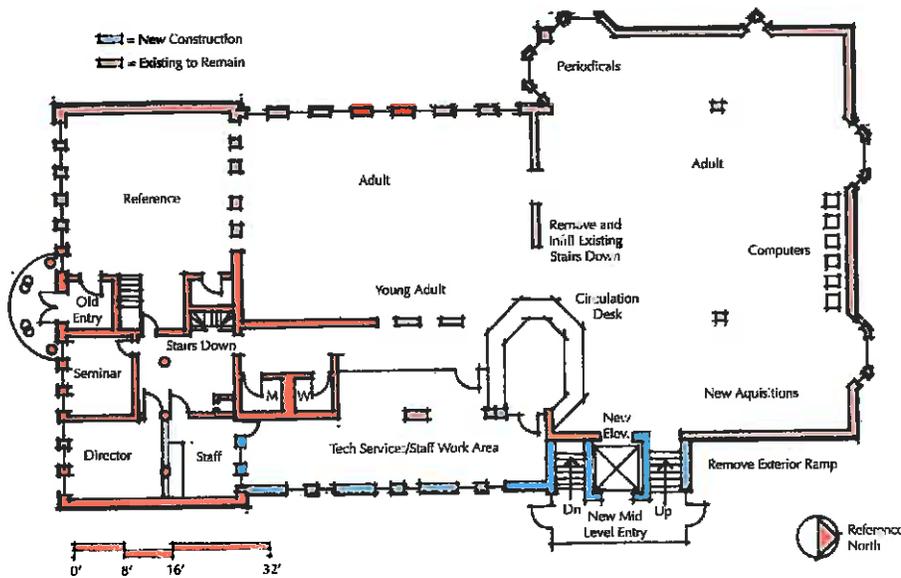
- The present Collection Space should be 13% larger than it presently is.
- The present User Seating Space should be 51% larger than it presently is.
- The present Staff Work Space should be 24% larger than it presently is.
- The present overall Meeting Space (including a conference room which does not presently exist) should be 17% larger than it presently is.
- The present Children's Program Space should be 31% larger than it presently is.

CONCEPTUAL DESIGN STUDY/POTENTIAL EXPANSION POSSIBILITIES



PETERBOROUGH TOWN LIBRARY
CONCEPT STUDY

POTENTIAL LOWER LEVEL
JANUARY 2004



PETERBOROUGH TOWN LIBRARY
CONCEPT STUDY

POTENTIAL UPPER LEVEL
JANUARY 2004



PETERBOROUGH TOWN LIBRARY
CONCEPT STUDY

POTENTIAL EAST ELEVATION
JANUARY 2004

POTENTIAL IMPLEMENTATION PLAN

Attention Suggested Within 1 Year

| ID | Existing Condition | Proposed Condition | Estimated Cost |
|-------|--|--|-------------------------------------|
| E12 | Old, wood door panel not locked, public access; exposed buses. | Lock immediately; replace panel ASAP | \$ 800 |
| HM1 | Possible asbestos insulation | Survey and document | \$ 5,000 |
| E1 | Water meter ground jumper missing | Provide jumper per N.E.C. | \$ 100 |
| E2 | Ground clamp corrosion | Replace clamp; reinstall ground | \$ 100 |
| M1 | Electrical devices are located on boiler jacket. | Relocate junction boxes and devices onto ceiling or adjacent walls. | \$ 950 |
| E5 | No central electrical surge protection equipment | Provide surge protection equipment at main service and (4) sub-panels | \$ 10,000 |
| M3 | Toilet rooms are not effectively exhausted. Supplemental exhaust system is ineffective. | Replace existing rooftop exhaust fan to increase capacity. Seal existing exhaust ductwork. | \$ 1,750 |
| M4 | Trustee room (office in Music School) does not have its own thermostat. Comfort issue. | Provide separate thermostat and piping modifications for individual space. | \$ 800 |
| M5 | Refrigerant lines for special insulation on collections air cooled condenser has been damaged. System efficiency is compromised. | Replace insulation. | \$ 100 |
| M6 | Not all storm windows are closed. | Close both sashes of storm windows if so equipped. | \$ - |
| M7 | Existing chimney should be cleaned regularly. | Engage qualified chimney cleaning company to clean chimney, and provide report on chimney condition. | \$ 500 |
| M11 | Abandoned air handling equipment is still in place, connected, and in operation. | Electrically disconnect abandoned equipment. Remove from premises. | \$ 800 |
| P2 | Boilers must be operated to generate domestic hot water. | Provide stand alone 30 gallon oil fired hot water heater. | \$ 1,100 |
| S3 | The front portico is deteriorated. | Repair/replace front portico. | \$ 37,760 |
| S4 | Water damage to rear brick. | Extend roof at this area, clean and repair brick. | \$ 7,500 |
| AR 19 | The egress path at the existing Multi Purpose Room has a door swinging into the path of travel. | Modify egress door. | \$ 3,000 |
| | | | SUBTOTAL \$ 70,260 |
| | | | A/E and Contingency Costs \$ 14,052 |
| | | | TOTAL \$ 84,312 |

Attention Suggested Year 2

| ID | Existing Condition | Proposed Condition | Estimated Cost |
|-----|--|--|-------------------------------------|
| M2 | Boilers are 46 years and 25 years old. The older boiler is at the end of its service life, and the "newer" unit will also require replacement. | Replace existing boilers prior to failure/leakage. Provide units to satisfy heating and ventilation needs for existing facility, or facility with any planned additions. Enclose oil tanks within impervious dike sized to hold inside oil storage capacity. | \$ 50,800 |
| M10 | Exterior ductwork for delivering air conditioning has failing insulation and is prone to collect precipitation. Energy and system efficiency is compromised. | Replace exterior rectangular ductwork with round style, internally insulated, with reflective metallic exterior surface. | \$ 11,800 |
| M9 | Combustion and ventilation air for boiler room is not provided as required by current codes. | Provide combustion and ventilation air arrangement to satisfy code requirements, with a combustion air damper interlocked with burner operation. | \$ 2,500 |
| | | | SUBTOTAL \$ 65,100 |
| | | | A/E and Contingency Costs \$ 13,020 |
| | | | TOTAL \$ 78,120 |

Attention Suggested Year 3

| ID | Existing Condition | Proposed Condition | Estimated Cost |
|---------------------------|---|--|----------------|
| E4 | Non-ADA fire alarm system | Provide replacement system | \$ 35,000 |
| M8 | Chimney may be unlined. | Provide metal chimney liner as required by code. | \$ 10,000 |
| P1 | Plumbing fixtures not ADA compliant. | Replace/provide ADA compliant water closets, drinking fountains. | \$ 2,500 |
| AR 20 | The shingles on the Childrens Area roof are near the end of their service life. | Reshingle the roof. | \$ 2,000 |
| SUBTOTAL | | | \$ 49,500 |
| A/E and Contingency Costs | | | \$ 9,900 |
| TOTAL | | | \$ 59,400 |

Attention Suggested Within 5 Years

| ID | Existing Condition | Proposed Condition | Estimated Cost |
|---------------------------|--|---|----------------|
| E7 | Lighting is older flourescent and harsh acrylic lenses. | Provide new lenses | \$ 10,000 |
| AR18 | There is a loss of collection due to a lack of a security system at the Building Entrances | Provide a security system at the Building Entrances | \$ 25,000 |
| SUBTOTAL | | | \$ 35,000 |
| A/E and Contingency Costs | | | \$ 7,000 |
| TOTAL | | | \$ 42,000 |

Attention to be Provided as Part of Library Expansion/Renovation

| ID | Existing Condition | Proposed Condition | Estimated Cost |
|---------------------------|--|--|----------------|
| E3 | Exterior lighting - flood added | Revise to include period style lights. | \$ 2,000 |
| E6 | Panels and feeders are old/obsolete. | Replace power feeders and panels throughout. | \$ 25,000 |
| E8 | Emergency lighting equipment is older/obsolete. | Replace complete. | \$ 15,000 |
| E9 | Site lighting in some areas is incomplete or harsh floods. | Provide additional pole and building mounted lanterns with cutoff optics. | \$ 20,000 |
| E10 | Branch circuit wiring to lights and receptacles is old/dry. | Replace complete. | \$ 10,000 |
| E11 | 110 volt receptacles are old, quantity and locations not sufficient for modern library use. | Provide additional receptacles throughout. Replace existing. | \$ 8,000 |
| M12 | Occupied areas in the basement do not have outside air. | Provide systems to provide outside air, interlocked with a system to remove air supplied (Monadnock Music and Meeting Room) each system to include floor mounted unit ventilator, interlocked exhaust fan, and controls. Consider air conditioning for comfort/dehumidification, based on occupancy/use patterns. | \$ 37,780 |
| M13 | Existing heating system requires replacement due to renovation of building and revised partition layout. | Replace existing boiler accessories, and terminal heating equipment throughout building. Includes demolition of exiting finned tube radiation, enclosure, piping, controls and accessories and replacement in kind. Scope and final cost to be reviewed when building program is established at conceptual design level. | \$ 152,000 |
| M14 | Existing air conditioning system ductwork requires replacement due to renovation of building and revised partition layout. | Replace existing duct distribution system, registers, diffusers and controls. Existing cooling equipment, including air handlers and outside air cooled condensing unit to remain. | \$ 56,000 |
| FP-1 | Building does not have a sprinkler/fire protection system. | Install sprinkler system. Scope of work includes excavation to install new 4" water service entrance into basement, and piping throughout facility. | \$ 74,500 |
| S1 | Inadequate stack load capacity near existing restrooms. | Replace floor structure when new addition is built. | \$ 50,000 |
| S2 | Unknown load capacity in 1956 addition. | Provide further structural analysis and reinforce floor if necessary when new addition is built. | \$ 15,000 |
| S5 | Cracked precast floor plank in 1978 addition. | Provide further structural analysis and reinforce floor if necessary when new addition is built. Monitor crack until addition is constructed. | \$ 30,000 |
| SUBTOTAL | | | \$ 495,280 |
| A/E and Contingency Costs | | | \$ 99,056 |
| TOTAL | | | \$ 594,336 |

| Further Costs associated with Library Expansion/Renovation | | | | |
|--|---|--------------------------------|---------------------|---------------|
| AR - 1 | Addition/Renovation - General Conditions | \$ | 85,550 | |
| AR - 2 | Addition/Renovation - Site Work | \$ | 76,287 | |
| AR - 3 | Addition/Renovation - Concrete | \$ | 26,054 | |
| AR - 4 | Addition/Renovation - Masonry | \$ | 67,228 | |
| AR - 5 | Addition/Renovation - Structural Steel | \$ | 11,966 | |
| AR - 6 | Addition/Renovation - Carpentry | \$ | 30,916 | |
| AR - 7 | Addition/Renovation - Thermal and Moisture protection | \$ | 14,160 | |
| AR - 8 | Addition/Renovation - Doors and Windows | \$ | 25,134 | |
| AR - 9 | Addition/Renovation - Finishes | \$ | 146,051 | |
| AR - 10 | Addition/Renovation - Furnishings | \$ | 11,800 | |
| AR - 11 | Addition/Renovation - Conveying Systems | \$ | 53,100 | |
| AR - 12 | Addition/Renovation - Additional Mechanical Systems | \$ | 128,560 | See Note "d." |
| AR - 13 | Addition/Renovation - Sprinkler System | \$ | 30,000 | See Note "e." |
| AR - 14 | Addition/Renovation - Additional Electrical Systems | \$ | 80,000 | See Note "f." |
| AR - 15 | Addition/Renovation - Portico Repairs | \$ | - | See Note "g." |
| AR - 16 | Addition/Renovation - Furniture Allowance | \$ | 148,500 | |
| AR - 17 | Addition/Renovation - Hazardous Material Allowance | \$ | 25,000 | |
| AR - 18 | Addition/Renovation - Moving Allowance | \$ | 30,000 | |
| | | SUBTOTAL | \$ 990,306 | |
| | | A/E and Contingency Costs | \$ 198,061 | |
| | | TOTAL | \$ 1,188,367 | |
| | | GRAND TOTAL OF ALL WORK | \$ 2,046,535 | See Note "h." |

Notes to this Information:

- T/W Architects is not responsible for the detection or remediation of any haz. materials. An allowance has been carried to address this.
- These figures are based on 2004 dollars and do not carry an allowance for inflation due to time.
- These figures are CONCEPTUAL ESTIMATES ONLY. Tennant/Wallace Architects cannot guarantee actual construction costs.
- Assumes that Items M8, M12, M13, M14, and P1 are done in ADDITION to this number.
- Assumes that Item FP-1 is done in ADDITION to this number.
- Assumes that Items E1, E2, M1, E3, E4, E5, E6, E7, E8, E9, E10, E11, and initial panel replacement are done in ADDITION to this number.
- Assumes that Item S3 is done in ADDITION to this number.
- Includes ALL work done under 1 year, 2 year, 3 year, and 5 year information above

STAFF INTERVIEWS

Interviews occurred November 4 and 20, 2003
Tennant/Wallace Architects AIA PA

PLEASE NOTE THAT THIS IS NOT A "TRANSCRIPTION" OF THESE INTERVIEWS, BUT RATHER A SUMMARY BY PETER TENNANT OF CONVERSATIONS THAT OCCURRED.

1. Could you please give me your name, position, and title and a brief description of your duties.

- Linda Kepner, Assistant Director/Cataloger
"Upper Middle Management"
Technical support and computer person.
- Brian Hackert, Reference Librarian
Shows folks how to use the facility, coordinates interlibrary loans.
- Annagreta Swanson, Circulation
In charge of the front desk, public interaction, material check in and out, administering overdue items.
- Judith Page, Circulation Librarian
Checking items in and out, shelving the collection. Keeping track of the public's desires and dealing directly with the public.
- Charlotte Rabbitt, Children's Librarian
All children's and young adult programming, budgeting, collection acquisitions and material development.
- Lisa Cutter, Library Assistant
"Jack of all Trades". Order supplies, receive materials, send materials, repair collection, organize acquisitions, staff the front desk, stamping/covering new acquisitions.

2. What is your favorite architectural feature of the existing library?

- The assistant director's office and the technical services area because it is active, vibrant, and can be isolated if necessary.
- The front portico.
- The pineapple on the portico and the marble fireplace.
- The openness and light in the building.

- The reading areas, the old building, the Reference Room and the exposed brick.
 - The original building.
3. What is your least favorite architectural feature of the existing library?
- Other than the leaky roof, low headroom areas which have resulted in at least 1 injury.
 - The parking lot lighting is too dim and not well distributed. The trees in the median block light from the vehicular entrance and exit.
 - The makeshift front desk.
 - The poor lighting in the Children's Area.
 - The Children's Area is too open to the rest of the facility. Children's programming now spills over into exhibit space.
 - The existing main stairs, for they are hard for the elderly and scary for the children.
4. Please mention any electrical issues that you are aware of. (Bad light, no power at outlets, etc.)
- The lighting is bad and there is excessive glare from the fixtures. (This is especially noticeable on dark days.) There are generally poor light to task arrangements. The front desk light switch is broken. There are no grounds to the plumbing or the radiators. The fluorescent fixture lighting covers fall off. The wire mold in the Tech Services area works well. Circuiting is confusing throughout. It is necessary to shut off fixtures from the circuit breaker panels in several locations and the panels are in difficult spots. (This makes it cumbersome to open and close the facility.) Whenever work used to be done to the PSNH transformer near the building (which controlled downtown) it would negatively impact the library electrically. (However, this seems to have been addressed as of late.) A light switch is desirable at the top of the stairs. The use of strings and eyelets to switch lights is not desirable. The timers for the outside lights do not work properly.
 - The lighting is poor throughout the facility. The location of the lights in the collection room directly over the stacks and not the spaces between the stacks makes for a poor lighting condition in the stacks. There is a "dark pocket" in the Children's Area. Spotlight bulbs in can fixtures blink before they stop working. There is a possible short in some of the can light fixtures.

- The lights over the front desk are bad fluorescent fixtures. There is a great deal of wasted light and general bad control of electricity. More use of natural light is desired. Make more use of compact fluorescent fixtures.
 - The Children's Area lighting is bad and a light switch is needed at the top of the stairs.
 - The lighting in general is terrible, the Children's Area is too dim and complaints are received about the light. Circulation desk should remain well lit.
 - Likes the new switch at the top of the stairs. Lighting is okay when all the bulbs work. The printers are temperamental.
5. Please mention any heating, ventilating, air conditioning, or plumbing issues that you are aware of. (Cold or hot spaces, lack of ventilation, running faucets, low pressure, etc.)
- Tech Services is on the same thermostat as the Reference Area and Tech services is always cold. (Perhaps drapes would help this.) The Historical Room never seems to work and has had problems over the years. There is no hot water in the summer. The work room sink in the Reference Area drains slow. Downstairs Ladies Room toilet doesn't flush well.
 - The AC unit in the Historical Collection Room recently leaked onto some of the maps. The Reference Area tends to run hotter than the rest of the facility and has poor air circulation. It gets hot at the desk (when it is 72 in the library, it will be 80 at the desk.) The Children's Area heater will not stop pumping out heat and it necessitates opening of windows. Overall the AC works well IF all the units are on. (If one unit is down, the rest can't keep up.) The HVAC technician says they all have to be "synced."
 - Ventilation is poor with odors apparent at times and eyes drying out. There is unequal heat in the facility. The front desk tends to run cool, but that is ok. Between seasons the building can get quite warm.
 - In the Ladies Room the water stops when the toilet is flushed. There is no hot water in the summer. There seems to be a heating/cooling balancing issue whenever the seasons change. Unaware how to use the thermostat. The air conditioning is appreciated.
 - The heat couldn't be turned off in one part of the Children's Area. The Women's Room has been closed twice this week. The heating and cooling are spotty and unbalanced.
 - Circulation is not balanced, hot at one end of the building, cold at the other and vice versa. All toilets work only intermittently.

6. Please mention any building envelope/structure issues that you are aware of. (Leaks, bad doors, worn flooring, etc.)

- There are numerous hornets as well as "prehistoric bugs" in the basement. The roof leaks. There used to be a crack in the Men's Room that allowed daylight through (That has been repaired). The 1957 addition seems to be moving away from the original building. Pine trees dump needles into the gutters ultimately creating backups and leaks. The stucco at the ramp is going bad.
- The door between the reference desk and the future "Seminar Room" slams loud. The front portico door needs to be replaced. There is a rise in elevation between the 1950's and 1970's additions. (A floor hump.) The retaining wall abutting the river and closest to the library appears to be in bad shape. Ice dams and icicles form above the present music office door and above the cathedral ceiling in the 1970's addition. (And subsequently fall onto the driveway.) There is not enough headroom in the original basement and the stairs leading to it. There is an infestation of Mayfly larvae once a year.
- The roof leaks. The staircase in the original building is treacherous. The toilet seat in the Women's Room needs to be replaced.
- The leaks need to be fixed.
- The leaks in the children's room. The carpet is "hard" due to being on a concrete slab. The door next to the reference area slams loudly.
- The leaks at the Children's Area need to be fixed. There is a lack of headroom in the Historical Room as well as in the basement. The back bottom right hand door doesn't lock properly.

7. Do you feel that the parking is too little, just right, or not enough?

- It is just right.
- The parking is just right, however it will get full at events (such as Weight Watchers). Be careful of the timing of booking events for this reason.
- Generally it is too big, however, when Weight Watchers are there it is too small. Usually it is more than adequate.
- Seems to be adequate, except at events.
- The only time parking is an issue is during rentals of the Multi Purpose Room. Large events could possibly be moved to an evening that the library is not open.

- It is adequate for most of the libraries needs, however, sometimes with hall rental it is not enough.

8. If you could renovate just one space in the building, which space would it be and, what would you do.?

- Renovate the Children's Area to keep water from pouring in.
- Remove the additions from the original library and restore the original building as a stand alone facility. (Possibly as a museum or something of a historical nature.) It would not house the main collection, which could be in another stand alone facility on the same site.
- The circulation desk area needs work and needs to be updated to reflect the computer age. The phone is in bad shape, (Peter Tennant suggests providing two phones.)
- Fix the lighting in the Children's Area and possibly eliminate some of the interior plants in the facility.
- Move the Children's Room downstairs to make it separate and more functional. Update and modernize the technical services area and provide it with large work surfaces.
- Separate the Children's Area from the rest of the library.

9. What is the most important space to you in the library?

- The front desk, for it is the core of all of our actions.
- The Reference Desk and Office, and a new bulletin board would be appreciated there.
- The circulation desk.
- The circulation desk and the magazine section. (It is nice to be able to see the children from the present circulation desk.
- The Children's Area. (Have received grants for new furniture.)
- The Tech Service office in the back room.

10. What do you see as the biggest challenge facing the Peterborough Town Library at this time?

- Keeping the building dry and fixing the roof.

- Ease of movement for the customer. There are too many tight spaces and difficult circulation patterns. There is no comfortable way to get from your car to the front desk.
- The roof which is an ongoing problem.
- Competing with technology and still fostering a love for reading. The Town has historically supported the library.
- Noise and interruptions, especially in the morning.
- The budget, the roof leaks, and the new carpet getting ruined by the roof leaks.

11. Please use one descriptive word to describe how you envision the the future Peterborough Library. (i.e. "Inviting", "Efficient", "Modern", "Elegant", "Roomy", etc.)

- Roomy (by better utilizing the space).
- Inviting.
- Inviting.
- Inviting.
- Functional/Welcoming.
- Organized.

12. Please take a look at one possible approach to future improvement of the library. After reviewing the plan, please note your favorite feature and your least favorite feature.

- Concerned at the lack of indicated children's storage area for theaters/puppets/signs, etc. Need to have tech service shelf space that isn't visible to the public. Security for the building and the collection is required.
- A path is needed from the reference area to the main collection. The infill between the Reference and the Seminar Room should be indicated. The door between the reference area and the staff work area should be indicated. The second set of restrooms is desirable. DO NOT FURTHER ENCROACH ONTO THE EXISTING BUILDING.
- The least favorite is the circulation desk which needs to open to the public/main library. Staffing of the Children's Area on a separate level will be difficult, as the upper level was originally conceived of as the entire library facility in 1978. The front doors could be wider for wheelchairs just squeak through now. Although the

power operators are appreciated, they have made the door heavy to operate manually. Maintenance of the "glass wall" at the staff area could be a problem, and the use of a half glass wall is suggested.

- Make use of the Multi Purpose Room to a wider variety of users. The children will be missed upstairs.
- The favorite is the Children's Area downstairs. The second favorite is expansion and redesign of the staff work area. Likes the present periodical area, don't change it. A study room is needed. The reference area appears small. Possibly provide a "semi private" computer area.
- A security system will be necessary. Possibly add a sink in the staff room for book repairs. Concerned with the children being on a separate level, for parents will have to bring children with them if they want to browse the adult collection while keeping their children within eyesight.

13. If you could make the outside of the building be anything at all, what would you see it being?

- Provide "maintenance free" landscaping. There is always something chipped, peeling, or broken. A patio for sitting on summer days would be desirable. Acoustically sound carries all over the facility.
- The outside needs to be neatened up. The landscaping needs to be addressed.
- Eliminate the columns at the ramp and use a different roof line to blend in more with the old. (Probably not a flat roof.) Provide brick on the outside for it is durable.
- Make the entrance more inviting.
- Make it more architecturally cohesive; match the new to the old.
- Carry more of the old throughout. Prefer not to see a modern addition "plunked" on.

14. How much money do you think the town would be willing to spend on a library improvement project?

- Not a lot. (The funding historically has been tied to a crisis.)
- It is doubtful that any money will be approved for anything being perceived as superfluous.
- No idea, but probably no more than a little.

- No idea, dependant on the economy which is cyclical. Many feel that the present library is overfunded.
- No idea.
- Little to no support financially. Difficult to pass anything at this time.

15. Please offer ANY thoughts you have regarding the building and future improvement plans.

- Take computers into account. The Bedford Library carpet tiles and tray system seems to work well. Doesn't feel that wireless will work well in the building. Provide security between public accessed information and library only information.
- The original front porch light should remain on at night for safety reasons and for aesthetics. A bench and resting area near this porch would be desirable. A "normal" entrance/exit arrangement for vehicles would be more desirable from a safety perspective. The use of a "Library Café" could help to increase the customer base. Possibly designate specific space for internet computer usage. Provide separate outdoor mailbox style book returns instead of a built-in after-hours book return. (One for books and one for A/V material.) this is primarily for fire hazard reasons
- Poor setups of videos, the displays do not work.
- Address/improve the front landscaping. Perhaps introduce planters and flowers and create a "park".
- Investigate the Children's Area, provide a staff sink upstairs.

GENERAL PHOTOGRAPHS



View of Original Entry



Interior 1950's Section



View of Present Upper Entry



Interior Multipurpose Room



View of North Facade



Interior Historical Room



Looking Down on Original Library



Interior Main Circulation Desk

STRUCTURAL PHOTOGRAPHS



Photo 12A: Connection of 1956 to 1892 building at west wall (rear of building). Algae and moss to right of window indicate path of water flowing off roof and down the wall face. Brick has horizontal crack at yellow arrow at mortar joint.



Photo 01: Main floor level, west wall, joint between 1956 and 1892 buildings, where there has been a small amount of movement over nearly 50 years of existence.

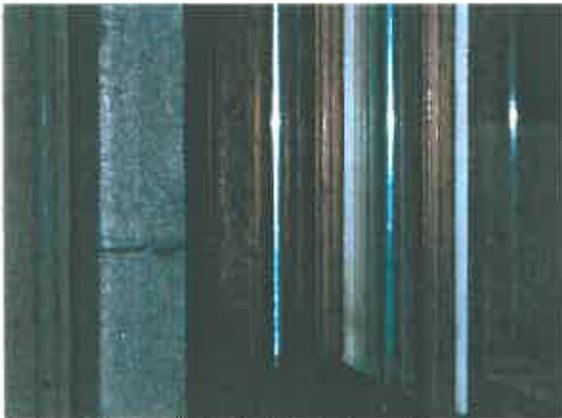


Photo 21: Inside wall of photo 12A showing crack in exterior brick extending through interior CMU portion of wall at ground floor



Photo 02: Closeup of photo 01 showing small crack in CMU wall. This joint has a significant amount of water running down the outside face of wall.



Photo 05: Precast concrete plank of main floor of 1978 addition in the vicinity of the circulation desk above. Note plank is cracked, with the crack extending all the way to the supporting foundation wall.



Photo 22: Connection joint of 1978 to 1892 building showing closed joint. This joint has been open in the past as a result of improper caulking of the joint. That has been corrected. Recaulking may be necessary as general maintenance.



Photo 11: Connection joint of 1978 to 1956 addition showing tight, closed joint 1'-0" right of inside corner. Joint is at upper story level.

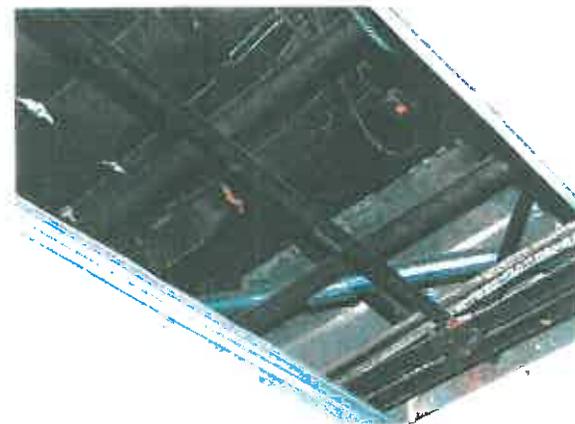


Photo 17: 1956 building main floor level structure showing bar joist and steel-tex concrete slab system. Note original design drawings showed a precast concrete plank floor system.



Photo 19: 1956 building main floor at in-fill area of old, removed stair.



Photo 24: Left wing wall at old entry stairs showing deterioration of brick and stucco overlay on brick.



Photo 30: South wall of 1892 building with covered entry. Note shrubs growing tightly around and over the top of the walls on both sides of the stairs.



Photo 27: West side of 1892 entry walls showing extreme spalling of brick.



Photo 29: East side of 1892 entry walls showing extreme spalling of brick.

MECHANICAL/ELECTRICAL PHOTOGRAPHS



**Air Cooled Condensing Units
For Air Conditioning Air Handling Units
in Attic
Of 1956 Addition**



Non-ADA Compliant Drinking Fountain



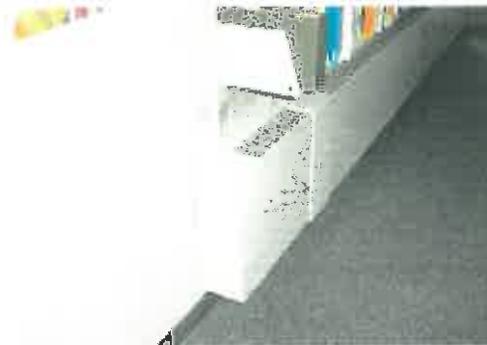
Typical Water Closet



**Parking Under Overhang. Fire/Safety
Hazard**



Typical Lavatory



**Typical Surface Mounted Finned Tube
Radiation**

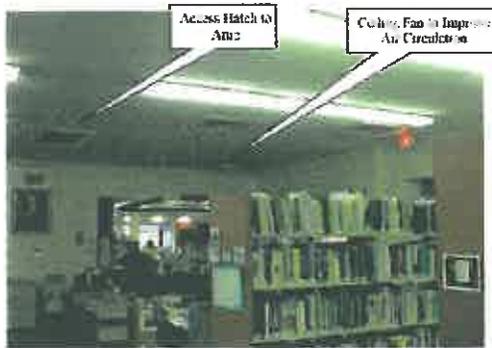


Ceiling-Scape at Main Entry in Children's Area.

Note Mix of Lighting Types and Ceiling Diffusers for Air Conditioning.



Residential Style Baseboard Radiation in Basement. (Monadnock Music)



Ceiling-Scape in Vicinity of Circulation Level, Upper Level



275 Oil Storage Tanks in Boiler Room



Steam Radiator in 1892 Building Converted to Hot Water



Heating Hot Water Zone Circulating Pumps

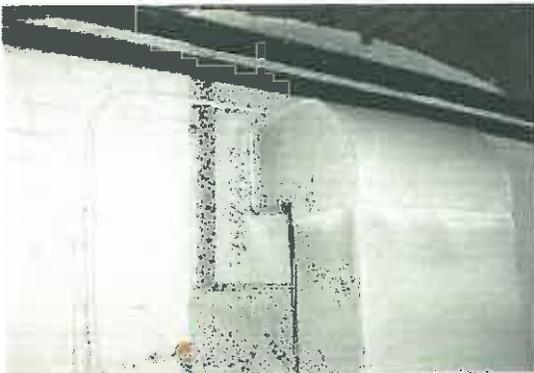


1978 Boiler Needs Electric Devices on Jacket.



Location of 3/4" Water Service in Wall Near Floor

Data/Telephone Service Location East Wall in Basement



Boiler Room Combustion Air Duct. Companion Ventilation Air Duct Not Present



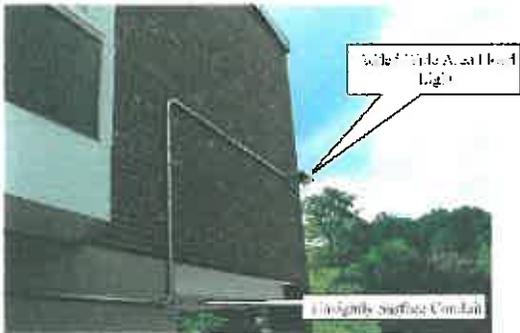
Rectangular Rooftop Ductwork



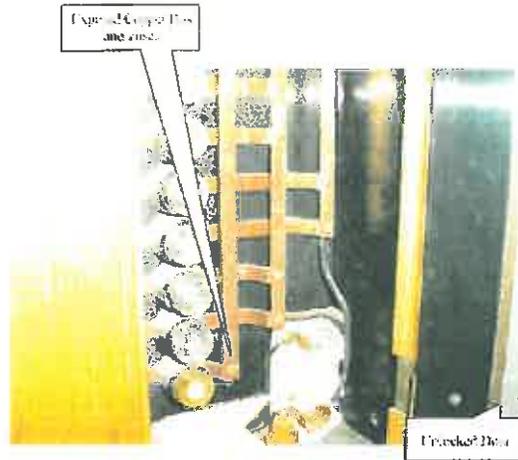
Electric Service Entrance, East Side of Basement



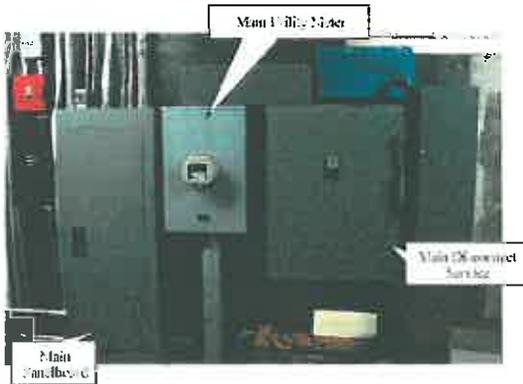
Rubber Membrane Fallen Away from Rooftop Ductwork



Exterior Lighting



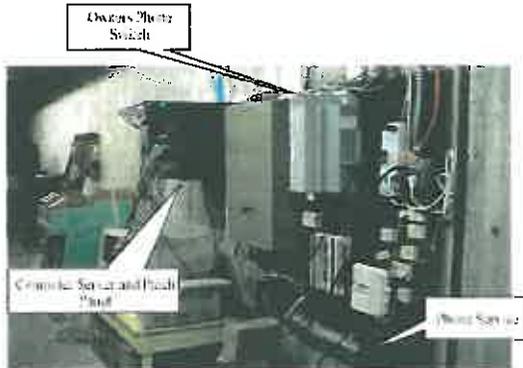
Dangerous Panel



Main Electric Service



Typical Fluorescent Lights



Main Phone Service

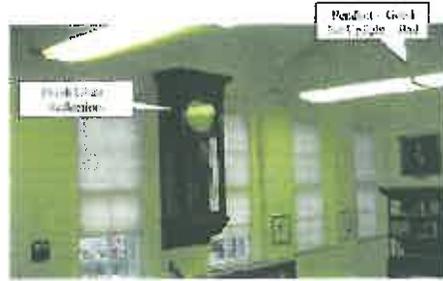




Services to the Annex



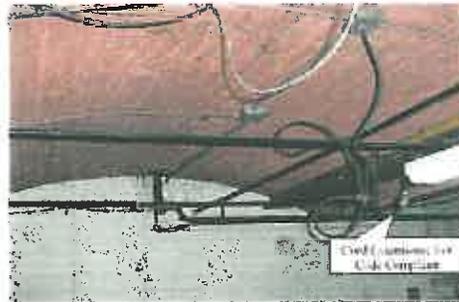
Exposed Wiring



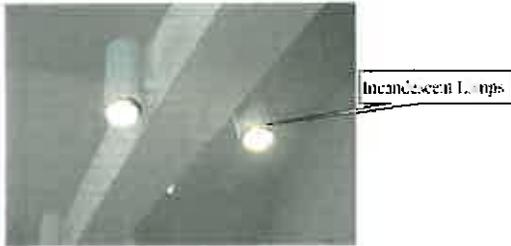
Acrylic Lens Lights



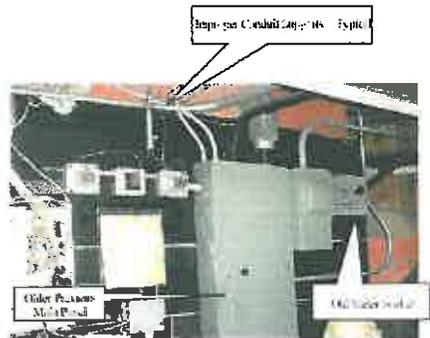
Site Lighting



Improper Wiring



Inefficient Lighting



Older Electrical Equipment

