Fitchburg City Hall

718 Main Street, Fitchburg, Massachusetts

Feasibility Study

31 July 2017
Revised October 2017

Owner

City of Fitchburg
Fitchburg, Massachusetts

Prepared by

LAMOUREUX · PAGANO
ARCHITECTS PROJECT MANAGERS

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INTRODUCTION

Introduction

The City of Fitchburg commissioned a feasibility study in March of 2017 for the purpose of evaluating the former City Hall building and site located at 718 Main Street. This study builds off of a previous study done in 2003 by Kang Associate, Inc. The new evaluation includes a broader look at opportunities for redevelopment of the site and building, and more fully develop the vision for the property as well as implications for the project within Fitchburg's Downtown district.

In 2003 Kang Associates, Inc. completed a comprehensive study of the City Hall to identify deficiencies with the building, provide a program of space needs, and propose options for renovations, additions and new construction. Due to a limited budget for capital improvements the City was only able to perform repair and replacement projects over the years. No major work outlined in the 2003 study was done.

In 2012 the City Hall building was determined to be uninhabitable due to ongoing deficiencies with the roof structure. Temporary shoring was installed at failing roof trusses and the primary City Hall services relocated to office space on Boulder Drive. A City Hall Subcommittee was formed in 2012 to make recommendations for the City of Fitchburg municipal offices. Renovation, addition and new construction options were included in a 2014 report presented by the Subcommittee. A unanimous recommendation to renovate the City Hall building for the location of the municipal offices was given. No action was taken at that time on the recommendations made by the Subcommittee.

Over the later part of 2016 preparations had been made at 718 Main Street to move ahead with potential future work. The building was largely emptied of its contents and asbestos testing was done.

Lamoureux Pagano Associates, Inc. began working on a new feasibility study in the spring of 2017. This study utilizes information gathered in the previous studies and surveys to take a fresh look at the 718 Main Street site. The City has identified 718 Main Street as the preferred site for the permanent location of the municipal headquarters. The former Bank of America building at 700 Main Street that is adjacent to the City Hall is included in this study as part of a campus plan approach to satisfy the space needs of the proposed project. The study considers the existing buildings and site, including parking and circulation challenges to propose a range of options from selective demolition and renovation, renovation with additions and new construction. All of the ranges of options developed in this study are conceptual approaches. The options are not intended as final designs and remain unchanged. As the study develops into the next phases of the project, the selected option should be studied further and developed in more detail, with each phase of the project, paying close attention to the functional needs of the City and the existing conditions of the 718 Main Street building and site.

The current City Hall Building Committee members responsible for providing direction, reviewing and evaluating the results of this study are:

Michael Kushmerek – City Council President
Thomas Donnelly – City Councilor At-Large
A.J. Tourigny – Chief of Staff
Mary Delaney – Chief Procurement Officer
Lenny Laakso – Commissioner of Public Works

Kenneth Wilson – City Assessor
Mark Barbadoro – City Building Commissioner
Jay Bry – Vice President of Finance and Administration, FSU
William McSheehy – Citizen Representative
Ellen DiGeronimo – member of Fitchburg Historical Commission
Phil Esposito – Business Representative

Ex-officio member:

Stephen L. DiNatale – Mayor of Fitchburg

The consulting team that have contributed expertise to the study are:

Architect	Lamoureux Pagano Associates, Inc.
Structural Engineer	Bolton & DiMartino, Inc.
Mechanical Engineer	Seaman Engineering Corp.
Electrical Engineer	ART Engineering
Cost Estimator	A.M. Fogarty & Assoc. Inc.

The following existing documents were provided by the City of Fitchburg, reviewed and used as a basis for this study:

Roof Truss Inspection Fitchburg City Hall, dated October 26, 1999, prepared by Souza, True and Partners, Inc., Watertown, MA

Report to the City of Fitchburg Conditions of the Exterior Surfaces Fitchburg City Hall, dated December, 16, 1999, prepared by Knight, Bagge & Anderson, Inc., Boston, MA

Fitchburg City Hall Feasibility Study, dated September 19, 2003, prepared by Kang Associates, Inc.

Roof Truss Existing Conditions Assessment, Fitchburg City Hall, Fitchburg, MA, dated June 29, 2012, prepared by Souza, True and Partners, Inc., Watertown, MA

Temporary Shoring Requirements for Damaged Roof Truss City Hall Building, dated July 9, 2012, prepared by McKenzie Engineering Company, Inc., Leominster, MA

Limited Pre-Demolition Hazardous materials Survey Report Fitchburg City Hall, dated November 28, 2016, prepared by EFI Global, Inc., Wilmington, MA

Comprehensive Asbestos Survey 700 Main St., Fitchburg, Massachusetts, dated December 14, 2007, prepared by EFI Global, Inc., Andover, MA

Path of Construction Lead-Based paint Survey Bank of America – 700 Main St. Site, dated April 25, 2011, prepared by Arcadis U.S., Inc., Braintree, MA

Bank of America Phase I Environmental Site Assessment 700 Main St., Appendix B, C, D and E, dated November 17, 2015, prepared by Arcadis U.S., Inc.

City of Fitchburg, Massachusetts, Assessor's Map 42/09618, dated January 2013, prepared by AppGeo

Building elevations and floor plans from Fitchburg City Hall Renovation drawings, dated April 4, 1985, prepared by Robert G. Neiley Architects, Boston, MA

Floor plan of Bank of America 700 Main Street Fitchburg, MA from Fire Alarm Shop Drawings, no date, prepared by Corporate Electrical Contractors, Inc., West Boylston, MA

EXECUTIVE SUMMARY

- Existing Conditions
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- Design Concepts
- Budget Recommendations
- Recommendations

Executive Summary

The former Fitchburg City Hall located at 718 Main Street, built in 1853 with an 1879 addition, holds a prominent station in the Downtown area of Fitchburg. The Downtown area is made up of a combination of existing and proposed historical, cultural and economic districts that have the potential to form a vibrant community asset. The City Hall is considered a local historic landmark within the community, listed in the Massachusetts Cultural Resource Information System within the "Downtown Architecture of H.M. Francis, Fitchburg, MA" and recommended for listing in the National Register of Historical Places on the Massachusetts Historical Commission Inventory Form. The project is required to follow the Massachusetts Historical Commission's review and compliance procedures. The building and site is in a general state of disrepair. The building's layout no longer meets the City's functional needs. The adjacent parking deck, considered part of the City Hall site, that served the building's employees and general public has been demolished due to deterioration. The former Bank of America building, built in 1982, that is included for consideration in this study, is generally a sound structure. However, many of the systems in the building have reached the end of their expected service life or are not adequate for today's code demands.

The purpose of this study was to utilize information and documentation generated from past studies and surveys in order to take a current look at the development of the 718 Main Street site. 718 Main Street has been identified by the City and past committees as the preferred site for the permanent City Hall municipal offices. No other sites have been identified for the subject of the study. The study considers the existing buildings and site at 718 Main Street, including parking and circulation challenges to propose a range of options from selective demolition and renovation, renovation with additions and new construction. The work of this study includes evaluations of the existing building, the site expanded to include the former Bank of America property, space programing needs, conceptual design options and budget recommendations.

Redevelopment of the site as an opportunity to assist with the revitalization of Downtown Fitchburg is also a consideration of this study. An all-encompassing vision for City Hall at 718 Main Street was developed through discussions with the City Hall Building Committee. The vision for the City Hall site and surrounding streetscape was defined as maintaining the essence of the existing City Hall's place in the community while generating more "People Traffic" at the site as a catalyst for revitalization. A campus approach to the site development has been explored to create more open public space linked to Main Street. The additional open space has the potential to increase public activities and interaction at the site and surrounding area.

Existing Conditions

Reviews of the previous existing conditions reports, provided by the City, and inspections of the existing buildings conditions were conducted by the architect, structural engineer, mechanical engineer and electrical engineer. The observations from the recent inspections were limited to what was readily visible. The consulting team did not evaluate strengths of materials, test systems, remove finishes or take measurements. The previous reports and documents were used as a baseline to determine if the existing conditions and basic assumptions have changed.

The observations, comments and recommendations from the previous reports have only been minimally addressed to date. The existing conditions of the City Hall building and site have only

deteriorated more since the original study's findings were reported. The deficiencies identified and improvements recommended for code compliance and continued serviceability remain. In many cases the requirements for code compliance and industry standards for best practices have become more stringent since the publication of the 2003 Kang Associates study.

The former Bank of America building was not considered in the previous study. At the time it was still in use as a Bank. Only recently has it been considered as a gifted resource available to the City. It is included in this study as an asset to the overall City Hall space programing needs. The bank building built in the early 1980's is generally a good building for repurposing into municipal office use. The proximity of the building adjacent to the City Hall site lends itself well to forming a municipal campus setting and potentially creating a public plaza area between the buildings. However, the building will require some reconfiguration and systems upgrades to meet space program needs and current code requirements

Space Programming

The space needs program for the City Hall municipal offices were initially developed in the 2003 Kang Associates study. This program was used as a basis for developing the current space needs. Lamoureux Pagano Associates engaged in discussions with the City's administrative designees to review the previous space needs. Storage requirements and department adjacencies were discussed, including the potential use of the bank building as an annex to the City Hall. An updated space needs program was developed after reviewing the 2003 program with the City's administrative designees. The updated space needs program reflects a slightly reduced square foot requirement from the 2003 study's program for the general spaces. However, the existing City Hall building is not adequately sized to meet the program when additional space requirements for internal building circulation, stairways, the elevator, the full number of toilet rooms required to meet the current building code, long term storage needs and other various support spaces are factored into the updated space needs program. Some compromises in the square foot areas requested for the general spaces may be required and need further review as the project moves forward into the next design phase. Utilizing the bank building as an annex for some departments helps alleviate this condition. The additional site area gained with the bank property also allows for the development of open public space that may be used for various civic and recreational uses. The additional open public space has the potential to increase the pedestrian traffic in the area and contribute to the revitalization of the downtown district.

Design Concepts

After careful analyses of the existing conditions and the space needs of the City Hall program five design concepts were explored to meet the functional and restoration requirements of the project. The concept options can be categorized into three general approaches:

- Complete renovation of the existing 1853 and 1879 structure (Options 1 and 2).
- Renovation and addition; renovation of the 1853 portion of the building, demolition of the 1879 section to provide area for a new addition (Options 3 and 4).
- New construction; Demolition of the 1853 and 1879 sections of the structure while keeping portions of the original 1853 façade to recognize the historic significance of the building. A new building would be constructed in the footprint of the old building

with the saved section of the historic façade wrapping a portion of the new construction (Option 5).

In all concepts the bank building is being used as an annex to supplement the space needs provided in the main City Hall structure. In the varying approaches, alternatives are given in the options that are reflected in the budget recommendations. Renovation Option 1 reuses the 1853 second floor in a similar manner as it was last used, with meeting and office space built-out on that level. Renovation Option 2 brings back the auditorium function of the original 1853 design to the second floor. In the Renovation and addition options, Options 3 and 4 have alternative entrances and degrees of detail in the addition. For Option 5, consideration is given in the budget recommendations for the development of an alternate option without utilizing the historic façade.

All of the approaches undertake a significant scope of site development, renovation and/or new construction work to satisfy the project goals and bring the City Hall site and building back to its former use. Given the inefficiency of the floor alignments of the 1879 portion of the existing structure, the renovation concept approaches will have some programmatic compromises due to the limits of the existing building. The renovation and addition concept approach provides more flexibility to deal with the space needs by allowing floor alignment and slightly expanded boundaries for the building. The new construction approach gives the greatest opportunity to accommodate the desired program relationships by starting with clean slate.

Budget Recommendations

Options 1 through 5 have been developed to a sufficient level to engage a professional cost estimator for the purpose of providing preliminary budget recommendations. The goal of the conceptual option layouts with the preliminary budget recommendations is to allow a fair order of magnitude comparison of the options. With this information the City Hall Building Committee can make a recommendation for the concept approach and option direction that they believe represents the best value to meet the City's project goals.

- Option 1: $17,959,200 - $24,465,000
- Option 2: $19,016,200 - $25,753,000
- Option 3: $27,661.200 - $36,323,000
- Option 4: $32,701,200 - $42,438,000
- Option 5: $31,861,200 - $41,405,000
    - Option 5 Alternate: $31,036,200 - $40,580,000 (Without saving the historic façade)

The budget recommendations represent total project costs with estimated escalation included through the summer of 2018. The budget recommendations are based on very general square foot costs at this stage of the project. The low end of the budget recommendation numbers represents a limited scope of sitework plaza development. The high range of the budget recommendation numbers incorporates additional sitework development, including full plaza hardscape with decorative paving patterns, additional planting beds and increased site amenities.

Recommendations

All of the options presented provide viable solutions for moving the City of Fitchburg's municipal offices back to the 718 Main Street site. Varying degrees of resolution related to the desired space needs and department adjacencies are associated with each option. Cost considerations associated with each option also vary. The complete renovation options 1 and 2 have the least cost associated with them, but the highest degree of compromise relative to space needs and department relationships. The renovation and addition options 3 and 4 have less compromise in the program, however the costs are higher. New construction, option 5, offers the least amount of compromise, and costs within the upper range of the renovation and addition options.

The new construction option is the optimal solution for solving the space needs and department relationships for a new City Hall while still respecting the historical significance of the original 1853 building within the community. New construction also allows the best opportunity for developing the most efficient mechanical and electrical systems for the building. The renovation and addition options would be the next best approach to minimize program compromise and provide reasonably efficient building systems. The complete renovation approach has the highest degree of compromise to contend with. Providing efficient mechanical and electrical system layouts will be the most difficult in a complete renovation option. However, the budget recommendations for a complete renovation approach shows the least amount of cost associated with it compared to the other options. The City Hall Building Committee has selected the complete renovation Option 1, with a limited scope of sitework plaza development, as the preferred direction for further development. Additional descriptions and cost information for Option 1 are provided in later sections of this study.

EXISTING CONDITIONS

Existing Conditions

The history and conditions of the original 1853 building and 1879 addition have been well documented in the previous study done in 2003. An extensive list of deficiencies and needed improvements were identified at that time. Since the 2003 study a ramp structure was added to the west side entrance for accessibility and the parking structure has been demolished. Other than that, only incremental remedial repairs have been made. No significant work was done to address the 2003 recommendations. In 2012 another review of the failing roof trusses was performed and additional shoring installed as a result of that review. The shoring was provided as a safety measure to allow for the removal of all personnel and furniture from the building. The City Hall at 718 Main Street has been vacant since then.

View of exterior from southwest showing existing accessible ramp structure

View of demolished parking structure looking west

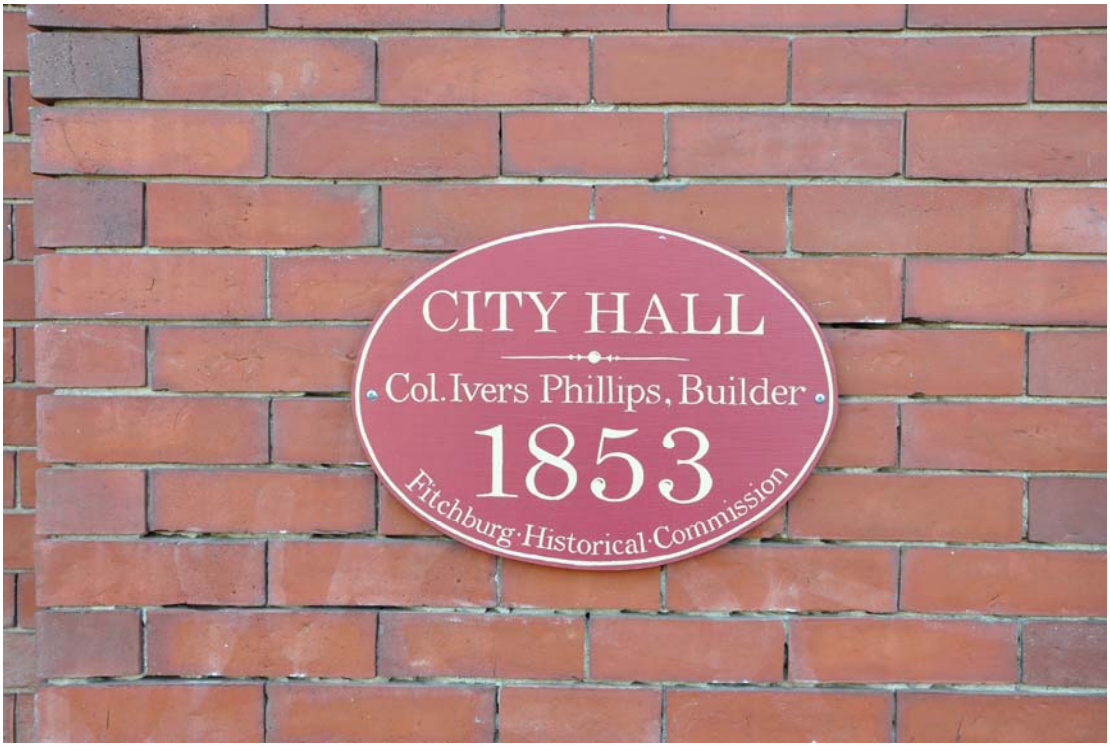
The previous reports and documents were used as a baseline to determine if the existing conditions and basic assumptions have changed. They have not, the existing conditions of the City Hall building and site have only deteriorated more since the original study. The deficiencies identified and improvements recommended for code compliance and continued serviceability remain. The requirements for code compliance and industry standard best practices have become more restrictive and involved since the 2003 study.

Along with the reviews of the previous existing conditions reports, inspections of the existing building's current conditions were conducted by the architect, structural engineer, mechanical engineer and electrical engineer. The observations from the inspections were limited to what was readily visible. The consulting team did not evaluate strengths of materials, test systems, remove finishes or take measurements.

The minimum recommended work at the former City Hall building includes the following:

Architectural

- Roof system replacement
- Complete repointing of the exterior masonry
- Window replacement
- New elevator
- New stairways
- Improvements to meet current accessibility codes
- Reconfiguration of interior layouts to meet space program needs
- All new interior finishes
- Waterproofing of the basement level



View of typical existing masonry condition requiring repointing

View of interior showing existing elevator and stair

View of existing interior showing inefficient space use

Structural

- Replacement of damaged roof trusses
- Additional columns or floor structure reinforcing for code mandated loading requirements
- Connecting the floor and roof diaphragms to the unreinforced masonry bearing walls

Mechanical

- Verification of proper sprinkler protection of combustible concealed spaces, concerns are the attic spaces and concealed spaces above ceilings or below floors
- Installation of fire standpipes in each egress stairway to meet current code requirements
- Rezone sprinklers on a per floor basis to meet current code requirements
- Install a backflow preventer for protection on incoming water supply to meet current code requirements
- Test for lead contamination of the water service (due to age of piping), monitor and/ or correct if a problem is found
- Replacement of the domestic water system
- Replace hot water heater
- Provide central hot water mixing valves combined with local mixing valves to meet current code requirements
- Install hot water recirculation pump for fixture located beyond 100 ft. of the hot water source to meet current code requirements

- Replace boilers with new 93%+ efficient condensing style gas boiler to achieve peak plant efficiency, replace combustion air fans
- Replace the chiller and condenser system, including pumps
- Replace hydronic piping system, including pumps
- Replace fan coil units with units that have motorized outdoor air dampers to meet current energy code requirements
- Improve exhaust ventilation system to meet current code requirements
- Replace temperature controls with electronic based direct digital control (DDC) type energy management system (EMS)

View of existing boiler room

Electrical

- Replace the main electrical service switchboard
- Replace all branch circuit panelboards
- Replace all branch circuit wiring for wiring suitable to meet current electrical load requirements
- Provide additional general-purpose power outlets throughout the building to meet current code requirements
- Confirm emergency generator will meet expected load requirements, may require replacing if the capacity is not adequate
- Install adequate emergency lighting at all exit discharge locations, provide additional exit sign coverage
- Replace all general lighting in the building to meet current energy codes, provide lighting control system

- Replace the telecommunication cabling infrastructure throughout the building to meet current standards
- Replace the fire alarm system to comply with current NFPA and MA building code requirements
- Replace intrusion detection system for more complete coverage

View of existing electrical room

Site Improvements

- Replace parking deck and parking area under deck structure
- Reduce internal site asphalt paved areas and vehicular circulation
- Provide increased pedestrian use area, walkways and site amenities

View of exterior looking northeast showing existing paving

The former Bank of America building was not considered in the 2003 Kang Associates study and report documentation. It is included in this study as an asset to the overall City Hall space programing needs. The bank building built in the early 1980's is generally a good building for repurposing into municipal office use. However, the building will require some reconfiguration and systems upgrades to meet space program needs and current code requirements.

The minimum recommended work for the bank building includes the following:

Architectural

- Removal of the drive-thru to open up site space
- Roof replacement
- Exterior envelope maintenance (typical sealant joints, etc.)
- Interior reconfiguration and refinishing to meet space program needs, including the addition of a mezzanine

View of bank building exterior looking northeast showing existing drive-thru

View of bank building interior showing existing vault wall at right

Structural

- The building appears structurally sound. The roof structure may need reinforcing if new roof top mechanical equipment is added

Mechanical

- Provide fire suppression system
- Install a backflow preventer for protection on incoming water supply to meet current code requirements
- New water heater adequately sized for proposed use
- Verify and evaluate rooftop unit service life
- Upgrade temperature controls for automatic setback capability to meet current code requirements

Electrical

- Replace electrical service equipment
- Replace all branch circuit panelboards
- Replace all branch circuit wiring for wiring suitable to meet current electrical load requirements
- Install adequate emergency lighting at all exit discharge locations
- Replace all general lighting in the building to meet current energy codes, provide lighting control system
- Replace the telecommunication cabling infrastructure throughout the building to meet current standards
- Reconfigure the fire alarm system to function with proposed new interior layouts
- Install intrusion detection system

View of bank building existing electrical closet

Site Improvements

- Remove internal site asphalt paved areas and vehicular circulation
- Provide increased pedestrian use area, walkways and site amenities
- Provide parking area for 10 city inspector vehicles directly off Wood Place

The reports from the consulting engineers are included in the appendix of this document.

Existing City Hall Building

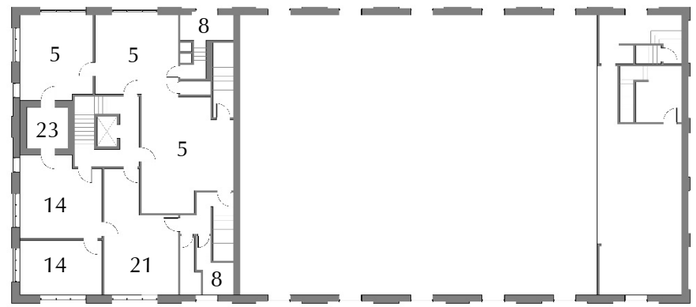
Department Key

1. Assessor
2. Auditor
3. Retirement
4. Board of Health
5. Building
6. City Clerk
7. Human Resources
8. Toilet Room
9. Mechanical/ Electrical
10. Mayor
11. Chief of Staff
12. Planning/ Community Development
13. Purchasing
14. Recreation
15. Treasurer
16. Veterans
17. Conference/ Meeting
18. Council Chamber
19. Mail Room
20. Print Shop
21. Lounge
22. Storage
23. Vault
24. Engineering
25. DPW

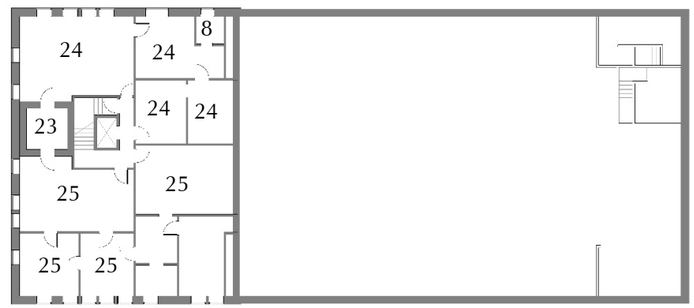
Existing Basement Floor

Existing First Floor

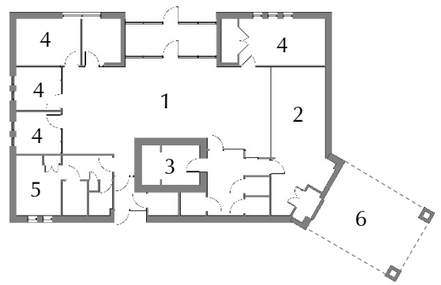
Existing Second Floor



Existing Third Floor



Existing Fourth Floor



Existing Bank Building Floor Plan

Existing Bank Building

Department Key

1. Lobby
2. Tellers
3. Vault
4. Office
5. Break Room
6. Drive-Thru Teller

PROGRAM REQUIREMENTS

Program Requirements

The space needs program for the City Hall municipal offices were initially developed in the 2003 Kang Associates study through questionnaires, interviews and observations. The program considered desired space use, future growth, storage space as well as both departmental and public meeting space along with the ancillary spaces needed to support the building. A consensus was reached for the sizing of offices, workstations and storage spaces that was used as a standard across all departments for the development of the space needs program.

The 2003 program was used as a basis for developing the current space needs. Discussions were held with the City's administrative designees to review the previous space needs and update the program where necessary. Storage requirements and department adjacencies were discussed, including the potential use of the bank building as an annex to the City Hall. After the City Administrator's review, an adjusted space needs program was developed. The new program reduced some workstations, increased or shifted others, and made some adjustments to office, storage and meeting space needs resulting in a slightly reduced program by approximately one thousand square feet.

The updated program information provided by the City did not include allowances for internal building circulation (corridors), stairways, elevator, the full number of toilet rooms required to meet the current building code, long term storage needs and other various support space requirements. When the additional space needs are factored into the given program, the existing City Hall building is not adequately sized to meet the program without making compromises. Utilizing the bank building as an annex for some departments helps alleviate this condition.

Parking and site development requirements have also been considered as part of the program. The 2003 study identified a requirement for 104 parking spaces in the program. This number is no longer current and believed to be high by the City Administrator's review. Staff parking determined by totaling the occupancies listed in the revised program for this study is 62 spaces. Approximately 30 additional parking spaces are included for use by the public.

In addition to space needs and parking the technical scope of services in the program includes developing an all-encompassing vision for City Hall at 718 Main Street. Through discussions with the City Hall Building Committee, the vision for the City Hall site was defined as maintaining the essence of the existing City Hall's place in the community while generating more "People Traffic" at the site as a catalyst for revitalization.

Space/ Use Program

Space	Old City Hall Size	2003 Study Size	2017 Workstations	2017 Requested SF	Actual Occupancy	Public Counter	Reception/ Waiting ?	In-Office Storage Needs	Long-Term Storage Needs	Notes
Assessor										
Assessor's Office	410	600	1	200	1					
General Office	500	300	4	400	3					
File Room	0	100	0	150	0	Yes	General	150 sf	500 sf	
Interview Room	0	80	0	0	0					
Vault	65	0	0	0	0					
Total Assessor	**975**	**1080**	5	750	4					
Auditor/Retirement										
Auditor	215	200	1	200	1					
Assistant Auditor	305	150	0	0	0	No	General	File cabinets	300 sf	
General Office	300	0	2	300	1					
Retirement	280	150	1	200	1					
Total Auditor/Retirement	**1100**	**500**	4	700	3					
Board of Health										
Director	180	200	1	200	1					
Senior Inspector	0	150	0	0	0					Sink or small lav in nurse's office, if possible. Cot in nurse's office.
Inspectors	0	500	5	500	5	Yes	General	500 sf	1000 sf	
General Office	1020	300	3	300	2					
Nurse	0	100	1	200	1					
Total Board of Health	**1200**	**1250**	10	1200	9					
Building										
Building Commissioner	280	200	1	200	1					
Inspectors	0	550	5	500	5	Yes	General	500 sf	1000 sf	
General Office	765	300	2	400	2					
Vault	100	0	0	0						
Total Building	**1145**	**1050**	8	1100	8					
City Clerk										
City Clerk	210	200	1	200	1					
General Office	600	500	5	500	4	Yes	General	500 sf	1000 sf	Handicap Accessible counter space needed. Public research room desired (share with Treasurer & Asssessor). Early voting = space needed somewhere to accommodate.
Vault	65	150	0	150	0					
Public Research	0	80	1	80	0					
Total City Clerk	**875**	**930**	7	930	5					
Human Resources										
Director	0	200	1	200	1	No	General	Storage closet and file cabinets	150 sf	
General Office	340	300	1	300	1					
Total Human Resources	**340**	**500**	2	500	2					
Info Tech										
Director	0	200	1	200	1					
General Office	0	300	2	300	2	No	No	16' shelving	No	General Office needs workbench for 2 people. Server room secured access, off ground temp control.
Server Room	0	300	0	250	0					
Total Info Tech	**0**	**800**	3	750	3					
Legal										
City Solicitor	0	250	1	200	1	No	General	File cabinets	150 sf	Legal to be located with Purchasing Office.
Total Legal	**0**	**1650**	1	200	1					
Mayor										
Mayor	180	250	1	250	1					
Chief of Staff	0	200	1	200	1					
Mayor's Conference	0	250	0	250	0	No	In office	Storage closet and file cabinets	75 sf	Large storage area needed for Civic Days signs, equipment, and supplies.
Mayor's Asst/Reception	0	300	2	300	1					
Mayor's Restroom(s)	0	50	0	50						
Total Mayor	**590**	**1050**	4	1050	3					

Space/ Use Program

Planning/Comm Dev										
Director	0	0	1	200	1					
Economic Dev Dir	0	0	1	200	1					
General Office	2080	300	4	400	3	No	General	File cabinets	150 sf	
Planning Office	0	700	3	300	3					
Planning Coordinator	200	200	1	200	1					
Housing Director	0	0	1	200	1					
Total Planning	**2475**	**1200**	11	1500	10					
Purchasing										
CPO	190	200	1	200	1	No	General	Storage closet and file cabinets	150 sf	Incorporate Legal Office in Purchasing Suite. Add a large shelving unit for bid docs and plans.
General Office	330	300	3	300	2					
Total Purchasing	**520**	**500**	4	500	3					
Recreation										
General Office	525	250	2	200	1	No	General	150 sf	500 sf	
Storage	0	200	0	200						
Total Recreation	**525**	**450**	2	400	1					
Treasurer										
Treasurer	190	200	1	200	1					
Assistant Treasurer	0	0	1	150	1					
Payroll	0	300	2	300	2	Yes	General	Large vault, file cabinets, storage closet	1000 sf	Additional vault space needed in other location. Helpful to have a space (maybe shared) for new employee paperwork.
General Office	810	900	4	400	4					
Vault	100	80	0	100						
Total Treasurer	**1100**	**1480**	8	1150	8					
Veterans										
Veterans Agent	175	200	1	200	1	No	In office	File cabinets and storage closet	150 sf	
Clerical/Reception	0	150	1	150	1					
Veterans	**175**	**350**	2	350	2					
TOTAL OFFICE SPACES	**11020**	**12790**		11080						
Support Spaces										
Conference	260	250	15	250	15					
Conference	0	250	15	250	15					
Conference	0	250	15	250	15					
Meeting	640	600	40	600	40					History Room?
Council Chamber	1080	1500	100	1500	100					
Mail Room	650	150	2	150						
Copy centers (2 or 3?)	0	0	3	300						
General Storage	1580	2400	0	2400						
General Vault	735	1200	0	1200						
Maintenance	0	300	2	300	2					
Lunchroom	360	350	20	400						
Toilet Rooms		300		600						
Reception (NEW)										
TOTAL SUPPORT	**5305**	**7550**		**8200**						
TOTAL ALL SPACES	**16325**	**20340**		**19280**						

We are interested in the concept of bringing customer service counters to the hallways, rather than using office space to accommodate counters in high-use departments:
Collector/Treasurer
Health
Building
City Clerk
Assessor

DESIGN CONCEPTS

- Site Development
- Option 1 – Renovation without the Grand Hall
- Option 2 – Renovation with Grand Hall
- Option 3 – Addition/ Renovation with Entrance from Parking
- Option 4 – Addition/ Renovation with Plaza Entrance
- Option 5 – New Construction with Existing Façade
- Recommendations

Design Concepts

After analysis of the existing conditions and the space requirements for the current City Hall program it is evident that the existing building is deficient in meeting the needs of the City. The existing building is in poor condition, systems are outdated or not functioning and today's building code requirements cannot be met in its current state. The existing site conditions are also poor and do not meet the aspirations expressed by the City to represent the civic presence deserved by a building as significant to the community as the City Hall building. Currently, only few parking spaces are available at the site without the parking structure. Significant investment is needed to bring back the former City Hall building and site to serve the civic needs of the community. The purpose of this study was to utilize existing information and documents from past studies in order to take a new look at the development of the 718 Main Street site. The study considers the existing buildings and site, including parking and circulation challenges to propose a range of concepts from selective demolition and renovation, renovation with additions and new construction. Five concept options within these approaches have been developed:

- Option 1 is a selective demolition and renovation of the existing structure with adaptive re-use of the auditorium area.
- Option 2 is a selective demolition and renovation of the existing structure with restoration of the auditorium space.
- Option 3 is a renovation of the 1853 portion of the structure, demolition of the 1879 section of the structure and a new addition with the entrance from the parking area facing Boulder Drive.
- Option 4 is a renovation of the 1853 portion of the structure, demolition of the 1879 section of the structure and a new addition with the entrance from the side facing a proposed plaza.
- Option 5 is new construction while maintaining portions of the historic façade on two sides of the building. An alternate for Option 5 without utilizing portions of the historic façade for the exterior elevations is given consideration in the budget recommendations for cost comparison purposes.

In all of the concept options, the previously demolished parking structure is rebuilt in a slightly reconfigured more efficient layout. The bank building is also utilized in all of the concepts as an annex to supplement the space needs being met in the main City Hall structure. All of the options are concepts that represent different approaches for meeting the goals of improving the site and permanently locating the City's municipal headquarters at 718 Main Street. The options are not developed schematic designs. The conceptual layout options are for the purpose of testing the feasibility of the various approaches and developing preliminary budget recommendations for an order of magnitude comparison of the options.

Site Development

All of the options include the potential to develop the site with a public campus space linked to Main Street. The campus approach takes advantage of utilizing the site space available with the bank building for making significant site improvements that have the potential to increase public activities and interaction at the site and surrounding area. The prominent features that make up the campus approach and form an open space, or plaza area, are the City Hall building, the parking structure and

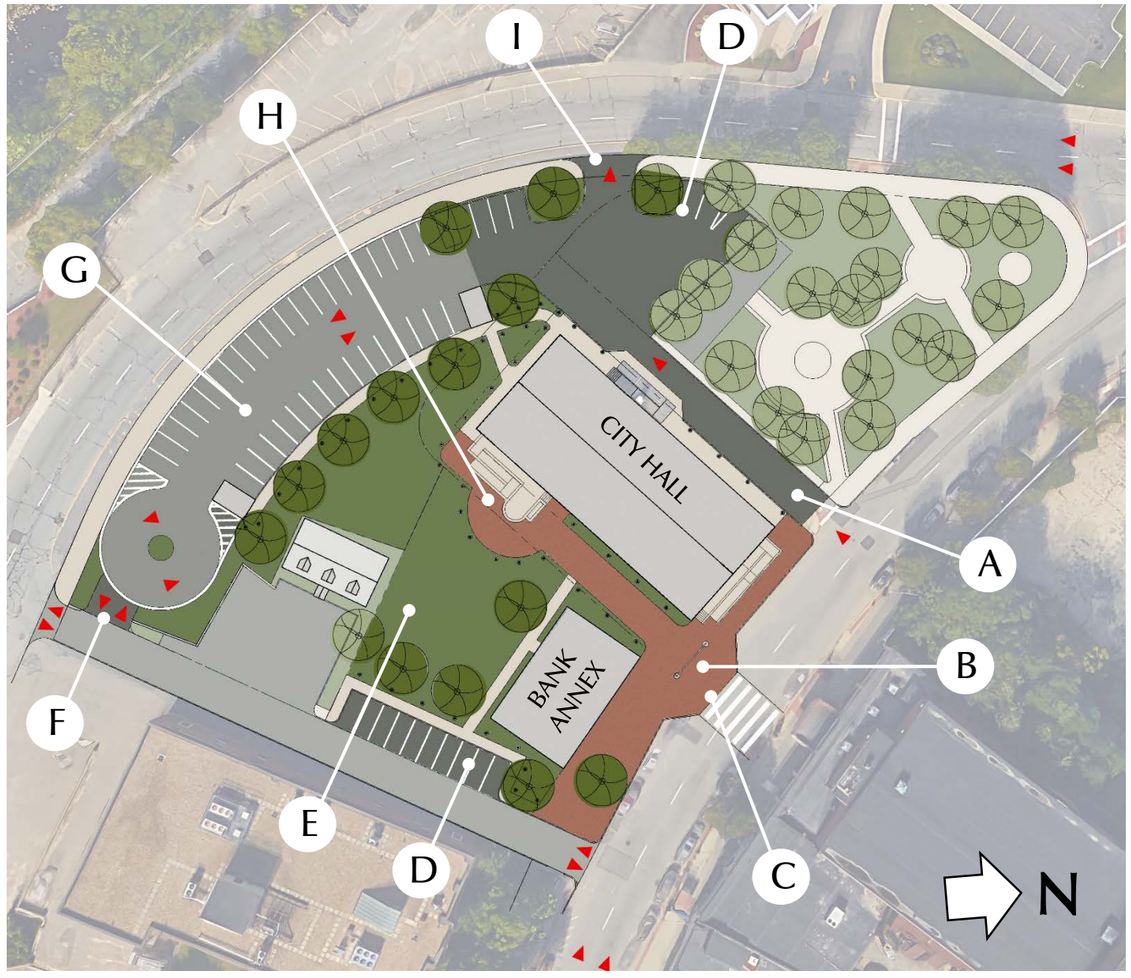
the bank annex. Wood Place, although not a City owned property, also helps define the plaza area and has the potential to contribute to the area as an activity center. The existing park on the Northwest side of the City Hall site adds to the overall public park setting with the City Hall as the center piece. This approach to the site improvements at the City Hall site helps create a civic and public anchor to this district of Main Street. It helps extend the open green space starting at the Upper Commons further down Main Street and begins to make a closer perceived link Monument Park and other public amenities along Main Street. The campus approach, with the increased open public space, is a key factor in the proposed site development to generate more "People Traffic" and be a catalyst for the area's revitalization.

The site plan presented in this study shows the primary structures of the City Hall, the parking deck and the Bank Annex. The parking concept includes an upper deck structure with surface parking below the deck. The structured parking deck has access from the Northwest side of City Hall and Boulder Drive. The lower surface parking below the deck structure is accessed from Boulder Drive at the Southeast side of the site. The upper and lower parking accommodates approximately 90 parking spaces. About 37 of the parking spaces are at the lower level with the majority of the parking at the upper level. Accessible parking spaces are accommodated on the structured deck that is essentially at the same grade as the main site area for the City Hall. Some parking spaces are along Wood Place to specifically serve the Bank Annex program functions.

The site concept shows a level of development with potential plaza paving patterns, plantings and amenities including a gateway marker and a monument or water feature as well as other site improvements as indicated in the Site Plan Key. The extent of development presented in the site plan falls on the higher side of the preliminary budget recommendations for the sitework.

The level of site development may be scaled back to align with the lower end of the sitework budget recommendations. Reduced scope at the plaza area could potentially be limited to demolition of the bank parking, curbing, drive-thru and interior asphalt paved circulation areas, re-grading and base preparation. New materials would be limited to lawn, minimal plantings, minimal concrete walkways, and asphalt parking off of Wood Place.

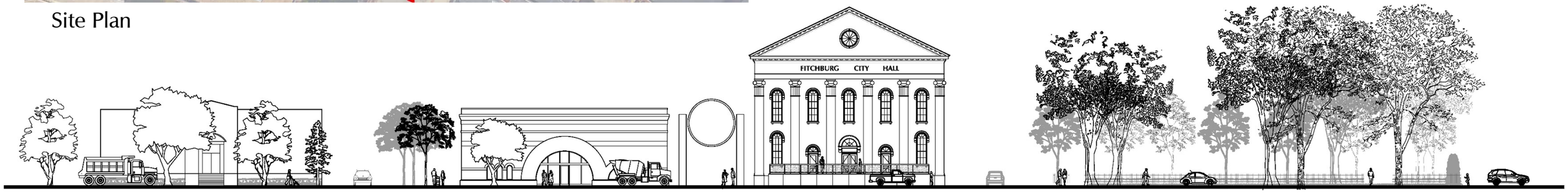
If the bank building and its accompanying site area are not included in the scope of the proposed project development, the site would essentially remain in its current configuration with little improvements. The site circulation would remain as it is currently, only with new paving. The potential opportunity for revitalization of the area through incorporating increased open park space for public activities and interactions would be limited.



Site Plan

Site Plan Key

A. Parking Deck Access (One way)
B. Plaza Gateway (Pedestrian only)
C. Pedestrian Crossing and haunched sidewalk
D. Surface Parking
E. Plaza Lawn
F. Surface Parking (Under Parking Deck)
G. Parking Deck
H. Event Platform
I. Parking Deck Exit



Main Street Elevation

Option 1 – Renovation without the Grand Hall

Option 1 includes selective demolition and full renovation of the complete 1853 structure and 1879 addition. The overall scope of work includes the minimum recommended work as outlined in the existing conditions section of this study.

One of the most noticeable exterior features of this option is removing the exiting dormers of the 1879 addition, and modifying the existing roof and cornice for clean, continuous lines. Additional exterior features include reconfiguring the existing modified window openings to restore more historically correct building elevations, replace the Main Street stairs and platform with a cleaner redesigned access landing that includes an accessible ramp, and an accessible ramp at the plaza side entrance that incorporates a viewing platform. The existing accessible ramp structure on the Renaissance Park side of the building will remain. All entrances will be accessible.

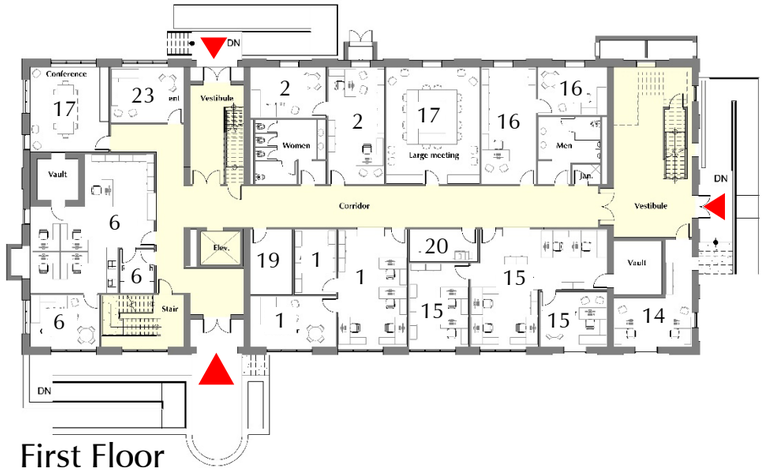
The interior layout of the building is organized with the primary public service departments, such as the Assessor, the City Clerk and the Treasurer, on the first floor level. The Mayor's office and large meeting spaces, including the Council Chamber are located on the second floor. Remaining departments are located on the upper floors. The basement level is not well suited for use as office space. It is designated as storage, mechanical, electrical and support spaces for the building.

In this option the second floor of the 1853 portion of the structure, which was originally a grand hall auditorium, is built out with the Council Chamber, large meeting room, lunch room, a few smaller departments and some required support. A gallery area is also incorporated outside the Council Chamber that can function as a waiting area or lobby space when large meeting are being held. The large rooms will utilize the building's original double height space in this area to create appropriately sized volumes for the functions and expose the full window heights. With the build out of the second floor in this manor a majority of the City Hall's space needs are contained within three floors of the main building. This leaves some space available on the fourth floor of the 1879 portion of the building to be developed in the next phases of the City Hall renovation.

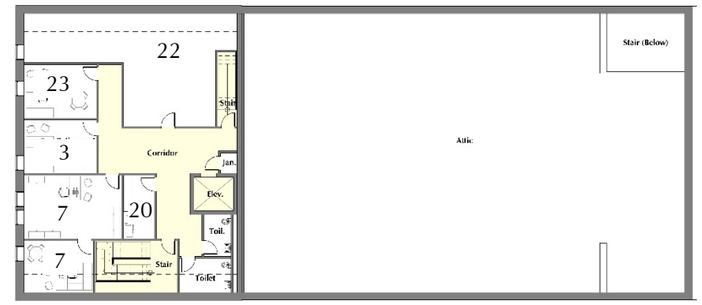
The bank building is developed as an Annex to the City Hall. The Board of Health and the Building Department occupy the Annex. The bank building is well suited to serve the functions of these departments because it allows the extended hours of operation required by the Health and Building departments. The separate Annex enables public and employee access to the departments outside the main City Hall hours without the need open and control the full City Hall building. Changes to the exterior of the bank building are limited to the removal of the drive-thru to open up site space. The interior is reconfigured to accommodate the departments including a mezzanine taking advantage of the building's double height space.

Department Key

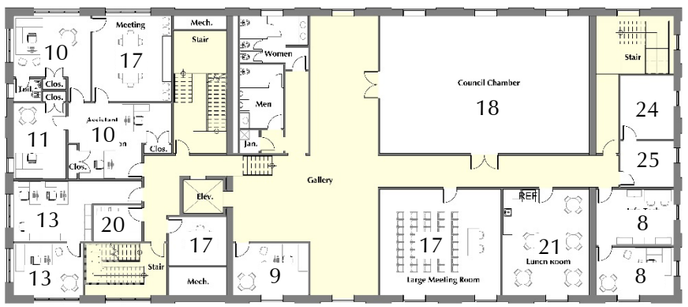
1. Assessor
2. Auditor
3. Retirement
4. Board of Health
5. Building
6. City Clerk
7. Human Resources
8. Info Tech
9. Legal
10. Mayor
11. Chief of Staff
12. Planning/ Community Development
13. Purchasing
14. Recreation
15. Treasurer
16. Veterans
17. Conference/ Meeting
18. Council Chamber
19. Mail Room
20. Copy Center
21. Lunch Room
22. Unassigned
23. Satellite Office
24. Server Room
25. Equipment Room



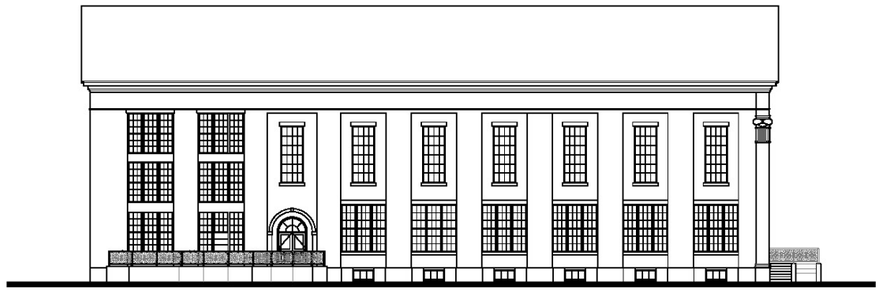
First Floor



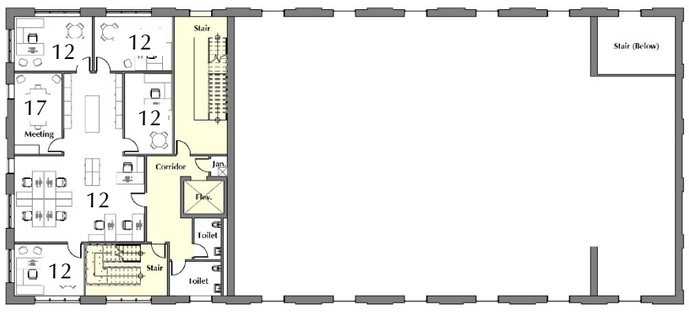
Fourth Floor



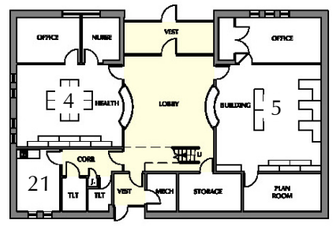
Second Floor



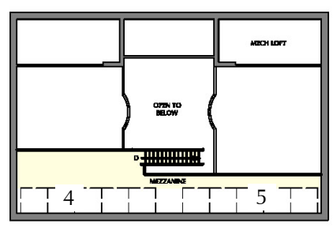
Plaza Elevation



Third Floor

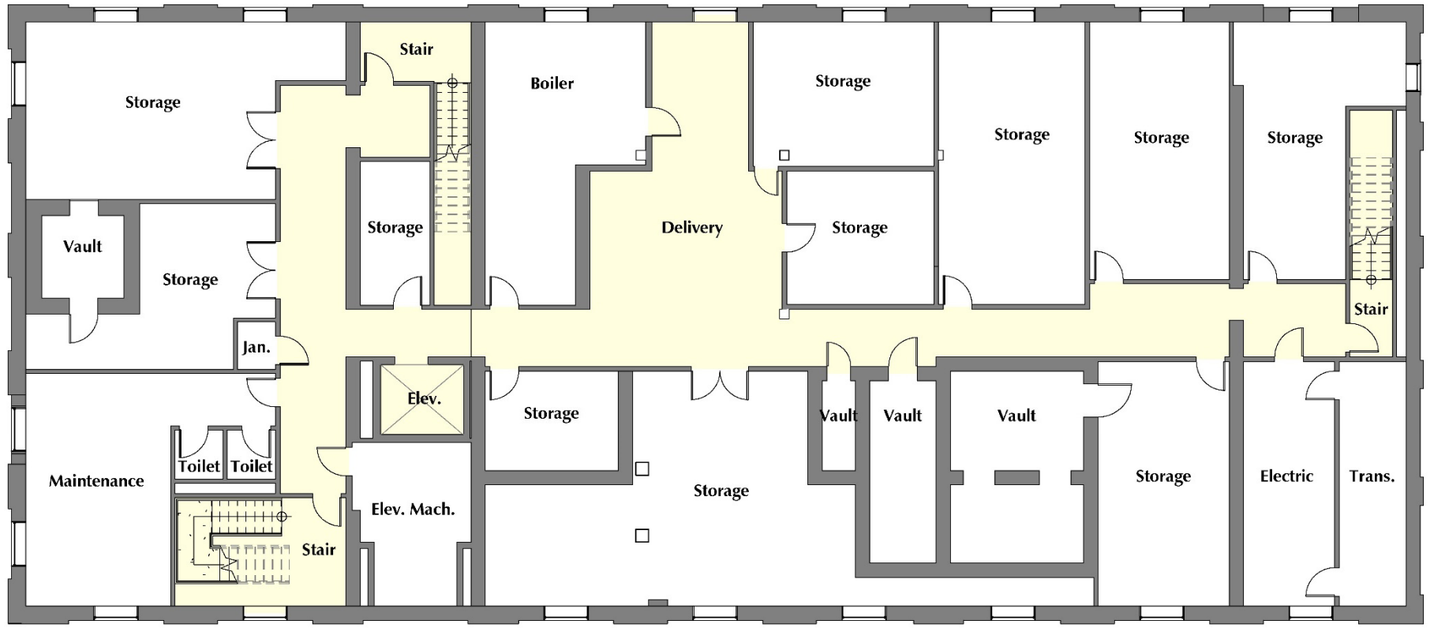


Bank Annex First Floor Plan



Bank Annex Mezzanine Plan

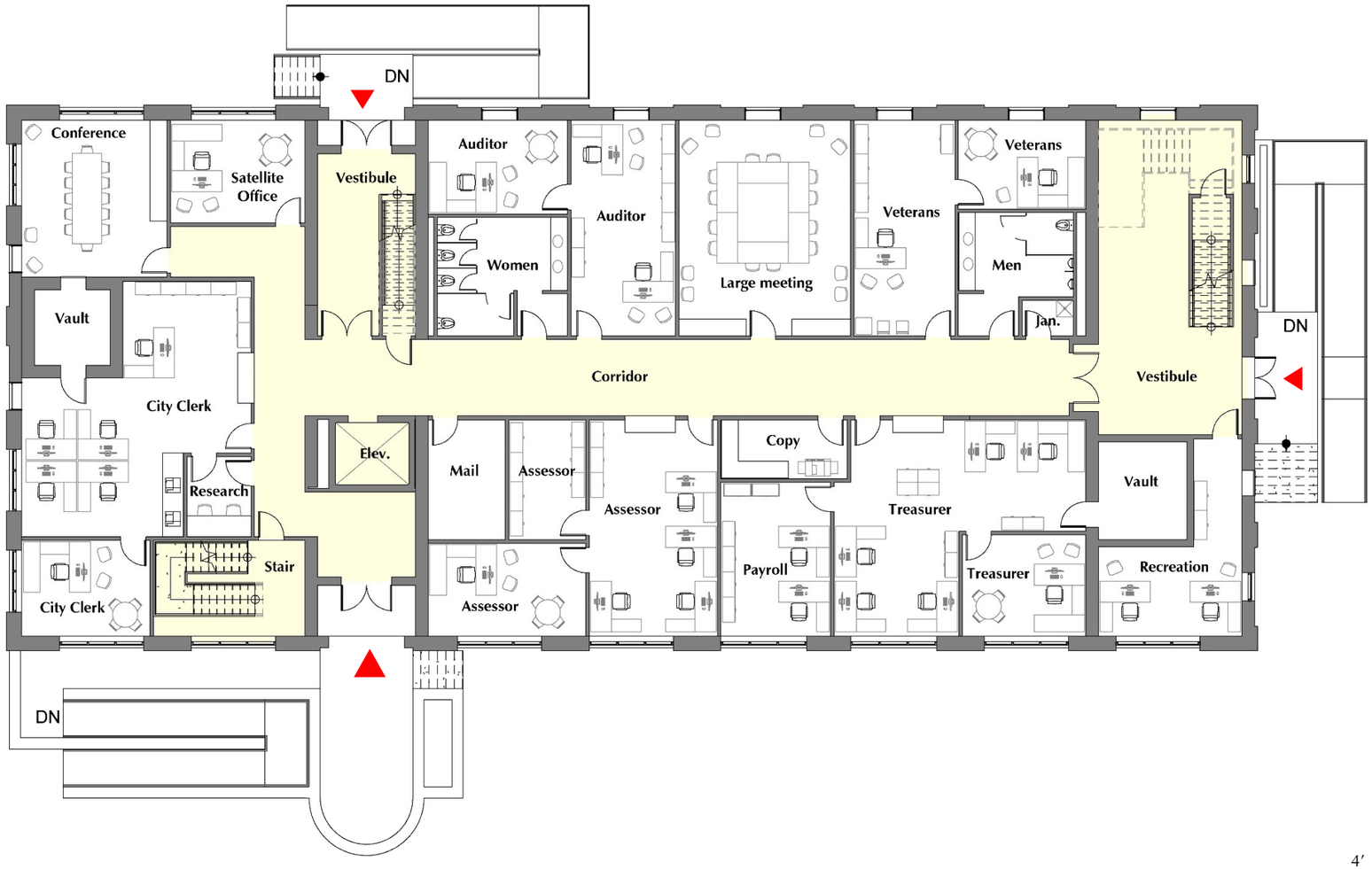
Bank Annex Plans (Used with all options)



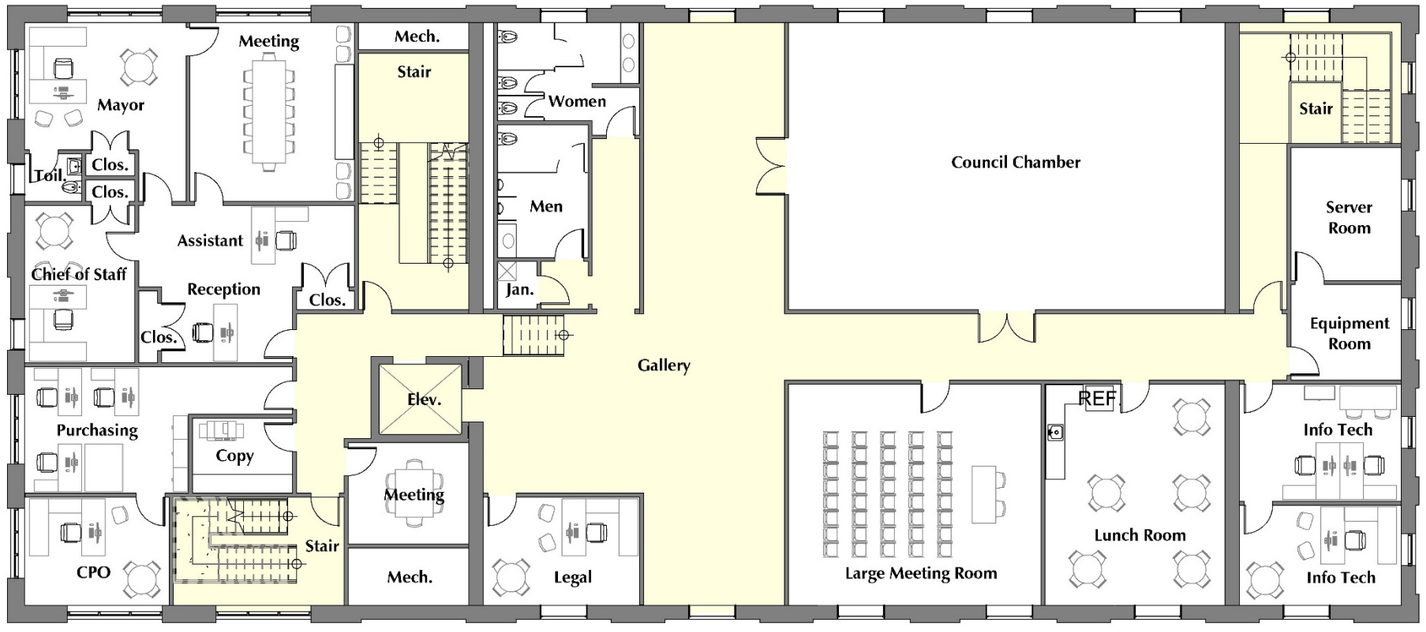
Basement Floor Plan

4′ 16′
0 8′

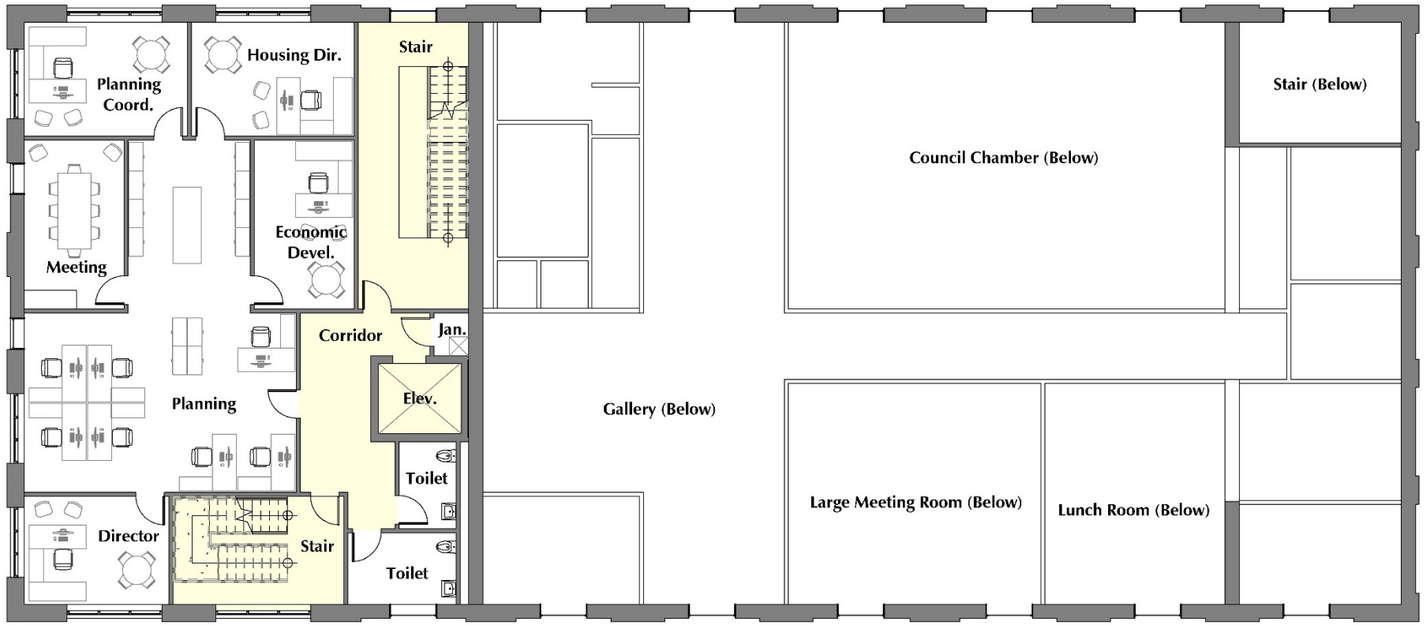
N



First Floor Plan



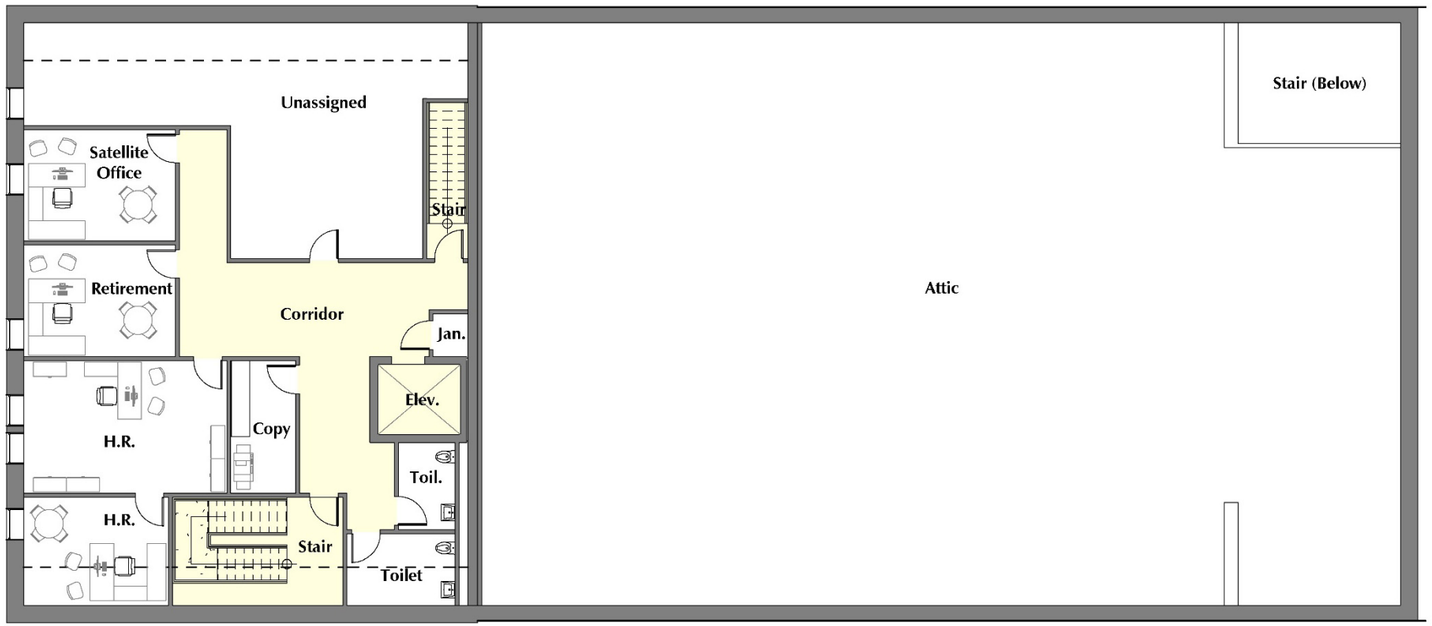
Second Floor Plan



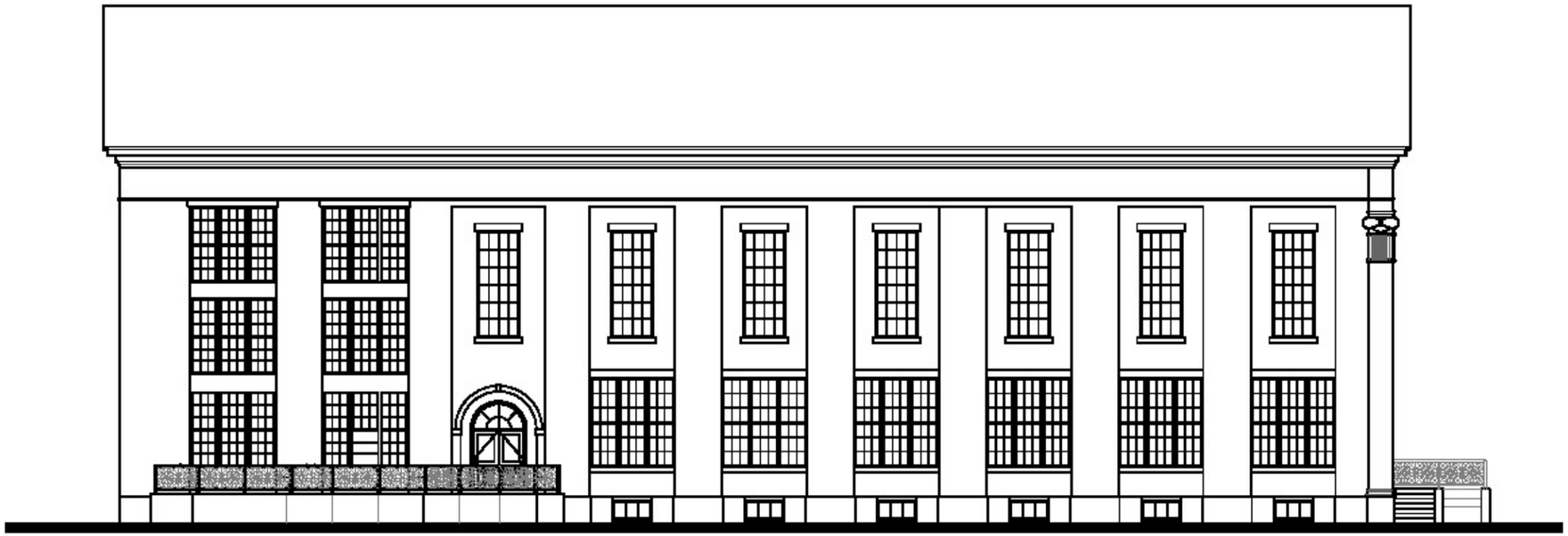
Third Floor Plan

4′ 16′
0 8′

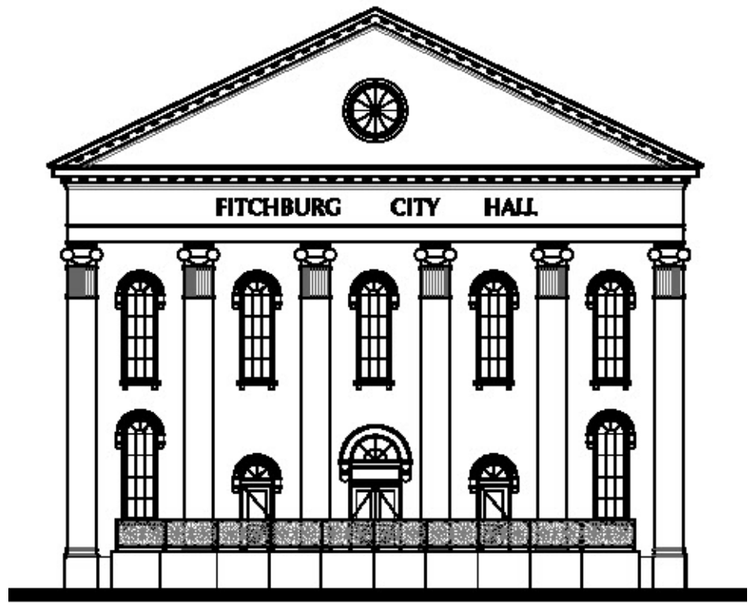
N



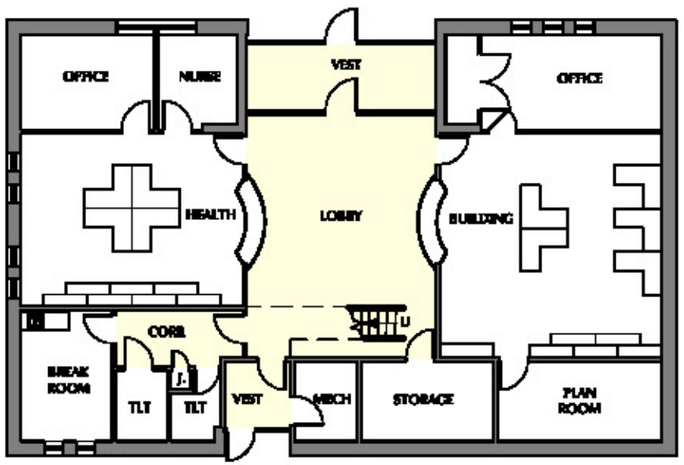
Fourth Floor Plan



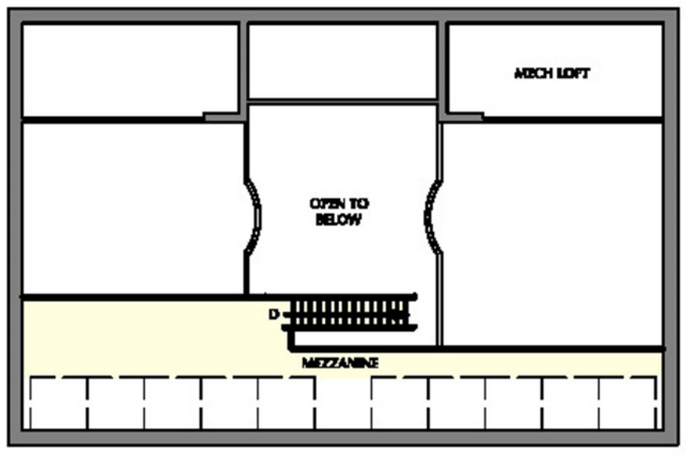
Plaza Elevation



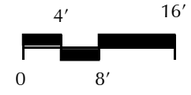
Main Street Elevation



Bank Annex First Floor Plan



Bank Annex Mezzanine Plan



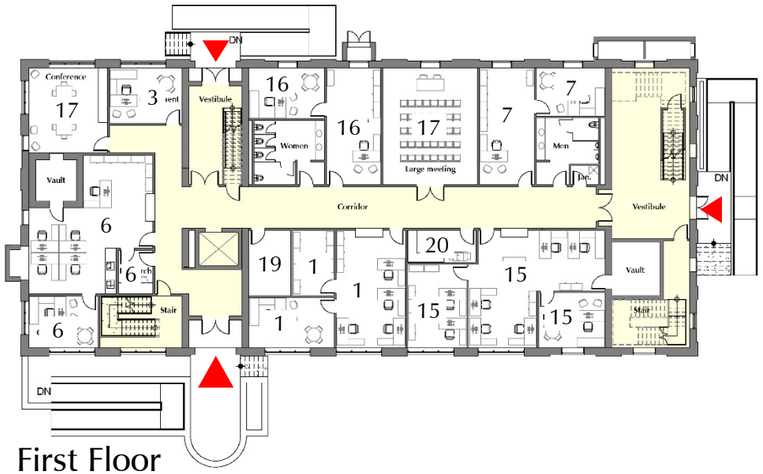
Option 2 – Renovation with Grand Hall

Option 2 is similar to Option 1 in most respects. The overall scope of work as identified in the existing conditions section of the study is included. The treatment of the exterior is the same as in Option 1. Option 2 follows the same general internal building organization as Option 1, with departments having the most frequent public contact located on the first floor level. The Mayor's office and The Council Chamber are located on the second floor and remaining departments are located on the upper floors. The bank building is also used as an Annex to the main City Hall building for the Health and Building departments as in Option 1.

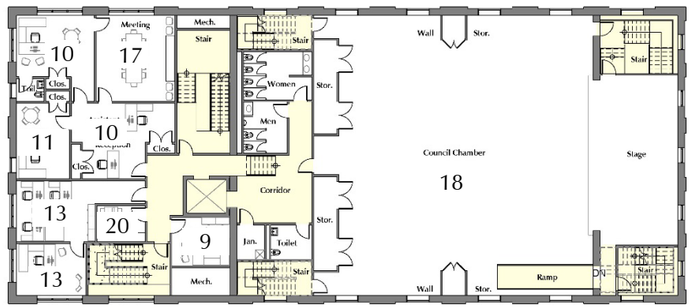
The primary difference in Option 2 is that the second floor of the 1853 portion of the structure is brought back as a grand hall auditorium use. The auditorium will have a stage and balcony as in the original 1853 design. However, the revived use will not be an exact restoration of the original design. Some new accommodates are required to serve the current needs of the City Hall. The space will incorporate a movable partition to sub-divide the area when needed, and additional storage for tables and chairs will be provided. The intent is to capture the original spirit of the 1853 Grand hall and bring back as much of the detailing as practical. The primary program use for the hall will be to serve as the Council Chamber and accommodate public meetings. With the addition of the movable partition, the sub-divided space will also be useable for smaller group meetings. The space may also be used for additional community events and gatherings as well as outside groups. Some potential outside group uses could be performances, commerce or business meeting events and government or private agency seminars.

Department Key

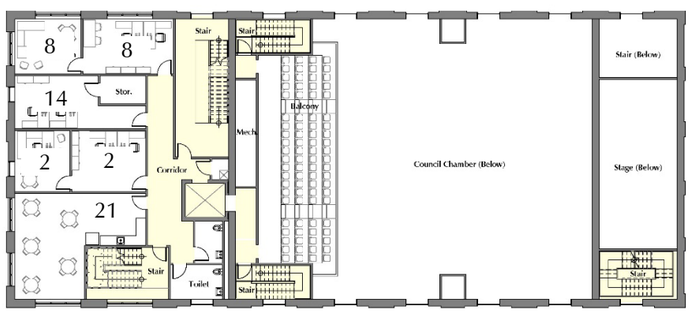
1. Assessor
2. Auditor
3. Retirement
4. Board of Health
5. Building
6. City Clerk
7. Human Resources
8. Info Tech
9. Legal
10. Mayor
11. Chief of Staff
12. Planning/ Community Development
13. Purchasing
14. Recreation
15. Treasurer
16. Veterans
17. Conference/ Meeting
18. Council Chamber
19. Mail Room
20. Copy Center
21. Lunch Room
22. Unassigned



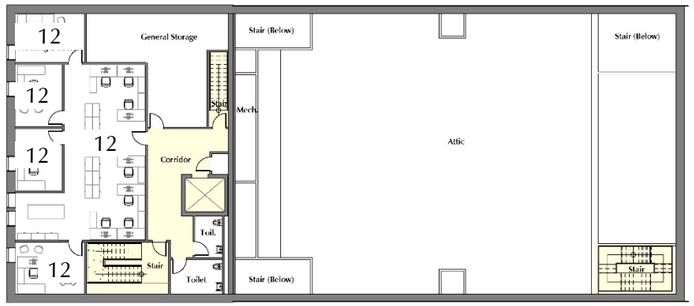
First Floor



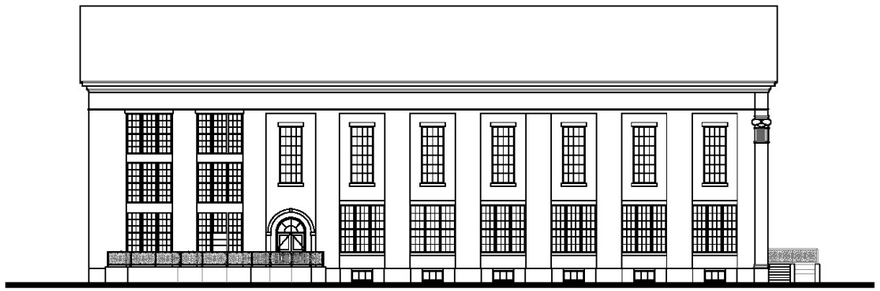
Second Floor



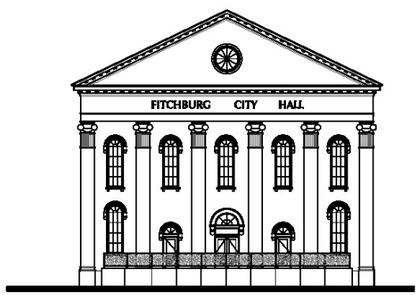
Third Floor



Fourth Floor



Plaza Elevation



Main Street Elevation

Option 3 – Addition/Renovation with Entrance from Parking

Option 3 includes selective demolition and full renovation of the 1853 portion of the structure and full demolition of the1879 section to make way for a new addition. The overall scope of work includes the minimum recommended work as outlined in the existing conditions section of this study for the renovated 1853 area of the building.

The general organization of the internal layout of the option is same as in the previous options. The basement is used for storage and support, the primary public contact departments are located on the first floor, the Mayor's office and Council Chamber on the second floor, and the remaining departments on the upper floors. The bank building is also used as an Annex to the main City Hall building for the Health and Building departments as in the previous options.

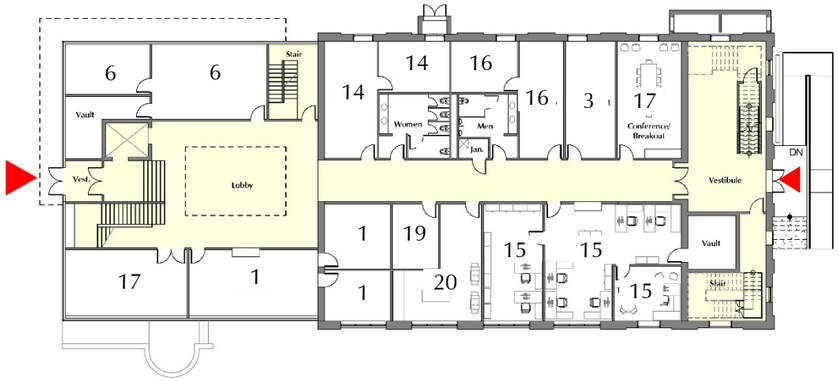
The exterior highlight of this option is the new addition replacing the 1879 portion of the existing structure. The 1853 section of the existing structure receives full renovation with the redesigned front entrance landing with an accessible ramp, and the reconfigured windows for more historically correct building elevations. The new addition does not replicate the look of 1853 building. The concept for the new addition follows the principles outlined by The Secretary of the Interior's Standards and Guidelines for new additions to historic buildings. New additions to historic buildings shall be designed and constructed to be clearly differentiated from the historic building. The work shall be differentiated from the old and will be compatible with the historic materials, features, size, scale and proportions, and massing. The elevations shown in Option 3 are not intended to represent a schematic design. The elevations present a concept that illustrates an example of the principles outlined by The Secretary of the Interior's guidelines for the purpose of testing the feasibility of an addition/renovation approach.

The concept for the new addition features a prominent central lobby with a light well through the floors above. The departments and offices are organized around the perimeter of the lobby and light well on the upper floors. The grand hall auditorium space at the second floor level of the historic 1853 section of the building is incorporated into this option.

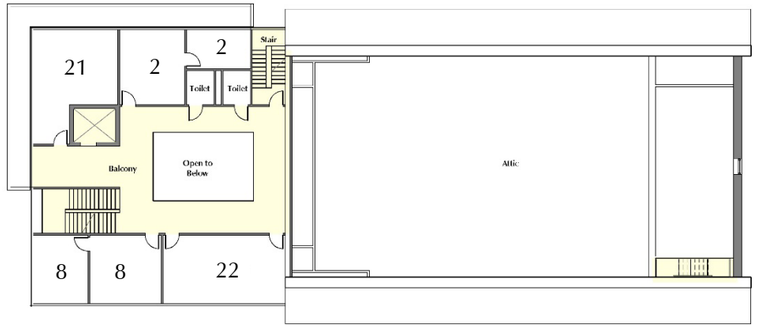
The new addition has the main entrance at the Southwest end of the building facing the new parking structure. The new entrance is aligned with the historical front entrance from Main Street. This creates a visual axis through the length of the building. The new entrance at the addition is accessible at grade. However, the sidewalk grade at the perimeter of the building is approximately four feet lower than the first floor level. A short flight of stairs at the lobby entrance is needed to negotiate this level change. An elevator that has a door on two sides is directly adjacent to the stair to address accessibility needs. The elevator serves all floors in the building.

Department Key

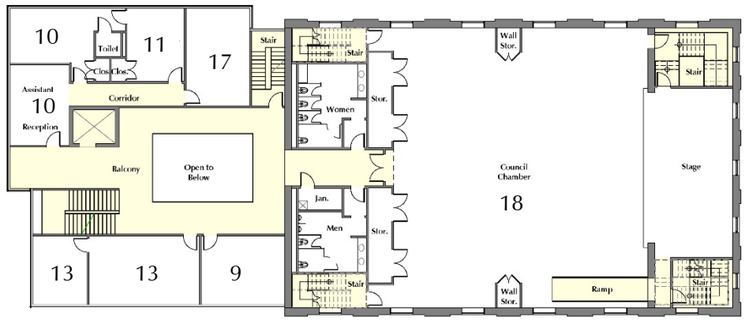
1. Assessor
2. Auditor
3. Retirement
4. Board of Health
5. Building
6. City Clerk
7. Human Resources
8. Info Tech
9. Legal
10. Mayor
11. Chief of Staff
12. Planning/ Community Development
13. Purchasing
14. Recreation
15. Treasurer
16. Veterans
17. Conference/ Meeting
18. Council Chamber
19. Mail Room
20. Copy Center
21. Lunch Room
22. Unassigned



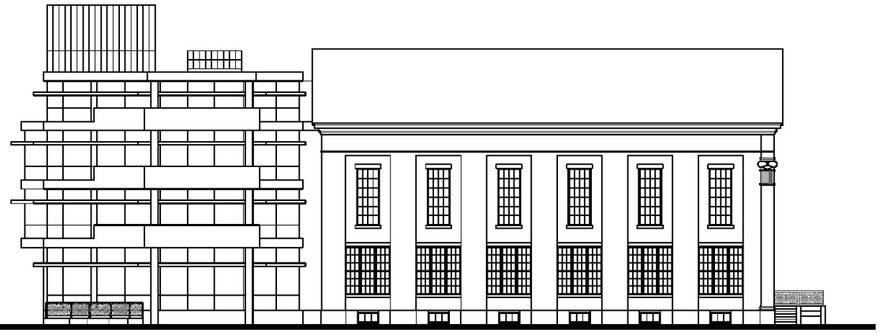
First Floor



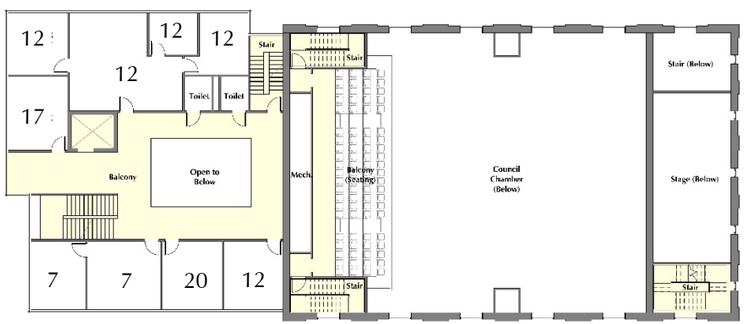
Fourth Floor



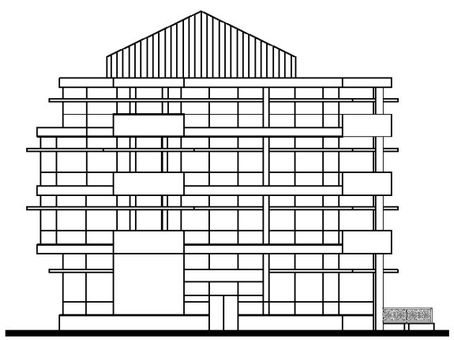
Second Floor



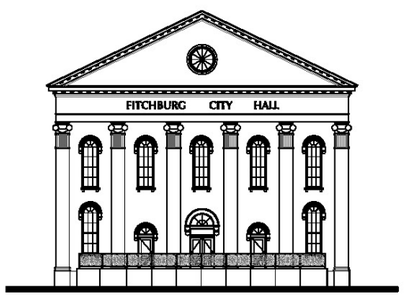
Plaza Elevation



Third Floor



Boulder Drive Elevation



Main Street Elevation

Option 4 – Addition/Renovation with Plaza Entrance

Similar to Option 3, Option 4 includes selective demolition and full renovation of the 1853 portion of the structure with full demolition of the1879 section to make way for a new addition. The overall scope of work includes the minimum recommended work as outlined in the existing conditions section of this study for the renovated 1853 area of the building.

The same general organization for the internal layout as in the previous options is used in this option as well. Storage and support are at the basement level with the primary public contact departments on the first floor, the Mayor's Office and the Council Chamber on the second floor and the remaining departments on the upper levels. Consistent with the previous options the bank building is used as an Annex to the main building.

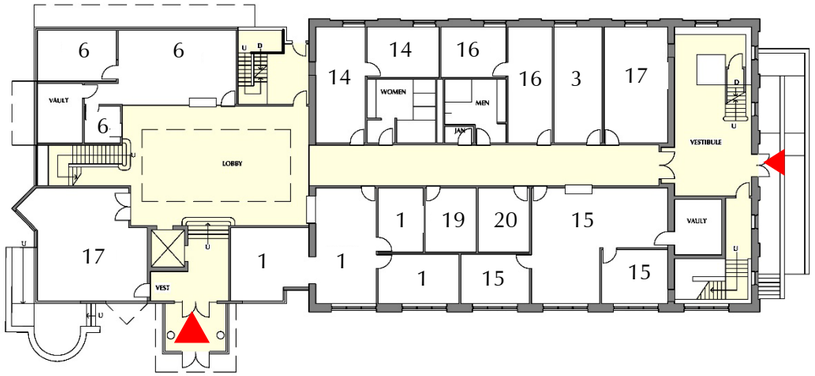
The new addition in this option is in line with the Secretary of the Interior's Standards and Guidelines for new additions to historic buildings. The new addition does not replicate the look of the 1853 building. The addition clearly differentiates itself from the historic building. As in Option 3, Option 4 elevations for the addition are not intended to represent a schematic design. They present a concept that illustrates an example for the purpose of testing the feasibility of an approach for a possible addition/renovation option.

The new addition in Option 4 is organized around a central lobby with a light well similar to Option 3. The grand hall auditorium space at the second floor of the renovated 1853 portion of the building is included in this option as well.

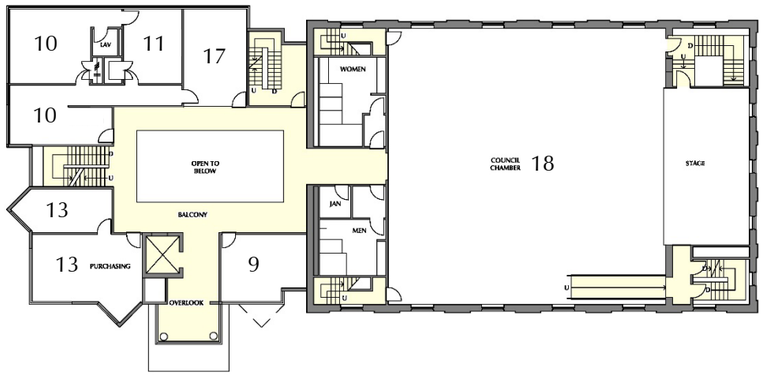
In Option 4 the new addition has the main entrance located on the Southeast side of the building facing the proposed new plaza space. The entrance on this side of the building reinforces the campus concept approach. It accentuates the new open space of the plaza for public use and has a closer relationship to the back entrance of the Annex building. The side entrance also helps create a visual link across the lobby between the plaza and the green space of Renaissance Park. The new entrance is accessible at grade and has a short flight of stairs and elevator configuration similar to Option 3. The plans and elevations of the addition in Option 4 are shown with a slightly increased level of complexity to show the potential for a range of variations that could be achieved with the addition/renovation approach.

Department Key

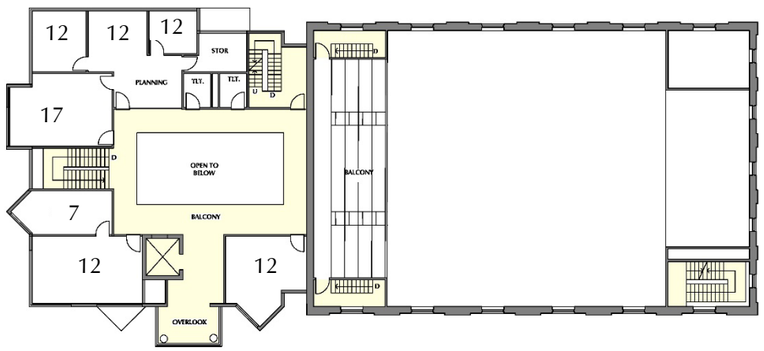
1. Assessor
2. Auditor
3. Retirement
4. Board of Health
5. Building
6. City Clerk
7. Human Resources
8. Info Tech
9. Legal
10. Mayor
11. Chief of Staff
12. Planning/ Community Development
13. Purchasing
14. Recreation
15. Treasurer
16. Veterans
17. Conference/ Meeting
18. Council Chamber
19. Mail Room
20. Copy Center
21. Lunch Room
22. Unassigned



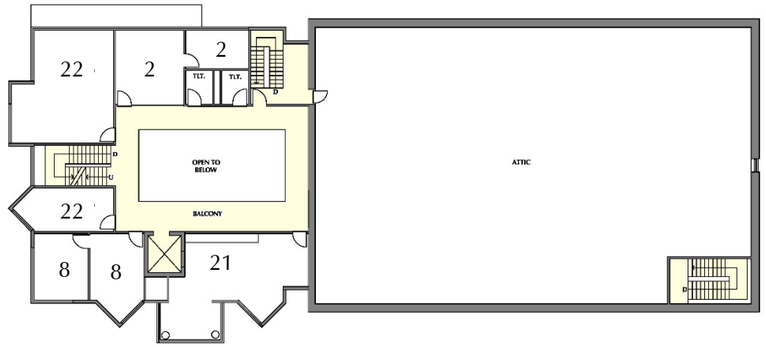
First Floor



Second Floor



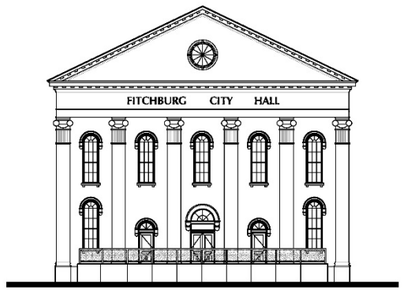
Third Floor



Fourth Floor

Plaza Elevation

Boulder Drive Elevation



Main Street Elevation

Option 5 – New Construction with Existing Façade

Option 5 is a new construction concept. This option proposes to demolish the existing building with the exception of portions of the existing 1853 façade. The existing Main Street elevation and the Northeast elevation will be maintained and restored in recognition of the historical significance of the original 1853 City Hall building to the Fitchburg Community and the fabric of the Downtown District. The new construction is inserted behind the existing façade in the same relative footprint of the demolished building.

The new construction option allows more flexibility in the interior layout and can respond more effectively to the functional needs of the City Hall program. The general organization is similar to the other options. A basement level would be included in the new construction option for storage and mechanical support. The first floor will have the primary public contact departments. Upper floors will have departments that require less public contact on a daily basis. The bank Annex is also used with this option keeping with the campus approach. Using the bank building as an Annex allows the new construction option to be three floors with sufficient headroom for required mechanical systems space while maintaining the roof line of the existing 1853 building. The new construction option, with three full floor plates, eliminates the miss-aligned floors of the renovation options. Without the restrictions of the existing building, better department adjacencies and room configurations can be achieved.

The new construction option has the offices organized around the perimeter of a central stair system that connects all three floors. The floors have circulation around the central stairs with openings to bring natural light to the interior from skylights above. Balconies connect across the central space to facilitate lateral circulation.

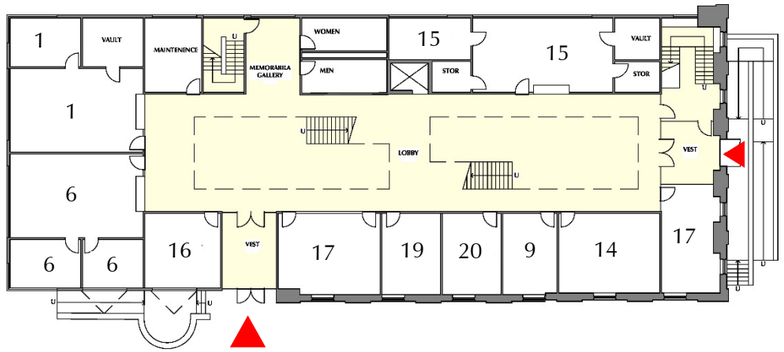
The Main Street entrance to the building will be maintained with the existing historical façade. The original entrance is elevated above the sidewalk grade, so the front entrance landing and accessible ramp will be incorporated in this option as in the previous options. However, with all new floor plates, the need for the short flight of stairs and elevator with doors on two sides to accommodate split levels is eliminated. A standard elevator is incorporated at a central location in the layout for accessibility to all floors. The new main entrance to the City Hall is located on the Southeast side of the building facing the new public plaza space. As in Option 4, this reinforces the campus concept approach. It accentuates the new open space of the plaza for public use and a closer relationship of the entrance to the Annex building. The entrance also creates a visual link across the lobby between the plaza and the green space of Renaissance Park.

The new construction option with the existing façade takes the same visual approach as the addition/renovation options, following the Secretary of the Interior's Standards and Guidelines for new additions to historic buildings. While the new construction is not an addition, the historic façade of the 1853 building is maintained in sufficient proportions to warrant treatment in a similar manner. The new construction is clearly differentiated from the historic building façade. The new work is differentiated but is compatible with the historic materials, features, size, scale and proportions, and massing with the old. The elevations present a concept that illustrates an example of new construction combined with a historic façade that follows the principles outlined by The Secretary of the Interior's Guidelines. The elevations are intended for the purpose of testing the feasibility of a new construction approach while maintaining portions of the existing façade.

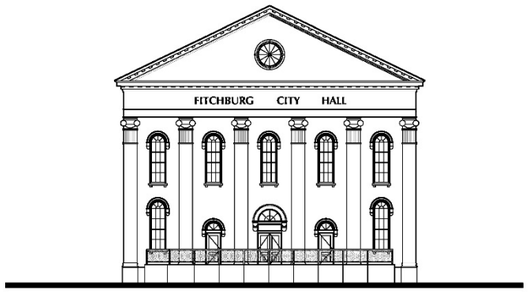
For comparison, an alternate for Option 5 is given consideration in the preliminary budget recommendations. The alternate for Option 5 is the same new construction as described in the paragraphs above with the exception of maintaining the existing 1853 historic façade on Main Street and the Northeast elevation. The alternate for Option 5 proposes a completely new building with all new elevations/facades and deletes the cost premium for maintaining and restoring portions of the existing 1853 historic façade. The alternate is presented in the preliminary budget recommendations only for cost comparison. Elevation graphics have not been developed for the Option 5 Alternate.

Department Key

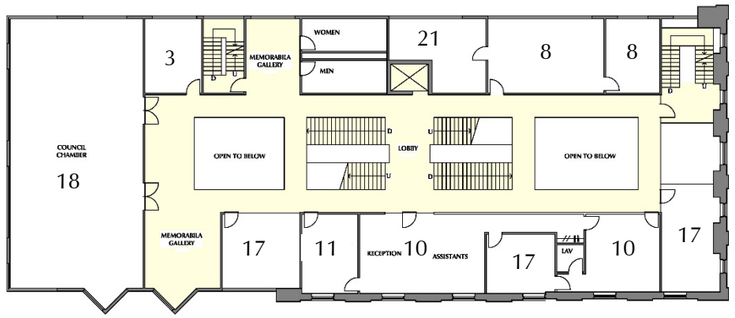
1. Assessor
2. Auditor
3. Retirement
4. Board of Health
5. Building
6. City Clerk
7. Human Resources
8. Info Tech
9. Legal
10. Mayor
11. Chief of Staff
12. Planning/ Community Development
13. Purchasing
14. Recreation
15. Treasurer
16. Veterans
17. Conference/ Meeting
18. Council Chamber
19. Mail Room
20. Copy Center
21. Lunch Room
22. Unassigned



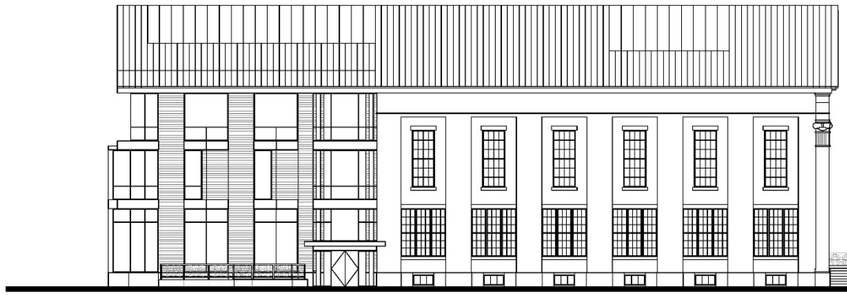
First Floor



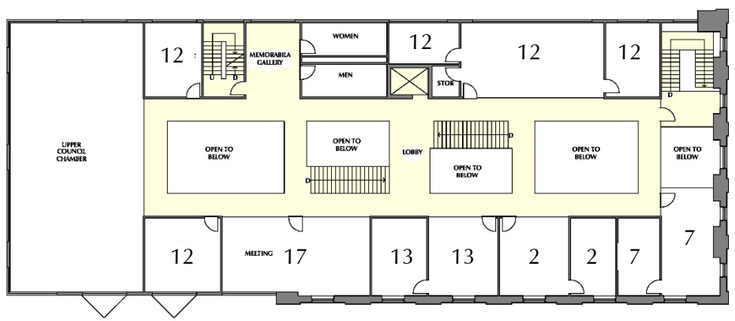
Main Street Elevation



Second Floor



Plaza Elevation



Third Floor

Boulder Drive Elevation

Recommendations

All of the approaches explored in this study present viable solutions for returning Fitchburg's municipal offices to the City Hall site at 718 Main Street. Each option exhibits varying degrees of compromise in meeting the space needs and functional requirements of the City Hall program.

Without considering costs, the general merits and limitations for each option is summarized as follows:

Option 1 – Renovation without the Grand Hall

Merits:
- Rehabilitates the structure with the a high degree of historic restoration to the exterior
- Provides flexible space on the fourth floor for future programming and design development

Limitations:
- High degree of compromise in programed space needs
- High degree of compromise in departmental relationships
- Layout of new mechanical and electrical systems is difficult and inefficient

Option 2 – Renovation with Grand Hall

Merits:
- Rehabilitates the structure with the a high degree of historic restoration to the exterior
- Rehabilitates former Grand Hall auditorium with stage and balcony
- Offers expanded use potential for increased public activities at the site

Limitations:
- High degree of compromise in programed space needs
- High degree of compromise in departmental relationships
- Layout of new mechanical and electrical systems is difficult and inefficient

Option 3 – Addition/Renovation with Entrance from Parking

Merits:
- Eliminates the most inefficient (1879) portion of the existing building
- Improved layout in new addition portion of building
- Provides a lobby space appropriate for the civic stature of the building
- Rehabilitates former Grand Hall auditorium with stage and balcony
- Offers expanded use potential for increased public activities at the site

Limitations:
- Moderate degree of compromise in programed space needs

- Moderate degree of compromise in departmental relationships
- Layout of new mechanical and electrical systems is restricted in the 1853 portion of the building
- New main entrance at the addition from the parking has a weak connection to the exterior public space

Option 4 – Addition/Renovation with Plaza Entrance

Merits:

- Eliminates the most inefficient (1879) portion of the existing building
- Improved layout in new addition portion of building
- Provides a lobby space appropriate for the civic stature of the building
- Rehabilitates former Grand Hall auditorium with stage and balcony
- Offers expanded use potential for increased public activities at the site
- New main entrance creates a strong connection to the exterior public space

Limitations:

- Moderate degree of compromise in programed space needs
- Moderate degree of compromise in departmental relationships
- Layout of new mechanical and electrical systems is restricted in the 1853 portion of the building

Option 5 – New Construction with Existing Façade

Merits:

- Eliminates the inefficiencies of the existing 1853 and 1879 structures
- Maintains and restores the most significant and visible portions of the existing historic façade
- Flexible interior layout options for effectively meeting the functional space needs of the City Hall program
- Efficient layout of mechanical and electrical systems can be achieved with appropriate floor to floor heights
- Provides a lobby space appropriate for the civic stature of the building
- New main entrance creates a strong connection to the exterior public space

Limitations:

- Elevation change from sidewalk grade to the first floor level still remains from maintaining the historic Main Street façade

The bank Annex and the parking structure have the same relationships in all of the options. The benefits and quality of their uses and existing structures have been discussed in other parts of this study and not included in the merits and limitations summary for the individual options. The merits and limitations summary presented above only considers the options relative to the main City Hall building.

The new construction option is the most appealing solution for solving the space needs and department relationships for the City Hall. New construction allows the best opportunity for developing efficient mechanical and electrical systems for the building as well. The historic significance of the original 1853 building is also respected by maintaining the existing façade on Main Street and the Northeast side of the building. The renovation and addition options offer the next best approach to minimize program compromise and provide reasonably efficient building systems. The complete renovation approach has the highest degree of compromise in meeting the space needs and functional requirements of the program. Providing efficient mechanical and electrical system layouts will be the most challenging in a complete renovation option. All of the concept options respond to the vision for the City Hall site by maintaining the presence of the existing building at the site the community has historically recognized as its municipal center. All of the options also incorporate the campus plan approach as a means to open up public space for activities and to generate more "People Traffic" as a catalyst for revitalization of the Downtown area.

After considering all of the design concept approaches and options presented, the City Hall Building Committee selected the complete renovation approach Option 1 for further development. Consideration of costs was a primary concern for this direction by the Committee. The Committee expressed further concern for budgetary considerations by requesting that Option 1 incorporate a reduced scope of sitework for additional cost control.

BUDGET RECOMMENDATIONS

- Preliminary Project Description
  Basis of Design
- Cost Estimate Summary

Budget Recommendations

The various concept approaches and options have been developed to a sufficient level to engage a professional cost estimator for the purpose of providing preliminary budget recommendations. The budget recommendations include construction costs with contingency and soft costs to represent total project costs with escalation through the summer of 2018. The preliminary budget recommendations are based on very general square foot costs utilizing a historical cost data base. The goal of the preliminary budget recommendations is to allow a fair order of magnitude cost comparison of the options by the City Hall Building Committee for selection and further study.

The preliminary budget recommendations presented to the City Hall Building Committee at the June 2, 2017 Options Review Meeting are shown in the table below:

	Option 1 Renovation w/out Grand Hall	Option 2 Renovation w/ Grand Hall	Option 3 Add/Reno w/ Entrance from Parking	Option 4 Add/Reno w/ Plaza Entrance	Option 5 New Construction w/ Existing Facade
City Hall Renovations	$10,170,000 - $12,430,000	$10,925,000 - $13,350,000	$17,100,000 - $20,900,000	$20,700,000 - $25,300,000	$20,100,000 - $24,530,000
Bank Annex	$685,000 - $835,000	$685,000 - $835,000	$685,000 - $835,000	$685,000 - $835,000	$685,000 - $835,000
Sitework - Plaza	$773,000★ - $2,710,000	$773,000★ - $2,710,000	$773,000★ - $2,710,000	$773,000★ - $2,710,000	$773,000★ - $2,710,000
Garage	$1,200,000 - $1,500,000	$1,200,000 - $1,500,000	$1,200,000 - $1,500,000	$1,200,000 - $1,500,000	$1,200,000 - $1,500,000
Total Construction Cost	$12,828,000 - $17,475,000	$13,395,750 - $18,395,000	$19,758,000 - $25,945,000	$23,358,000 - $30,345,000	$22,758,000 - $29,575,000
Soft Cost (40%)	$5,131,200 - $6,990,000	$5,433,200 - $7,358,000	$7,903,200 - $10,378,000	$9,343,200 - $12,138,000	$9,103,200 - $11,830,000
Total Project Cost	**$17,959,200 - $24,465,000**	**$19,016,200 - $25,753,000**	**$27,661,200 - $36,323,000**	**$32,701,200 - $42,438,000**	**$31,861,200 - $41,405,000**

★ Limited Sitework – Plaza: Reduced scope at plaza area limited to demolition of existing bank parking, curbing, drive thru and interior asphalt paved circulation areas, re-grading and base preparation, new materials limited to lawn, minimal plantings, minimal concrete walkways, and asphalt parking area off of Wood Place.

Note: Total construction cost has general conditions, overhead & profit, arch./eng. design contingency and escalation (summer 2018) included in the cost. See appendix F for further breakdown of total construction cost.

Option 5 Alternate
New Construction w/out Existing Façade
$31,036,200★ - $40,580,000

After consideration of the preliminary budget recommendations and the design concept options by the City Hall Building Committee, a more detailed cost estimate has been produced. The cost estimate is based on the City Hall Building Committee's direction to develop the complete renovation concept approach of Option 1 with limited sitework. The recommendations from the existing conditions reports, the concept drawings and a preliminary project description for the basis of design for Option 1 have been utilized in the preparation of the more detailed cost estimate for this stage of the project. The more detailed cost estimate falls within the preliminary order of magnitude budget recommendations. The current budget recommendation based on the more detailed cost estimate for Option 1, with a tighter swing range than the preliminary budget recommendations, falls between $21,568,000 and $23,839,000. A summary of the cost estimate is at the end of this section, the full cost estimate is included in Appendix F.

Preliminary Project Description Basis of Design

I. SITE- GENERAL
   A. General:
      1. The existing site is comprised of four contiguous parcels totaling approximately 1.6 acres, and is irregular in shape. The site is occupied by the existing City Hall building, the adjacent bank Annex building, and the remnants of a demolished parking deck. The remainder of the site is primarily paving for parking and access. The lower portion of the site has a retaining wall with gravel fill tapering down to the remains of the lower slab on grade of the demolished parking structure.
   B. Site Preparation and Scope:
      1. Provide full perimeter temporary construction fence/gates and other temporary facilities.
      2. Install temporary erosion/sedimentation and protection measures.
      3. Protect existing site/building elements on adjacent property or to remain. These include, but are not limited to, the following:
         a. Trees and plantings.
         b. Site furnishings and improvements.
         c. Site utilities to remain.
      4. Clear existing plantings, strip topsoil and remove existing site improvements.
      5. Demolish and dispose of existing asphalt paving.
      6. Demolish and dispose of remnants of parking structure, including slab on grade, foundations, footings and retaining walls.
      7. Cut and cap existing utilities that are not to be reused.
      8. Demolish and dispose of all exterior accessory structures attached to the main building with the exception of the existing galvanized metal accessible entrance structure at the Southwest side of the building.
      9. Demolish and dispose of the existing side entrance granite steps.
      10. Demolish and dispose of the drive-thru structure at the bank Annex building.
      11. Excavate and backfill at new parking structure.
      12. Excavate and backfill for new elevator pit and foundations.
      13. Fill in existing elevator pit.
      14. Excavate and backfill for new column footings in basement.
      15. Excavate and backfill for new utility trenches (incl. in basement).
      16. Excavate, backfill and prepare sub-base for concrete pad and slab on grade work (incl. in basement).
      17. New 6" water service to bank Annex building
      18. New site improvements (paving and curbing, exterior lighting, site furnishings, hardscape, etc.).
      19. Plant and establish new lawns, plantings and trees.

II. SITE-CIVIL
   A. Environmental/Regulatory:
      1. Erosion controls and other measures are required to ensure that runoff and site soils do not migrate onto public ways and abutters' properties.
      2. The parcel is zoned CBD (Central Business District) within the Student Housing Overlay District. Option 1 complies with the City of Fitchburg Zoning Ordinance.

3. Design Review and Site Plan Review are required.
4. There is minimal surface parking on-site. The parking structure is planned for 90 spaces.
5. There are no minimum yard depths and setbacks for buildings in CBD zoning.

B. Utilities:
1. Existing utilities will be reused, modified and upgraded as required.
2. Water: New 6" service for bank Annex building
3. Sewer: Connect to existing
4. Storm Drainage:
Stormwater from the site (including existing and proposed roof drainage, new below-grade foundation and under-slab drains, and miscellaneous site area drains) will tie into an existing storm drain system.
5. Electrical/Telephone/Data:
   a. The primary electric service at the main City Hall building is fed underground to a new pad-mounted transformer, from there, the secondary electric service will enter into the building at the Main Electric Room.
   b. The primary electric service at the bank Annex building is fed underground to a new pad-mounted transformer, from there, the secondary electric service will enter into the building at the Mech. Room at the back of the building.
   c. The Data/Communications utilities (including telephone, fiber optic, and coaxial cable TV) will be fed underground into the building and routed to the Server Rooms with in the buildings.
   d. Site lighting will consist of pole-mounted fixtures, bollard fixtures along sidewalks/pathways and building-mounted fixtures.
   e. All underground conduits/raceways below public ways, driveways or parking areas will have concrete or flowable fill encasement as required by applicable regulations.

C. Access:
1. Vehicular access to the site will be reconfigured. Cottage Square vehicular access will be closed and dedicated to pedestrian use. Vehicles will access the site one-way off of Main Street on to Cottage Avenue, a through travel lane at the parking deck extends to Wood Place. Vehicles exit the site one-way at Wood Place. Ten perpendicular parking spaces are provided off of Wood Place for the Building and Health Departments at the Annex building. On grade parking under the structured parking deck is accessed off of Boulder Drive at Wood Place. The lower portion of Wood Drive is two-way traffic to allow exiting from the lower parking to Boulder Drive or Wood Place to Main Street. Existing paved public ways, driveways and parking areas disturbed during construction will be repaved with 4" bituminous concrete paving (2.5" base course and 1.5" finish course).
2. Pedestrian access will be improved by the construction of new 5" thick concrete sidewalks and accessible curb cuts with tactile detectable warning surfaces. Pedestrian crossing at Main Street will be improved by widening the crossing area and demarcating it with a change in paving material. Open plaza space is developed at the former Cottage Square area, between the Annex building and Wood Place. The small surface parking area adjacent to Renaissance Park is redeveloped into park space. Existing vertical granite curbing will be stockpiled/reused and supplemented with new granite curbing.

III. SITE-LANDSCAPING

A. Site Improvements:
1. Exterior ramp w/ handrails and decorative guardrails, and stairs with landing at the Main Street entrance.
2. Exterior ramp w/ handrails and decorative guardrails, and stairs with a viewing/performing platform at the Plaza side entrance of the building.
3. Lawn and hardscape at "Plaza" area with built-in stone benches, pergola/trellis feature, monument feature, pavers and planting beds.
4. Benches
5. Bike racks
6. Flagpole
7. Trash receptacles
8. Decorative bollards
9. Entrance archway feature (stone columns with decorative metal structure above)
10. Site signage (accessible parking/traffic signs, miscellaneous directional signs, etc.)

B. Lawns and Grasses
1. Fine grading.
2. Amend existing stockpiled soils and supplement with imported loam as required for lawn and planting bed areas.
3. Seed, establish and maintain lawns (until acceptance).
4. New irrigation and sprinkler system.

C. Trees, Shrubs and Ground Covers
1. Prune and fertilize existing trees.
2. Provide new trees, shrubs and ground covers at "Plaza" and around the buildings.

IV. STRUCTURAL

A. Roof
1. Remove and replace roofing system (existing slate and possible metal roofing below). Remove and replace sheathing with new sheathing deck.
2. Remove and replace two existing roof trusses with new pre-engineered light gauge metal trusses (or pre-engineered wood trusses). Repair/reinforce remaining trusses as needed.

B. Seismic: Connect floor and roof diaphragms to the unreinforced masonry bearing walls.

C. Floors
1. Add new columns to shorten floor girder spans in order to support office loading requirements.
2. Provide footings for new columns.

D. Mezzanine at bank Annex building: New mezzanine with concrete slab on steel deck, steel joists and columns with concrete footings.

E. Parking Deck: Two level pre-cast concrete structure. Lower level is slab on grade with access at lower grade. Upper level is structured with entrance and exit at elevated grade. A retaining wall is required for the grade change from upper to lower level on

one side of the structure. Two sets of stairs for access to lower level. Accessible parking will be on the upper deck at main site grade. An elevator is not required.

V. ARCHITECTURAL

A. Division 1 – General Requirements:

1. The design-bid-build project delivery method (CH 149) is used to establish the basis for the cost recommendations. An escalation factor is utilized to establish the cost recommendation if CH. 149A, CM at Risk is used as a project delivery method. Based on the complexities of construction (restricted site size, limited access, concealed/unforeseen existing building conditions, etc.) it is recommended that the CH.149A, CM at Risk, project delivery method be utilized.
2. Building permit costs shall apply for Trade Contractors but the general building permit cost is assumed to be waived by the Owner.
3. The project will be subject to Commissioning by an independent Cxing agent hired by the Owner; the CM and Trade Contractors shall cooperate as needed.

B. Division 2 – Existing Conditions

1. Remove and dispose of all existing hazardous materials per the hazardous materials reports included in the appendix of this report (including but not limited to asbestos-containing materials, paint assumed to contain lead, exterior caulking assumed to contain PCB's, elevator hydraulic fluids, light ballasts, etc.).
2. Selectively demolish portions of the existing 1853 and 1879 building as indicated.
   a. Demolish and dispose of all existing interior walls, except bearing wall designated to remain.
   b. Remove and dispose of existing underlayment and unsuitable sub-flooring.
   c. Demolish and dispose of existing elevator.
   d. Remove and dispose of existing wheelchair lift.
   e. Demolish and dispose of all existing stairways.
   f. Remove and dispose of all existing slate shingles (incl. previous roofing material layers under the slate).
   g. Remove and dispose all existing roof sheathing.
   h. Demolish and dispose of existing fourth floor dormers at 1879 section of the building.
   i. Demolish and dispose of all existing roof framing and trusses.
   j. Remove all existing gutters and rain leaders, as required, save for reuse.
   k. Remove damaged existing fascia and soffit boards, as required.
   l. Demolish and dispose of existing fire escape.
   m. Remove and dispose of all existing windows.
   n. Remove and dispose of brick in-fill at existing window openings for resizing to original opening dimensions.
   o. Remove and dispose of all existing interior doors.
   p. Demolish and dispose of existing cooling tower and mechanical equipment of roof.
   q. Remove and dispose of all existing plumbing, HVAC, and electrical systems.
   r. Remove and dispose of all existing bathroom fixtures.

3. Selectively demolish portions of the bank Annex building as indicated.
   a. Demolish and dispose of existing interior half height walls, doors, sidelights and borrowed lights, vault, and fixtures and furnishings.
   b. Remove and dispose of existing carpeting and tile flooring (except at vestibules).
   c. Remove and dispose of the existing roof membrane,
   d. Demolish existing drive-thru portion of the structure and associated equipment.
   e. Remove and dispose of all existing electrical systems.
   f. Remove and dispose of all existing bathroom fixtures.
4. Disconnect and cap existing utility services that are not to be reused.

C. Division 3 – Concrete
1. New concrete elevator pit and foundation.
2. New concrete footings for new columns to support office floor loading
3. New concrete pads for mechanical equipment.
4. New concrete slab infill at existing elevator pit, utility trenches and misc. existing slab depressions and level changes at basement.
5. New concrete slab over vaults.
6. New concrete fill at metal pan stairs (incl. bank Annex building and parking structure).
7. New concrete slab at mezzanine deck.
8. New concrete ramp, stairs and landing at Main Street entrance.
9. New concrete ramp, stairs and platform at Plaza side entrance.
10. New concrete retaining wall and foundations at parking structure.
11. New concrete slab on grade at lower level parking.
12. New precast parking structure and access/exit aprons.

D. Division 4 – Masonry
1. Repoint 100% of existing brick and stone masonry (10,600 SF +/-).
2. Complete cleaning of all exterior masonry and stone (10,600 SF +/-).
3. Repair stone lintels, sills and trim elements.
4. Provide unit masonry as follows:
   a. Field brick to match existing.
   b. CMU for elevator shaft.
   c. CMU walls for vaults.
   d. Granite veneer at new Main Street and Plaza side entrance ramp/stair/platform structures.

E. Division 5 – Metals
1. New structural steel columns, trusses and decking, refer to structural section for general descriptions of scope.
2. Steel angle supports and deck for slab infills over vaults and elevator shaft.
3. Provide metal fabrications:
   a. Steel stairs with concrete-filled pans and risers.
   b. Custom monumental stair with decorative metal guardrails.
   c. Handrails and guardrails: Stainless steel; typical

d. Concealed in-wall counter support brackets
e. Exterior bird control devices
f. Decorative (cast iron) and utility (steel pipe) bollards
g. Decorative exterior guardrails and handrails
h. Loose steel lintels; galvanized
i. Cast iron downspout boots
j. Miscellaneous support assemblies for projectors and screens, parapet walls, partial-height walls, glazed curtain wall, ceiling fans, etc.

F. Division 6 – Wood, Plastics and Composites
1. Rough carpentry work and exterior sheathing
2. Patch and repair sub-flooring in selected areas (allow 15% of total floor area)
3. New underlayment throughout under new finish flooring
4. New LVL beams and headers as required for infill and openings
5. Tie existing wood framing to exterior masonry walls
6. Temporary shoring
7. New exterior fascia, soffit and trim boards
8. Finish carpentry work
9. Architectural woodwork including:
a. Hardwood veneer paneling, wainscoting, and column enclosures
b. Hardwood base and chair rails
c. Glazed borrowed lite wall openings
d. Hardwood door frames and sidelites/transoms, typical at non-rated interior door openings in public areas
e. Base, wall and storage cabinets
f. Display cases
g. Tackable wall panels
h. Cabinet hardware as required (pulls, hinges, catches, drawer slides, locks, shelf standards and brackets, closet rods, wire management and grommets, etc.)
10. Solid surface sills, wall caps, counters and backsplashes.
11. Fiberglass Reinforced Plastic (FRP) wall paneling system at janitor closets

G. Division 7 – Thermal and Moisture Protection
1. Below-grade sheet waterproofing system, including primer, waterproofing membrane, prefabricated drainage composite and R-20 extruded polystyrene (XEPS) rigid insulation protection board on all below-grade walls.
2. Waterproof elevator pit.
3. Thermal insulation:
a. Exterior walls.
b. Attic.
4. PVC low-slope adhered membrane roofing system (Bank Annex Building):
a. Membrane: 0.060" x 6' wide; Sika Sarnafil G410 "Energy Smart"
b. Insulation: Flat and tapered polyisocyanurate insulation; R-35 minimum.
c. Overlayment cover board (over insulation): ½" GP Dens-Deck Prime.
d. Roof board: (over steel deck): ¼" Dens-Deck.

e. Roof vapor barrier (over roof board): Sika Sarnafil Sarnavap Self-Adhered 32 mil modified bitumen membrane.
f. Flashings, expansion joints, walkway pads, primers, sealants and other miscellaneous accessories: As required by the manufacturer.
g. Warranty: 20 year system weathertightness warranty.

5. Firestopping as required.
6. Preformed standing seam metal roofing system:
   a. Panels: Berridge Zee-Lock mechanically seamed; 16″ o.c. x 2″ high seam; 24 gauge AZ-55 Galvalume Plus.
   b. Insulation: Polyisocyanurate/OSB vented nailbase insulation (R-35 minimum).
   c. Gutters, downspouts, hips, ridges, vents and other miscellaneous trim/flashing: To match original.
   d. Snow guards: Continuous pipe snow guard system shall be secured to standing seams with non-penetrating clips; typical full perimeter.
   e. Roof board: (over steel deck): ¼″ Dens-Deck.
   f. Roof vapor barrier (over roof board): Sika Sarnafil Sarnavap Self-Adhered 32 mil modified bitumen membrane.
   g. High-temperature ice and water barrier membrane underlayment (over nailbase insulation): Grace Ice and Water Shield HT self-adhered 40 mil rubberized asphalt membrane system with primer.
7. Prefabricated roof edge, copings, flashings and miscellaneous trim to match standing seam roofing.
8. Elevator penthouse vent, roof access hatch, roof access ladders and other roofing accessories as required.
9. Joint sealants at interior/exterior locations (except for Window/SF/CW openings which are joint-sealed by that Trade Contractor). Replace all exterior and interior sealants.
10. Floor, wall and ceiling expansion joints; typical between the existing 1853 and 1879 buildings.

H. Division 8 – Openings
   1. Hollow metal doors and frames; typical at exterior and utility areas.
   2. Restore existing wood exterior doors at the main City Hall building.
   3. Flush wood doors with glazing; pre-finished hardwood veneer white maple wood species, stained and acoustically-rated at meeting rooms and single-occupant offices.
   4. Access panels; stainless steel typical.
   5. Rolling counter security grilles at service counters to corridors.
   6. Aluminum-framed Storefronts Interior Entrances:
      a. Non-rated: Efco or Kawneer; 2.0″ x 4.5″ framing members; thermally broken; outside glazed; medium-stile doors; custom metallic fluorocarbon finish; 1″ thick low-E insulated glass units (fully tempered where required by code).
      b. Fire-rated (refer to drawings for specific locations): Safti GPX Architectural Series framing with Safti SuperLite II-XL 60 fire resistive insulated glass units;

complete assembly shall have a 60-minute fire-resistive rating; custom metallic fluorocarbon finish.
c. Provide joint sealants, exterior panning, sub-sills, and other miscellaneous trim as required.

7. Factory glazed aluminum-clad wood windows, to replace existing wood windows:
   a. Pella Architect Series Reserve Single Hung or Fixed; custom exterior fluorocarbon finish; custom hardwood interiors pre-finished white maple/stained; low-E insulated glass units.
8. Air/water infiltration window testing.
9. Door hardware:
   a. New mortise type accessible hardware throughout
   b. Auto door operators at entries
   c. Access control system including card readers, electromechanical hardware, power supplies, battery back-up, etc.
   d. Weatherstripping and acoustical gasketing
   e. Closers
   f. Magnetic hold-opens
10. Glazing:
    a. Laminated safety glass at interior borrowed lites, sidelites, transoms, etc.
    b. Tempered glass sliding glass doors and shelves at display cases.
11. Extruded aluminum louvers as required.

I. Division 9 – Finishes
   1. Non-structural metal framing systems at walls, soffits, furring, etc.
   2. Gypsum Wall Board (GWB) finishes and accessories:
      a. Level 5 finish; typical.
      b. Type X GWB; impact-resistant.
      c. Tapes and compounds.
      d. Reveal trim: Fry Reglet extruded aluminum reveal moldings
      e. Acoustical batt insulation, joint sealant and backer rod.
   3. Ceramic tile finishes at City Hall building toilet rooms:
      a. Walls: Daltile Modern Dimensions; 4 x 12″ glazed ceramic tile
      b. Wall accents: Daltile Color Waves; 3 x 6″ glass; assume 15% of wall area
      c. Floors: Daltile Imagica; 12 x 24″ porcelain tile:
      d. Bullnose corner trim: Schluter Rondec; anodized aluminum finish; typical at outside corners.
      e. Floor transition trim: Schluter Schiene or Reno; type 304 stainless steel; typical for tile to other floor finish transitions.
      f. Mortar: Latex-modified Portland cement thinset
      g. Grout: Sanded (floors) or un-sanded (walls), silicone sealed.
      h. Waterproofing: Mapei Mapegum WPS; typical at Toilet Rooms and Janitor Closets.
      i. Anti-fracture membrane: Laticrete Blue 92; typical.
      j. TCNA installation methods:
         - Floors (elevated slabs; with waterproofing): TCNA F122A-13

- Floors (on grade slabs; with full coverage anti-fracture membrane): TCNA F125-Full-13
- Walls (over GWB): TCNA W243-13

4. Acoustical ceiling systems and accessories:
   a. ACT-1: USG Mars Clima-Plus 24 x 24 x 3/4″ panels with shadowline tapered edge; USG Suprafine 9/16″ exposed tee grid; white; typical
   b. GWB flat-ceiling grid; USG drywall suspension system
   c. Ceiling grid perimeter edge trim system: USG Compasso Series; typical at soffits at service point desks.
5. Resilient vinyl base: Johnsonite Traditional; 4 x 1/8″ coved and straight
6. Resilient Vinyl Composition Tile (VCT) flooring:
   a. Tile: Mannington Commercial progressions; 12 x 12″.
   b. Transitions: Mannington; as required
7. Rubber tile flooring and stair tread/risers:
   a. Tile: Norament Grano; 24.6 x 24.6 x 0.14″ thick; hammered finish
   b. Stair tread/riser: Norament Grano; one-piece x full width of stair x 0.20″ thick; hammered finish.
8. Carpeting:
   a. Sheet carpet (typical): Tandus Powerbond Cushion backing; 6′ wide roll; install with No. 54 Seam-Weld installation method; assume 75% field and 25% non-regular/curved patterns with multiple accent colors.
   b. Carpet tile (entry vestibule): Tandus Abrasive Action; ER3 modular backing; 24 x 24″; full coverage peel and stick installation method.
9. Acoustical wall panels at Lobbies, Main Stairs, and other locations: Sound Concepts HIR-1 High Impact Resistant panels; chamfered edges; 1.625″ thick; fabric covering; z-clip attachment with epoxy adhesive attachment system.
10. Interior/exterior painting throughout the building.

J. Division 10 – Specialties
   1. Markerboards and tackboards (20, 4′x4′):
      a. Markerboards: Claridge Series 5 LCS-II; #75 low-gloss white finish; aluminum framed; suitable for projection.
      b. Tackboards: Claridge; aluminum framed; ¾″ thick; fabric covered.
   2. Signage:
      a. Building signage: Cast aluminum individual letters; painted finish; stud mounting.
      b. Interior room signage: Photopolymer AAB-compliant room signage; typical at all permanent spaces; 8 x 8″ size; raised Braille; installed with 3M VHB tape.
      c. Building directory signs (3).
   3. Toilet Accessories:
   4. Safety specialties:
      a. Fire extinguishers: 20-lb. Type A-B-C
      b. Cabinets: Semi-recessed; stainless steel finish
   5. Metal lockers at Maintenance area: (6), Single-tier; 18″ wide x 12″ deep x 60″ high; with integral locks, sloped top and number plates.

K. Division 11 – Equipment
   1. Appliances (refrigerators, microwaves, range, etc.) will be by FF&E/Technology.
   2. Provide motorized projection screens at Meeting Rooms.

L. Division 12 – Furnishings
   1. Roller shades at all windows, storefront, and curtainwall locations
      a. Manual clutch operation; extruded aluminum fascia.
      b. Single-roller shade fabric (typical): Light-filtering; MechoSystems Euro Twill 6000 Series 2-3% Open Shadecloth.
      c. Dual-roller shade fabric (at Meeting Rooms): As above + acoustical room-darkening fabric; MechoSystems AcoustiVeil Dimout 0890 Series 0-1% Open Shadecloth.

M. Division 13 – Special Construction:
   1. Prefabricated vault panels and vault doors.

N. Division 14 – Conveying Systems
   1. Hydraulic elevator:
      a. 3000-lb. capacity; hydraulic; In-Ground Rear/Side Slung;
      b. Finishes: Stainless steel hoistway doors/entrances and cab ceiling; wood veneered wall panel system to match millwork; linoleum floor.

O. Fire Protection
   1. Refer to Seaman Engineering Corporation Mechanical Systems Conceptual Recommendations narrative dated July 7, 2017 (Appendix D).

P. Plumbing
   1. Refer to Seaman Engineering Corporation Mechanical Systems Conceptual Recommendations narrative dated July 7, 2017 (Appendix D).

Q. HVAC System
   1. Refer to Seaman Engineering Corporation Mechanical Systems Conceptual Recommendations narrative dated July 7, 2017 (Appendix D).

R. Electrical
   1. Refer to ART Engineering Corporation Electrical Systems Basis of Design narrative dated July 6, 2017 (Appendix E).

S. Filed Sub-Bid Categories

Masonry	Conveying Systems
Metal Fabrications	Plumbing
Waterproofing, Dampproofing and Caulking	Fire Protection
Roofing and Flashing	HVAC
Metal Windows	Electrical
Glazing	
Tile	
Resilient Flooring	
Acoustical Ceilings	

Cost Estimate Summary

A.M. Fogarty & Assoc., Inc.
175 Derby St., Suite 5, Hingham, MA 02043
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ptim@amfogarty.com
"Construction Cost Consultants"

City Hall Renovation Study
Fitchburg, MA

July 24, 2017

OPTION 1 DETAILED BUDGET RECOMMENDATION

GRAND SUMMARY

CITY HALL RENOVATION				$10,906,567
NEW PARKING GARAGE STRUCTURE	16,376	GSF	$75.00	$1,228,200
BANK RENOVATION				$620,966
HAZARDOUS MATERIAL ABATEMENT				$130,000
	TOTAL DIRECT COST			$12,885,733
chapter 140 deign/bid				
GENERAL CONDITIONS		6.5%		$837,573
GENERAL REQUIREMENTS		2.5%		$343,083
P&P BOND AND INSURANCE		2.25%		$316,494
ARCH./ ENG. DESIGN CONTINGENCY		10%		$1,438,288
FEE		2.5%		$395,529
	TOTAL CONSTRUCTION COST			$16,216,699
SOFT COST *		40%		$6,486,680
	TOTAL PROJECT COST			$22,703,379

* Including: Owner's Project Manager fees 6.5%, Architect and Engineering fees 10%, Furnishings and Equipment 6.5%, Owner's Contingency 15%, Administration and Legal fees 1%, Misc. Project Costs 1%

Prepared by: A. M. Fogarty & Associates, Inc.
FITCHBURG CITY HALL STUDY 7-17.xls7/24/20178:42 AM

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Cost Estimate Summary

PROJECT:	City Hall Renovation Study	NO. OF SQ. FT.:	32,453
LOCATION:	Fitchburg, MA	COST PER SQ. FT.:	336.07
CLIENT:	Lamoureux Pagano		
DATE:	24-Jul-17		

No.: 15092

SUMMARY	DIVISION TOTAL	PERCENT OF PROJECT	COST PER SF
DIVISION 02 - EXISTING CONDITIONS	720,315	7%	22.20
DIVISION 03 - CONCRETE	147,325	1%	
DIVISION 04 - MASONRY	445,473	4%	
DIVISION 05 - METALS	335,078	3%	
055000 METAL FABRICATIONS	269,806	2%	8.31
DIVISION 06 - WOOD, PLASTICS & COMPOSITES	545,707	5%	16.82
DIVISION 07 - THERMAL & MOISTURE PROTECTION			
071000 DAMPPROOFING & WATERPROOFING	54,843	1%	1.69
072000 THERMAL PROTECTION	223,400	2%	6.88
073000 STEEP SLOPE ROOFING	150,000	1%	4.62
076000 FLASHING AND SHEET METAL	83,750	1%	2.58
077000 ROOF ACCESSORIES	15,000	0%	0.46
078000 FIRE AND SMOKE PROTECTION	11,359	0%	0.35
079000 JOINT PROTECTION	28,594	0%	0.88
DIVISION 08 - OPENINGS	210,945	2%	6.50
084000 ENTR., STOREFRONTS & CURTAIN WALI	36,125	0%	1.11
085000 WINDOWS	438,950	4%	13.53
088000 GLAZING	20,000	0%	0.62
DIVISION 09 - FINISHES			
092000 PLASTER & GYPSUM BOARD	814,334	7%	25.09
093000 TILING	140,467	1%	4.33
095100 ACOUSTICAL CEILINGS	248,120	2%	7.65
096500 RESILIENT FLOORING	72,173	1%	2.22
096800 CARPETING	92,983	1%	2.87
098000 ACOUSTIC TREATMENT	28,000	0%	0.86
099000 PAINTING	133,586	1%	4.12
DIVISION 10 - SPECIALTIES	73,675	1%	2.27
DIVISION 11 - EQUIPMENT	42,500	0%	1.31
DIVISION 12 - FURNISHINGS	50,660	0%	1.56
DIVISION 13 - SPECIAL CONSTRUCTION	50,000	0%	1.54
DIVISION 14 - CONVEYING EQUIPMENT	170,000	2%	5.24
DIVISION 21 - FIRE SUPPRESSION	220,378	2%	6.79
DIVISION 22 - PLUMBING	403,977	4%	12.45
DIVISION 23 - HVAC	1,336,323	12%	41.18
DIVISION 25 - INTEGRATED AUTOMATION	146,039	1%	4.50
DIVISION 26 - ELECTRICAL	891,645	8%	27.47
DIVISION 27 - COMMUNICATIONS	181,039	2%	5.58
DIVISION 28 - ELECTRONIC SAFETY & SECURITY	129,812	1%	4.00
DIVISION 31 - EARTHWORK	502,175	5%	15.47
DIVISION 32 - EXTERIOR IMPROVEMENTS	1,073,965	10%	33.09
DIVISION 33 - UTILITIES	368,050	3%	11.34
TOTAL	10,906,567	100%	336.07

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FITCHBURG CITY HALL STUDY 7-17.xls7/24/20178:42 AM

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RECOMMENDATIONS

Recommendations

After considering all of the design concept approaches and options presented, the City Hall Building Committee selected the complete renovation approach Option 1. All of the approaches explored in this study are viable options for permanently locating the City's municipal headquarters at 718 Main Street. Each option has merits and limitations including varying degrees of compromise in meeting the functional requirements of the City Hall program and cost considerations. The City Hall Building Committee has reviewed and discussed the merits and limitations of each option. Consideration of costs was a primary concern for the Committee. The complete renovation approach Option 1 represents the best value to the City Hall Building Committee for meeting the City's goals of permanently locating the City Hall municipal headquarters at 718 Main Street. The current budget recommendation for Option 1 at this phase of the project is $21,568,000 to $23,839,000. An escalation factor will need to be added to the recommended budget range for the projected construction date of the project.

The complete renovation approach Option 1 retains the essence of the existing City Hall's place in the community and offers the opportunity to be a catalyst for the revitalization of Fitchburg's Downtown District with increased "People Traffic". The option as presented is not intended as the final design and remains unchanged. With this selected direction from the City Hall Building Committee, the preferred option should be studied further and fully developed with close attention to the functional needs of the City and the details of the existing conditions.

APPENDICES

- Appendix A – Structural Existing Conditions Report
- Appendix B – Mechanical Systems Existing Conditions Report
- Appendix C – Electrical Existing Conditions Report
- Appendix D – Mechanical Systems Conceptual Recommendations
- Appendix E – Electrical Basis of Design
- Appendix F – Cost Estimates
- Appendix G – 2016 Hazmat Report
- Appendix H – 2012 Temporary Shoring Report
- Appendix I – 2012 Roof Truss Existing Conditions Assessment
- Appendix J – 2003 Study by Kang Associates, Inc.
- Appendix K – 1999 Roof Truss Inspection
- Appendix L – 1999 Condition of Exterior Surfaces Report

APPENDICES

- Appendix A – Structural Existing Conditions Report

BDI BOLTON & DiMARTINO, INC.
CONSULTING STRUCTURAL ENGINEERS
100 Grove Street Worcester, MA 01605
Tel. 508-756-8972 Fax 508-757-9750

March 30, 2017

Mr. Michael Pagano
Lamoureux Pagano and Associates, Architects
108 Grove Street
Worcester, MA 01608

Re: Fitchburg City Hall Building- Existing Structural Conditions
718 Main Street
Fitchburg, Massachusetts

Dear Mr. Pagano,

The intent of this letter is to document the existing conditions for the former Fitchburg City Hall Building at 718 Main Street for planning purposes. The building has been vacant since 2012 due to structural concerns over failing roof truss members, but now the City of Fitchburg is reviewing the possibility of re-establishing City Hall at this location. We have reviewed several previous structural reports, and those reports will be used as a baseline to determine if the existing conditions or basic assumptions have changed.

Basis of the Report:

- This report is based on the visible observations during our site visit on February 14, 2017.
- "Roof Truss Inspection," by Souza, True and Partners, Inc., dated October 26, 1999
- "Condition of the Exterior Surfaces, Fitchburg City Hall," by Knight, Bagge & Anderson Architects, Inc., dated December 16, 1999.
- "Fitchburg City Hall Feasibility Study," by Kang Associates, Inc., dated September 19, 2003.
    - Structural Letters included in Feasibility Report by Foley & Buhl Engineering, Inc., dated February 24 & 25, 2003.
- "Temporary Shoring Requirements for Damaged Roof Truss," by McKenzie Engineering Company, Inc., dated July 9, 2012.

Our observations of the existing building were limited to what was readily visible. We did not evaluate strengths of materials, remove finishes, or take measurements.

Building Description:

The multi-story structure consists of brick masonry bearing walls, steel posts, wood floor framing, heavy timber roof trusses, and wood rafters at both the original 1852 building and the 1875 addition; refer to Figure 1 for basic Floor Plan. The original 1852 Building is a 3-story building (including a basement) with a previous auditorium space at the second floor that has been filled in with offices. The 1875 addition is a 5-story building (including a basement) with a gable roof that matches the original 1852 roof ridge. The roof shape

varies slightly at the eaves of the 1875 addition to provide a dormer to allow for the headroom requirements of the 5-stories. With the differing quantity of floor levels, the two buildings have numerous interior stairs to get between the multiple levels, and the two portions of the building rarely align.

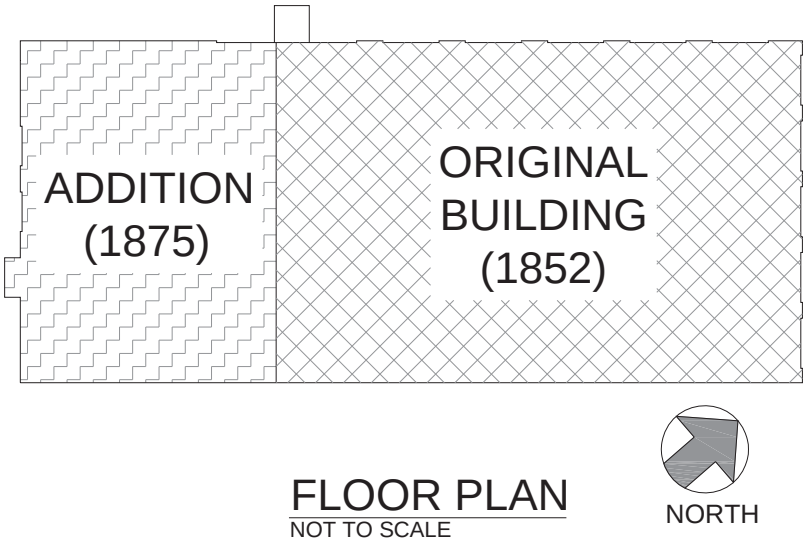


Figure 1-Floor Plan

Structural Timeline:

The main intent of this report is to document the existing roof truss conditions, based on previous reports and studies. In order to understand the differing roof conditions, we put together a rough timeline of information that we were provided concerning the roof trusses:

- 1852 Construction of main building.
- 1875 Construction of addition.
  - 1879 Substantial roof damage by hurricane/weather event, required rebuilding portion of roof.
- 1904 Roof collapse of several trusses at main building. Rebuilt roof at portion of main building (Assume Trusses T-2 on SK-1 we rebuilt due to increase in size and reduced spacing of web members)
- 1999 Souza, True and Partners, Inc. review sagging truss and develop Repairs (Truss T-1A on SK-1)
- 1999 KBA Architects review exterior surfaces and recommend removing slate from roof to reduce loads on trusses.
- 2003 Foley & Buhl Engineering, Inc. reviewed the roof as part of the Feasibility Study and recommended replacing the damaged truss and attaching the roof diaphragm to the exterior masonry walls.
- 2012 McKenzie Engineering Company, Inc. reviewed the trusses and provided shoring drawings for the failing truss and advised that the shoring was to provide access to the building to remove personnel and furniture from the building. Access to the building was not to be permitted after this point.

It is our understanding that the original 1852 roof partially collapsed in 1904, but we do not know the limits of repair, or if all trusses were revised during this repair. Newspaper articles state that the collapse of numerous trusses was likely due to rotting timbers, or a failure of the steel connections. Since there are three trusses in the center of the building that have larger members and different web spacing, we assume that these trusses were replaced during the repairs (Truss T-2 on SK-1 thru SK-3). Most of the current failure problems appear to be with Truss T-1A, which appears to be an original truss.

Building Structure

The building structure consists of:

- Foundations:
  - Masonry foundation of brick and granite blocks
  - Footings: Unknown
  - Soil bearing pressure: Unknown
- Floors:
  - Concrete slab-on-grade
  - Wood Framing
    - Rough sawn joists (Ex. 2x12 @ 19" o.c.)
    - Heavy timber girders (Ex. 8x12)
    - Wood boards
  - Steel posts
- Roof:
  - Wood Framing (See SK-1):
    - Wood timber trusses
    - Heavy timber purlins
    - Rough sawn rafters
    - Wood board decking
- Walls:
  - Brick masonry exterior walls (unreinforced)
  - Interior brick masonry bearing walls in basement (unreinforced)

The building has undergone several renovations since its original construction, and we would expect to find differing structural systems throughout the building. If significant alternations are planned, we would expect that ceilings would be removed to expose the framing to allow for review and planning. It should be noted that the 2003 Feasibility study concluded that the floor girders were undersized for current office loading, and should be reinforced as part of any significant renovation.

Existing Conditions:

General Exterior:

The exterior walls are unreinforced brick masonry with some granite at the base and window heads. The walls are in generally poor condition due to the lack of maintenance and repointing. Previous repairs and modifications have been completed with differing bricks and mortar, which are addressed in the 1999 KBA Architects report.

The 2003 Foley & Buhl Engineering report notes that the exterior walls are not tied to the floor and roof diaphragms, per the requirements of the current building code. The exterior walls will need to be connected to the floor and roof diaphragms by as part of any significant renovation plans.

The slate roof also appears to be in poor condition with many tiles either on the ground or in the roof gutter. It should also be noted that at the time of our site visit, there was some minor snow accumulation at a few locations in the attic due to minor openings through the roof system. We anticipate a complete roof renovation would be included in any renovation plans.

It should be noted that the existing conditions were reviewed and well documented during the 1999 & 2003 studies. The comments and recommendations from these studies do not appear to have been addressed to date, and the exterior conditions have only deteriorated since then. If the building is to be renovated, the exterior systems will need a full rehabilitation, per the previous recommendations.

General Interior:
In general, the interior of the building appears to be in average condition. The building has been vacant for several years, but the main interior has been protected from the weather. The floors have noticeable creep, and the plaster walls have some cracking, which would be expected from a 160 year old building. We did not notice significant settlement problems within the building, but further review would be required if a full renovation occurs.

The floor framing was not exposed to view, and we were aware that the 2003 Foley & Buhl Engineers report reviewed the basic floor framing, so we did not review the size and spacing of the existing framing. It should be noted that the previous report indicated that floor girders are undersized for current floor loading requirements, and should be reinforced by installing new posts throughout the building to support the Code mandated loads.

The roof framing is the main safety problem with the building. Truss T-1A (see attached SK-1 thru SK-3) has been deteriorating and failing for the past two decades. During the last efforts to shore the truss in 2012, dimensional wood shoring was added below the truss at the East side of the building to avoid failure. During our visit, the previous shoring was still in place, but there is significant decay and damage to the top chord at the East exterior wall. While we believe the deterioration was present during previous reviews, we believe that the settlement has increased due to water infiltration and decay at the top chord member. Both Truss T-1A & T-1B should be removed and replaced, at a minimum.

Conclusions and Recommendations:
The purpose of this report is to document the existing conditions of the Fitchburg City Hall Building for planning purposes. The building is vacant due to structural failures at the roof level, and the City of Fitchburg is looking to re-occupy the building for municipal use. We reviewed the general conditions of the building, but did not remove finishes or perform computations to determine structural capacities. The following items are meant to highlight structural conditions or deficiencies noted in the report.

General Information:

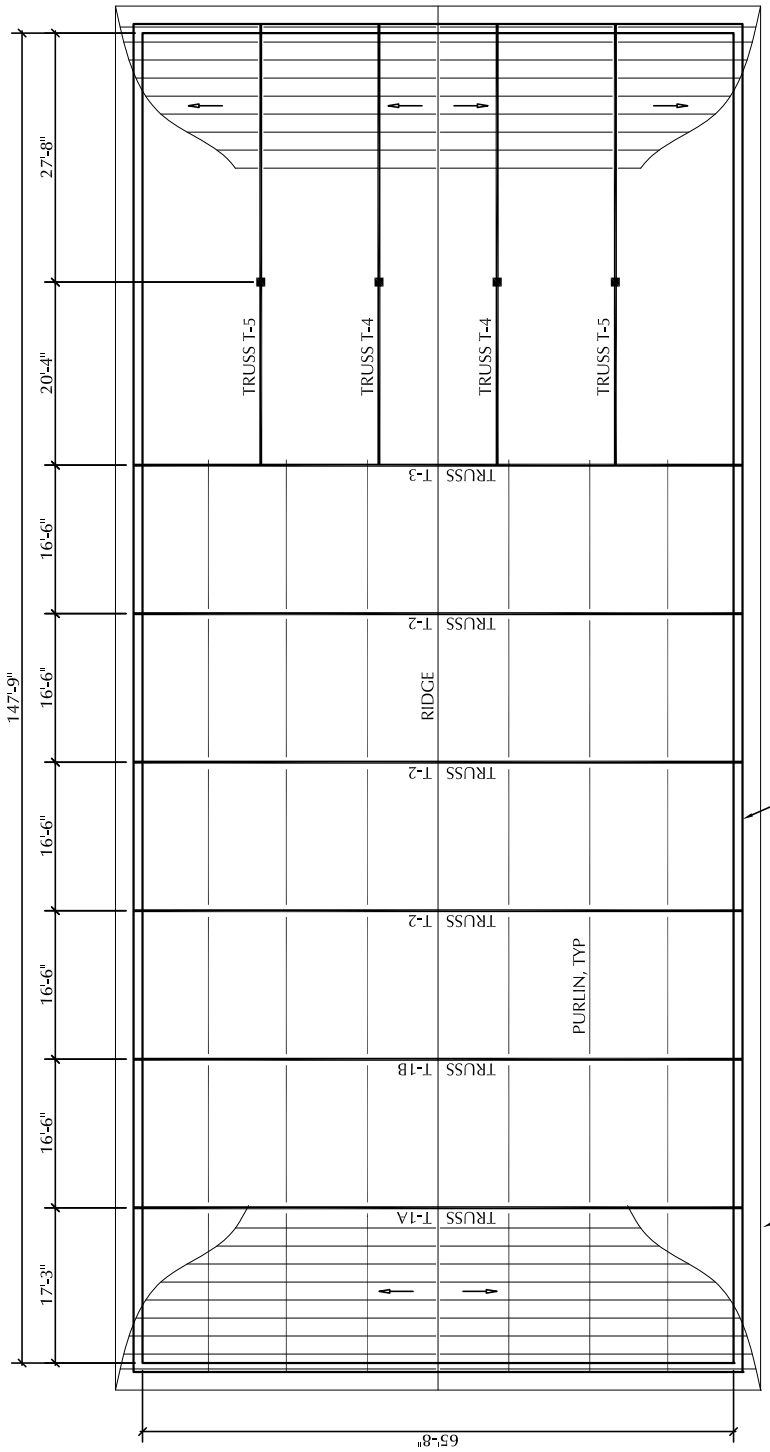
- Existing building area is 35,000 ft^2.
- Brick veneer requires extensive maintenance, including repointing the entire exterior of building. Refer to 1999 KBA report for scope of work.
- Roofing requires replacement. Slate roofing, and possibly metal roof system below, should be removed and replaced with new plywood sheathing and lighter roofing

system. Standing seam roofing has been previously suggested due to the historic nature of the system. Refer to 1999 KBA report for scope of work.

- Roof truss T-1A needs to be replaced due to significant rotting and failure. We recommend replacing T-1B at the same time due to similar construction layout as T-1A and previous repairs that have taken place at T-1B. Alternatively, the roof of the original 1852 building could be removed and replaced in its entirety with pre-engineered light gauge trusses (or possibly pre-engineered wood trusses) and new sheathing to provide an updated roof system.
- If renovations do not commence in the near future, we recommend increasing the shoring for truss T-1A to the entire length of truss. The continued rotting is reducing the strength of the existing framing, and the current shoring is located at only one end of the truss.
- Renovations within the building will need to include connecting the floor and roof diaphragms to the unreinforced masonry bearing walls. Previous reports speculated at the assessed cost of the building relative to the cost of completing a renovation to establish a threshold for tying the diaphragms to the walls. The current building code removes the cost threshold, and establishes a percentage of renovated area threshold. Any significant renovation will exceed the 50% area threshold and will require connecting the floors and roofs to the walls.
- From 2003 Foley & Buhl Engineering report, the floor framing is not capable of supporting the Code mandated office loading, so the floor girders will need to be shortened by installing new posts. Alternatively, the framing could be reviewed to determine if reinforcing members could be added to the sides of existing girders to support the office loading requirements.

If you have any questions, please call.

Christopher Tutlis, PE
Bolton & DiMartino, Inc.



ROOF FRAMING PLAN

SCALE: 3/64" = 1'-0"

BOLTON & DiMARTINO, INC.
CONSULTING STRUCTURAL ENGINEERS
100 GROVE STREET
WORCESTER, MA 01605
P. 508.756.8972

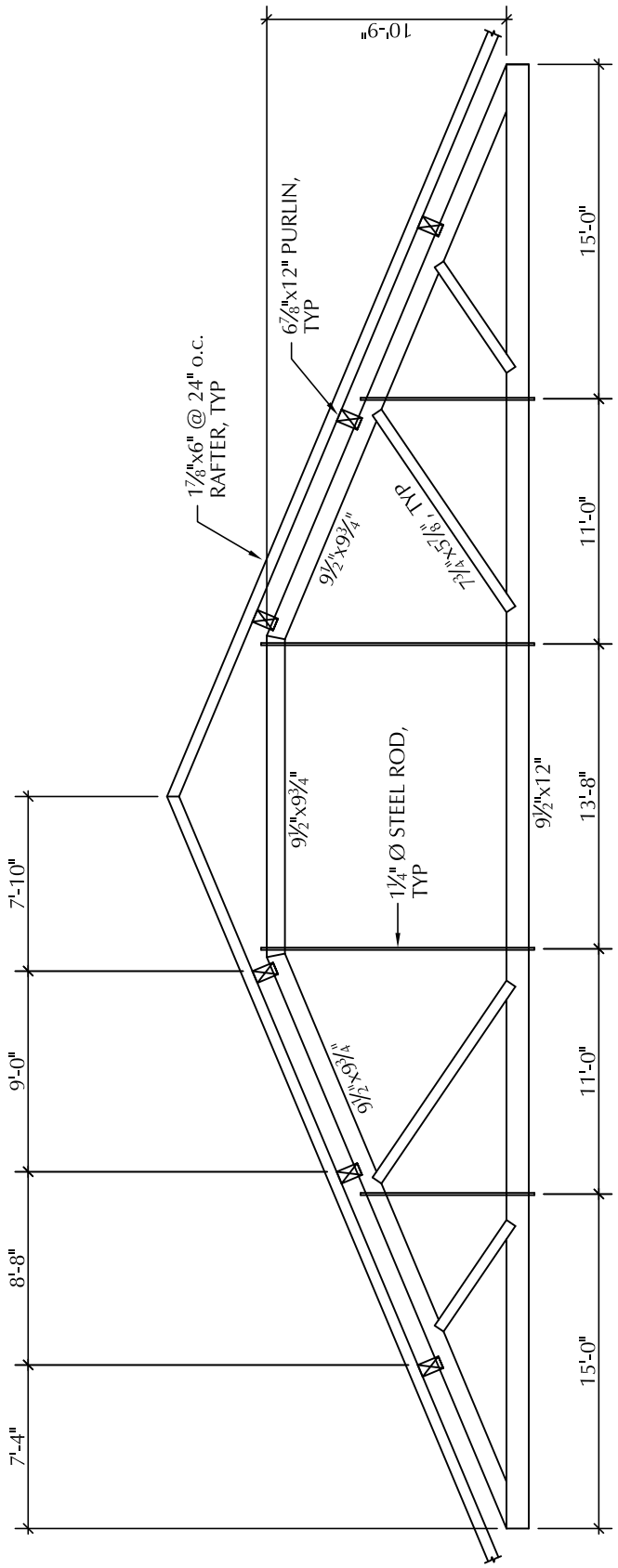
Fitchburg City Hall Building
718 Main Street
Fitchburg, MA

Roof Framing Plan

DATE: 3/30/2017

SCALE: As Noted

DRAWING NUMBER: SK-01



TRUSS T-1

SCALE: ⅛" = 1'-0"

NOTE: TRUSS NOTATIONS, DIMENSIONS, AND LAYOUT FROM SOUZA, TRUE AND PARTNERS, INC.'S "ROOF TRUSS INSPECTION REPORT," 10/26/1999

BOLTON & DiMARTINO, INC.
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100 GROVE STREET
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P. 508.756.8972

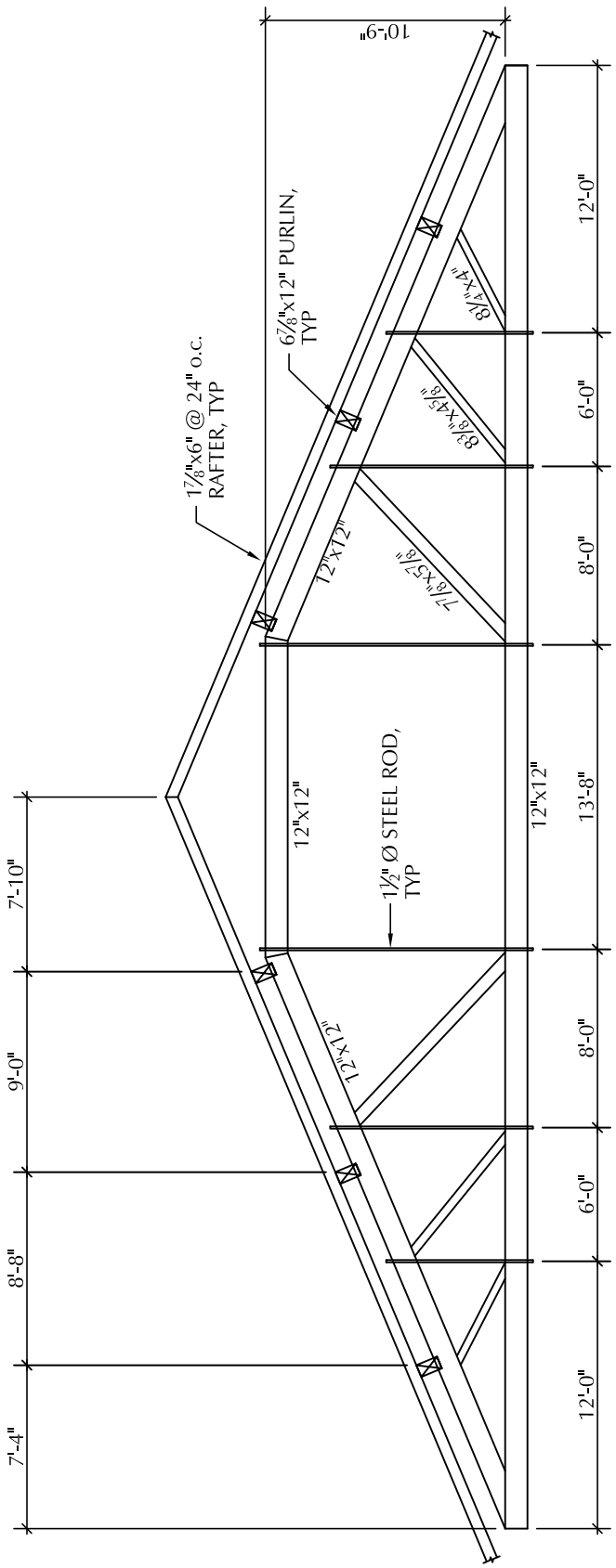
Fitchburg City Hall Building
718 Main Street
Fitchburg, MA

Roof Truss T-1 Elevation

DATE: 3/30/2017

SCALE: As Noted

DRAWING NUMBER: SK-02



TRUSS T-2

SCALE: ⅛" = 1'-0"

NOTE: TRUSS NOTATIONS, DIMENSIONS, AND LAYOUT FROM SOUZA, TRUE AND PARTNERS, INC.'S "ROOF TRUSS INSPECTION REPORT," 10/26/1999

BOLTON & DiMARTINO, INC.
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100 GROVE STREET
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P. 508.756.8972

Fitchburg City Hall Building
718 Main Street
Fitchburg, MA

Roof Truss T-2 Elevation

DATE: 3/30/2017

SCALE: As Noted

DRAWING NUMBER: SK-03

BDI BOLTON & DiMARTINO, INC.
CONSULTING STRUCTURAL ENGINEERS
100 Grove Street Worcester, MA 01605
Tel. 508-756-8972 Fax 508-757-9750

March 30, 2017

Mr. Michael Pagano
Lamoureux Pagano and Associates, Architects
108 Grove Street
Worcester, MA 01608

Re:
Bank of America Building- Existing Structural Conditions
700 Main Street
Fitchburg, Massachusetts

Dear Mr. Pagano,

The intent of this letter is to document the existing conditions for the former Bank of America Building at 700 Main Street for planning purposes. The building was recently vacated by Bank of America and the City of Fitchburg is reviewing the possibility using the building for municipal purposes.

Basis of the Report:

- This report is based on the visible observations during our site visit on February 14, 2017.
- Construction documents were not available for review.

Our observations of the existing building were limited to what was readily visible. We did not evaluate strengths of materials, remove finishes, or take measurements.

Building Description:

The bank building is a single-story building directly east of the former City Hall Building. It is our understanding that the building was built around 1985 and was used as a bank until recently when Bank of America vacated the building. The building includes brick veneer exterior walls, masonry exterior bearing walls, and long span roof framing spanning between exterior walls.

Building Structure

The building structure consists of:

- Foundations:
  - Walls/Footings: Unknown
  - Soil bearing pressure: Unknown
- Floors:
  - Concrete slab-on-grade
- Roof:
  - Steel Framing:

        - Long span bar joists
        - 1 ½" metal roof decking
- Walls:
    - Exterior concrete masonry unit (CMU) bearing walls. Assumed to be reinforced due to their recent construction.
    - Brick veneer at exterior of building.

The building structure appears to be unchanged from original construction. The building is a fairly standard shell building with the bank fit-out on the interior. The center lobby space has high ceilings and there are lower dropped ceilings at the offices at the perimeter of the building. It should be noted that since the roof is framed with long span joists and there do not appear to be any original Construction Drawings, so adding new mechanical equipment to the roof may not be feasible without reinforcing the roof or investigating the joists further.

We did not notice any signs of water infiltration at the ceilings of the offices and do not anticipate significant roof leaks. Since the building is approximately 32 years old, we would expect that the roof has been previously replaced. Further investigation of the roof system should be included as part of any renovation plans.

Existing Conditions:

General Exterior:

The exterior brick is in good condition with minimal cracking and deterioration. The roof was covered in snow at the time of our site visit, so we did not access or review the roofing. If the building is to be rehabilitated and used for the City, we recommend a thorough review of the brick veneer to verify brick control joints are still intact and water tight.

General Interior:

In general, the interior of the building is covered with non-structural finishes, which appeared to be in good condition. The floors and walls did not show signs of distress through the finishes. There is a small mechanical platform where we were able to view the exterior wall CMU, which appeared to be in good condition.

Conclusions and Recommendations:

The building is approximately 32 years old and appears to be in good condition. We believe the building is capable of being used for municipal offices without altering/upgrading the structural elements.

If you have any questions, please call.

Christopher Tutlis, PE
Bolton & DiMartino, Inc.

APPENDICES

- Appendix B – Mechanical Systems Existing Conditions Report

SEAMAN ENGINEERING CORPORATION
P: 508-832-3535
F: 508-832-3393
30 Faith Ave. Auburn, MA 01501
seamanengineers.com

March 13, 2017

Mr. William Senecal, AIA
Lamoureux • Pagano Assoc., Arch.
108 Grove Street, Suite 300
Worcester, MA 01605

Re: Mechanical Systems Survey for the Former Fitchburg Town Hall

Dear Mr. Senecal:

The following is a summary report outlining our observations and comments regarding the status of the Fire Suppression, Plumbing and Heating, Ventilation and Air-Conditioning (HVAC) systems at the former Fitchburg Town Hall.

EXISTING CONDITIONS INSPECTION

Over the last several weeks we performed a site inspection of the existing building. As there were no facility personnel nor existing drawings to reference or to inquire of as to the status of the existing building systems our conditions review is based solely on our visual observations. Actual operational status of systems to be reused would need to be tested by qualified technicians prior to placing them back in service.

GENERAL

The building is a 4-story structure not including a full basement which is primarily below grade. The 4th floor is smaller than the other floors and may qualify as a mezzanine level but this must be verified. The lower basement level houses former storage spaces, mail room and restrooms as well as a boiler room, chiller room and various mechanical spaces. The upper levels contain assembly & meeting spaces, public areas, restrooms and office spaces.

The building is primarily constructed of wood frame floors and roof with masonry brick, exterior walls. Windows vary in type but for the most part are of the single glazed double hung style some with storm panes. Building thermal insulation is very limited with little to none in exterior walls and some batt insulation noted above upper level ceilings with attic space above.

FIRE PROTECTION

Existing Conditions and Deficiencies:

The fire suppression system serving the building is a wet pipe and dry type system which provides extensive coverage throughout the building with several exceptions as noted herein.

There is an 8" main sprinkler water service which enters the building in a lower level storage room. The 8" runs through a check valve and then splits to two (2) 6" unsupervised OS&Y valves, one which serves a 6" wet risers with alarm valve which appears to feed the basement and lower 3 floors and a 6" dry riser with dry pipe valve which appears to serve the attic and 4th floor. The dry system is fitted with an air compressor. The system pressure gauge appears to be wired for monitoring however the sprinkler control valves are unsupervised. The system should be supervised as required by code to avoid unintentional shutoff of the sprinkler system.

A fire department Siamese connection is provided on the exterior wall and piped with a 4" line with check valve to the inlet side of the sprinkler control shutoff valves.

There are no fire department standpipes in the building which appear to be required based on the upper floor height above grade. Standpipes within stairways are required to allow the fire department to connect interior hoses to fight a fire. In addition, the standpipe(s) can be used to support sprinkler floor control stations for zoning of sprinklers which is also required by current code.

There is no backflow preventer installed on the incoming water service. A backflow preventer is required per current code to prevent stagnant water from entering the municipal water supply.

As indicated previously, the building appears to have an extensive fire suppression system however there were some noted exceptions and other miscellaneous deficiencies detected during our site inspection as follows:

1. Verification of proper sprinkler protection of combustible concealed spaces must be verified. Of most concern would be attic spaces and concealed spaces above ceilings or below floors.
2. Recessed wood cabinets are unprotected and may require protection.
3. The height and size of the building appears to require fire standpipes in each egress stairway.
4. Sprinklers should be zoned on a per floor basis.
5. Backflow protection required on incoming water supply.

Recommendations:

Remediate the deficiencies noted above. Provide standpipes in each of the two (2) main egress stairs along with sprinkler floor control stations. This may require re-piping and rezoning of the existing sprinkler piping system.

PLUMBING

Fixtures:

The existing buildings plumbing systems vary in distribution and layout. Further review of total expected occupancies, fixture distribution, travel distances and accessibility must be reviewed during any proposed renovation project to determine applicable upgrades. It does appear that the overall fixture count and quantity does not comply with current codes. Many restrooms surveyed, did not comply with ADA or MA accessibility codes. One restroom on the basement level had accessible water closet and lavatory however the remaining restrooms failed compliance on numerous levels including the lack of accessible fixtures and the absence of proper wheelchair space.

Existing water closets are a mix of wall mount and floor mount flush valve type most of which were not of the water conserving 1.6 gallon per flush type as required by current code. The lavatory sinks are primarily of the wall hung style, but also fail accessibility compliance on several levels with the exception of the basement restroom. Urinals were of the wall mount type with flush valve. Janitor sinks would be required on all levels per current code however we noted only one such fixture on the 2nd level.

Porcelain style drinking fountains were found on the 2nd and 4th floors of the building none of which were of the accessible style. Current code for an office use would require drinking fountains on every floor.

Unless noted otherwise, it appears most of the fixtures are original or aged vintage many of which are not of the water saving type. Apparently maintenance would have been routinely performed on faucets, toilet valves, etc.. as needed.

Cold Water Service:

A 1.5" water service feeds the buildings domestic water needs. The 1.5" line enters a utility room in the basement level. The 1.5" runs thru a water meter prior to serving the buildings fixtures. There is no pressure reducing valves (PRV) station which would be required if the incoming water pressure exceeded 80 psig. The domestic water piping is distributed throughout the building primarily routed above ceilings.

There is no backflow preventer installed on the incoming water service. Although the building fixtures in general should not create an increase in potential cross contamination hazard, a backflow preventer should be added to protect the municipal water supply and in some cases the local water department may require it.

Due to the age of much of the water piping there is a high probability that the water service could have lead containing solder in the fittings. Although not a large source of lead contamination it should be tested and monitored and/or corrected if found to be a problem. With the age of the piping a complete replacement of the domestic water system during any substantial renovation is highly recommended.

Domestic Hot Water Service:

The general domestic hot water needs of the building are primarily supported by a gas-fired water heater located in a basement utility room. The water heater was installed in 2004 and as such has exceeded its useful expected service life of 7 to 10 years. The water heater is manufactured by Rudd with a storage capacity of 50-gallons and a maximum input capacity of 40,000 BTUH each).

There is no mixing valve located on the main hot water supply to temper the water for general building use. Current code would require differing water temperatures at different types of fixtures. Restrooms bathroom sinks must not discharge hot water at a temperature exceeding 110-112°F for safety reasons, whereas the service fixtures (janitor's sinks, kitchenette sinks, etc..) are required to have hot water temperatures in excess of 120°F for sanitation reasons. Central mixing valves combined with local mixing valves and/or adjustable stop mixing fixtures would be required to achieve this level of temperature control.

Storage of hot water below hundred and 130° F can lead to bacteria growth within the system. As such, to prevent this we recommend keeping domestic hot water tank temperatures at 140° F which is possible with the current central mixing valve.

There is no recirculation pump on the domestic hot water system, which is required since there are fixtures located beyond 100 feet of the hot water source. The building code requires hot water to be available within 100 feet of any hot water consuming fixture. With todays low flow water conserving fixtures recirculation of hot water is recommended to run as close as possible to the water consuming fixtures to minimize delay times.

Drainage Systems:

Most of the sanitary drainage piping is concealed from view however, what we were able to see was primarily cast iron hub & spigot and no-hub type. The sanitary sewer lines run below the slab and exit the building to a municipal sewer system. We noticed no outward signs of sanitary system failure.

The roof is drained to perimeter gutters connecting to an external roof leader system which appears to drop through grade and then reenter the building through the foundation wall and then again exit the building to an underground storm drainage system around the perimeter of the building. It is expected that the storm system connects into a municipal storm drainage system however review of DPW plans and such would be required to confirm. With the exception of some visible water stains on the ceilings of unknown origin, we noticed no outward signs of storm drainage system failure.

Gas Service:

The building is supported by a natural gas service. The service provides gas to the buildings heating boilers, domestic water heater and an emergency generator. The gas is supplied to the building by Unitil.

HVAC

Boilers:

The buildings heating requirements are currently served by two (2) hot water boilers. Both are manufactured by Burnham and are cast iron sectional type of the 2001 vintage. The boilers are set up to burn either natural gas or #2 fuel oil through the use of Gordon Piatt dual fuel burners. Each boilers gross output rating is 959,000 BTUH for a total plant output of approximately 1.9 million BTUH. Both boilers discharge into a common breeching prior to entering a masonry chimney. The internal condition of the chimney is unknown.

The boiler controls appear to be fairly simple. In general, an outdoor air controller enables the boiler plant and each boiler fires based on its factory controls. The boilers supply hot water to the 2-pipe hot/chilled system in which change-over takes place manually via positioning of valves.

The Boilers appear to be in fair visible condition and are approximately half way through their useful expected service life of 30 years as defined by the American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE) Application Handbook. However, due to current high efficiency boiler technology and the presence of the existing low temperature 2-pipe changeover system, we suggest replacement with new 93%+ efficient condensing style gas boiler to achieve peak plant efficiency.

Combustion air for the boiler room is supplied from ductwork form the exterior connecting to two (2) in-line fans in the boiler room which discharge low in the room. One of the fans is missing its motor and the other seems to be partially gutted.

Chilled Water Plant:

Cooling for the building is supported by one (1) water cooled chiller located in a basement level mechanical room. The unit is a Trane reciprocating semi-hermetic chiller, vintage 1985, which has a nominal cooling capacity of 100-tons.

The Trane reciprocating chiller has well exceeded its useful service life of 20 years as defined by the American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE) Application Handbook. In addition, the chiller uses R-22 refrigerant which is no longer manufactured due to its ozone depletion potential. These items coupled with the unknow operation condition of the chiller and its inherent energy inefficient nature make it a prime candidate for replacement.

The chiller rejects heat via a condenser water system to a evaporative water cooling tower located on the roof. The tower is manufactured by Baltimore Air Coil (BAC). It age & capacity is unknown however, externally it appears to be in fair condition. The tower fan is controlled by a variable frequency drive located within the nearby attic space.

The condenser water system, which serves the chiller and cooling tower consists of one (1) 5-HP end suction pumps with connecting pipe between tower and chiller. Signs of water treatment were very limited. Proper water treatment and maintenance is essential to insure longevity of the system as well as safety of personnel from bacterial growth in towers and systems.

Hydronic Distribution Systems:

Hot water or chilled water from the heating plant or chiller plant is distributed to the building via a 2-pipe supply and return distribution system. The system circulates hot or chilled water to fan coil units located throughout the building.

The system is configured as a primary/secondary type manual 2-pipe change over system. When the system is in heating mode, the chiller injection pump is valved off and the boilers inject water into the building hydronic loop via in-line circulation pumps (1 per boiler). One of the boiler pumps appeared to be out of service at the time of our inspection.

When the system is in cooling mode, the boilers are valved off and an end-suction close-coupled style chilled water pump circulates water between the secondary building loop and the chiller loop. The chilled water pump is located in the boiler room adjacent to the two (2) system pumps.

The boiler room has two (2) end suction floor mounted pumps which support the building system hydronic heating and cooling system. The pumps appear to be in fair condition with some signs of bearing assembly work which would be expected for pumps of this age.

The chiller and condenser water pumps appear to be at the end of their useful expected service life as defined in ASHRAE and as such should be considered as serious candidates for replacement. Other pumps must be evaluated as they may require extensive refurbishment if they have not run in quite sometime. A major renovation project should consider pump replacement to insure reliability and efficiency.

We did note a couple active leaks in the hydronic piping system which appeared to be near or at valves. Being that the hydronic piping system appears to be more than 30 years old we suggest several test samples be taken of the piping to evaluate its wall integrity for excessive corrosion as well as internal condition of pipe for fouling. If found to be in poor condition the entire piping system should be replaced.

Ventilation & Misc. HVAC:

The general heating, cooling and ventilation systems appear to be fairly comprehensive throughout the building. Heating and cooling is primarily supported via 2-pipe fan coil units many of which have small outdoor air intake grilles located through the walls. It does not appear that the units have motorized dampers to close off the outdoor air when occupied periods are over or when units are off as required by the energy code and for improved freeze protection. A ducted ventilation system serving the former board of health area was noted on the second floor however the unit which it is connected too was not accessible during our inspection.

Convectors were noted in various areas. These units should be valved or piped in a way to ensure that chilled water cannot enter them when the plant is in cooling mode.

Several, but not all building restrooms appeared to have some level of ducted exhaust systems. We noted an exhaust fan in the attic space which discharged through the roof and appeared to duct down to the building. A Janitors closet located on the 2nd floor was found to have no exhaust ventilation. Current code requires all restrooms and janitors closet to have active exhaust ventilation.

Being that many of the units are of the 1985 vintage they have all exceeded their expected service life of 20 years as defined by ASHRAE. In addition, they appear to be in varying condition from fair to poor. As such the units should be replaced or substituted with a different system during any renovation project.

Automatic Temperature Controls:

Control of the building HVAC systems appear to be a mix of pneumatic, electric-mechanical and stand-alone microprocessor control. Although it is hard to tell the extent of each system it would appear that the microprocessor control may support the system pumps, maybe boilers and cooling tower fan speed control. Many of the fan coil units were found to have integral unit mounted electric-mechanical thermostatic controls with 3-speed fan switch and 2-way control valve. The pneumatic controls may serve the convectors but again this is somewhat unclear as we did find some pneumatic thermostats located sporadically in the building.

Air for the pneumatic portion of the system is provided by a compressor mounted on a receiver tank located near the chiller plant. The existing air compressor tank appears to be at an age where it will most likely need to be decommissioned due to wall thickness reduction. The system also has a refrigeration based air dryer to remove moisture from the pneumatic air supply but its operational status is unknown.

Serious consideration should be made during any renovation to replace all controls with an electronic based direct digital control (DDC) type energy management (EMS) system. This would negate the need for continued maintenance of the pneumatic air compressor and supply system. In addition, these controls can enact numerous energy-saving routines such as optimized start and set-back, CO_2 demand ventilation control, occupancy based ventilation control, space pressure control, etc….

ADJACENT FORMER BANK BUILDING

The following is a brief summary of the adjacent former bank building.

Fire Suppression

There is no fire suppression system in the building. In its current use, none would be required unless the building exceeds 7,500SF in area.

Plumbing

A 1" water service enters in a utility closet and serves the building fixtures with copper piping. There is no PRV or backflow preventer on this line. Refer to body of report on town hall for reasons why such may be required.

There are two (2) Uni-Sex bathrooms with floor mount water closest and wall lavatories. In general, the code only allow Uni-sex fixtures for those in addition to the minimum fixture requirement for each sex. This may simply be a labeling issue.

There is a Janitors closet with floor mount sink. A small electric water heater is mounted on a platform above the sink and serves the buildings hot water needs. The water heater does appear small to support a extended draw from the Janitors sink.

There were no evident signs of water or drainage system failure during our inspection.

HVAC

Much of the buildings heating, cooling and ventilation needs are supported by a packaged rooftop unit. Due to snow covering the roof hatch we were unable to access the roof during our inspection to evaluate the unit. There was also a ducted unit located above the ceiling which appeared to serve the vestibule. Based on the interior units model number it may be associated with a 2-ton condensing unit.

In addition, to the above systems there are various electric baseboard heaters in the building as well as an electric cabinet heater at a rear entry vestibule. All the electric baseboard sections appear to be controlled by wall mounted thermostats with no automatic setback capability as required by current energy code.

The operational condition of most of the systems is unknown.

If you have any questions regarding this report please do not hesitate to call.

Sincerely,
Seaman Engineering Corporation

Kevin R. Seaman P.E. LEED® AP
President

APPENDICES

- Appendix C – Electrical Existing Conditions Report

ART Engineering
we build the future.
38 Front St. FL 3, Worcester, MA 01608 Office: 508.797.0333

March 17, 2017

Fitchburg Town Hall

718 Main Street
Fitchburg, MA

RE: Existing Electrical Systems Review

Prepared by: Azim Rawji, P.E.

SUMMARY

ART has completed site surveys and reviewed available drawings for the existing building in Fitchburg, Massachusetts. The building has been vacant for several years. We have developed a Good/Fair/Poor rating system for the various electrical systems.

The rating system was developed to give a concise, overall assessment for each system. In general, a system rated "Good" typically is up to date with current codes and well suited for current and future space intent. A "Fair" rated system may have some equipment in need of replacement or portions not suited for current or future space programming. Systems that are rated "Poor," are not well served for current or future space programming, and are outdated or obsolete. There are many reasons for fair or poor ratings, including but not limited to age, current code compliance and maintenance.

The Massachusetts State Building Code 780 CMR requires all buildings and structures and all parts thereof, both existing and new, and all systems and equipment therein which are regulated by the State Building Code to be maintained in a safe, operable and sanitary condition. All service equipment, means of egress, devices and safeguards which are required by the State Building Code in a building or structure, or which were required by a previous statute in a building or structure, when erected, altered or repaired, shall be maintained in good working order. It is unknown whether any of the existing systems have been maintained or tested per the manufacturer's recommendations or system standards over the years they have been in service.

BUILDING ELECTRICAL SYSTEMS

1. Electrical Service:

   The existing electrical service is rated 1200 Amperes, 208/120 Volt, 3-phase, 4-wire. The electrical service originates at the utility vault in the building. The service equipment is by Westinghouse. The switchboard is located in the electrical room in the basement. The front cover of the switchboard has been removed and poses a hazard. The service equipment is beyond its useful working life and in need of replacement.

   Rating: Poor

2. Normal Distribution

   The panelboards in the building are by various manufacturers; load centers were also observed in the building. The panelboards are located throughout the building and are circuit breaker type. The branch circuit panelboards are past their useful life. The branch circuit wiring is not suitable for today's electrical loads. It is likely that the feeders utilize the conduit as the grounding conductor in the original building and branch circuits do not have a dedicated grounding conductor. The grounding can become ineffective due to rust and bad connections between conduits and boxes over time. Several different types of wiring methods were observed; namely, wires in raceway, metal clad (MC) cable, armored cable (and non-metallic sheathed (NM) cable. Type NM cable is not recommended for use in commercial buildings.

   Rating: Poor

3. General Purpose Power

   The general-purpose power in the building is inadequate. Additional outlets have been installed in some rooms over the years in surface raceways.

   Rating: Poor

4. Emergency /Standby Power

   The building is equipped with a standby/emergency generator rated at 35kW/44kVA, 208/120V, 3-phase, 4-wire. The generator is located behind the switchboard in the electrical room in the basement. The loads served by the generator are unknown. The generator appears to be in good condition.

   Rating: Fair

5. Egress & Exit Lighting

   The egress and exit lighting is likely being backed up by the generator. ART was not able to ascertain which fixtures were being powered by the generator. The overall coverage in buildings of this age is usually inadequate; ART observed that emergency lighting was not installed at all the exit discharge leading to a public way. The overall coverage of exit signs appears to be inadequate.

Rating: Poor

6. Lighting & Controls

The lighting in the building is a mixture of fixtures (recessed, surface, etc.) with T8 or compact fluorescent (CFL) lamps. The lighting is inefficient and does not meet current energy codes. Lighting control is primarily by wall mounted switches and occupancy sensors in some areas.

Rating: Poor

7. Telecommunications Cabling Infrastructure

The telecommunications cabling infrastructure is outdated and does not comply with the Building Industry Consulting Service International (BICSI) standards for telecommunications infrastructure..

Rating: Poor

8. Fire Alarm System

The fire alarm system consists of Simplex 2001 conventional panel and associated devices. The system is tone-visual type. The visual signaling devices are inadequate and do not comply with NFPA-72 2010 standards for visual notification. The height and location of manual pull stations do not comply with the State Building Code. Overall coverage of the automatic fire detection devices is poor. Additional automatic detection and signaling devices need to be installed to comply with NFPA-72standards and the Massachusetts State Building Code.

Rating: Poor.

9. Video Surveillance, Access Control & Intrusion Detection Systems

The building is equipped with an intrusion detections system. The system coverage is sparse.

Rating: Poor

ART Engineering
we build the future.
38 Front St. FL 3, Worcester, MA 01608 Office: 508.797.0333

March 17, 2017

Bank Building
700 Mains Street
Fitchburg, MA

RE: Existing Electrical Systems Review

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SUMMARY

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The Massachusetts State Building Code 780 CMR requires all buildings and structures and all parts thereof, both existing and new, and all systems and equipment therein which are regulated by the State Building Code to be maintained in a safe, operable and sanitary condition. All service equipment, means of egress, devices and safeguards which are required by the State Building Code in a building or structure, or which were required by a previous statute in a building or structure, when erected, altered or repaired, shall be maintained in good working order. It is unknown whether any of the existing systems have been maintained or tested per the manufacturer's recommendations or system standards over the years they have been in service.

BUILDING ELECTRICAL SYSTEMS

1. Electrical Service:

   The existing electrical service is rated 400 Amperes, 208/120 Volt, 3-phase, 4-wire. The electrical service. The service metering is sub-divided into house loads and tenant loads and metered separately by the utility company. The service equipment is by Federal Pacific (FPE). The utility company meters are located in the electrical room. The FPE service equipment is beyond its useful working life and no longer being manufactured.

   Rating: Poor

2. Normal Distribution

   The panelboards in the building are by FPE. The panelboards are located in the electrical room and are circuit breaker type. The panelboards are beyond their useful working life and should be replaced. The branch circuit wiring is not suitable for today's electrical loads. It is likely that the feeders utilize the conduit as the grounding conductor in the original building and branch circuits do not have a dedicated grounding conductor. The grounding can become ineffective due to rust and bad connections between conduits and boxes over time. A variety of wiring methods were observed; namely, wires in raceway, metal clad (MC) cable, armored cable and non-metallic sheathed (NM) cable. Type NM cable is not recommended for use in commercial applications.

   Rating: Poor

3. General Purpose Power

   The general-purpose receptacle outlets in the building are arranged for office and banking applications. The quantity of outlets appears to be adequate.

   Rating: Fair

4. Emergency /Standby Power

   The building is not equipped with a standby/emergency generator.

   Rating: N/A

5. Egress & Exit Lighting

   The egress lighting in the building consists of central battery backed halogen fixture heads. The overall coverage appears to be inadequate; ART observed that emergency lighting was not installed at all the exit discharge leading to a public way. The exit lighting consists of LED exit signs locate in the egress pathway. The overall coverage of exit signs appears to be adequate.

ART was unable to confirm that all emergency lighting functions properly as a complete emergency lighting test data was not available. NFPA 101 requires an annual test of the egress emergency lighting system. Exit signs and emergency egress lighting must be provided with an emergency power backup to assure continued illumination for a duration of not less than 1½ hours in case of primary power loss.

Rating: Poor

6. Lighting & Controls

The lighting in the building is a mixture of fixtures (recessed, surface, etc.) with T8 or compact fluorescent (CFL) lamps. The lighting is inefficient and does not meet current energy codes. Lighting control is primarily by wall mounted switches.

Rating: Poor

7. Telecommunications Cabling Infrastructure

The telecommunications cabling infrastructure consists of Category 3/5/5e cables for data and voice communications. The system is outdated and does not comply with the Building Industry Consulting Service International (BICSI) standards for telecommunications infrastructure.

Rating: Poor

8. Fire Alarm System

The fire alarm system consists of Fire-Lite MS-2 conventional panel and associated devices. The system is tone-visual type. Initiating and signaling devices are located throughout the building. fire alarm system is in fair condition.

Rating: Fair

9. Video Surveillance, Access Control & Intrusion Detection Systems

The security system in the building has been removed or is non-functional

Rating: Poor

APPENDICES

- Appendix D – Mechanical Systems Conceptual Recommendations

SEAMAN ENGINEERING CORPORATION
P: 508-832-3535
F: 508-832-3393
30 Faith Ave. Auburn, MA 01501
seamanengineers.com

July 7, 2017

Mr. William Senecal, AIA
Lamoureux • Pagano Assoc., Arch.
108 Grove Street, Suite 300
Worcester, MA 01605

Re: Mechanical Systems Conceptual Recommendations for the Former Fitchburg Town Hall

Dear Mr. Senecal:

In follow-up to our survey and existing conditions report dated March 13, 2017 we submit the following recommendations to support a substantial renovation of the existing former Town Hall structure for reuse as a Town Hall.

FIRE PROTECTION

The building currently has a fairly comprehensive fire suppression system however due to the extent of the proposed renovations and the various deficiencies noted in our earlier report we are recommending the system be substantially reworked as noted:

1. Demo all existing fire protection piping down to its foundation entrance location.
2. Provide new 6" backflow preventer connecting with a reducer to the existing 8" fire sprinkler service entrance in the basement of the building.
3. Provide a new 6" wet alarm riser to support fire sprinklers and combination standpipes. Service shall run to support a new 6" combination standpipe and sprinkler riser located in the rear main stairway of the building as well as a standpipe in the main front stairway of the building each fitted with 2.5" hose valves with 2.5"x1.5" reducers.
4. Off the service entrance provide a new 6" dry pipe valve with compressor and associated alarms and accessories pipe to support the attic level sprinklers. Potential exists to reconnect to existing dry pipe riser and salvage some sprinkler piping in the attic pending final layouts.
5. Provide new sprinkler floor control stations off each story of one of the standpipes and pipe out to support sprinklers on each floor.
6. Provide sprinkler protection throughout the building for complete coverage including but not limited to the attic (dry system) and all combustible concealed spaces.

PLUMBING

The existing buildings plumbing systems should be replaced in their entirety with a general scope as follows:

1. Demo all existing fixtures and piping down to their foundation entrance locations.
2. New copper water and cast iron sewer piping should be provided throughout connecting to existing building entry and exit points and serving all fixtures. Final sizing shall be dependent on number of fixtures.
3. The water services shall include a backflow preventer and a pressure reducer.
4. Men's and Woman's restroom groups shall be provided on each floor in density required by code and shall include floor mounted flush valve toilets, wall hung urinals (men's room only) and counter mounted lavatory sinks. All fixtures shall be ultra-low flow style for water conservation. Lavatory sinks shall include battery metered faucets and hot water mixing valve.
5. Each floor shall include a Janitors sink in dedicated Janitors room/closet.
6. Each floor shall include hi/lo electric drinking fountains.
7. Provide electric water heater in basement with tempering valve and recirculation loop. Loop shall run to within 5' of any hot water consuming fixture.
8. It is strongly suggested that the exterior storm water leaders not renter the foundation wall and be reconfigured outside the building to an exterior storm water line. This work would need to be coordinated between civil and the plumbing trades.
9. Gas service shall remain in its current location and shall be reconfigured to support the proposed new building gas loads. We expect the current interior generator shall be replaced with an exterior pad mount generator.

HVAC

Many of the components of the existing HVAC system are nearing or have exceeded the end of their useful service life and as such a complete replacement of the HVAC system is recommended. The system describes herein is a hybrid energy efficient system consisting of a variable refrigerant flow (VRF) system to support air conditioning as well as heating to many of the areas coupled with an high efficiency condensing gas-fired boiler plant serving perimeter fin-tube radiation throughout the building. A general description of the system is as follows:

1. Demo all existing HVAC systems including but not limited to chiller, boilers, cooling tower, fan coil units, ductwork, controls, etc...
2. Provide two (2) 500,000 BTUH high efficiency condensing gas-fired boilers vented to exterior. Each boiler shall be fitted with a variable speed wet rotor ECM primary pump.
3. Provide two (2) 80 GPM wet rotor ECM secondary pumps to support the hydronic heating system.
4. Provide commercial grade fin-tube radiation system serving all perimeter areas as well as unit heaters in storage spaces and cabinet unit heaters at each main entry. Radiation shall be piped to provide heating zones for each major space and shall allow grouping of similar spaces along similar exposures.
5. Provide four (4) 16-ton VRF units mounted on grade and/or on the small section of accessible flat roof on the building. Each unit shall support segments of the building connection to interior VRF fan coils.

6. VRF fan coils shall be provided for all occupied. It is currently expected that spaces shall be supported by a mix of concealed ceiling mounted cassette units and ducted fan coils.
7. Provide an energy recovery ventilation unit in the attic space ducted to exhaust and outdoor air louvers. Unit shall be ducted with supply and exhaust air to each ducted VRF system and/or directly to each space where a non-ducted VRF unit exists. The system shall include supply VAV terminals which support large zones of areas minimum two (2) VAV per floor and shall operate based on are occupancy and/or space CO2 for large meeting rooms.
8. Provide an electronic based direct digital control (DDC) type energy management (EMS) system. This system shall communicate with the VRF system as well as the boilers and hot water radiation valves to optimize performance and efficiency. In addition, these controls can enact numerous energy-saving routines such as optimized start and set-back, CO_2 demand ventilation control, occupancy based ventilation control, space pressure control, etc….

If you have any questions regarding this report please do not hesitate to call.

Sincerely,
Seaman Engineering Corporation

Kevin R. Seaman P.E. LEED® AP
President

APPENDICES

- Appendix E – Electrical Basis of Design

ART Engineering
we build the future.
38 Front St. FL 3, Worcester, MA 01608 Office: 508.797.0333

July 6, 2017

Fitchburg City Hall

Fitchburg, MA

RE: Basis of Design

Prepared by: Azim Rawji, P.E.

City Hall

a. Electrical Service:
    i. Provide electrical primary duct bank to a utility company padmount transformer located on the exterior of the building.
    ii. Provide new secondary electrical service conductors and new main switchboard and distribution equipment to a new main electrical room.
    iii. New electrical service shall be 800A, 480/277V, 3-Phase, 4wire.
    iv. Provide new 480/277V and 208/120V panelboards with stepdown transformers on each floor.
    v. Provide new telecommunications underground duct system to a new server room.

b. Emergency Power:
    i. Provide new 175kW diesel emergency/standby generator, transfer and power equipment. Emergency equipment must be separated from normal and standby power equipment per the Massachusetts Electrical Code.
    ii. All emergency equipment and feeders must be installed in 2-hour rated rooms or must be 2-hour rated.

c. Lighting:
    i. Provide new emergency egress and exit lighting fed from the emergency life safety branch of the emergency/standby system.
    ii. Provide new light fixtures with LED lamps.
    iii. Provide new network lighting control system including occupancy sensors and daylight harvesting.
    iv. Integrate lighting controls with HVAC system to optimize energy performance of the building.

d. Fire Alarm:
    i. Provide new voice evacuation fire alarm system.
    ii. Provide new public safety radio distributed antenna system.

e. Data Communications:
   i. Provide new telecommunications cabling infrastructure per the BICSI standards. Utilize Category 6 cabling for voice and data drops and Category 6A shielded cabling for wireless access points. Install telecommunications equipment in dedicated rooms.
   ii. Provide new data network switches based on HP Procurve.
   iii. Provide new wireless access points based on Meraki.
   iv. Provide new VoIP telephone system and handsets based on ShoreTel.

f. Security Systems:
   i. Provide new video surveillance system based on Genetec. The system shall monitor all entry/exits, corridors, public areas and the parking lot.
   ii. Provide new access control system based on HID. The system shall provide card access entry/exit to the building.
   iii. Provide intrusion detection system based on DMP. The system shall monitor all exit doors and rooms on grade level.

Bank Building

a. Electrical Service:
   i. Replace existing Federal Pacific distribution board and panelboards in the building. The existing service is 400A, 208/120V, 3-phase, 4-wire.

b. Lighting:
   i. Provide new emergency egress and exit lighting fed from the emergency life safety branch of the emergency/standby system.
   ii. Provide new light fixtures with LED lamps.
   iii. Provide new network lighting control system including occupancy sensors and daylight harvesting.
   iv. Integrate lighting controls with HVAC system to optimize energy performance of the building.

c. Fire Alarm:
   i. Provide new voice evacuation fire alarm system.

d. Data Communications:
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    iii. Provide intrusion detection system based on DMP. The system shall monitor all exit doors and rooms on grade level.

APPENDICES

- Appendix F – Cost Estimates

A.M. Fogarty & Assoc., Inc.

175 Derby St., Suite 5, Hingham, MA 02043
TEL: (781) 749-7272 • FAX: (781) 740-2652
ptim@amfogarty.com

"Construction Cost Consultants"

Fitchburg City Hall Study
Fitchburg, MA

May 11, 2017

ORDER OF MAGNITUDE BUDGET RECOMMENDATIONS FOR OPTION SELECTION
GRAND SUMMARY

	OPT NO. 1	OPT. NO. 2	OPT. NO. 3	OPT. NO. 4	OPT. NO. 5
CITY HALL RENOVATION	$11,416,240	$12,255,800	$19,120,502	$23,086,760	$22,417,030
BANK OF AMERICA - ANNEX	$759,664	$759,664	$759,664	$759,664	$759,664
SITEWORK	$2,465,701	$2,465,701	$2,465,701	$2,465,701	$2,465,701
GARAGE	$1,370,580	$1,370,580	$1,370,580	$1,370,580	$1,370,580
TOTAL CONSTRUCTION COST	$16,012,185	$16,851,745	$23,716,447	$27,682,705	$27,012,975

DESCRIPTION	UNIT COST		UNIT	QUANTITY	NO. 1 TOTAL	QUANTITY	NO. 2 TOTAL	QUANTITY	NO. 3 TOTAL	QUANTITY	NO. 4 TOTAL	QUANTITY	NO. 5 TOTAL
CITY HALL RENOVATION													
Demolition 1870 addition	$15.00		SF					14,350	215,250	14,350	215,250	34,027	510,405
New City Hall Addition - #3	$500.00		SF					18,073	9,036,500				
New City Hall Addition - #4	$600.00		SF							20,204	12,122,400		
New City Hall Addition - #5	$550.00		SF									29,238	16,080,900
New Floor Infill	$225.00		SF			1,574	354,150						
Int. renovation	$190.00		SF	32,453	6,166,070	34,027	6,465,130	19,667	3,736,730	19,667	3,736,730		
Ext. renovation	$90.00		SF	18,180	1,636,200	18,180	1,636,200	11,200	1,008,000	11,200	1,008,000	8,000	720,000
Replace roof structure	$100.00		SF	9,500	950,000	9,500	950,000	7,500	750,000	7,500	750,000		
Hazardous waste	$130,000.00		LS	1	130,000	1	130,000	1	130,000	1	130,000	1	130,000
TOTAL DIRECT C OST					8,882,270		9,535,480		14,876,480		17,962,380		17,441,305
GENERAL CONDITRIONS		7.0%			621,759		667,484		1,041,354		1,257,367		1,220,891
OVERHEAD & PROFIT		5.0%			475,201		510,148		795,892		960,987		933,110
DESIGN CONTINGENCY		10%			997,923		1,071,311		1,671,373		2,018,073		1,959,531
ESCALATION (summer 2018)		4%			439,086		471,377		735,404		887,952		862,193
TOTAL CONSTRUCTION COST					11,416,240		12,255,800		19,120,502		23,086,760		22,417,030
CSOT PER SF					$351.78		$360.18		$506.64		$579.04		$766.71
BANK OF AMERICA - ANNEX													
Interior renovation	$150.00		SF	3769	565,350	3,769	565,350	3,769	565,350	3,769	565,350	3,769	565,350
TOTAL DIRECT COST					565,350		565,350		565,350		565,350		565,350
GENERAL CONDITRIONS		7.0%			$39,575		$39,575		$39,575		$39,575		$39,575
OVERHEAD & PROFIT		5.0%			$30,246		$30,246		$30,246		$30,246		$30,246
DESIGN CONTINGENCY		15%			$95,276		$95,276		$95,276		$95,276		$95,276
ESCALATION (summer 2018)		4%			$29,218		$29,218		$29,218		$29,218		$29,218
TOTAL CONSTRUCTION COST					$759,664		$759,664		$759,664		$759,664		$759,664

DESCRIPTION	UNIT COST	UNIT	QUANTITY	NO. 1 TOTAL	QUANTITY	NO. 2 TOTAL	QUANTITY	NO. 3 TOTAL	QUANTITY	NO. 4 TOTAL	QUANTITY	NO. 5 TOTAL
SITEWORK												
Site preparation	$3.00	SF	38,000	114,000	38,000	114,000	38,000	114,000	38,000	114,000	38,000	114,000
Paving	$30.00	SF	38,000	1,140,000	38,000	1,140,000	38,000	1,140,000	38,000	1,140,000	38,000	1,140,000
Site improvements	$12.00	SF	38,000	456,000	38,000	456,000	38,000	456,000	38,000	456,000	38,000	456,000
Site lighting	$35,000.00	LS	1	35,000	1	35,000	1	35,000	1	35,000	1	35,000
Site drain	$90,000.00	LS	1	90,000	1	90,000	1	90,000	1	90,000	1	90,000
*Utilities assumed in bld sf cost												
				1,835,000		1,835,000		1,835,000		1,835,000		1,835,000
GENERAL CONDITRIONS		7.0%		128,450		128,450		128,450		128,450		128,450
OVERHEAD & PROFIT		5.0%		98,173		98,173		98,173		98,173		98,173
DESIGN CONTINGENCY		15%		309,243		309,243		309,243		309,243		309,243
ESCALATION (summer 2018)		4%		94,835		94,835		94,835		94,835		94,835
TOTAL CONSTRUCTION COST				2,465,701		2,465,701		2,465,701		2,465,701		2,465,701
GARAGE												
On grade Parking	$18.00	SF	15,000	270,000	15,000	270,000	15,000	270,000	15,000	270,000	15,000	270,000
Parking Deck	$50.00	SF	15,000	750,000	15,000	750,000	15,000	750,000	15,000	750,000	15,000	750,000
				1,020,000		1,020,000		1,020,000		1,020,000		1,020,000
GENERAL CONDITRIONS		7.0%		71,400		71,400		71,400		71,400		71,400
OVERHEAD & PROFIT		5.0%		54,570		54,570		54,570		54,570		54,570
DESIGN CONTINGENCY		15%		171,896		171,896		171,896		171,896		171,896
ESCALATION (summer 2018)		4%		52,715		52,715		52,715		52,715		52,715
TOTAL CONSTRUCTION COST				1,370,580		1,370,580		1,370,580		1,370,580		1,370,580

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"Construction Cost Consultants"

City Hall Renovation Study
Fitchburg, MA

July 24, 2017

OPTION 1 DETAILED BUDGET RECOMMENDATION

GRAND SUMMARY

CITY HALL RENOVATION				$10,906,567
NEW PARKING GARAGE STRUCTURE	16,376	GSF	$75.00	$1,228,200
BANK RENOVATION				$620,966
HAZARDOUS MATERIAL ABATEMENT				$130,000
	TOTAL DIRECT COST			$12,885,733
chapter 140 deign/bid				
GENERAL CONDITIONS		6.5%		$837,573
GENERAL REQUIREMENTS		2.5%		$343,083
P&P BOND AND INSURANCE		2.25%		$316,494
ARCH./ ENG. DESIGN CONTINGENCY		10%		$1,438,288
FEE		2.5%		$395,529
	TOTAL CONSTRUCTION COST			$16,216,699
SOFT COST *		40%		$6,486,680
	TOTAL PROJECT COST			$22,703,379
CONSTRUCTION COST ESCALTION (Calculated off Construction Cost Only)				
SUMMER 2018				$23,352,047
SUMMER 2019				$24,000,715

* Including: Owner's Project Manager fees 6.5%, Architect and Engineering fees 10%, Furnishings and Equipment 6.5%, Owner's Contingency 15%, Administration and Legal fees 1%, Misc. Project Costs 1%

PROJECT:	City Hall Renovation Study	NO. OF SQ. FT.:	32,453
LOCATION:	Fitchburg, MA	COST PER SQ. FT.:	336.07
CLIENT:	Lamoureux Pagano		
DATE:	24-Jul-17		

No.: 15092

SUMMARY	DIVISION TOTAL	PERCENT OF PROJECT	COST PER SF
DIVISION 02 - EXISTING CONDITIONS	720,315	7%	22.20
DIVISION 03 - CONCRETE	147,325	1%	
DIVISION 04 - MASONRY	445,473	4%	
DIVISION 05 - METALS	335,078	3%	
055000 METAL FABRICATIONS	269,806	2%	8.31
DIVISION 06 - WOOD, PLASTICS & COMPOSITES	545,707	5%	16.82
DIVISION 07 - THERMAL & MOISTURE PROTECTION			
071000 DAMPPROOFING & WATERPROOFING	54,843	1%	1.69
072000 THERMAL PROTECTION	223,400	2%	6.88
073000 STEEP SLOPE ROOFING	150,000	1%	4.62
076000 FLASHING AND SHEET METAL	83,750	1%	2.58
077000 ROOF ACCESSORIES	15,000	0%	0.46
078000 FIRE AND SMOKE PROTECTION	11,359	0%	0.35
079000 JOINT PROTECTION	28,594	0%	0.88
DIVISION 08 - OPENINGS	210,945	2%	6.50
084000 ENTR., STOREFRONTS & CURTAIN WALI	36,125	0%	1.11
085000 WINDOWS	438,950	4%	13.53
088000 GLAZING	20,000	0%	0.62
DIVISION 09 - FINISHES			
092000 PLASTER & GYPSUM BOARD	814,334	7%	25.09
093000 TILING	140,467	1%	4.33
095100 ACOUSTICAL CEILINGS	248,120	2%	7.65
096500 RESILIENT FLOORING	72,173	1%	2.22
096800 CARPETING	92,983	1%	2.87
098000 ACOUSTIC TREATMENT	28,000	0%	0.86
099000 PAINTING	133,586	1%	4.12
DIVISION 10 - SPECIALTIES	73,675	1%	2.27
DIVISION 11 - EQUIPMENT	42,500	0%	1.31
DIVISION 12 - FURNISHINGS	50,660	0%	1.56
DIVISION 13 - SPECIAL CONSTRUCTION	50,000	0%	1.54
DIVISION 14 - CONVEYING EQUIPMENT	170,000	2%	5.24
DIVISION 21 - FIRE SUPPRESSION	220,378	2%	6.79
DIVISION 22 - PLUMBING	403,977	4%	12.45
DIVISION 23 - HVAC	1,336,323	12%	41.18
DIVISION 25 - INTEGRATED AUTOMATION	146,039	1%	4.50
DIVISION 26 - ELECTRICAL	891,645	8%	27.47
DIVISION 27 - COMMUNICATIONS	181,039	2%	5.58
DIVISION 28 - ELECTRONIC SAFETY & SECURITY	129,812	1%	4.00
DIVISION 31 - EARTHWORK	502,175	5%	15.47
DIVISION 32 - EXTERIOR IMPROVEMENTS	1,073,965	10%	33.09
DIVISION 33 - UTILITIES	368,050	3%	11.34
TOTAL	10,906,567	100%	336.07

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
DIVISION 02 - EXISTING CONDITIONS				
022600 HAZARDOUS MATERIAL ASSESSMENT			SEE GRAND SUMMARY	
024100 DEMOLITION				
Basement:				
Remove Basement Slab at Structural	1,500	SF	11.00	16,500
Remove Basement slab at Elev Pit	300	SF	11.00	3,300
Remove Slab at Plumbing	1,200	SF	11.00	13,200
Saw cut slab (per above)	650	LF	14.00	9,100
Interior Gut	8,903	SF	8.50	75,676
Remove MEP	8,903	SF	1.45	12,909
First Floor:				
Cut-in Elev Floor Opening	1	EA	1,500.00	1,500
Cut-in Stair Opening	2	EA	2,200.00	4,400
Interior Gut	8,903	SF	8.50	75,676
Remove MEP	8,903	SF	1.45	12,909
Second Floor:				
Cut-in Elev Floor Opening	1	EA	1,500.00	1,500
Cut-in Stair Opening	2	EA	2,200.00	4,400
Interior Gut	8,903	SF	8.50	75,676
Remove MEP	8,903	SF	1.45	12,909
Third Floor:				
Cut-in Elev Floor Opening	1	EA	1,500.00	1,500
Cut-in Stair Opening	2	EA	2,200.00	4,400
Interior Gut	2,872	SF	8.50	24,412
Remove MEP	2,872	SF	1.45	4,164
Fourth Floor:				
Cut-in Elev Floor Opening	1	EA	1,500.00	1,500
Cut-in Stair Opening	2	EA	2,200.00	4,400
Interior Gut	2,872	SF	8.50	24,412
Remove MEP	2,872	SF	1.45	4,164
Building Exterior - Remove Existing:				
Remove Windows	3,482	SF	6.25	21,763
Protect Window Opening	3,482	SF	10.00	34,820
Remove Double Doors	3	EA	250.00	750
Roofing:				
Remove Slate Roofing and Flashing	12,500	SF	6.75	84,375

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
Remove Roof Dormers	2	EA	7,500.00	15,000
Seelctive Roof Demolition	1	LS	15,000.00	15,000
Temp Protect existing Building	8,500	SF	10.00	85,000
Temporary Shoring - Allow	1	LS	75,000.00	75,000
				720,315

DIVISION 03 - CONCRETE

033000 CAST IN PLACE CONCRETE

Elevator Pit:				
Underpin Allowance	1	LS	25,000.00	25,000
Elevator Mat	6	CY	550.00	3,300
Elevator Pit Wall	6	CY	675.00	4,050
Sump Pump Pit	1	EA	1,500.00	1,500
Patch Basement Slab @:				
New Structural	1,500	SF	10.00	15,000
New Elevator Pit	200	SF	10.00	2,000
New Plumbing	1,200	SF	10.00	12,000
Dowel into existing	325	EA	95.00	30,875
Allow for New Column Footings	1	LS	30,000.00	30,000
New Concrete slab over vaults	1	LS	10,000.00	10,000
Metal Pan Stair Fill	8	FLTS	1,200.00	9,600
Mechanical Pads	1	LS	4,000.00	4,000
				147,325

DIVISION 04 - MASONRY

Cut-in and Repair New Openings:				
Basement - New Opening	3	EA	2,750.00	8,250
First Floor - New Opening	3	EA	2,750.00	8,250
Second Floor - New Opening	3	EA	2,750.00	8,250
Exterior Masonry Restoration:				
Cut and Point - 100%	10,600	SF	24.00	254,400
Power wash Ext Brick	10,600	SF	1.95	20,670
General Masonry Repair	1	LS	100,000.00	100,000

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
Infill Opening at Int Masonry Walls:				
Basement	4	EA	1,200.00	4,800
First Floor	4	EA	1,200.00	4,800
Second Floor	3	EA	1,200.00	3,600
Misc. Cut and Patch Masonry	32,453	GSF	1.00	32,453
				445,473
DIVISION 05 - METALS				
Reframe Elevator Opening	4	EA	2,500.00	10,000
Reframe Stair Opening	8	EA	5,000.00	40,000
Reinforce Roof Frame (2 lbs /sf)	12.50	TONS	5,500.00	68,750
Light Gauge Metal Roof Framing	12,500	SF	10.00	125,000
Reinforce Existing Floor Structure	23,550	GSF	2.50	58,875
Seismic Upgrade	32,453	GSF	1.00	32,453
				335,078
055000 METAL FABRICATIONS				
Elevator Pit Ladder	1	EA	1,400.00	1,400
Elevator Framing	1	LS	3,500.00	3,500
Metal Pan Stair and Railing	8	FLTS	25,000.00	200,000
Misc. Building Metals	32,453	GSF	2.00	64,906
				269,806
DIVISION 06 - WOOD, PLASTICS & COMPOSITES				
061000 ROUGH CARPENTRY				
Roof Blocking	12,500	SF	1.50	18,750
Reframe at Dormer removal	1	LS	10,000.00	10,000
Interior Blocking	32,453	GSF	0.50	16,227
3/4" T&G Plywood sub floor	23,550	SF	3.10	73,005

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
5/8" Roof Sheathing	12,500	SF	3.75	46,875
Repair Roof Truss	2	EA	10,000.00	20,000
Repair Existing Wood Floor	23,550	SF	1.00	23,550
Misc. rough carpentry	32,453	SF	1.00	32,453
062000 FINISH CARPENTRY				
Wood Windows:				
Wood Window Sill	518	LF	45.00	23,310
Wood Trim	2,295	LF	15.00	34,425
Interior Running Trim	32,453	GSF	2.00	64,906
Casework Millwork and Built-ins	32,453	GSF	2.00	64,906
Exterior Carpentry:				
Rake Trim	155	LF	150.00	23,250
Rake Return	4	EA	1,200.00	4,800
Fascia and Soffit	314	LF	125.00	39,250
Misc. Exterior Trim and Details	1	LS	50,000.00	50,000
				545,707
DIVISION 07 - THERMAL & MOISTURE PROTECTION				
071000 DAMPPROOFING & WATERPROOFING				
Existing Foundation:				
Power wash existing	3,430	SF	1.50	5,145
Parge Existing Foundation	3,430	SF	6.00	20,580
New Waterproofing system	3,430	SF	7.25	24,868
Elevator Pit Waterproofing	1	EA	4,250.00	4,250
				54,843
072000 THERMAL PROTECTION				
Exterior Wall:				
2" Spray Foam Ext Wall	19,444	SF	4.20	81,665
2" Rigid Foundation Insulation	19,444	SF	2.95	57,360
Roof:				
5" Nailable Rigid Roof Insulation	12,500	SF	6.75	84,375

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
				223,400
073000 STEEP SLOPE ROOFING				
Membrane Roof w/ Adhered Ribs *insulation carried w/ 0721000	12,500	SF	12.00	150,000
				150,000
076000 FLASHING AND SHEET METAL				
Alum. Flashing	12,500	GSF	1.50	18,750
Gutter, Downspout and Snow Fence	1	LS	65,000.00	65,000
				83,750
077000 ROOF ACCESSORIES				
Roof Ventilator	1	LS	5,000.00	5,000
Misc. Roof Accessories	1	LS	10,000.00	10,000
				15,000
078000 FIRE AND SMOKE PROTECTION				
Fire Saffing	32,453	GSF	0.35	11,359
				11,359
079000 JOINT PROTECTION				
Misc. int joint sealants	32,453	GSF	0.65	21,094
Exterior Sealants	1	LS	7,500.00	7,500
				28,594

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
DIVISION 08 - OPENINGS				
081100 METAL DOORS AND FRAMES				
Interior Door, Frame and Hardware	32,453	GSF	6.50	210,945
				210,945
084000 ENTRANCES & STOREFRONTS				
Aluminum Entry Door - dbl	3	EA	8,500.00	25,500
Alum, Storefront - transom and sidelight	125	SF	85.00	10,625
				36,125
085000 WINDOWS				
Wood Windows - Side and Rear	3,177	SF	125.00	397,125
Wood Windows - Front	203	SF	150.00	30,450
Wood Door Transom	91	SF	125.00	11,375
				438,950
088000 GLAZING				
Allow for Interior windows and borrowec	1	LS	20,000.00	20,000
				20,000
DIVISION 09 - FINISHES				
092000 PLASTER & GYPSUM BOARD				
Fur and Gyp Exterior Walls	19,444	SF	9.50	184,718
New Interior Partition	32,453	GSF	12.00	389,436
Fire Rated Ceiling at Wood Framing	22,550	SF	5.00	112,750
Gyp Ceiling	7,500	SF	10.50	78,750
Interior Soffit	32,453	SF	1.50	48,680

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
				814,334
093000 TILING				
Toilet Room:				
Ceramic Floor Tile	1,081	SF	25.00	27,025
Waterproofing	1,081	SF	8.00	8,648
Tile wall base	420	LF	12.00	5,040
Tile wainscot Ceramic Wall Tile - 7'	2,940	SF	20.00	58,800
Threshold	13	EA	75.00	975
Janitor Room:				
Ceramic Floor Tile	104	SF	25.00	2,600
Waterproofing	104	SF	8.00	832
Tile wall base	66	LF	12.00	792
Ceramic Wall Tile - 4'	264	SF	20.00	5,280
Threshold	4	EA	75.00	300
Porcelain Tile:				
Entry Vestibule	1,007	SF	25.00	25,175
Tile Base	200	LF	12.50	2,500
Allow For threshold and Transitions	1	LS	2,500.00	2,500
				140,467
095100 ACOUSTICAL CEILINGS				
ACT 2 x 2 - Typical	10,000	SF	10.00	100,000
Specialty ACT	7,406	SF	20.00	148,120
				248,120
096500 RESILIENT FLOORING				
3/8" Underlayment	3,916	SF	1.80	7,049
Rubber Stair Tile	1,416	SF	11.25	15,930
Resilient wall base	32,453	GSF	0.65	21,094
Linoleum Tile	2,500	SF	7.00	17,500
Stair hall finishes	8	FLTS	1,325.00	10,600

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
				72,173
096800 CARPETING				
3/8" Underlayment	13,674	SF	1.80	24,613
Carpet - Office and Admin	10,042	SF	5.00	50,210
Corridor and Gallery	3,632	SF	5.00	18,160
				92,983
098000 ACOUSTIC TREATMENT				
Acoustical Wall Panels	1,000	SF	28.00	28,000
				28,000
099000 PAINTING				
Interior Painting	32,453	GSF	3.50	113,586
Exterior Painting	1	LS	20,000.00	20,000
				133,586
DIVISION 10 - SPECIALTIES				
109000 MISCELLANEOUS SPECIALTIES				
Toilet Rm:				
Toilet paper dispenser	18	EA	45.00	810
Soap dispenser	18	EA	42.00	756
Paper towel dispenser/disposal	13	EA	225.00	2,925
Mirror	18	EA	250.00	4,500
Grab bar	26	EA	95.00	2,470
Jan Shelf	4	EA	165.00	660
Fire Extinguisher	12	EA	425.00	5,100
Dedication Plaque	1	EA	3,200.00	3,200
Directory	3	EA	4,000.00	12,000
Marker and Tack Boards	1	LS	5,000.00	5,000

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
Interior Signage	32,453	GSF	0.45	14,604
Metal Locker	6	EA	275.00	1,650
Misc. specialties	1	LS	20,000.00	20,000
				73,675

DIVISION 11 - EQUIPMENT

110000 EQUIPMENT

Residential Appliances	1	LS	5,000.00	5,000
Projection Screen - Elec Op	1	EA	7,500.00	7,500
AV Allowance	1	LS	30,000.00	30,000
				42,500

DIVISION 12 - FURNISHINGS

120000 FURNISHINGS

Window Shades	3,380	SF	7.00	23,660
Add for Elec. Blackout shade	1	LS	15,000.00	15,000
Entry Matt	3	EA	4,000.00	12,000
				50,660

DIVISION 13 - SPECIAL CONSTRUCTION

130000 SPECIAL CONSTRUCTION

New Vaults	1	LS	50,000.00	50,000
				50,000

DIVISION 14 - CONVEYING EQUIPMENT

142000 ELEVATORS

Passenger Elevator - 3000 lbs	4	STOP	42,500.00	170,000

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL

				170,000
DIVISION 21 - FIRE SUPPRESSION				
210000 FIRE SUPPRESSION				
Cut, Cap and Drop Existing	32,453	SF	0.50	16,227
Wet Sprinkler System	32,453	SF	4.75	154,152
Dry Attic System	10,000	SF	5.00	50,000

				220,378
DIVISION 22 - PLUMBING				
220000 PLUMBING				
Fixtures:				
Plumbing Fixtures	45	FXT	1,750.00	78,750
Fixture San, Vent and Domestic	45	FXT	4,500.00	202,500
Floor Drain and Piping	8	EA	1,250.00	10,000
Hose bib's	1	LS	10,000.00	10,000
Equipment:				
Hot water system	1	LS	30,000.00	30,000
Water Service and BFP	1	LS	7,500.00	7,500
Storm Water Sump Pump	1	EA	10,000.00	10,000
Sanitary Service	1	LS	4,000.00	4,000
Gas Piping	1	LS	25,000.00	25,000
Cut, Cap and Drop Existing	32,453	SF	0.50	16,227
Test, permit and cleaning	1	LS	10,000.00	10,000

				403,977
DIVISION 23 - HVAC				
230000 HVAC				
Cut, Cap and Drop Existing	32,453	SF	0.50	16,227

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
Hot Water Boiler (500 MBH):				
B-1	1	EA	12,500.00	12,500
B-2	1	EA	12,500.00	12,500
AS-1	1	EA	3,800.00	3,800
ET- 1,2	2	EA	6,500.00	13,000
Boiler Valve and trim	1	LS	6,000.00	6,000
AS	2	EA	3,600.00	7,200
Boiler flue	115	LF	55.00	6,325
Boiler flue roof term	2	EA	2,200.00	4,400
Chemical treatment	1	LS	4,500.00	4,500
HW pump w/ VFD	2	EA	7,500.00	15,000
Boiler pump	2	EA	1,500.00	3,000
Ductwork:				
Galv. rectangular ductwork	30,000	LBS	9.50	285,000
2" Rigid fiberglass insul	25,000	SF	5.20	130,000
Grills and accessories	32,453	SF	1.30	42,189
ERV Unit	15,000	CFM	13.00	195,000
Hydraulic Heat and Distribution	32,453	SF	4.75	154,152
VRF Equipment and Distribution	32,453	SF	12.00	389,436
Exhaust Fan	1	LS	15,000.00	15,000
Test and Balance	32,453	SF	0.65	21,094
				1,336,323
DIVISION 25 - INTEGRATED AUTOMATION				
250000 INTEGRATED AUTOMATION				
Temperature Control	32,453	GSF	4.50	146,039
				146,039
DIVISION 26 - ELECTRICAL				
260000 ELECTRICAL				
Demo and Disconnect	1	LS	10,000.00	10,000
800 AMP Electric Service	1	LS	25,000.00	25,000
Panels and Feeders	32,453	GSF	2.65	86,000
175 kw Diesel Generator	1	LS	145,000.00	145,000

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
Lighting	32,453	GSF	10.00	324,530
Lighting Control	32,453	GSF	2.00	64,906
Fire Alarm	32,453	GSF	2.75	89,246
Mechanical Wiring	32,453	GSF	1.45	47,057
BDA	1	LS	35,000.00	35,000
Test Permit and Misc	32,453	GSF	2.00	64,906
				891,645

DIVISION 27 - COMMUNICATIONS

270000 COMMUNICATIONS

Tele/data wiring	32,453	GSF	4.50	146,039
Telephone system	1	LS	25,000.00	25,000
av Rough in	1	LS	10,000.00	10,000
				181,039

DIVISION 28 - ELECTRONIC SAFETY & SECURITY

280000 ELECTRONIC SAFETY AND SECURITY

Security System	32,453	GSF	4.00	129,812
				129,812

DIVISION 31 - EARTHWORK

310000 EARTHWORK

Site:				
Excavate Pavement Sub Base	2,450	CY	11.00	26,950
Haul Surplus Mat'l	2,450	CY	15.00	36,750
Site Grading	7,240	SY	2.20	15,928
Excavate and Backfill Ramp Structures	2	EA	12,000.00	24,000
Building:				
Excavate and Backfill Elevator Pit	1	LS	15,000.00	15,000
Excavate Existing Building Perimeter	1,200	CY	22.00	26,400
Haul Surplus Material	1,200	CY	20.00	24,000

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
New Foundation Drain	430	LF	32.50	13,975
Backfill drainable fill	1,200	CY	25.00	30,000
Allow for handwork	1	LS	15,000.00	15,000
311000 SITE CLEARING				
Construction Fence	1,500	LF	12.00	18,000
Construction Entrance	1	EA	5,000.00	5,000
Erosion Control	750	LF	3.95	2,963
CB Protection	1	LS	1,000.00	1,000
Remove Old parking Garage Foundation	1	LS	25,000.00	25,000
Cut and Cap Utilities	1	LS	5,000.00	5,000
Remove Side Entrance Granite steps	1	LS	5,000.00	5,000
Remove Bank Drive thru Structure	1	LS	10,000.00	10,000
Remove Main Entrance Stair Structure	1,500	FTP	15.00	22,500
Remove surfaces, pavement and curb	65,161	SF	1.30	84,709
Misc. Site Removal	1	LS	20,000.00	20,000
315000 EXCAVATION SUPPORT AND PROTECTION				
Shore/Protect Parking Garage Retaining v	1	LS	75,000.00	75,000
				502,175
DIVISION 32 - EXTERIOR IMPROVEMENTS				
321000 BASES, BALLASTS AND PAVING				
Street Patch @ Utilities:				
Water	1	LOC	3,000.00	3,000
Drainage	1	LOC	3,000.00	3,000
Gas	1	LOC	3,000.00	3,000
Electrical	1	LOC	3,000.00	3,000
Parking and Driveway :				
Bituminous 2 1/2" wear 1 1/2" bind	622	SY	17.00	10,574
Granite Curb - Site	561	LF	45.00	25,245
Granite Curb - Street	208	LF	48.00	9,984
Patch Bit at Street Curb	208	LF	25.00	5,200
12" gravel base	210	CY	32.00	6,720
Pedestrian Pavement:				
5" Concrete Sidewalk	2,349	SF	6.50	15,269

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
Plaza Unit Paver	8,874	SF	20.00	177,480
Side Park Unit Pavers	912	SF	20.00	18,240
8" gravel base	300	CY	34.00	10,200
ADA detectable paver @ curb cut	4	LOC	450.00	1,800
Boulder Drive Rework (inc Removal cost):				
Replace Street Curb	424	LF	55.00	23,320
Replace City Sidewalk	8,191	SF	13.00	106,483
323000 SITE IMPROVEMENTS				
New Main Entrance Ramp and Stair:				
Wall footing	15	CY	365.00	5,475
12" Foundation Wall	55	CY	950.00	52,250
Ramp Slab	607	SF	10.00	6,070
Terrace Slab and Paver	50	SF	30.00	1,500
Concrete Stair	24	LFR	82.00	1,968
Ramp Railing	190	LF	385.00	73,150
Stair Railing	16	LF	200.00	3,200
Masonry Veneer and Detailing	1	LS	100,000.00	100,000
New Side Egress Ramp and Terrace:				
Wall footing	13	CY	365.00	4,745
12" Foundation Wall	50	CY	950.00	47,500
Ramp Slab	320	SF	10.00	3,200
Terrace Slab and Paver	450	SF	30.00	13,500
Concrete Stair	24	LFR	82.00	1,968
Ramp Railing	82	LF	385.00	31,570
Stair Railing	16	LF	200.00	3,200
Allow for Planter, Radius and Arch Featu	1	LS	25,000.00	25,000
Site Improvements - Allow:				
Entrance Archway Feature	1	LS	25,000.00	25,000
Flagpole	1	EA	9,500.00	9,500
Site Sign	1	LS	20,000.00	20,000
Bike rack - 8 stall	1	EA	2,500.00	2,500
Decorative bollard	15	EA	2,200.00	33,000
Plaza Improvements	1	LS	50,000.00	50,000
329000 PLANTING				
6" Loam	425	CY	48.00	20,400
Rake fertilize and hydro seed	2,439	SY	2.20	5,366
Planting Allowance	1	LS	20,000.00	20,000
New Tree - 3 1/2" Cal.	18	EA	775.00	13,950
Tree and Shrub - Allowance	1	LS	50,000.00	50,000

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
Irrigation system	21,951	SF	1.25	27,439
				1,073,965

DIVISION 33 - UTILITIES

330000 UTILITIES

Bank Building:				
Replace water service	1	LS	25,000.00	25,000
Sanitary - Connect to existing	1	LS	10,000.00	10,000
Water Service - Connect to existing	1	LS	10,000.00	10,000
Fire Service - connect to existing	1	LS	10,000.00	10,000
Site Drainage	1	LS	125,000.00	125,000
Primary Electric Ductbank	200	LF	95.00	19,000
Secondary Ductbank	150	LF	145.00	21,750
Tele/data ductbank	200	LF	110.00	22,000
Transformer Pad	1	EA	3,000.00	3,000
Site Lighting:				
Parking Lot Light	6	EA	4,100.00	24,600
Pedestrian Light	20	EA	2,850.00	57,000
Flag pole light	1	EA	2,200.00	2,200
Lighting Trenching	1,200	LF	18.00	21,600
Pole Base	26	EA	650.00	16,900
				368,050

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
BANK OF AMERICA BUILDING				
Interior Gut	2,880	SF	6.00	17,280
New Mezzanine Column Footing	4	EA	2,250.00	9,000
Structural Steel	889.0	SF	20.00	17,780
Metal Deck with Conc deck fill	889	SF	11.00	9,779
Metal Pan stair and Rail	1	FLTS	18,500.00	18,500
New Partition and Doors	3,769	GSF	15.00	56,535
New Floor Finish and Base	3,769	GSF	8.00	30,152
New Ceiling Finish	3,769	GSF	7.50	28,268
Interior Painting	3,769	GSF	3.00	11,307
Millwork and Casework	3,769	GSF	4.00	15,076
Single User Bathroom	2	EA	18,000.00	36,000
Sprinkler System	3,769	GSF	6.00	22,614
HVAC	3,769	GSF	40.00	150,760
Plumbing	3,769	GSF	5.00	18,845
Electrical	3,769	GSF	30.00	113,070
Replace Existing Roofing	3,000	SF	22.00	66,000
SUBTOTAL				620,966

APPENDICES

- Appendix G – 2016 Hazmat Report

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EFI Global
Engineering, Fire & Environmental Services

November 28, 2016

Mr. Christopher Bradley
Deputy Procurement Officer
City of Fitchburg
166 Boulder Drive
Fitchburg, Massachusetts 01420

RE: **Limited Pre-Demolition Hazardous Materials Survey Report**
Fitchburg City Hall
718 Main Street
Fitchburg, Massachusetts 01420
EFI Project No. 98350-05751

Dear Mr. Bradley:

EFI Global Inc. (EFI) is pleased to provide the results of a limited pre-demolition asbestos and building-related hazardous materials survey conducted at the City Hall building located at 718 Main Street in Fitchburg, Massachusetts (Site). The survey was conducted in preparation for the renovation or demolition of the Site building. A brief summary of previously identified asbestos-containing material is included from an asbestos survey of the Site building, performed by R.I. Analytical Laboratories, Inc. (RIAL). A copy of the associated RIL survey report, dated March 13, 2003, is attached to this correspondence.

SURVEY PROCEDURES

On November 2 and 3, 2016, EFI collected samples of suspect asbestos-containing materials (ACMs) identified during the survey and submitted them under chain of custody protocol to EMSL Analytical, Inc. (EMSL) of Woburn, Massachusetts, a Massachusetts-licensed laboratory. Samples were analyzed using polarized light microscopy (PLM) with a 5 day turnaround time.

In addition, while on-site for the asbestos, EFI conducted an inventory of building-related hazardous materials such as fluorescent light tubes and ballasts, suspect mercury containing equipment, suspect PCB-containing equipment, and miscellaneous containerized wastes.

SURVEY RESULTS

Asbestos

The following suspect ACMs sampled by EFI were reported by EMSL as containing no detectable concentration of asbestos:

- Red 12”x12” floor tile
- Mastic associated with 12”x12” red floor tile – brown/yellow/gray/black/tan/white
- Light brown floor tile 12”x12”
- Particle board - brown
- Felt paper (wood floor backing) – gray
- Sheet flooring – brown/tan/red
- Brown cove base & associated yellow mastic
- Gray cove base & associated yellow mastic
- Light grey cove base & associated yellow mastic
- Black with white streaks 12”x12”floor tile & associated brown mastic
- Black 12”x12”floor tile
- Black mastic associated with 9”x9” white floor tile
- Window glazing – black/gray/white
- Vibration dampener gasket
- Black mastic associated with 9”x9” grey w/ white streaks floor tile
- Thermal System Insulation (TSI)
- Asphalt roof shingles – brown/tan/black/white
- Rubber roof membrane – brown/black
- Caulking on metal roof siding – brown
- Caulking on window frames – tan/white
- Glass block window glazing
- Stair tread – tan/darkish tan & associated black mastic
- Roofing felt – tan
- Ceramic tile grout and mastic associated with pink, blue, and white tiles
- Joint compound (“older” building)
- Plaster base coat
- Plaster skim coat
- Sheetrock
- Yellow carpet mastic
- Ceiling tile 2’x2’
- Pop out ceiling tile 2’x2’
- Ceiling tile 2’x4’
- Slight pop out ceiling tile 2’x2’
- Bumpy ceiling tile 2’x2’
- Brown 9”x9”floor tile & associated mastic
- Brown with white streaks floor tile 9”x9” & associated mastic
- Brown and white spotted floor tile 12”x12” & associated mastic

The following materials were reported by EMSL and/or RIAL as containing asbestos:

- Joint compound and associated sheetrock walls on Floors 1-4 (“newer” addition) approx. 11,000 SF

- Basement
  - White floor tile 9”x9“ – mail room (approx. 725 SF)
  - TSI – electrical room (approx. 30 LF)
  - Air cell pipe insulation (4 feet visible – additional potentially hidden)

- 1st Floor
  - Gray with white streaks 9x9”floor tile - Treasury (approx. 200 SF)
  - Gray with white spots 12”x12” floor tile - Veterans (approx. 320 SF)
  - White 9”x9” floor tile – City Clerk (approx. 80 SF)

- 2nd floor
  - White floor tile 12”x12” – Planning (approx. 200 SF)
  - Window glazing - Assistant Auditors (approx. 10 windows)
  - White floor tile 9”x9” – planning (approx. 200 SF)
  - Gray with white streaks 12”x12” – Assistant Auditor (300 SF)
  - Gray with white spots floor tile 12”x12” – Retirement (approx. 16 SF)

- 3rd floor
  - Window glazing - lounge (approx. 4 windows)
  - 12”x12” Gray with white streak floor tile – under carpet in Recreation Room (approx. 440 SF)

- Exterior
  - Underlayment – roof (approx. 2,500 SF)
  - Tar paper/Underlayment – roof (approx. 200 SF)
  - Window glazing – front right door (approx. 2 door windows)
  - Side window frame white caulking (approx. 50 windows)
  - Black granite sealant/caulking (approx. 50 granite blocks)

The following materials are potential asbestos containing materials in which had access constraints or could not be sampled using normal methods.

- Fire doors
- Vault fire doors
- Elevator brakes
- Additional hidden plaster/mastic behind wall and wall paneling

The sample locations of ACMs identified is attached to this report. Quantities are approximate and do not include potentially hidden asbestos (i.e. additional pipe wrap in ceilings/walls, floor tiles under rugs. Etc.), with the exception of the older sheetrock/joint compound that is assumed to be continues beneath coverings, in the certain areas. A copy of the laboratory report prepared by EMSL is also presented in attachments.

Building-Related Hazardous Materials

The following types and quantities of building-related hazardous materials were inventoried during EFI"s walkthrough of the Site building:

- Mercury switches/thermostats (approx. 34 units)
- Four 275-gallon fuel oil AST"s
- 1-gallon or 1 quart containers of paint (approx. 40 units)
- 5-gallon containers of joint compound, various cleaners (approx.. 5 units)

Fluorescent light tubes (approx. 360 tubes)

- Fluorescent light ballasts (approx. 180 ballasts)

CONCLUSIONS

The majority of asbestos-containing materials and building-related hazardous materials observed during the survey were in good condition at the time of the survey.

Since samples of the 2'x2' Ceiling Tiles – Building Rm 1 (approx. 430 SF) on the 3rd Floor and Ceramic Floor Tile Mastic – Men's Bathroom (approx. 180 SF) within and basement was reported by EMSL as containing less than one percent asbestos, they are not subject to the Massachusetts Department of Labor Standards (DLS) asbestos regulations. However, the abovementioned ceiling tiles and mastic are defined as an asbestos-containing waste material (ACWM) under Massachusetts Department of Environmental Protection (MA DEP) asbestos regulations and cannot be disposed within the Commonwealth of Massachusetts.

In addition, the Occupational Safety and Health Administration (OSHA) Asbestos Construction Standard 29 CFR 1926.1101 applies since OSHA has a definition for both "asbestos" and "asbestos-containing material." The definition of ACM is a material that contains greater than one percent asbestos, where the definition of asbestos does not have a one percent cut-off. Materials containing concentrations of asbestos of less than one percent (<1%) are subject to the requirements of the OSHA standard that describe employing engineering and work practice controls during construction activities to minimize worker exposure to asbestos. As such, only asbestos trained construction workers may impact materials containing "trace" amounts of asbestos.

RECOMMENDATIONS

EFI recommends that additional sampling of the walls be conducted within the old city hall building to attempt to delineate the extent of asbestos in the joint compound. In the absence of additional sampling, all joint compound throughout the "newer" addition of the old city hall building must be assumed to contain asbestos. It is recommended that the joint compound on the walls of the "newer" addition be removed and disposed by a Massachusetts licensed asbestos abatement contractor, pending further analysis, if requested.
All areas with damaged ACM must be thoroughly cleaned and decontaminated of visible dust and debris by a Massachusetts licensed asbestos abatement contractor. All porous materials

and stored items that are within the asbestos-contaminated area must be removed and disposed as ACM. All non-porous materials and surfaces within the asbestos-contaminated area may be wet-wiped, HEPA vacuumed or otherwise cleaned and decontaminated.

EFI recommends that a Massachusetts licensed asbestos abatement contractor remove and properly dispose of all ACMs and ACWMs that are anticipated to be impacted by the proposed renovation or demolition activities.

The general contractor is responsible for compliance with OSHA and EPA regulations as they pertain to characterization, disposal, and worker protection when impacting materials coated with paint containing lead.

Building-related hazardous materials identified during the survey must be removed by a qualified contractor and disposed in accordance with applicable regulations prior to disturbance by planned renovation or demolition activities. Typically an asbestos abatement contractor is qualified to remove, package, and properly dispose of building-related hazardous materials.

If suspect ACMs other than the above-referenced materials are identified during demolition or renovation activities, EFI recommends that they be sampled by a Massachusetts-licensed asbestos inspector and analyzed by a Massachusetts-licensed asbestos analytical laboratory. EFI is available to assist with abatement contractor oversight and air monitoring as required by applicable state and federal asbestos regulations.

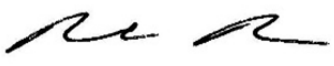
LIMITATIONS

EFI"s survey was limited to those portions of the Site building accessible by reasonable and ordinary means. EFI"s inspection did not include an evaluation of underground foundation damp-proofing, transite water/sewer piping, and materials that may be present behind solid walls/ceilings and within mechanical and electrical equipment at the facility.

EFI is pleased to provide environmental consulting services to the City of Fitchburg, Massachusetts. If you have any questions regarding the contents of this report, or require additional information, please do not hesitate to contact either of the undersigned at 978-688-3736. Thank you for the opportunity to serve your environmental needs.

Sincerely,
EFI Global, Inc.

Derrick Calvario
Environmental Scientist



Pat Panza
Senior Environmental Project Manager

Enclosures:

Asbestos Laboratory Report
Asbestos Sample Locations
Photo Log
Previous Survey Report

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			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
A-01 *131605501-0001*	1st Floor - Payroll - Redish Floor Tile	Tan Non-Fibrous Homogeneous		70% Non-fibrous (Other)	**None Detected**
A-02-Yellow Mastic *131605501-0002*	1st Floor - Payroll - Associated Mastic	Yellow Non-Fibrous Homogeneous	4% Cellulose 3% Synthetic	93% Non-fibrous (Other)	**None Detected**
A-02-Brown Mastic *131605501-0002A*	1st Floor - Payroll - Associated Mastic	Brown Non-Fibrous Homogeneous	7% Cellulose	93% Non-fibrous (Other)	**None Detected**
A-03 *131605501-0003*	1st Floor - Payroll - Light Brown Floor Tile	Gray/Tan Non-Fibrous Homogeneous		80% Non-fibrous (Other)	**None Detected**
A-04 *131605501-0004*	1st Floor - Payroll - Particle Board	Brown Fibrous Homogeneous	94% Cellulose	6% Non-fibrous (Other)	**None Detected**
			Result includes a small amount of inseparable attached material		
A-05 *131605501-0005*	1st Floor - Meeting Room - Felt Paper (Wood Backing)	Brown Fibrous Homogeneous	68% Cellulose 25% Synthetic	7% Non-fibrous (Other)	**None Detected**
A-05A *131605501-0006*	1st Floor - Felt Paper (Wood Backing)	Gray Fibrous Homogeneous	60% Cellulose	40% Non-fibrous (Other)	**None Detected**
A-06 *131605501-0007*	1st Floor - Front Vault - Sheet Flooring	Brown/Tan/Red Fibrous Heterogeneous	40% Cellulose	12% Ca Carbonate 48% Non-fibrous (Other)	**None Detected**
A-07 *131605501-0008*	1st Floor - Front Main Stairs - Cove Base	Brown Non-Fibrous Homogeneous		10% Ca Carbonate 90% Non-fibrous (Other)	**None Detected**

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			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
A-08 *131605501-0009*	1st Floor - Front Main Stairs - Associated Mastic	Gray/Yellow Non-Fibrous Heterogeneous	2% Cellulose	98% Non-fibrous (Other)	**None Detected**
		Inseparable paint / coating layer included in analysis			
A-09 *131605501-0010*	2nd Floor - Planning 5 - Cove Base	Brown Non-Fibrous Homogeneous		20% Ca Carbonate 80% Non-fibrous (Other)	**None Detected**
A-10 *131605501-0011*	2nd Floor - Planning 5 - Associated Yellow Mastic	Brown/Gray Non-Fibrous Homogeneous	10% Cellulose	90% Non-fibrous (Other)	**None Detected**
A-11 *131605501-0012*	2nd Floor - Wastewater 2 - Associated Yellow Mastic	Yellow Non-Fibrous Homogeneous	4% Cellulose	96% Non-fibrous (Other)	**None Detected**
A-12 *131605501-0013*	2nd Floor - Wastewater 2 - Grey Cove Base	Gray Non-Fibrous Homogeneous		10% Ca Carbonate 90% Non-fibrous (Other)	**None Detected**
A-13 *131605501-0014*	2nd Floor - Conference 1 - Associated Yellow Mastic	Gray Non-Fibrous Homogeneous	5% Cellulose	95% Non-fibrous (Other)	**None Detected**
A-14 *131605501-0015*	2nd Floor - Conference 1 - Light Grey Cove Base	Gray Non-Fibrous Homogeneous		15% Ca Carbonate 85% Non-fibrous (Other)	**None Detected**
A-15 *131605501-0016*	4th Floor - DPW 1 - Associated Yellow Mastic	Brown Fibrous Homogeneous	94% Cellulose	6% Non-fibrous (Other)	**None Detected**
		Sample is particle board (as per sample bag description). No yellow mastic submitted.			
A-16 *131605501-0017*	4th Floor - DPW 2 - Black w/ White Streaks Floor Tile	Black Non-Fibrous Homogeneous		70% Non-fibrous (Other)	**None Detected**

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			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
A-17 *131605501-0018*	4th Floor - DPW 2 - Associated Mastic	Brown Non-Fibrous Homogeneous	11% Cellulose	89% Non-fibrous (Other)	**None Detected**
A-18 *131605501-0019*	4th Floor - DPW 2 - Black Floor Tile	White/Black Non-Fibrous Homogeneous		75% Non-fibrous (Other)	**None Detected**
A-19 *131605501-0020*	Basement - Mail Room - White Floor Tile	White Non-Fibrous Homogeneous		20% Ca Carbonate 77% Non-fibrous (Other)	**3% Chrysotile**
A-19A *131605501-0021*	2nd Floor - Planning 5 - White Floor Tile	White Non-Fibrous Homogeneous		15% Ca Carbonate 83% Non-fibrous (Other)	**2% Chrysotile**
A-20 *131605501-0022*	Basement - Mail Room - Associated Mastic	Black Non-Fibrous Homogeneous	5% Cellulose	95% Non-fibrous (Other)	**None Detected**
A-20A *131605501-0023*	2nd Floor - Planning 5 - Associated Mastic	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	**None Detected**
A-21 *131605501-0024*	Basement - Front Bathroom - Black Window Glaze	Gray/White Non-Fibrous Homogeneous		65% Ca Carbonate 35% Non-fibrous (Other)	**None Detected**
A-22 *131605501-0025*	Basement - Electrical Room - TSI	White Fibrous Homogeneous		30% Non-fibrous (Other)	**70% Chrysotile**
A-23 *131605501-0026*	Basement - Electrical Room - Vibration Dampner	White/Black Fibrous Homogeneous	55% Glass	45% Non-fibrous (Other)	**None Detected**
A-24 *131605501-0027*	Basement - Front Right Storage - TSI	White Fibrous Homogeneous	7% Synthetic 15% Glass	20% Ca Carbonate 58% Non-fibrous (Other)	**None Detected**

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Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
A-25 *131605501-0028*	1st Floor - Treasury Room Closet - 9x9 Grey w/ White Streaks Floor Tile	Gray Non-Fibrous Homogeneous		18% Ca Carbonate 80% Non-fibrous (Other)	**2% Chrysotile**
A-26 *131605501-0029*	1st Floor - Treasury Room Closet - Assocaited Black Mastic	Black Non-Fibrous Homogeneous	12% Cellulose	88% Non-fibrous (Other)	**None Detected**
		Very little material submitted			
A-27 *131605501-0030*	1st Floor - Veterans Room - 12x12 Grey w/ White Spots Floor Tile	Gray Non-Fibrous Homogeneous		25% Ca Carbonate 73% Non-fibrous (Other)	**2% Chrysotile**
A-28 *131605501-0031*	1st Floor - Veterans Room - Assocaited Black Mastic	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	**None Detected**
A-29 *131605501-0032*	Roof - Underlayment	Brown/Black Fibrous Homogeneous	18% Cellulose	62% Non-fibrous (Other)	**20% Chrysotile**
A-30 *131605501-0033*	Roof - Asphalt Roof Shingle	Brown/Tan/Black Fibrous Homogeneous	16% Glass	84% Non-fibrous (Other)	**None Detected**
A-31 *131605501-0034*	Roof - Rubber Roof Membrane	Brown/Black Non-Fibrous Homogeneous		80% Non-fibrous (Other)	**None Detected**
A-32 *131605501-0035*	Roof - Caulking on Metal Siding	Brown Non-Fibrous Homogeneous	2% Cellulose	15% Ca Carbonate 63% Non-fibrous (Other)	**None Detected**
A-33 *131605501-0036*	Roof - Tar Roofing Paper	Brown/Black/Silver Fibrous Heterogeneous	25% Cellulose	70% Non-fibrous (Other)	**5% Chrysotile**

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			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
A-34 *131605501-0037*	Exterior - Board of Health - Window Glazing	Gray/White Non-Fibrous Homogeneous	2% Fibrous_Other	45% Ca Carbonate 53% Non-fibrous (Other)	**None Detected**
			TEM recommended		
A-34A *131605501-0038*	Exterior - Planning 3 - Window Glazing	Gray/White Non-Fibrous Homogeneous	1% Fibrous_Other	40% Ca Carbonate 59% Non-fibrous (Other)	**None Detected**
			TEM recommended		
A-34B *131605501-0039*	Exterior - Front Right Door - Window Glazing	Gray Non-Fibrous Homogeneous		50% Ca Carbonate 47% Non-fibrous (Other)	**3% Chrysotile**
A-35 *131605501-0040*	2nd Floor - Assistant Auditors - Window Glazing	Black Non-Fibrous Homogeneous		92% Non-fibrous (Other)	**8% Chrysotile**
A-35A *131605501-0041*	3rd Floor - Lounge - Window Glazing	Black Non-Fibrous Homogeneous	10% Cellulose	80% Non-fibrous (Other)	**10% Chrysotile**
A-36 *131605501-0042*	Exterior - Frame Caulking	Tan/White Non-Fibrous Heterogeneous		65% Non-fibrous (Other)	**None Detected**
A-37 *131605501-0043*	Exterior - Northwest - Side Window Frame Caulking	Tan/White Non-Fibrous Heterogeneous		67% Non-fibrous (Other)	**3% Chrysotile**
			Inseparable paint / coating layer included in analysis		
A-37A *131605501-0044*	Exterior - Southeast - Side Window Frame Caulking	Brown/Tan/White Non-Fibrous Heterogeneous		25% Ca Carbonate 51% Non-fibrous (Other)	**4% Chrysotile**
A-37B *131605501-0045*	Exterior - 2nd Floor - Southeast - Side Window Frame Caulking	Gray Non-Fibrous Homogeneous		10% Ca Carbonate 88% Non-fibrous (Other)	**2% Chrysotile**

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			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
A-38 *131605501-0046*	Exterior - Northwest - Black Granite Sealant/Caulking	Black Non-Fibrous Homogeneous		25% Quartz 63% Non-fibrous (Other)	**12% Chrysotile**
A-39 *131605501-0047*	Exterior - North - Block Glass Window Glaze	Tan/White Non-Fibrous Homogeneous		40% Quartz 25% Ca Carbonate 35% Non-fibrous (Other)	**None Detected**
A-39A *131605501-0048*	Exterior - South - Block Glass Window Glaze	Gray/White Non-Fibrous Homogeneous		45% Quartz 22% Ca Carbonate 33% Non-fibrous (Other)	**None Detected**
A-39B *131605501-0049*	Exterior - 2nd Floor - South - Block Glass Window Glaze	White Non-Fibrous Homogeneous		45% Quartz 30% Ca Carbonate 25% Non-fibrous (Other)	**None Detected**
A-40 *131605501-0050*	1st Floor - Southwest Stairs - Tan Grip Stair Tread	Tan Non-Fibrous Homogeneous		50% Non-fibrous (Other)	**None Detected**
A-41 *131605501-0051*	1st Floor - Southwest Stairs - Associated Black Mastic	Black Non-Fibrous Homogeneous		3% Quartz 67% Non-fibrous (Other)	**None Detected**
A-42 *131605501-0052*	2nd Floor - Center Stairs - Dark Tan Stair Tread	Tan Non-Fibrous Homogeneous		70% Non-fibrous (Other)	**None Detected**
A-43 *131605501-0053*	2nd Floor - Center Stairs - Associated Yellow Mastic	Brown/Yellow Non-Fibrous Homogeneous	2% Cellulose	98% Non-fibrous (Other)	**None Detected**
A-44 *131605501-0054*	2nd Floor - 2/3FL Stairs - Tan Stair Tread Rubber Grip	Tan Non-Fibrous Homogeneous		25% Ca Carbonate 75% Non-fibrous (Other)	**None Detected**
A-45 *131605501-0055*	2nd Floor - 2/3FL Stairs - Associated Black Mastic	Black Non-Fibrous Homogeneous	4% Cellulose	96% Non-fibrous (Other)	**None Detected**

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			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
A-46 *131605501-0056*	Roof - Felt Under Rubber Roof	Tan Fibrous Homogeneous	98% Cellulose	2% Non-fibrous (Other)	**None Detected**
A-47 *131605501-0057*	Roof - Asphalt Shingle Under Roof	White/Black Fibrous Homogeneous	3% Cellulose 18% Glass	79% Non-fibrous (Other)	**None Detected**
A-48 *131605501-0058*	Roof - Tar Paper	Black Non-Fibrous Homogeneous	10% Cellulose	84% Non-fibrous (Other)	**6% Chrysotile**
A-49 *131605501-0059*	Basement - Boiler Room - TSI	Brown/Tan/Yellow Fibrous Heterogeneous	30% Cellulose 60% MinWool	10% Non-fibrous (Other)	**None Detected**
A-50 *131605501-0060*	1st Floor - Mayors Bathroom - Pink Ceramic Tile Mastic	Gray/White Non-Fibrous Heterogeneous		30% Quartz 35% Ca Carbonate 35% Non-fibrous (Other)	**None Detected**
		Result includes a small amount of inseparable attached material			
A-51 *131605501-0061*	1st Floor - Mayors Bathroom - Pink Ceramic Tile Grout	White Non-Fibrous Homogeneous		75% Ca Carbonate 25% Non-fibrous (Other)	**None Detected**
A-52 *131605501-0062*	1st Floor - Mayors Bathroom - Blue Ceramic Floor Tile Mastic	Gray/Tan Non-Fibrous Heterogeneous		60% Quartz 20% Ca Carbonate 20% Non-fibrous (Other)	**None Detected**
		Result includes a small amount of inseparable attached material			
A-53 *131605501-0063*	1st Floor - Mayors Bathroom - Blue Ceramic Floor Tile Grout	Brown Non-Fibrous Homogeneous		25% Quartz 35% Ca Carbonate 40% Non-fibrous (Other)	**None Detected**
A-54 *131605501-0064*	2nd Floor - Women's Bathroom - Pink Ceramic Wall Tile Grout	White Non-Fibrous Homogeneous	4% Cellulose	40% Ca Carbonate 56% Non-fibrous (Other)	**None Detected**

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			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
A-55 *131605501-0065*	2nd Floor - Women's Bathroom - Pink Ceramic Wall Tile Mastic	Gray Non-Fibrous Homogeneous	7% Cellulose	93% Non-fibrous (Other)	**None Detected**
A-56 *131605501-0066*	2nd Floor - Women's Bathroom - Ceramic White/Pink/Blue Grout	Brown Non-Fibrous Homogeneous		50% Quartz 15% Ca Carbonate 35% Non-fibrous (Other)	**None Detected**
A-57 *131605501-0067*	2nd Floor - Women's Bathroom - Ceramic White/Pink/Blue Mastic	Gray/Tan Non-Fibrous Heterogeneous		57% Quartz 15% Ca Carbonate 28% Non-fibrous (Other)	**None Detected**
		Inseparable materials			
A-58 *131605501-0068*	3rd Floor - Southeast Bathroom - Mastic Under Yellow Ceramic Tile	Gray/White Non-Fibrous Heterogeneous		20% Quartz 40% Ca Carbonate 40% Non-fibrous (Other)	**None Detected**
		Result includes a small amount of inseparable attached material			
A-59 *131605501-0069*	3rd Floor - Southeast Bathroom - Grout Under Yellow Ceramic Tile	White Non-Fibrous Homogeneous		70% Ca Carbonate 30% Non-fibrous (Other)	**None Detected**
A-60 *131605501-0070*	3rd Floor - Northwest Bathroom - Grout on Ceramic Tile	Gray Non-Fibrous Homogeneous		40% Quartz 25% Ca Carbonate 35% Non-fibrous (Other)	**None Detected**
A-61 *131605501-0071*	4th Floor - Northwest Bathroom - White Ceramic Tile Mastic	Gray/White Non-Fibrous Heterogeneous		20% Quartz 50% Ca Carbonate 30% Non-fibrous (Other)	**None Detected**
A-62 *131605501-0072*	4th Floor - Northwest Bathroom - White Ceramic Tile Grout	White Non-Fibrous Homogeneous		55% Ca Carbonate 45% Non-fibrous (Other)	**None Detected**
A-63 *131605501-0073*	4th Floor - Northwest Bathroom - Tile Grout	Gray Non-Fibrous Homogeneous		40% Quartz 30% Ca Carbonate 30% Non-fibrous (Other)	**None Detected**

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Phone: (978) 688-3736
Fax: (978) 688-5494
Received Date: 11/09/2016 9:20 AM
Analysis Date: 11/16/2016 - 11/17/2016
Collected Date:

Project: 98350-05750 / 718 Main St, Fitchburg, MA

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
A-64 *131605501-0074*	Basement - Front Right Bathroom - Ceramic Floor Tile Grout	Gray Non-Fibrous Homogeneous		60% Quartz 18% Ca Carbonate 22% Non-fibrous (Other)	**None Detected**
A-65 *131605501-0075*	Basement - Front Right Bathroom - Ceramic Wall Tile Grout				**Not Submitted**
A-66 *131605501-0076*	2nd Floor - Planning 2 - Plaster Base	Tan Non-Fibrous Homogeneous	5% Hair	55% Quartz 10% Ca Carbonate 30% Non-fibrous (Other)	**None Detected**
A-67 *131605501-0077*	2nd Floor - Planning 2 - Plaster Skim	Brown Non-Fibrous Homogeneous		25% Ca Carbonate 75% Non-fibrous (Other)	**None Detected**
		Sample is mostly paint			
A-68 *131605501-0078*	2nd Floor - Planning 2 - Sheetrock	Brown/White Non-Fibrous Homogeneous	18% Cellulose 4% Glass	55% Gypsum 23% Non-fibrous (Other)	**None Detected**
A-69 *131605501-0079*	2nd Floor - Planning 2 - Joint Compound	White/Yellow Fibrous Heterogeneous	18% Cellulose	30% Ca Carbonate 4% Mica 48% Non-fibrous (Other)	**None Detected**
		Inseparable joint tape included in result			
A-70 *131605501-0080*	2nd Floor - Planning 5 - Plaster Base	Gray Non-Fibrous Homogeneous		40% Quartz 10% Ca Carbonate 50% Non-fibrous (Other)	**None Detected**
A-71 *131605501-0081*	2nd Floor - Planning 5 - Plaster Skim	White Non-Fibrous Homogeneous		45% Ca Carbonate 55% Non-fibrous (Other)	**None Detected**
A-72 *131605501-0082*	2nd Floor - Auditor - Red Carpet Yellow Mastic	Brown/White Fibrous Heterogeneous	8% Cellulose 20% Synthetic	72% Non-fibrous (Other)	**None Detected**

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EMSL Order: 131605501
Customer ID: EAFI66
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			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
A-73 *131605501-0083*	2nd Floor - Wastewater 2 - Blue Carpet Yellow Mastic	Brown/Blue Fibrous Heterogeneous	18% Synthetic	82% Non-fibrous (Other)	**None Detected**
A-74 *131605501-0084*	3rd Floor - Building 2 - Grey Carpet Yellow Mastic	Tan/White Fibrous Heterogeneous	25% Synthetic	75% Non-fibrous (Other)	**None Detected**
A-75 *131605501-0085*	4th Floor DPW 4 - Brown Carpet Yellow Mastic	Yellow Non-Fibrous Homogeneous	15% Cellulose	85% Non-fibrous (Other)	**None Detected**
A-76 *131605501-0086*	1st Floor - Mayor's Office - Bumpy 2x2 Ceiling Tile	Tan/White Fibrous Homogeneous	45% Cellulose 13% MinWool	20% Perlite 22% Non-fibrous (Other)	**None Detected**
A-77 *131605501-0087*	3rd Floor - Building 1 - Pop-Out 2x2 Ceiling Tile	White/Yellow Fibrous Homogeneous	91% Glass	9% Non-fibrous (Other)	**None Detected**
A-78 *131605501-0088*	1st Floor - Veterans - 2x4 Ceiling Tile	Tan/White Fibrous Homogeneous	52% Cellulose 15% MinWool	17% Perlite 16% Non-fibrous (Other)	**None Detected**
A-78A *131605501-0089*	2nd Floor - Planning 3 - 2x4 Ceiling Tile	Tan/White Fibrous Homogeneous	55% Cellulose 12% MinWool	15% Perlite 18% Non-fibrous (Other)	**None Detected**
A-78B *131605501-0090*	1st Floor - Mail Room - 2x4 Ceiling Tile	Gray Fibrous Homogeneous	55% Cellulose 15% Glass	30% Non-fibrous (Other)	**None Detected**
A-79 *131605501-0091*	3rd Floor - Building 1 - Slight Pop-Out 2x2 Ceiling Tile	Tan/White/Pink Fibrous Homogeneous	85% MinWool	15% Non-fibrous (Other)	**<1% Chrysotile**
A-80 *131605501-0092*	2nd Floor - Assistant Auditor - 2x2 Ceiling Tile	Brown/White Fibrous Homogeneous	40% Cellulose 30% MinWool	15% Perlite 15% Non-fibrous (Other)	**None Detected**

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			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
A-80A *131605501-0093*	2nd Floor - Board of Health - 2x2 Ceiling Tile	Tan/White Fibrous Homogeneous	55% Cellulose 18% MinWool	20% Perlite 7% Non-fibrous (Other)	**None Detected**
A-80B *131605501-0094*	3rd Floor - Recreation - 2x2 Ceiling Tile	Brown/White Fibrous Homogeneous	45% Cellulose 18% MinWool	18% Perlite 19% Non-fibrous (Other)	**None Detected**
A-80C *131605501-0095*	4th Floor - DPW 4 - 2x2 Ceiling Tile	Gray Fibrous Homogeneous	60% Cellulose 20% Glass	20% Non-fibrous (Other)	**None Detected**
A-81 *131605501-0096*	1st Floor - Mayor's Office - 9x9 Brown Floor Tile	Brown/Red Non-Fibrous Homogeneous		100% Non-fibrous (Other)	**None Detected**
A-82 *131605501-0097*	1st Floor - Mayor's Office - Associated Mastic	Yellow Non-Fibrous Homogeneous	5% Cellulose	95% Non-fibrous (Other)	**None Detected**
A-83 *131605501-0098*	1st Floor - City Clerk - 9x9 White Floor Tile	White Non-Fibrous Homogeneous		68% Non-fibrous (Other)	**2% Chrysotile**
A-84 *131605501-0099*	1st Floor - City Clerk - Associated Mastic	Black Non-Fibrous Homogeneous	7% Cellulose	93% Non-fibrous (Other)	**None Detected**
A-85 *131605501-0100*	2nd Floor - Planning 5 - 9x9 White Floor Tile	White Non-Fibrous Homogeneous		15% Ca Carbonate 83% Non-fibrous (Other)	**2% Chrysotile**
A-86 *131605501-0101*	2nd Floor - Planning 5 - Associated Mastic	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	**None Detected**
A-87 *131605501-0102*	2nd Floor - Board of Health - Ceramic Tile Grout	Tan Non-Fibrous Homogeneous		58% Quartz 15% Ca Carbonate 27% Non-fibrous (Other)	**None Detected**

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			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
A-88 *131605501-0103*	2nd Floor - Board of Health - Ceramic Tile Mastic	Gray Non-Fibrous Homogeneous		30% Quartz 40% Ca Carbonate 30% Non-fibrous (Other)	**None Detected**
A-89 *131605501-0104*	3rd Floor Front Stairs - 9x9 Brown w/ White Streaks Floor Tile	Tan Non-Fibrous Homogeneous		15% Ca Carbonate 60% Non-fibrous (Other)	**None Detected**
A-90 *131605501-0105*	3rd Floor Front Stairs - Associated Mastic	Brown Non-Fibrous Homogeneous	8% Cellulose	92% Non-fibrous (Other)	**None Detected**
A-91 *131605501-0106*	3rd Floor - Southeast Hallway - 12x12 Brown/White Spotted Floor Tile	Brown/Tan Non-Fibrous Homogeneous		30% Ca Carbonate 70% Non-fibrous (Other)	**None Detected**
A-92 *131605501-0107*	3rd Floor - Southeast Hallway - Associated Mastic	Yellow Non-Fibrous Homogeneous	2% Cellulose	98% Non-fibrous (Other)	**None Detected**
A-93 *131605501-0108*	3rd Floor - Southeast Hallway - 12x12 Tile Light Brown w/ White Spots	Brown Non-Fibrous Homogeneous		25% Ca Carbonate 75% Non-fibrous (Other)	**None Detected**
A-94 *131605501-0109*	Basement - Hallway - Plaster Wall Base Coat	Gray Non-Fibrous Homogeneous		40% Quartz 8% Mica 52% Non-fibrous (Other)	**None Detected**
A-95 *131605501-0110*	Basement - Hallway - Plaster Wall Skim Coat	White Non-Fibrous Homogeneous		60% Ca Carbonate 40% Non-fibrous (Other)	**None Detected**
A-96 *131605501-0111*	Basement - Open Area - Plaster Ceiling Base Coat	Tan Non-Fibrous Homogeneous	6% Cellulose	47% Quartz 2% Mica 45% Non-fibrous (Other)	**None Detected**
A-96A *131605501-0112*	2nd Floor - Janitors Closet - Sheetrock	Brown/Tan Non-Fibrous Homogeneous	10% Cellulose	35% Gypsum 28% Perlite 27% Non-fibrous (Other)	**None Detected**

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			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
A-96B *131605501-0113*	3rd Floor - Southeast Hallway - Ceiling Plaster Base Coat	Gray Non-Fibrous Homogeneous		45% Quartz 2% Mica 53% Non-fibrous (Other)	**None Detected**
A-96C *131605501-0114*	4th Floor - Stairs - Ceiling Plaster Base Coat	Gray Non-Fibrous Homogeneous		25% Quartz 10% Ca Carbonate 65% Non-fibrous (Other)	**None Detected**
A-97 *131605501-0115*	Basement - Open Area - Plaster Ceiling Skim Coat	Gray/White Non-Fibrous Heterogeneous		78% Ca Carbonate 22% Non-fibrous (Other)	**None Detected**
			Inseparable paint / coating layer included in analysis		
A-97A *131605501-0116*	2nd Floor - Janitors Closet - Joint Compound	White Non-Fibrous Heterogeneous		55% Ca Carbonate 4% Mica 41% Non-fibrous (Other)	**None Detected**
			Inseparable paint / coating layer included in analysis		
A-97B *131605501-0117*	3rd Floor - Southeast Hallway - Ceiling Plaster Skim Coat	White Non-Fibrous Heterogeneous		65% Ca Carbonate 35% Non-fibrous (Other)	**None Detected**
			Inseparable paint / coating layer included in analysis		
A-97C *131605501-0118*	4th Floor - Stairs - Ceiling Plaster Skim Coat	White Non-Fibrous Homogeneous		40% Ca Carbonate 60% Non-fibrous (Other)	**None Detected**
A-98 *131605501-0119*	2nd Floor - Assistant Auditors - Sheetrock	Brown/Tan Non-Fibrous Homogeneous	18% Cellulose 3% Glass	55% Gypsum 24% Non-fibrous (Other)	**None Detected**
A-98A *131605501-0120*	3rd Floor - Recreation - Sheetrock	Brown/Gray Non-Fibrous Homogeneous	16% Cellulose 3% Glass	55% Gypsum 26% Non-fibrous (Other)	**None Detected**
A-98B *131605501-0121*	3rd Floor - Building 2 - Sheetrock	Brown/White Non-Fibrous Homogeneous	17% Cellulose 2% Glass	55% Gypsum 26% Non-fibrous (Other)	**None Detected**

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			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
A-98C *131605501-0122*	4th Floor - Engineering - Sheetrock	Brown/White Non-Fibrous Homogeneous	17% Cellulose	55% Gypsum 4% Mica 24% Non-fibrous (Other)	**None Detected**
A-98D *131605501-0123*	4th Floor - DPW 6 - Sheetrock	Brown/Gray Non-Fibrous Homogeneous	15% Cellulose	70% Gypsum 15% Non-fibrous (Other)	**None Detected**
A-99 *131605501-0124*	2nd Floor - Assistant Auditors - Joint Compound	Tan Non-Fibrous Heterogeneous		40% Ca Carbonate 3% Mica 55% Non-fibrous (Other)	**2% Chrysotile**
		Inseparable paint / coating layer included in analysis			
A-99A *131605501-0125*	3rd Floor - Recreation - Joint Compound	Tan/White Fibrous Heterogeneous	10% Cellulose	35% Ca Carbonate 3% Mica 50% Non-fibrous (Other)	**2% Chrysotile**
		Inseparable paint / coating layer included in analysis			
A-99B *131605501-0126*	3rd Floor - Building 2 - Joint Compound	Tan Non-Fibrous Heterogeneous	15% Cellulose	30% Ca Carbonate 3% Mica 52% Non-fibrous (Other)	**<1% Chrysotile**
A-99C *131605501-0127*	4th Floor - Engineering - Joint Compound	White/Yellow Non-Fibrous Heterogeneous		45% Ca Carbonate 3% Mica 52% Non-fibrous (Other)	**None Detected**
		Inseparable paint / coating layer included in analysis			
A-99D *131605501-0128*	4th Floor - DPW 6 - Joint Compound	White Non-Fibrous Homogeneous		60% Ca Carbonate 40% Non-fibrous (Other)	**None Detected**
A-100 *131605501-0129*	4th Floor - Engineering - Plaster Base Coat	Brown Non-Fibrous Homogeneous	6% Hair	57% Quartz 2% Mica 35% Non-fibrous (Other)	**None Detected**
A-101 *131605501-0130*	Exterior - Front - Grey Caulking	Gray Non-Fibrous Homogeneous	2% Cellulose	63% Non-fibrous (Other)	**None Detected**

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Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
A-102 *131605501-0131*	Basement - Front Right Bathroom - Ceramic Tile Mastic	Gray Non-Fibrous Homogeneous	10% Cellulose	40% Quartz 20% Ca Carbonate 30% Non-fibrous (Other)	**<1% Chrysotile**

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The samples in this report were submitted to EMSL for analysis by Asbestos Analysis of Bulk materials via EPA/600 (0513) Method using Polarized Light Microscopy. The reference number for these samples is the EMSL Order ID above. Please use this reference number when calling about these samples.

Report Comments:

Sample Receipt Date:	11/09/2016	Sample Receipt Time:	9:20 AM
Analysis Completed Date:	11/17/2016	Analysis Completed Time:	12:01 AM

Analyst(s):

Ghaly Hemaya PLM (33)

Jon Williams PLM (98)

Samples Reviewed and approved by:

Steve Grise, Laboratory Manager
or other approved signatory

Initial report from: 11/17/2016 00:28:13

Figure 17: Existing site plan

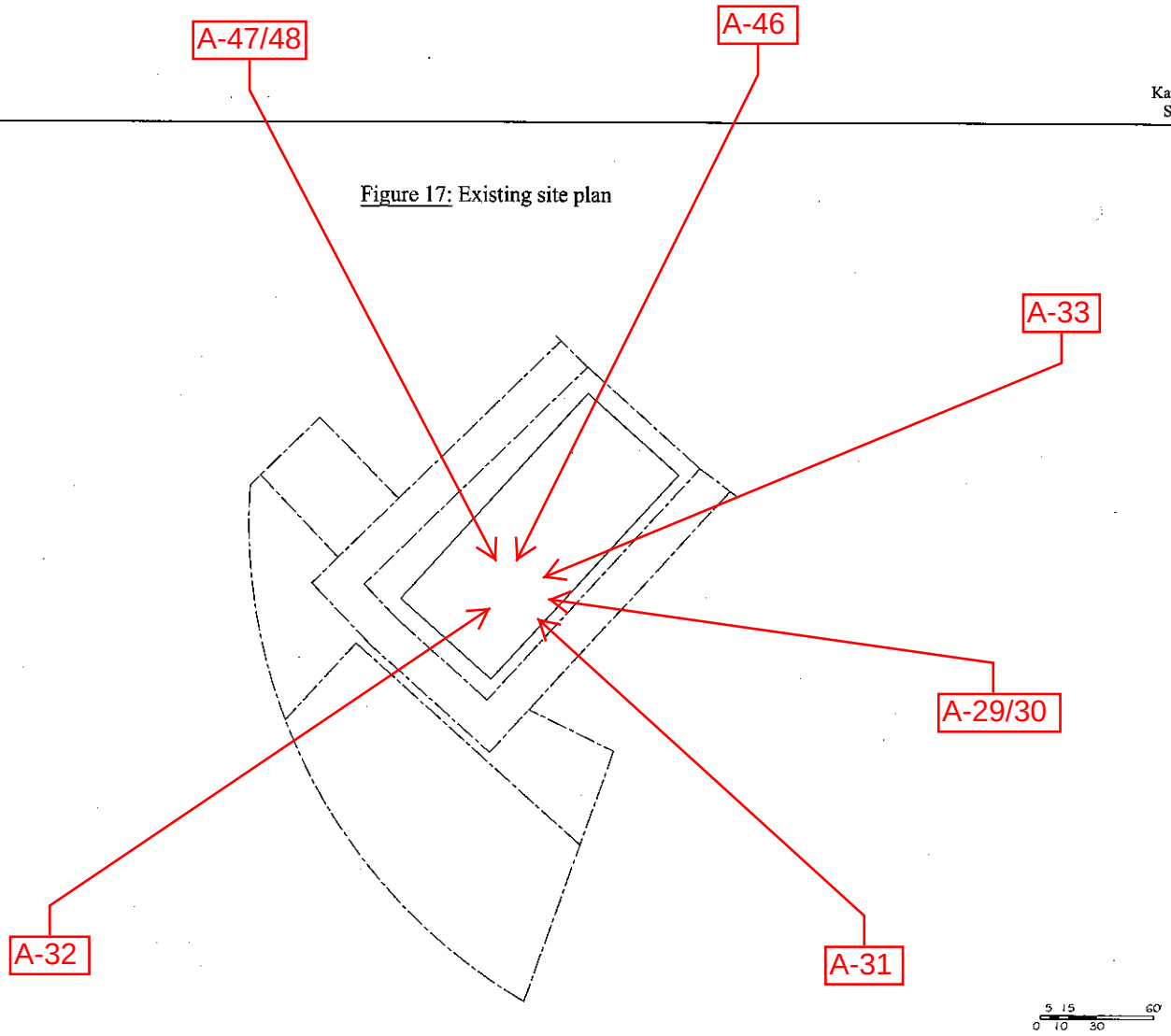


Figure 18: Existing basement floor plan

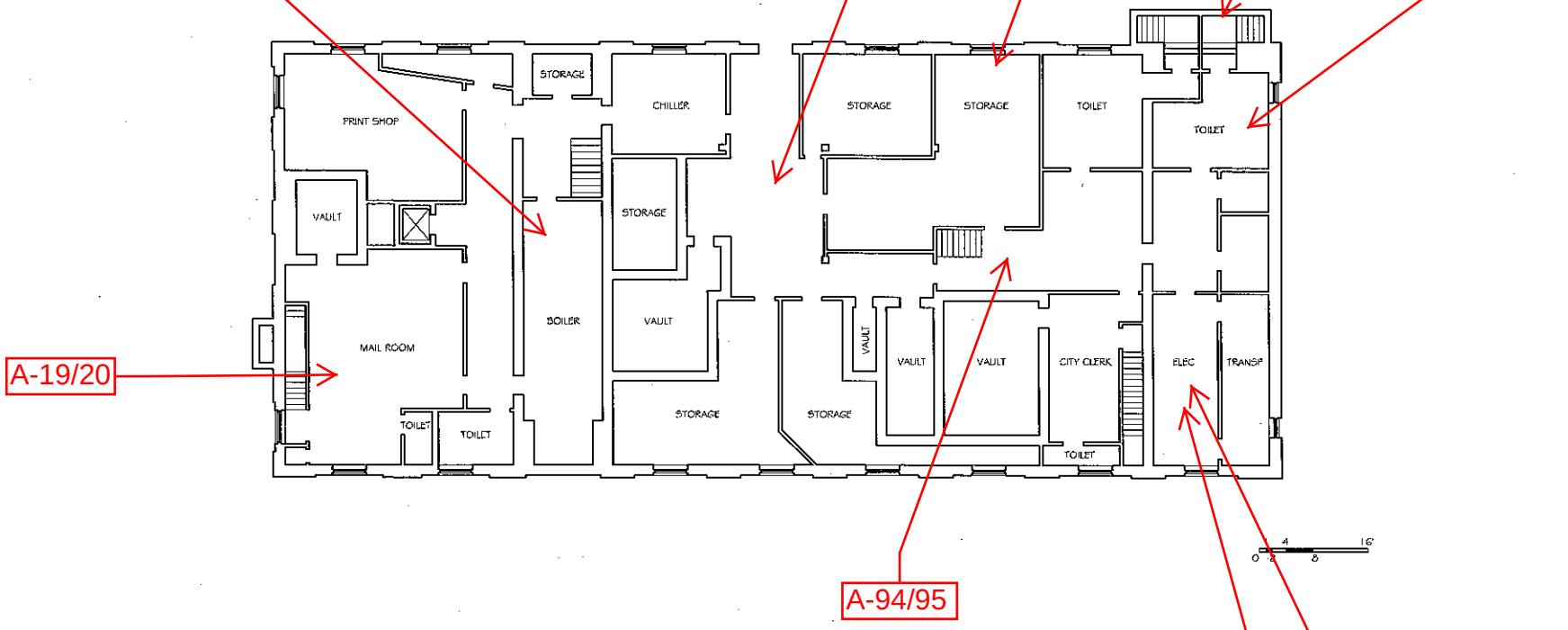
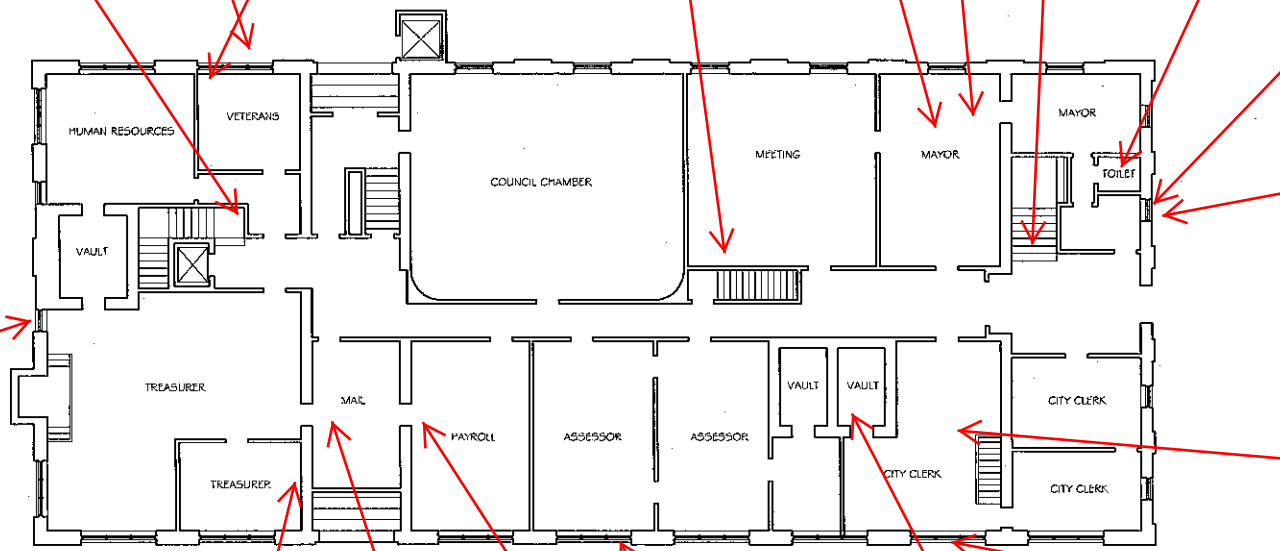
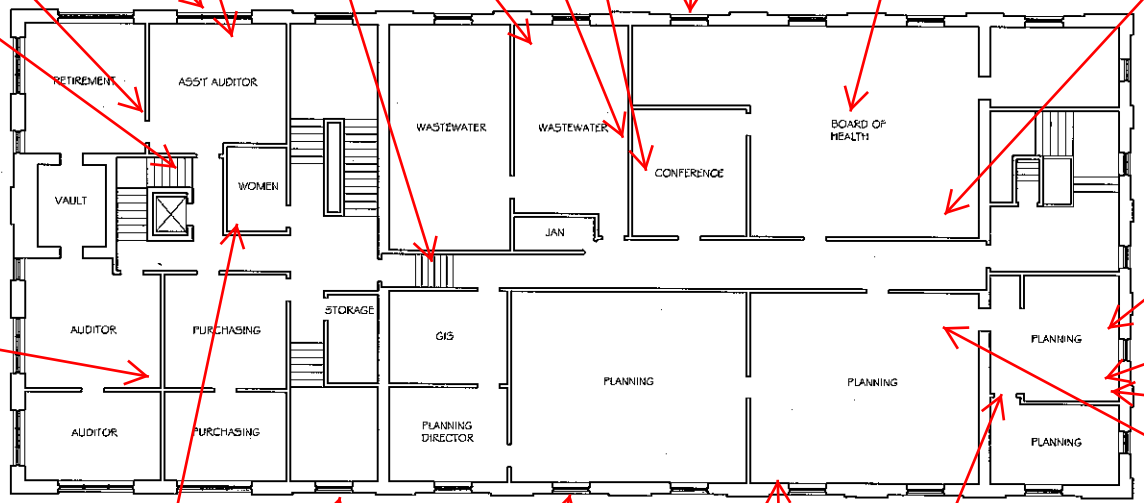


Figure 19: Existing first floor plan



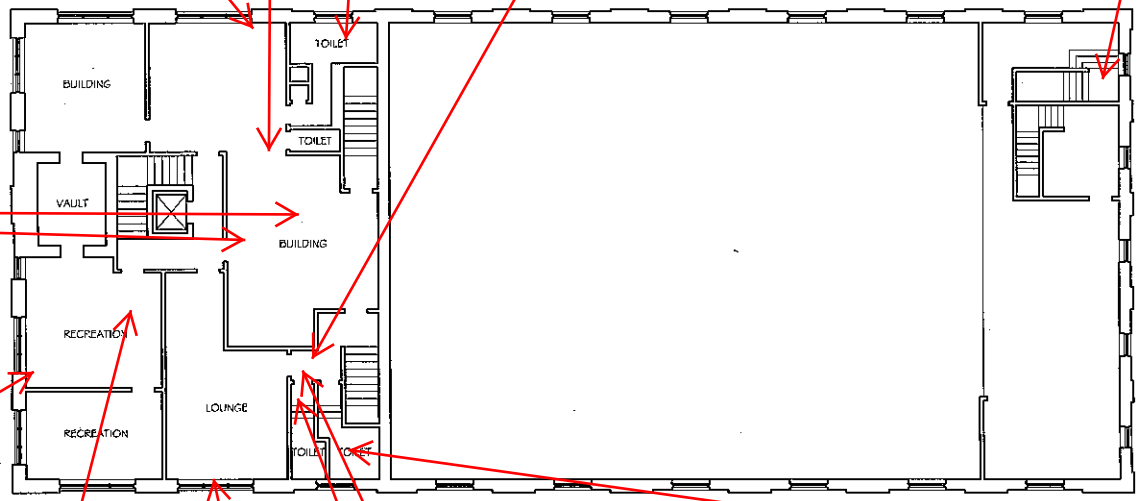
A-40/41
A-36/37/38
A-27/28
A-05
A-76
A-07/08
A-81/82
A-50/51/52/53
A-34B
A-101
A-39A
A-83/84
A-34A
A-01/02/03/04
A-37A
A-06
A-25/26
A-78B

Figure 20: Existing second floor plan



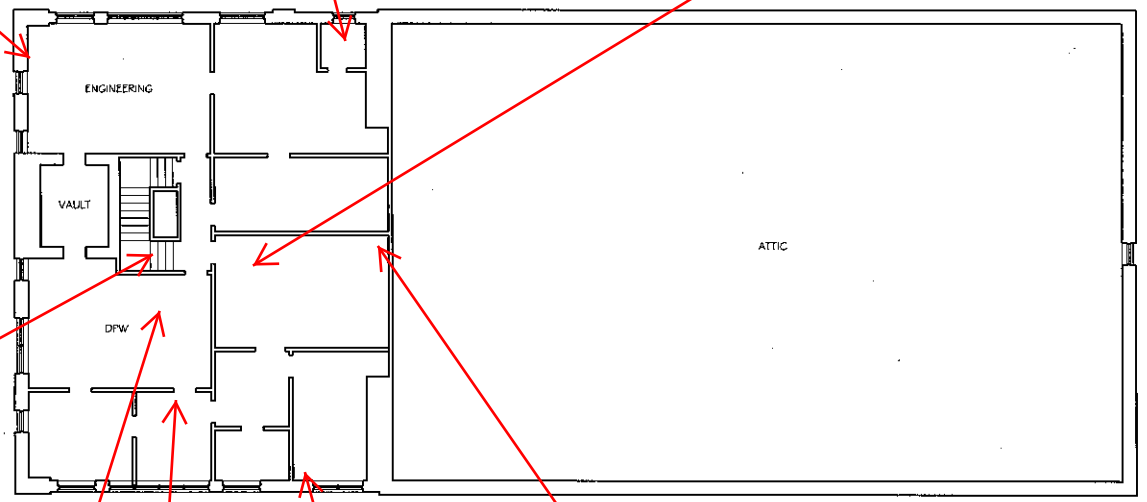
A-87-88
A-42/43
A-34
A-44/45
A-80
A-98/99
A-73
A-11/12
A-13/14
A-34
A-80A
A-70/71
A-19A/20A
A-72
A-85/86
A-78A
A-09/10
A-96A/97A
A-39B
A-37B
A-66/67/68/69

Figure 21: Existing third floor plan



A-89/90
A-74
A-60
A-98B/99B
A-96B/97B
A-77
A-79
A-58/59
A-98A/99A
A-80B
A-35A
A-93
A-91/92

Figure 22: Existing fourth floor plan



A-61/62/63

A-98C/99C/100

A-80C

A-96C/967C

A-16/17/18

A-15

A-98D/99D

A-75

718 Main Street, Fitchburg Massachusetts – Photograph Log

Photo 1 Subject Property, view to the southwest.

Photo 2 Subject Property, view to the East.

718 Main Street, Fitchburg Massachusetts – Photograph Log

Photo 3 Subject Property, view to the West.

Photo 4 Subject Property, view to the north.

718 Main Street, Fitchburg Massachusetts – Photograph Log

Photo 5 Basement - mail room

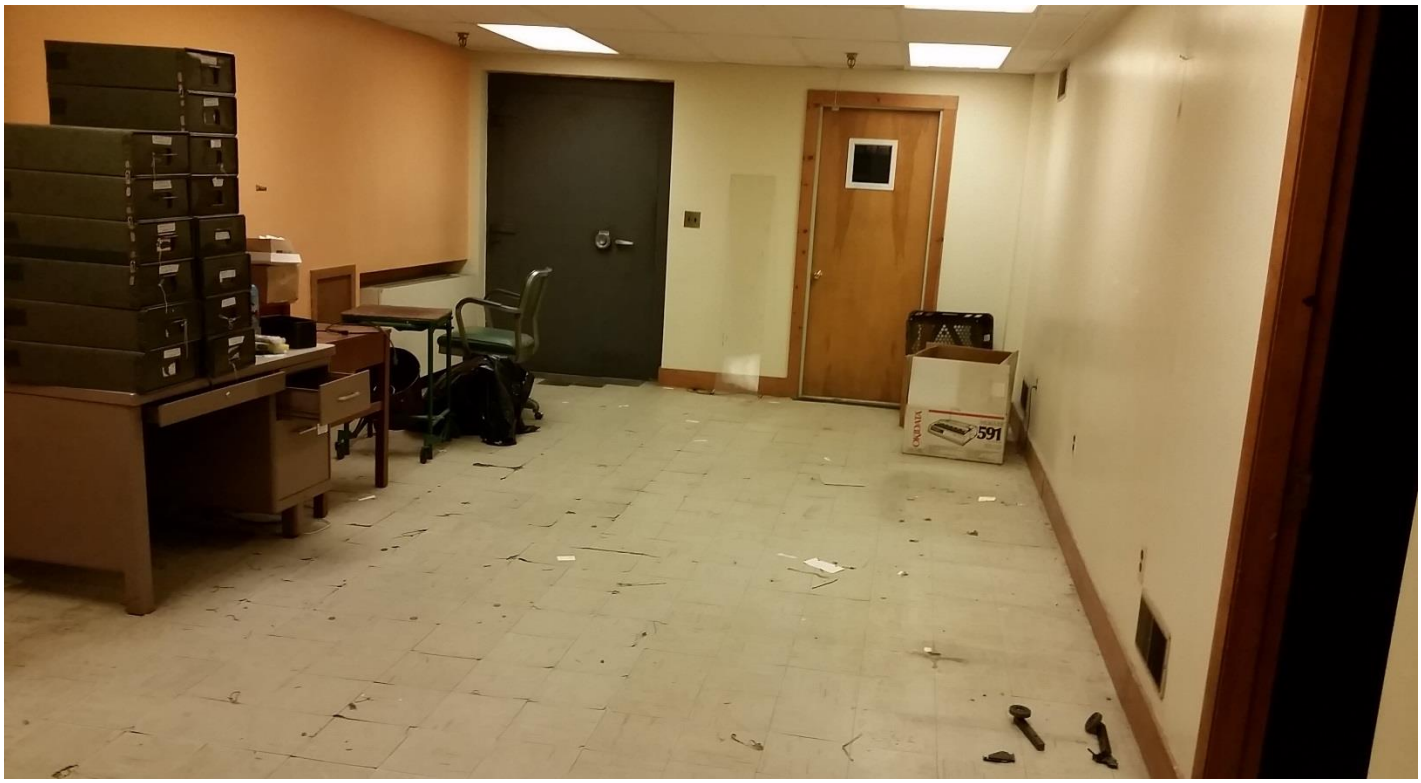
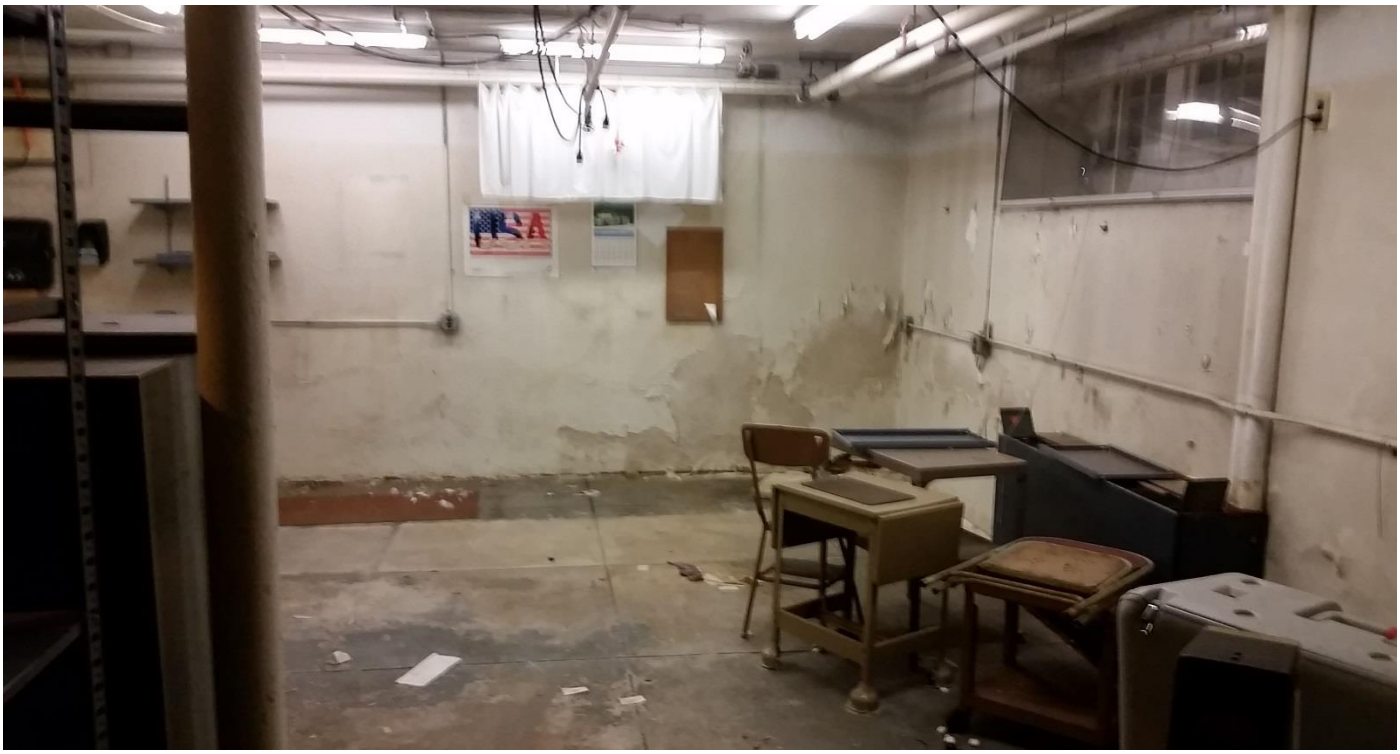


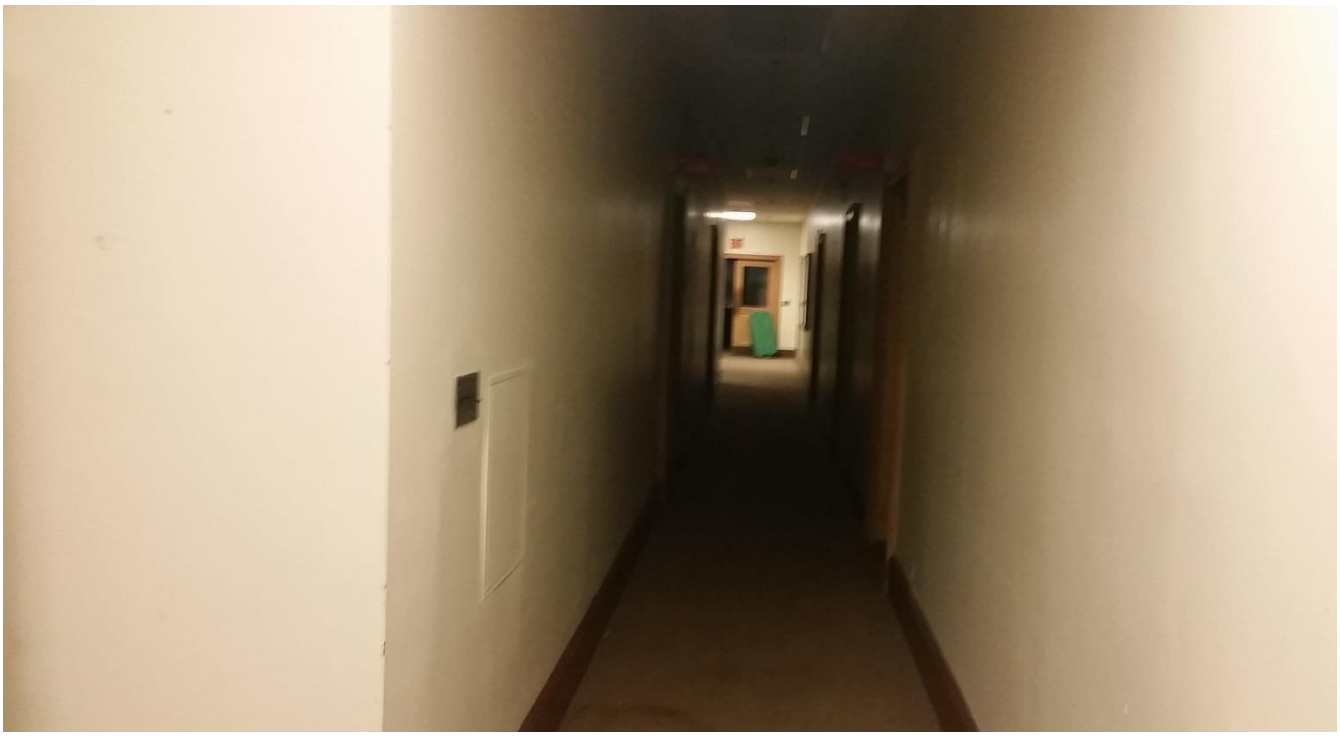
Photo 6 Basement – print shop



718 Main Street, Fitchburg Massachusetts – Photograph Log

Photo 7 Basement – textured front hallway wall

Photo 8 1st floor – hallway front



718 Main Street, Fitchburg Massachusetts – Photograph Log

Photo 9 1st floor – hallway rear

Photo 10 1st floor – front entrance

718 Main Street, Fitchburg Massachusetts – Photograph Log

Photo 11 1st floor – council chamber

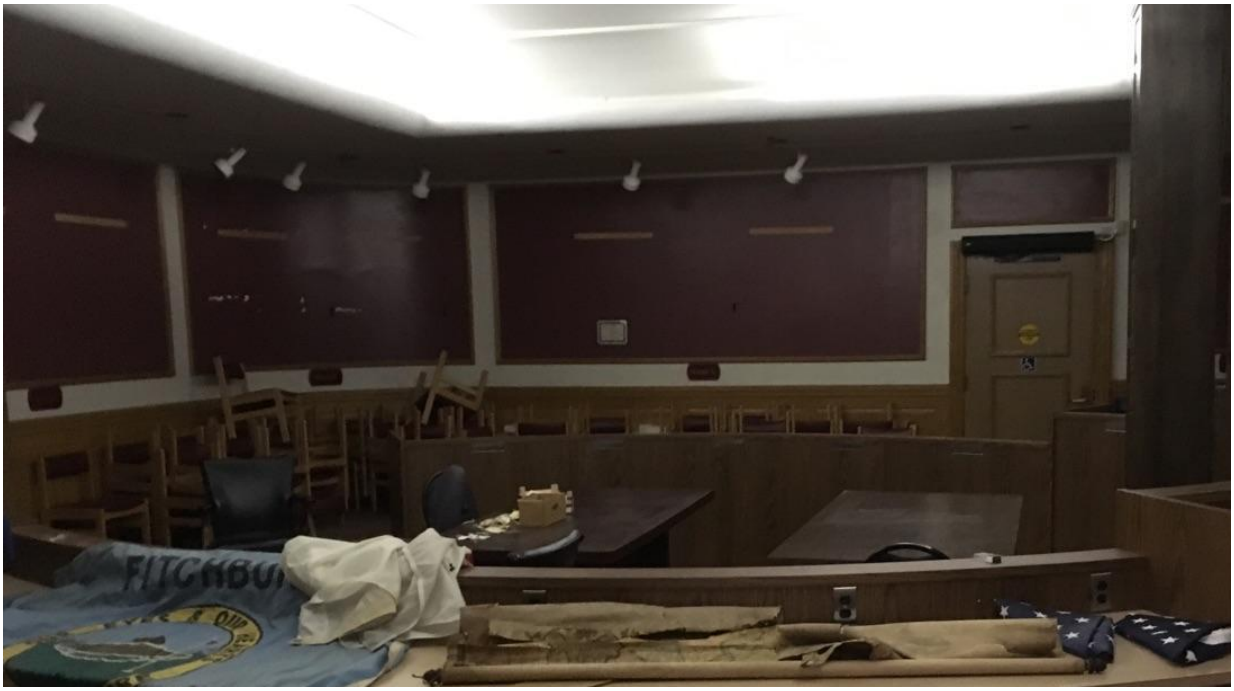
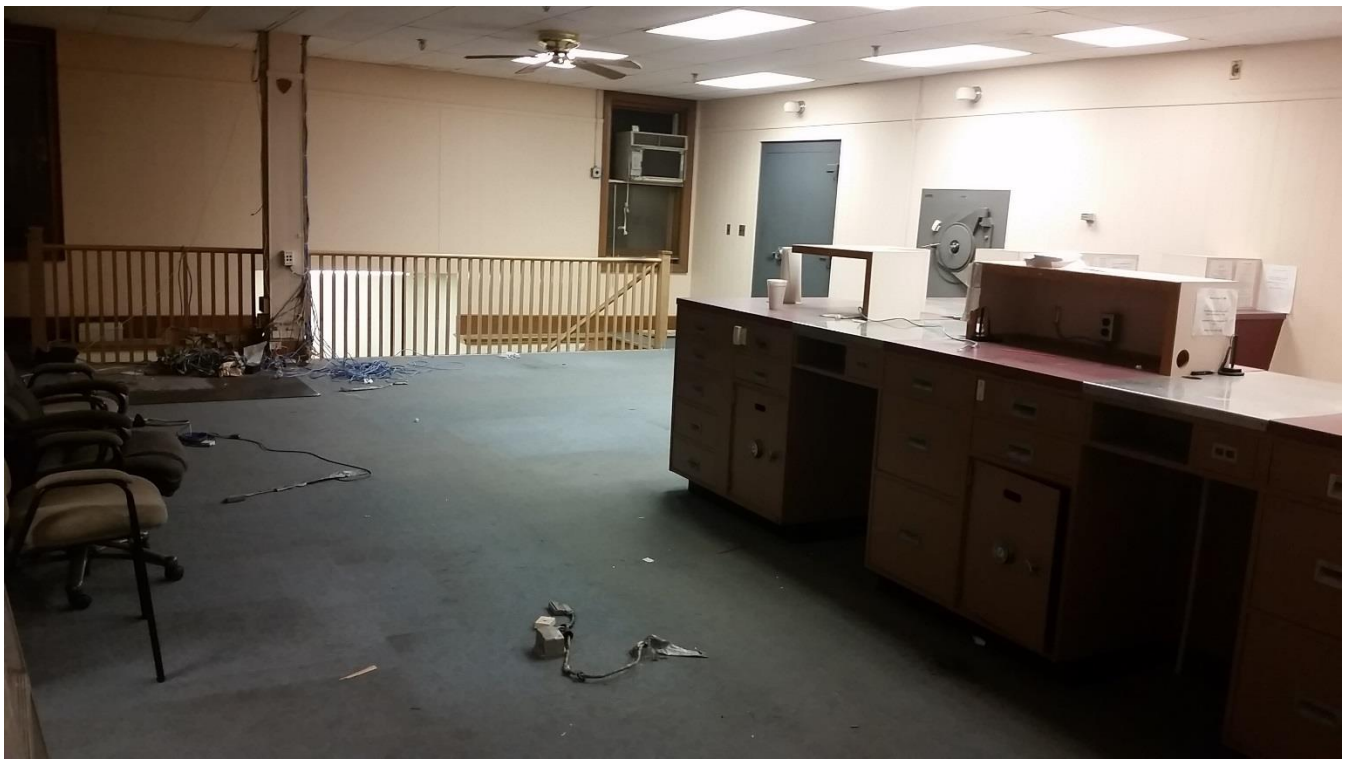


Photo 12 1st floor meeting room

718 Main Street, Fitchburg Massachusetts – Photograph Log

Photo 13 1st floor – mail room

Photo 14 1st – floor treasurer



718 Main Street, Fitchburg Massachusetts – Photograph Log

Photo 15 1st floor – human resources

Photo 16 2nd floor – front hallway

718 Main Street, Fitchburg Massachusetts – Photograph Log

Photo 17 2nd floor back hallway

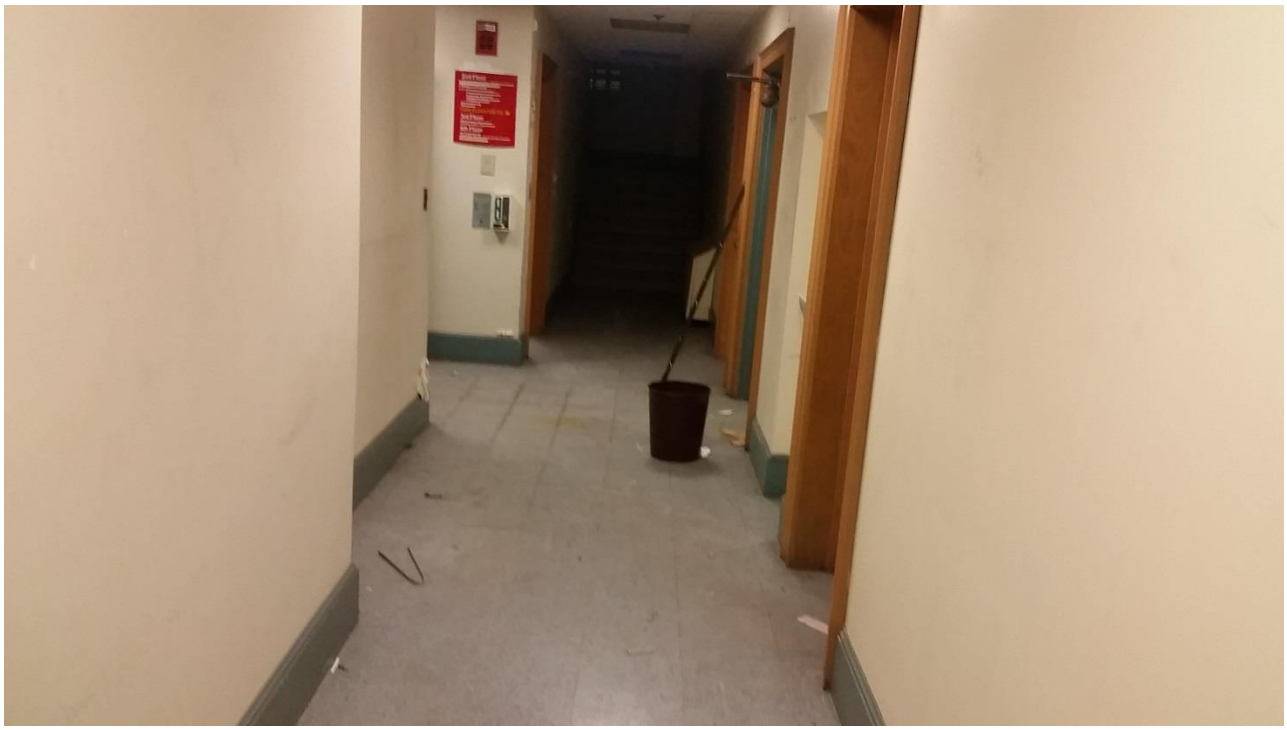


Photo 18 2nd floor board of health

Photo 19 2nd floor – rear planning

Photo 20 2nd floor – front planning

718 Main Street, Fitchburg Massachusetts – Photograph Log

Photo 21 2nd floor - storage

Photo 22 2nd floor - purchasing

718 Main Street, Fitchburg Massachusetts – Photograph Log

Photo 23 2nd floor - auditor

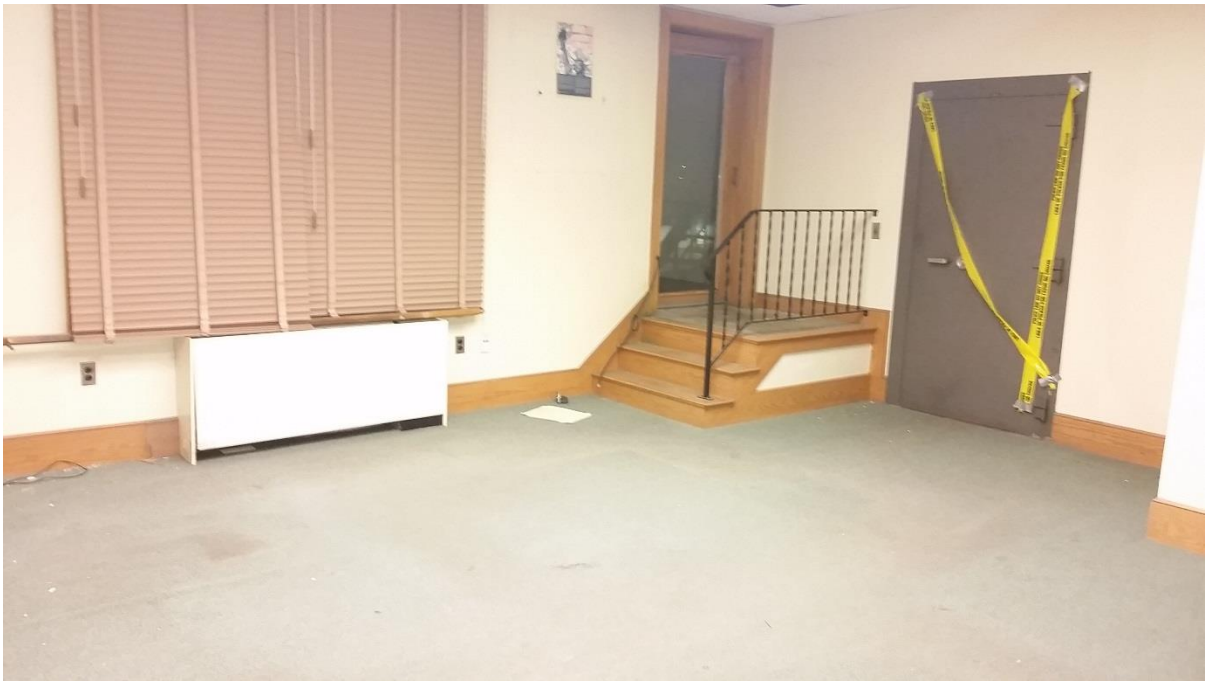


Photo 24 2nd floor - retirement

718 Main Street, Fitchburg Massachusetts – Photograph Log

Photo 25 2nd floor – assistant auditor

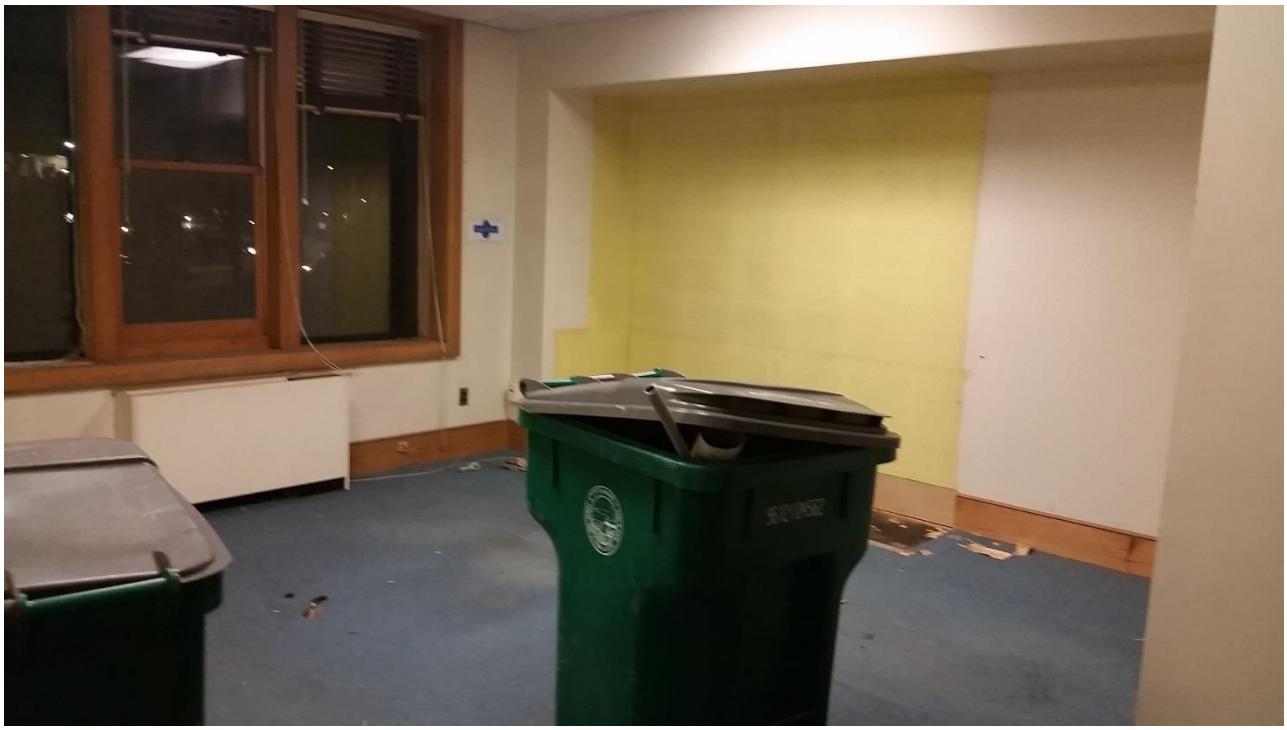


Photo 26 2nd floor – janitors closet off women's bathroom

718 Main Street, Fitchburg Massachusetts – Photograph Log

Photo 27 2nd floor – women's bathroom

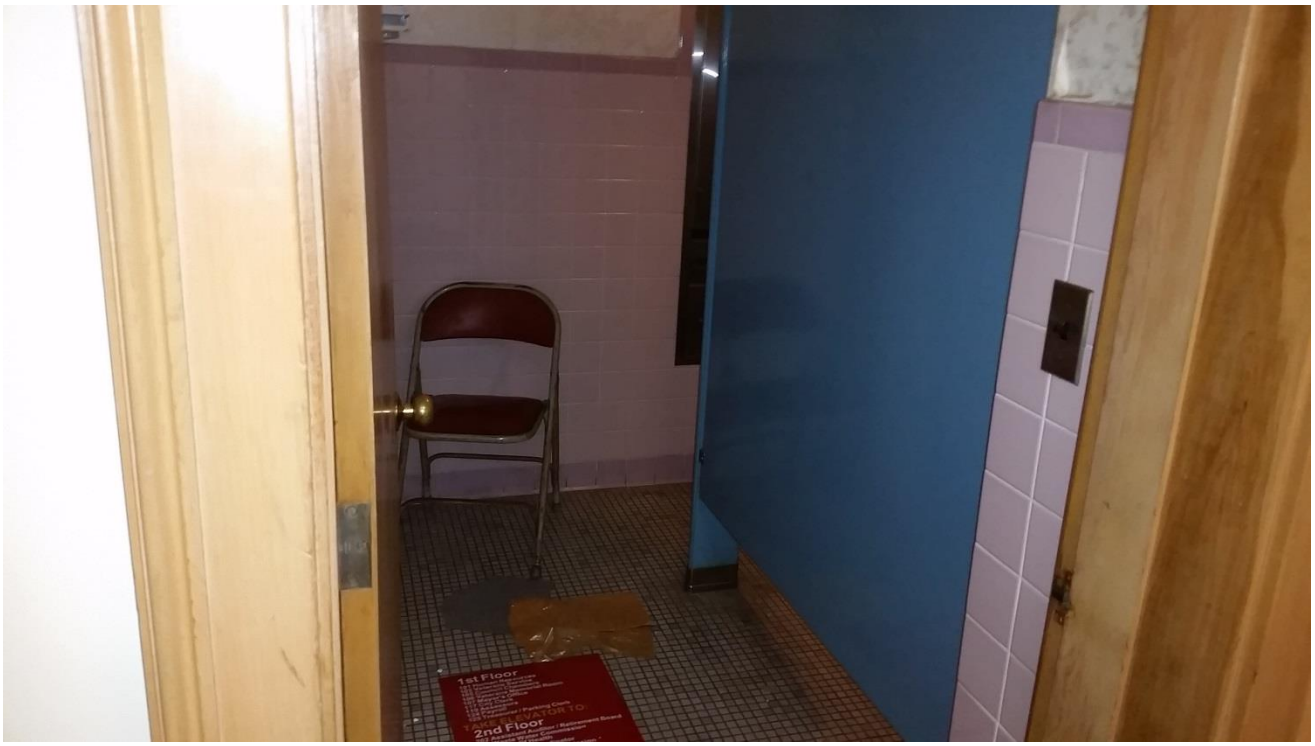


Photo 28 2nd floor - wastewater

718 Main Street, Fitchburg Massachusetts – Photograph Log

Photo 29 2nd floor – conference room

Photo 30 2nd to 3rd floor - stairs

718 Main Street, Fitchburg Massachusetts – Photograph Log

Photo 31 3rd floor – hallway

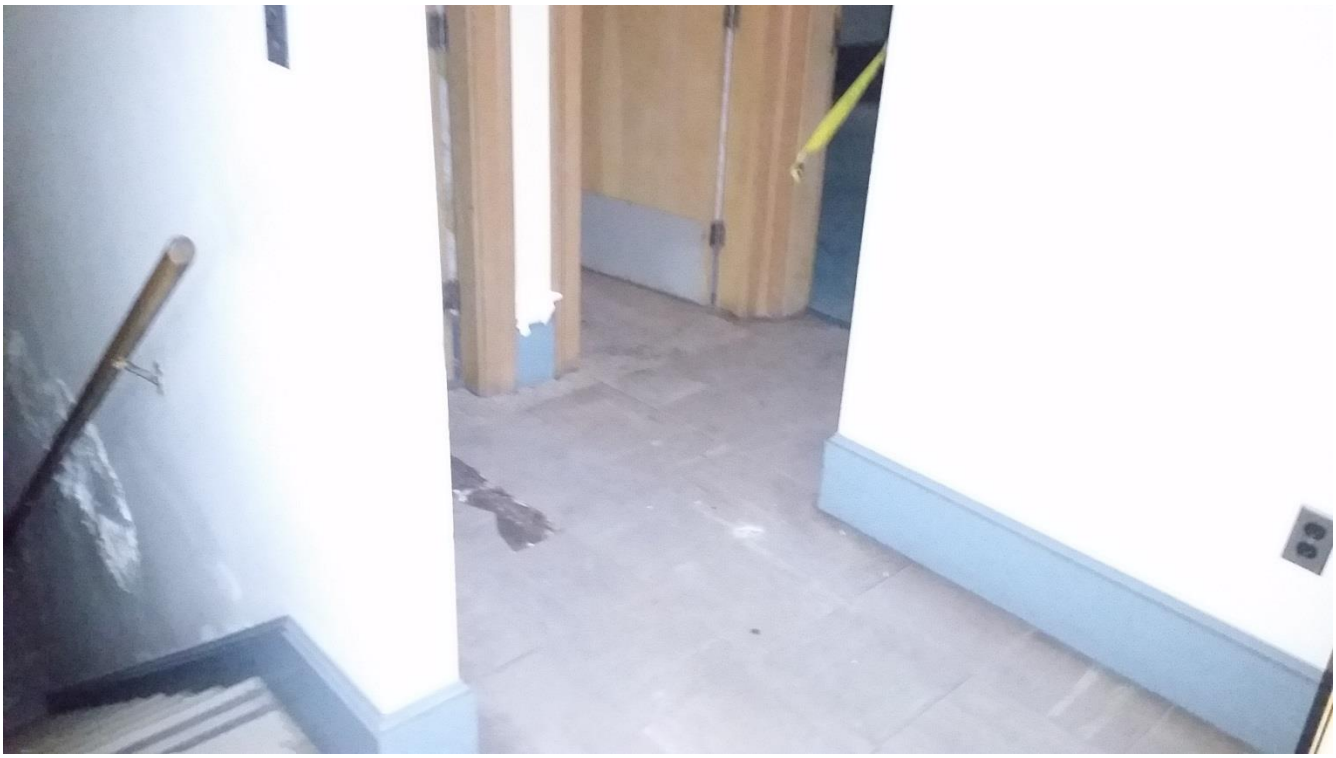


Photo 32 3rd floor – building 1

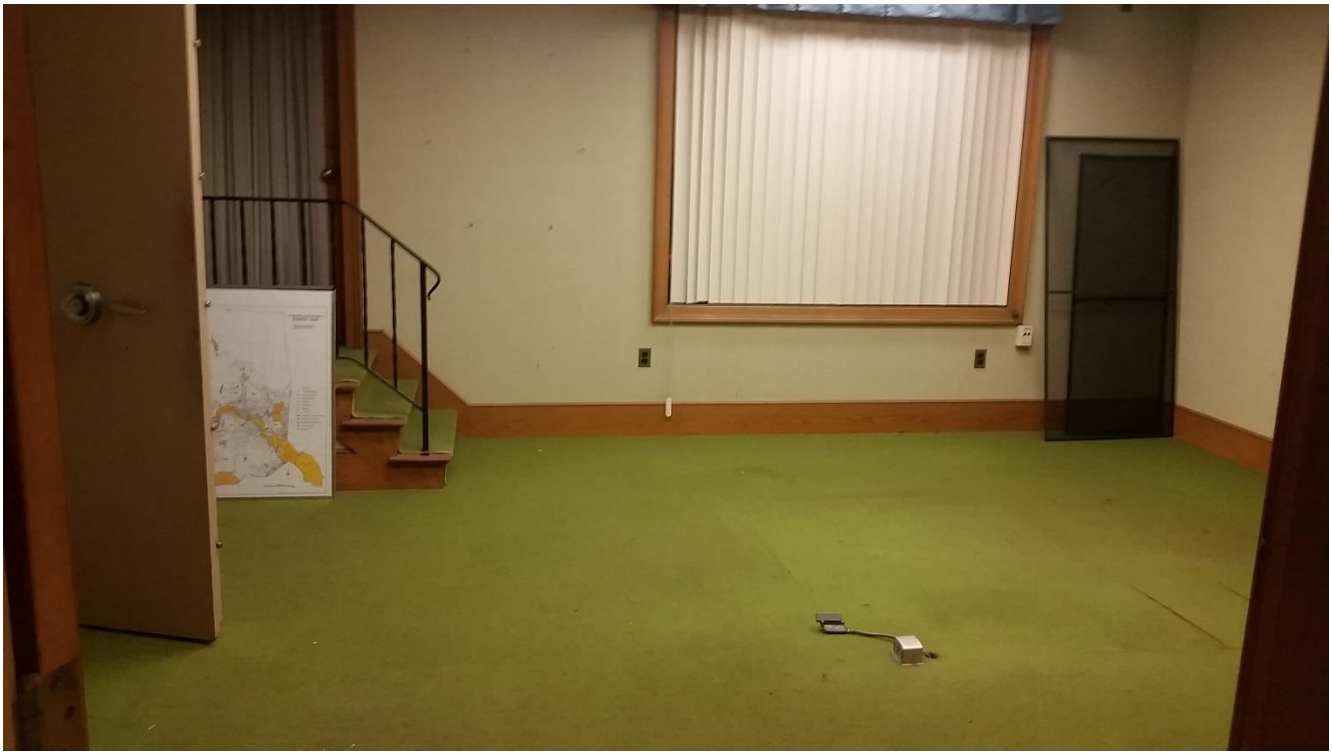


Photo 33 3rd floor – building 2

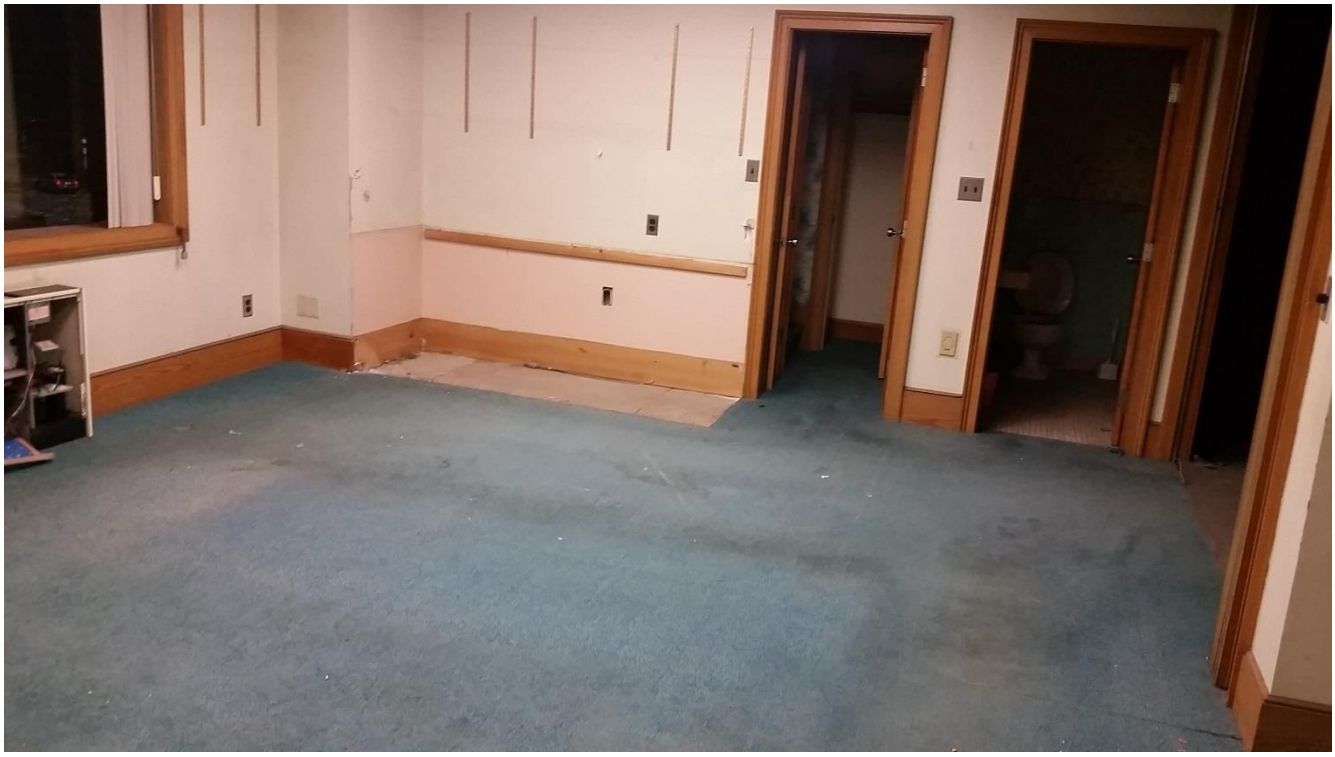


Photo 34 3rd floor – building 3

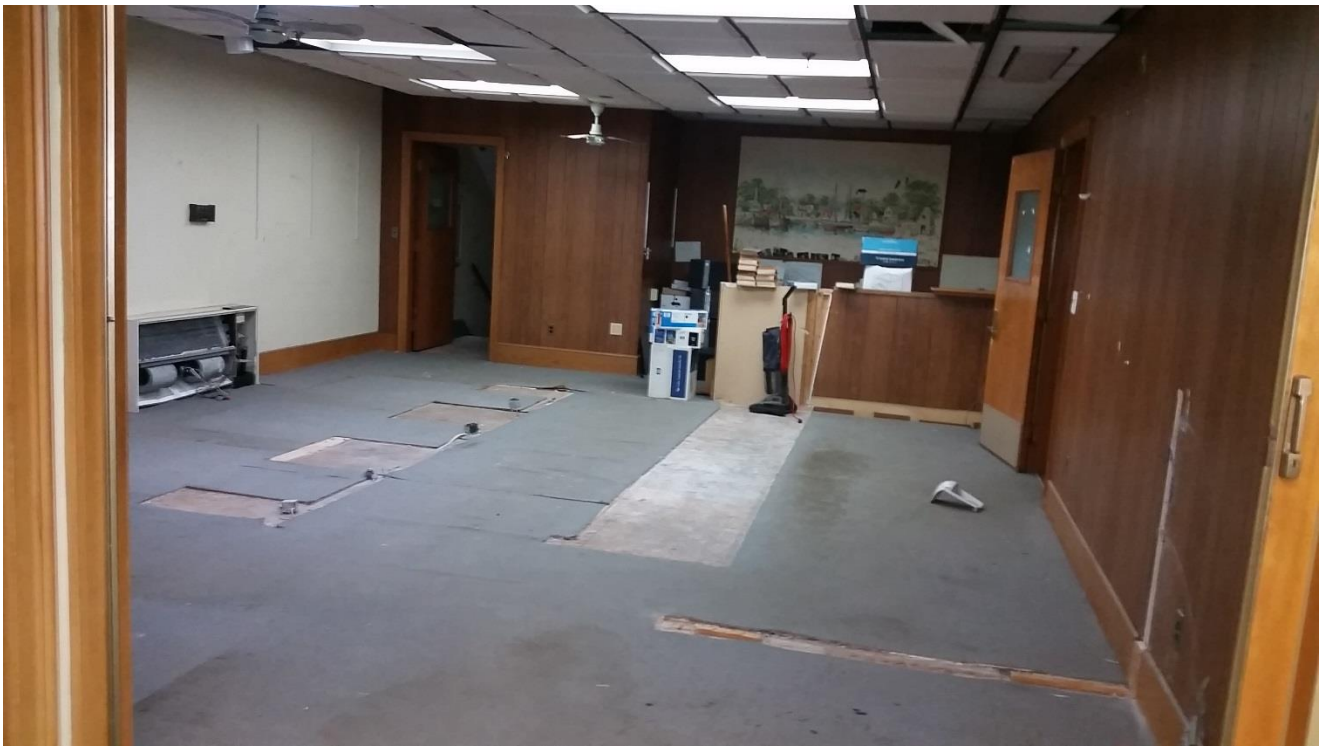


Photo 35 3rd floor - recreation

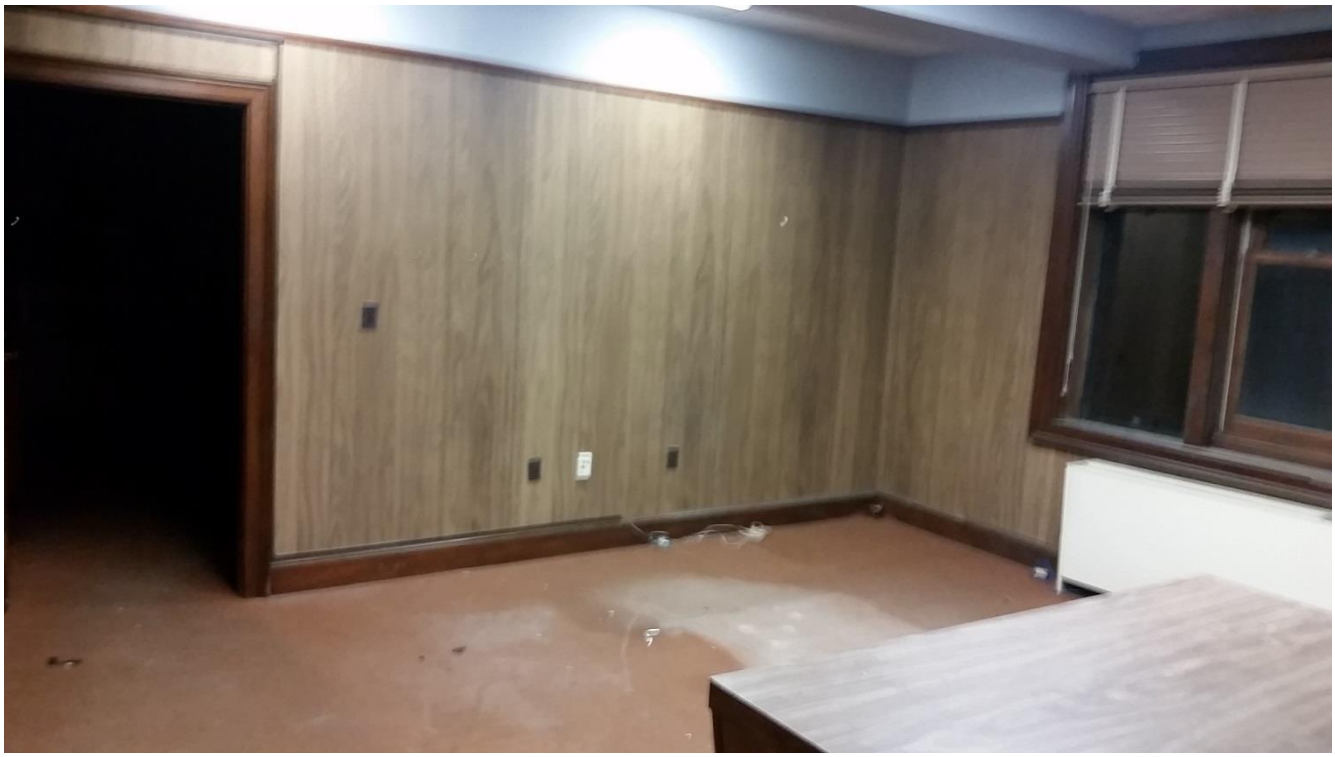


Photo 36 3rd floor - southeast toilet

Photo 37 4th floor dpw 1

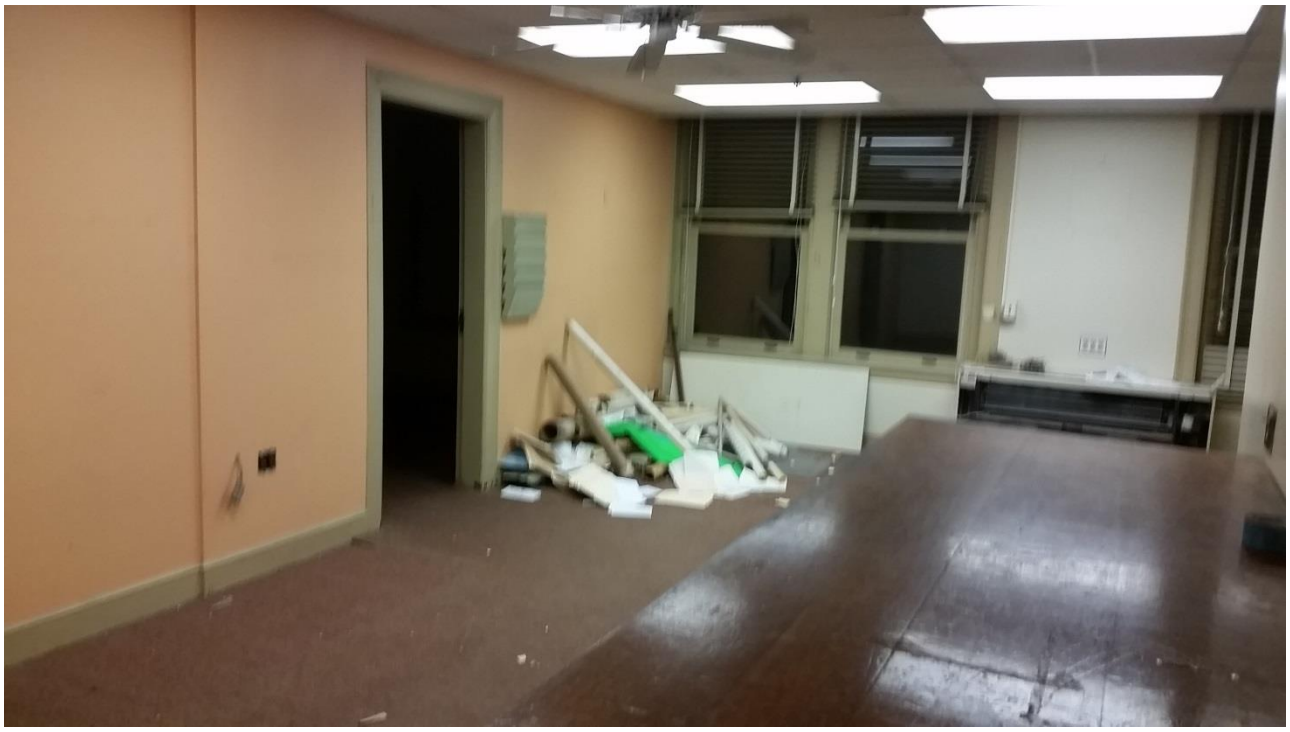
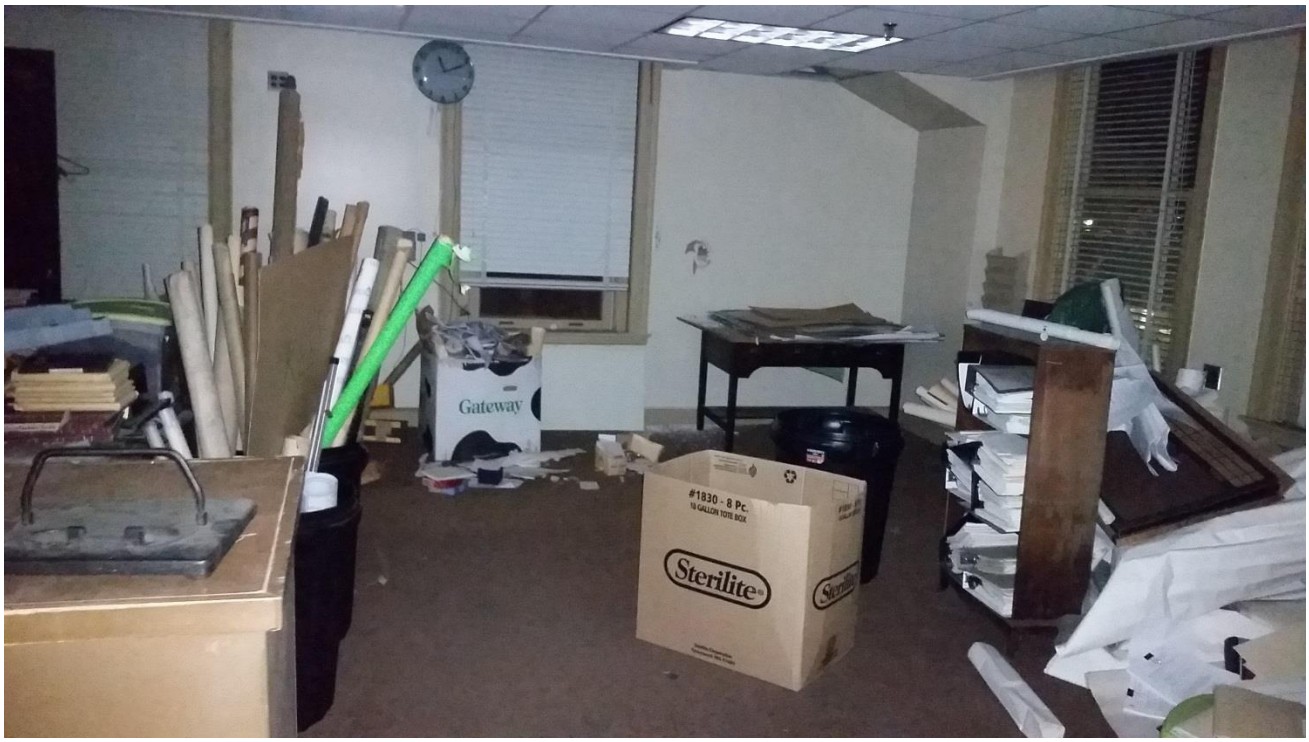


Photo 38 4th floor dpw 1 floor tiles

718 Main Street, Fitchburg Massachusetts – Photograph Log

Photo 39 4th floor – dpw 4

Photo 40 4th floor - engineering 1



718 Main Street, Fitchburg Massachusetts – Photograph Log

Photo 41 4th floor - engineering 2

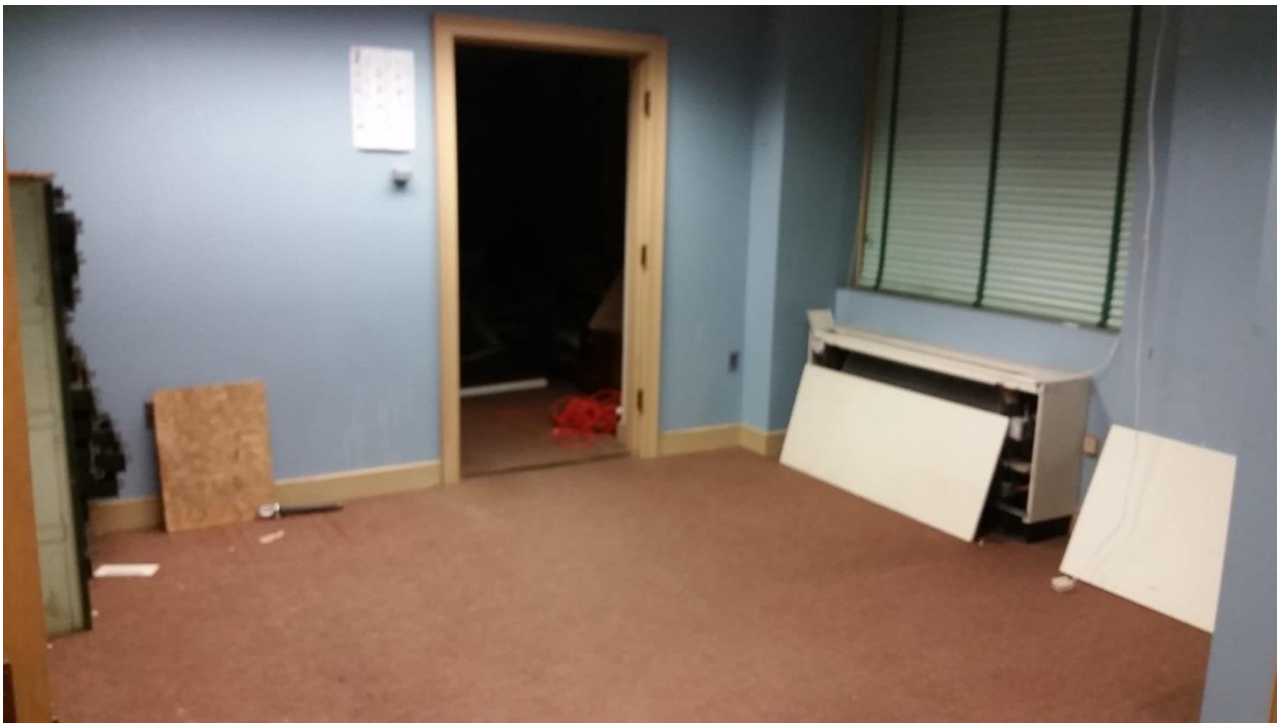


Photo 42 4th floor – engineering 2 and bathroom

Photo 43 4th floor – engineering 3

Photo 44 4th floor – dpw 3

718 Main Street, Fitchburg Massachusetts – Photograph Log

Photo 45 Basement – various one gallon cans

Photo 46 Basement – five gallon buckets

Photo 47 Basement – heating oil storage tanks

R.I. Analytical

Specialists in Environmental Services

HAZARDOUS MATERIALS INSPECTION REPORT
for
RENOVATIONS TO THE FITCHBURG CITY HALL

RIAL Project No.: 030084

Prepared For:

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Hudson, MA 01749

March 13, 2003

William H. Hopper
Senior Project Manager

TABLE OF CONTENTS

1.0 INTRODUCTION

This report presents the findings of the asbestos-containing building materials (ACBM) inspection, a visual inventory of additional suspect hazardous materials, and a baseline indoor air quality (IAQ) investigation at the Fitchburg City Hall located at 718 Main Street in Fitchburg, Massachusetts. The inspection was conducted by R.I. Analytical Laboratories, Inc. (RIAL) on February 24 and 25, 2003. The purpose of the inspection was to identify the presence/absence of ACBM, additional hazardous materials, and identify baseline IAQ levels prior to renovations of the City Hall.

2.0 SCOPE OF WORK

The inspection included the collection of bulk samples of suspect ACBM identified in the City Hall, a visual inventory of additional suspect hazardous materials such as light ballasts, thermostats, and fluorescent light tubes, and a baseline IAQ investigation. Bulk samples were generally collected from, but not limited to floor tile, floor tile mastic, plaster walls and ceilings, plaster skim coats, ceiling tiles, window putty and caulking, and carpet mastic. The baseline IAQ investigation was conducted in several locations at different times of the day.

RIAL performed the following tasks to complete the inspection:

- A visual inspection of accessible rooms and the exterior of the building to determine ACM sample locations.
- Collection and analysis of bulk samples of suspect ACM.
- Baseline IAQ investigation in several different locations of the building.

3.0 SITE INSPECTION METHODOLOGY

The following sections describe the inspection and analysis methods used to identify ACBM, additional suspect hazardous materials, and the methodology utilized during the baseline IAQ investigation. During the inspection, RIAL was unable to gain access to the Basement City Clerk area for inspection. Additional suspect ACBM or additional hazardous materials may be present in that area. License and certification information for the asbestos inspector is provided in Appendix A.

3.1 ACBM Inspection Methodology

During the inspection, RIAL recorded the description and location of each suspect ACBM identified. At the completion of the visual inspection, bulk samples of suspect ACBM were collected for laboratory analysis. The number of samples collected was determined based on the various, distinct homogeneous materials identified. A homogeneous area is an area that, based on the inspector's judgment, contains materials that are uniform in color and texture and are present on similar building or utility components. A minimum of three representative bulk samples were collected from each homogeneous material. Bulk sample collection and analysis was performed by Polarized Light Microscopy (PLM) Test Method 600/R-93/116 or 40 CFR Part 763 Subpart F.

RIAL completed the ACBM inspection by:

Inspecting and assessing all homogeneous areas of suspect or assumed ACM. Homogeneous areas include surfacing material, thermal system insulation (TSI), and miscellaneous materials that were uniform in color and texture.

- Visually inspecting and touching observed suspect or assumed ACM and classifying it as friable or non-friable.
- Collecting samples in a random manner representative of each homogeneous area. Bulk samples were collected from each homogeneous area that was not assumed to be ACM using the following methodology:
  1. At least 3 bulk samples were collected from each homogeneous area that was 1,000 square feet or less.
  2. At least 5 bulk samples were collected from each homogeneous area that was greater than 1,000 square feet, but less than or equal to 5,000 square feet.
  3. At least 7 bulk samples were collected from each homogeneous area that was greater than 5,000 square feet.
- Recording the material description, location, general condition and amount for each homogeneous area of suspect or assumed ACM.

During the inspection, 178 bulk samples were collected and submitted for laboratory analysis by PLM, and 162 of the samples were analyzed for asbestos content using positive stop techniques, meaning once a sample of a homogeneous material tested positive for asbestos (>1%), the remaining similar components of that group were not analyzed. The samples were described based on the inspector's judgment and visual inspection of the material. Some descriptions of floor tile samples may not accurately reflect the actual color due to the presence of carpet mastic or discoloration of the tile from general wear.

3.2 Additional Hazardous Materials Inspection Methodology

During the inspection of each accessible room of the building, RIAL visually identified and tallied the number of lights containing ballasts, the number of potential mercury-containing light tubes, and a visual inspection for mercury-containing thermostats and electrical equipment. In addition, RIAL noted any drums, fuel tanks or other hazardous materials observed in the building.

3.3 Baseline IAQ Inspection Methodology

RIAL collected baseline IAQ readings from at least one room per floor of the building using calibrated direct-read field instrumentation. RIAL collected measurements of temperature, relative humidity, hydrogen sulfide, sulfur dioxide, carbon dioxide, carbon monoxide, oxygen, lower explosive level, and total volatile organic compounds (VOC's).

4.0 SITE INSPECTION RESULTS

The following sections present the results of the physical inspection, baseline IAQ investigation, and laboratory analysis.

4.1 ACBM Inspection Results

A material is defined by the EPA as being a regulated asbestos-containing material if it contains greater than one percent (1%) asbestos based on laboratory analysis. A material can only be considered negative if analytical results from all bulk samples of an individual homogeneous material indicate asbestos is 1% or less.

Bulk samples were analyzed by PLM at our in-house laboratory located in Warwick, Rhode Island. Accreditation and certification documents for the laboratory are presented in Appendix A. Analytical results indicate that numerous materials sampled contain asbestos in concentrations greater than 1%. In addition, other materials were observed in the building that are listed below as potential asbestos-containing materials. These materials were not sampled due to either access constraints or the fact that sampling would jeopardize the integrity of the building component. The following materials either contain greater than 1% asbestos fibers or are potential asbestos-containing:

9"x9" White Floor Tile
White Pipe Wrap Roll
Aircell Pipe Insulation
9"x9" Grey Floor Tile (under carpet in some areas)
9"x9" White w/ Brown Streaks Floor Tile (under carpet in some areas)
Black Caulking Around Granite Window Sills
White Window Caulking
1'x1' Grey w/ White Streaks Floor Tile (under carpet)
Potential Asbestos-Containing Fire Doors
Potential Asbestos-Containing Vault Fire Doors
Potential Asbestos-Containing Elevator Brakes
Potential Asbestos-Containing Mastic Behind Wall Paneling

In addition, an empty 5-gallon bucket of Phillips Casey Company Flashing Cement was identified in the attic area. Contents of the flashing cement printed on the side of the bucket indicate that it contains "asbestos fibre." This should be kept in mind if roof replacement will be conducted. A mastic material was observed behind the wood paneling in at least one office; however, this material was not accessible for sampling. If the renovations call for the removal of this paneling, bulk samples of the mastic should be collected. In some locations, plywood was observed immediately under carpet. The possibility exists that asbestos-containing floor tile is under the plywood flooring. A summary of the asbestos laboratory analytical results is presented in Table 1 and a copy of the laboratory PLM analytical reports is provided in Appendix B. In addition, please refer to Figures 1 through 5 for asbestos sample locations.

4.2 Additional Hazardous Materials Results

During the inspection RIAL observed approximately 245 fluorescent light fixtures with potential polychlorinated biphenyl (PCB) containing light ballasts and approximately 826 potential mercury-containing light tubes. In addition, RIAL observed four 275-gallon above ground storage tanks (AST's) in the fuel tank room. Staining was observed on the concrete floor and sandbags were situated to deter liquid flow into the sump pump area of the room.

4.3 Baseline IAQ Inspection Results

RIAL measured temperature, relative humidity, hydrogen sulfide, sulfur dioxide, carbon dioxide, carbon monoxide, oxygen, lower explosive level, and total volatile organic compounds (VOC's) in several locations of the building. The results from the baseline IAQ inspection were not considered abnormal considering the existing conditions. Carbon dioxide readings collected prior to and during a meeting in the Veterans Memorial Room showed a steady increase as would be expected. Other than that increase, other readings showed normal increases as the day progressed. Please refer to Table 2 for a summary of the IAQ results.

5.0 SUMMARY

On February 24 and 25, 2003, RIAL personnel performed an ACBM inspection, a visual inventory for additional suspect hazardous materials, and a baseline IAQ investigation. During the site visit, RIAL recorded the description and location of each suspect ACBM, additional suspect material observed, and collected direct reading measurements for temperature, relative humidity, hydrogen sulfide, sulfur dioxide, carbon dioxide, carbon monoxide, oxygen, lower explosive level, and total VOC's.

A total of 178 bulk samples were collected from the buildings of suspect ACBM and submitted for laboratory analysis by PLM. A total of 162 of the samples were analyzed for asbestos content by PLM. In conducting the visual inventory of additional suspect materials, RIAL observed approximately 245 potential PCB-containing light ballasts, approximately 826 potential mercury-containing light tubes, and four 275-gallon AST's. Please refer to Table 3 for an estimated cost to remove the ACM and potential PCB and mercury-containing materials identified in this report.

RIAL recommends that prior to the initiation of the renovation activities, additional sample analysis via Transmission Electron Microscopy (TEM) of several floor tile and mastic materials be conducted to confirm the negative PLM analysis result. These materials generally contain an organic vinyl or asphaltic binder which makes identification of asbestos fibers difficult with the required PLM analysis.

Any demolition to be performed that would disturb ACBM must comply with state and federal regulatory standards. In accordance with 40 CFR Part 61, *National Emissions Standards for Hazardous Air Pollutants* (NESHAP), a contractor conducting any

demolition that would disturb regulated ACBM must: (1) notify the EPA Administrator of such activities, (2) use proper removal procedures, (3) use proper engineering controls to limit emissions of asbestos fibers, and (4) utilize proper waste disposal.

In accordance with the NESHAP regulation, ACBM must be removed by a licensed asbestos abatement contractor prior to initiation of any building demolition or renovation activities. If any hidden suspect ACBM (behind walls, in chases, above unbroken plaster ceilings, etc.) is uncovered during demolition activities, work must be stopped prior to disturbance of the material and the material tested for asbestos content. All ACBM must be disposed of in accordance with all applicable state and federal requirements.

Under Occupational Safety and Health Administration (OSHA) regulations, any demolition to be performed at a structure where ACBM is present must be performed in accordance with a worker protection policy, including but not limited to: appropriate training, medical monitoring, respiratory protection, and other protective equipment.

6.0 LIMITATIONS

Reasonable efforts were made to identify hidden and concealed hazardous materials. Destructive sampling was not conducted due to the building being occupied. RIAL cannot be held responsible for the identification of hazardous materials that may be located behind inaccessible locations. This report does not document compliance by present or past site owners with Local, State, or Federal laws and regulations, nor does it claim or imply that all ACBM past, present, potential, or otherwise, have been detected at the referenced site.

Observations documented in this report were made under the conditions existing at the time of this investigation. Should changes from existing conditions occur in the future warranting additional asbestos and/or lead analyses, they should be brought to the attention of RIAL for further investigation and documentation.

Table 1 - Summary of Asbestos Laboratory Analytical Results

Fitchburg City Hall
718 Main Street
Fitchburg, Massachusetts
Sampling Dates: February 24 and 25, 2003

Lab ID	Field ID	Floor	Room	Description of Sample	Type of Asbestos	PLM Tot. % Asbestos
0302-02422-0 01	01 A	Basement	Print Shop Storage	Flue Packing	NAD	
0302-02422-0 02	01 B	Basement	Print Shop Storage	Flue Packing	NAD	
0302-02422-0 03	01 C	Basement	Print Shop Storage	Flue Packing	NAD	
0302-02422-0 04	02 A	Basement	Print Shop Storage	Material Inside Old Incinerator	NAD	
0302-02422-0 05	02 B	Basement	Print Shop Storage	Material Inside Old Incinerator	NAD	
0302-02422-0 06	02 C	Basement	Print Shop Storage	Material Inside Old Incinerator	NAD	
0302-02422-0 07	03 A	Basement	Print Shop Storage	Troweled-On Plaster Ceiling	NAD	
0302-02422-0 08	03 B	Basement	Print Shop Storage	Troweled-On Plaster Ceiling	NAD	
0302-02422-0 09	03 C	Basement	Print Shop Storage	Troweled-On Plaster Ceiling	NAD	
0302-02422-0 10	03 D	Basement	Recreation Department	Troweled-On Plaster Ceiling	NAD	
0302-02422-0 11	03 E	Basement	Recreation Department	Troweled-On Plaster Ceiling	NAD	
0302-02422-0 12	04 A	Basement	Mail Room	Old Electrical Wiring	NAD	
0302-02422-0 13	04 B	Basement	Mail Room	Old Electrical Wiring	NAD	
0302-02422-0 14	04 C	Basement	Mail Room	Old Electrical Wiring	NAD	
0302-02422-0 15	05 A	Basement	Mail Room	9"x9" White Floor Tile	CHR	10-20
0302-02422-0 16	05 B	Basement	Mail Room	9"x9" White Floor Tile	--	
0302-02422-0 17	05 C	Basement	Mail Room	9"x9" White Floor Tile	--	
0302-02422-0 18	06 A	Basement	Mail Room	9"x9" White Floor Tile Mastic	NAD	
0302-02422-0 19	06 B	Basement	Mail Room	9"x9" White Floor Tile Mastic	NAD	
0302-02422-0 20	06 C	Basement	Mail Room	9"x9" White Floor Tile Mastic	NAD	
0302-02422-0 21	07 A	Basement	Mail Room	2'x4' White Ceiling Tile	NAD	
0302-02422-0 22	07 B	Basement	Mail Room	2'x4' White Ceiling Tile	NAD	
0302-02422-0 23	07 C	Basement	Mail Room	2'x4' White Ceiling Tile	NAD	
0302-02422-0 24	07 D	First	Mail Room	2'x4' White Ceiling Tile	NAD	
0302-02422-0 25	07 E	First	Mail Room	2'x4' White Ceiling Tile	NAD	
0302-02422-0 26	08 A	Basement	Mail Room	White Plaster Skim Coat	NAD	
0302-02422-0 27	08 B	Basement	Mail Room	White Plaster Skim Coat	NAD	
0302-02422-0 28	08 C	Basement	Mail Room	White Plaster Skim Coat	NAD	
0302-02422-0 29	08 D	First	Stairway To Basement	White Plaster Skim Coat	NAD	
0302-02422-0 30	08 E	First	Stairway To Basement	White Plaster Skim Coat	NAD	
0302-02422-0 31	08 F	First	Payroll	White Plaster Skim Coat	NAD	
0302-02422-0 32	08 G	First	Payroll	White Plaster Skim Coat	NAD	

Table 1 - Summary of Asbestos Laboratory Analytical Results (Cont.)

Lab ID	Field ID	Floor	Room	Description of Sample	Type of Asbestos	PLM Tot. % Asbestos
0302-02422-0 33	09 A	Basement	Mail Room	Plaster Wall	NAD	
0302-02422-0 34	09 B	Basement	Mail Room	Plaster Wall	NAD	
0302-02422-0 35	09 C	Basement	Mail Room	Plaster Wall	NAD	
0302-02422-0 36	09 D	First	Stairway To Basement	Plaster Wall	NAD	
0302-02422-0 37	09 E	First	Stairway To Basement	Plaster Wall	NAD	
0302-02422-0 38	09 F	First	Payroll	Plaster Wall	NAD	
0302-02422-0 39	09 G	First	Payroll	Plaster Wall	NAD	
0302-02422-0 40	10 A	Basement	Storage 2	White Pipe Wrap Roll	CHR	40-50
0302-02422-0 41	10 B	Basement	Storage 2	White Pipe Wrap Roll	--	
0302-02422-0 42	10 C	Basement	Storage 2	White Pipe Wrap Roll	--	
0302-02422-0 43	11 A	Basement	Storage 3	Green Pipe Gasket	NAD	
0302-02422-0 44	11 B	Basement	Storage 3	Green Pipe Gasket	NAD	
0302-02422-0 45	11 C	Basement	Storage 3	Green Pipe Gasket	NAD	
0302-02422-0 46	12 A	Basement	Janitor's Hall	1'x1' White w/ Red Spec Floor Tile (in box)	NAD	
0302-02422-0 47	12 B	Basement	Janitor's Hall	1'x1' White w/ Red Spec Floor Tile (in box)	NAD	
0302-02422-0 48	12 C	Basement	Janitor's Hall	1'x1' White w/ Red Spec Floor Tile (in box)	NAD	
0302-02422-0 49	13 A	Basement	Toilet 3	Aircell Pipe Insulation	CHR	30-40
0302-02422-0 50	13 B	Basement	Toilet 3	Aircell Pipe Insulation	--	
0302-02422-0 51	13 C	Basement	Toilet 3	Aircell Pipe Insulation	--	
0302-02422-0 52	14 A	Basement	Toilet 3	Black Tar Pipe Wrap	NAD	
0302-02422-0 53	14 B	Basement	Toilet 3	Black Tar Pipe Wrap	NAD	
0302-02422-0 54	14 C	Basement	Toilet 3	Black Tar Pipe Wrap	NAD	
0302-02422-0 55	15 A	First	Side Entrance	1'x1' White w/ Blue Spec Floor Tile	NAD	
0302-02422-0 56	15 B	First	Side Entrance	1'x1' White w/ Blue Spec Floor Tile	NAD	
0302-02422-0 57	15 C	First	Side Entrance	1'x1' White w/ Blue Spec Floor Tile	NAD	
0302-02422-0 58	16 A	First	Side Entrance	1'x1' White w/ Blue Spec Floor Tile Mastic	NAD	
0302-02422-0 59	16 B	First	Side Entrance	1'x1' White w/ Blue Spec Floor Tile Mastic	NAD	
0302-02422-0 60	16 C	First	Side Entrance	1'x1' White w/ Blue Spec Floor Tile Mastic	NAD	
0302-02422-0 61	17 A	First	Hallway	2'x2' White Wormy Ceiling Tile	NAD	
0302-02422-0 62	17 B	First	Hallway	2'x2' White Wormy Ceiling Tile	NAD	
0302-02422-0 63	17 C	First	Hallway	2'x2' White Wormy Ceiling Tile	NAD	
0302-02422-0 64	17 D	Third	Recreation Department	2'x2' White Wormy Ceiling Tile	NAD	
0302-02422-0 65	17 E	Third	Recreation Department	2'x2' White Wormy Ceiling Tile	NAD	
0302-02422-0 66	18 A	First	Treasurer	1'x1' Pink/Red Floor Tile	NAD	
0302-02422-0 67	18 B	First	Treasurer	1'x1' Pink/Red Floor Tile	NAD	
0302-02422-0 68	18 C	First	Treasurer	1'x1' Pink/Red Floor Tile	NAD	

Table 1 - Summary of Asbestos Laboratory Analytical Results (Cont.)

Lab ID	Field ID	Floor	Room	Description of Sample	Type of Asbestos	PLM Tot. % Asbestos
0302-02422-0 69	19 A	First	Treasurer	1'x1' Pink/Red Floor Tile Mastic	NAD	
0302-02422-0 70	19 B	First	Treasurer	1'x1' Pink/Red Floor Tile Mastic	NAD	
0302-02422-0 71	19 C	First	Treasurer	1'x1' Pink/Red Floor Tile Mastic	NAD	
0302-02422-0 72	20 A	First	Treasurer	9"x9" Grey Floor Tile Under Carpet	CHR	5-15
0302-02422-0 73	20 B	First	Treasurer	9"x9" Grey Floor Tile Under Carpet	--	
0302-02422-0 74	20 C	First	Treasurer	9"x9" Grey Floor Tile Under Carpet	--	
0302-02422-0 75	21 A	First	Treasurer	9"x9" Grey Floor Tile Mastic Under Carpet	NAD	
0302-02422-0 76	21 B	First	Treasurer	9"x9" Grey Floor Tile Mastic Under Carpet	NAD	
0302-02422-0 77	21 C	First	Treasurer	9"x9" Grey Floor Tile Mastic Under Carpet	NAD	
0302-02422-0 78	22 A	First	Treasurer	Carpet Mastic	NAD	
0302-02422-0 79	22 B	First	Treasurer	Carpet Mastic	NAD	
0302-02422-0 80	22 C	First	Treasurer	Carpet Mastic	NAD	
0302-02422-0 81	23 A	First	Mail Room	Black Mastic Under Carpet	NAD	
0302-02422-0 82	23 B	First	Mail Room	Black Mastic Under Carpet	NAD	
0302-02422-0 83	23 C	First	Mail Room	Black Mastic Under Carpet	NAD	
0302-02422-0 84	23 D	First	City Clerk	Black Mastic Under Tile and Carpet	NAD	
0302-02422-0 85	23 E	First	City Clerk	Black Mastic Under Tile and Carpet	NAD	
0302-02422-0 86	24 A	First	Payroll	Tan Floor Tile Under Carpet	NAD	
0302-02422-0 87	24 B	First	Payroll	Tan Floor Tile Under Carpet	NAD	
0302-02422-0 88	24 C	First	Payroll	Tan Floor Tile Under Carpet	NAD	
0302-02422-0 89	25 A	First	Payroll	Tan Floor Tile Mastic Under Carpet	NAD	
0302-02422-0 90	25 B	First	Payroll	Tan Floor Tile Mastic Under Carpet	NAD	
0302-02422-0 91	25 C	First	Payroll	Tan Floor Tile Mastic Under Carpet	NAD	
0302-02422-0 92	26 A	First	City Clerk	1'x1' White Green Floor Tile	NAD	
0302-02422-0 93	26 B	First	City Clerk	1'x1' White Green Floor Tile	NAD	
0302-02422-0 94	26 C	First	City Clerk	1'x1' White Green Floor Tile	NAD	
0302-02422-0 95	27 A	First	City Clerk	1'x1' White Green Floor Tile Mastic	NAD	
0302-02422-0 96	27 B	First	City Clerk	1'x1' White Green Floor Tile Mastic	NAD	
0302-02422-0 97	27 C	First	City Clerk	1'x1' White Green Floor Tile Mastic	NAD	
0302-02422-0 98	28 A	First	Mayor's Office	2'x2' Acoustical Ceiling Tile	NAD	
0302-02422-0 99	28 B	First	Mayor's Office	2'x2' Acoustical Ceiling Tile	NAD	
0302-02422-0 100	28 C	First	Mayor's Office	2'x2' Acoustical Ceiling Tile	NAD	
0302-02422-0 101	29 A	First	Meeting Room	Material Under Carpet	NAD	
0302-02422- 102	29 B	First	Meeting Room	Material Under Carpet	NAD	
0302-02422- 103	29 C	First	Meeting Room	Material Under Carpet	NAD	
0302-02422- 104	30 A	First	Council Chamber	Troweled-on Acoustical Ceiling Plaster	NAD	
0302-02422- 105	30 B	First	Council Chamber	Troweled-on Acoustical Ceiling Plaster	NAD	
0302-02422- 106	30 C	First	Council Chamber	Troweled-on Acoustical Ceiling Plaster	NAD	

Table 1 - Summary of Asbestos Laboratory Analytical Results (Cont.)

Lab ID	Field ID	Floor	Room	Description of Sample	Type of Asbestos	PLM Tot. % Asbestos
0302-02422- 107	31 A	Second	Hallway 1	1'x1' Grey Floor Tile	NAD	
0302-02422- 108	31 B	Second	Hallway 1	1'x1' Grey Floor Tile	NAD	
0302-02422- 109	31 C	Second	Hallway 1	1'x1' Grey Floor Tile	NAD	
0302-02422- 110	32 A	Second	Hallway 1	1'x1' Grey Floor Tile Mastic	NAD	
0302-02422- 111	32 B	Second	Hallway 1	1'x1' Grey Floor Tile Mastic	NAD	
0302-02422- 112	32 C	Second	Hallway 1	1'x1' Grey Floor Tile Mastic	NAD	
0302-02422- 113	33 A	Second/Third	Stairway Landing 2	1'x1' Brown w/ White Streaks Floor Tile	NAD	
0302-02422- 114	33 B	Second/Third	Stairway Landing 2	1'x1' Brown w/ White Streaks Floor Tile	NAD	
0302-02422- 115	33 C	Second/Third	Stairway Landing 2	1'x1' Brown w/ White Streaks Floor Tile	NAD	
0302-02422- 116	34 A	Second/Third	Stairway Landing 2	1'x1' Brown w/ White Streaks Floor Tile Mastic	NAD	
0302-02422- 117	34 B	Second/Third	Stairway Landing 2	1'x1' Brown w/ White Streaks Floor Tile Mastic	NAD	
0302-02422- 118	34 C	Second/Third	Stairway Landing 2	1'x1' Brown w/ White Streaks Floor Tile Mastic	NAD	
0302-02422- 119	35 A	Second	Purchasing	Sheetrock	NAD	
0302-02422- 120	35 B	Second	Purchasing	Sheetrock	NAD	
0302-02422- 121	35 C	Second	Purchasing	Sheetrock	NAD	
0302-02422- 122	36 A	Second	Waste Water	Sheetrock Joint Compound	NAD	
0302-02422- 123	36 B	Second	Waste Water	Sheetrock Joint Compound	NAD	
0302-02422- 124	36 C	Second	Waste Water	Sheetrock Joint Compound	NAD	
0302-02422- 125	37 A	Second	Planning 1	9"x9" White w/ Brown Streaks Floor Tile Under Carpet	CHR	5-15
0302-02422- 126	37 B	Second	Planning 1	9"x9" White w/ Brown Streaks Floor Tile Under Carpet	--	
0302-02422- 127	37 C	Second	Planning 1	9"x9" White w/ Brown Streaks Floor Tile Under Carpet	--	
0302-02422- 128	38 A	Second	Planning 1	9"x9" White w/ Brown Streaks Floor Tile Mastic Under Carpet	NAD	
0302-02422- 129	38 B	Second	Planning 1	9"x9" White w/ Brown Streaks Floor Tile Mastic Under Carpet	NAD	
0302-02422- 130	38 C	Second	Planning 1	9"x9" White w/ Brown Streaks Floor Tile Mastic Under Carpet	NAD	
0302-02422- 131	39 A	Second	Front Stairwell	Brown Linoleum	NAD	
0302-02422- 132	39 B	Second	Front Stairwell	Brown Linoleum	NAD	
0302-02422- 133	39 C	Second	Front Stairwell	Brown Linoleum	NAD	
0302-02422- 134	40 A	Second	Front Stairwell	Brown Linoleum Mastic	NAD	
0302-02422- 135	40 B	Second	Front Stairwell	Brown Linoleum Mastic	NAD	
0302-02422- 136	40 C	Second	Front Stairwell	Brown Linoleum Mastic	NAD	
0302-02422- 137	41 A	Exterior		Black Caulking Around Granite Window Sills	CHR	20-30
0302-02422- 138	41 B	Exterior		Black Caulking Around Granite Window Sills	--	
0302-02422- 139	41 C	Exterior		Black Caulking Around Granite Window Sills	--	
0302-02422- 140	42 A	Exterior		White Window Caulking	CHR	5-15
0302-02422- 141	42 B	Exterior		White Window Caulking	--	
0302-02422- 142	42 C	Exterior		White Window Caulking	--	

Table 1 - Summary of Asbestos Laboratory Analytical Results (Cont.)

Lab ID	Field ID	Floor	Room	Description of Sample	Type of Asbestos	PLM Tot. % Asbestos
0302-02422- 143	43 A	Exterior		Window Putty	NAD	
0302-02422- 144	43 B	Exterior		Window Putty	NAD	
0302-02422- 145	43 C	Exterior		Window Putty	NAD	
0302-02422- 146	44 A	Third	Recreation Department	1'x1' Grey w/ White Streak Floor Tile Under Carpet	CHR	10-20
0302-02422- 147	44 B	Third	Recreation Department	1'x1' Grey w/ White Streak Floor Tile Under Carpet	--	
0302-02422- 148	44 C	Third	Recreation Department	1'x1' Grey w/ White Streak Floor Tile Under Carpet	--	
0302-02422- 149	45 A	Third	Recreation Department	1'x1' Grey w/ White Streak Floor Tile Mastic Under Carpet	NAD	
0302-02422- 150	45 B	Third	Recreation Department	1'x1' Grey w/ White Streak Floor Tile Mastic Under Carpet	NAD	
0302-02422- 151	45 C	Third	Recreation Department	1'x1' Grey w/ White Streak Floor Tile Mastic Under Carpet	NAD	
0302-02422- 152	46 A	Third	Toilet 1	1'x1' Brown Spec Floor Tile	NAD	
0302-02422- 153	46 B	Third	Toilet 1	1'x1' Brown Spec Floor Tile	NAD	
0302-02422- 154	46 C	Third	Toilet 1	1'x1' Brown Spec Floor Tile	NAD	
0302-02422- 155	47 A	Third	Toilet 1	1'x1' Brown Spec Floor Tile Mastic	NAD	
0302-02422- 156	47 B	Third	Toilet 1	1'x1' Brown Spec Floor Tile Mastic	NAD	
0302-02422- 157	47 C	Third	Toilet 1	1'x1' Brown Spec Floor Tile Mastic	NAD	
0302-02422- 158	48 A	Third	Toilet 1, 2, and Hall	9"x9" Brown w/ White Streak Floor Tile	NAD	
0302-02422- 159	48 B	Third	Toilet 1, 2, and Hall	9"x9" Brown w/ White Streak Floor Tile	NAD	
0302-02422- 160	48 C	Third	Toilet 1, 2, and Hall	9"x9" Brown w/ White Streak Floor Tile	NAD	
0302-02422- 161	49 A	Third	Toilet 1, 2, and Hall	9"x9" Brown w/ White Streak Floor Tile Mastic	NAD	
0302-02422- 162	49 B	Third	Toilet 1, 2, and Hall	9"x9" Brown w/ White Streak Floor Tile Mastic	NAD	
0302-02422- 163	49 C	Third	Toilet 1, 2, and Hall	9"x9" Brown w/ White Streak Floor Tile Mastic	NAD	
0302-02422- 164	50 A	Fourth	DPW 1	9"x9" Brown w/ Yellow Streaks Floor Tile	NAD	
0302-02422- 165	50 B	Fourth	DPW 1	9"x9" Brown w/ Yellow Streaks Floor Tile	NAD	
0302-02422- 166	50 C	Fourth	DPW 1	9"x9" Brown w/ Yellow Streaks Floor Tile	NAD	
0302-02422- 167	51 A	Fourth	DPW 1	9"x9" Yellow w/ Brown Streaks Floor Tile	NAD	
0302-02422- 168	51 B	Fourth	DPW 1	9"x9" Yellow w/ Brown Streaks Floor Tile	NAD	
0302-02422- 169	51 C	Fourth	DPW 1	9"x9" Yellow w/ Brown Streaks Floor Tile	NAD	
0302-02422- 170	52 A	Fourth	DPW 1	Tar Paper Under 9"x9" Yellow w/ Brown Streaks Floor Tile	NAD	
0302-02422- 171	52 B	Fourth	DPW 1	Tar Paper Under 9"x9" Yellow w/ Brown Streaks Floor Tile	NAD	
0302-02422- 172	52 C	Fourth	DPW 1	Tar Paper Under 9"x9" Yellow w/ Brown Streaks Floor Tile	NAD	
0302-02422- 173	53 A	Fourth	DPW 2	Red Linoleum Under Carpet	NAD	
0302-02422- 174	53 B	Fourth	DPW 2	Red Linoleum Under Carpet	NAD	
0302-02422- 175	53 C	Fourth	DPW 2	Red Linoleum Under Carpet	NAD	

Table 1 - Summary of Asbestos Laboratory Analytical Results (Cont.)

Lab ID	Field ID	Floor	Room	Description of Sample	Type of Asbestos	PLM Tot. % Asbestos
0302-02422- 176	54 A	Fourth	DPW 2	Tar Paper Under Red Linoleum Under Carpet	NAD	
0302-02422- 177	54 B	Fourth	DPW 2	Tar Paper Under Red Linoleum Under Carpet	NAD	
0302-02422- 178	54 C	Fourth	DPW 2	Tar Paper Under Red Linoleum Under Carpet	NAD	

CHR Chrysotile Asbestos
PLM Polarized Light Microscopy
NAD No Asbestos Detected
-- Not Analyzed

Table 2 - Summary of Baseline IAQ Results

Fitchburg City Hall
718 Main Street
Fitchburg, Massachusetts
Sampling Dates: February 24 and 25, 2003

Location	Time	CO_2 (ppm)	Temp. (F)	R.H.	PID (ppm)	O_2 (%)	LEL (%)	CO (ppm)	H_2S (ppm)	SO_2 (ppm)
Back Exterior	7:20	310	23.0	23.5	0.0	20.7	-5	0	0	0.0
Council Chamber	7:25	533	79.1	34.0	0.0	20.7	-4	0	0	0.0
	11:20	396	79.5	20.1	0.5	20.9	-3	-2	0	-0.3
	13:10	380	78.5	--	0.5	20.9	-3	0	0	-0.3
Vets. Memorial Room	7:35	343	71.0	20.8	0.0	20.5	0	0	0	-0.2
	8:22	653	73.6	23.0	0.7	20.6	0	0	0	-0.4
	8:42	659	74.0	21.9	0.6	20.9	0	0	0	-0.4
	12:02	538	73.8	22.0	0.5	20.9	-4	0	0	-0.4
	13:00	432	75.4	--	0.4	20.9	-5	0	0	-0.4
Retirement Office	7:43	351	70.9	20.0	0.0	20.5	0	0	0	-0.2
	11:42	448	69.2	20.2	0.5	20.9	-4	0	0	-0.4
	13:20	478	74.8	--	0.5	--	--	--	--	--
Building Inspector	7:47	428	72.7	20.4	0.0	20.5	0	0	0	-0.3
	11:50	473	70.1	20.9	0.4	20.9	-4	0	0	-0.4
	13:30	552	75.2	--	0.6	--	--	--	--	--
Public Works	7:54	442	72.0	21.2	0.5	20.5	0	0	0	-0.4
	11:59	443	71.9	22.0	0.5	20.9	-4	0	0	-0.4
Outside Boiler Room	8:47	369	62.3	21.7	0.6	20.9	0	0	0	-0.5
	11:28	371	63.6	20.9	0.5	21.1	-4	-3	0	-0.4
Basement by Electrical Room	8:59	366	61.1	23.1	0.5	20.9	0	0	0	-0.4
	11:36	380	60.4	25.3	0.5	20.9	-5	-2	0	-0.3

CO_2 - Carbon Dioxide
ppm - Parts per Million
F - Degrees Fahrenheit
O_2 - Oxygen
R.H. - Relative Humidity
LEL - Lower Explosive Level
CO - Carbon Monoxide
H_2S - Hydrogen Sulfide
SO_2 - Sulfur Dioxide
-- - No Readings Collected

Table 3 - Estimated Quantities & Abatement Costs

Fitchburg City Hall
718 Main Street
Fitchburg, Massachusetts
Sampling Dates: February 24 and 25, 2003

Material	Floor	Room	Estimated Quantity	Estimated Abatement Cost
9"x9" White Floor Tile	Basement and First Floor	Mail Room and Treasurer	750 SF	$ 1,500.00
White Pipe Wrap Roll	Basement	Fuel Tank Room	3" dia. X 1'	$ 25.00
Aircell Pipe Insulation	Basement (Potentially All Floors)	Confirmed in Basement Toilet 2 and 3. Potentially located on all Concealed Water Lines Leading to Fountains and Bathrooms	75 LF (Confirmed)	$ 975.00
9"x9" Grey Floor Tile (under carpet in some areas)	First and Second Floors	Mail Room, Treasurer, Assistant Auditor and Retirement, Hall 1 Storage	1,700 SF	$ 3,400.00
9"x9" White w/ Brown Streaks Floor Tile (under carpet in some areas)	Stairway to Attic and Second Floor	Stairway Landing and Planning Dept. 1 & 2	475 SF	$ 950.00
Black Caulking Around Granite Window Sills	All Floors	Exterior	880 LF	$ 4,400.00
White Window Caulking	All Floors	Exterior	1,325 LF (70 Windows)	$ 8,750.00
1'x1' Grey w/ White Streak Floor Tile (under carpet)	Third	Recreation Department	525 SF	$ 1,050.00
Potential Asbestos-Containing Fire Doors	Basement	Boiler Room	2 Doors	$ 200.00
Potential Asbestos-Containing Vault Fire Doors	Basement, First, Second, Third, and Fourth Floors	All Vaults	12 Doors	$ 3,000.00
Potential Asbestos-Containing Elevator Brakes	Basement	Elevator	4 Breaks	$ 200.00
Potential PCB-Containing Light Ballasts	All Floors	Throughout	245 Ballasts	$ 500.00
Potential Mercury-Containing Light Tubes	All Floors	Throughout	826 Tubes	$ 1,500.00
			ESTIMATED ABATEMENT TOTAL	**$ 26,450.00**

APPENDICES

- Appendix H – 2012 Temporary Shoring Report

McKENZIE
ENGINEERING
COMPANY, INC.

July 9, 2012

Building Department
City of Fitchburg
718 Main Street
Fitchburg, MA 01420

Attn: Robert Lanciani
Building Commissioner

Re: Temporary Shoring Requirements for Damaged Roof Truss
City Hall Building
718 Main Street
Fitchburg MA

Dear Mr. Lanciani,

Per our meeting on Friday, July 6, 2012 with various City officials and this office, the following information is in regards to the temporary shoring requirements for the existing damaged roof truss. The City told us that they wanted the truss to be temporarily shored up so that the repairs would allow for safe removal of all personnel and furniture which would occur over the next two months, and that the entire building would be vacant by the time of first snowfall for the 2012/2013 fall/winter season.

We have included four (4) sketches, SK-1, SK-2, SK-3, and Sk-4 with this letter showing the temporary shoring requirements that will need to be installed. Upon proper installation of the shoring components, McKenzie Engineering will certify that the building can be safely accessed for the purposes of removal of all personnel and furniture for relocation elsewhere. Please be advised that we do not ensure the safe access within the building with additional roof live loads due to snow.

In the event that the building not be vacated prior to snow fall, this office should be contacted so that we can inspect the building to determine what additional shoring requirements would be required for safe support of these loads.

Please call if you have any questions.

Very Truly Yours,

COMMONWEALTH OF MASSACHUSETTS
PETER M. REYNOLDS
NO. 31822
REGISTERED PROFESSIONAL ENGINEER

ORIGINAL

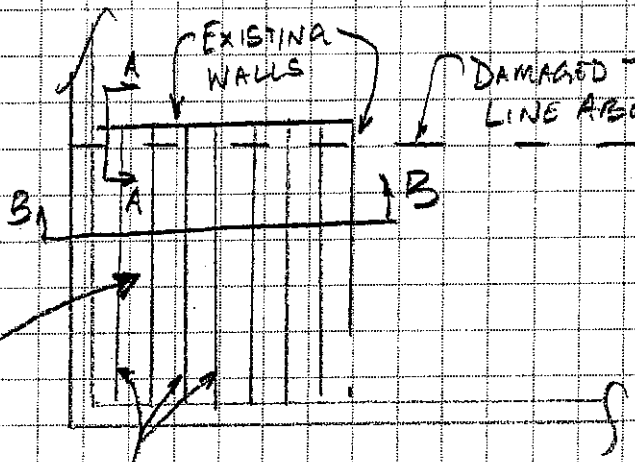
Peter M. Reynolds, P.E.

file:ME-3488\City Hall Truss Shoring Requirements Letter 07-09-2012

466 WHITNEY STREET
LEOMINSTER, MASSACHUSETTS 01453
WWW.MCKENZIEINC.COM
TELEPHONE NO. (978) 537-8210
FAX (978) 840-4147

McKENZIE ENGINEERING CO., INC.
305 Whitney Street
Leominster, MA 01453
(978) 537-8210 FAX (978) 840-4147

JOB ME-3488 - Hall Truss Reinforcement
SHEET NO. SK-1 OF
CALCULATED BY YJB DATE 7/9/12
CHECKED BY DATE
SCALE N.T.S.



* INSTALL NEW 5/8" PLYWOOD ON EXPOSED JOISTS IN THIS AREA AS NEEDED FOR WORK AREA SAFETY & TEMPORARY SHORING REQUIREMENTS

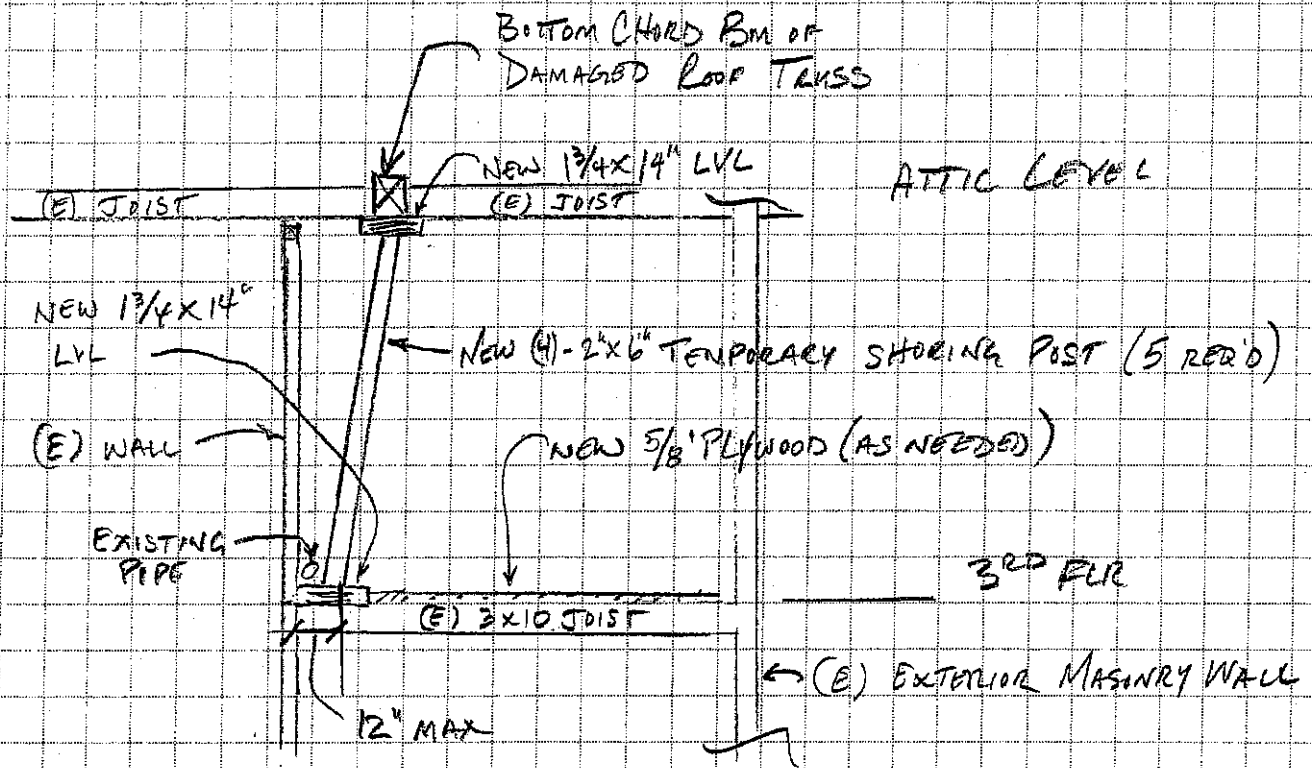
MAIN ST.

3RD FLR PLAN

(N.T.S)

McKENZIE ENGINEERING CO., INC.
305 Whitney Street
Leominster, MA 01453
(978) 537-8210 FAX (978) 840-4147

JOB ME-3488 City Hall Truss Reinforcement
SHEET NO. SK-2 OF
CALCULATED BY YJB DATE 7/9/12
CHECKED BY DATE
SCALE N.T.S



* Remove existing ceiling finishes as needed to allow for installation of 14" LVL directly to underside of bottom chord beam of damaged truss.

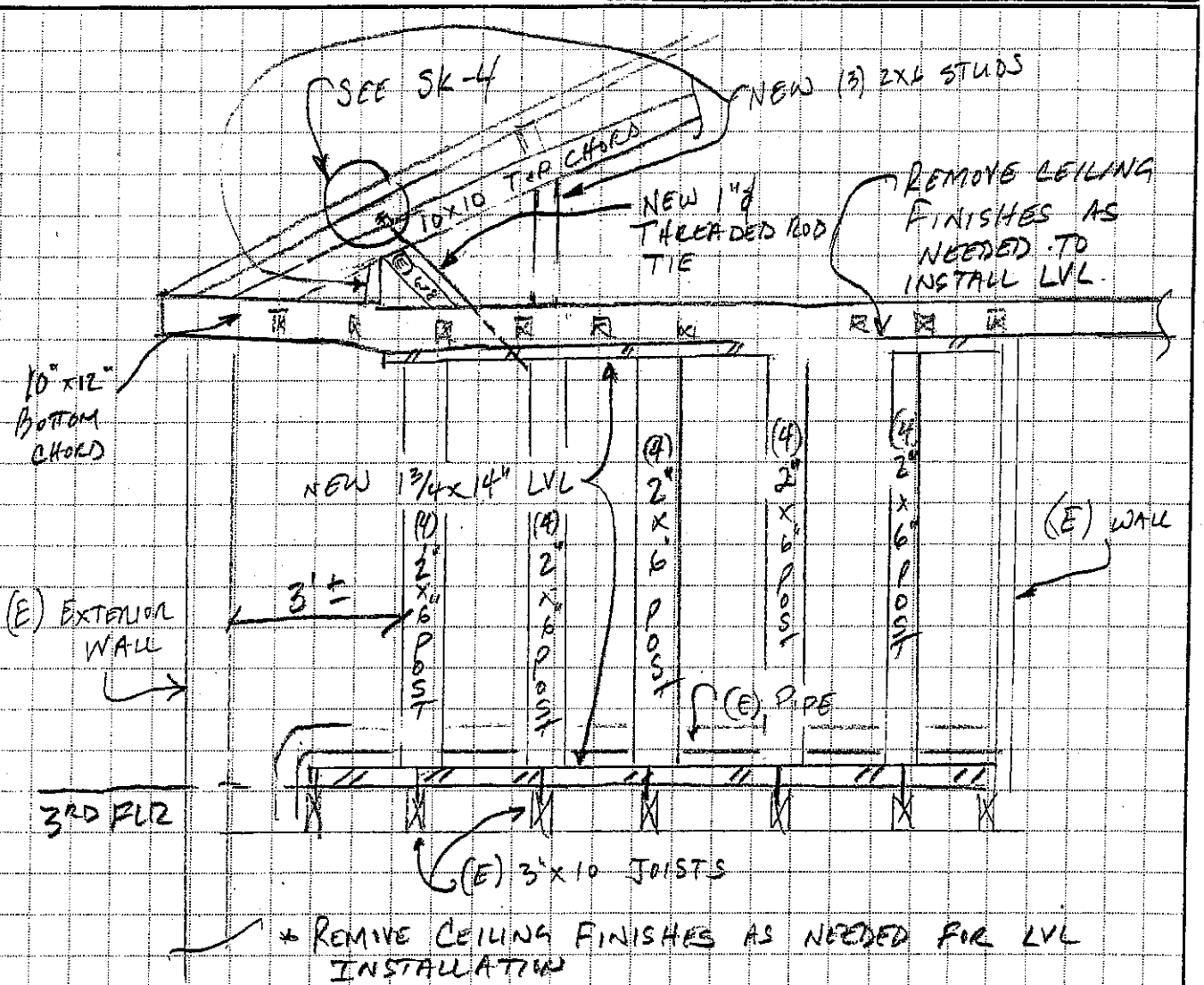
• Fasten LVL's to joists &/or beam w/ (3) - 6¾" long Trusslok screws @ all existing joist locations (typ)

Section A-A

(N.T.S.)

McKENZIE ENGINEERING CO., INC.
305 Whitney Street
Leominster, MA 01453
(978) 537-8210 FAX (978) 840-4147

JOB ME-3488 L.Y HALL TRUSS REINFORCE.
SHEET NO. SK-3 OF
CALCULATED BY YJB DATE 7/9/12
CHECKED BY DATE
SCALE N.T.S



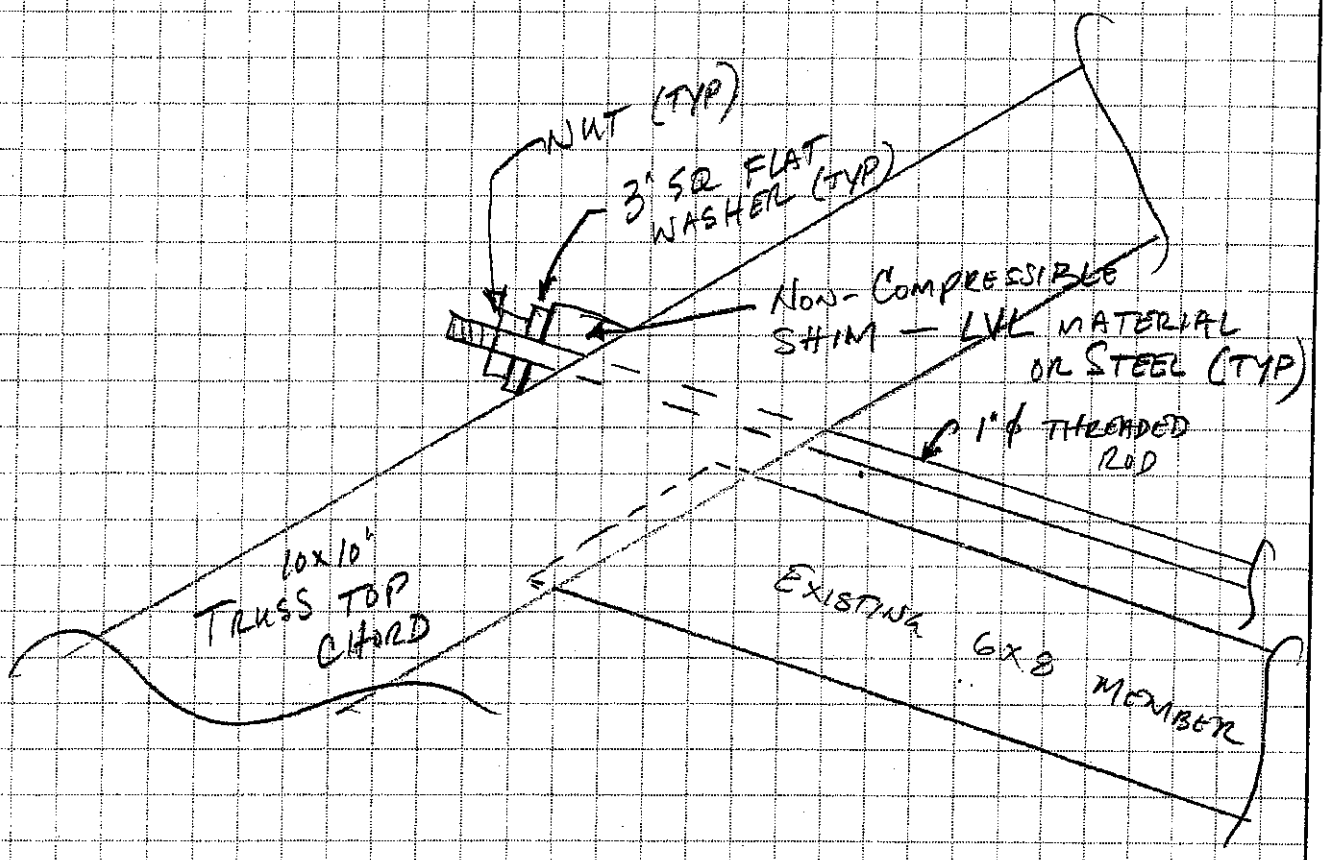
* REMOVE CEILING FINISHES AS NEEDED FOR LVL INSTALLATION
* INSTALL 14" LVL ON JOISTS (3RD FLR) & UNDERSIDE BOTTOM CHORD BM
* INSTALL NEW (4)-2"x6" TEMPORARY SHORING POST (5 REQ'D) CENTERED OVER EXISTING 3RD FLR JOISTS (TYP).
* NAIL 2x6" POST @ 12" O.C W/ (2) - 0.131X16d NAILS. (MIN)

SECTION B-B

(N.T.S.)

McKENZIE ENGINEERING CO., INC.
305 Whitney Street
Leominster, MA 01453
(978) 537-8210 FAX (978) 840-4147

JOB ME-3488 ITY HALL TRUSS REINF.
SHEET NO. SK-4 OF
CALCULATED BY JB DATE 7/9/12
CHECKED BY DATE
SCALE N.T.S



SK-4 TYPICAL THREADED ROD CONNECTION DETAILS

(N.T.S.)

APPENDICES

- Appendix I – 2012 Roof Truss Existing Conditions Assessment

653 Mount Auburn Street
Watertown, Massachusetts 02472
Telephone 617-926-6100 Telefax 617-924-4431 email: souzatrue@souzatrue.com

SOUZA, TRUE
AND PARTNERS, INC.
STRUCTURAL ENGINEERS

TERRY A. LOUDERBACK, P.E.
JEROME A. YURKOSKI, P.E.

June 29, 2012

Fitchburg Building Department
Fitchburg City Hall
718 Main Street
Fitchburg, Massachusetts 01420

Attention: Mr. Lenny Laakso, Commissioner of Public Works

Reference: Roof Truss Existing Conditions Assessment
Fitchburg City Hall
Fitchburg, Massachusetts

Dear Mr. Laakso:

At your request, we attended an on-site review on June 20, 2012 to review the conditions of the existing roof trusses along with the condition of the repairs completed on those trusses based on previous assessments.

Please be aware that a full inspection of all structural elements was not performed. The extent of our review was limited to only those roof truss elements that were directly identified previously as requiring repair or retrofit. Additionally, no intrusive probes or material tests were performed.

In conjunction with our field observations, we also reviewed the original report completed on October 26, 1999 by Souza, True, and Partners entitled “Roof Truss Inspection”.

GENERAL TRUSS DESCRIPTION

As previously identified, the last truss at the north end of the building is showing the greatest level of distress (this truss was previously identified as Truss T-1A).

The truss consists of heavy timber top and bottom chords along with heavy timber diagonals. Vertical members consist of vertical steel/iron tension rods.

Each end of the truss is also reinforced with an LVL member on each side of the top chord. The LVL's are connected to the original top chord with thru-bolts at approximately 2'-0" on center.

PREVIOUS CONDITIONS AND REPAIRS

As per the previous report, this particular truss was showing signs of distress and required a number of different repairs. Also, it should be noted that this truss was identified as "*a threat to the integrity of the building and safety of its occupants. Immediate measures should be taken to repair the truss prior to the onset of the coming snow season*." At that time, the following was recommended:

1. The top chord of the truss was to be first jacked up its original position.
2. At the time, one of the truss diagonals fell away and required to be replaced.
3. The top chord was to then be reinforced with new LVL reinforcing elements.
4. The diagonal was then to be mechanically connected to the new LVL's with a 16 gauge angle fastened to diagonal and the new LVL's with 10d nails.
5. All nuts also required to be tightened at ends of the steel rods.

After review of the present day condition, it appears that some, but not all, of the repairs were completed at that time.

Specifically, items two through four appear to have been completed per the direction of the original report: the loose diagonal was replaced, the reinforcing LVL's were added to the truss, and the new 16 gauge angles were added and fastened between the LVL's and the existing truss.

However, it appears (by comparing photographs of the bow or deflection in the roof taken in 1999 to present day conditions – See Photograph A) that this work was completed without jacking the truss up to its original condition prior to completing work. As a result, the unsightly and concerning deflection at the east end was not remedied.

Additionally, it does not appear that the nuts on the tension rods were tightened (see Photograph B). Comparing photographs taken in 1999 to present day conditions shows the same condition exists now as did then.

NEW OBSERVATIONS

As mentioned previously, because the truss was not jacked into place, the roof still has an obvious deflection. Also, the nuts on the tension rods are not tightened.

Beyond these items, new problems were discovered:

1. While the diagonals were put back into place, these items do not appear to be in full bearing (contact) with the connecting members (see Photograph C). This is likely due to the shifting of the truss over time. For the truss to resist forces as originally designed we recommend providing mechanical connections at all such connections to assure proper load transfer.

2. The east end of the truss is SEVERELY corroded and the structural integrity of the truss significantly compromised (see Photograph D). It appears that the bearing location at the end of the truss and the wood sill supporting the truss is partially or completely crushed due to a combination of heavy loads and loss of section due to rot.

RECOMMENDATIONS

At this point, this truss is significantly distressed at the point of bearing at the east end of the truss. ***THIS ROOF TRUSS POSES A THREAT TO THE STRUCTURAL INTEGRITY OF THE BUIDLING AND THE SAFETY OF ITS OCCUPANTS. THIS TRUSS MUST BE REPAIRED OR REPLACED PRIOR TO FIRST SNOW OF 2012.***

We recommend the following:

1. The truss **MUST** be jacked back into its original position. Due to the nature of the repairs, shoring should be included for the entire length of the truss (both top and bottom chords) until all repairs are complete.

2. All splintered/rotted/compromised portions of the top and bottom chord of the truss must be completely removed and replaced. After replacement, new LVL's or steel channels should be added to connect the existing elements to the new elements. Alternately, the chords may be completely replaced.

3. The existing rotted wood sill must be replaced. The new wood sill must be epoxy anchored into the existing wall and a new end bearing of the truss must be bolted to the new sill plate.

4. All existing nuts on steel/iron tension rods must be fully tightened and in contact with the existing bearing elements. Due to thread lengths, either new blocking or new rods may be required.

5. All existing heavy timber diagonals must be mechanically connected to the top and bottom chords. Existing connections should be removed and replaced with ¼" steel angles thru-bolted into the diagonals and lag bolted into the chords.

Additionally, it is expected that this repair/replacement will be complex due to the age and location of the truss. We further recommend that a contractor with experience in large scale renovations of historic buildings be contacted for the most economical solution.

If you have any questions or concerns, please do not hesitate to call or email.

Sincerely,

SOUZA, TRUE AND PARTNERS, INC.

Todd P. Blake, P. E.
Associate

Cc: Mr. Jerome Yurkoski, ST&P

Attachments: Photographs A through D

Photograph A: Exterior View of East End of Roof

Photograph B: Tension Rod

Photograph C: Diagonal Bearing

Photograph D: End Bearing of Truss

APPENDICES

- Appendix J – 2003 Study by Kang Associates, Inc.

FITCHBURG CITY HALL
FEASIBILITY STUDY

Building Committee:
Michael Gallant, Building Commissioner
Thomas Caputi, Assessor
Larry Cassassa, City Planner
James Shuris, DPW Commissioner
Nancy Wilson, Purchasing Agent

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DRAFT
September 19, 2003

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INTRODUCTION

The City of Fitchburg commissioned a feasibility study to identify building deficiencies and space needs of municipal offices and to propose options for renovation and/or new construction. Kang Associates, Inc., as leader of the Design Team worked with the Building Committee, interviewed staff, inspected the existing building and parking structure, reviewed available previous documents, and coordinated engineers and other sub-consultants. This report is the culmination of these efforts which spanned a period of approximately twelve months.

As the liaison between the City and its consultant, the Building Committee was charged with providing information and direction to the Design Team and reviewing and evaluating the results of the study. Building Commissioner, Michael Gallant, served as the primary contact between the Building Committee and the Design Team. Mayor Daniel Mylott and R. Pontbriand of the Disability Commission provided invaluable cooperation and input throughout the process. Members of the Building Committee for the duration of this study were:

Michael Gallant, Building Commissioner
Thomas Caputi, Assessor
Larry Cassassa, City Planner
James Shuris, DPW Commissioner
Nancy Wilson, Purchasing Agent

Individual Design Team members who contributed their expertise to this study and the resulting report are:

Architect:	Kaffee Kang Kang Associates, Inc.
Structural Engineer:	Richard Foley Foley & Buhl Engineering, Inc.
Mechanical Engineer:	Bruce MacRitchie MacRitchie Engineering, Inc.
Electrical Engineer:	Richard LeBrun MacRitchie Engineering, Inc.
Environmental Consultant:	William Hopper R.I. Analytical Laboratories, Inc.
Cost Estimator:	Charles McGrory D.G. Jones and Partners, Inc.

The following existing documents were reviewed and provided important background information:

- Floor plans of City Hall, dated July 6, 1955, prepared by the Engineering Division of the Department of Public Works, Fitchburg, MA.

- Broad Street Extension plan, dated March 30, 1956, prepared by the Engineering Division of the Department of Public Works, Fitchburg, MA.

- City Hall Garage and Parking Lot plan, dated April 1964, prepared by the Engineering Division of the Department of Public Works, Fitchburg, MA.

- Roof inspection report, dated October 26, 1999, prepared by Souza, True and Partners, Inc., Watertown, MA.

- "Report to the City of Fitchburg Conditions of the Exterior Surfaces Fitchburg City Hall", dated December 16, 1999, prepared by Knight, Bragge & Anderson, Inc., Boston, MA.

- Assessor's map #42, no date, Fitchburg, MA.

EXECUTIVE SUMMARY

Located prominently on Main Street, the Fitchburg City Hall, although not listed in state or national historical registries, is considered a local landmark by its community. Unfortunately, the building and site have fallen into disrepair and changing functional needs have not been met. Deficiencies of various building components and systems have been previously identified. Full access for the disabled is not being provided and the City is vulnerable to civil action under the Americans with Disabilities Act. Alterations to accommodate changing space needs have been made in a piecemeal fashion, resulting in inefficiencies. The purpose of this study was to conduct a comprehensive study of the existing building and site, including the parking structure, and to proposed a full range of options, including demolition, renovation and expansion, and new construction. To this end, the work of this study included an evaluation of the existing building and site, space programming, conceptual design options, and cost estimates.

Existing Conditions

Inspections of existing building conditions were conducted by the architect, structural engineer, mechanical engineer, electrical engineer, and environmental consultant. Deficiencies are identified and improvements recommended for code compliance and continued serviceability of the building. Proposed architectural work includes complete repointing of exterior brick walls, window replacement, re-roofing, a new elevator, new stairways, all new interior finishes, improvements to meet current building and handicapped codes, and hazardous materials abatement. Recommended structural improvements to City Hall include repair/replacement of damaged roof trusses, the addition of columns to meet current loading requirements for office use, and seismic upgrades. In light of the evidence of extensive deterioration, complete demolition and re-construction of the garage structure is recommended.

At this time, the most urgent heating ventilating and air conditioning (HVAC) deficiency is the lack of ventilation. As such, the minimum recommended improvement is to provide new mechanical ventilation systems. Should more extensive renovations of the existing building be undertaken, replacement of the hot water distribution system is recommended. The existing fire protection system requires a double check valve assembly. With the recommended addition of attic insulation, a dry sprinkler system will be required to prevent freezing of pipes. All new plumbing systems are recommended with new interior layouts and bathroom locations. All new electrical systems are recommended including a new exterior transformer, a new emergency generator, if desired, a new functioning fire alarm system, all new energy efficient lighting fixtures, and better organized data and telephone wiring.

Space Programming

Space needs were investigated through a questionnaire distributed to municipal department directors, interviews with the same individuals, and first-hand visual assessment of existing spaces and functions. Almost without exception, department directors voiced the need for privacy and conference space. The need for additional storage, meeting spaces, and convenient parking, were also consistently identified. The existing building also lacks code compliant stairways, elevator, and public bathrooms. The layout of the existing building is very inefficient resulting in inequities in the distribution of space amongst the various departments, convoluted circulation routes, and less than ideal adjacencies. With a stone foundation, the existing basement is perpetually damp and often flooded. Although improvements can be made, moisture cannot be completely eliminated, making the basement unsuitable for office use. As such, the existing building is not adequately sized to meet all identified space needs.

Design Options

Analyses of existing conditions and the space program reveal that the existing building is deficient. To meet functional needs and to provide a building in good condition, three distinct approaches were explored:

- a complete renovation of the existing structure with the addition of a third floor to the original 1852 portion of the building (Scheme A);

- a complete renovation of the 1852 portion with the addition of a third floor and demolition of the 1875 portion and a two story addition (Scheme B); and

- demolition of the entire existing structure and construction of a new City Hall building (Schemes C and D).

In the third approach, two alternative new construction schemes were presented. Scheme C proposes to locate a new building in the same general location as the existing structure. Scheme D proposes to locate a new building at the rear of the site, leaving the front of the site, facing Main Street, open for landscaping and public use. The Committee eliminated Scheme D, preferring Scheme C for the new construction option, citing the importance of City Hall's continued presence on Main Street.

As all three approaches entail extensive scopes of construction work and associated costs, a fourth approach (Scheme E) was added to the mix of options. Scheme E proposes the minimal alterations required to restore the existing building to fair condition and meet all current code requirements. No additional space would be provided and minimal re-planning of existing spaces are proposed, only those impacted by alterations required to accommodate the handicapped.

As the 1875 portion of the building is more problematic in terms of both functional efficiency and physical condition, Scheme B, which replaces the 1875 portion with a new addition distinguished itself as the most advantageous solution. Scheme E, although less costly, does not meet address many current space problems and does not adequately prepare the existing building for long term maintainability.

Cost Estimates

Schemes A, B, C, and E were developed to a level of detail that would allow preliminary cost estimates to be prepared, with the ultimate goal of allowing an equitable order-of-magnitude comparison of the four approaches. To this end, preliminary floor layouts and outline specifications were prepared.

Recommendations

Amongst all options, Schemes B and C distinguish themselves as the two best, though divergent, approaches to meet the needs of the City. As the 1875 portion of the building is more problematic in terms of functional efficiency and physical condition, Scheme B, which replaces the 1875 portion with a new addition, is the most advantageous renovation and expansion solution. The major assets of Scheme B are:

- A new primary handicapped accessible public entrance is created at the rear of the building, directly related to parking.

- The traditional Main Street façade is maintained and preserved.

- The 1875 portion of the building is demolished and a more efficient two-story addition is introduced in its place.

- A large public meeting room is provided at the entrance level and can be independently accessed for use after business hours.

- Partial occupancy during construction is possible.

Scheme E, although less costly, does not address many current space problems and does not adequately prepare the existing building for long term maintainability.

Scheme C is the preferred approach to new construction primarily because City Hall's presence on Main Street is maintained. The major assets of Scheme C are:

- A new building can be designed to meet the functional needs of City Hall and the particular characteristics of the site.

- A new building provides the most current technologies, materials, and building systems.

- A new primary handicapped accessible public entrance is created at the rear of the building, directly related to parking.

- A large public meeting room is provided at the entrance level and can be independently accessed for use after business hours.

Ultimately, selecting between renovation and expansion and new construction is a value judgement that can only be made by those who represent the City of Fitchburg.

EXISTING CONDITIONS

The original Fitchburg City Hall, built in 1852, contains approximately 19,000 square feet on three floors, including a basement. The lower portions of the large auditorium and stage on the second floor has been converted for office use by the installation of a suspended acoustic ceiling. In 1875, a five-story, including basement, addition increased the total size of the building to approximately 35,000 square feet. Many alterations have been haphazardly made to the building in its long history. The building is in dire need of a comprehensive plan for capital improvements.

Site

The existing building is located at 718 Main Street in the heart of the old "downtown" area of the city. (See Figure 1.) The street allows two-lane, one-way traffic, from east to west, and metered curbside parking. Like its retail neighbors, the building is situated close to the street, up to the sidewalk, with no street trees to soften its presentation. Its height and mass are compatible with adjacent and nearby structures, forming a comfortably scaled urban street space. The building occupies the south side of a gently curving section

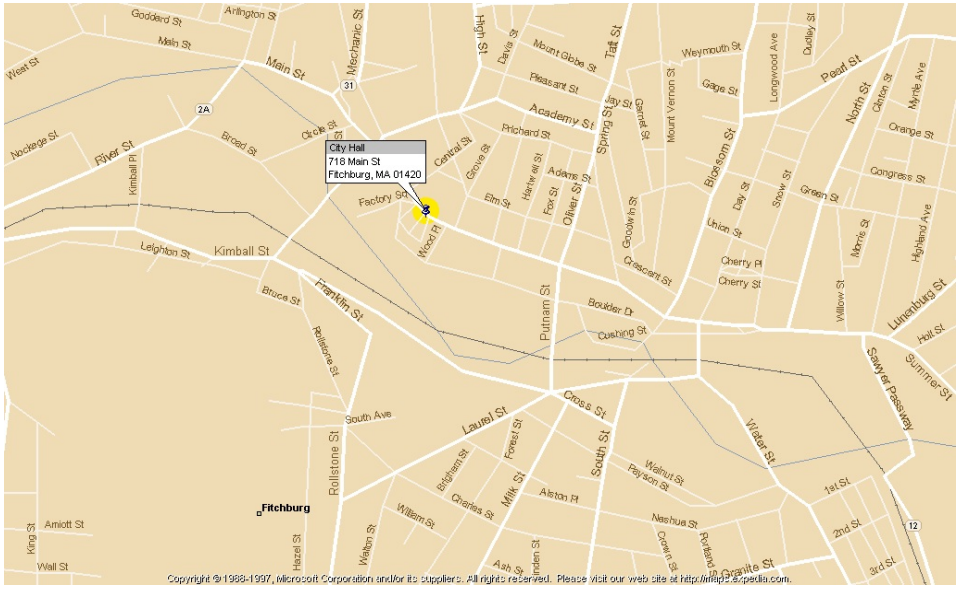


Figure 1: Locus map.

Figure 2: Front view.

of Main Street, allowing an approaching visitor to see the front façade in almost three-quarter view. (See Figure 2.) On the west side of the building is a small privately owned park space that provides welcome visual relief from the urban street environment. The backdrop of open skies and park trees behind the City Hall allows a clear view of the building's classic roof form and silhouette for visitors approaching from the east. These special characteristics of its particular location enhance the building's presentation to the public, creating an air of ceremony and importance.

From Main Street, vehicles can access the City Hall site by way of a one-way right-of-way that circumscribes three sides of the building. This narrow lane allows reserved curbside parking for staff and provides access to parking lot at the rear and a small short-term parking lot on the west side of the building. The site slopes from Main Street downward to the back of the site. Taking advantage of this slope, additional parking is provided on a lower level, below the rear parking area. Vehicular access to the lower parking area is not easy to identify or find for the visitor approaching on Main Street. The only pedestrian connection from the lower parking area to City Hall is indirect and circuitous, by way of the parking lots. In addition, visual security of the lower parking area is poor. All these factors contribute to the lower parking area never being used. The building is completely surrounded by asphalt paving in poor condition. There is clear evidence of failure in the expansion joints between the parking structure and the on-grade parking areas. Exterior lighting is very inadequate, provided only by fixtures mounted to the building. There is no landscaping on site. The only visual relief from the asphalt is the park to the west of the building.

Building Design

Figure 3: Dormer on west side.

The existing building consists of two sections, the front two-thirds of the mass dates back to 1852 and the rear one-third was added in 1875. Through the years, the City Hall has witnessed many modifications, including the 1875 addition, that have not respected the original architecture. Both sections have brick exteriors, but the similarity ends there. The original building has a simple gabled roof with a strong cornice. The addition has full shed dormers on the east and west sides that interrupt the original cornice line. (See Figure 3.) The original building has two floors above grade and the addition has four floors above grade, including the dormer level. The floor levels above the first floor do not align between the two sections, resulting in windows that do not align or match in size. There are several small structures appended to the base of the building that serve various functions. One accommodates the abandoned wheelchair lift. (See Figure 4.) One originally provided access to the public bathrooms in the basement. Others shelter service entrances. And finally, there is a fire escape attached to the rear wall of the 1875 section. (See Figure 5.) These

Figure 4: Abandoned wheelchair lift enclosure.

Figure 5: Fire escape on rear wall.

masses are very poorly integrated into the architecture and detract from the general appearance of the building. There is a conglomeration of exterior materials including different types of brick and different window configurations. The most appealing feature of the building is the symmetrical Main Street façade.

Entrances

Pedestrians are most likely to approach the building from Main Street and enter the historical front door. Although this entrance is ceremonial and easily identifiable, it is not accessible by the disabled. Visitors parking their cars in available parking areas must cross the vehicular right-of-way surrounding the building. There is no entrance on the south side of the building. The only other entrance is on the west side, between the 1852 and 1875 sections of the building. Originally a symmetrical design, there was a matching entrance on the east side that has long been abandoned. Recessed in an arched opening, the door is not readily visible from the rear parking lot, but easily identifiable from the short-term parking lot on the west side. This is unmistakably a side entrance, lacking the ceremonial configuration of the front. It is also not accessible by the disabled. A wheelchair lift was added next to this entrance, but has since been abandoned because it had many functional problems, including inadequate maneuvering clearances. As such, there are no handicapped accessible entrances to the City Hall. A service entrance on the west side of the building provides access to the basement by way of interior steps. A steep make-shift ramp is set over the steps to unload delivered supplies.

Structure

The existing building and parking structure were inspected by Richard Foley of Foley & Buhl Engineering, Inc. and his letter report is appended to this document. (See Appendix B.) As no existing structural drawings were available, several exploratory holes were made in the existing

construction, at the direction of Mr. Foley, to allow observation of the general nature of the existing framing system. Extensive further exploratory holes would be required to definitively determine the framing. Because the building is currently occupied, this was not undertaken at this time. A previous inspection of the roof trusses was conducted by Souza, True, and Partners and their report was reviewed by Mr. Foley.

The existing structure consists of ordinary wood framing supported, on the exterior, by unreinforced masonry walls and, on the interior, by a combination of granite and steel posts and masonry walls. A calculation of existing floor beams indicates they are insufficient to support office loading as required by current code. The addition of several columns on all levels, to reduce the spans of the existing beams, is recommended. Existing joists are adequately sized to support office loading provided the notched end condition is corrected by adding joint hangers. Repairs were observed on two roof trusses that have previously failed. Complete replacement of these trusses has been requested by the building inspector.

In determining the need for seismic upgrades, the assessed value of the existing building must be considered. The City Assessor's office records the value of the building alone at $2,958,900. Because even recommended minimal alterations are anticipated to exceed $1,479,450 or 50% of the assessed value of the existing building, the structure would be classified as seismic category 2, in accordance with the building code. As such, the masonry walls will require connection to the floor and roof diaphragms.

The existing parking structure consists of precast concrete beams supported on reinforced concrete spandrel beams, columns, and retaining walls. A bituminous concrete topping covers the precast concrete and is exposed to the elements. Water stains below the upper level indicate leakage is prevalent, suggesting unobservable deterioration of the precast concrete elements should be suspected. The beams and columns exhibit distress in several locations. (See Figure 6.) A large

crack has developed along one retaining wall. (See Figure 7.) The adequacy of the original design of the retaining walls is unobservable. Complete replacement of the parking structure is recommended over costly major repairs and reconstruction.

Figure 6: Cracks in spandrel beam of garage.

Figure 7: Crack between garage and on-grade parking lot.

Exterior Envelope

The exterior building envelope protects the occupants from inclement weather and the structure from deterioration. The integrity of the exterior envelope is critical in ensuring the continued stability of any building. Primary components of the exterior envelope include exterior walls, windows, roofing, flashing, and insulation.

The existing exterior masonry walls are solid load-bearing brick with stone foundations. There is no air space in the exterior wall assembly as would typically be included now. Because brick and mortar are very porous materials, an air space between exterior and interior wythes of masonry is very effective in providing a channel to drain moisture that will inevitably penetrate. In

the absence of an air space, some moisture can be expected to migrate through the exterior walls. Sealing of exterior brick surfaces in not recommended since this would prevent trapped moisture from escaping. Accepting that some moisture will penetrate exterior walls, interior wall finishes should be furred away from the inside masonry surfaces. This furred space is ideal for rigid insulation which is not adversely affected by moisture and will retain its thermal qualities. The original construction drawings for the building show no insulation within the exterior wall assembly.

Figure 8: Open mortar joints.

Figure 9: Different types of brick.

The masonry is in fair to poor condition. Although there is no evidence of active moisture penetration through the exterior walls at this time, open and deteriorated mortar joints was observed in many areas. (See Figure 8.) A general cleaning and complete re-pointing are recommended to prevent further deterioration and potential damage to interior finishes, and more seriously, the structural integrity of the exterior walls. Broken bricks should be replaced with new bricks that match in color, texture, and size. Embedded items should be removed below the surface and patched to eliminate sources of water migration. The exterior masonry walls are not only in poor condition, but they are unattractive. As the building underwent changes through the years, several different types of brick and mortar were used to infill and patch existing walls. (See Figure 9.) This conglomeration of brick and mortar types detract from the general appearance of the building.

Stone masonry can be found around the entire building. Some very intricate custom stonework can be found on the front Main Street elevation, including the front steps and stoop. (See Figure 10.) This stonework is in poor condition and needs to be repaired and/or replaced. A more careful inspection will be required when construction documents are prepared to identify specific elements and extent of repair and replacement.

Figure 10: Detailed stone at Main Street entrance.

Figure 11: Mixture of different slate tiles.

The building's original copper roofing was covered with slate in 1880[1]. (See Figure 11.) The slate, a considerably heavier material than metal, has likely contributed to the failure of the two roof trusses that have been repaired. The other roof trusses remain in jeopardy without additional reinforcement or lightening of the roof load. Individual slate tiles have been replaced through time as they failed, creating a conglomeration of types. Cracked and chipped slate tiles are still evident. Although slate is a very durable material, the nails securing them to the roof have undoubtedly deteriorated through time. Fallen slate tiles are evidence that the nails, copper or wrought iron, have started to fail. Considering their age, the nails are either copper or wrought iron. Wrought iron would be subject to rust and electrostatic action, as the nails are in contact with the underlying

[1] Knight, Bragge & Anderson, Inc., "Report to the City of Fitchburg condition of the Exterior Surfaces Fitchburg City Hall," p. 3.

Figure 12: Falling slate tiles on dormer.

Figure 13: Single pane wood windows.

copper roofing. Rotted ends of some roof trusses is evidence of previous, if not active, water penetration through the roof. In the absence of a regularly scheduled maintenance routine, the condition of the roofing system, including flashing, is suspect, even if individual slates are in fair to good condition. With these considerations, complete replacement of the existing slate with a new standing seam metal roofing is recommended. The metal roofing will be less expensive than slate and yet provide the texture, interest, and scale appropriate to an institutional structure that asphalt shingles cannot. Metal roofing will also provide long-lasting and maintenance-free protection. Terne is an alloy of lead and tin that provides a natural grey color that requires no protective coatings that can potentially fail, like painted steel. Copper also offers a natural finish, but its costs can be prohibitive. As the eaves are quite high and there is pedestrian and vehicular access close to the building on all sides, it would be prudent to include snow guards.

Slate also covers the dormer walls of the 1875 section of the building. (See Figure 12.) In poor condition, this material is unattractive as a siding material. If the dormers are to remain, a more appropriate siding materials should be selected.

Currently there is no insulation in the exterior walls or below the roof. The building inspector is reluctant to add insulation for fear that snow will accumulate and add to the roof load.

Insulation should be added to the attic and adequate ventilation above the insulation should be provided to prevent ice dams. Ice dams prevent melting snow from running off the roof, forcing it, instead to flow down into exterior walls. Water within exterior walls can cause considerable damage to interior finishes, as well as, the structural integrity of the bearing walls if re-freezing occurs. To prevent ice dams, ridge vents can be easily added with the re-roofing work and soffit vents with the replacement of the cornice trims.

The building has a combination of window types, some original wood windows with single glazing and storm sash and some replacement aluminum windows. (See Figure 13.) Storm sash is inherently problematic. To be effective, the space between the window and the storm sash must be tightly sealed, potentially trapping moisture that can rot the wood. If the space is vented, the wood windows will not rot, but thermal efficiency is compromised. Many of the existing wood windows show signs of rotting and deterioration. The aluminum replacement windows are of poor quality and are incongruous with the traditional appearance of the building. New wood windows with aluminum cladding, insulating glass, and divided lites are recommended to increase thermal performance, improve operation, and match, as closely as possible, the original window designs. With a new mechanical ventilation system, windows do not have to operate, but the option to open widows during temperate weather conditions is usually highly desirable to building occupants.

Building Interior

Interior finishes help protect a building's structure from fire hazards and general wear and tear. Materials characteristics, such as sound transmission, resilience, and light reflectance, combine to define the comfort and functionality of the interior environment. Utilitarian finishes are used throughout, selected undoubtedly for their low initial cost. But they are now well worn and easily beyond their intended life expectancy.

There are many different flooring materials: carpeting, vinyl composition tile (VCT), and the original wood strip flooring. New finish flooring is recommended throughout. All new carpeting throughout the offices is recommended. Carpeting is reasonable in cost, comfortable under foot, relatively easy to maintain, and absorbs sound. Many colors, textures, and styles are available to create an attractive floor finish. New carpeting should be commercial grade nylon loop type, directly glued down to underlayment. This method of securing carpeting increases durability although some resilience is sacrificed when compared with a carpet and pad type installation. Cork tiles are proposed for the corridors. More expensive than carpeting and less expensive than hardwood, cork is more durable and maintains its appearance better than carpeting. It can be refinished like hardwood flooring. It provides good resilience for comfort under foot and absorbs sound well. Three different warm natural tones are available. For highly trafficked areas, cork is a good choice. In the bathrooms, ceramic tile is recommended, providing excellent durability and easy maintenance. Because the areas of the bathrooms are small, the higher cost of ceramic tile over resilient flooring will be negligible. New plywood underlayment should be installed throughout all floor areas to ensure that new flooring will not wear unevenly and will not telegraph imperfection in existing substrates.

Existing walls are a combination of original plaster and gypsum wallboard and plywood paneling from later alterations. With the recommended re-organization of interior spaces the replacement of building systems, it is sensible to replace all the existing wall finishes with new veneer plaster on gypsum wallboard base. This approach avoids the difficult problems of matching new to partched surfaces. New wall finishes will ensure that requisite fire ratings can be achieved. Veneer plaster provides a smooth hard finished surface that takes paint well and adds minimal, if any, additional cost over regular gypsum board. To improve durability, ease maintenance, recall historic details, and add scale, a wood wainscoting will maintain its appearance and be easier to maintain than a painted finish. Acoustic insulation should be added to office and conference room walls to improve privacy.

Existing ceilings are predominantly acoustic tile. Acoustic ceilings are inexpensive, allow easy access to services running above, and provide good sound attenuation. As access above existing ceilings will be required to make structural improvements and install new ventilation systems, re-use of existing ceilings and light fixtures is not practical. Complete replacement is recommended. Existing ceiling heights are generally high to clear existing window heads. High ceilings are energy inefficient, requiring the HVAC system to heat or cool a great volume of air. Lower acoustic tile ceilings are commended throughout. A 2x2 tegular lay-in acoustical tile system is recommended for the hallways and 2x4 lay-in tiles are recommended for the offices. Although the tegular edged tiles are slightly more expensive, they are more attractive and their smaller size is more appropriate for the smaller width dimensions of hallways. A non-directional tile is preferred so that tiles can be placed in any direction. The wood structure above the suspended ceiling cannot be left unprotected. Either upwardly acting sprinkler heads need to be installed or the wood must be covered with non-combustible materials, such as gypsum board. The concealed space above the ceilings can be used for ventilation and air conditioning ducts. A raised soffit can be designed at the window heads to preserve the benefits of natural light.

Code Compliance

Although an extensive code analysis has not been conducted for this study, a general assessment of the building's conformance to the Massachusetts Building Code, 6th Edition, and the Massachusetts Architectural Access Board (MAAB) code, and the Americans with Disabilities Act Accessibility Guidelines (ADAAG) has been made.

Chapter 34 of the MA Building Code governs additions and renovations to existing buildings. Because they can seat over 50 people, the two existing meeting rooms on the first floor are classified as assembly use, A3. The remainder of the building is classified as business, B. In any renovation and expansion, these two use groups will remain the same and there is no increase in the hazard

index. As such, alterations can be made with materials similar to the existing ones. New building systems must be in full compliance with current code requirements.

The existing building can be classified as Type 3B construction, which is defined as exterior masonry walls and any interior structural materials. In this classification, the two use groups, A3 and B, can be either be separated or non-separated. Non-separated mixed uses must conform to the more restrictive requirements of the two use groups. The allowable area/floor can be calculated as follows:

A3 use, Type 3B construction	=	8,400 SF/fl.
100% increase for sprinklers	=	16,800 SF/fl.
150% increase for 75% additional perimeter	=	25,200 SF/fl.
20% reduction for multi-story building	=	20,160 SF/fl.

The allowable height for the building is 3 stories and 50 feet above grade. The existing building is approximately 9,500 SF/fl. and the 1875 portion is 4 stories above grade, conforming to the allowable area, but not the height restriction. This is a pre-existing code violation and the need to correct this condition in any renovation is dependent on the extent of alterations and the building inspector's judgement. Any addition or new construction must conform to current code requirements.

Figure 14: Out-swinging doors.

The one type of code violation that must be corrected is insufficient egress, as determined by the building inspector. The upper two floors of the 1875 portion of the

building does not have two code compliant means of egress. The one interior stairway is not enclosed. The exterior fire escape is no longer an acceptable means of egress. This code violation is a safety concern and every effort should be made to correct it. On the second floor of the 1852 section of the building, office doors swing out into the hallway, effectively reducing the clear width of the horizontal egress component. (See Figure 14.) Only spaces with an occupancy greater than 50 need to have doors swing outward, in the direction of egress.

The ADA is not a code, but a federal statute that prohibits discrimination against people with disabilities. Because the ADA is so broad and enforced through case law, it is impossible to guarantee full compliance to its intent. The Department of Transportation has published a guideline (ADAAG) which in keeping with the intent of the ADA, but it must be emphasized that this is not a code and conformance to it does not preclude any individual's right to file a lawsuit under the ADA. The MAAB has developed its code, which is enforced by the local building official and applies to all public buildings in Massachusetts, to conform with the ADAAG and the intent of the ADA. The MAAB code includes all the recommendations of the ADAAG and, in come cases, more restrictive requirements. As such, the MAAB code should be used as the evaluating criteria for the existing building.

The MAAB code defines levels of compliance required for renovations. Similar to the MA Building Code, all new building components must fully comply. If the total cost of renovations will exceed $100,000 and 30% of the assessed value of the building, the entire existing building must be brought into full compliance. Renovation costs that are exempt from this calculation include alterations to building systems, hazardous materials abatement, roof and window replacement, and re-pointing. Even with the exclusions, the proposed renovations are so extensive that the costs will certainly exceed the 30% limit of $887,670, triggering full MAAB compliance.

The existing building has no accessible entrances. The original front entrance on Main Street and the side entrance, closer to the parking lot, both have steps. At the side entrance there are the remains of a structure that was added to accommodate a wheelchair lift that has since been removed for non-compliance with code clearances. Inside the building, there are more obstacles to the disabled. Although there is an elevator, it is not of adequate size for a wheelchair. The second floor levels of the 1852 and 1875 portions of the building do not align. A stair lift is provided for the disabled. (See Figure 15.) Under the MAAB, accessible bathrooms must be provided on all floor levels. If non-accessible male and female toilet facilities are provided, an additional uni-sex handicapped facility would be acceptable. Alternatively, separate male and female handicapped toilets can be provided to meet both the plumbing and MAAB codes. There are currently no accessible bathrooms. New service counters should conform with the reach requirements of those in wheelchairs.

Figure 15: Stair lift in hallway.

Building Systems

The existing mechanical systems were inspected by Bruce MacRitchie and the electrical systems were inspected by Richard LeBrun, both of MacRitchie Engineering, Inc. Their report of existing conditions and recommended improvements is appended to this document. (See Appendix C.) Building occupants have repeatedly reported poor indoor air quality. To investigate their concerns, air quality tests were conducted by R.I. Analytical, Inc. Their report is appended to this document. (See Appendix D.)

The existing heating and cooling system is a two pipe fan coil system. The distribution system is about 18 years old. The two existing dual fuel boilers were installed in 2001 and the oil tanks were installed in 1996. There are five temperature zones. A chiller and cooling tower are located on the roof of the 1875 section of the building. These components have approximately half of their expected service life of 20 years. Several factors may be contributing to the occupants' experience of uneven and inconsistent heating. There may be an insufficient number of zones to respond to the micro-climatic differences in the building; the automatic temperature control system needs to be upgraded; and/or the old windows and lack of insulation are creating drafty areas throughout the interior. With extensive reconfiguration of interior spaces, complete replacement of the fan coil units, chiller, cooling tower, temperature control system, and pipe distribution system are recommended.

The most serious existing mechanical problem is the lack of ventilation. The only mechanical ventilation in the entire building is provided by six small exhaust fans in the toilet rooms. The fan coil units were originally equipped with outside air connections, but these have been sealed due to problem of freezing coils. Luckily, no unhealthy micro-organisms have been found in the interior atmosphere at this time. However stagnant, stale air can be very uncomfortable, particularly in high occupancy spaces, such as the City Council Chamber. The lack of ventilation in the basement may be contributing to a on-going moisture and humidity problem that has resulted in heavily rusted pipes. The lack of mechanical ventilation is a violation of the current building code and a serious potential health hazard. At a minimum, renovations should include a new ventilation system. Because of the meeting rooms have higher occupancies and differing use schedules compared with the offices, these spaces should be equipped with separate, dedicated systems.

The existing fuel oil storage tanks exceed the capacity allowed by code without fire suppression and fuel oil containment. If the continued use of oil is desired, the tanks must be enclosed within fire-rated walls and ceilings. The existing fire protection system will need to be

upgraded with a double check valve assembly. If insulation is added in the attic floor, a dry system will have to be introduced in the attic to prevent freezing of sprinkler pipes.

Generally, the existing electrical systems are antiquated and well beyond their usefulness. A transformer is located in a basement vault, adjacent to a secondary switchboard. Current code requires primary and secondary power to be fire separated. Removing primary voltage from with the building is strongly recommended with an exterior pad mounted transformer. Switchboards, panel boards, branch wiring, and power feeders are old and unreliable and should be replaced. There is an emergency generator, powered by natural gas, located behind the electric service switchboard. Current code requires that the life safety generator be enclosed in a two-hour fire-rated assembly and separated from non-life safety electrical systems. In addition, the code requires that emergency generators, that power life-safety systems, be powered by an on-site fuel supply. If an emergency generator is desired, a new outdoor diesel generator is recommended.

An entirely new fire alarm system is required since there are only remnants of an old fire alarm system. A new alarm system should be fully addressable, continuously ringing, and municipally connected. The lighting throughout is provided by old fluorescent fixtures of various types and styles. Generally, the quality of lighting is poor and complete replacement of old light fixtures with new energy-efficient fluorescent fixtures is recommended in any extensive renovation. Lighting fixtures should be selected as part of a lighting plan that addresses various spaces differently and identifies both task and general lighting goals. The existing data and telephone wiring has been extended and upgraded as needs arose resulting in a disorganized configuration. Renovations should include a systematically designed wiring system for computers and communications.

Hazardous Materials

Massachusetts requires inspection and testing for hazardous materials in all areas where renovation or demolition is planned. With the exception of lead containing materials, RI Analytical Laboratories took samples of potentially hazardous materials and tested them. Their full report is available from the Building Commissioner's office. A summary of their report can be found in Appendix D. The City of Fitchburg opted to independently test for lead containing materials.

Of the 178 samples that were collected, 168 were tested for potential asbestos content. Materials found to contain asbestos include pipe insulation, floor tile, and window caulking. Suspected locations of additional asbestos containing materials include fire doors, vault doors, elevator brakes, mastic behind wall paneling, old layers of vinyl tile below plywood underlayment, and roof flashing cement. If these materials are not impacted during renovations, they may remain in place. In any extensive renovation or before demolition in preparation for new construction, complete abatement is required.

Recommendations

In summary, inspections have revealed that there are many age-related deficiencies in the existing building. At a minimum the building needs to be stabilized to ensure no further deterioration takes place. In this strategy, the following minimum improvements are recommended:

- Completely re-point exterior brick, repair stone, and clean exterior walls.
- Replace slate roof shingles with metal standing seam roofing.
- Replace existing windows.
- Add attic insulation.
- Replace failed roof trusses.

- Upgrade existing structural system.
- Provide accessible entrance.
- Provide new elevator.
- Provide two enclosed egress stairways from all floors.
- Provide handicapped accessible bathrooms on all floors.
- Replace all acoustic tile ceilings with new acoustic tile.
- Provide new mechanical ventilation systems.
- Provide new fire protection system.
- Provide new electrical service and distribution system.
- Provide new lighting throughout.
- Provide new emergency generator.
- Provide new fire alarm system.
- Abate impacted hazardous materials.
- Demolish existing parking structure and provide new parking structure.
- Re-pave all parking areas and driveways.

These minimal upgrades do not address City Hall's space needs. In fact, a new elevator, new bathrooms, and new stairways will usurp usable office and meeting space that is already in short supply. The upper two levels of the 1875 section of the building only have a small amount of usable space that is very difficult to access. To meet building and handicapped codes, a large portion of the small floor area must be devoted to an elevator and two egress stairways. As such, it is recommended that these two floors be eliminated.

If more extensive renovations are planned, the following additional upgrades are recommended:

- Provide new heating and air conditioning system.
- Abate all hazardous materials.
- Replace all interior finishes.
- Provide all new plumbing systems.

SPACE PROGRAMMING

A space program is an essential guideline for planning. It identifies needed spaces and their area requirements, desired adjacencies, and special characteristics. For this study, questionnaires were distributed to all department directors. (See Appendix E.) After responses were received, personal interviews were conducted on site with each municipal department director and existing operations were observed.

Existing Layout

The interior layout of the building suffers from inefficiency and confusion. The entrances are not monitored. There is no welcoming or orienting space to help direct visitors to their desired destinations. There is a redundancy of stairways, many of which do not meet current life safety code requirements. Some offices are cluttered and overcrowded while others are generous and underutilized. Service counters are within office spaces, reducing usable areas. (See Figure 16.)

Figure 16: Service counter.

Circulation routes are convoluted. The source of this problem stems from the poor coordination in the design of the 1875 addition with the original 1852 building. The 1875 addition's five stories only align with the 1875 building on two levels, the basement and the first floor. On the second floor, there is an approximately half-level difference between the two sections. And there is no connection to the original building on the upper two floors of the 1875 addition. This disconnection between the addition and the original building likely arises out of the desire in 1875, to maximize the number of usable floors in the addition without exceeding the height of the original

building. The consequences of this decision, however, is a dysfunctional vertical circulation system. The 1852 portion has two stairways. The front stairway connects the first and second floors, but not the basement. The side stairway connects all three floors, but not the upper levels of the 1875 addition. The 1875 portion has a single interior stairway that connects the upper four floors, but not the basement. There are additional stairways that only connect the first floor and basement levels and there are still other abandoned stairways that lead to nowhere. The consequences of this poor planning is that it is impossible to go from the basement level to the top level without changing stairways. There is an elevator in the 1875 portion that serves all five levels of the addition, but does not provide access to the second floor of the 1852 portion.

The footprint of the 1875 addition is approximately 3,200 square feet or a third of the size of the original 1852 building. In this small addition, stairways (usable and abandoned), an elevator, vaults, toilet rooms, and structural bearing walls all contribute to reducing the amount of usable space. To exacerbate the problem, the elevator, the single usable stairway, and a vault are located in the center of the floor plan on each level. These fixed elements restrict layout options and limit flexibility by carving each floor into small discrete spaces. The resulting configuration of usable space is disjointed and like a rabbit warren.

The original 1852 building was designed to have a large double-height auditorium space, with a stage, on the second floor. The lower portion of the two-story space was converted to office use by simply hanging an acoustic tile ceiling to office height and erecting partitions up to the ceiling level. The upper volume of the old auditorium space is still visible from above. There is potential to add a third floor within the volume of the original building, thereby increasing usable space.

Space Needs

The two general needs identified by building occupants and verified through observation are increased and better storage facilities and additional meeting space. A significant portion of office documents are records that do not require frequent access and can be relocated to a more centralized shared location. With this recommended change, more usable space would be made available for office functions. The existing vaults are undersized and do not meet the standards established by the Massachusetts Secretary of State's office for record keeping. A four hour rated vault is required for storage of paper records and a six hour fire rated vault is required for storage of media, such as computer disks and other electronic data. To prevent the detrimental effects of humidity, vaults also need to be environmentally controlled. Some departments will continue to need smaller vaults immediately accessible from their offices, but the majority of vault storage needs can be consolidated into a centralized location, improving efficiency.

There are currently three meeting rooms, two on the first floor and one on the second floor. The City Council Chamber is dedicated to City Council meetings, leaving only two remaining rooms available for daytime meetings, conducted or attended by municipal staff. The larger of the two rooms can seat between 40 and 90 people, depending on how the room is furnished. This room is frequently used for evening public meetings simultaneously with the City Council Chamber. There is no waiting space for those awaiting to hear a specific item on the agenda. Crowded meeting rooms and many people waiting in the hallway outside is a typical evening situation. Noise and comfort are constant problems. Located adjacent to the Mayor's office, this larger meeting room is often needed and used by the Mayor during the day. The small conference room on the second floor seats approximately 15 people. This is inadequate for some meetings. And with the scarcity of available space, the conference room is often not available. Some departments have created conference space within their own office area to address their meeting needs and avoid the competition for the two shared meeting rooms. The consequence of this strategy is inefficient use

of space. The dedicated conference area sacrifices needed office pace. The internal conference area is undoubtedly underutilized because it cannot be used by other departments. For greatest efficiency, each floor should have at least one shared conference room and there should be a variety of sizes. There is general consensus that the City Council Chamber should be larger and more dignified in appearance. Ideally, the Chamber will be independently accessible for evening meetings, without compromising the security of the municipal offices.

Another inefficiency that is difficult to remedy operationally is the redundancy of copier machines. Each department currently purchases and operates its own copier, necessitating the dedication of valuable office space to this equipment. Many other municipalities have elected to consolidate resources by locating one shared copier in a conveniently situated copy room on each floor. It is recommended that some consideration be given to this approach in the future.

Space Program

Private offices and meeting rooms have been sized for specific desired occupancies and anticipated uses. In sizing general office spaces, anticipated occupancy was used as a guideline. Department directors estimated the number of staff they hoped to include in the future, accounting for growth. For each staff member, 100 square feet has been allotted. This area allows for an 8'x8' corner workstation and a total of 4' of additional width for circulation. Another 100 square feet has been added to each general office space for storage. It should be noted that 8'x8' workstations are generous and provide more work space than is currently provided for staff. Standard desks with returns can also be used and would result in more compact layouts.

Private offices have been comfortably sized at 150 square feet. All department directors, with the noted exception of the Assessor, voiced the need to be able to hold a small meeting within their offices. To accommodate this request, all department directors' offices have been increased to 200 square feet.

In sizing general storage and vault space, another formula was used. Again, 200 square feet of general storage space has been allotted to each of the major departments occupying the building, with another 200 square feet added for miscellaneous storage. Similarly, for the vault, 100 square feet has been provided for each of the major departments, with an additional 100 square feet added for miscellaneous vault storage.

The developed space plan, when compared to the size of the existing building reveals that the existing building is, in theory, close to adequately accommodating the needs of City Hall. However, the basement, with its stone foundation walls, is not realistically usable as occupied space and the existing space configurations cannot be easily re-organized to re-distribute space from oversized to undersized departments.

Table 1: Program of spaces

Space	Existing Size	Proposed Size	Proposed Occupancy	Proximities
Assessor				Conference, Treasurer
Assessors office	410	600	3	
General office	500	300	2	
File room		100		
Interview room		80		
Vault	65			
Total Assessor	**975**	**1080**	**5**	
Auditor/Retirement				
Auditor	215	200	1	
Asst. auditor	305	150	1	
General office	300	200	1	
Retirement	280	150	1	
Total Auditor/Retirement	**1100**	**700**	**4**	
Board of Health				
Director	180	200	1	
Senior inspector		150	1	
Inspectors		500	4	
General office	1020	300	2	
Nurse		100	1	
Total Bd. of Health	**1200**	**1250**	**9**	
Building Department				Conference
Building Commissioner	280	200	1	
Inspector's office		550	4.5	
General office	765	300	2	
Vault	100			
Total Bldg. Dept.	**1145**	**1050**	**7.5**	
City Clerk				Mayor
City Clerk	210	200	1	
General office	600	500	4	
Vault	65	150		
Public research		80		
Total City Clerk	**875**	**930**	**5**	
Dept. of Public Works				
DPW Commissioner	160	200	1	
Deputy Commissioner		150	1	
Asst. City Engineer		150	1	
Engineering	990	600	5	
General office	1255	400	3	
Vault	100			
Total DPW	**2505**	**1500**	**11**	

Space	Existing Size	Proposed Size	Proposed Occupancy	Proximities
Human Resources				Mayor, conference
General office	340	500	4	
Total Human Resources	**340**	**500**	**4**	
Mayor				Human Resources, conference,
Mayor	180	250	1	front entry, City Clerk
Asst. to Mayor		150	1	
General office	410	400	3	
Reception/waiting		100		
Mayor's toilet		30		
Total Mayor	**590**	**930**	**5**	
Planning				Conference room
Planning Coordinator	200	200	1	
Human Rights		150	1	
Planning office		700	6	
General office	2080	300	2	
GIS	195	300	2	
Total Planning	**2475**	**1650**	**12**	
Printing				Loading dock
Work area	480	400	1	
Storage		400		
Loading dock		80		
Total Printing	**480**	**880**	**1**	
Purchasing				Conference room
Purchasing Agent	190	200	1	
General office	330	300	2	
Total Purchasing	**520**	**500**	**3**	
Recreation				Conference room
General office	525	250	1.5	
Storage		200		
Total Recreation	**525**	**450**	**1.5**	
Treasurer				
Treasurer	190	200	1	Conference room
Payroll		300	2	
General office	810	900	8	
Vault	100	80		
Total Treasurer	**1100**	**1480**	**11**	
Veterans				
Veterans agent	175	150	1	
Clerical/reception/files		100	1	
Total Veterans	**175**	**250**	**2**	
Wastewater				
Director		200	1	
General office	880	300	2	
Total Wastewater	**880**	**500**	**3**	

Space	Existing Size	Proposed Size	Proposed Occupancy	Proximities
Support				
Conference		250	15	
Conference	260	250	15	
Conference		250	15	
Meeting	640	600	40	
Meeting	1080	1500	100	
Mail room	650	150		Treasurer
General storage	1580	2400		
General vault	735	1200		
Maintenance		300	2	
Lunchroom	360	200		
Toilet rooms		300		50sf ea.
Total Support	**5305**	**7400**		
TOTAL NET SF	**20190**	**21050**		
TOTAL GROSS SF	**35500**	**35083**		
NET/GROSS	**57%**	**60%**		
Visitors parking		20		
Staff parking		84		
TOTAL PARKING		**104**		

DESIGN OPTIONS

The existing City Hall building is in poor condition. Many materials and systems are antiquated and require replacement. The building is burdened with many life safety and handicapped code violations. The interior layout is not meeting the functional needs of the municipal offices and the general public. (See Figures 17, 18, 19, 20, 21, and 22.) Parking is inadequate and the parking structure is in dangerous disrepair. Significant capital investment is required to remedy these problems. The charge of this study was to identify and evaluate approaches to solving City Hall's facility problems. To this end, five distinctively different design options were developed:

- Scheme A is a total renovation of the existing structure.
- Scheme B is a total renovation of the 1852 structure, demolition of the 1875 structure, and a new addition.
- Scheme C is a new building in the same general location as the existing building.
- Scheme D is a new building located behind the existing structure.
- Scheme E is a minimal renovation of the existing building to stabilize the exterior envelope and correct code violations, without addressing space needs and with no improvements to interior finishes.

In all five schemes, the parking structure is demolished and replaced with a new structure. It must be cautioned that these schemes represent divergent general approaches and not schematic designs. If any of these approaches is selected, more specific design options must be developed. These schemes are as specific as they appear only for the purposes of testing the feasibility of each approach and developing reasonably realistic construction budgets to compare.

Figure 17: Existing site plan

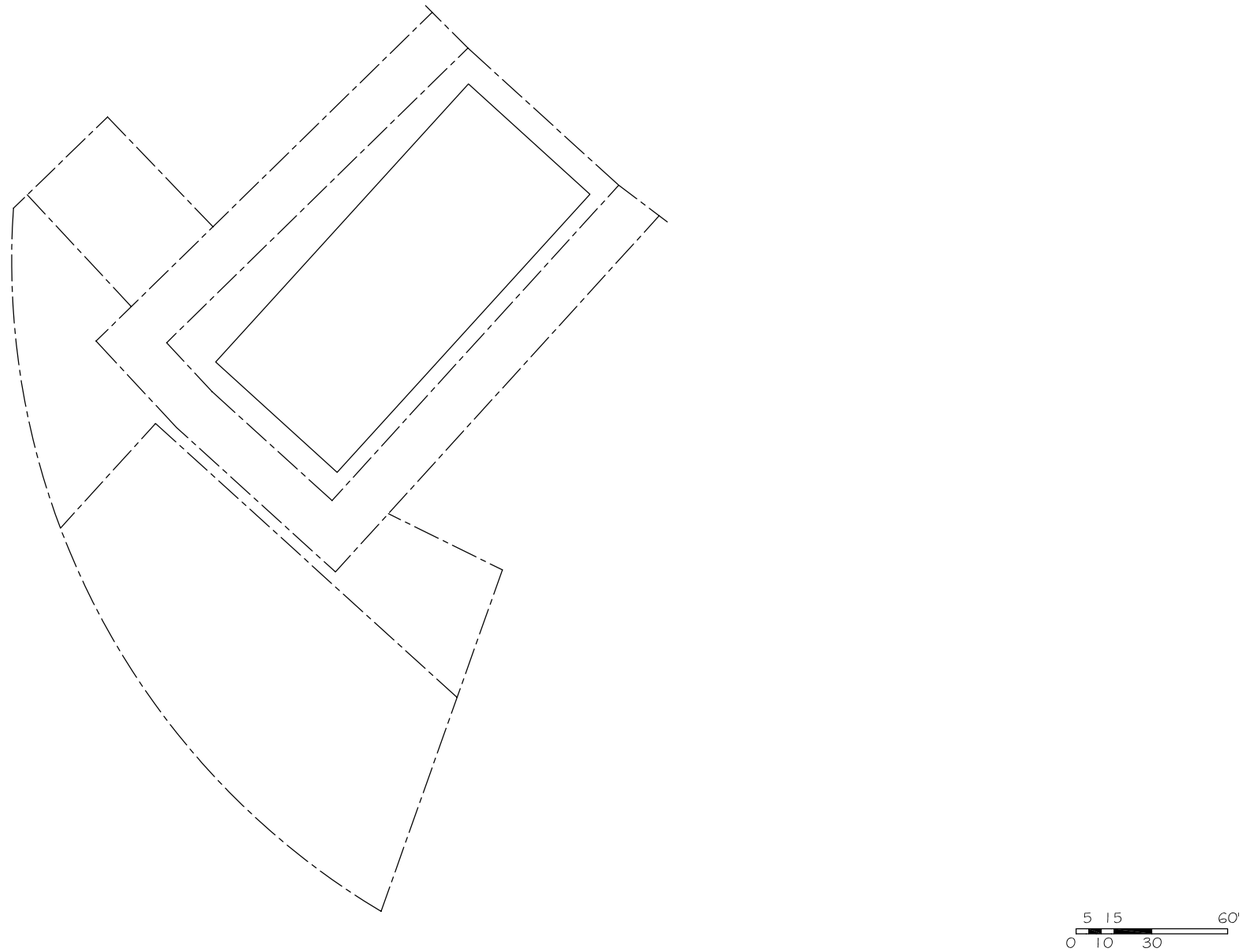


Figure 18: Existing basement floor plan

Figure 19: Existing first floor plan

Figure 20: Existing second floor plan

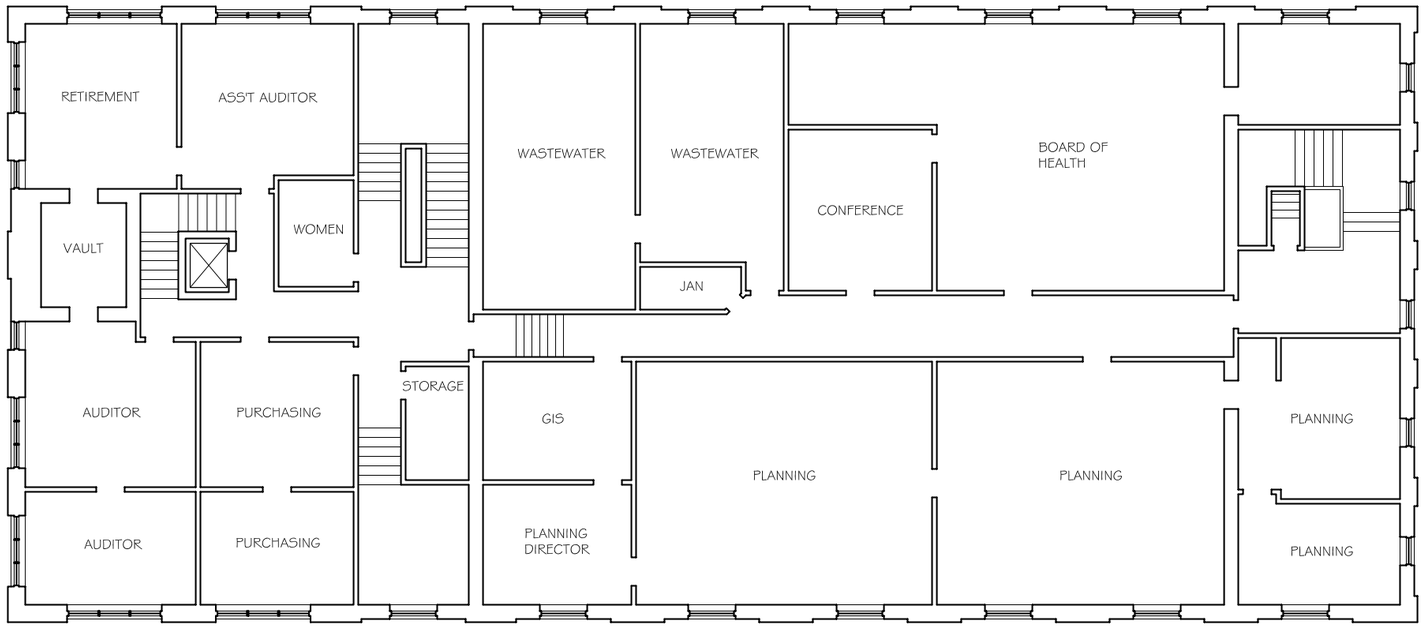


Figure 21: Existing third floor plan

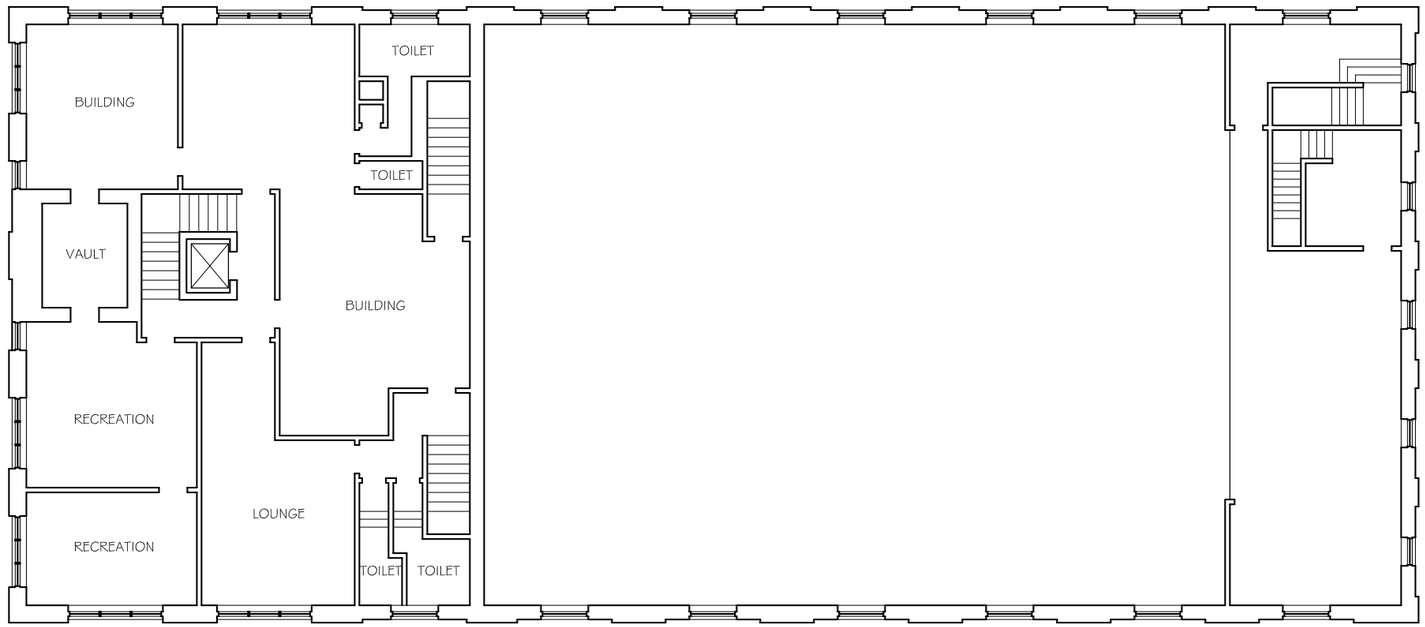
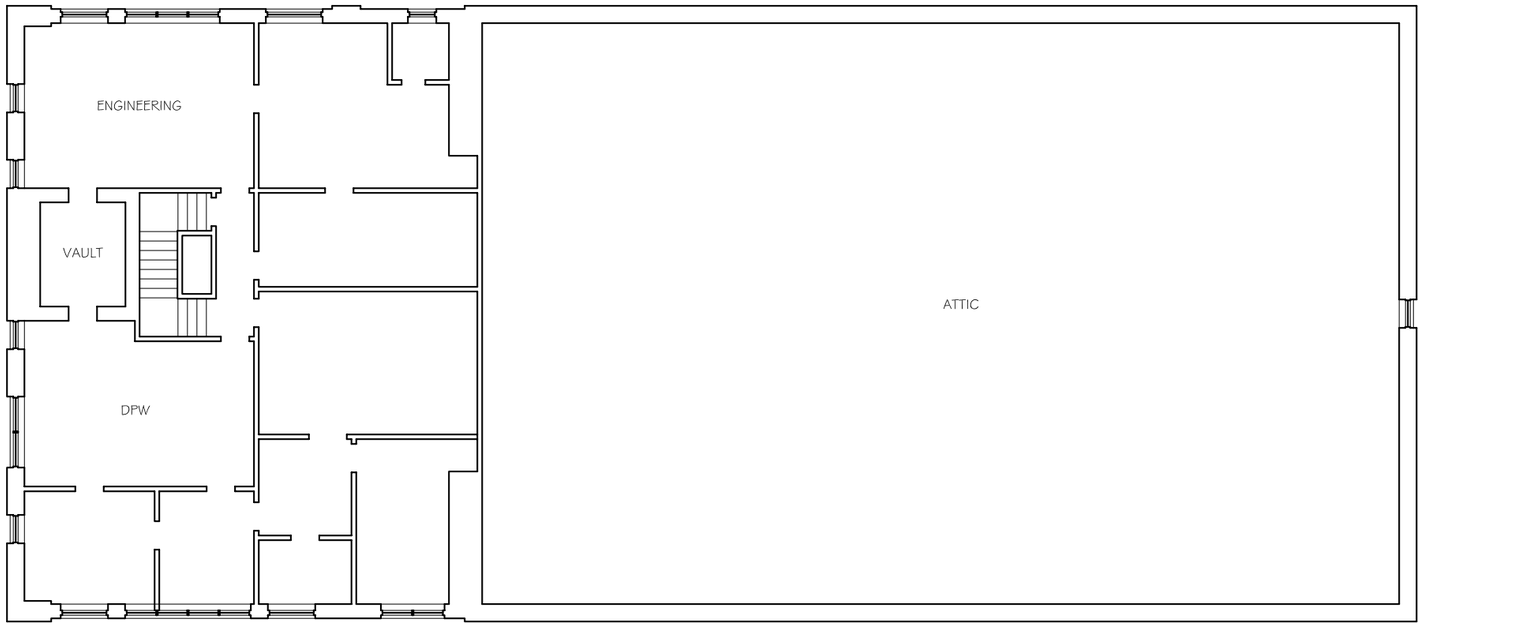


Figure 22: Existing fourth floor plan



Scheme A

This total renovation scheme takes advantage of the column-free volume of space available above the second floor of the 1852 section. (See Figures 23, 24, 25, 26, and 27.) Below roof trusses, a double height City Council Chamber is created on the second floor and a partial third floor is added. The fourth floor of the 1875 section is demolished for a number of reasons. To be usable, the fourth floor would require an elevator, two enclosed egress stairways, and two handicapped bathrooms. The cost to extend these fixed elements up to the fourth floor would make the small amount of remaining usable space very pricey. In addition, the fourth floor, as a dormer, disrupts the strong cornice line of the original building and is generally visually unappealing. The addition of a partial third floor in the 1852 section more than compensates for the usable space lost by demolishing the fourth floor. Limiting the number of total floors allows for better interaction between related offices.

No changes are made to the configuration of the original front entrance on Main Street. A handicapped accessible entrance is created on the west side of the building, opposite the small park and close to Main Street. In this location, the new entrance will be readily visible to the public and can be designed to have the prominence of a front door. Inside the new entrance vestibule, a wheelchair lift brings disabled visitors up to the first floor, at the same place as those entering through the Main Street doorway. The new entrance does not relegate disabled visitors to a side or rear entrance and provides a gracious entry sequence for all visitors.

The elevator is located between the 1852 and the 1875 sections to provide handicapped access to the non-aligned second and third floors. One egress stairway and the public bathrooms are located in proximity to the elevator for easy public access. Another egress stairway is located at the front of the building to meet code requirements.

The basement is dedicated to the print shop, storage, vault, and mechanical space. The departments having the most frequent contact with the public are located on the first floor. Small or medium sized conference rooms are located on each of five different floor levels. Service counters are brought out to the corridors to free up more usable space within offices and effectively separate the public from working areas. The public corridors are widened in front of each service counter to allow queuing and waiting.

Without considering costs, the appealing features of this scheme are:

- The traditional Main Street façade is maintained and preserved.
- The unattractive dormer over the 1875 section is eliminated.
- The handicapped entrance is visible from Main Street.

Without considering costs, the drawbacks of this scheme are:

- The City Council Chamber cannot be independently accessed when the rest of City Hall is closed.
- There are still half levels that inherently create inefficiencies.
- Handicapped parking cannot be located close to the handicapped entrance, unless it is designed as parallel parking spaces.
- Municipal offices and meetings must be temporarily relocated during construction.

Figure 23: Scheme A site plan

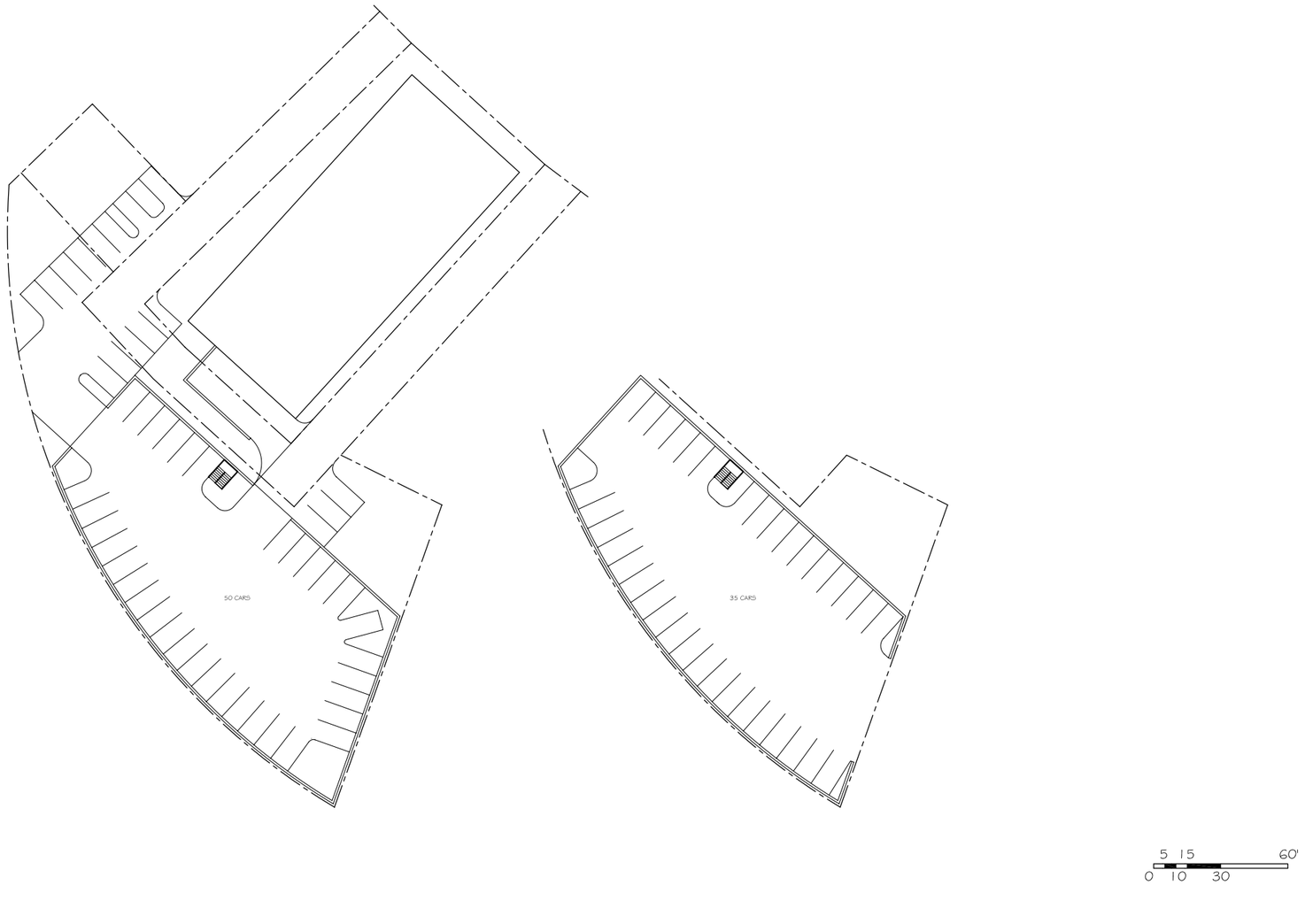


Figure 24: Scheme A basement floor plan

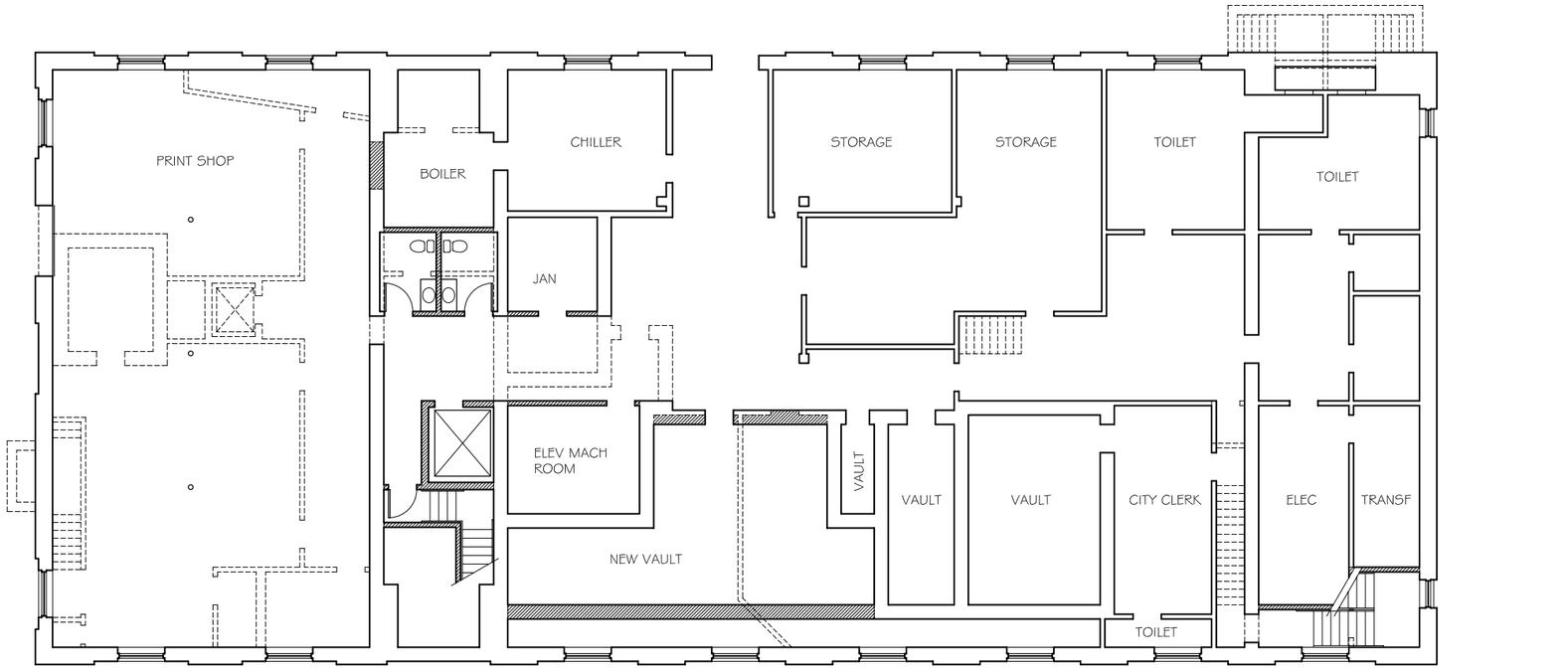


Figure 25: Scheme A first floor plan

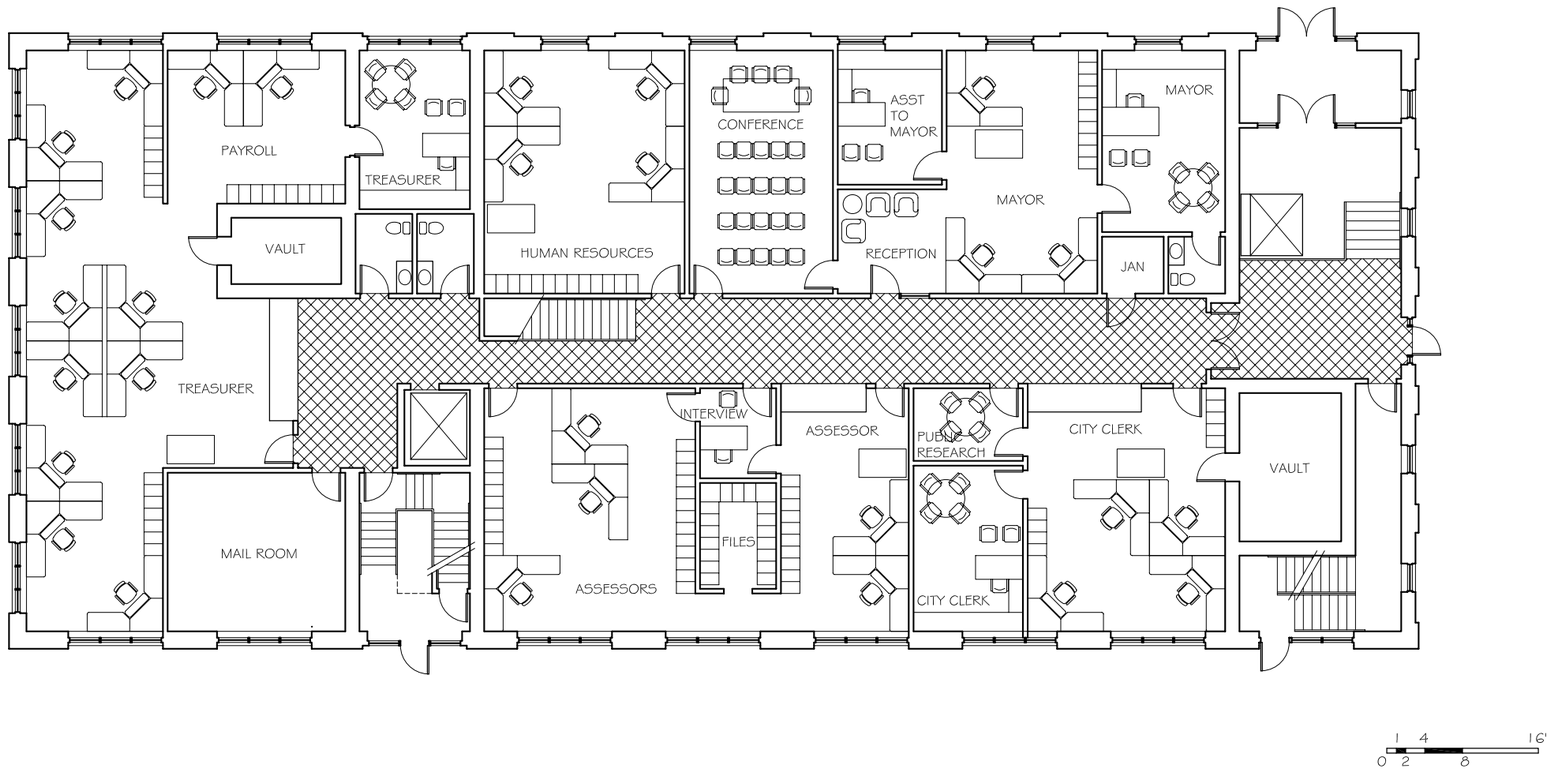


Figure 26: Scheme A second floor plan

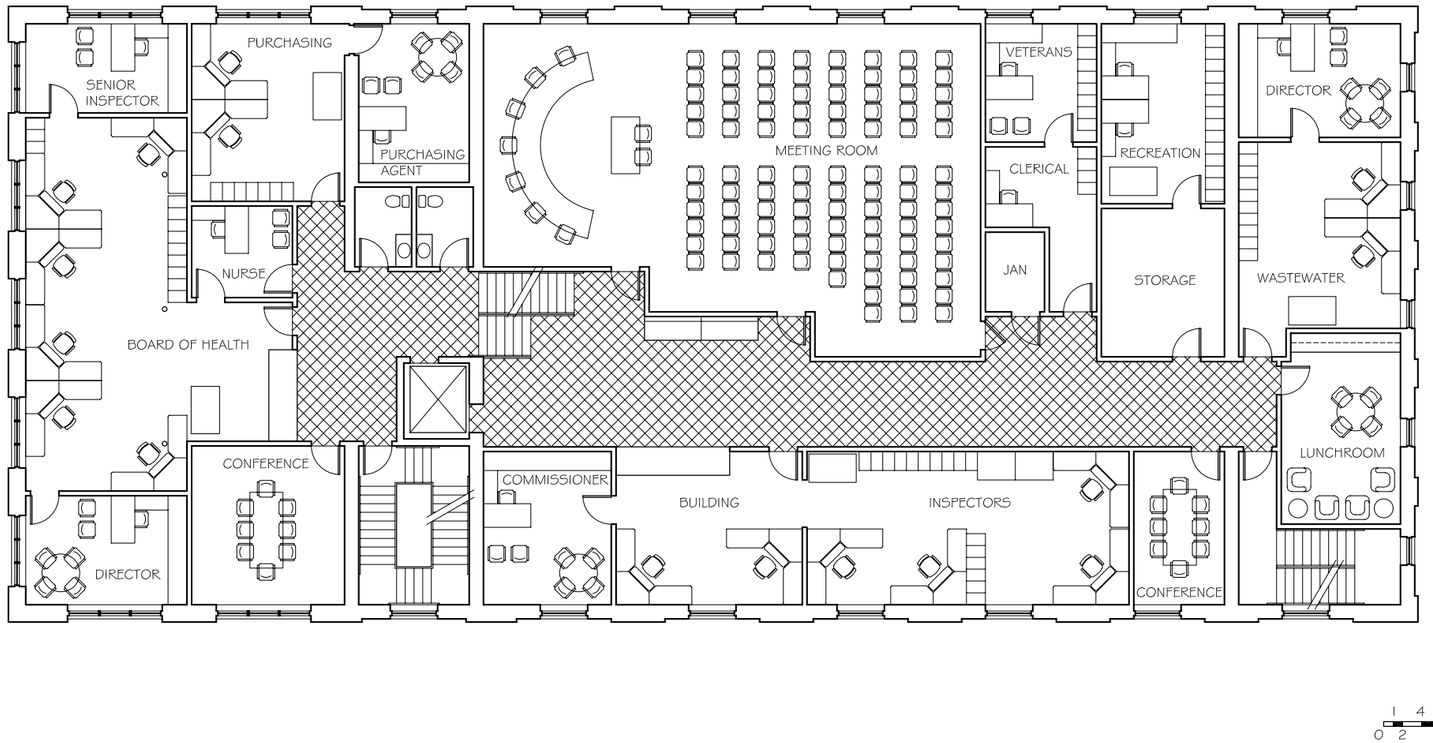
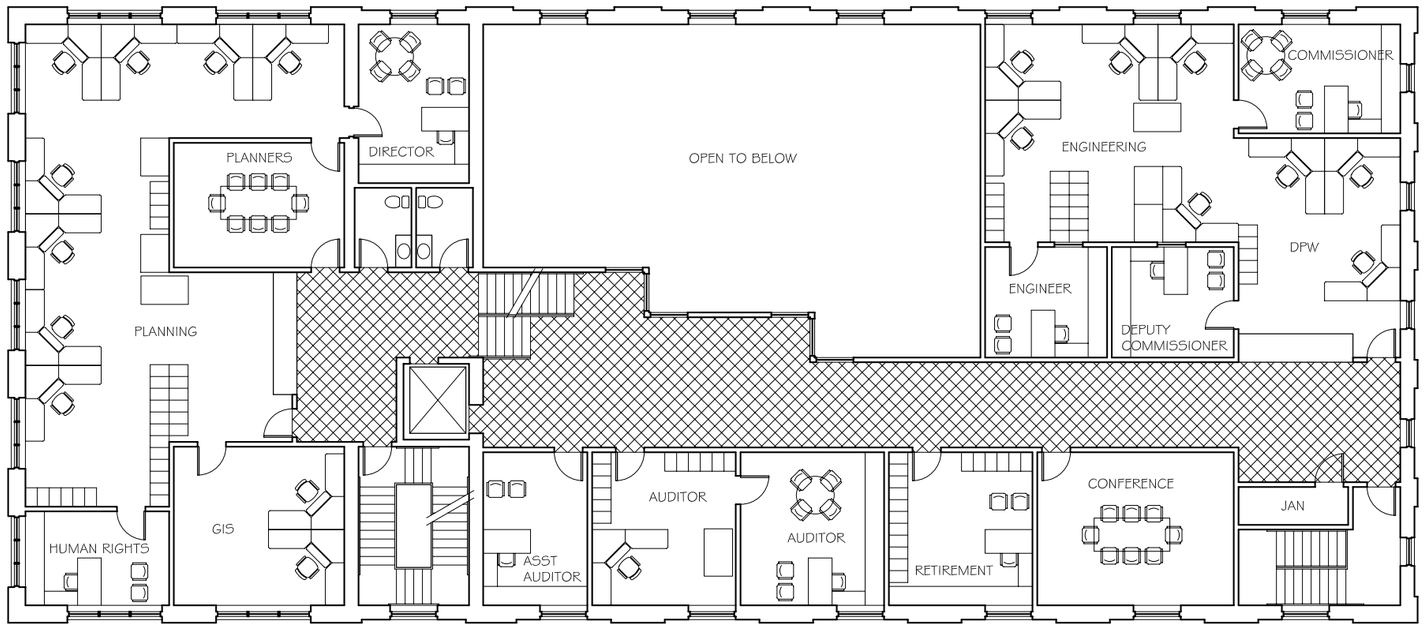


Figure 27: Scheme A third floor plan



Scheme B

This scheme proposes to totally renovate the 1852 section, demolish the 1875 section, and construct a new two-story addition. (See Figures 28, 29, 30, 31, and 32.) A full third floor is added to the 1852 section to provide additional office and conference space. The new addition is designed to align with the second floor of the 1852 section.

The addition wraps around the southwest corner of the existing building, creating an exterior entrance plaza as well as a new prominent entry at the rear of the building, facing the parking lot. In this configuration, this particular design requires closing of the driveway on the west side of the existing building. No changes are made to the existing Main Street entrance. With the anticipated use patterns, the Main Street entrance is preserved as the historic entrance, but, practically, the new primary public entrance is the rear one. The new entry is on the ground floor of the addition which is at grade to provide handicapped access. The elevator, one of the stairways, and the public bathrooms can be found immediately inside the new entrance and in the same locations on the upper floors. This allows visitors to easily find their way and orient themselves. Unwanted noise through the hallways is minimized as visitors to the second and third floors can go directly up to their destinations.

The City Council Chamber is on the ground floor of the addition so that there is handicapped access and the room can be used for evening meetings, independently of the rest of City Hall. On this level, the room can have a higher ceiling, which is proportionately more appropriate for its size. In the addition, the Council Chamber can easily be designed with a clear span and no obstructions. The addition will not be burdened with restrictions and limitations, such as existing structure and masonry openings, that can compromise the flexibility of the design and layout.

Similar to Scheme A, the basement is dedicated to the print shop, storage, vault, the loading dock, and mechanical space. The departments having the most frequent contact with the public are located on the first floor. Five conference rooms of various sizes are located on the three floors, with at least one on each level. Service counters are brought out to the corridors to free up more usable space within offices and effectively separate the public from working areas. Since the addition is only two stories high, additional storage and future expansion is available on the attic level and is accessible from the third floor of the original building.

Without considering costs, the appealing features of this scheme are:

- The traditional Main Street façade is maintained and preserved.
- The inefficient and unattractive 1875 section of the building is eliminated, taking with it, future maintenance headaches.
- The City Council Chamber can be independently accessed when the rest of City Hall is closed.
- The City Council Chamber can be custom designed to suit needs, unrestricted by the limitations of the existing structure.
- The new handicapped accessible public entrance relates directly to parking.
- An exterior entrance plaza provides a gracious entrance sequence for visitors and provides a buffer between parking and the entry.
- Circulation through the building is very direct, efficient, and easy to understand for visitors.
- Additional storage and future expansion is available in the attic of the addition.
- Phasing of construction is possible to allow the building to be partially occupied during construction.

Without considering costs, the drawbacks of this scheme are:

- The loading dock is accessed from Main Street.
- The driveway on the west side must be closed.

Figure 28: Scheme B site plan

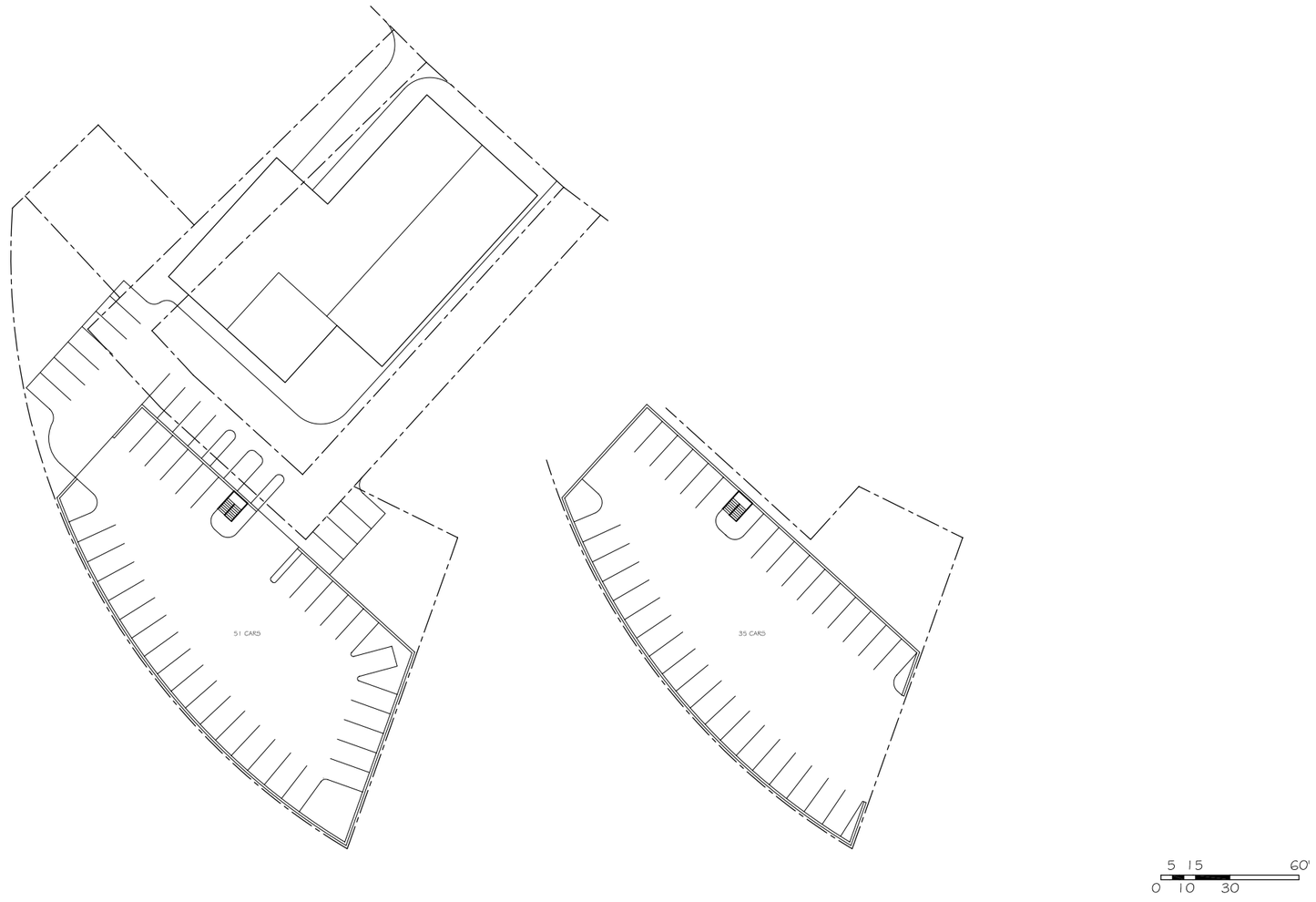


Figure 29: Scheme B basement floor plan

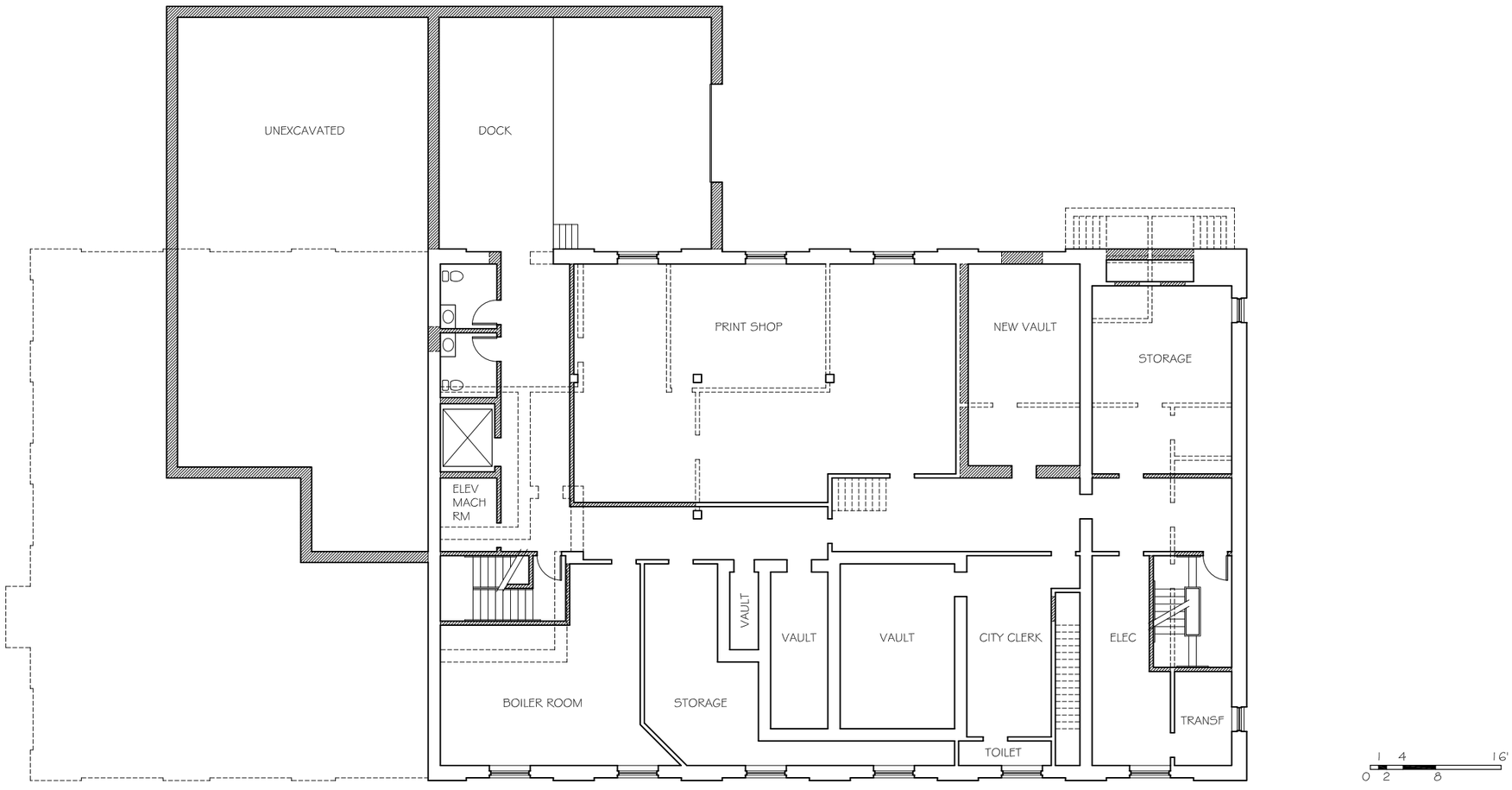


Figure 30: Scheme B first floor plan

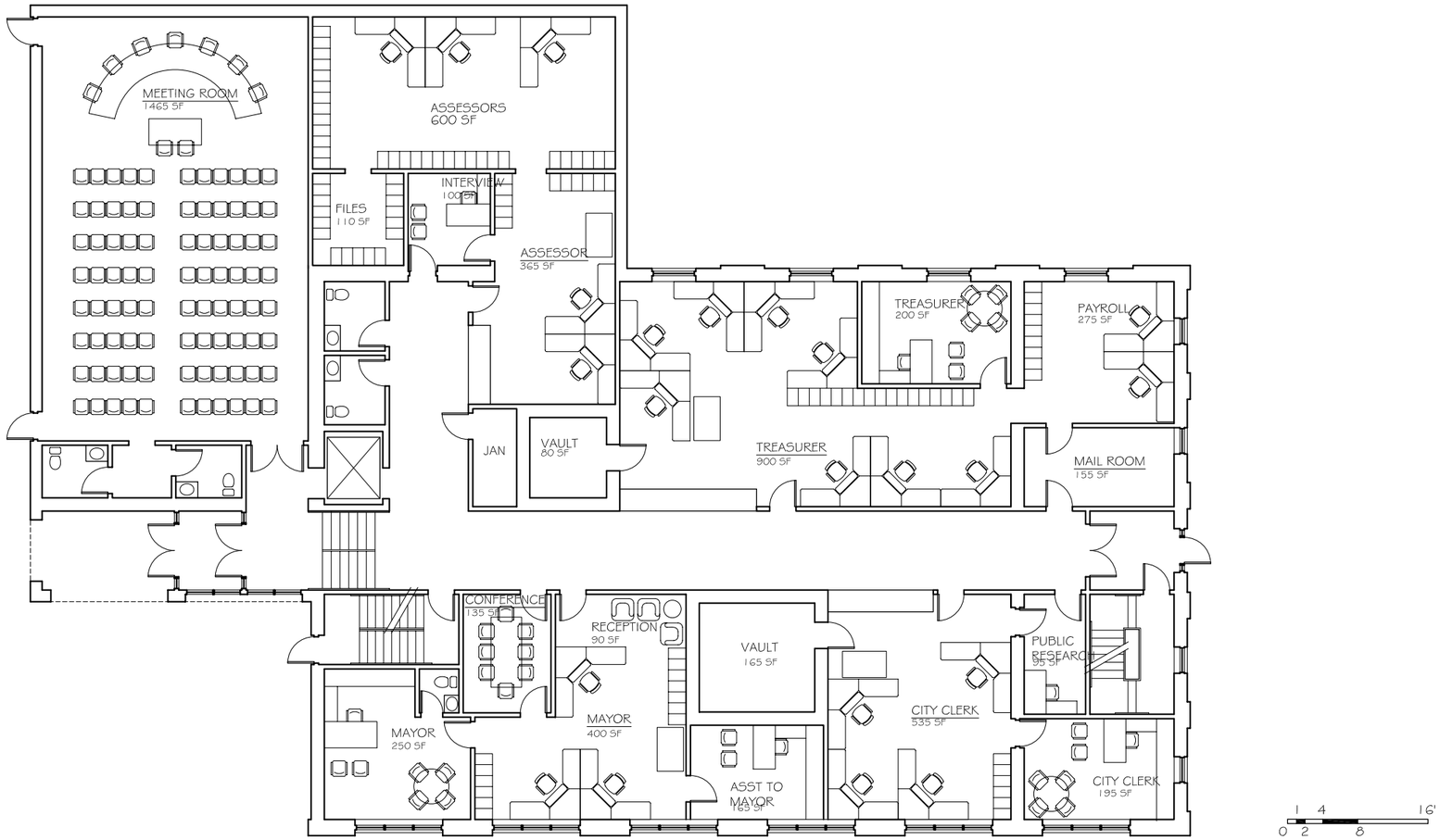


Figure 31: Scheme B second floor plan

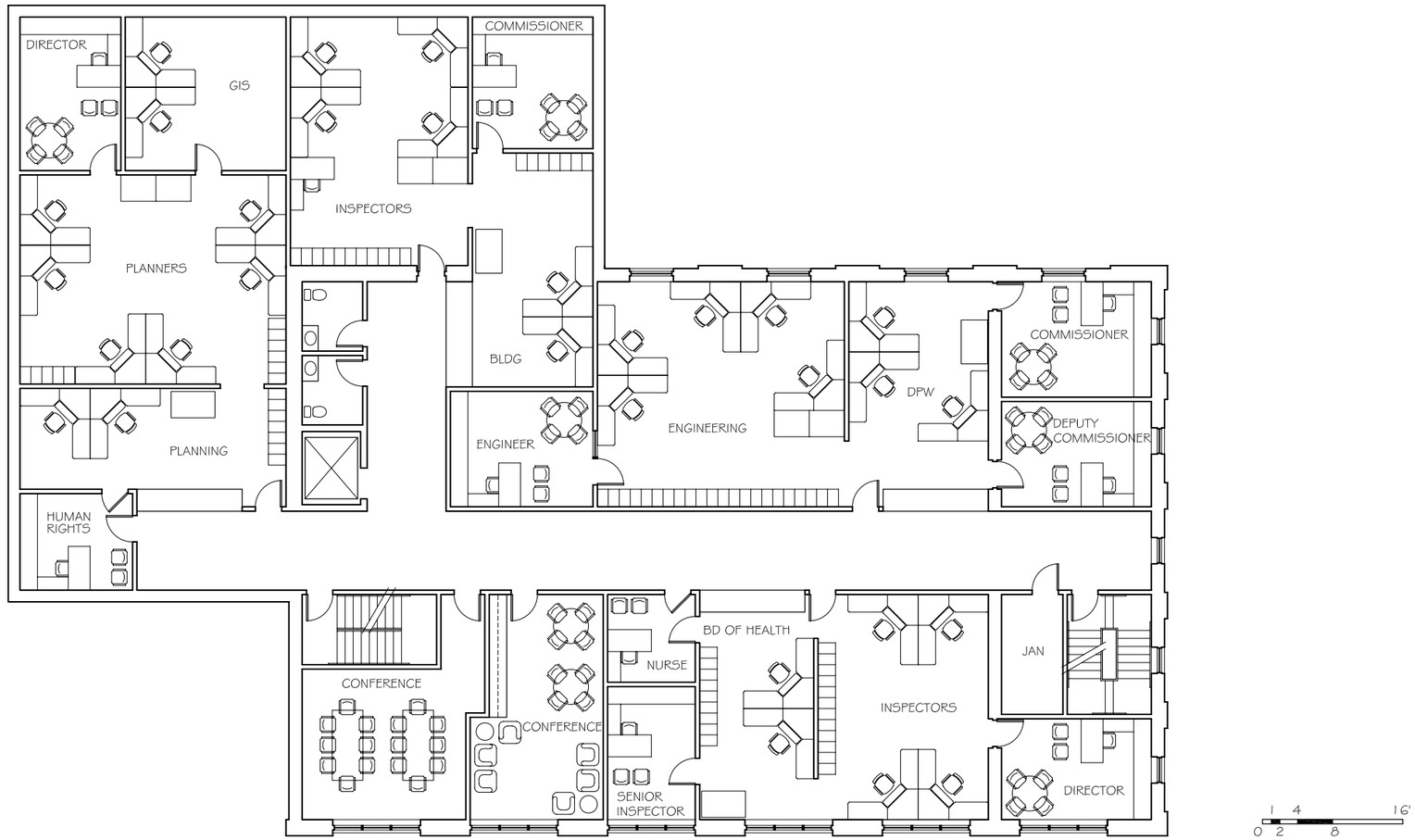
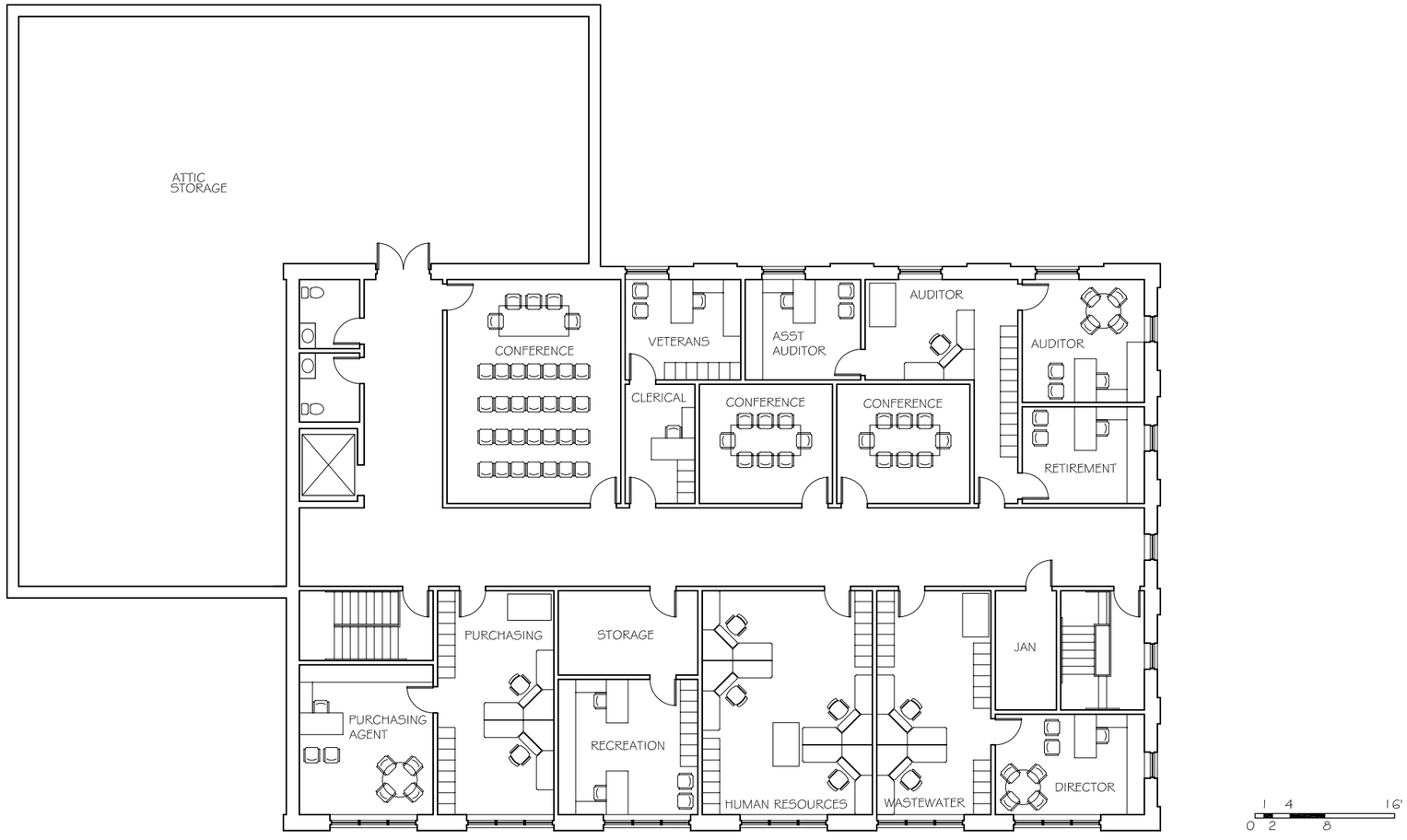


Figure 32: Scheme B third floor plan



Scheme C

Scheme C is one of two new construction designs. (See Figures 33, 34, 35, 36, and 37.) This one proposes to demolish the existing building and construct a new three-story structure in the same general location at the front of the site. The design of a new building can respond more effectively to site conditions and functional needs. On the north side, the building is brought close to Main Street, similarly to the original building, so that it can have a presence on the street. On the south side, the building steps back to create an exterior entrance plaza for the rear entrance. On the east side, the building is shifted westerly from the location of the existing structure to create a wider driveway to the rear parking areas and a usable sidewalk for pedestrians. On this side, the exterior wall is articulated on the first floor and street trees are added to create more interest and a more pleasant scale for pedestrians. On the west side, a three-sided exterior courtyard is created to capture the light and view of the existing park and extend it into the new building.

The interior circulation is very simple and direct. There is one main corridor running in the north-south direction, connecting handicapped accessible entrances from Main Street and the parking lot. All spaces are accessed from this corridor. The elevator, the public toilets, and the egress stairways are all located on one side of the corridor. A monumental open stairway is located along a glass wall facing the exterior courtyard. The stairway connects the first and second floors to allow easy access to two generously sized conference rooms on the second floor and to facilitate communication between the offices on the first floor and those on the second. The glass wall into the courtyard and the monumental stairway are architectural features that add distinction to the interior of City Hall and help orient visitors. The glass wall brings light and view into the main corridor on all three floors, creating a more pleasant interior environment for occupants and visitors alike.

The City Council Chamber is located on the ground floor, in the southwest corner of the building. This location allows easy access from the parking lot that is independent of the City Hall. There is also access from the Chamber directly into the courtyard, a convenience that provides opportunities for exterior receptions and activities associated with events scheduled for the meeting room.

Similar to the previous schemes, the basement is dedicated to the print shop, storage, vault, the loading dock, and mechanical space. The key difference is that the new basement walls are reinforced concrete with dampproofing and foundation drains on the exterior. The interior side of basement walls can also be easily insulated, if desired. This is a great improvement over the existing stone foundation walls that are inherently porous to moisture penetration and nearly impossible to insulate. The interior basement environment in this scheme can easily be controlled for better protection of stored items and documents.

The first floor is located at grade for easy handicapped access. Floor-to-floor heights above the ground floor can be designed to suit the needs of a modern office environment. The departments having the most frequent contact with the public are located on the first floor. Three generously sized conference rooms are provided amongst the offices. Service counters are brought out to the corridors to free up more usable space within offices and effectively separate the public from working areas.

Without considering costs, the appealing features of this scheme are:

- The building responds effectively to the particular characteristics of its site.
- All existing building inefficiencies are eliminated.
- The City Council Chamber can be independently accessed when the rest of City Hall is closed.

- The City Council Chamber can be custom designed to suit needs, unrestricted by the limitations of the existing structure.
- The new handicapped accessible public entrance relates directly to parking.
- An exterior entrance plaza provides a gracious entrance sequence for visitors and provides a buffer between parking and the entry.
- Circulation through the building is very direct, efficient, and easy to understand for visitors.
- Maintenance routines are simplified with all new materials and building systems.
- Natural light and view are brought into the main corridor.
- The basement is watertight and can be environmentally controlled.

Without considering costs, the drawbacks of this scheme are:

- The driveway on the west side must be closed.
- Municipal offices and meetings must be temporarily relocated during construction.
- The traditional Main Street façade is lost.

Figure 33: Scheme C site plan

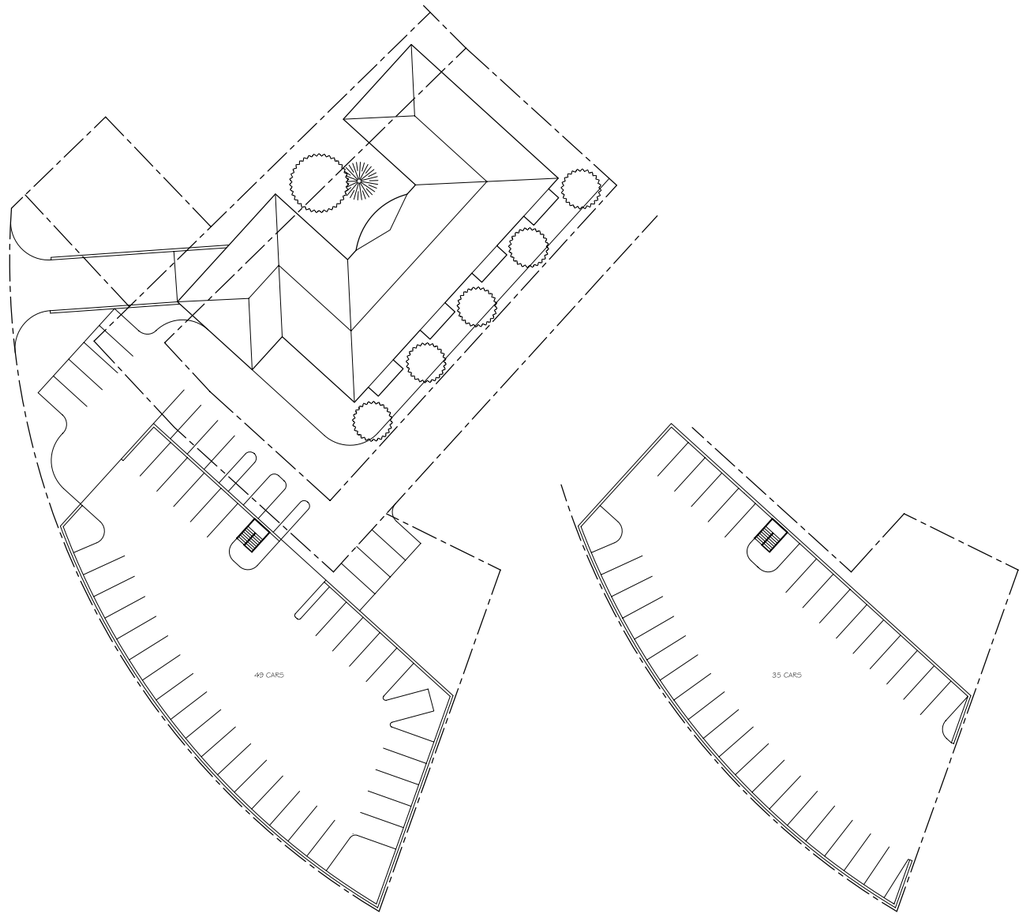


Figure 34: Scheme C basement floor plan

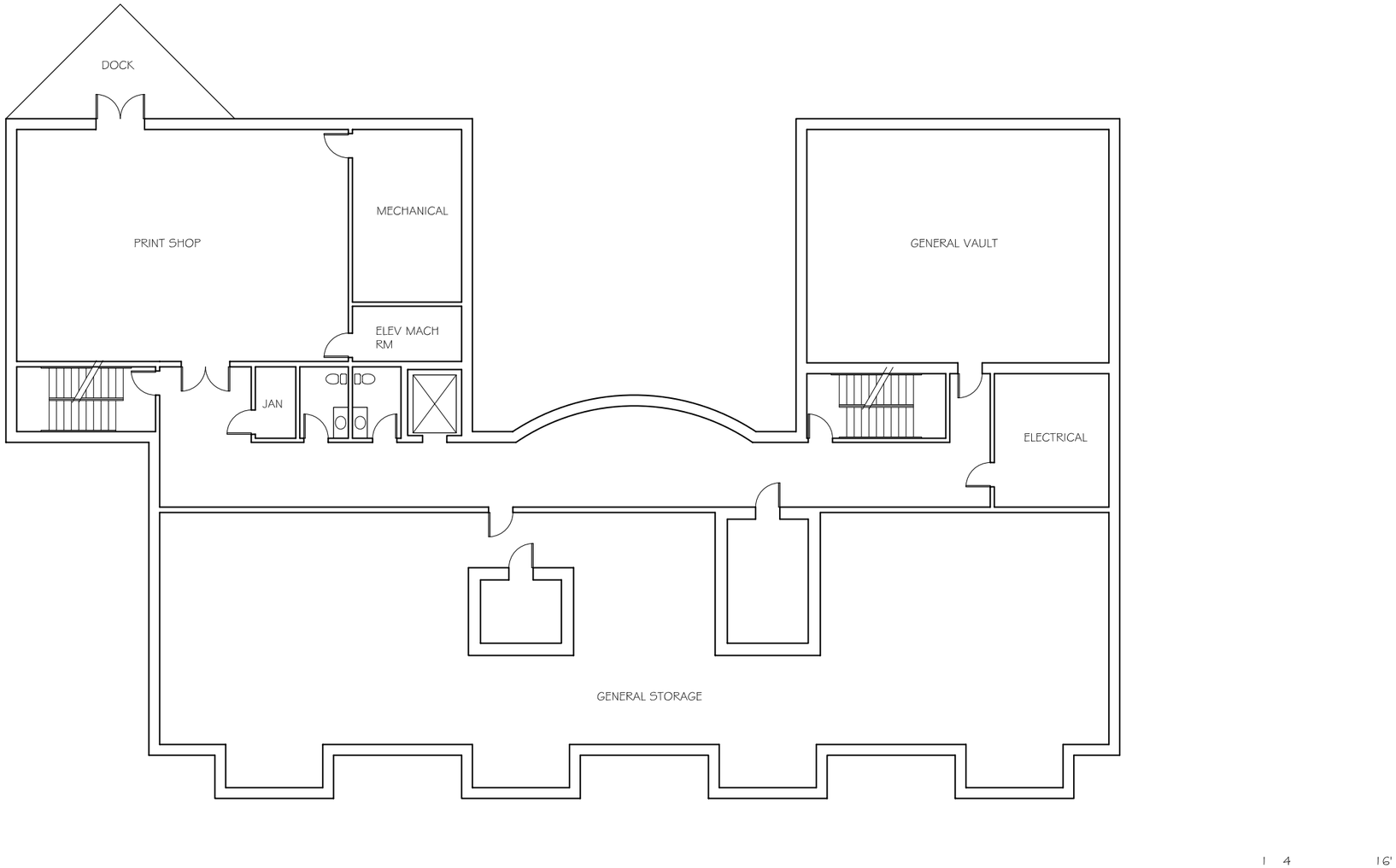


Figure 35: Scheme C first floor plan

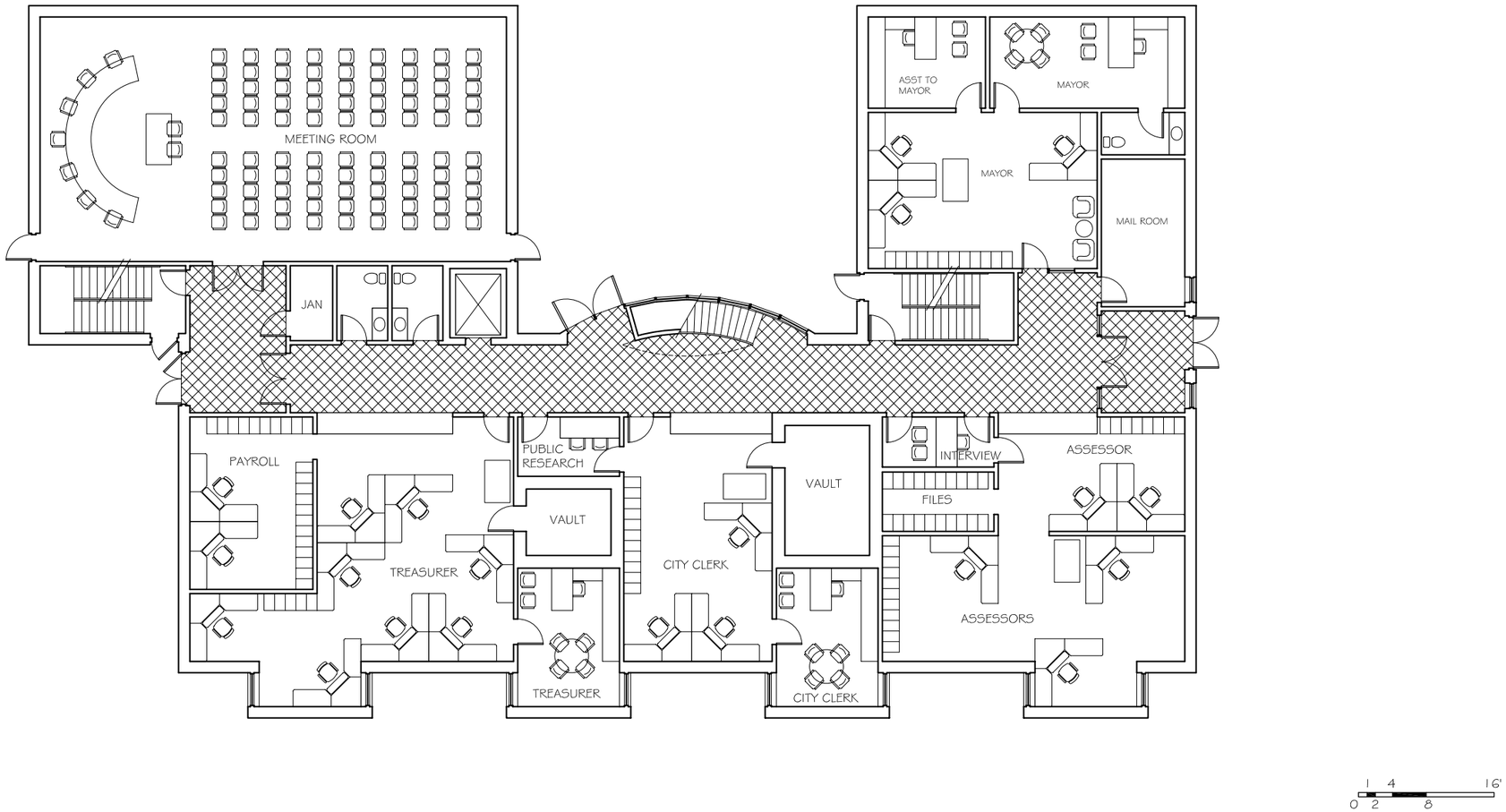


Figure 36: Scheme C second floor plan

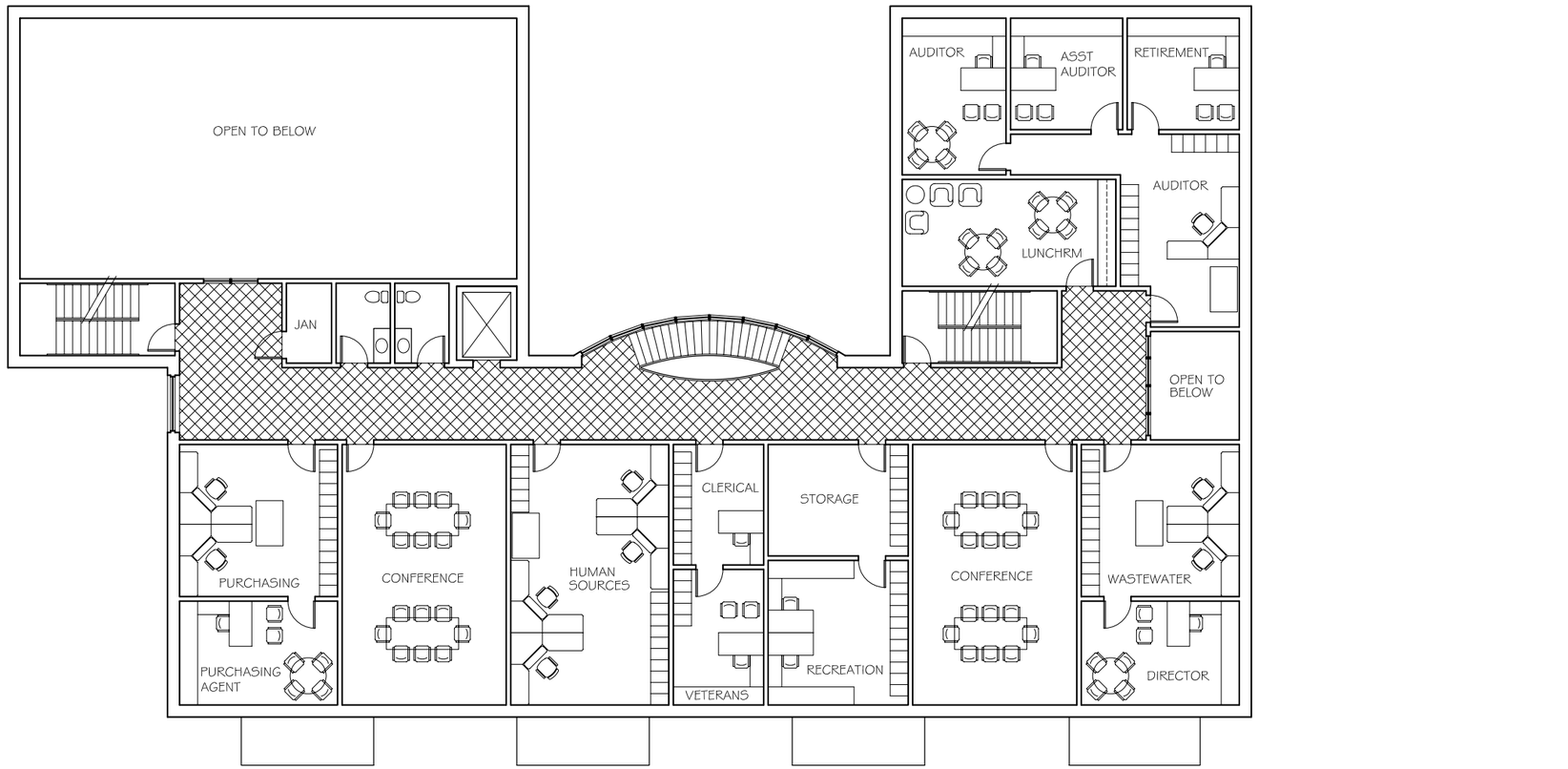
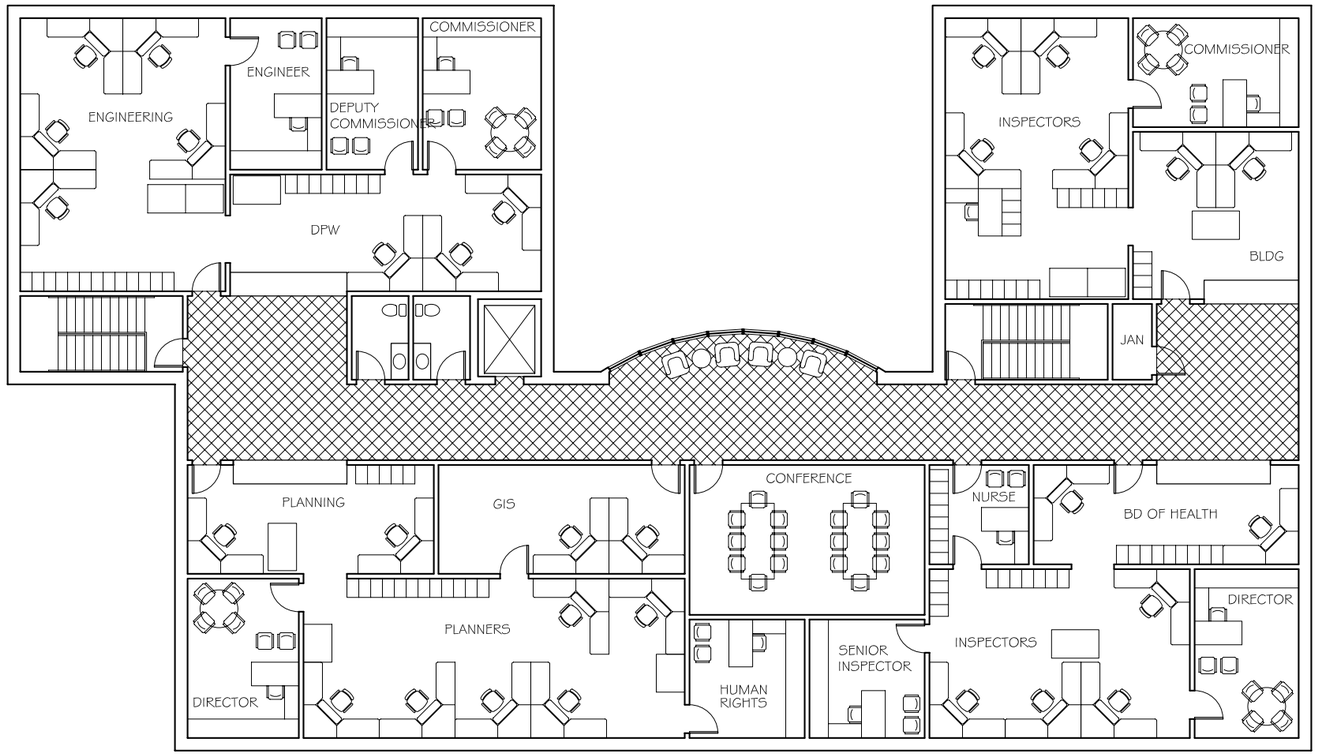


Figure 37: Scheme C third floor plan



Scheme D

This scheme is an alternative new construction proposal. (See Figures 38, 39, and 40.) In this scheme the existing building is demolished and a new building is located at the rear of the site, creating a large park-like front yard on Main Street. To minimize parking at the front of the building, some of the parking must be located below the building. If a costly transfer structure is to be avoided, the building's footprint and column locations must be dictated by the spacings and clearances required for a parking garage. The result is a two-story structure with a large rectangular footprint.

Locating the building at the rear of the site has a significant impact on the streetscape. The new public park on Main Street will appear even larger next to the existing private park on the west side of the existing building. In this scheme, the building itself will not be visible from a distance, as visitors approach from Main Street. The park provides a visual break in the urban street front and, as such, marks the location of City Hall from a distance. Directly in front of the building, the park provides a generous foreground that adds importance to the building's presentation. Only a few parking spaces, including the handicapped and short term spaces are located in front of the building. Vehicular access to the rear of the site is eliminated from Main Street. Parking spaces are only accessible from side streets. Because parking is located immediately below the building, the elevator and the stairways extend down to the parking level, allowing disabled visitors to also park below the building. Municipal staff have a safe and easy connection from the parking level to the office levels.

There is a primary public entrance facing the new public park space off of Main Street. This entrance brings visitors into a short and wide main corridor leading to the middle of the building, where the elevator and the public bathrooms are located. This corridor divides the building into two wings. The entrance provides at-grade independent access to the City Council Chamber and the remainder of City Hall. The central location of the elevator and the public bathrooms allows visitors

to easily orient themselves. It also minimizes unwanted noise in the corridors as visitors can go directly to upper levels from the parking level or first floor level without walking through the long corridors leading to offices. Egress stairways are located at the ends of the building.

The departments having the most frequent contact with the public are located on the first floor. Four conference rooms of various sizes are provided amongst the offices, one in each wing of each floor of the building. Service counters are brought out to the corridors to free up more usable space within offices and effectively separate the public from working areas. As parking is located below the building, there is no basement for storage and mechanical equipment. Two generous vaults, one for the City Clerk and a shared one are located centrally for easy access. General storage, located on the second floor, is also easily accessed by municipal staff.

Without considering costs, the appealing features of this scheme are:

- All existing building inefficiencies are eliminated.
- A small park on Main Street is created for public use.
- The City Council Chamber can be independently accessed when the rest of City Hall is closed.
- The City Council Chamber can be custom designed to suit needs, unrestricted by the limitations of the existing structure.
- There is an easy and safe sheltered connection from the parking level to the building.
- The front park provides a gracious entrance sequence for visitors and provides a buffer between parking and the entry.
- Circulation through the building is efficient and easy to understand for visitors.
- Maintenance routines are simplified with all new materials and building systems.
- General storage and vaults are located conveniently on the same levels as the offices.

Without considering costs, the drawbacks of this scheme are:

- The front façade of the existing City Hall, its best and most beloved feature, is eliminated.
- The City Hall building has no presence on Main Street.
- Access to parking is more difficult to find.
- The building's large footprint, but limited height may be unappealing.
- Parking below the building imposes limitations on the form of the building and its interior layout.

Figure 38: Scheme D site plan

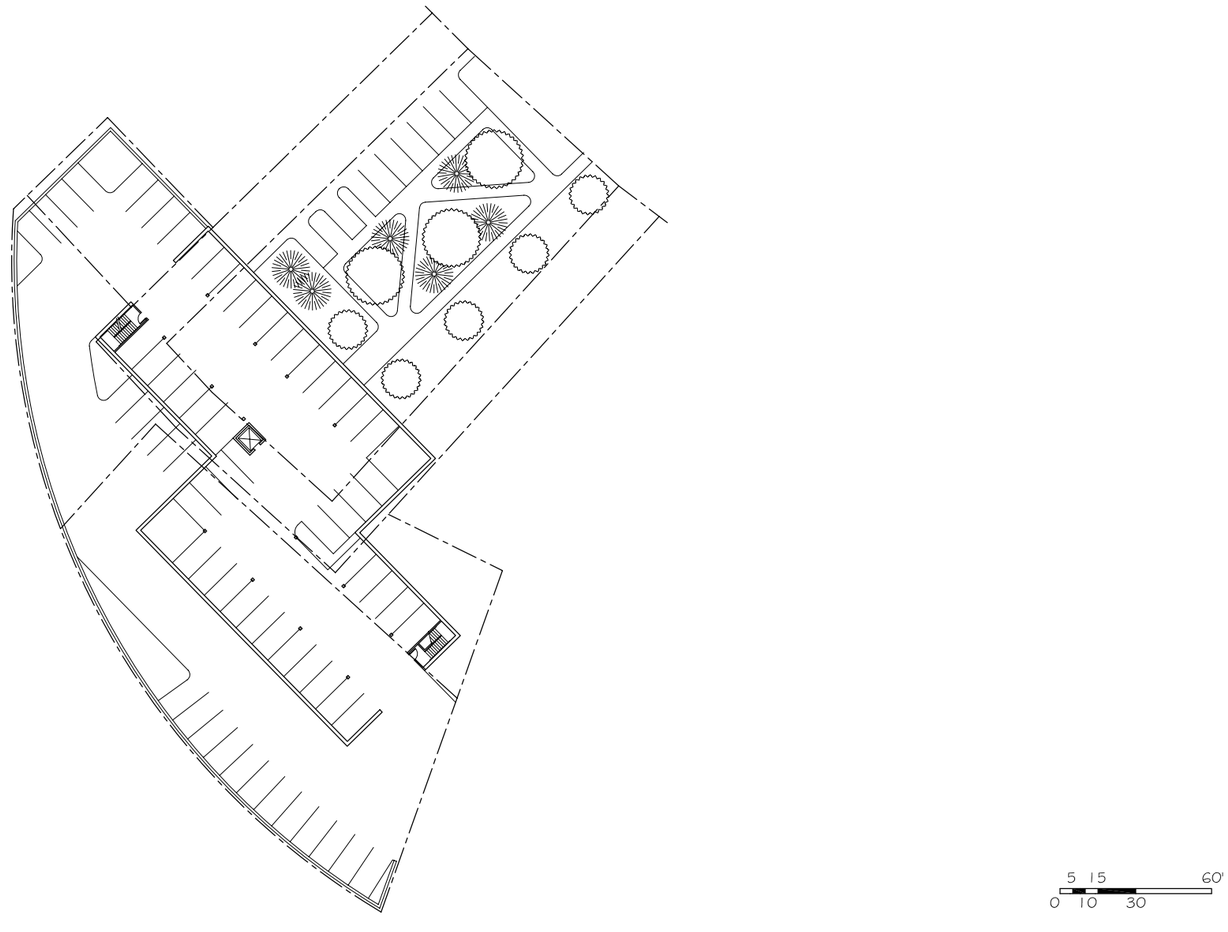


Figure 39: Scheme D first floor plan

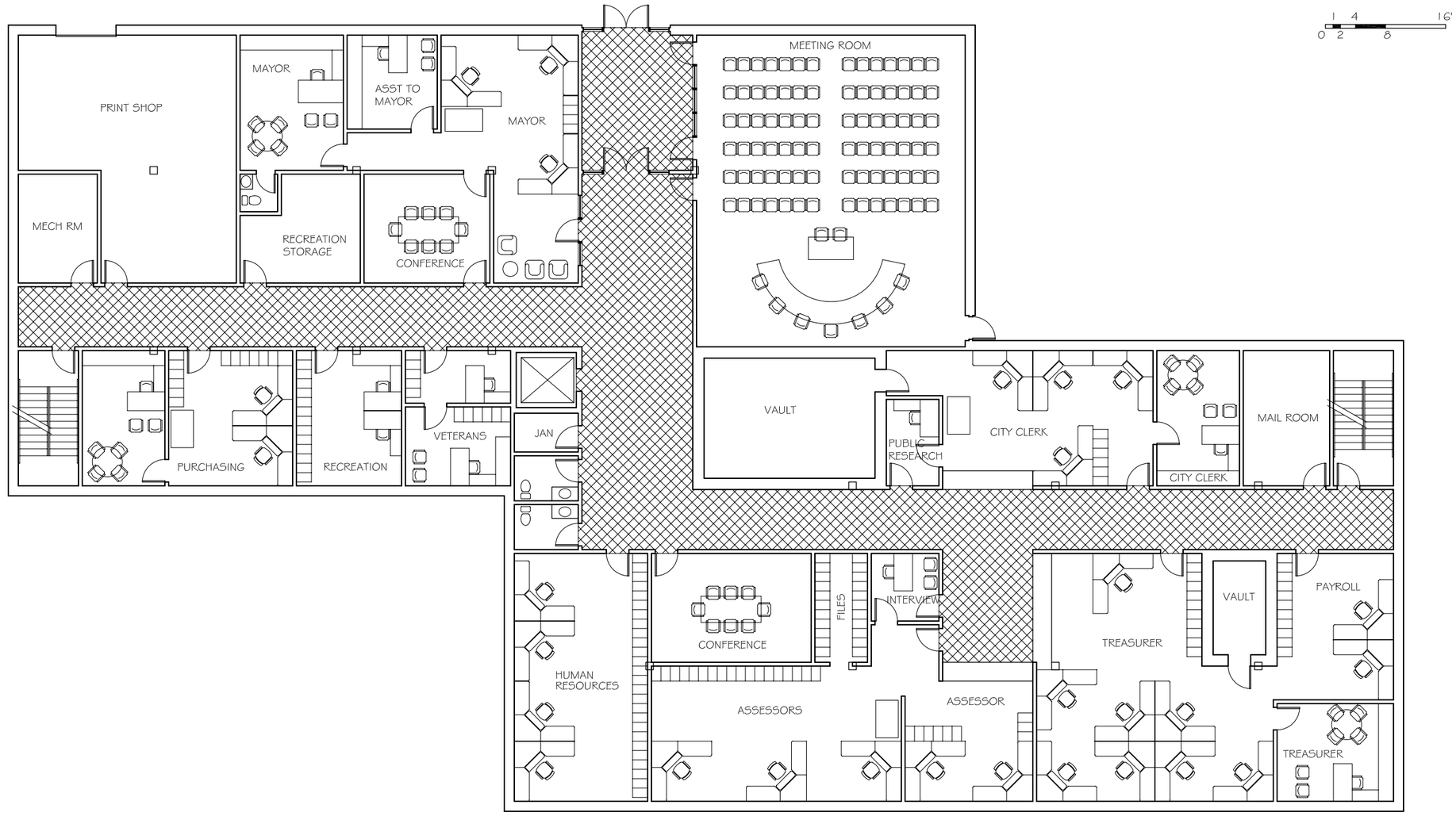
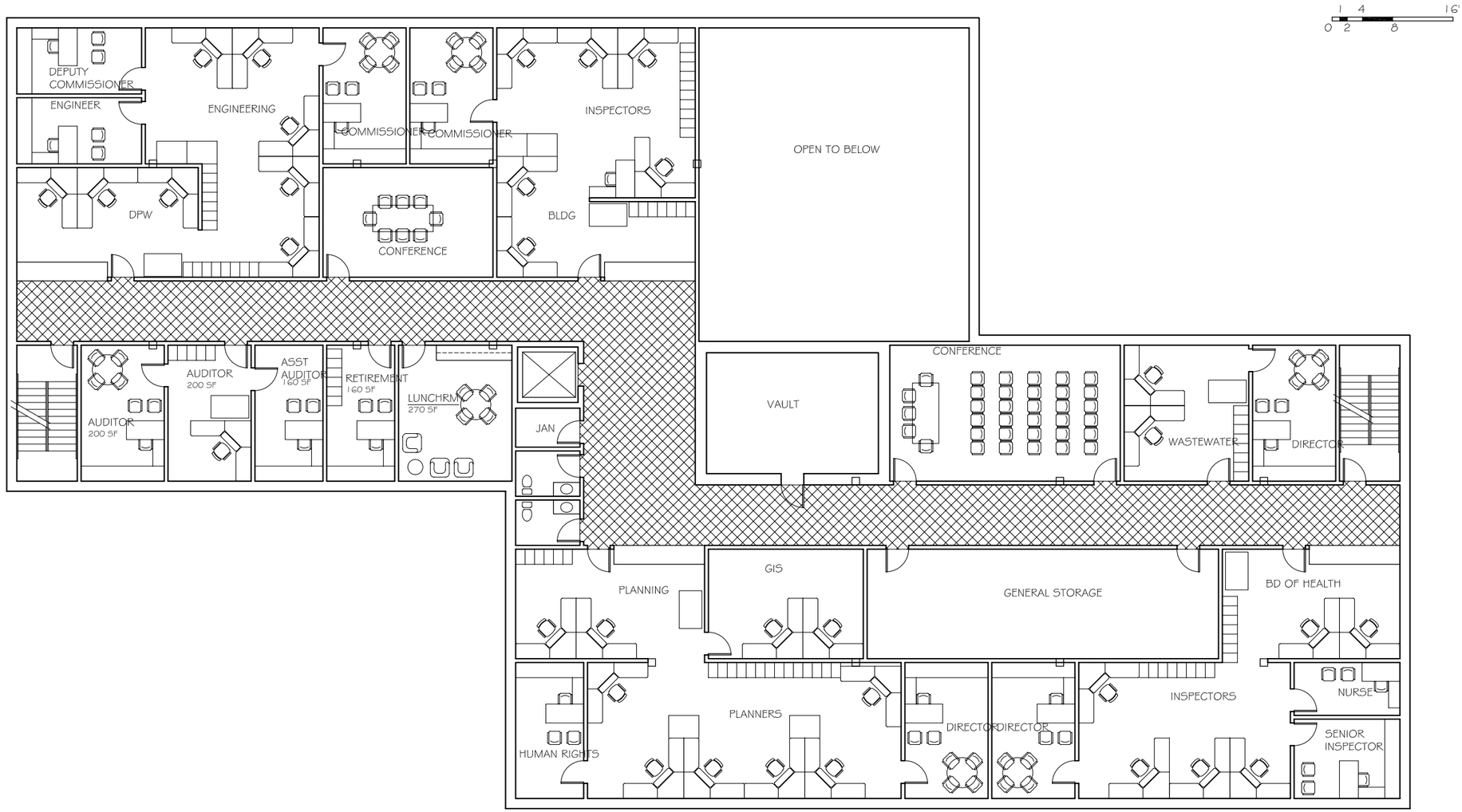


Figure 40: Scheme D second floor plan



Scheme E

This scheme shows a minimum scope of renovations required to make the existing building handicapped accessible and code compliant. (See Figures 41, 42, 43, 44, and 45.) The elevator, the open interior stairway, and the exterior fire escape are the major non-compliant elements of the existing building. As these features have to be removed and they are all located in the 1875 portion of the building, the most cost effective approach is to limit renovation work to this section, minimizing disruption to the remainder of the building. The exterior granite steps at the existing westside entrance are eliminated to create an at-grade handicapped accessible entrance. An elevator is added immediately inside the entrance to provide access to all six different floor levels, including the half levels on the second floor. One egress stair is created opposite the elevator, on the east side of the building. A second egress stairway is added to the back of the building. These egress stairways, unlike the existing front stairway, connect all floors. New public bathrooms are added on all floors above the basement of the 1875 section. To accommodate these changes, the office layouts must be changed, but they are minimized. The floor plans show layout changes only. Other proposed improvements, such as new ventilation systems and structural upgrades are not illustrated.

Without considering costs, the appealing features of this scheme are:

- The traditional Main Street façade is maintained and preserved.
- There is minimal disruption to existing offices and partial occupancy through construction is possible.

Without considering costs, the drawbacks of this scheme are:

- Space needs are not addressed.
- Existing inefficiencies are not addressed.
- Old wall and floor finishes in the 1852 section remain in place.
- Heating and cooling problems may not be remedied.

Figure 41: Scheme E basement floor plan

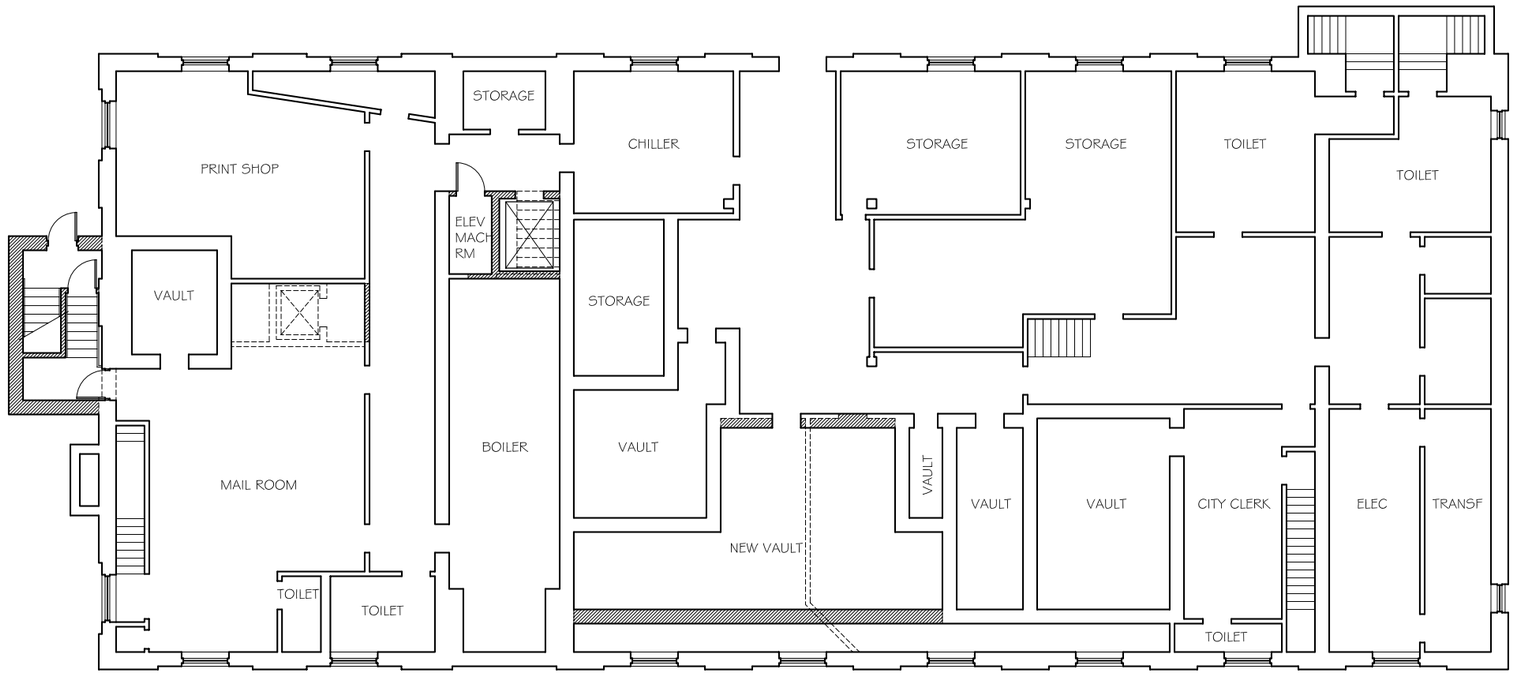


Figure 42: Scheme E first floor plan

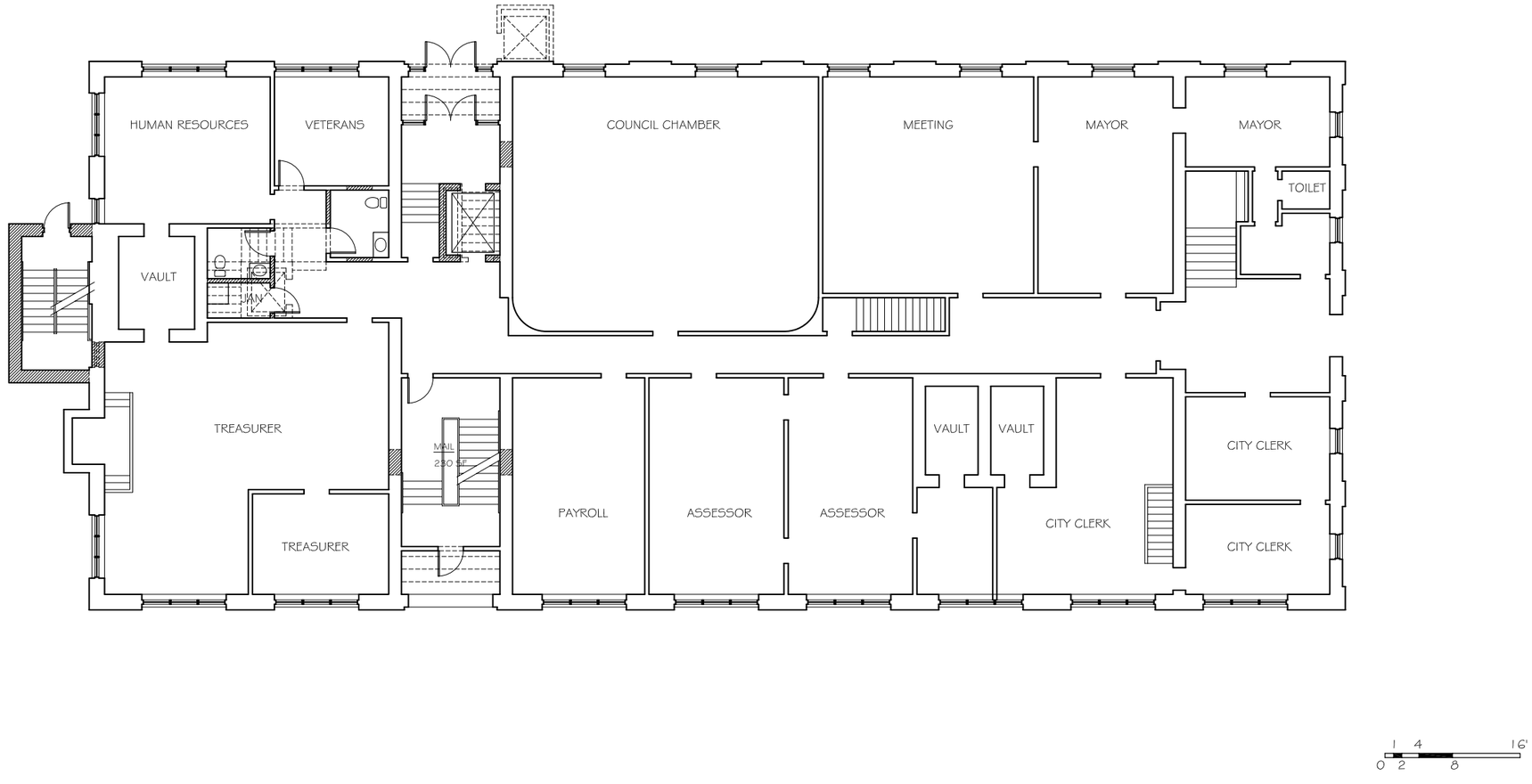


Figure 43: Scheme E second floor plan

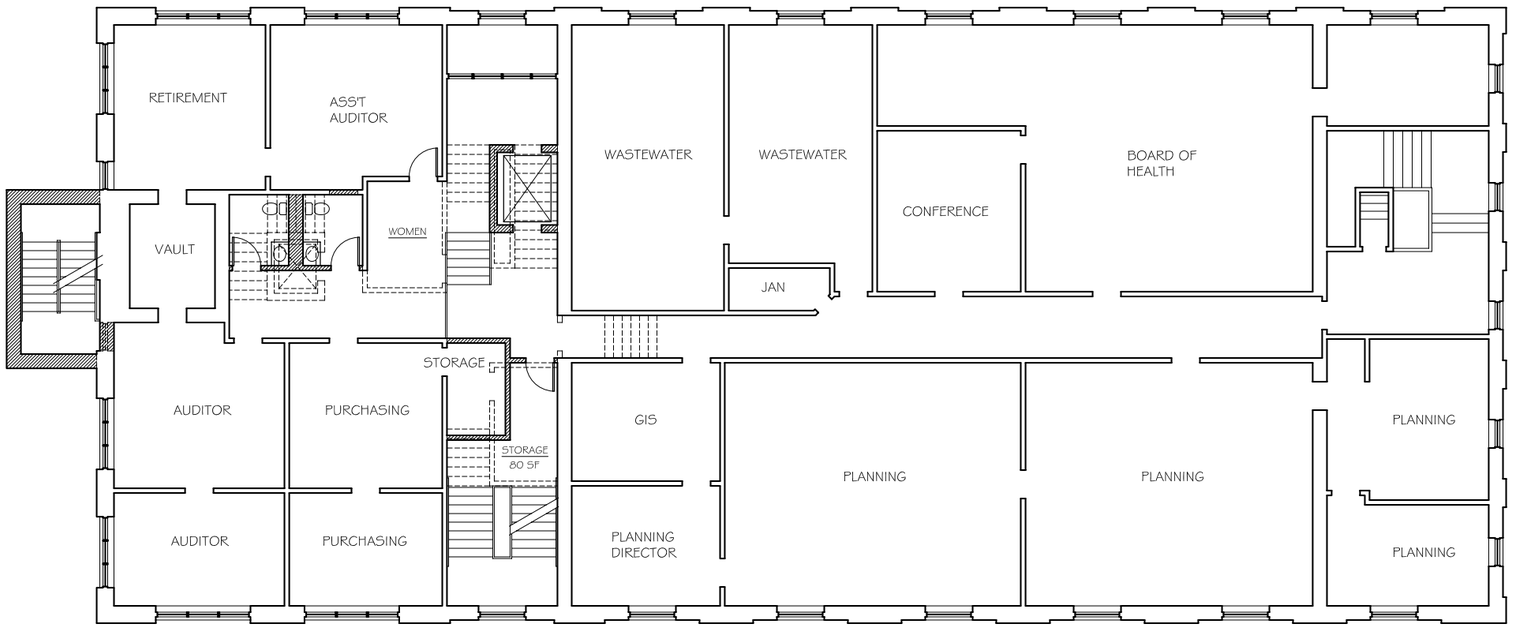


Figure 44: Scheme E third floor plan

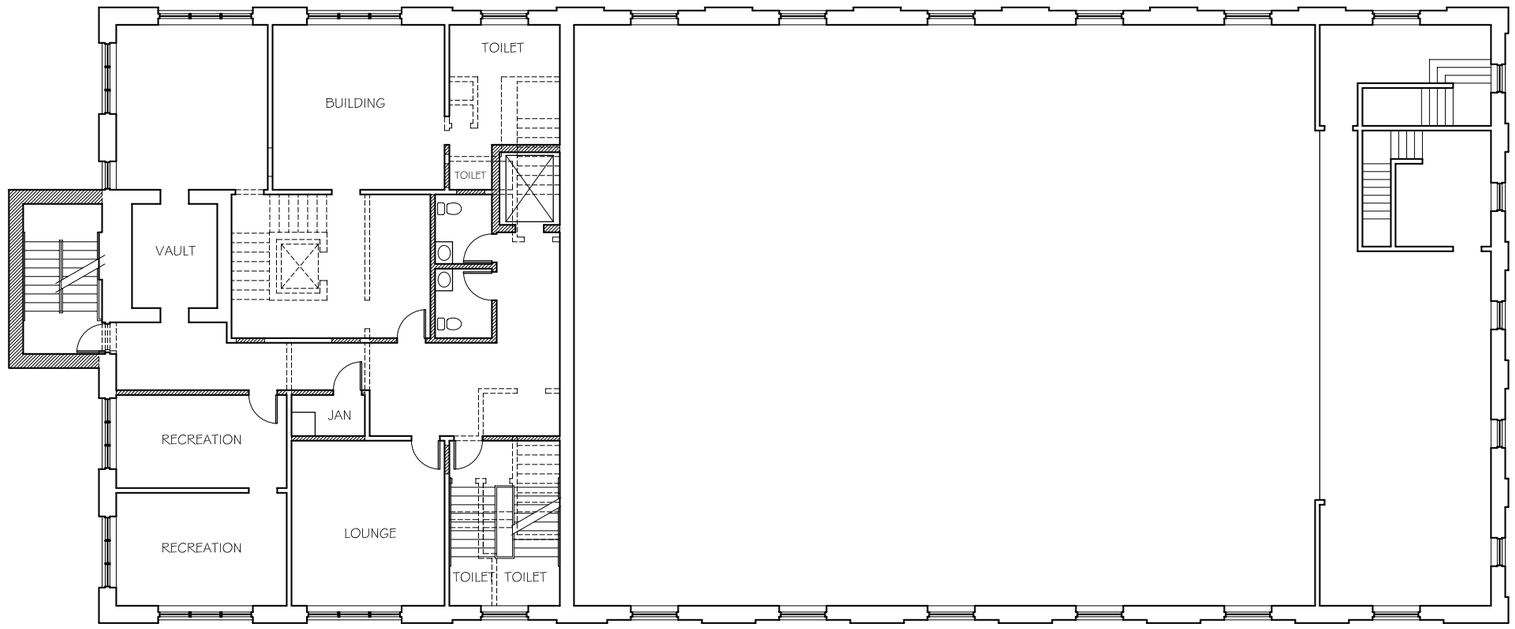
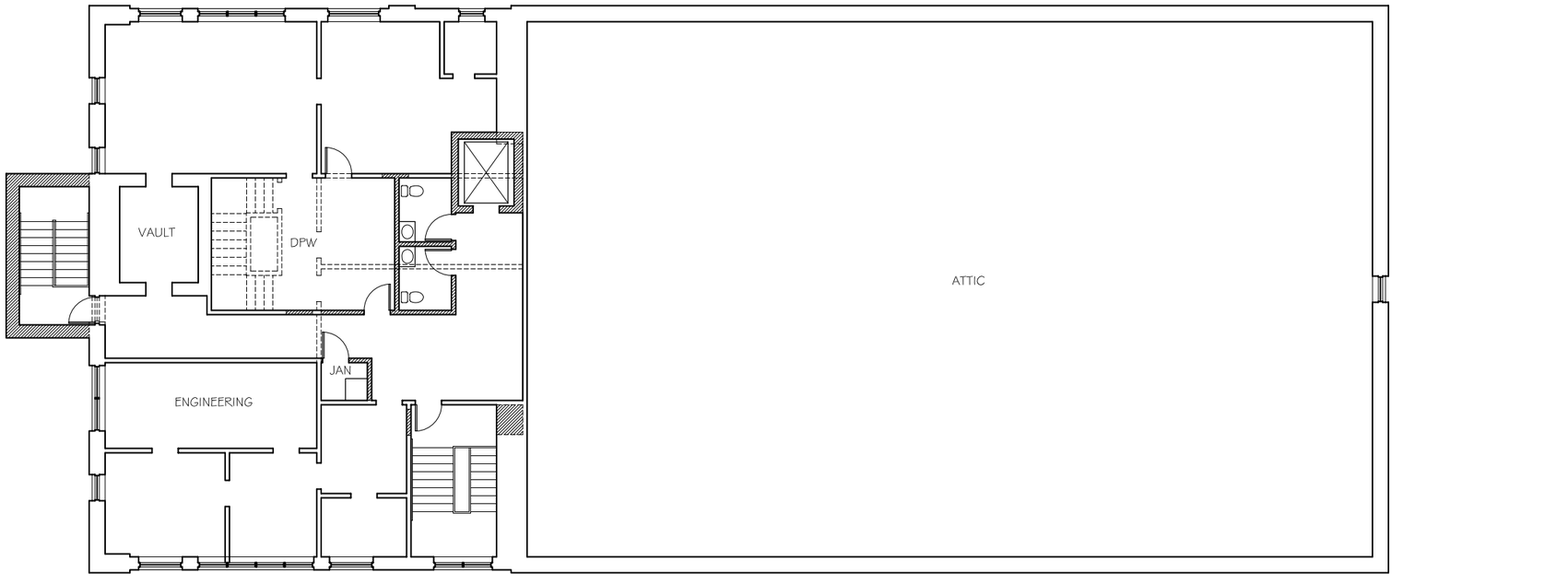


Figure 45: Scheme E fourth floor plan



Recommendation

After discussions with the Building Committee, Scheme B and Scheme C are recommended for different reasons. Scheme E is not recommended because space needs are not addressed at all. Between the new construction options, Scheme D is less appealing for two major reasons. The significant setback of the building from Main Street is not sympathetic to the existing urban character of the street. The building's massing and interior layout is dictated and, thereby, compromised by the parking structure below. Between the two renovation options, Scheme A is less appealing because the 1875 section, with its inherent inefficiencies, is retained. Whereas the 1852 building has some appeal as a historic structure, the 1875 portion lacks the same architectural features and characteristics that highlight the 1852 design.

Schemes B and C each has its strengths. Scheme B's primary asset is also its major drawback, when compared with Scheme C. The preservation of the historic 1852 façade on Main Street is very important to many residents. This presentation is familiar and beloved by many. The flip side of this strength is that the 1852 structure still retains some of its inefficiencies and will still require a conscientious a maintenance schedule and routine. Similarly, Scheme C's primary appeal is also its potentially greatest weakness, when compared with Scheme B. A completely new building can be customized to meet functional needs and to address the particular characteristics of the site. On the other hand, a piece of Fitchburg history will inevitably be lost with the demolition of the old City Hall. In deciding between these two approaches, the Building Committee, the Mayor, and the City must make a value judgment on the relative importance of the historic Main Street façade compared with the efficiencies of a new building.

COST ESTIMATE

Before comparing the costs of each approach, Scheme D was eliminated from consideration since Scheme C was the recommended approach to new construction preferred by the Building Committee. Incorporating the recommendations of the existing conditions report, an outline specifications for each scheme was prepared for cost estimating purposes (See Tables 2, 3, 4, and 5.) The cost estimate in its entirety, as prepared by D.G. Jones and Partners, Inc., can be found in Appendix F. (See Table 6 for Summary.)

In reviewing these preliminary construction cost estimates, note the following mark-up items:

- General Requirements: This is the cost of doing business and managing the project for the general contractor.

- Design Contingency: This is an allowance for further modifications and additions to the scope of construction as the design develops. The value, set at 15%, would be reduced as the design further develops.

- Construction Contingency: This is an allowance for change orders during construction. The value, set at 10%, is reasonable for renovation projects as many unforseen conditions may be uncovered during construction. For new construction projects, the amount may be reduced once existing conditions investigations have been completed.

Estimates for other project costs (i.e., "soft costs"), unrelated to the general contractor's work, are not included. For planning purposes, the Building Committee should add other cost factors, including:

- Escalation: This is the inflationary factor. The cost estimator recommends adding 1½% for each quarter from the date of the estimate to the bid date.

- Design fees: This is the fee for basic architectural and engineering services. A rate of 10% is a reasonable starting point for budgeting purposes. Design fees for renovation projects may be slightly more, up to 12%, because of their inherent complexity. Design fees for new construction projects may be slightly less, as little as 8%, because there are fewer existing conditions to coordinate.

- Additional design services: The costs of a site survey and geotechnical explorations are not normally included in the architect's basic services.

- Technology consultant: The owner should work directly with a technology consultant to design a network that meets their needs.

- Reimbursable expenses: This includes the cost of reproducing bid sets, bid advertisement, and other miscellaneous expenses associated with the project.

- Clerk-of-the works or Project manager: Basic architectural services include weekly site visits by the architect, but do not include more extensive construction oversight. On larger or more complex projects, the owner has the option to engage a clerk-of-the-works to be on the construction site on a regular basis and report his/her observations to the architect. Alternatively, the owner can engage a project manager who can provide both a clerk-of-the-works and additional construction consulting services, such as advice on scheduling and costs.

- Construction materials testing: This is the cost of testing materials, such as soils, concrete, and steel, during construction to ensure that they meet specified performance criteria.

- Furnishings: With new spaces, some consideration should be given to the cost of new furnishings and equipment.

- Relocation costs: This is moving costs and the cost of temporary facilities for displaced offices.

- Project contingency: Just as there is a construction contingency, it is advisable to include a project contingency for unanticipated soft costs.

To establish an estimated project budget, then, will require further discussion and research by the Building Committee.

Table 2: Scheme A Outline Specifications

DIVISION 2 - SITEWORK

1. Demolition
   a. Remove all existing finishes down to clean bare substrates.
   b. Remove existing underlayment and unsuitable subflooring.
   c. Remove and dispose of all interior walls, except bearing walls designated to remain.
   d. Remove and dispose of existing bathroom fixtures.
   e. Remove and dispose of roof framing over rear section of bldg.
   f. Remove and dispose of existing slate shingles over entire bldg.
   g. Remove and dispose of fire escape.
   h. Remove and dispose of existing fascia and soffit boards.
   i. Remove and dispose of existing leaders and gutters.
   j. Remove and dispose of all existing windows.
   k. Remove and dispose of all existing plumbing, HVAC, and electrical systems.
   l. Remove and dispose of cooling tower on roof.
   m. Remove and dispose of existing elevator.
   n. Remove and dispose of existing stairways.
   o. Remove and dispose of existing wheelchair lift and enclosure.
   p. Remove and dispose of all existing exterior accessory structures attached to main bldg.
   q. Remove and dispose of existing granite side entrance steps.
   r. Remove and dispose of existing parking deck, beams, and columns.
   s. Remove and dispose of existing asphalt paving.
2. Asbestos abatement.
3. Lead paint procedures.
4. Pave new asphalt parking lot.
5. New granite curbs at parking lot.
6. Paint parking and crosswalk stripes.
7. Excavate and backfill for elevator shaft foundations.
8. Excavate and backfill for new column footings in basement.
9. Excavate for new service access driveway.
10. Fill in existing elevator pit.
11. Gravel under concrete equipment pads.
12. New site lighting at parking lot.

DIVISION 3 - CONCRETE

1. Concrete foundation for elevator shaft.
2. Concrete pad for condenser unit.
3. New footings for new columns at basement level.
4. New slab in-fill at existing elevator shaft.
5. New concrete slab over vault.
6. New concrete parking deck, beams, and columns. Tie into existing retaining walls.
7. New concrete stairway in parking garage.
8. New concrete retaining walls for service access driveway.

DIVISION 4 - MASONRY

1. Re-point all exterior masonry. (Allow 25% replacement of total brick area.)
2. Complete cleaning of exterior masonry.
3. Concrete block for elevator shaft.
4. Concrete block walls for vault.
5. Repair stone lintels, sills, and other trims.

DIVISION 5 - METALS

1. Steel lintels and sill angles for elevator door openings.
2. Steel beams and lintels as required for new layout.
3. Steel angle supports and deck for slab over vaults.
4. New steel stairways down to basement.
5. New steel beams for third floor infill.

DIVISION 6 - WOOD AND PLASTICS

1. Patch and repair subflooring in selected areas. (Allow 10-15% of total floor area.)
2. New underlayment throughout under new finish flooring.
3. New plastic laminate service counters with base cabinets.
4. New wood stud framing.
5. Frame new interior door openings.
6. New LVL headers and beams as required.
7. New oak wainscoting for corridors on first, second, and third floors.
8. New oak base and chair rail meeting rooms.
9. Fill in floor framing on third floor.
10. Frame new roof over rear section of bldg.
11. Frame new interior stairways in hallways.
12. Re-frame rear section of bldg.
13. Replace one roof truss.
14. New cedar fascia and soffit boards.
15. One new clothes pole and hat shelf in each general office area.
16. Tie existing wood framing to exterior masonry walls.
17. Misc. blocking.
18. Temporary shoring.

DIVISION 7 -THERMAL AND MOISTURE PROTECTION

1. Roofing.
   a. New terne standing seam metal roof and underlayment.
   b. New lead coated copper gutters and downspouts.
   c. Ridge and soffit vents.
2. Sealants
   a. Replace all exterior sealants.
   b. New bathroom sealants.
   c. New interior sealants.
3. Insulation
   a. Acoustic insulation in all new partitions.
   b. New vapor retarder and attic insulation.
   c. 2" rigid insulation at all exterior walls, except basement.
4. Waterproof elevator pit.

DIVISION 8 -WINDOWS AND DOORS

1. New flush oak doors and metal frames for non-corridor doors.
2. New hardware for new doors.
3. New paneled oak doors with half lites and metal frames in corridors.
4. New aluminum clad wood entrance doors.
5. New aluminum clad wood windows throughout.
6. New oak rolling counter doors.

DIVISION 9 - FINISHES

1. Floors
   a. Ceramic tile in bathrooms.
   b. New carpeting throughout offices and meeting rooms. Vinyl base in offices.
   c. New cork tiles in corridors.
   d. Entrance carpeting at entrances vestibules.
   e. New rubber stair treads and risers.
2. Walls
   a. Veneer plaster over ⅝” gypsum wallboard for new walls.
   b. Metal z-channel framing at exterior walls.
3. Ceilings
   a. New 2x2 tegular acoustic ceiling tiles in corridors and meeting rooms.
   b. New 2x4 acoustic ceiling tiles in all spaces except corridors.
   c. New gypsum board ceiling to cover bottom of wood floor framing throughout.
   d. New gypsum board fascias and ceilings, 2' wide, in front of all windows.
4. Paint
   a. Paint all paintable new and existing interior surfaces.
   b. Sand down and finish new natural wood doors and trims throughout.
   c. Paint all new exterior paintable surfaces, including soffits and fascias.

DIVISION 10 - SPECIALTIES

1. Interior signage.
2. Toilet accessories for new bathrooms.
3. Louvers as required for new heating system, elevator ventilation, bathroom exhaust fans.
4. Three building directory signs.
5. HP parking signs.
6. Exterior building sign.

DIVISION 11 - EQUIPMENT

Not Used.

DIVISION 12 - FURNISHINGS

1. Plam cabinets and counters in lounge, copy rooms, and conference rooms.
2. Plam wall cabinets over file cabinets throughout.
3. Metal storage shelving in general storage and vault.

DIVISION 13 - SPECIAL CONSTRUCTION

1. Pre-fab vault panels and vault door.

DIVISION 14 - CONVEYING SYSTEMS

1. New 6-stop holeless hydraulic elevator with front and side opening doors.

DIVISION 15 - MECHANICAL

1. Plumbing
   a. Bathroom fixtures.
   b. Hot water tank.
   c. All new piping.
   d. Insulate all new hot and cold water pipes.
   e. New s.s. sink in lunchroom.
2. Fire Protection
   a. Sprinkler system throughout.
   b. Dry sprinkler system in attic.
3. HVAC
   a. Re-use existing boiler and burner.
   b. New hot water distribution system, using fan coils.
   c. New air conditioning and ventilation systems.
   d. Exhaust fans for new bathrooms.

DIVISION 16 - ELECTRICAL

1. Recessed downlights in corridors.
2. 2x4 parabolic fixtures in offices throughout.
3. 2x2 parabolic fixtures in meeting rooms.
4. 2x4 fixtures in basement spaces.
5. All new wiring throughout.
6. Upgrade electrical service.
7. Wire for computers and telephone throughout.
8. Fire alarm system to meet ADA.

Table 3: Scheme B Outline Specifications

DIVISION 2 - SITEWORK

1. Demolition
   a. Remove all existing finishes down to clean bare substrates.
   b. Remove existing underlayment and unsuitable subflooring.
   c. Remove and dispose of all interior walls, except bearing walls designated to remain.
   d. Remove and dispose of existing bathroom fixtures.
   e. Remove and dispose of entire rear section of bldg.
   f. Remove and dispose of existing slate shingles over entire building.
   g. Remove and dispose of fire escape.
   h. Remove and dispose of existing fascia and soffit boards.
   i. Remove and dispose of existing leaders and gutters.
   j. Remove and dispose of all existing windows.
   k. Remove and dispose of all existing plumbing, HVAC, and electrical systems.
   l. Remove and dispose of existing cooling tower on roof.
   m. Remove and dispose of existing elevator.
   n. Remove and dispose of existing stairways.
   o. Remove and dispose of existing wheelchair lift and enclosure.
   p. Remove and dispose of all existing exterior accessory structures attached to main bldg.
   q. Remove and dispose of existing granite side entrance steps.
   r. Remove and dispose of existing parking deck, beams, and columns.
   s. Remove and dispose of existing asphalt paving.
2. Asbestos abatement.
3. Lead paint procedures.
4. Pave new asphalt parking lot.
5. New granite curbs at parking lot.
6. Paint parking and crosswalk stripes.
7. Excavate and backfill for elevator shaft foundations.
8. Excavate and backfill for new column footings in basement.
9. Excavate for new service access driveway.
10. Fill in existing elevator pit.
11. Gravel under concrete equipment pads.
12. New site lighting at parking lot.
13. Excavate and backfill for new addition.

DIVISION 3 - CONCRETE

1. Concrete foundation for elevator shaft.
2. Concrete pad for condenser unit.
3. New footings for new columns at basement level.
4. New slab in-fill at existing elevator shaft.
5. New concrete slabs in metal deck for addition.
6. New concrete parking deck, beams, and columns. Tie into existing retaining walls.
7. New concrete stairway in parking garage.
8. New concrete foundations and basement slab for addition.
9. New concrete retaining walls for service access driveway.

DIVISION 4 - MASONRY

1. Re-point all exterior masonry. (Allow 25% replacement of total brick area.)
2. Complete cleaning of exterior masonry.
3. Concrete block for elevator shaft.
4. Concrete block walls for vault.
5. New brick and CMU back-up for exterior walls of addition.
6. Repair stone lintels, sills, and trims.

DIVISION 5 - METALS

1. Steel lintels and sill angles for elevator door openings.
2. Steel beams and lintels as required for new layout.
3. Steel angle supports and deck for slab over vaults.
4. New steel stairways down to basement.
5. New steel beams for third floor infill.
6. New steel structure for addition.

DIVISION 6 - WOOD AND PLASTICS

1. Patch and repair subflooring in selected areas. (Allow 10-15% of total floor area.)
2. New underlayment throughout under new finish flooring.
3. New plastic laminate service counters with base cabinets.
4. New wood stud framing.
5. Frame new interior door openings.
6. New LVL headers and beams as required.
7. New oak wainscoting for corridors on first, second, and third floors.
8. New oak base and chair rail meeting rooms.
9. Fill in floor framing on third floor.
10. Frame second floor of addition with wood.
11. New roof trusses for addition.
12. Replace one existing roof truss.
13. New cedar fascia and soffit boards.
14. One new clothes pole and hat shelf in each general office area.
15. Tie existing wood framing to exterior masonry walls.
16. Misc. blocking.
17. Temporary shoring.

DIVISION 7 -THERMAL AND MOISTURE PROTECTION

1. Roofing.
   a. New terne standing seam metal roof and underlayment.
   b. New lead coated copper gutters and downspouts.
   c. Ridge and soffit vents.
2. Sealants
   a. Replace all exterior sealants.
   b. New bathroom sealants.
   c. New interior and exterior sealants.
3. Insulation
   a. Acoustic insulation in all new partitions.
   b. New vapor retarder and attic insulation.
   c. 2" rigid insulation on all interior walls, except existing basement.
4. Damproofing on basement walls of addition.
5. Waterproof elevator pit.

DIVISION 8 -WINDOWS AND DOORS

1. New flush oak doors and metal frames for non-corridor doors.
2. New hardware for new doors.
3. New paneled oak doors with half lites and metal frames in corridors.
4. New aluminum clad wood entrance doors.
5. New aluminum clad wood windows throughout.
6. New overhead door for basement loading dock area.
7. New oak rolling counter doors.

DIVISION 9 - FINISHES

1. Floors
   a. Ceramic tile in bathrooms.
   b. New carpeting throughout offices and meeting rooms. Vinyl base in offices.
   c. New cork tiles in corridors.
   d. Entrance carpeting at entrances vestibules.
   e. New rubber stair treads and risers.
2. Walls
   a. Veneer plaster over ⅝” gypsum wallboard for new walls.
   b. Z-channels at exterior walls.
3. Ceilings
   a. New 2x2 tegular acoustic ceiling tiles in corridors and meeting rooms.
   b. New 2x4 acoustic ceiling tiles in all spaces except corridors.
   c. New gypsum board ceiling to cover bottom of wood floor framing throughout.
   d. Gypsum board ceiling and fascia, 2' wide, in front of all existing windows.
   e. Cement plaster ceilings at new rear entrance canopy.
4. Paint
   a. Paint all paintable new and existing interior surfaces.
   b. Sand down and finish new natural wood doors and trims throughout.
   c. Paint all new exterior paintable surfaces, including soffits and fascias.

DIVISION 10 - SPECIALTIES

1. New interior signage.
2. Toilet accessories for new bathrooms.
3. New louvers as required for new heating system, elevator ventilation, bathroom exhaust fans.
4. Three new building directory signs.
5. New HP parking signs.
6. New exterior building sign.

DIVISION 11 - EQUIPMENT

Not Used.

DIVISION 12 - FURNISHINGS

1. New plam cabinets and counters in lounge, copy rooms, and conference rooms.
2. New plam wall cabinets over file cabinets throughout.
3. Metal storage shelving in general storage and vault.

DIVISION 13 - SPECIAL CONSTRUCTION

1. Pre-fab vault panels and vault door.

DIVISION 14 - CONVEYING SYSTEMS

1. New 5-stop holeless hydraulic elevator with front and side opening doors.

DIVISION 15 - MECHANICAL

1. Plumbing
   a. New bathroom fixtures.
   b. New hot water tank.
   c. All new piping.
   d. Insulate all new hot and cold water pipes.
   e. New s.s. sink in lunchroom.
2. Fire Protection
   a. New sprinkler system throughout.
   b. New dry sprinkler system in attic.
3. HVAC
   a. Relocate and re-use existing boiler and burner.
   b. New flue for boiler.
   c. New hot water distribution system, using fan coils.
   d. New ventilation and air conditioning systems.
   e. Exhaust fans for new bathrooms.

DIVISION 16 - ELECTRICAL

1. New recessed downlights in corridors.
2. New 2x2 parabolic fixtures in meeting rooms.
3. New 2x4 parabolic fixtures in offices throughout.
4. New 2x4 fixtures in basement spaces.
5. All new wiring throughout.
6. Upgrade electrical service.

Table 4: Scheme C Outline Specifications

Scheme C includes an alternate for changing the exterior wall assembly. In the base estimate, masonry cavity walls with brick exterior and concrete masonry (CMU) back-up is proposed. The interior CMU is insulated with 2" of rigid insulation between metal Z-channel studs and faced with veneer plaster on gypsum wallboard. In the alternate, the exterior brick is backed up with a wall consisting of 6" metal studs faced with gypsum sheathing in the cavity and veneer plaster on gypsum wallboard on the interior. The wall is insulated with 6" fiberglass insulation between studs. The alternate is proposed as a potential cost savings, however, the masonry cavity wall is a higher quality system.

DIVISION 2 - SITEWORK

1. Demolition
   a. Remove and dispose of existing building in its entirety.
   b. Remove and dispose of existing parking deck, beams, and columns.
   c. Remove and dispose of existing asphalt paving.
2. Asbestos abatement.
3. Lead paint procedures.
4. Concrete walks.
5. Pave new asphalt parking lot.
6. New granite curbs at parking lot.
7. Paint parking and crosswalk stripes.
8. Excavate and backfill for foundations.
9. Excavate for service access driveway.
10. Gravel under concrete equipment pads.
11. Site lighting at parking lot.
12. Landscaping.

DIVISION 3 - CONCRETE

2. Concrete foundations.
3. Concrete pad for condenser unit.
4. Concrete slabs on metal deck for upper floors.
5. New concrete parking deck, beams, and columns. Tie into existing retaining walls.
6. New concrete stairway in parking garage.
7. Concrete foundations and basement slab.
8. Concrete retaining walls for service access driveway.

DIVISION 4 - MASONRY

1. Concrete block for elevator shaft.
2. Concrete block walls for vault.
3. Brick and CMU back-up for exterior walls. (Alt. #1: Delete CMU back-up.)

DIVISION 5 - METALS

1. Steel lintels and sill angles for elevator door openings.
2. Steel beams, columns, and lintels.
3. Steel pan stairways.
4. Structure for new canopies over both entrances.

DIVISION 6 - WOOD AND PLASTICS

1. New plastic laminate service counters with base cabinets.
2. Wood stud framing in hallways.
3. Frame new interior door openings.
4. Oak wainscoting for corridors on first, second, and third floors.
5. Oak base and chair rail meeting rooms.
6. Cedar fascia and soffit boards.
7. One clothes pole and hat shelf in each general office area.
8. Misc. blocking.

DIVISION 7 -THERMAL AND MOISTURE PROTECTION

1. Roofing
   a. Terne standing seam metal roof and underlayment.
   b. Lead coated copper gutters and downspouts.
   c. Ridge and soffit vents.
2. Interior and exterior sealants.
3. Insulation
   a. Acoustic insulation in all new partitions.
   b. Vapor retarder and attic insulation.
   c. 2" rigid insulation on interior of basement walls.
   d. 2" rigid insulation on interior of all exterior walls. (Delete in Alt. #1.)
   e. Alt. #1: Add 6" fiberglass batt insulation and vapor retarder at exterior walls.
4. Damproofing on basement walls.
5. Waterproof elevator pit.

DIVISION 8 -WINDOWS AND DOORS

1. Flush oak doors and metal frames for non-corridor doors.
2. Hardware for new doors.
3. Paneled oak doors with half lites and metal frames in corridors.
4. Aluminum clad wood entrance doors.
5. Aluminum clad wood windows throughout.
6. Aluminum curtain wall @ new curved stairway.
7. Overhead door for basement loading dock area.
8. Oak rolling counter doors.

DIVISION 9 - FINISHES

1. Floors
   a. Ceramic tile in bathrooms.
   b. Carpeting throughout offices and meeting rooms. Vinyl base in offices.
   c. Cork tiles in corridors.
   d. Entrance carpeting at entrances vestibules.
   e. New rubber stair treads and risers.
2. Walls
   a. Veneer plaster over ⅝" gypsum wallboard for new walls.
   b. Metal z-channels at exterior basement walls.
   c. Metal z-channels at exterior walls. (Delete in Alt. #1.)
   d. Alt. #1: Add 6" metal studs at exterior walls.
3. Ceilings
   a. 2x2 tegular acoustic ceiling tiles in corridors and meeting rooms.
   b. 2x4 acoustic ceiling tiles in all spaces except corridors.
   c. Cement plaster ceilings at new rear entrance canopy.
4. Paint
   a. Paint all paintable interior and exterior surfaces.
   b. Sand down and finish natural wood doors and trims throughout.

DIVISION 10 - SPECIALTIES

1. New interior signage.
2. Toilet accessories for new bathrooms.
3. New louvers as required for new heating system, elevator ventilation, bathroom exhaust fans.
4. Three new building directory signs.
5. New HP parking signs.
6. New exterior building sign.

DIVISION 11 - EQUIPMENT

Not Used.

DIVISION 12 - FURNISHINGS

1. New plam cabinets and counters in lounge, copy rooms, and conference rooms.
2. New plam wall cabinets over file cabinets throughout.
3. Metal storage shelving in general storage and vault.

DIVISION 13 - SPECIAL CONSTRUCTION

1. Pre-fab vault panels and vault door.

DIVISION 14 - CONVEYING SYSTEMS

1. New 4-stop holeless hydraulic elevator with front and side opening doors.

DIVISION 15 - MECHANICAL

1. Plumbing
   a. New bathroom fixtures.
   b. New hot water tank.
   c. All new piping.
   d. Insulate all new hot and cold water pipes.
   e. New s.s. sink in lunchroom.
2. Fire Protection
   a. New sprinkler system throughout.
   b. New dry sprinkler system in attic.
3. HVAC
   a. New VAV HVAC system.
   b. Exhaust fans for new bathrooms.

DIVISION 16 - ELECTRICAL

1. New recessed downlights in corridors.
2. New 2x2 parabolic fixtures in meeting rooms.
3. New 2x4 parabolic fixtures in offices throughout.
4. New 2x4 fixtures in basement spaces.
5. All new wiring throughout.
6. New electrical service.
7. Wire for computers and telephone throughout.
8. New fire alarm system to meet ADA.

Table 5: Scheme E Outline Specifications

DIVISION 2 - SITEWORK

1. Demolition
   a. Remove and dispose of all existing interior construction designated for demolition.
   b. Remove and dispose of existing slate shingles on all roofs.
   c. Remove and dispose of existing fascia and soffit boards.
   d. Remove and dispose of existing leaders and gutters.
   e. Remove and dispose of all existing windows.
   f. Remove and dispose of existing elevator.
   g. Remove and dispose of existing wheelchair lift and enclosure.
   h. Remove and dispose of existing stairways.
   i. Remove and dispose of fire escape.
   j. Remove and dispose of existing granite side entrance steps.
   k. Remove and dispose of existing parking deck, beams, and columns.
   l. Remove and dispose of existing asphalt paving.
2. Asbestos abatement.
3. Lead paint procedures.
4. Re-pave parking lot.
5. New granite curbs at parking lot.
6. Paint parking and crosswalk stripes.
7. Excavate and backfill for elevator shaft foundations.
8. Fill in existing elevator pit.
9. Excavate and backfill for new side entrances.
10. Excavate and backfill for new egress stairway.
11. Clear and clean path to second basement egress.
12. New site lighting at parking lot.

DIVISION 3 - CONCRETE

2. Concrete foundation for elevator shaft.
3. Concrete foundation fore new egress stairway.
4. New slab in-fill at existing elevator shaft.
5. New concrete slab over vault.
6. New exterior concrete slab at side entrance.
7. New exterior concrete steps at side exit.
8. New concrete parking deck, beams, and columns. Tie into existing retaining walls.
9. New concrete stairway in parking garage.

DIVISION 4 - MASONRY

1. Re-point entire exterior masonry. (Allow replacement of 25% of total brick area.)
2. Complete cleaning of exterior masonry.
3. Repair stone lintels, sills, and trims.
4. Concrete block walls for elevator shaft.
5. Concrete block walls for vault.
6. Brick and CMU exterior walls at new egress stairway.
7. Form new masonry openings into egress stairway.

DIVISION 5 - METALS

1. Steel lintels and sill angles for elevator door openings.
2. Steel beams and lintels as required for new layout.
3. Steel angle supports and deck for slab over vaults.
4. New steel stairways down to basement.

DIVISION 6 - WOOD AND PLASTICS

1. Frame new 2nd floor platform.
2. New wood stud framing.
3. Frame new interior door openings.
4. New LVL headers and beams as required.
5. Frame new floor openings for stairs.
6. New cedar fascia and soffit boards.
7. Repair and restore existing front doors.
8. Tie existing wood framing to exterior masonry walls. (To be verified by structural engineer.)
9. Replace one existing roof truss.
10. Misc. blocking.
11. Temporary shoring.

DIVISION 7 -THERMAL AND MOISTURE PROTECTION

1. Roofing.
    a. New terne standing seam metal roof and underlayment.
    b. New lead coated copper gutters and downspouts.
    c. Ridge and soffit vents.
2. Sealants
    a. Replace all exterior sealants.
    b. New bathroom sealants.
    c. New interior sealants.
3. Insulation
    a. Acoustic insulation in all new partitions.
    b. New vapor retarder and attic insulation.
4. Waterproof elevator pit.

DIVISION 8 -WINDOWS AND DOORS

1. New flush wood doors and metal frames.
2. New hardware for new and existing doors.
3. New aluminum clad wood side entrance doors.
4. New aluminum clad wood windows throughout.

DIVISION 9 - FINISHES

1. Floors
   a. Ceramic tile in bathrooms.
   b. New carpeting in offices throughout renovated areas.
   c. VCT in hallways of renovated areas.
   d. Entrance carpeting at entrances vestibules.
   e. New rubber stair treads and risers.
2. Walls
   a. Veneer plaster over ⅝" gypsum wallboard for new walls.
3. Ceilings
   a. New 2x4 acoustic ceiling tiles in all renovated areas.
   b. New gypsum board ceiling to cover bottom of wood floor framing renovated areas.
4. Paint
   a. Paint all paintable new and existing interior surfaces in renovated areas.
   b. Sand down and finish natural wood trims in renovated areas.
   c. Scrape, sand, and paint existing exterior wood trims.
   d. Paint all new exterior paintable surfaces, including soffits and fascias.

DIVISION 10 - SPECIALTIES

1. New interior signage.
2. Toilet accessories for new bathrooms.
3. New louvers as required for new heating system, elevator ventilation, bathroom exhaust fans.
4. Three new building directory signs.
5. New HP parking signs.
6. New free-standing exterior building sign.

DIVISION 11 - EQUIPMENT

Not Used.

DIVISION 12 - FURNISHINGS

1. Metal storage shelving in general new vault.

DIVISION 13 - SPECIAL CONSTRUCTION

1. Pre-fab vault panels and vault door.

DIVISION 14 - CONVEYING SYSTEMS

1. New 6-stop holeless hydraulic elevator with front and rear opening doors.

DIVISION 15 - MECHANICAL

1. Plumbing
   a. New bathroom fixtures.
   b. Insulate all new hot and cold water pipes.
2. Fire Protection
   a. Modify existing sprinkler system in renovated areas.
3. HVAC
   a. Re-use existing boiler and burner.
   b. Replace existing fan coils.
   c. Re-use existing cooling tower.
   d. Add air handlers for meeting rooms.
   e. Exhaust fans for new bathrooms.

DIVISION 16 - ELECTRICAL

1. New recessed downlights in corridors on upper floors.
2. New 2x4 parabolic fixtures in offices in renovated areas.
3. New 2x4 fixtures in basement spaces.
4. All new wiring in renovated areas.
5. Wire for computers and telephone in renovated areas.
6. New fire alarm system to meet ADA.

Table 6: Summary of Costs

			Scheme A			Scheme B			Scheme C			Scheme E		
	GROSS FLOOR AREA	=	36,175			36,571			33,517			38,536		
Div#	**Division Name**		**Cost $**	**$/sf**	**% of Bldg.**	**Cost $**	**$/sf**	**% of Bldg.**	**Cost $**	**$/sf**	**% of Bldg.**	**Cost $**	**$/sf**	**% of Bldg.**
2	Excavation, Etc.		3,844	0.11	0.09%	16,822	0.46	0.38%	47,944	1.43	0.88%	4,907	0.13	0.21%
3	Concrete		17,830	0.49	0.44%	141,920	3.88	3.22%	308,644	9.21	5.64%	27,317	0.71	1.16%
4	Masonry		394,456	10.90	9.71%	509,085	13.92	11.54%	690,163	20.59	12.61%	450,351	11.69	19.13%
5	Metals		113,153	3.13	2.79%	280,325	7.67	6.35%	668,226	19.94	12.21%	75,100	1.95	3.19%
6	Wood & Plastics		392,884	10.86	9.67%	374,589	10.24	8.49%	409,581	12.22	7.48%	81,634	2.12	3.47%
7	Thermal & Moisture Protection		334,498	9.25	8.23%	337,617	9.23	7.65%	363,234	10.84	6.64%	327,276	8.49	13.90%
8	Doors & Windows		329,060	9.10	8.10%	310,465	8.49	7.04%	336,957	10.05	6.16%	227,685	5.91	9.67%
9	Finishes		481,841	13.32	11.86%	477,430	13.05	10.82%	448,563	13.38	8.20%	146,765	3.81	6.23%
10	Specialties		33,850	0.94	0.83%	36,590	1.00	0.83%	47,580	1.42	0.87%	33,850	0.88	1.44%
11	Equipment		5,500	0.15	0.14%	5,500	0.15	0.12%	5,500	0.16	0.10%	0	0.00	0.00%
12	Furnishings		10,830	0.30	0.27%	17,330	0.47	0.39%	30,580	0.91	0.56%	1,600	0.04	0.07%
13	Special Construction		150,375	4.16	3.70%	135,525	3.71	3.07%	224,750	6.71	4.11%	0	0.00	0.00%
14	Conveying Systems		118,965	3.29	2.93%	97,335	2.66	2.21%	75,705	2.26	1.38%	118,965	3.09	5.05%
15	Plumbing		107,351	2.97	2.64%	115,017	3.15	2.61%	108,265	3.23	1.98%	91,582	2.38	3.89%
15	Fire Protection		129,984	3.59	3.20%	131,205	3.59	2.97%	122,045	3.64	2.23%	119,637	3.10	5.08%
15	HVAC		682,197	18.86	16.79%	697,870	19.08	15.81%	879,543	26.24	16.07%	269,812	7.00	11.46%
16	Electrical		460,557	12.73	11.34%	452,974	12.39	10.26%	454,130	13.55	8.30%	202,235	5.25	8.59%
2	Demolition/Alteration		294,855	8.15	7.26%	275,328	7.53	6.24%	250,875	7.49	4.58%	175,869	4.56	7.47%
	Sub-Total Building		**4,062,029**	**112.29**	**100%**	**4,412,928**	**120.67**	**100%**	**5,472,284**	**163.27**	**100%**	**2,354,583**	**61.10**	**100%**
2	Site Work/Site Utilities		745,226	20.60		769,250	21.03		811,884	24.22		720,775	18.70	
	Sub-Total Construction		**4,807,255**	**132.89**		**5,182,177**	**141.70**		**6,284,167**	**187.49**		**3,075,358**	**79.80**	
1	General Requirements		553,375	15.30		558,475	15.27		575,475	17.17		338,525	8.78	
	Design Contingency	15.00%	804,095	22.23		861,098	23.55		1,028,946	30.70		512,082	13.29	
	Construction Contingency	10.00%	616,472	17.04		660,175	18.05		788,859	23.54		392,597	10.19	
	Total Construction Cost		**6,781,197**	**187.46**		**7,261,925**	**198.57**		**8,677,447**	**258.90**		**4,318,562**	**112.07**	

RECOMMENDATIONS

In summary, Scheme B is the recommended approach for renovations and expansion of the Fitchburg City Hall. The scope of the construction budget includes:

- Upgrade existing building to conform to all current codes.
- Provide full access for the disabled.
- Repair and upgrade exterior building envelope.
- Replace all interior finishes.
- Replace all building systems.
- Abate all hazardous materials.
- Demolish 1875 portion of existing building.
- Construct two-story addition.
- Demolish existing parking structure.
- Construct new two-story parking structure.
- Re-pave parking areas and driveways.

Scheme C is the recommended approach for new construction. The scope of the construction budget includes:

- Abate all hazardous materials.
- Demolish existing building in its entirety.
- Construct new three-story building, with full basement, in the same general location as the existing building.
- Demolish existing parking structure.
- Construct new two-story parking structure.
- Re-pave parking areas and driveways.

The feasibility study has established two general design directions with their associated scopes of work. It is not intended that either design, as shown, will remain unchanged. Once a direction is selected, the preferred design must be developed with more careful coordination of needs and existing conditions.

The Fitchburg City Hall is in desperate need of upgrade. The Building Committee has worked diligently toward this goal. With this feasibility study, they have taken the first step toward realizing a successful project in which the entire community can take pride.

APPENDIX A

Request for Proposals

2-16-1/03

CITY OF FITCHBURG
REQUEST FOR PROPOSALS
PROFESSIONAL DESIGN SERVICES

Fitchburg City Hall Feasibility Study

The City of Fitchburg is seeking a qualified design firm to conduct a detailed engineering, architectural and space needs study of the current city hall and parking garage complex. The study is intended to provide a comprehensive and objective analysis of the various short and long term options available to the city, including rehabilitation, demolition, relocation, or reconstruction.

Scope of Work

- Conduct an analysis of short and long term capital improvement needs of the city hall building. Pay particular attention to major building system needs, including roofing and trussing systems previously identified as deficient. Include an analysis of the structural needs and condition of the parking garage located to the rear of city hall.

- Conduct a space needs study of all city departments operating within city hall. Meet with city representatives to develop an understanding of services provided and facility needs.

- Using the above information, develop cost estimates for implementing necessary improvements to the existing building and parking garage. Include all associated costs, such as temporary relocation of city departments, as necessary. Determine whether proposed improvements would be consistent with the Secretary of the Interior's Standards for the Rehabilitation of Historic Structures.

- Develop and assess the feasibility of various alternative models to the renovation of the existing structure. These models shall include but are not limited to leasing, constructing or purchasing a building at a new location, demolishing or re-using the existing building for an alternative purpose, and constructing a new facility at the site of the current one. Provide detailed cost estimates for each model developed, including associated costs. Identify possible logistical problems associated with each alternative and their potential impact on the provision of city services during implementation

- Upon acceptance of the study, meet with city representatives and attend public meetings as necessary to explain findings.

- Subject to the timely selection of an acceptable model, develop a program to implement the selected model.

Background Information

Fitchburg City Hall, located on 718 Main Street, is considered a historically significant (though not nationally registered) structure which has significant structural and space needs. These needs, many of which have been previously identified, involve various building components such as the roofing and truss systems, windows, heating and cooling systems, electrical and plumbing systems, handicapped accessibility and the efficient use of existing building space. Copies of excerpts from previous studies on the building are attached.

As it moves into the new millennium, the city is seeking an objective assessment of the most cost effective and efficient means to meet its future responsibilities to the citizens of Fitchburg, while remaining sensitive to the historic significance and location of the current city hall. A construction budget has not been established for this project and the city is seeking only to complete a comprehensive assessment of the various options to guide future decisions. If the decision is made to proceed with any of these options, the city will conduct a separate designer selection process to select a design firm for the proposed project. The firm chosen to conduct the feasibility study will retain its eligibility to respond to any such solicitations in the future, subject to state procurement laws, including those related to the conduct of an independent or peer review as required.

Review Procedures and Criteria

Review of all submittals will be consistent with the Designer Selection Procedures adopted by the City of Fitchburg, the program set forth in this solicitation, and other requirements that will be asked of the project finalists.

The successful firm will demonstrate extensive experience in the conduct of similar studies of public buildings, particularly city or town halls. Specific related experience and professional registrations on the proposed project team will be carefully considered. As this project is considered time sensitive, the ability of prospective firms to commence work upon award of contract and proceed quickly with the study will also be considered.

Review Criteria will include, but is not limited to the following:

- Qualifications of the proposed project team
- Technical ability to analyze the site, provide accurate cost estimates, conduct a space needs study and develop alternative models.
- Prior study and development experience for municipal buildings, particularly city/town halls.
- Previous experience in leading a public participatory process.

Upon completion of its review of proposals and selection of finalists, the Designer Selection Committee will schedule interviews with each finalist's proposed project team. Further interviews and/or requests for information may also be required.

Fees

The fee for the study will be negotiated with the selected firm, which will be requested to provide a detailed fee proposal for the work to be performed. If an agreement cannot be reached, negotiations will be concluded and the city reserves the right to enter into fee negotiations with the next most qualified firm.

The City of Fitchburg's standard contract document for professional services will be used as the official award document. A copy of this contract is available for review at the Office of the Purchasing Agent, 718 Main Street-City Hall, Fitchburg, MA.

Instructions to Respondents

To be considered complete and eligible for consideration, all responses to this solicitation must include the following information:

- A narrative providing detailed information regarding your proposed project team's approach to addressing the scope of work identified in this RFP
- A projected time line for completing identified tasks
- A completed copy of the "Application to Designer Selection Board" DSB 1 form (rev 90)

Responses shall be limited to a maximum of 25, 8 ½" x 11" sheets, printed on one side. The DSB form and required resumes are not included in the above page limit. Proposals should not include proposed fees. Fee proposals will be requested of selected finalists only.

A walk-through of the building will be conducted on Wednesday, September 19th at 10:00 A.M. Interested parties will meet at the Conference Room -2nd floor City Hall.

Responses to this request for proposals shall be returned to the City as one original set of documents containing an original signature of the firms principal and Five (5) copies of the same. All submittals must be received no later than 3:00 P.M. on September 27th, 2001, at the following location:

Nancy Wilson
Office of the Purchasing Agent
718 Main Street - 2nd Floor, City Hall
Fitchburg, MA. 01420.

E-Mail questions to: *sbreault@ci.fitchburg.ma.us*
Deadline for submission of all questions is September 20th at 3:00 P.M. Responses will be forwarded to all interested parties. Phone call questions will not be accepted.

APPENDIX B

Structural Engineer's Report

2-16-1/06

FOLEY & BUHL
STRUCTURAL ENGINEERS

February 24, 2003

Ms. Kaffee Kang
Kang Associates, Inc.
410 Boston Post Road
Sudbury, MA 01776

Re: Fitchburg City Hall

Dear Kaffee:

A visual observation of the existing building was made thru several existing observation holes as a basis for an evaluation of requirements for proposed renovation.

The existing structure is rectangular in shape with an approximately 9,000 square feet footprint and a combination of three and four stories with basement in height.

The construction is ordinary wood framing with exterior unreinforced masonry walls. The extent of any corrective work, if any, per the requirement of Section 3408 of the current 6th edition of the Massachusetts Building Code depends on the extent/cost of the proposed alterations. Since no change in Use group is anticipated, Table 3408.1 will put the structures into Seismic Hazards Category 1 provided that "the total cost of alterations is less than or equal to 50% of the assessed value of the building". As notes 2 and 3 of table 3408.1 further explain, certain costs may be excluded from the total cost. If the alterations fall below the adjusted 50% level no structural changes/improvements are necessary unless new heavy loadings such as file rooms are encountered. If the cost exceeds the adjusted 50% level then the building would fall under Seismic Category 2 and would require seismic hazards of Section 3408.5.44 to be addressed. The masonry walls would require connection to the floor and roof diaphragms.

Measurements of existing first floor joist and beams were made. The nominal 2½ x 12 posts at 19" o.c. can support the code office loading if the existing notched end detail is corrected. (see photos A & B) The nominal 8x12 beams at approximately 16 feet o.c. bear on a combination of granite and steel posts and masonry walls. In order to support code office loading a minimum span of approximately eight feet is determined. Several column additions are required.

The second and third floor framing appears similar to the first floor but with various spans. Undetermined floor trussing or columns located in partitions are anticipated. Extensive exploration holes would be required to determine the exact framing.

FOLEY & BUHL
ENGINEERING, INC.

9 GALEN ST. · SUITE 240
WATERTOWN, MA 02472
TEL (617) 926-9150
FAX (617) 924-4467

The following items are recommended to be included in potential renovation costs:

A. First Floor

1. Addition of joist hangers including removal of ceiling for accessibility

   800 Linear Feet

2. Addition of 10 steel columns and footings

B. Second and Third Floors

1. Addition of joist hangers including removal of ceiling for accessability

   800 Linear Feet each level

2. Allowance for possible added vertical supports

C. Attic

1. Addition of joist hangers including removal and replacement of wood decking if area to be used for light storage.

   800 Linear Feet

D. Roof

1. Partial replacement/repairs of damaged truss including temporary shoring.

E. Seismic 2 Hazard if required

1. Tying of exterior walls to floor and roof diaphragm

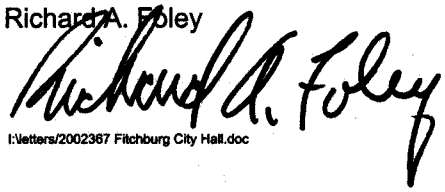
   1800 Linear Feet

F. New Floor, Stair, and Elevator work in rear portion of building.

If you have any questions please do not hesitate to call.

Very truly yours,

Richard A. Foley



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FOLEY & BUHL
STRUCTURAL ENGINEERS

February 25, 2003

Ms. Kaffee Kang
Kang Associates, Inc.
410 Boston Post Road
Sudbury, MA 01776

Re: Fitchburg City Hall

Dear Kaffee:

The existing below grade parking garage was observed. No structural drawings were available. Water leakage thru the roof is prevalent by the indication of staining below the joints (Photo 1 & 2). The top surface is covered by bituminous concrete and although not observed concrete deterioration is a distinct possibility. The beam column framing along the street above signs of distress (photo 3 & 4). Several openings have been blocked up with concrete masonry units and several others bays are distressed. A large crack has developed between the end of the garage and the adjacent retaining wall along the street. (Photo 5)
The retaining walls on two sides are of unknown design as to whether they are braced or cantilever. In our opinion the garage needs major repairs if not replacement.

If you have any questions please do not hesitate to call.

Very truly yours,

Richard A. Foley

Very truly yours,
Richard A. Foley

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APPENDIX C

Mechanical and Electrical Engineers' Report

MacRITCHIE ENGINEERING INCORPORATED
197 Quincy Avenue, Braintree, MA 02184
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FITCHBURG CITY HALL
EXISTING ELECTRICAL AND MECHANICAL SYSTEMS REPORT

HVAC

Existing Systems

The existing HVAC system is a two pipe fan coil system. The entire system is about eighteen years old except for the two boilers which were installed a year ago and the oil tanks which were installed in 1996.

At the time of the fan coil installation, perimeter fan coil units were equipped with a field fabricated outside air connections. Because of problems with freezing coils, these outside air connections have been sealed shut.

Currently there is no fresh air make-up to the building. The only mechanical ventilation is via six small exhaust fans that serve toilet rooms.

The existing HVAC system does not meet code mandated fresh air requirements and is particularly problematic in areas of high occupancy such as the Council Chambers and adjacent meeting areas.

The chiller is a water cooled Trane, reciprocating chiller with a Baltimore Air Coil, closed circuit cooling tower. The chiller and tower are operational and appear in fair condition. ASHRAE studies estimate the mean useful (service) life of both the chiller and the cooling tower to be twenty (20) years.

The two boilers are Burnham, cast iron sectional boilers with the ability to operate on either natural gas or No. 2 fuel oil. Each has an input of 1198 MBH and I.B.R. output of 834 MBH. Controls for the building are pneumatic by Johnson Controls. The building has five, day-night temperature zones, in the building each with a manual override switch.

Much of the mechanical equipment and piping in the basement is heavily rusted. It is unknown if this was caused by a one time occurrence (coupled with a lack of ventilation air) or is an on going moisture and humidity problem. The basement was dry on the day of the site visit (September 30, 2002).

Two small supplementary air conditioning systems have been added to the building. One is a 1 to 2 ton split system for the planning office, the other is a five (5) ton packaged roof top unit. The two pipe fan coil system is supplied with wither hot water or chilled water. The system cannot accommodate simultaneous heating and cooling. It is presumed the two supplemental systems were added as the result of a year round air conditioning need.

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Proposed HVAC Scope of Work

There are three separate HVAC scopes of work, each coinciding with a separate general architectural scope of work. Generally, the three architectural scopes of work are as follows:

1. Minimal renovations to the existing building and systems. This would include code compliance and minimal improvements that would result in major improvements.

2. Major renovations of the existing building including replacement of currently functional but aging equipment and construction of new space (addition).

3. Complete replacement of building and obviously the HVAC system.

Scope Number 1

Currently the number issue is lack of ventilation air. Areas of high occupancy such as the Council Chambers and adjacent meeting rooms have no means of mechanical ventilation. General office ventilation throughout the building is also required. Basement ventilation will help prevent rusting of the pipe and general deterioration due to high humidity.

Because of high occupancies in both the Council Chambers and meeting rooms, which could trigger the need for air conditioning, when the fan coil system is in the heating mode dedicated (direct expansion) HVAC systems should be installed for each space.

The Council Chambers will have a 2,500 CFM system with hot water heating coil, duct distribution, and seven and a half ton direct expansion cooling coil with remote air cooled condenser.

The adjacent meeting room will have a similar stand alone system with a capacity of 1.600 CFM and five tons of cooling.

Both rooms will have a dedicated exhaust system with a capacity of 1,250 CFM and 800 CFM respectively. Existing fan coil units at the perimeter will remain.

The office portion of the building will have a separate HVAC system to deliver ventilation throughout all office areas. The total volume of air distribution will be approximately 6,000 CFM with 2,000 CFM of outside ventilation air. The building will be pressurized and no additional exhaust air will be installed.

The basement will have supply and exhaust air added. The supply air system will be a total of 2,000 CFM with 800 CFM of outside air (min).

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The existing fuel oil storage of 1,320 gallons exceeds the code allowed 660 gallons without fire separation and fuel oil contaminant. The oil tanks must be either contained and fire separated or removed with the duel fuel boilers allowed to operate on gas only.

The existing HVAC system will be balanced, lubricated and have filters changed. An allowance should be carried for repair of existing HVAC equipment formed to be faulty.

Scope Number 2 (Gut Rehab of Existing System)

This HVAC system will be replaced in its entirely with the exception of the boilers and duel water pipe distribution. All fan coil units, the chiller, cooling tower and temperature control system will be replaced. New fan coil units will be installed in accordance with the revised architectural layout. There will be approximately 40 – 45 fan coil units.

The ventilation and code items addressed in the Scope Number 1 description above will be included in this scope of work.

The existing pneumatic temperature control system will be replaced with a new direct digital control system DDC.

Scope Number 3 (New Building)

A new building will be designed accordingly with a Variable Air Volume (VAV) system. The system will consist of one or two air handling units with a total capacity of approximately 30,000 CFM and seventy five to eighty tons of cooling.

Fan powered VAV boxes with hot water coils will be installed for all perimeter areas. A total of 40 to 45 VAV boxes will be provided.

These high efficiency, gas fired boilers, each with an output of approximately 600 MBH will be used and will likely be eligible for utility company rebates.

NOTE: The two existing boilers could be incorporated into the design (they have adequate capacity) but will not have the lower operating cost of the condensing boilers.

Local toilet exhaust cabinet heaters at entrances and one or two localized (dedicated) air conditioning systems will be included. The small HVAC system will serve computer (server) rooms or other yet to be defined internal spaces with high heat gains.

Floor to floor heights will have to be high enough to accommodate the intersticial space required for the larger ductwork and VAV boxes.

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FIRE PROTECTION

The existing building is protected by an automatic fire sprinkler system. The existing system does not have a double check valve assembly as required by code.

Currently the attic is kept warm intentionally to melt snow. With insulation improvements a dry system will be required in the attic.

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FITCHBURG CITY HALL
EXISTING ELECTRICAL AND MECHANICAL SYSTEMS REPORT

1. ELECTRICAL

A. Electrical Service & Distribution

The existing electrical service consists of a 40 ± year old circuit breaker switchboard. The switchboard is overloaded, in despair, and not re-useable. The electric service eminates from a transformer vault in the basement adjacent to the service 120/208 volts, three phase switchboard.

The transformer vault does not have containment facilities in the event a transformer oil leak. The utility company's primary service to the transformer is 15KV class (13.8 KV).

We aggressively discourage use of primary voltage within buildings as exists. We strongly recommend that a new or renovated facility be served by an outdoor pad mount transformer, thus divorcing transformation and higher voltages from the building envelope.

The power panels for the most part are old and not re-useable except for panelboards in the new boiler room. The branch wiring and power feeders in the building are similarly old and have served their useful life.

B. Emergency Power

There is a 75 KW natural gas emergency generator located behind the electric service switchboard. This installation is a code violation, as life safety equipment must be in a two-hour fire rated enclosure of sorts and separated from non-life safety electrical systems.

The generator is re-usable for another facility. The code requires an on-site fuel supply for life safety stand-by systems.

C. Fire Alarm System

There are remnants of a past operating fire alarm system in the building. Since there is no alarming for fire in the building a new modern alarm system will be required.

We recommend that the Fire Department be consulted as to what would be the minimum alarm system necessary as the existing facility is dangerous at present considering its wood frame (combustible) construction.

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We were surprised to no active functioning alarm and detection system in an occupied building.

D. Lighting

The lighting throughout is mostly old to very old fluorescent lighting of mixed variety all of which would be considered not re-usable in a renovated facility.

E. Outlets

Convenience outlets are old to fairly new, but their branch circuit wiring is much to old to be considered re-useable.

F. Telephone and Data Wiring

While these systems are functioning, some of the wiring is old an in general poorly organized.

G. Electrical Overview

The electrical systems and wiring is old and unreliable. Parts of the electrical system is unsafe and existing on borrowed time with the possibility of failing at any time.

The fire alarm system is non-functioning and needs immediate attention but we believe it is not worth re-using. The emergency system needs code updating and essentially requires complete replacement except for the generator.

The building needs complete new energy efficient code compliant lighting and controls. The entire building except for the boiler room needs to be fully re-wired.

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NEW ELECTRICAL SYSTEMS

ELECTRIC SERVICE

A new 120/208 volt three phase 2000 Ampere electric service will eminate from a utility company pad mount transformer. A 2000 Ampere switchboard will provide service to HVAC, elevator, lighting and power panelboards throughout the building. All over current devices will be circuit breakers as allowed.

EMERGENCY ELECTRICAL SYSTEM

System shall consist of an outdoor standby diesel generator. Should normal utility company not be available the emergency system shall automatically transfer to provide power for egress lighting, fire alarm, communications systems, elevator and building heating system. Fuel oil shall be in a double wall monitored generator base tank. The generator shall have a sound attenuated enclosure.

FIRE ALARM SYSTEM

System shall be fully addressable, continuous ring and municipally connected. System shall include elevator recall and power shunt, and voice evacuation. Evacuation signal units and pull stations shall be provided along egress paths, public spaces and toilets. Ceiling smoke detectors will be located in electric rooms, tel/data rooms, elevator machine room, top and bottom of stair floor landings. Duct smoke detectors will be specified in air handling equipment rated 2000 CFM and higher. Sprinkler flow alarm and valve tamper switches shall also be system monitored.

The act of operating a pull station, or sprinkler water flow or the activation of a detector shall causing the following to occur:

> Energize all audio/visual evacuation signals trip the city circuit to summons the fire department display address in alarm on the fire annunciator recall elevator to floor of egress (if associated detector is activated.) Announce via pre-recorded instruction, evacuation procedures.

If an associated elevator heat detector (machine room or pit) is activated power to the elevator machine unit shall be automatically interrupted.

System shall have battery standby as well as generator power back up.

TELEPHONE AND DATA

System shall comprise of empty outlet boxes and empty conduit from the box to the nearest accessible ceiling. Telephone service shall enter underground from property line

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via three 4" conduits. One conduit each for telephone, fiber optics and spare. The owner telephone equipment supplier shall provide for in-house intercom and general paging.

CABLE TELEVISION

Wall outlets shall be provided at desired locations. Local CTV organization shall wire outlets to service location in the building. Service to the building shall begin at the property line and expand to the building via two 2" conduits.

CONVENIENCE POWER OUTLETS

Standard 20 Ampere 125 volt duplex outlets will be specified. Outlets will be provided liberally through out office spaces. Outlets will be provided in corridors, mechanical areas and outdoors. As a standard no more than six outlets will be connected to, a 20 Ampere circuit except a lesser quantity may be provided where deemed appropriate. Special equipment such as copiers, laser printers, computer servers will be provided with a dedicated circuit. No more than three outlets used for PC's will be placed on a 20 Ampere circuit. All receptacle circuits will have a separate neutral (wire).

LIGHTING

Lighting shall be modern energy efficient recessed fluorescent lighting. Fluorescent ballasts will be no-loss electronic type.

Location	Light Description
Corridors	2 x 2 Recess Fluorescent parabolic
Toilets	2 x 2 Recess Fluorescent parabolic
Conference	2 x 2 Recess Fluorescent parabolic
Meetings	Recessed Dimmed Incandescent with 2 x 2 Recess Fluorescent parabolic
Offices	2 x 2 Recess Fluorescent parabolic

- Accent lighting will be recessed compact fluorescent and/or recessed or track/incandescent.

- Main entrance and lobby shall have decorative surface or chandelier fixtures with compact fluorescent or metal halide lamps.

Perimeter office areas will have dual light level switching. Occupancy sensors will be provided where practical and as required.

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Outdoor lighting will be decorative, energy efficient, wall mount and pole mount hid and layout will provide a degree of safety and anti-vandalism.

APPENDIX D

Hazardous Materials Report Summary

R.I. Analytical

Specialists in Environmental Services

HAZARDOUS MATERIALS INSPECTION REPORT
for
RENOVATIONS TO THE FITCHBURG CITY HALL

RIAL Project No.: 030084

Prepared For:

KANG ASSOCIATES INC.
410 BOSTON POST ROAD
SUDBURY, MA 01776

Prepared By:

R.I. Analytical Laboratories, Inc.
131 Coolidge Street, Building 2
Hudson, MA 01749

March 13, 2003

William H. Hopper
Senior Project Manager

TABLE OF CONTENTS

1.0 INTRODUCTION

This report presents the findings of the asbestos-containing building materials (ACBM) inspection, a visual inventory of additional suspect hazardous materials, and a baseline indoor air quality (IAQ) investigation at the Fitchburg City Hall located at 718 Main Street in Fitchburg, Massachusetts. The inspection was conducted by R.I. Analytical Laboratories, Inc. (RIAL) on February 24 and 25, 2003. The purpose of the inspection was to identify the presence/absence of ACBM, additional hazardous materials, and identify baseline IAQ levels prior to renovations of the City Hall.

2.0 SCOPE OF WORK

The inspection included the collection of bulk samples of suspect ACBM identified in the City Hall, a visual inventory of additional suspect hazardous materials such as light ballasts, thermostats, and fluorescent light tubes, and a baseline IAQ investigation. Bulk samples were generally collected from, but not limited to floor tile, floor tile mastic, plaster walls and ceilings, plaster skim coats, ceiling tiles, window putty and caulking, and carpet mastic. The baseline IAQ investigation was conducted in several locations at different times of the day.

RIAL performed the following tasks to complete the inspection:

- A visual inspection of accessible rooms and the exterior of the building to determine ACM sample locations.
- Collection and analysis of bulk samples of suspect ACM.
- Baseline IAQ investigation in several different locations of the building.

3.0 SITE INSPECTION METHODOLOGY

The following sections describe the inspection and analysis methods used to identify ACBM, additional suspect hazardous materials, and the methodology utilized during the baseline IAQ investigation. During the inspection, RIAL was unable to gain access to the Basement City Clerk area for inspection. Additional suspect ACBM or additional hazardous materials may be present in that area. License and certification information for the asbestos inspector is provided in Appendix A.

3.1 ACBM Inspection Methodology

During the inspection, RIAL recorded the description and location of each suspect ACBM identified. At the completion of the visual inspection, bulk samples of suspect ACBM were collected for laboratory analysis. The number of samples collected was determined based on the various, distinct homogeneous materials identified. A homogeneous area is an area that, based on the inspector's judgment, contains materials that are uniform in color and texture and are present on similar building or utility components. A minimum of three representative bulk samples were collected from each homogeneous material. Bulk sample collection and analysis was performed by Polarized Light Microscopy (PLM) Test Method 600/R-93/116 or 40 CFR Part 763 Subpart F.

RIAL completed the ACBM inspection by:

Inspecting and assessing all homogeneous areas of suspect or assumed ACM. Homogeneous areas include surfacing material, thermal system insulation (TSI), and miscellaneous materials that were uniform in color and texture.

- Visually inspecting and touching observed suspect or assumed ACM and classifying it as friable or non-friable.
- Collecting samples in a random manner representative of each homogeneous area. Bulk samples were collected from each homogeneous area that was not assumed to be ACM using the following methodology:
  1. At least 3 bulk samples were collected from each homogeneous area that was 1,000 square feet or less.
  2. At least 5 bulk samples were collected from each homogeneous area that was greater than 1,000 square feet, but less than or equal to 5,000 square feet.
  3. At least 7 bulk samples were collected from each homogeneous area that was greater than 5,000 square feet.
- Recording the material description, location, general condition and amount for each homogeneous area of suspect or assumed ACM.

During the inspection, 178 bulk samples were collected and submitted for laboratory analysis by PLM, and 162 of the samples were analyzed for asbestos content using positive stop techniques, meaning once a sample of a homogeneous material tested positive for asbestos (>1%), the remaining similar components of that group were not analyzed. The samples were described based on the inspector's judgment and visual inspection of the material. Some descriptions of floor tile samples may not accurately reflect the actual color due to the presence of carpet mastic or discoloration of the tile from general wear.

3.2 Additional Hazardous Materials Inspection Methodology

During the inspection of each accessible room of the building, RIAL visually identified and tallied the number of lights containing ballasts, the number of potential mercury-containing light tubes, and a visual inspection for mercury-containing thermostats and electrical equipment. In addition, RIAL noted any drums, fuel tanks or other hazardous materials observed in the building.

3.3 Baseline IAQ Inspection Methodology

RIAL collected baseline IAQ readings from at least one room per floor of the building using calibrated direct-read field instrumentation. RIAL collected measurements of temperature, relative humidity, hydrogen sulfide, sulfur dioxide, carbon dioxide, carbon monoxide, oxygen, lower explosive level, and total volatile organic compounds (VOC's).

4.0 SITE INSPECTION RESULTS

The following sections present the results of the physical inspection, baseline IAQ investigation, and laboratory analysis.

4.1 ACBM Inspection Results

A material is defined by the EPA as being a regulated asbestos-containing material if it contains greater than one percent (1%) asbestos based on laboratory analysis. A material can only be considered negative if analytical results from all bulk samples of an individual homogeneous material indicate asbestos is 1% or less.

Bulk samples were analyzed by PLM at our in-house laboratory located in Warwick, Rhode Island. Accreditation and certification documents for the laboratory are presented in Appendix A. Analytical results indicate that numerous materials sampled contain asbestos in concentrations greater than 1%. In addition, other materials were observed in the building that are listed below as potential asbestos-containing materials. These materials were not sampled due to either access constraints or the fact that sampling would jeopardize the integrity of the building component. The following materials either contain greater than 1% asbestos fibers or are potential asbestos-containing:

9"x9" White Floor Tile
White Pipe Wrap Roll
Aircell Pipe Insulation
9"x9" Grey Floor Tile (under carpet in some areas)
9"x9" White w/ Brown Streaks Floor Tile (under carpet in some areas)
Black Caulking Around Granite Window Sills
White Window Caulking
1'x1' Grey w/ White Streaks Floor Tile (under carpet)
Potential Asbestos-Containing Fire Doors
Potential Asbestos-Containing Vault Fire Doors
Potential Asbestos-Containing Elevator Brakes
Potential Asbestos-Containing Mastic Behind Wall Paneling

In addition, an empty 5-gallon bucket of Phillips Casey Company Flashing Cement was identified in the attic area. Contents of the flashing cement printed on the side of the bucket indicate that it contains "asbestos fibre." This should be kept in mind if roof replacement will be conducted. A mastic material was observed behind the wood paneling in at least one office; however, this material was not accessible for sampling. If the renovations call for the removal of this paneling, bulk samples of the mastic should be collected. In some locations, plywood was observed immediately under carpet. The possibility exists that asbestos-containing floor tile is under the plywood flooring. A summary of the asbestos laboratory analytical results is presented in Table 1 and a copy of the laboratory PLM analytical reports is provided in Appendix B. In addition, please refer to Figures 1 through 5 for asbestos sample locations.

4.2 Additional Hazardous Materials Results

During the inspection RIAL observed approximately 245 fluorescent light fixtures with potential polychlorinated biphenyl (PCB) containing light ballasts and approximately 826 potential mercury-containing light tubes. In addition, RIAL observed four 275-gallon above ground storage tanks (AST's) in the fuel tank room. Staining was observed on the concrete floor and sandbags were situated to deter liquid flow into the sump pump area of the room.

4.3 Baseline IAQ Inspection Results

RIAL measured temperature, relative humidity, hydrogen sulfide, sulfur dioxide, carbon dioxide, carbon monoxide, oxygen, lower explosive level, and total volatile organic compounds (VOC's) in several locations of the building. The results from the baseline IAQ inspection were not considered abnormal considering the existing conditions. Carbon dioxide readings collected prior to and during a meeting in the Veterans Memorial Room showed a steady increase as would be expected. Other than that increase, other readings showed normal increases as the day progressed. Please refer to Table 2 for a summary of the IAQ results.

5.0 SUMMARY

On February 24 and 25, 2003, RIAL personnel performed an ACBM inspection, a visual inventory for additional suspect hazardous materials, and a baseline IAQ investigation. During the site visit, RIAL recorded the description and location of each suspect ACBM, additional suspect material observed, and collected direct reading measurements for temperature, relative humidity, hydrogen sulfide, sulfur dioxide, carbon dioxide, carbon monoxide, oxygen, lower explosive level, and total VOC's.

A total of 178 bulk samples were collected from the buildings of suspect ACBM and submitted for laboratory analysis by PLM. A total of 162 of the samples were analyzed for asbestos content by PLM. In conducting the visual inventory of additional suspect materials, RIAL observed approximately 245 potential PCB-containing light ballasts, approximately 826 potential mercury-containing light tubes, and four 275-gallon AST's. Please refer to Table 3 for an estimated cost to remove the ACM and potential PCB and mercury-containing materials identified in this report.

RIAL recommends that prior to the initiation of the renovation activities, additional sample analysis via Transmission Electron Microscopy (TEM) of several floor tile and mastic materials be conducted to confirm the negative PLM analysis result. These materials generally contain an organic vinyl or asphaltic binder which makes identification of asbestos fibers difficult with the required PLM analysis.

Any demolition to be performed that would disturb ACBM must comply with state and federal regulatory standards. In accordance with 40 CFR Part 61, *National Emissions Standards for Hazardous Air Pollutants* (NESHAP), a contractor conducting any

demolition that would disturb regulated ACBM must: (1) notify the EPA Administrator of such activities, (2) use proper removal procedures, (3) use proper engineering controls to limit emissions of asbestos fibers, and (4) utilize proper waste disposal.

In accordance with the NESHAP regulation, ACBM must be removed by a licensed asbestos abatement contractor prior to initiation of any building demolition or renovation activities. If any hidden suspect ACBM (behind walls, in chases, above unbroken plaster ceilings, etc.) is uncovered during demolition activities, work must be stopped prior to disturbance of the material and the material tested for asbestos content. All ACBM must be disposed of in accordance with all applicable state and federal requirements.

Under Occupational Safety and Health Administration (OSHA) regulations, any demolition to be performed at a structure where ACBM is present must be performed in accordance with a worker protection policy, including but not limited to: appropriate training, medical monitoring, respiratory protection, and other protective equipment.

6.0 LIMITATIONS

Reasonable efforts were made to identify hidden and concealed hazardous materials. Destructive sampling was not conducted due to the building being occupied. RIAL cannot be held responsible for the identification of hazardous materials that may be located behind inaccessible locations. This report does not document compliance by present or past site owners with Local, State, or Federal laws and regulations, nor does it claim or imply that all ACBM past, present, potential, or otherwise, have been detected at the referenced site.

Observations documented in this report were made under the conditions existing at the time of this investigation. Should changes from existing conditions occur in the future warranting additional asbestos and/or lead analyses, they should be brought to the attention of RIAL for further investigation and documentation.

Table 1 - Summary of Asbestos Laboratory Analytical Results

Fitchburg City Hall
718 Main Street
Fitchburg, Massachusetts
Sampling Dates: February 24 and 25, 2003

Lab ID	Field ID	Floor	Room	Description of Sample	Type of Asbestos	PLM Tot. % Asbestos
0302-02422-0 01	01 A	Basement	Print Shop Storage	Flue Packing	NAD	
0302-02422-0 02	01 B	Basement	Print Shop Storage	Flue Packing	NAD	
0302-02422-0 03	01 C	Basement	Print Shop Storage	Flue Packing	NAD	
0302-02422-0 04	02 A	Basement	Print Shop Storage	Material Inside Old Incinerator	NAD	
0302-02422-0 05	02 B	Basement	Print Shop Storage	Material Inside Old Incinerator	NAD	
0302-02422-0 06	02 C	Basement	Print Shop Storage	Material Inside Old Incinerator	NAD	
0302-02422-0 07	03 A	Basement	Print Shop Storage	Troweled-On Plaster Ceiling	NAD	
0302-02422-0 08	03 B	Basement	Print Shop Storage	Troweled-On Plaster Ceiling	NAD	
0302-02422-0 09	03 C	Basement	Print Shop Storage	Troweled-On Plaster Ceiling	NAD	
0302-02422-0 10	03 D	Basement	Recreation Department	Troweled-On Plaster Ceiling	NAD	
0302-02422-0 11	03 E	Basement	Recreation Department	Troweled-On Plaster Ceiling	NAD	
0302-02422-0 12	04 A	Basement	Mail Room	Old Electrical Wiring	NAD	
0302-02422-0 13	04 B	Basement	Mail Room	Old Electrical Wiring	NAD	
0302-02422-0 14	04 C	Basement	Mail Room	Old Electrical Wiring	NAD	
0302-02422-0 15	05 A	Basement	Mail Room	9"x9" White Floor Tile	CHR	10-20
0302-02422-0 16	05 B	Basement	Mail Room	9"x9" White Floor Tile	--	
0302-02422-0 17	05 C	Basement	Mail Room	9"x9" White Floor Tile	--	
0302-02422-0 18	06 A	Basement	Mail Room	9"x9" White Floor Tile Mastic	NAD	
0302-02422-0 19	06 B	Basement	Mail Room	9"x9" White Floor Tile Mastic	NAD	
0302-02422-0 20	06 C	Basement	Mail Room	9"x9" White Floor Tile Mastic	NAD	
0302-02422-0 21	07 A	Basement	Mail Room	2'x4' White Ceiling Tile	NAD	
0302-02422-0 22	07 B	Basement	Mail Room	2'x4' White Ceiling Tile	NAD	
0302-02422-0 23	07 C	Basement	Mail Room	2'x4' White Ceiling Tile	NAD	
0302-02422-0 24	07 D	First	Mail Room	2'x4' White Ceiling Tile	NAD	
0302-02422-0 25	07 E	First	Mail Room	2'x4' White Ceiling Tile	NAD	
0302-02422-0 26	08 A	Basement	Mail Room	White Plaster Skim Coat	NAD	
0302-02422-0 27	08 B	Basement	Mail Room	White Plaster Skim Coat	NAD	
0302-02422-0 28	08 C	Basement	Mail Room	White Plaster Skim Coat	NAD	
0302-02422-0 29	08 D	First	Stairway To Basement	White Plaster Skim Coat	NAD	
0302-02422-0 30	08 E	First	Stairway To Basement	White Plaster Skim Coat	NAD	
0302-02422-0 31	08 F	First	Payroll	White Plaster Skim Coat	NAD	
0302-02422-0 32	08 G	First	Payroll	White Plaster Skim Coat	NAD	

Table 1 - Summary of Asbestos Laboratory Analytical Results (Cont.)

Lab ID	Field ID	Floor	Room	Description of Sample	Type of Asbestos	PLM Tot. % Asbestos
0302-02422-0 33	09 A	Basement	Mail Room	Plaster Wall	NAD	
0302-02422-0 34	09 B	Basement	Mail Room	Plaster Wall	NAD	
0302-02422-0 35	09 C	Basement	Mail Room	Plaster Wall	NAD	
0302-02422-0 36	09 D	First	Stairway To Basement	Plaster Wall	NAD	
0302-02422-0 37	09 E	First	Stairway To Basement	Plaster Wall	NAD	
0302-02422-0 38	09 F	First	Payroll	Plaster Wall	NAD	
0302-02422-0 39	09 G	First	Payroll	Plaster Wall	NAD	
0302-02422-0 40	10 A	Basement	Storage 2	White Pipe Wrap Roll	CHR	40-50
0302-02422-0 41	10 B	Basement	Storage 2	White Pipe Wrap Roll	--	
0302-02422-0 42	10 C	Basement	Storage 2	White Pipe Wrap Roll	--	
0302-02422-0 43	11 A	Basement	Storage 3	Green Pipe Gasket	NAD	
0302-02422-0 44	11 B	Basement	Storage 3	Green Pipe Gasket	NAD	
0302-02422-0 45	11 C	Basement	Storage 3	Green Pipe Gasket	NAD	
0302-02422-0 46	12 A	Basement	Janitor's Hall	1'x1' White w/ Red Spec Floor Tile (in box)	NAD	
0302-02422-0 47	12 B	Basement	Janitor's Hall	1'x1' White w/ Red Spec Floor Tile (in box)	NAD	
0302-02422-0 48	12 C	Basement	Janitor's Hall	1'x1' White w/ Red Spec Floor Tile (in box)	NAD	
0302-02422-0 49	13 A	Basement	Toilet 3	Aircell Pipe Insulation	CHR	30-40
0302-02422-0 50	13 B	Basement	Toilet 3	Aircell Pipe Insulation	--	
0302-02422-0 51	13 C	Basement	Toilet 3	Aircell Pipe Insulation	--	
0302-02422-0 52	14 A	Basement	Toilet 3	Black Tar Pipe Wrap	NAD	
0302-02422-0 53	14 B	Basement	Toilet 3	Black Tar Pipe Wrap	NAD	
0302-02422-0 54	14 C	Basement	Toilet 3	Black Tar Pipe Wrap	NAD	
0302-02422-0 55	15 A	First	Side Entrance	1'x1' White w/ Blue Spec Floor Tile	NAD	
0302-02422-0 56	15 B	First	Side Entrance	1'x1' White w/ Blue Spec Floor Tile	NAD	
0302-02422-0 57	15 C	First	Side Entrance	1'x1' White w/ Blue Spec Floor Tile	NAD	
0302-02422-0 58	16 A	First	Side Entrance	1'x1' White w/ Blue Spec Floor Tile Mastic	NAD	
0302-02422-0 59	16 B	First	Side Entrance	1'x1' White w/ Blue Spec Floor Tile Mastic	NAD	
0302-02422-0 60	16 C	First	Side Entrance	1'x1' White w/ Blue Spec Floor Tile Mastic	NAD	
0302-02422-0 61	17 A	First	Hallway	2'x2' White Wormy Ceiling Tile	NAD	
0302-02422-0 62	17 B	First	Hallway	2'x2' White Wormy Ceiling Tile	NAD	
0302-02422-0 63	17 C	First	Hallway	2'x2' White Wormy Ceiling Tile	NAD	
0302-02422-0 64	17 D	Third	Recreation Department	2'x2' White Wormy Ceiling Tile	NAD	
0302-02422-0 65	17 E	Third	Recreation Department	2'x2' White Wormy Ceiling Tile	NAD	
0302-02422-0 66	18 A	First	Treasurer	1'x1' Pink/Red Floor Tile	NAD	
0302-02422-0 67	18 B	First	Treasurer	1'x1' Pink/Red Floor Tile	NAD	
0302-02422-0 68	18 C	First	Treasurer	1'x1' Pink/Red Floor Tile	NAD	

Table 1 - Summary of Asbestos Laboratory Analytical Results (Cont.)

Lab ID	Field ID	Floor	Room	Description of Sample	Type of Asbestos	PLM Tot. % Asbestos
0302-02422-0 69	19 A	First	Treasurer	1'x1' Pink/Red Floor Tile Mastic	NAD	
0302-02422-0 70	19 B	First	Treasurer	1'x1' Pink/Red Floor Tile Mastic	NAD	
0302-02422-0 71	19 C	First	Treasurer	1'x1' Pink/Red Floor Tile Mastic	NAD	
0302-02422-0 72	20 A	First	Treasurer	9"x9" Grey Floor Tile Under Carpet	CHR	5-15
0302-02422-0 73	20 B	First	Treasurer	9"x9" Grey Floor Tile Under Carpet	--	
0302-02422-0 74	20 C	First	Treasurer	9"x9" Grey Floor Tile Under Carpet	--	
0302-02422-0 75	21 A	First	Treasurer	9"x9" Grey Floor Tile Mastic Under Carpet	NAD	
0302-02422-0 76	21 B	First	Treasurer	9"x9" Grey Floor Tile Mastic Under Carpet	NAD	
0302-02422-0 77	21 C	First	Treasurer	9"x9" Grey Floor Tile Mastic Under Carpet	NAD	
0302-02422-0 78	22 A	First	Treasurer	Carpet Mastic	NAD	
0302-02422-0 79	22 B	First	Treasurer	Carpet Mastic	NAD	
0302-02422-0 80	22 C	First	Treasurer	Carpet Mastic	NAD	
0302-02422-0 81	23 A	First	Mail Room	Black Mastic Under Carpet	NAD	
0302-02422-0 82	23 B	First	Mail Room	Black Mastic Under Carpet	NAD	
0302-02422-0 83	23 C	First	Mail Room	Black Mastic Under Carpet	NAD	
0302-02422-0 84	23 D	First	City Clerk	Black Mastic Under Tile and Carpet	NAD	
0302-02422-0 85	23 E	First	City Clerk	Black Mastic Under Tile and Carpet	NAD	
0302-02422-0 86	24 A	First	Payroll	Tan Floor Tile Under Carpet	NAD	
0302-02422-0 87	24 B	First	Payroll	Tan Floor Tile Under Carpet	NAD	
0302-02422-0 88	24 C	First	Payroll	Tan Floor Tile Under Carpet	NAD	
0302-02422-0 89	25 A	First	Payroll	Tan Floor Tile Mastic Under Carpet	NAD	
0302-02422-0 90	25 B	First	Payroll	Tan Floor Tile Mastic Under Carpet	NAD	
0302-02422-0 91	25 C	First	Payroll	Tan Floor Tile Mastic Under Carpet	NAD	
0302-02422-0 92	26 A	First	City Clerk	1'x1' White Green Floor Tile	NAD	
0302-02422-0 93	26 B	First	City Clerk	1'x1' White Green Floor Tile	NAD	
0302-02422-0 94	26 C	First	City Clerk	1'x1' White Green Floor Tile	NAD	
0302-02422-0 95	27 A	First	City Clerk	1'x1' White Green Floor Tile Mastic	NAD	
0302-02422-0 96	27 B	First	City Clerk	1'x1' White Green Floor Tile Mastic	NAD	
0302-02422-0 97	27 C	First	City Clerk	1'x1' White Green Floor Tile Mastic	NAD	
0302-02422-0 98	28 A	First	Mayor's Office	2'x2' Acoustical Ceiling Tile	NAD	
0302-02422-0 99	28 B	First	Mayor's Office	2'x2' Acoustical Ceiling Tile	NAD	
0302-02422-0 100	28 C	First	Mayor's Office	2'x2' Acoustical Ceiling Tile	NAD	
0302-02422-0 101	29 A	First	Meeting Room	Material Under Carpet	NAD	
0302-02422- 102	29 B	First	Meeting Room	Material Under Carpet	NAD	
0302-02422- 103	29 C	First	Meeting Room	Material Under Carpet	NAD	
0302-02422- 104	30 A	First	Council Chamber	Troweled-on Acoustical Ceiling Plaster	NAD	
0302-02422- 105	30 B	First	Council Chamber	Troweled-on Acoustical Ceiling Plaster	NAD	
0302-02422- 106	30 C	First	Council Chamber	Troweled-on Acoustical Ceiling Plaster	NAD	

Table 1 - Summary of Asbestos Laboratory Analytical Results (Cont.)

Lab ID	Field ID	Floor	Room	Description of Sample	Type of Asbestos	PLM Tot. % Asbestos
0302-02422- 107	31 A	Second	Hallway 1	1'x1' Grey Floor Tile	NAD	
0302-02422- 108	31 B	Second	Hallway 1	1'x1' Grey Floor Tile	NAD	
0302-02422- 109	31 C	Second	Hallway 1	1'x1' Grey Floor Tile	NAD	
0302-02422- 110	32 A	Second	Hallway 1	1'x1' Grey Floor Tile Mastic	NAD	
0302-02422- 111	32 B	Second	Hallway 1	1'x1' Grey Floor Tile Mastic	NAD	
0302-02422- 112	32 C	Second	Hallway 1	1'x1' Grey Floor Tile Mastic	NAD	
0302-02422- 113	33 A	Second/Third	Stairway Landing 2	1'x1' Brown w/ White Streaks Floor Tile	NAD	
0302-02422- 114	33 B	Second/Third	Stairway Landing 2	1'x1' Brown w/ White Streaks Floor Tile	NAD	
0302-02422- 115	33 C	Second/Third	Stairway Landing 2	1'x1' Brown w/ White Streaks Floor Tile	NAD	
0302-02422- 116	34 A	Second/Third	Stairway Landing 2	1'x1' Brown w/ White Streaks Floor Tile Mastic	NAD	
0302-02422- 117	34 B	Second/Third	Stairway Landing 2	1'x1' Brown w/ White Streaks Floor Tile Mastic	NAD	
0302-02422- 118	34 C	Second/Third	Stairway Landing 2	1'x1' Brown w/ White Streaks Floor Tile Mastic	NAD	
0302-02422- 119	35 A	Second	Purchasing	Sheetrock	NAD	
0302-02422- 120	35 B	Second	Purchasing	Sheetrock	NAD	
0302-02422- 121	35 C	Second	Purchasing	Sheetrock	NAD	
0302-02422- 122	36 A	Second	Waste Water	Sheetrock Joint Compound	NAD	
0302-02422- 123	36 B	Second	Waste Water	Sheetrock Joint Compound	NAD	
0302-02422- 124	36 C	Second	Waste Water	Sheetrock Joint Compound	NAD	
0302-02422- 125	37 A	Second	Planning 1	9"x9" White w/ Brown Streaks Floor Tile Under Carpet	CHR	5-15
0302-02422- 126	37 B	Second	Planning 1	9"x9" White w/ Brown Streaks Floor Tile Under Carpet	--	
0302-02422- 127	37 C	Second	Planning 1	9"x9" White w/ Brown Streaks Floor Tile Under Carpet	--	
0302-02422- 128	38 A	Second	Planning 1	9"x9" White w/ Brown Streaks Floor Tile Mastic Under Carpet	NAD	
0302-02422- 129	38 B	Second	Planning 1	9"x9" White w/ Brown Streaks Floor Tile Mastic Under Carpet	NAD	
0302-02422- 130	38 C	Second	Planning 1	9"x9" White w/ Brown Streaks Floor Tile Mastic Under Carpet	NAD	
0302-02422- 131	39 A	Second	Front Stairwell	Brown Linoleum	NAD	
0302-02422- 132	39 B	Second	Front Stairwell	Brown Linoleum	NAD	
0302-02422- 133	39 C	Second	Front Stairwell	Brown Linoleum	NAD	
0302-02422- 134	40 A	Second	Front Stairwell	Brown Linoleum Mastic	NAD	
0302-02422- 135	40 B	Second	Front Stairwell	Brown Linoleum Mastic	NAD	
0302-02422- 136	40 C	Second	Front Stairwell	Brown Linoleum Mastic	NAD	
0302-02422- 137	41 A	Exterior		Black Caulking Around Granite Window Sills	CHR	20-30
0302-02422- 138	41 B	Exterior		Black Caulking Around Granite Window Sills	--	
0302-02422- 139	41 C	Exterior		Black Caulking Around Granite Window Sills	--	
0302-02422- 140	42 A	Exterior		White Window Caulking	CHR	5-15
0302-02422- 141	42 B	Exterior		White Window Caulking	--	
0302-02422- 142	42 C	Exterior		White Window Caulking	--	

Table 1 - Summary of Asbestos Laboratory Analytical Results (Cont.)

Lab ID	Field ID	Floor	Room	Description of Sample	Type of Asbestos	PLM Tot. % Asbestos
0302-02422- 143	43 A	Exterior		Window Putty	NAD	
0302-02422- 144	43 B	Exterior		Window Putty	NAD	
0302-02422- 145	43 C	Exterior		Window Putty	NAD	
0302-02422- 146	44 A	Third	Recreation Department	1'x1' Grey w/ White Streak Floor Tile Under Carpet	CHR	10-20
0302-02422- 147	44 B	Third	Recreation Department	1'x1' Grey w/ White Streak Floor Tile Under Carpet	--	
0302-02422- 148	44 C	Third	Recreation Department	1'x1' Grey w/ White Streak Floor Tile Under Carpet	--	
0302-02422- 149	45 A	Third	Recreation Department	1'x1' Grey w/ White Streak Floor Tile Mastic Under Carpet	NAD	
0302-02422- 150	45 B	Third	Recreation Department	1'x1' Grey w/ White Streak Floor Tile Mastic Under Carpet	NAD	
0302-02422- 151	45 C	Third	Recreation Department	1'x1' Grey w/ White Streak Floor Tile Mastic Under Carpet	NAD	
0302-02422- 152	46 A	Third	Toilet 1	1'x1' Brown Spec Floor Tile	NAD	
0302-02422- 153	46 B	Third	Toilet 1	1'x1' Brown Spec Floor Tile	NAD	
0302-02422- 154	46 C	Third	Toilet 1	1'x1' Brown Spec Floor Tile	NAD	
0302-02422- 155	47 A	Third	Toilet 1	1'x1' Brown Spec Floor Tile Mastic	NAD	
0302-02422- 156	47 B	Third	Toilet 1	1'x1' Brown Spec Floor Tile Mastic	NAD	
0302-02422- 157	47 C	Third	Toilet 1	1'x1' Brown Spec Floor Tile Mastic	NAD	
0302-02422- 158	48 A	Third	Toilet 1, 2, and Hall	9"x9" Brown w/ White Streak Floor Tile	NAD	
0302-02422- 159	48 B	Third	Toilet 1, 2, and Hall	9"x9" Brown w/ White Streak Floor Tile	NAD	
0302-02422- 160	48 C	Third	Toilet 1, 2, and Hall	9"x9" Brown w/ White Streak Floor Tile	NAD	
0302-02422- 161	49 A	Third	Toilet 1, 2, and Hall	9"x9" Brown w/ White Streak Floor Tile Mastic	NAD	
0302-02422- 162	49 B	Third	Toilet 1, 2, and Hall	9"x9" Brown w/ White Streak Floor Tile Mastic	NAD	
0302-02422- 163	49 C	Third	Toilet 1, 2, and Hall	9"x9" Brown w/ White Streak Floor Tile Mastic	NAD	
0302-02422- 164	50 A	Fourth	DPW 1	9"x9" Brown w/ Yellow Streaks Floor Tile	NAD	
0302-02422- 165	50 B	Fourth	DPW 1	9"x9" Brown w/ Yellow Streaks Floor Tile	NAD	
0302-02422- 166	50 C	Fourth	DPW 1	9"x9" Brown w/ Yellow Streaks Floor Tile	NAD	
0302-02422- 167	51 A	Fourth	DPW 1	9"x9" Yellow w/ Brown Streaks Floor Tile	NAD	
0302-02422- 168	51 B	Fourth	DPW 1	9"x9" Yellow w/ Brown Streaks Floor Tile	NAD	
0302-02422- 169	51 C	Fourth	DPW 1	9"x9" Yellow w/ Brown Streaks Floor Tile	NAD	
0302-02422- 170	52 A	Fourth	DPW 1	Tar Paper Under 9"x9" Yellow w/ Brown Streaks Floor Tile	NAD	
0302-02422- 171	52 B	Fourth	DPW 1	Tar Paper Under 9"x9" Yellow w/ Brown Streaks Floor Tile	NAD	
0302-02422- 172	52 C	Fourth	DPW 1	Tar Paper Under 9"x9" Yellow w/ Brown Streaks Floor Tile	NAD	
0302-02422- 173	53 A	Fourth	DPW 2	Red Linoleum Under Carpet	NAD	
0302-02422- 174	53 B	Fourth	DPW 2	Red Linoleum Under Carpet	NAD	
0302-02422- 175	53 C	Fourth	DPW 2	Red Linoleum Under Carpet	NAD	

Table 1 - Summary of Asbestos Laboratory Analytical Results (Cont.)

Lab ID	Field ID	Floor	Room	Description of Sample	Type of Asbestos	PLM Tot. % Asbestos
0302-02422- 176	54 A	Fourth	DPW 2	Tar Paper Under Red Linoleum Under Carpet	NAD	
0302-02422- 177	54 B	Fourth	DPW 2	Tar Paper Under Red Linoleum Under Carpet	NAD	
0302-02422- 178	54 C	Fourth	DPW 2	Tar Paper Under Red Linoleum Under Carpet	NAD	

CHR Chrysotile Asbestos
PLM Polarized Light Microscopy
NAD No Asbestos Detected
-- Not Analyzed

Table 2 - Summary of Baseline IAQ Results

Fitchburg City Hall
718 Main Street
Fitchburg, Massachusetts
Sampling Dates: February 24 and 25, 2003

Location	Time	CO_2 (ppm)	Temp. (F)	R.H.	PID (ppm)	O_2 (%)	LEL (%)	CO (ppm)	H_2S (ppm)	SO_2 (ppm)
Back Exterior	7:20	310	23.0	23.5	0.0	20.7	-5	0	0	0.0
Council Chamber	7:25	533	79.1	34.0	0.0	20.7	-4	0	0	0.0
	11:20	396	79.5	20.1	0.5	20.9	-3	-2	0	-0.3
	13:10	380	78.5	--	0.5	20.9	-3	0	0	-0.3
Vets. Memorial Room	7:35	343	71.0	20.8	0.0	20.5	0	0	0	-0.2
	8:22	653	73.6	23.0	0.7	20.6	0	0	0	-0.4
	8:42	659	74.0	21.9	0.6	20.9	0	0	0	-0.4
	12:02	538	73.8	22.0	0.5	20.9	-4	0	0	-0.4
	13:00	432	75.4	--	0.4	20.9	-5	0	0	-0.4
Retirement Office	7:43	351	70.9	20.0	0.0	20.5	0	0	0	-0.2
	11:42	448	69.2	20.2	0.5	20.9	-4	0	0	-0.4
	13:20	478	74.8	--	0.5	--	--	--	--	--
Building Inspector	7:47	428	72.7	20.4	0.0	20.5	0	0	0	-0.3
	11:50	473	70.1	20.9	0.4	20.9	-4	0	0	-0.4
	13:30	552	75.2	--	0.6	--	--	--	--	--
Public Works	7:54	442	72.0	21.2	0.5	20.5	0	0	0	-0.4
	11:59	443	71.9	22.0	0.5	20.9	-4	0	0	-0.4
Outside Boiler Room	8:47	369	62.3	21.7	0.6	20.9	0	0	0	-0.5
	11:28	371	63.6	20.9	0.5	21.1	-4	-3	0	-0.4
Basement by Electrical Room	8:59	366	61.1	23.1	0.5	20.9	0	0	0	-0.4
	11:36	380	60.4	25.3	0.5	20.9	-5	-2	0	-0.3

CO_2 - Carbon Dioxide
ppm - Parts per Million
F - Degrees Fahrenheit
O_2 - Oxygen
R.H. - Relative Humidity
LEL - Lower Explosive Level
CO - Carbon Monoxide
H_2S - Hydrogen Sulfide
SO_2 - Sulfur Dioxide
-- - No Readings Collected

Table 3 - Estimated Quantities & Abatement Costs

Fitchburg City Hall
718 Main Street
Fitchburg, Massachusetts
Sampling Dates: February 24 and 25, 2003

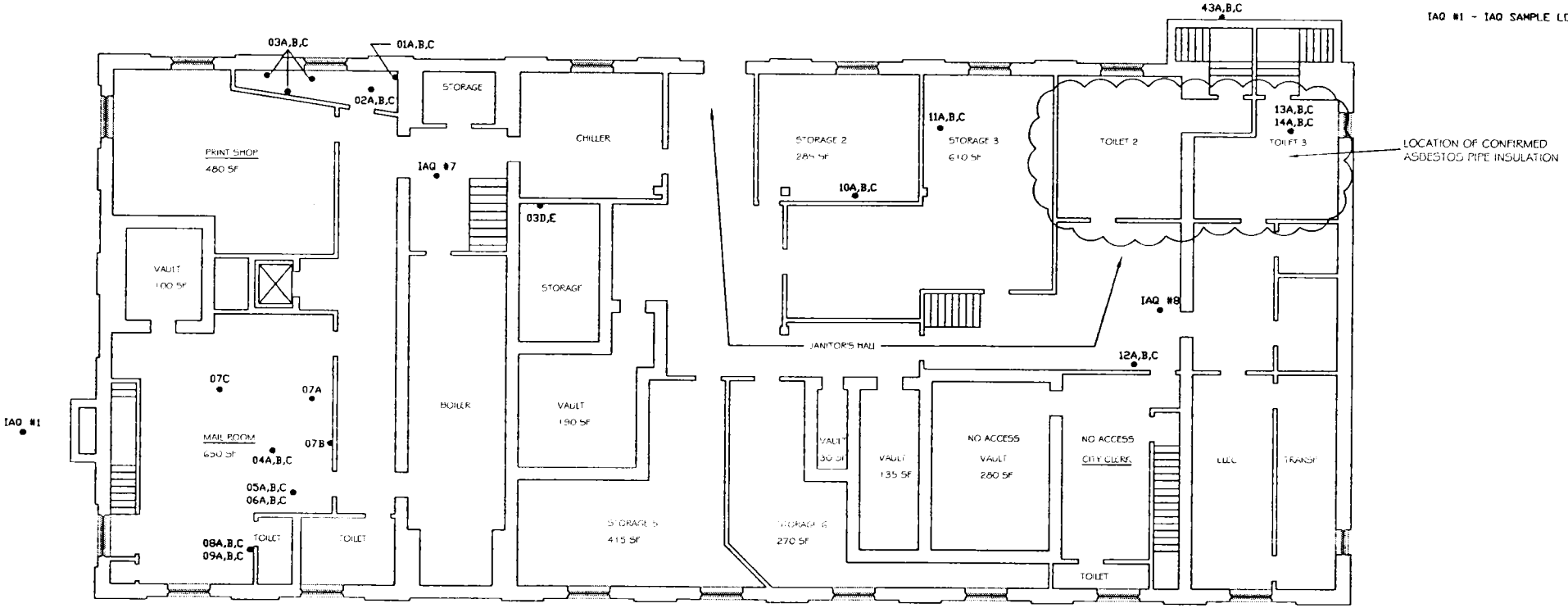
Material	Floor	Room	Estimated Quantity	Estimated Abatement Cost
9"x9" White Floor Tile	Basement and First Floor	Mail Room and Treasurer	750 SF	$ 1,500.00
White Pipe Wrap Roll	Basement	Fuel Tank Room	3" dia. X 1'	$ 25.00
Aircell Pipe Insulation	Basement (Potentially All Floors)	Confirmed in Basement Toilet 2 and 3. Potentially located on all Concealed Water Lines Leading to Fountains and Bathrooms	75 LF (Confirmed)	$ 975.00
9"x9" Grey Floor Tile (under carpet in some areas)	First and Second Floors	Mail Room, Treasurer, Assistant Auditor and Retirement, Hall 1 Storage	1,700 SF	$ 3,400.00
9"x9" White w/ Brown Streaks Floor Tile (under carpet in some areas)	Stairway to Attic and Second Floor	Stairway Landing and Planning Dept. 1 & 2	475 SF	$ 950.00
Black Caulking Around Granite Window Sills	All Floors	Exterior	880 LF	$ 4,400.00
White Window Caulking	All Floors	Exterior	1,325 LF (70 Windows)	$ 8,750.00
1'x1' Grey w/ White Streak Floor Tile (under carpet)	Third	Recreation Department	525 SF	$ 1,050.00
Potential Asbestos-Containing Fire Doors	Basement	Boiler Room	2 Doors	$ 200.00
Potential Asbestos-Containing Vault Fire Doors	Basement, First, Second, Third, and Fourth Floors	All Vaults	12 Doors	$ 3,000.00
Potential Asbestos-Containing Elevator Brakes	Basement	Elevator	4 Breaks	$ 200.00
Potential PCB-Containing Light Ballasts	All Floors	Throughout	245 Ballasts	$ 500.00
Potential Mercury-Containing Light Tubes	All Floors	Throughout	826 Tubes	$ 1,500.00
			ESTIMATED ABATEMENT TOTAL	**$ 26,450.00**

LEGEND

● - SAMPLE LOCATION

12A - ASBESTOS SAMPLE

IAQ #1 - IAQ SAMPLE LOCATION



BASEMENT

9,700 GSF

SAMPLE LOCATION PLAN
BASEMENT

LOCATION: FITCHBURG CITY HALL – FITCHBURG, MA			
CLIENT: KANG ASSOCIATES, INC.			
SCALE: NTS	SHEET: 1/5	RIAL PROJECT NO.: EAM030084	FIGURE 1
DRAWN BY: WHH	APPROVED BY: ACF	DATE: 3/10/03	DRAW NO.: 030084-1

R.I. ANALYTICAL LABORATORIES, INC.

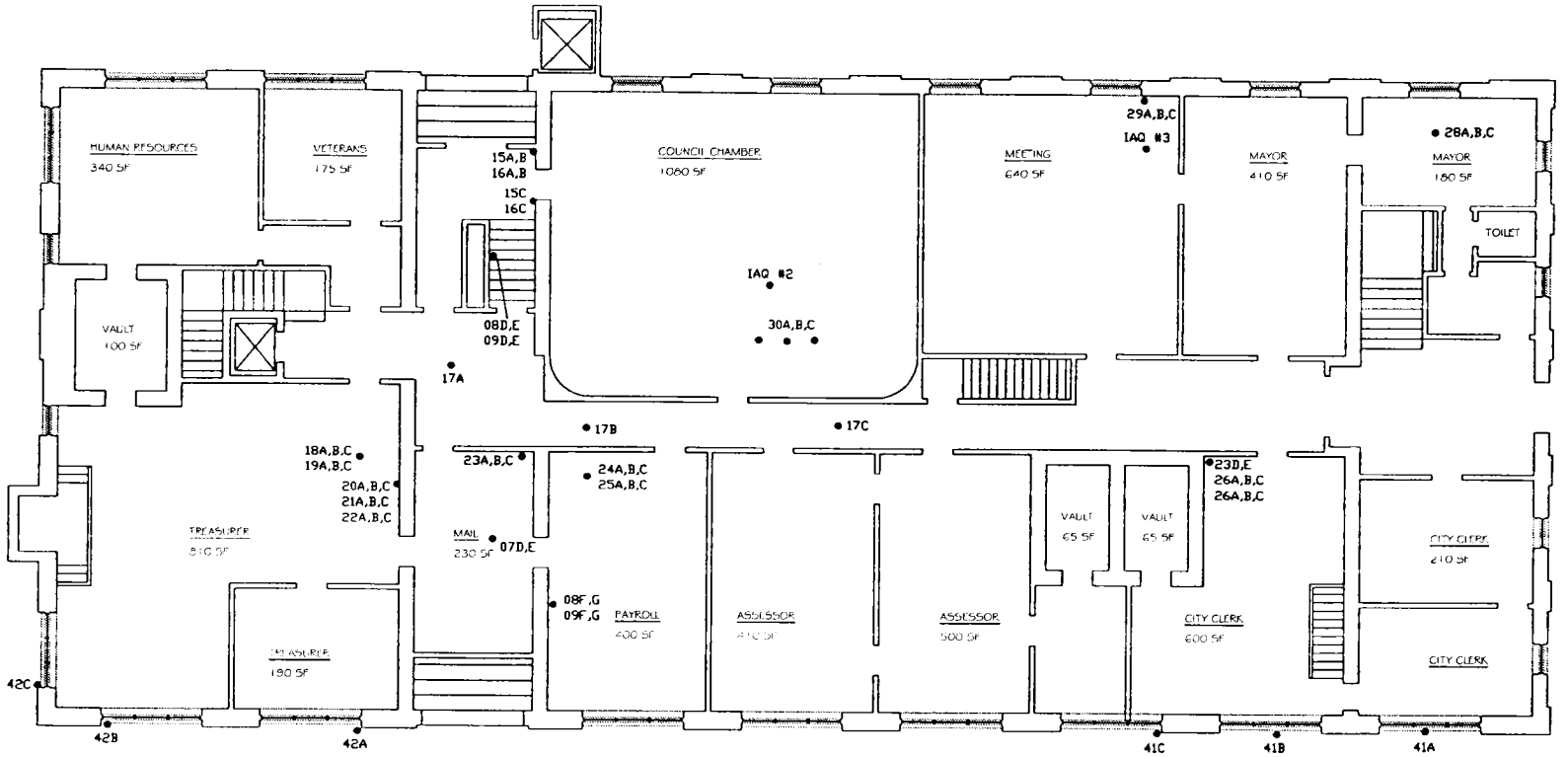
131 Coolidge Street, Hudson, MA 01749

LEGEND

● - SAMPLE LOCATION

12A - ASBESTOS SAMPLE

IAQ #1 - IAQ SAMPLE LOCATION



FIRST FLOOR

9,700 GSF

SAMPLE LOCATION PLAN FIRST FLOOR

LOCATION: FITCHBURG CITY HALL – FITCHBURG, MA			
CLIENT: KANG ASSOCIATES, INC.			
SCALE: NTS	SHEET: 2/5	RIAL PROJECT NO.: EAM030084	FIGURE 2
DRAWN BY: WHH	APPROVED BY: ACF	DATE: 3/10/03	DRAW NO.: 030084-2

R.I. ANALYTICAL LABORATORIES, INC.

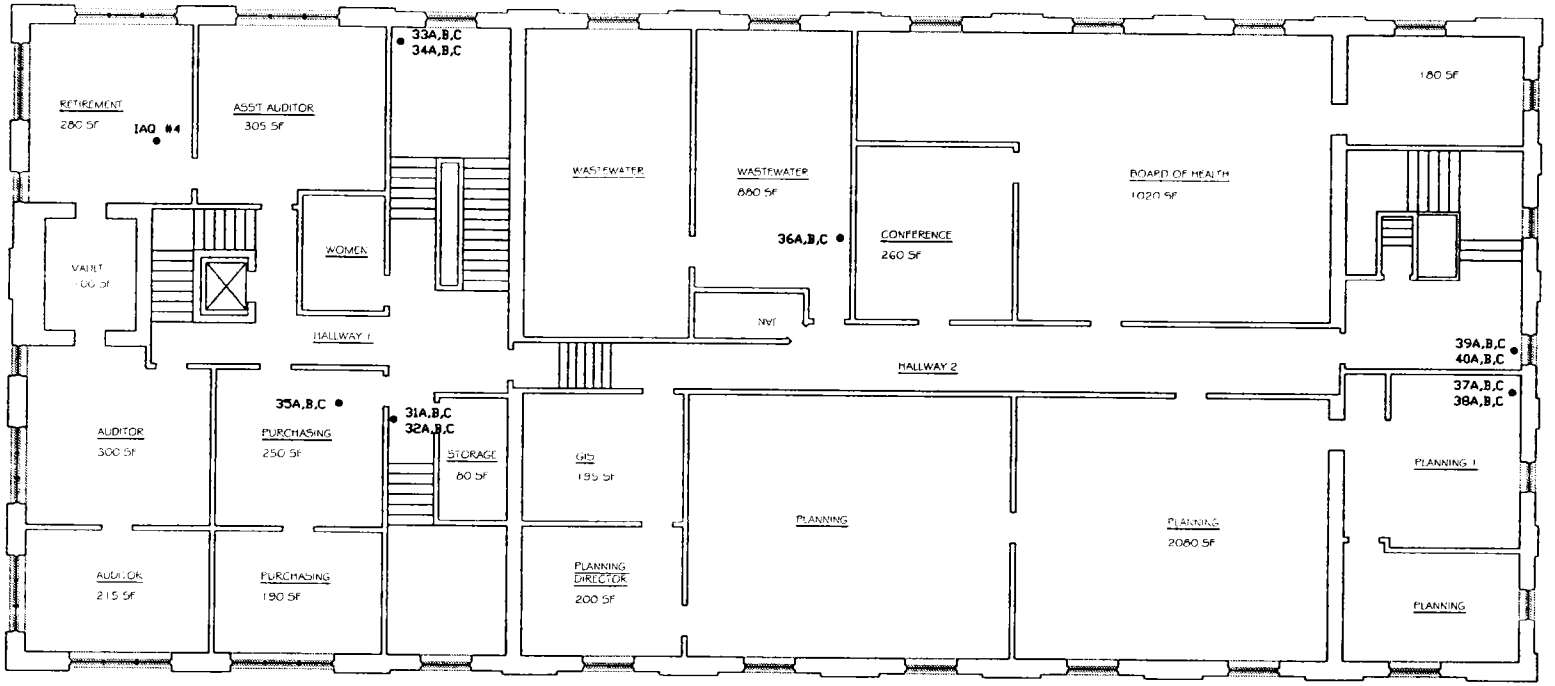
131 Coolidge Street, Hudson, MA 01749

LEGEND

● - SAMPLE LOCATION

L2A - ASBESTOS SAMPLE

IAQ #1 - IAQ SAMPLE LOCATION



SECOND FLOOR

9,700 SQF

SAMPLE LOCATION PLAN
SECOND FLOOR

LOCATION: FITCHBURG CITY HALL – FITCHBURG, MA			
CLIENT: KANG ASSOCIATES, INC.			
SCALE: NTS	SHEET: 3/5	RIAL PROJECT NO.: EAM030084	FIGURE 3
DRAWN BY: WHH	APPROVED BY: ACF	DATE: 3/10/03	DRAW NO.: 030084-3

R.I. ANALYTICAL LABORATORIES, INC.

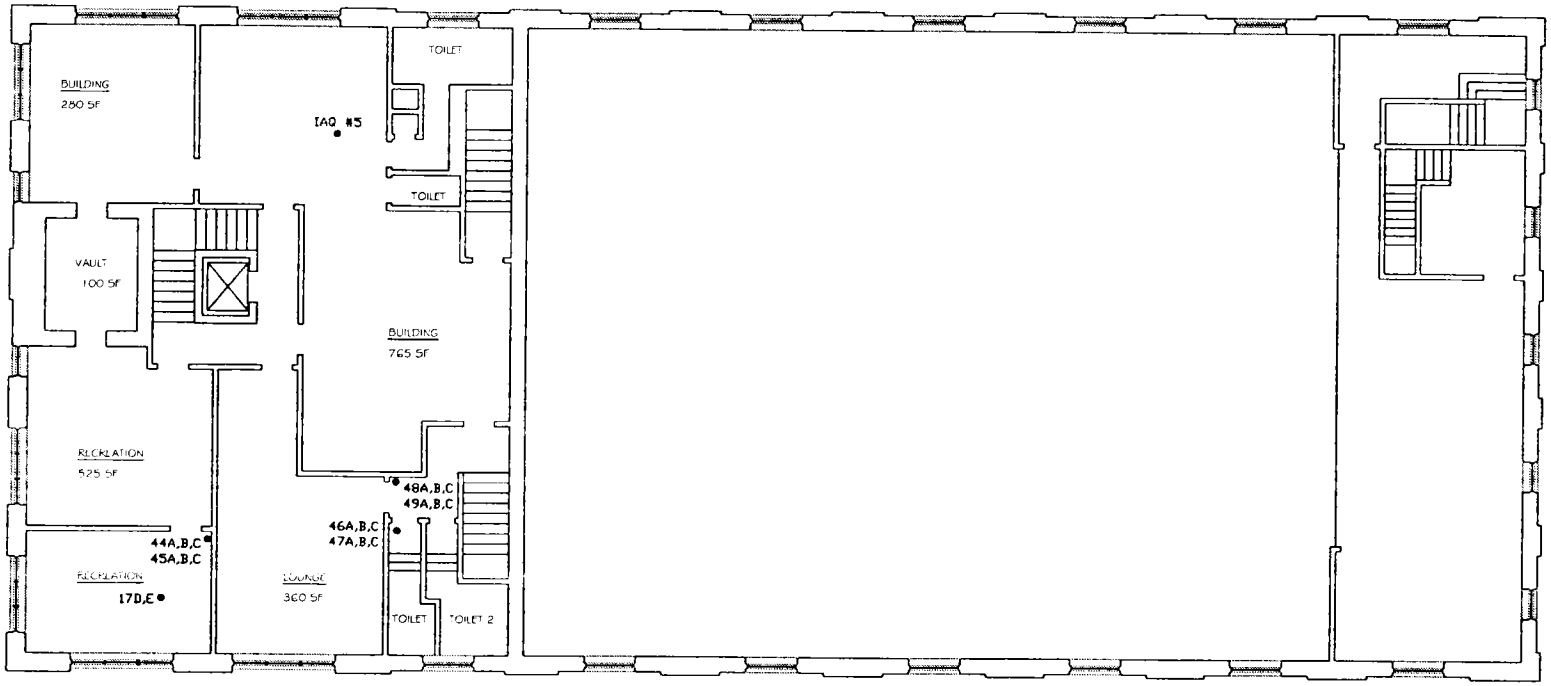
131 Coolidge Street, Hudson, MA 01749

LEGEND

● - SAMPLE LOCATION

12A - ASBESTOS SAMPLE

IAQ #1 - IAQ SAMPLE LOCATION



THIRD FLOOR

3,300 GSF

SAMPLE LOCATION PLAN
BASEMENT

LOCATION: FITCHBURG CITY HALL – FITCHBURG, MA			
CLIENT: KANG ASSOCIATES, INC.			
SCALE: NTS	SHEET: 4/5	RIAL PROJECT NO.: EAM030084	FIGURE 4
DRAWN BY: WHH	APPROVED BY: ACF	DATE: 3/10/03	DRAW NO.: 030084-4

R.I. ANALYTICAL LABORATORIES, INC.

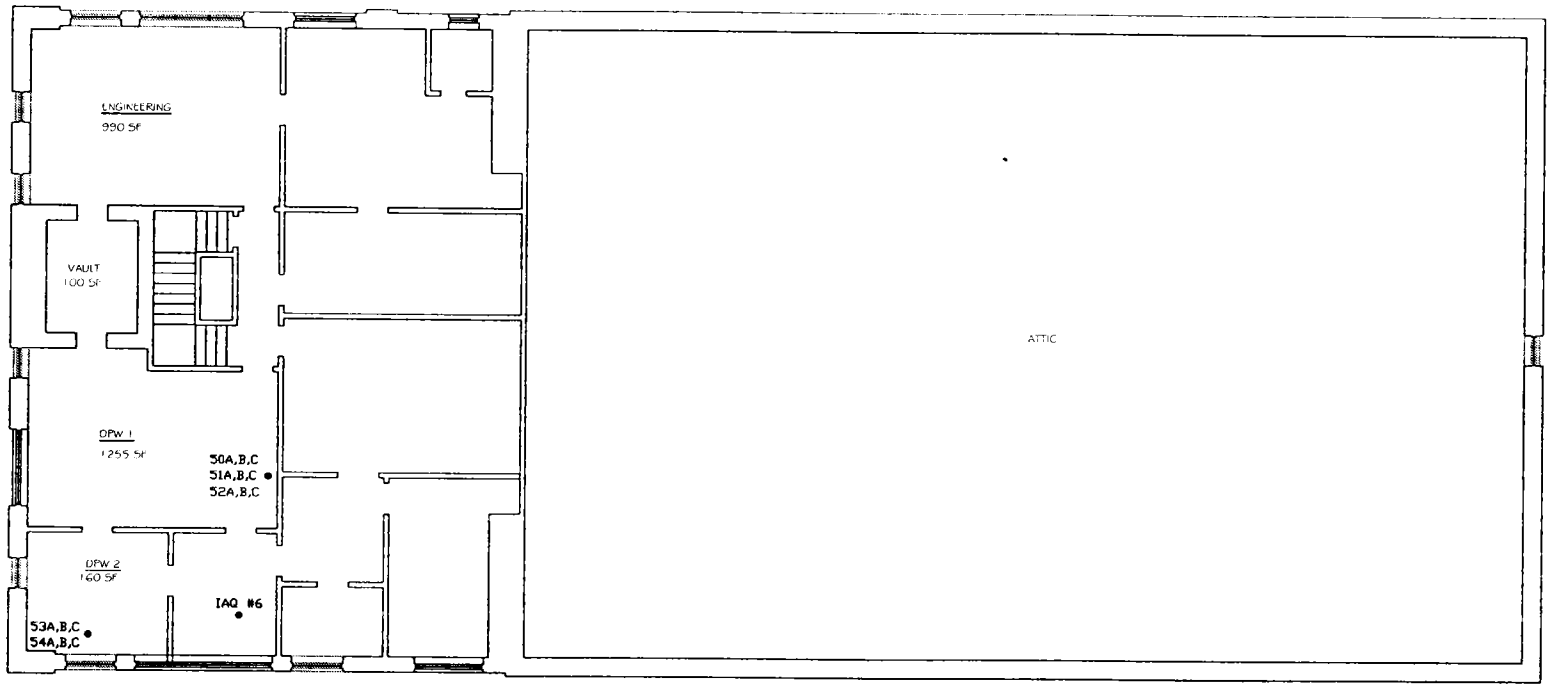
131 Coolidge Street, Hudson, MA 01749

LEGEND

● - SAMPLE LOCATION

12A - ASBESTOS SAMPLE

IAQ #1 - IAQ SAMPLE LOCATION



FOURTH FLOOR

3,100 GSF

SAMPLE LOCATION PLAN
BASEMENT

LOCATION: FITCHBURG CITY HALL – FITCHBURG, MA			
CLIENT: KANG ASSOCIATES, INC.			
SCALE: NTS	SHEET: 5/5	RIAL PROJECT NO.: EAM030084	FIGURE 5
DRAWN BY: WHH	APPROVED BY: ACF	DATE: 3/10/03	DRAW NO.: 030084-5

R.I. ANALYTICAL LABORATORIES, INC.
131 Coolidge Street, Hudson, MA 01749

APPENDIX A

Inspector and Laboratory Certifications

Commonwealth of Massachusetts

Division of Occupational Safety

Robert J. Prezioso, Deputy Director

Asbestos Inspector

WILLIAM HATHAWAY HOPPER

Eff Date 11/18/02
Exp. Date 11/17/03
AI053300
Member of C.O.N.E.S.
BO

03

BOSTON-RENEW

INSTITUTE FOR ENVIRONMENTAL EDUCATION, INC.

16 Upton Drive, Wilmington, MA 01887
(978) 658-5272

IEE IEE

This is to certify that

William H Hopper

has completed the requisite training, and has passed an examination for reaccreditation as:

Asbestos Inspector Refresher

pursuant to Title II of the Toxic Substance Control Act, 15 U.S.C. 2646

April 26, 2002
Course Dates

Course Location
Institute for Environmental Education
16 Upton Drive
Wilmington, MA 01887

April 26, 2002
Examination Date

April 26, 2003
Expiration Date

02439910614440
Certificate Number

President/Director of Training

Control No: [illegible]

THE COMMONWEALTH OF MASSACHUSETTS
Department of Labor and Workforce Development

Division of Occupational Safety

399 Washington Street, 5th Floor, Boston, Massachusetts 02108

CERTIFICATION FOR ASBESTOS ANALYTICAL SERVICES

R.I. ANALYTICAL LABORATORIES, INC.
41 ILLINOIS AVENUE
WARWICK RI 02888

LICENSE: **AA000028** EXPIRES: **Friday, July 11, 2003**

IN ACCORDANCE WITH MGL CH. 149 § 6B AND 453 CMR 6.08 THIS CERTIFICATE IS ISSUED BY THE DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT, DIVISION OF OCCUPATIONAL SAFETY TO PROVIDE THE ASBESTOS ANALYTICAL SERVICES SPECIFICALLY LISTED BELOW:

CLASS C CERTIFICATE

CLASS A CERTIFICATE

Robert J. Prezioso, Deputy Director

MCI-1/97

National Institute of Standards and Technology

NVLAP®

National Voluntary Laboratory Accreditation Program

ISO/IEC 17025:1999
ISO 9002:1994

Scope of Accreditation

BULK ASBESTOS FIBER ANALYSIS **NVLAP LAB CODE 101440-0**

RI ANALYTICAL LABORATORIES, INC.
41 Illinois Avenue
Warwick, RI 02888-3007
Mr. Eric Neff
Phone: 401-737-8500 Fax: 401-738-1970

NVLAP Code	*Designation*
18/A01	EPA-600/M4-82-020: Interim Method for the Determination of Asbestos in Bulk Insulation Samples

March 31, 2003

Effective through

David F. Alderman

For the National Institute of Standards and Technology

United States Department of Commerce
National Institute of Standards and Technology

NVLAP®

ISO/IEC 17025:1999
ISO 9002:1994

Certificate of Accreditation

RI ANALYTICAL LABORATORIES, INC.
WARWICK, RI

is recognized by the National Voluntary Laboratory Accreditation Program for satisfactory compliance with criteria set forth in NIST Handbook 150:2001, all requirements of ISO/IEC 17025:1999, and relevant requirements of ISO 9002:1994. Accreditation is awarded for specific services, listed on the Scope of Accreditation, for:

BULK ASBESTOS FIBER ANALYSIS

March 31, 2003
Effective through

David F. Alderman
For the National Institute of Standards and Technology

NVLAP Lab Code: 101440-0

NVLAP-01C (06-01)

APPENDIX B

PLM Laboratory Analytical Report

R.I. Analytical

Specialists in Environmental Services

CERTIFICATE OF ANALYSIS

EAM Northern Territory
Attn: Mr. Bill Hopper
131 Coolidge Street
Building 2, 1st Floor, Rear
Hudson, MA 01749

Date Received: 02/25/2003
Date Reported: 03/05/2003
Rial Report #: 0302-02422

Enclosed please find your sample(s) analysis results for asbestos content. The six asbestos types include amosite, chrysotile, crocidolite, anthophyllite, tremolite, and actinolite.

METHODOLOGY: Polarized Light Microscopy (PLM) as suggested by EPA/600/R-93/116, July 1993 edition.

If the samples are found to be inhomogeneous, individual components will be anlayzed separately. If individual components cannot be separated, the samples will be homogenized and a single result will be provided for the entire sample.

Sample results pertain only to items tested. The report must not be reproduced except in full with permission of R.I. Analytical. Samples submitted for analysis will be retained for three months for your future reference.

Our laboratory maintains NVLAP accreditation for bulk asbestos fiber analysis NVLAP lab code 101440-0.

If you have any questions regarding this report, or if we may be of further assistance, please contact us.

Approved by:

Paul Perrotti
Data Reporting Manager

R.I. Analytical Laboratories, Inc.

CERTIFICATE OF ANALYSIS

Approved by: _____
R.I. Analytical

EAM Northern Territory
Date Received: 02/25/2003
Work Order #: 0302-02422
Site Location: PROJECT# 030084 FITCHBURG CITY HALL

METHOD: EPA/600/R-93-116

SAMPLE NO.	SAMPLE DESCRIPTION	PARAMETER	SAMPLE RESULTS / UNITS		DATE ANALYZED	ANALYST
001	01A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		non-fibrous	100	%	03/05/2003	EDN
		Sample Color	Brown		03/05/2003	EDN
002	01B (+) STOP TO 01A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		non-fibrous	100	%	03/05/2003	EDN
		Sample Color	Tan		03/05/2003	EDN
003	01C (+) STOP TO 01A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		non-fibrous	100	%	03/05/2003	EDN
		Sample Color	Brown		03/05/2003	EDN
004	02A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		non-fibrous	100	%	03/05/2003	EDN
		Sample Color	Tan		03/05/2003	EDN
005	02B (+) STOP TO 02A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		non-fibrous	100	%	03/05/2003	EDN
		Sample Color	Tan		03/05/2003	EDN
006	02C (+) STOP TO 02A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		non-fibrous	100	%	03/05/2003	EDN
		Sample Color	Tan		03/05/2003	EDN
007	03A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		non-fibrous	100	%	03/05/2003	EDN
		Sample Color	Tan		03/05/2003	EDN
008	03B (+) STOP TO 03A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		non-fibrous	100	%	03/05/2003	EDN
		Sample Color	Tan		03/05/2003	EDN

R.I. Analytical Laboratories, Inc.

CERTIFICATE OF ANALYSIS

Approved by: _____
R.I. Analytical

EAM Northern Territory
Date Received: 02/25/2003
Work Order #: 0302-02422
Site Location: PROJECT# 030084 FITCHBURG CITY HALL

METHOD: EPA/600/R-93-116

SAMPLE NO.	SAMPLE DESCRIPTION	PARAMETER	SAMPLE RESULTS / UNITS		DATE ANALYZED	ANALYST
009	03C (+) STOP TO 03A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		non-fibrous	100	%	03/05/2003	EDN
		Sample Color	Tan		03/05/2003	EDN
010	03D (+) STOP TO 03A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		non-fibrous	100	%	03/05/2003	EDN
		Sample Color	Tan		03/05/2003	EDN
011	03E (+) STOP TO 03A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		non-fibrous	100	%	03/05/2003	EDN
		Sample Color	Tan		03/05/2003	EDN
012	04A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		non-fibrous	100	%	03/05/2003	EDN
		Sample Color	Black		03/05/2003	EDN
013	04B (+) STOP TO 04A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		non-fibrous	100	%	03/05/2003	EDN
		Sample Color	Black		03/05/2003	EDN
014	04C (+) STOP TO 04A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		non-fibrous	100	%	03/05/2003	EDN
		Sample Color	Black		03/05/2003	EDN
015	05A	PLM FIBER ANALYSIS				
		ASBESTOS	POSITIVE		03/05/2003	EDN
		Chrysotile	10-20	%	03/05/2003	EDN
		non-fibrous	80-90	%	03/05/2003	EDN
		Sample Color	Tan		03/05/2003	EDN
016	05B (+) STOP TO 05A	PLM FIBER ANALYSIS				
		+ STOP TO SAMPLE 05A				
017	05C (+) STOP TO 05A	PLM FIBER ANALYSIS				
		+ STOP TO SAMPLE 05A				

R.I. Analytical Laboratories, Inc.

CERTIFICATE OF ANALYSIS

EAM Northern Territory
Date Received: 02/25/2003
Work Order #: 0302-02422
Site Location: PROJECT# 030084 FITCHBURG CITY HALL

Approved by: _____
R.I. Analytical

METHOD: EPA/600/R-93-116

SAMPLE NO.	SAMPLE DESCRIPTION	PARAMETER	SAMPLE RESULTS / UNITS		DATE ANALYZED	ANALYST
018	06A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		non-fibrous	100	%	03/05/2003	EDN
		Sample Color	Black		03/05/2003	EDN
019	06B (+) STOP TO 06A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		non-fibrous	100	%	03/05/2003	EDN
		Sample Color	Black		03/05/2003	EDN
020	06C (+) STOP TO 06A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		non-fibrous	100	%	03/05/2003	EDN
		Sample Color	Black		03/05/2003	EDN
021	07A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		Cellulose	30-40	%	03/05/2003	EDN
		Glass Fiber	30-40	%	03/05/2003	EDN
		non-fibrous	20-40	%	03/05/2003	EDN
		Sample Color	Gray		03/05/2003	EDN
022	07B (+) STOP TO 07A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		Cellulose	30-40	%	03/05/2003	EDN
		Glass Fiber	30-40	%	03/05/2003	EDN
		non-fibrous	20-40	%	03/05/2003	EDN
		Sample Color	Gray		03/05/2003	EDN
023	07C (+) STOP TO 07A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		Cellulose	30-40	%	03/05/2003	EDN
		Glass Fiber	30-40	%	03/05/2003	EDN
		non-fibrous	20-40	%	03/05/2003	EDN
		Sample Color	Gray		03/05/2003	EDN
024	07D (+) STOP TO 07A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		Cellulose	30-40	%	03/05/2003	EDN
		Glass Fiber	30-40	%	03/05/2003	EDN
		non-fibrous	20-40	%	03/05/2003	EDN
		Sample Color	Gray		03/05/2003	EDN

R.I. Analytical Laboratories, Inc.

CERTIFICATE OF ANALYSIS

EAM Northern Territory
Date Received: 02/25/2003
Work Order #: 0302-02422
Site Location: PROJECT# 030084 FITCHBURG CITY HALL

Approved by: _____
R.I. Analytical

METHOD: EPA/600/R-93-116

SAMPLE NO.	SAMPLE DESCRIPTION	PARAMETER	SAMPLE RESULTS / UNITS		DATE ANALYZED	ANALYST
025	07E (+) STOP TO 07A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		Cellulose	30-40	%	03/05/2003	EDN
		Glass Fiber	30-40	%	03/05/2003	EDN
		non-fibrous	20-40	%	03/05/2003	EDN
		Sample Color	Gray		03/05/2003	EDN
026	08A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		non-fibrous	100	%	03/05/2003	EDN
		Sample Color	Tan		03/05/2003	EDN
027	08B (+) STOP TO 08A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		non-fibrous	100	%	03/05/2003	EDN
		Sample Color	Tan		03/05/2003	EDN
028	08C (+) STOP TO 08A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		non-fibrous	100	%	03/05/2003	EDN
		Sample Color	Tan		03/05/2003	EDN
029	08D (+) STOP TO 08A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		non-fibrous	100	%	03/05/2003	EDN
		Sample Color	Tan		03/05/2003	EDN
030	08E (+) STOP TO 08A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		non-fibrous	100	%	03/05/2003	EDN
		Sample Color	Tan		03/05/2003	EDN
031	08F (+) STOP TO 08A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		non-fibrous	100	%	03/05/2003	EDN
		Sample Color	Tan		03/05/2003	EDN
032	08G (+) STOP TO 08A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		non-fibrous	100	%	03/05/2003	EDN
		Sample Color	Tan		03/05/2003	EDN

R.I. Analytical Laboratories, Inc.

CERTIFICATE OF ANALYSIS

Approved by: _____
R.I. Analytical

EAM Northern Territory
Date Received: 02/25/2003
Work Order #: 0302-02422
Site Location: PROJECT# 030084 FITCHBURG CITY HALL

METHOD: EPA/600/R-93-116

SAMPLE NO.	SAMPLE DESCRIPTION	PARAMETER	SAMPLE RESULTS / UNITS		DATE ANALYZED	ANALYST
033	09A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		non-fibrous	100	%	03/05/2003	EDN
		Sample Color	Gray		03/05/2003	EDN
034	09B (+) STOP TO 09A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		non-fibrous	100	%	03/05/2003	EDN
		Sample Color	Gray		03/05/2003	EDN
035	09C (+) STOP TO 09A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		non-fibrous	100	%	03/05/2003	EDN
		Sample Color	Gray		03/05/2003	EDN
036	09D (+) STOP TO 09A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		non-fibrous	100	%	03/05/2003	EDN
		Sample Color	Gray		03/05/2003	EDN
037	09E (+) STOP TO 09A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		non-fibrous	100	%	03/05/2003	EDN
		Sample Color	Gray		03/05/2003	EDN
038	09F (+) STOP TO 09A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		Animal Hair	1-5	%	03/05/2003	EDN
		non-fibrous	95-99	%	03/05/2003	EDN
		Sample Color	Gray		03/05/2003	EDN
039	09G (+) STOP TO 09A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		Animal Hair	1-5	%	03/05/2003	EDN
		non-fibrous	95-99	%	03/05/2003	EDN
		Sample Color	Gray		03/05/2003	EDN

R.I. Analytical Laboratories, Inc.

CERTIFICATE OF ANALYSIS

EAM Northern Territory
Date Received: 02/25/2003
Work Order #: 0302-02422
Site Location: PROJECT# 030084 FITCHBURG CITY HALL

Approved by: _____
R.I. Analytical

METHOD: EPA/600/R-93-116

SAMPLE NO.	SAMPLE DESCRIPTION	PARAMETER	SAMPLE RESULTS / UNITS		DATE ANALYZED	ANALYST
040	10A	PLM FIBER ANALYSIS				
		ASBESTOS	POSITIVE		03/05/2003	EDN
		Chrysotile	40-50	%	03/05/2003	EDN
		Cellulose	20-30	%	03/05/2003	EDN
		non-fibrous	20-40	%	03/05/2003	EDN
		Sample Color	Gray		03/05/2003	EDN
041	10B (+) STOP TO 10A	PLM FIBER ANALYSIS				
		+ STOP TO SAMPLE 10A				
042	10C (+) STOP TO 10A	PLM FIBER ANALYSIS				
		+ STOP TO SAMPLE 10A				
043	11A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		non-fibrous	100	%	03/05/2003	EDN
		Sample Color	Green		03/05/2003	EDN
044	11B (+) STOP TO 11A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		non-fibrous	100	%	03/05/2003	EDN
		Sample Color	Green		03/05/2003	EDN
045	11C (+) STOP TO 11A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		non-fibrous	100	%	03/05/2003	EDN
		Sample Color	Green		03/05/2003	EDN
046	12A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		non-fibrous	100	%	03/05/2003	EDN
		Sample Color	White		03/05/2003	EDN
047	12B (+) STOP TO 12A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		non-fibrous	100	%	03/05/2003	EDN
		Sample Color	White		03/05/2003	EDN
048	12C (+) STOP TO 12A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		non-fibrous	100	%	03/05/2003	EDN
		Sample Color	White		03/05/2003	EDN

R.I. Analytical Laboratories, Inc.

CERTIFICATE OF ANALYSIS

EAM Northern Territory
Date Received: 02/25/2003
Work Order #: 0302-02422
Site Location: PROJECT# 030084 FITCHBURG CITY HALL

Approved by: _____ R.I. Analytical

METHOD: EPA/600/R-93-116

SAMPLE NO.	SAMPLE DESCRIPTION	PARAMETER	SAMPLE RESULTS / UNITS		DATE ANALYZED	ANALYST
049	13A	PLM FIBER ANALYSIS				
		ASBESTOS	POSITIVE		03/05/2003	EDN
		Chrysotile	30-40	%	03/05/2003	EDN
		Cellulose	20-30	%	03/05/2003	EDN
		non-fibrous	30-50	%	03/05/2003	EDN
		Sample Color	Gray		03/05/2003	EDN
050	13B (+) STOP TO 13A	PLM FIBER ANALYSIS				
		+ STOP TO SAMPLE 13A				
051	13C (+) STOP TO 13A	PLM FIBER ANALYSIS				
		+ STOP TO SAMPLE 13A				
052	14A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		non-fibrous	100	%	03/05/2003	EDN
		Sample Color	Black		03/05/2003	EDN
053	14B (+) STOP TO 14A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		non-fibrous	100	%	03/05/2003	EDN
		Sample Color	Black		03/05/2003	EDN
054	14C (+) STOP TO 14A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		non-fibrous	100	%	03/05/2003	EDN
		Sample Color	Black		03/05/2003	EDN
055	15A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		non-fibrous	100	%	03/05/2003	EDN
		Sample Color	White		03/05/2003	EDN
056	15B (+) STOP TO 15A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		non-fibrous	100	%	03/05/2003	EDN
		Sample Color	White		03/05/2003	EDN
057	15C (+) STOP TO 15A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		non-fibrous	100	%	03/05/2003	EDN
		Sample Color	White		03/05/2003	EDN

R.I. Analytical Laboratories, Inc.

CERTIFICATE OF ANALYSIS

EAM Northern Territory
Date Received: 02/25/2003
Work Order #: 0302-02422
Site Location: PROJECT# 030084 FITCHBURG CITY HALL

Approved by: _____
R.I. Analytical

METHOD: EPA/600/R-93-116

SAMPLE NO.	SAMPLE DESCRIPTION	PARAMETER	SAMPLE RESULTS / UNITS		DATE ANALYZED	ANALYST
058	16A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		Cellulose	1-3	%	03/05/2003	EDN
		non-fibrous	97-99	%	03/05/2003	EDN
		Sample Color	Yellow		03/05/2003	EDN
059	16B (+) STOP TO 16A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		Cellulose	1-3	%	03/05/2003	EDN
		non-fibrous	97-99	%	03/05/2003	EDN
		Sample Color	Yellow		03/05/2003	EDN
060	16C (+) STOP TO 16A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		Cellulose	1-3	%	03/05/2003	EDN
		non-fibrous	97-99	%	03/05/2003	EDN
		Sample Color	Yellow		03/05/2003	EDN
061	17A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		Cellulose	30-40	%	03/05/2003	EDN
		Glass Fiber	30-40	%	03/05/2003	EDN
		non-fibrous	20-40	%	03/05/2003	EDN
		Sample Color	Gray		03/05/2003	EDN
062	17B (+) STOP TO 17A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		Cellulose	30-40	%	03/05/2003	EDN
		Glass Fiber	30-40	%	03/05/2003	EDN
		non-fibrous	20-40	%	03/05/2003	EDN
		Sample Color	Gray		03/05/2003	EDN
063	17C (+) STOP TO 17A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		Cellulose	30-40	%	03/05/2003	EDN
		Glass Fiber	30-40	%	03/05/2003	EDN
		non-fibrous	20-40	%	03/05/2003	EDN
		Sample Color	Gray		03/05/2003	EDN

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EAM Northern Territory
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Work Order #: 0302-02422
Site Location: PROJECT# 030084 FITCHBURG CITY HALL

METHOD: EPA/600/R-93-116

SAMPLE NO.	SAMPLE DESCRIPTION	PARAMETER	SAMPLE RESULTS / UNITS		DATE ANALYZED	ANALYST
064	18A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		non-fibrous	100	%	03/05/2003	EDN
		Sample Color	Red		03/05/2003	EDN
065	18B (+) STOP TO 18A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		non-fibrous	100	%	03/05/2003	EDN
		Sample Color	Red		03/05/2003	EDN
066	18C (+) STOP TO 18A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		non-fibrous	100	%	03/05/2003	EDN
		Sample Color	Red		03/05/2003	EDN
067	19A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		non-fibrous	100	%	03/05/2003	EDN
		Sample Color	Yellow		03/05/2003	EDN
068	19B (+) STOP TO 19A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		non-fibrous	100	%	03/05/2003	EDN
		Sample Color	Yellow		03/05/2003	EDN
069	19C (+) STOP TO 19A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		non-fibrous	100	%	03/05/2003	EDN
		Sample Color	Yellow		03/05/2003	EDN
070	20A	PLM FIBER ANALYSIS				
		ASBESTOS	POSITIVE		03/05/2003	EDN
		Chrysotile	5-15	%	03/05/2003	EDN
		non-fibrous	85-95	%	03/05/2003	EDN
		Sample Color	Gray		03/05/2003	EDN
071	20B (+) STOP TO 20A	PLM FIBER ANALYSIS				
		+ STOP TO SAMPLE 20A				
072	20C (+) STOP TO 20A	PLM FIBER ANALYSIS				
		+ STOP TO SAMPLE 20A				

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METHOD: EPA/600/R-93-116

SAMPLE NO.	SAMPLE DESCRIPTION	PARAMETER	SAMPLE RESULTS / UNITS		DATE ANALYZED	ANALYST
073	21A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		Cellulose	5-10	%	03/05/2003	EDN
		non-fibrous	90-95	%	03/05/2003	EDN
		Sample Color	Black		03/05/2003	EDN
074	21B (+) STOP TO 21A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		Cellulose	5-10	%	03/05/2003	EDN
		non-fibrous	90-95	%	03/05/2003	EDN
		Sample Color	Black		03/05/2003	EDN
075	21C (+) STOP TO 21A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		Cellulose	5-10	%	03/05/2003	EDN
		non-fibrous	90-95	%	03/05/2003	EDN
		Sample Color	Black		03/05/2003	EDN
076	22A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		non-fibrous	100	%	03/05/2003	EDN
		Sample Color	Yellow		03/05/2003	EDN
077	22B (+) STOP TO 22A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		non-fibrous	100	%	03/05/2003	EDN
		Sample Color	Yellow		03/05/2003	EDN
078	22C (+) STOP TO 22A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		non-fibrous	100	%	03/05/2003	EDN
		Sample Color	Yellow		03/05/2003	EDN
079	23A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		non-fibrous	100	%	03/05/2003	EDN
		Sample Color	Black		03/05/2003	EDN
080	23B (+) STOP TO 23A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		non-fibrous	100	%	03/05/2003	EDN
		Sample Color	Black		03/05/2003	EDN

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SAMPLE NO.	SAMPLE DESCRIPTION	PARAMETER	SAMPLE RESULTS / UNITS		DATE ANALYZED	ANALYST
081	23C (+) STOP TO 23A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		non-fibrous	100	%	03/05/2003	EDN
		Sample Color	Black		03/05/2003	EDN
082	23D (+) STOP TO 23A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		non-fibrous	100	%	03/05/2003	EDN
		Sample Color	Black		03/05/2003	EDN
083	23E (+) STOP TO 23A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		non-fibrous	100	%	03/05/2003	EDN
		Sample Color	Black		03/05/2003	EDN
084	24A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		non-fibrous	100	%	03/05/2003	EDN
		Sample Color	Tan		03/05/2003	EDN
085	24B (+) STOP TO 24A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		non-fibrous	100	%	03/05/2003	EDN
		Sample Color	Tan		03/05/2003	EDN
086	24C (+) STOP TO 24A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		non-fibrous	100	%	03/05/2003	EDN
		Sample Color	Tan		03/05/2003	EDN
087	25A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		Cellulose	30-40	%	03/05/2003	EDN
		non-fibrous	60-70	%	03/05/2003	EDN
		Sample Color	Tan		03/05/2003	EDN
088	25B (+) STOP TO 25A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		Cellulose	30-40	%	03/05/2003	EDN
		non-fibrous	60-70	%	03/05/2003	EDN
		Sample Color	Tan		03/05/2003	EDN

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SAMPLE NO.	SAMPLE DESCRIPTION	PARAMETER	SAMPLE RESULTS / UNITS		DATE ANALYZED	ANALYST
089	25C (+) STOP TO 25A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		Cellulose	30-40	%	03/05/2003	EDN
		non-fibrous	60-70	%	03/05/2003	EDN
		Sample Color	Tan		03/05/2003	EDN
090	26A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		non-fibrous	100	%	03/05/2003	EDN
		Sample Color	Green		03/05/2003	EDN
091	17D (+) STOP TO 17A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		Cellulose	30-40	%	03/05/2003	EDN
		Glass Fiber	30-40	%	03/05/2003	EDN
		non-fibrous	20-40	%	03/05/2003	EDN
		Sample Color	Tan		03/05/2003	EDN
092	17E (+) STOP TO 17A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		Cellulose	30-40	%	03/05/2003	EDN
		Glass Fiber	30-40	%	03/05/2003	EDN
		non-fibrous	20-40	%	03/05/2003	EDN
		Sample Color	Tan		03/05/2003	EDN
093	26B (+) STOP TO 26A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		non-fibrous	100	%	03/05/2003	EDN
		Sample Color	Green		03/05/2003	EDN
094	26C (+) STOP TO 26A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		non-fibrous	100	%	03/05/2003	EDN
		Sample Color	Green		03/05/2003	EDN
095	27A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		non-fibrous	100	%	03/05/2003	EDN
		Sample Color	Tan		03/05/2003	EDN

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096	27B (+) STOP TO 27A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		non-fibrous	100	%	03/05/2003	EDN
		Sample Color	Yellow		03/05/2003	EDN
097	27C (+) STOP TO 27A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		non-fibrous	100	%	03/05/2003	EDN
		Sample Color	Yellow		03/05/2003	EDN
098	28A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		Cellulose	30-40	%	03/05/2003	EDN
		Glass Fiber	30-40	%	03/05/2003	EDN
		non-fibrous	20-40	%	03/05/2003	EDN
		Sample Color	Gray		03/05/2003	EDN
099	28B (+) STOP TO 28A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		Cellulose	30-40	%	03/05/2003	EDN
		Glass Fiber	30-40	%	03/05/2003	EDN
		non-fibrous	20-40	%	03/05/2003	EDN
		Sample Color	Gray		03/05/2003	EDN
100	28C (+) STOP TO 28A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		Cellulose	30-40	%	03/05/2003	EDN
		Glass Fiber	30-40	%	03/05/2003	EDN
		non-fibrous	20-40	%	03/05/2003	EDN
		Sample Color	Gray		03/05/2003	EDN
101	29A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		non-fibrous	100	%	03/05/2003	EDN
		Sample Color	Gray		03/05/2003	EDN
102	29B (+) STOP TO 29A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		non-fibrous	100	%	03/05/2003	EDN
		Sample Color	Gray		03/05/2003	EDN

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SAMPLE NO.	SAMPLE DESCRIPTION	PARAMETER	SAMPLE RESULTS / UNITS		DATE ANALYZED	ANALYST
103	29C (+) STOP TO 29A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		non-fibrous	100	%	03/05/2003	EDN
		Sample Color	Gray		03/05/2003	EDN
104	30A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		non-fibrous	100	%	03/05/2003	EDN
		Sample Color	White		03/05/2003	EDN
105	31A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		non-fibrous	100	%	03/05/2003	EDN
		Sample Color	Gray		03/05/2003	EDN
106	31B (+) STOP TO 31A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		non-fibrous	100	%	03/05/2003	EDN
		Sample Color	Gray		03/05/2003	EDN
107	31C (+) STOP TO 31A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		non-fibrous	100	%	03/05/2003	EDN
		Sample Color	Gray		03/05/2003	EDN
108	32A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		non-fibrous	100	%	03/05/2003	EDN
		Sample Color	Yellow		03/05/2003	EDN
109	32B (+) STOP TO 32A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		non-fibrous	100	%	03/05/2003	EDN
		Sample Color	Yellow		03/05/2003	EDN
110	32C (+) STOP TO 32A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		non-fibrous	100	%	03/05/2003	EDN
		Sample Color	Yellow		03/05/2003	EDN

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SAMPLE NO.	SAMPLE DESCRIPTION	PARAMETER	SAMPLE RESULTS / UNITS		DATE ANALYZED	ANALYST
111	33A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		non-fibrous	100	%	03/05/2003	EDN
		Sample Color	Tan		03/05/2003	EDN
112	33B (+) STOP TO 33A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		non-fibrous	100	%	03/05/2003	EDN
		Sample Color	Tan		03/05/2003	EDN
113	33C (+) STOP TO 33A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		non-fibrous	100	%	03/05/2003	EDN
		Sample Color	Tan		03/05/2003	EDN
114	34A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		non-fibrous	100	%	03/05/2003	EDN
		Sample Color	Yellow		03/05/2003	EDN
115	34B (+) STOP TO 34A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		non-fibrous	100	%	03/05/2003	EDN
		Sample Color	Yellow		03/05/2003	EDN
116	34C (+) STOP TO 34A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		non-fibrous	100	%	03/05/2003	EDN
		Sample Color	Yellow		03/05/2003	EDN
117	35A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		Cellulose	5-10	%	03/05/2003	EDN
		non-fibrous	90-95	%	03/05/2003	EDN
		Sample Color	White		03/05/2003	EDN
118	35B (+) STOP TO 35A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		Cellulose	5-10	%	03/05/2003	EDN
		non-fibrous	90-95	%	03/05/2003	EDN
		Sample Color	White		03/05/2003	EDN

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SAMPLE NO.	SAMPLE DESCRIPTION	PARAMETER	SAMPLE RESULTS / UNITS		DATE ANALYZED	ANALYST
119	35C (+) STOP TO 35A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		Cellulose	5-10	%	03/05/2003	EDN
		non-fibrous	90-95	%	03/05/2003	EDN
		Sample Color	White		03/05/2003	EDN
120	36A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		non-fibrous	100	%	03/05/2003	EDN
		Sample Color	White		03/05/2003	EDN
121	36B (+) STOP TO 36A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		non-fibrous	100	%	03/05/2003	EDN
		Sample Color	White		03/05/2003	EDN
122	36C (+) STOP TO 36A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		non-fibrous	100	%	03/05/2003	EDN
		Sample Color	White		03/05/2003	EDN
123	37A	PLM FIBER ANALYSIS				
		ASBESTOS	POSITIVE		03/05/2003	EDN
		Chrysotile	5-15	%	03/05/2003	EDN
		non-fibrous	85-95	%	03/05/2003	EDN
		Sample Color	Tan		03/05/2003	EDN
124	37B (+) STOP TO 37A	PLM FIBER ANALYSIS				
		+ STOP TO SAMPLE 37A				
125	37C (+) STOP TO 37A	PLM FIBER ANALYSIS				
		+ STOP TO SAMPLE 37A				
126	38A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		Cellulose	5-10	%	03/05/2003	EDN
		non-fibrous	90-95	%	03/05/2003	EDN
		Sample Color	Black		03/05/2003	EDN

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SAMPLE NO.	SAMPLE DESCRIPTION	PARAMETER	SAMPLE RESULTS / UNITS		DATE ANALYZED	ANALYST
127	38B (+) STOP TO 38A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		Cellulose	5-10	%	03/05/2003	EDN
		non-fibrous	90-95	%	03/05/2003	EDN
		Sample Color	Black		03/05/2003	EDN
128	38C (+) STOP TO 38A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		Cellulose	5-10	%	03/05/2003	EDN
		non-fibrous	90-95	%	03/05/2003	EDN
		Sample Color	Black		03/05/2003	EDN
129	39A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		non-fibrous	100	%	03/05/2003	EDN
		Sample Color	Tan		03/05/2003	EDN
130	39B (+) STOP TO 39A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		non-fibrous	100	%	03/05/2003	EDN
		Sample Color	Tan		03/05/2003	EDN
131	39C (+) STOP TO 39A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		non-fibrous	100	%	03/05/2003	EDN
		Sample Color	Tan		03/05/2003	EDN
132	40A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		Cellulose	1-5	%	03/05/2003	EDN
		non-fibrous	95-99	%	03/05/2003	EDN
		Sample Color	Yellow		03/05/2003	EDN
133	40B (+) STOP TO 40A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		Cellulose	1-5	%	03/05/2003	EDN
		non-fibrous	95-99	%	03/05/2003	EDN
		Sample Color	Yellow		03/05/2003	EDN

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SAMPLE NO.	SAMPLE DESCRIPTION	PARAMETER	SAMPLE RESULTS / UNITS		DATE ANALYZED	ANALYST
134	40C (+) STOP TO 40A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		Cellulose	1-5	%	03/05/2003	EDN
		non-fibrous	95-99	%	03/05/2003	EDN
		Sample Color	Yellow		03/05/2003	EDN
135	41A	PLM FIBER ANALYSIS				
		ASBESTOS	POSITIVE		03/05/2003	EDN
		Chrysotile	20-30	%	03/05/2003	EDN
		non-fibrous	70-80	%	03/05/2003	EDN
		Sample Color	Black		03/05/2003	EDN
136	41B (+) STOP TO 41A	PLM FIBER ANALYSIS				
		+ STOP TO SAMPLE 41A				
137	41C (+) STOP TO 41A	PLM FIBER ANALYSIS				
		+ STOP TO SAMPLE 41A				
138	42A	PLM FIBER ANALYSIS				
		ASBESTOS	POSITIVE		03/05/2003	EDN
		Chrysotile	5-10	%	03/05/2003	EDN
		non-fibrous	90-95	%	03/05/2003	EDN
		Sample Color	Tan		03/05/2003	EDN
139	42B (+) STOP TO 42A	PLM FIBER ANALYSIS				
		+ STOP TO SAMPLE 42A				
140	42C (+) STOP TO 42A	PLM FIBER ANALYSIS				
		+ STOP TO SAMPLE 42A				
141	43A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		non-fibrous	100	%	03/05/2003	EDN
		Sample Color	Tan		03/05/2003	EDN
142	43B (+) STOP TO 43A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		non-fibrous	100	%	03/05/2003	EDN
		Sample Color	Tan		03/05/2003	EDN
143	43C (+) STOP TO 43A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		non-fibrous	100	%	03/05/2003	EDN
		Sample Color	Tan		03/05/2003	EDN

R.I. Analytical Laboratories, Inc.

CERTIFICATE OF ANALYSIS

Approved by: _____
R.I. Analytical

EAM Northern Territory
Date Received: 02/25/2003
Work Order #: 0302-02422
Site Location: PROJECT# 030084 FITCHBURG CITY HALL

METHOD: EPA/600/R-93-116

SAMPLE NO.	SAMPLE DESCRIPTION	PARAMETER	SAMPLE RESULTS / UNITS		DATE ANALYZED	ANALYST
144	44A	PLM FIBER ANALYSIS				
		ASBESTOS	POSITIVE		03/05/2003	EDN
		Chrysotile	10-20	%	03/05/2003	EDN
		non-fibrous	80-90	%	03/05/2003	EDN
		Sample Color	Gray		03/05/2003	EDN
145	44B (+) STOP TO 44A	PLM FIBER ANALYSIS				
		+ STOP TO SAMPLE 44A				
146	44C (+) STOP TO 44A	PLM FIBER ANALYSIS				
		+ STOP TO SAMPLE 44A				
147	45A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		Cellulose	5-10	%	03/05/2003	EDN
		non-fibrous	90-95	%	03/05/2003	EDN
		Sample Color	Black		03/05/2003	EDN
148	45B (+) STOP TO 45A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		Cellulose	5-10	%	03/05/2003	EDN
		non-fibrous	90-95	%	03/05/2003	EDN
		Sample Color	Black		03/05/2003	EDN
149	45C (+) STOP TO 45A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		Cellulose	5-10	%	03/05/2003	EDN
		non-fibrous	90-95	%	03/05/2003	EDN
		Sample Color	Black		03/05/2003	EDN
150	46A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		non-fibrous	100	%	03/05/2003	EDN
		Sample Color	Tan		03/05/2003	EDN
151	46B (+) STOP TO 46A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		non-fibrous	100	%	03/05/2003	EDN
		Sample Color	Tan		03/05/2003	EDN

R.I. Analytical Laboratories, Inc.

CERTIFICATE OF ANALYSIS

EAM Northern Territory
Date Received: 02/25/2003
Work Order #: 0302-02422
Site Location: PROJECT# 030084 FITCHBURG CITY HALL

Approved by: _____
R.I. Analytical

METHOD: EPA/600/R-93-116

SAMPLE NO.	SAMPLE DESCRIPTION	PARAMETER	SAMPLE RESULTS / UNITS		DATE ANALYZED	ANALYST
152	46C (+) STOP TO 46A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		non-fibrous	100	%	03/05/2003	EDN
		Sample Color	Tan		03/05/2003	EDN
153	47A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		non-fibrous	100	%	03/05/2003	EDN
		Sample Color	Yellow		03/05/2003	EDN
154	47B (+) STOP TO 47A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		non-fibrous	100	%	03/05/2003	EDN
		Sample Color	Yellow		03/05/2003	EDN
155	47C (+) STOP TO 47A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		non-fibrous	100	%	03/05/2003	EDN
		Sample Color	Yellow		03/05/2003	EDN
156	48A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		non-fibrous	100	%	03/05/2003	EDN
		Sample Color	Tan		03/05/2003	EDN
157	48B (+) STOP TO 48A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		non-fibrous	100	%	03/05/2003	EDN
		Sample Color	Tan		03/05/2003	EDN
158	48C (+) STOP TO 48A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		non-fibrous	100	%	03/05/2003	EDN
		Sample Color	Tan		03/05/2003	EDN
159	49A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		Cellulose	1-5	%	03/05/2003	EDN
		non-fibrous	95-99	%	03/05/2003	EDN
		Sample Color	Yellow		03/05/2003	EDN

R.I. Analytical Laboratories, Inc.

CERTIFICATE OF ANALYSIS

EAM Northern Territory
Date Received: 02/25/2003
Work Order #: 0302-02422
Site Location: PROJECT# 030084 FITCHBURG CITY HALL

Approved by: _____
R.I. Analytical

METHOD: EPA/600/R-93-116

SAMPLE NO.	SAMPLE DESCRIPTION	PARAMETER	SAMPLE RESULTS / UNITS		DATE ANALYZED	ANALYST
160	49B (+) STOP TO 49A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		Cellulose	1-5	%	03/05/2003	EDN
		non-fibrous	95-99	%	03/05/2003	EDN
		Sample Color	Yellow		03/05/2003	EDN
161	49C (+) STOP TO 49A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		Cellulose	1-5	%	03/05/2003	EDN
		non-fibrous	95-99	%	03/05/2003	EDN
		Sample Color	Yellow		03/05/2003	EDN
162	50A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		non-fibrous	100	%	03/05/2003	EDN
		Sample Color	Brown		03/05/2003	EDN
163	50B (+) STOP TO 50A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		non-fibrous	100	%	03/05/2003	EDN
		Sample Color	Brown		03/05/2003	EDN
164	50C (+) STOP TO 50A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		non-fibrous	100	%	03/05/2003	EDN
		Sample Color	Brown		03/05/2003	EDN
165	51A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		non-fibrous	100	%	03/05/2003	EDN
		Sample Color	Tan		03/05/2003	EDN
166	51B (+) STOP TO 51A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		non-fibrous	100	%	03/05/2003	EDN
		Sample Color	Tan		03/05/2003	EDN
167	51C (+) STOP TO 51A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		non-fibrous	100	%	03/05/2003	EDN
		Sample Color	Tan		03/05/2003	EDN

R.I. Analytical Laboratories, Inc.

CERTIFICATE OF ANALYSIS

EAM Northern Territory
Date Received: 02/25/2003
Work Order #: 0302-02422
Site Location:PROJECT# 030084 FITCHBURG CITY HALL

Approved by: R.I. Analytical

METHOD: EPA/600/R-93-116

SAMPLE NO.	SAMPLE DESCRIPTION	PARAMETER	SAMPLE RESULTS / UNITS		DATE ANALYZED	ANALYST
168	52A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		Cellulose	5-10	%	03/05/2003	EDN
		non-fibrous	90-95	%	03/05/2003	EDN
		Sample Color	Black		03/05/2003	EDN
169	52B (+) STOP TO 52A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		Cellulose	5-10	%	03/05/2003	EDN
		non-fibrous	90-95	%	03/05/2003	EDN
		Sample Color	Black		03/05/2003	EDN
170	52C (+) STOP TO 52A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		Cellulose	5-10	%	03/05/2003	EDN
		non-fibrous	90-95	%	03/05/2003	EDN
		Sample Color	Black		03/05/2003	EDN
171	53A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		non-fibrous	100	%	03/05/2003	EDN
		Sample Color	Tan		03/05/2003	EDN
172	53B (+) STOP TO 53A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		non-fibrous	100	%	03/05/2003	EDN
		Sample Color	Tan		03/05/2003	EDN
173	53C (+) STOP TO 53A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		non-fibrous	100	%	03/05/2003	EDN
		Sample Color	Tan		03/05/2003	EDN
174	54A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		Cellulose	10-20	%	03/05/2003	EDN
		non-fibrous	80-90	%	03/05/2003	EDN
		Sample Color	Black		03/05/2003	EDN

R.I. Analytical Laboratories, Inc.

CERTIFICATE OF ANALYSIS

EAM Northern Territory
Date Received: 02/25/2003
Work Order #: 0302-02422
Site Location: PROJECT# 030084 FITCHBURG CITY HALL

Approved by: _____
R.I. Analytical

METHOD: EPA/600/R-93-116

SAMPLE NO.	SAMPLE DESCRIPTION	PARAMETER	SAMPLE RESULTS / UNITS		DATE ANALYZED	ANALYST
175	54B (+) STOP TO 54A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		Cellulose	10-20	%	03/05/2003	EDN
		non-fibrous	80-90	%	03/05/2003	EDN
		Sample Color	Black		03/05/2003	EDN
176	54C (+) STOP TO 54A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		Cellulose	10-20	%	03/05/2003	EDN
		non-fibrous	80-90	%	03/05/2003	EDN
		Sample Color	Black		03/05/2003	EDN
177	30B (+) STOP TO 30A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		non-fibrous	100	%	03/05/2003	EDN
		Sample Color	White		03/05/2003	EDN
178	30C (+) STOP TO 30A	PLM FIBER ANALYSIS				
		ASBESTOS	NEGATIVE		03/05/2003	EDN
		non-fibrous	100	%	03/05/2003	EDN
		Sample Color	White		03/05/2003	EDN

White Copy Original (Accompanies Samples) Yellow Copy Sample Collector Pink Copy Client's Copy

R.I. Analytical Laboratories, Inc.

CHAIN OF CUSTODY RECORD

Phone: 800-937-2580
Fax: 401-738-1970

Phone: 888-228-3334
Fax: 978-568-0078

G = Glass S = Sterile
AG = Amber Glass
O = Other (describe)

I = Cooled 4°C H = HCl
N = Nitric SH = NaOH
M = Methanol SB = $NaHSO_4$

GW = Groundwater S = Soil
WW = Wastewater SL = Sludge
DW = Potable Water A = Air
O = Other (describe) B = Bulk/Solid

Date Collected	Time Collected	Sample ID	G = Grab C = Comp.	Containers # + Code	Preservative Code	Matrix Code	Analyses Requested
2/21/03	16:00	01A	C	1 Bag	NP	Bulk	Asbestos, in bulk material (PLM)
		01B					
		01C					
		02A					
		02B					
		02C					
		03A					
		03B					
		03C					
		03D					

Client Information

Company Name:	EAM – North, R. I. Analytical Laboratories
Address:	131 Coolidge Street, Bldg. 2
City / State / Zip:	Hudson, MA 01749
Telephone:	978-568-0041 Fax: 978-568-0078
Contact Person:	William H. Hopper – Senior Project Manager

Project Information

Project Name:	Fitchburg City Hall
P.O. Number:	Project Number: 030084
Report To:	William Hopper Phone: 978-568-0041 Fax: 978-568-0078
Sampled by:	WH Email address: whopper@rianalytical.com
Quote No:	

Relinquished by:	Date	Time	Received by:	Date	Time
William Hopper	2/25/03	1645	Eastern Connection	2/25/03	1645
Eastern Connection	2/25/03	1830	EMayo	2/25/03	1830

Turn Around Time:

- ✓ Normal | X | EMAIL Report
- 5 business days
  Surcharges may apply.
- Rush _____ (business days)

Project Comments

Use Pos stop

Samples are retained within the lab for a period of three months, after which they are disposed of at an EPA-approved asbestos landfill. If the client wishes to retain samples after analysis, requests must be made before the expiration of the three-month period.

Lab Use Only

- Sample Pick Up Only
- RIAL sampled; attach field hours
- Shipped on ice

Workorder No: 0302-0242

White Copy Original (Accompanies Samples) Yellow Copy – Sample Collector Pink Copy – Client's Copy

R.I. Analytical Laboratories, Inc.

41 Illinois Avenue
Warwick, RI 02888
Phone: 800-937-2580
Fax: 401-738-1970

131 Coolidge Street, Bldg. 2
Hudson, MA 01749
Phone: 888-228-3334
Fax: 978-568-0078

CHAIN OF CUSTODY RECORD

Container Type Codes:		Preservative Codes:		Matrix Codes:	
P = Plastic	V = Vial	NP = Non preserved	S = Sulfuric	GW = Groundwater	S = Soil
G = Glass	St = Sterile	I = Cooled 4°C	H = HCl	WW = Wastewater	Sl = Sludge
AG = Amber Glass		N = Nitric	SH = NaOH	DW = Potable Water	A = Air
O = Other (describe)		M = Methanol	SB = $NaHSO_4$	O = Other (describe)	B = Bulk/Solid

Date Collected	Time Collected	Sample ID	G = Grab C = Comp.	Containers # + Code	Preservative Code	Matrix Code	Analyses Requested
2/24/03	16:00	03B	C	1 Bag	NP	Bulk	Asbestos, in bulk material (PLM)
		04A					
		04B					
		04C					
		05A					
		05B					
		05C					
		06A					
		06B					
		06C					

Client Information

Company Name:	EAM – North, R. I. Analytical Laboratories
Address:	131 Coolidge Street, Bldg. 2
City / State / Zip:	Hudson, MA 01749
Telephone:	978-568-0041 Fax: 978-568-0078
Contact Person:	William H. Hopper – Senior Project Manager

Project Information

Project Name:	Fitchburg city Hall		
P.O. Number:		Project Number:	0300084
Report To:	William Hopper	Phone: 978-568-0041	Fax: 978-568-0078
Sampled by:	WH	Email address:	whopper@rianalytical.com
Quote No:			

Relinquished by:	Date	Time	Received by:	Date	Time
William Hopper	2/25/03	1645	eastern connection	2/25/03	1643
eastern connection	2/25/03	1830	RMayo	2/25/03	1830

Turn Around Time:

- ✓ Normal | X EMAIL Report
- 5 business days
  Surcharges may apply.
- Rush _____ (business days)

Project Comments

use POS. Shop

Samples are retained within the lab for a period of three months, after which they are disposed of at an EPA-approved asbestos landfill. If the client wishes to retain samples after analysis, requests must be made before the expiration of the three-month period.

Lab Use Only

- Sample Pick Up Only
- RIAL sampled; attach field hours
- Shipped on ice

Workorder No: 0302-0214

White Copy Original (Accompanies Samples) Yellow Copy Sample Collector Pink Copy Client's Copy

R.I. Analytical Laboratories, Inc.

CHAIN OF CUSTODY RECORD

Page 3 of

Warwick, RI 02888
Phone: 800-937-2580
Fax: 401-738-1970

Hudson, MA 01749
Phone: 888-228-3334
Fax: 978-568-0078

P = Plastic V = Vial
G = Glass St = Sterile
AG = Amber Glass
O = Other (describe)

NP = Non-preserved S = Sulfuric
I = Cooled 4°C H = HCl
N = Nitric SH = NaOH
M = Methanol SB = $NaHSO_4$

GW = Groundwater S = Soil
WW = Wastewater Sl = Sludge
DW = Potable Water A = Air
O = Other (describe) B = Bulk/Solid

Date Collected	Time Collected	Sample ID	G = Grab C = Comp.	Containers # + Code	Preservative Code	Matrix Code	Analyses Requested
2/24/03	16:00	07A	C	1 Bag	NP	Bulk	Asbestos, in bulk material (PLM)
		07B					
		07C					
		07D					
		07E					
		08A					
		08B					
		08C					
		08D					
		08E					

Client Information

Company Name: EAM – North, R. I. Analytical Laboratories
Address: 131 Coolidge Street, Bldg. 2
City / State / Zip: Hudson, MA 01749
Telephone: 978-568-0041 Fax: 978-568-0078
Contact Person: William H. Hopper – Senior Project Manager

Project Information

Project Name: Fitchburg City Hall
P.O. Number: Project Number: 0300084
Report To: William Hopper Phone: 978-568-0041 Fax: 978-568-0078
Sampled by: WH Email address: whopper@rianalytical.com
Quote No:

Relinquished by:	Date	Time	Received by:	Date	Time
William Hopper	2/25/03	1645	eastern connection	2/25/03	1645
eastern connection	2/25/03	1830	RMayo	2/25/03	1830

Turn Around Time:

- ✓ Normal | X | EMAIL Report
- 5 business days Surcharges may apply.
- Rush _____ (business days)

Project Comments

use pos. stop.

Samples are retained within the lab for a period of three months, after which they are disposed of at an EPA-approved asbestos landfill. If the client wishes to retain samples after analysis, requests must be made before the expiration of the three-month period.

Lab Use Only

- Sample Pick Up Only
- RIAL sampled; attach field hours
- Shipped on ice

Workorder No. 0302-02422

White Copy Original (Accompanies Samples) Yellow Copy Sample Collector Pink Copy Client's Copy

R.I. Analytical Laboratories, Inc.

41 Illinois Avenue
Warwick, RI 02888
Phone: 800-937-2580
Fax: 401-738-1970

131 Coolidge Street, Bldg. 2
Hudson, MA 01749
Phone: 888-228-3334
Fax: 978-568-0078

CHAIN OF CUSTODY RECORD

Page 1 of

Container Type Codes:	Preservative Codes:	Matrix Codes:
P = Plastic V = Vial	NP = Non preserved S = Sulfuric	GW = Groundwater S = Soil
G = Glass St = Sterile	I = Cooled 4°C H = HCl	WW = Wastewater Sl = Sludge
AG = Amber Glass	N = Nitric SH = NaOH	DW = Potable Water A = Air
O = Other (describe)	M = Methanol SB = $NaHSO_4$	O = Other (describe) B = Bulk/Solid

Date Collected	Time Collected	Sample ID	G = Grab C = Comp.	Containers # + Code	Preservative Code	Matrix Code	Analyses Requested
2/24/03	16:00	08F	C	1 Bag	NP	Bulk	Asbestos, in bulk material (PLM)
		08G					
		09A					
		09B					
		09C					
		09D					
		09E					
		09F					
		09G					
		10A					

Client Information

Company Name:	EAM – North, R. I. Analytical Laboratories
Address:	131 Coolidge Street, Bldg. 2
City / State / Zip:	Hudson, MA 01749
Telephone:	978-568-0041 Fax: 978-568-0078
Contact Person:	William H. Hopper – Senior Project Manager

Project Information

Project Name:	Fitchburg City Hall
P.O. Number:	Project Number: 030084
Report To:	William Hopper Phone: 978-568-0041 Fax: 978-568-0078
Sampled by:	WH Email address: whopper@rianalytical.com
Quote No:	

Relinquished by:	Date	Time	Received by:	Date	Time
William Hopper	2/25/03	1645	eastern connection	2/25/03	1645
eastern connection	2/25/03	1830	EMaylo	2/25/03	1830

Turn Around Time:

- ✓ Normal | X | EMAIL Report
- 5 business days. Surcharges may apply.
- Rush _____ (business days)

Project Comments

use pos. stop.

Samples are retained within the lab for a period of three months, after which they are disposed of at an EPA-approved asbestos landfill. If the client wishes to retain samples after analysis, requests must be made before the expiration of the three-month period.

Lab Use Only

- Sample Pick Up Only
- RIAL sampled; attach field hours
- Shipped on ice

Workorder No 0302-024223

White Copy Original (Accompanies Samples) Yellow Copy - Sample Collector Pink Copy - Client's Copy

R.I. Analytical Laboratories, Inc.

41 Illinois Avenue
Warwick, RI 02888
Phone: 800-937-2580
Fax: 401-738-1970

131 Coolidge Street, Bldg. 2
Hudson, MA 01749
Phone: 888-228-3334
Fax: 978-568-0078

CHAIN OF CUSTODY RECORD

Page 5 of

Container Type Codes:		Preservative Codes:		Matrix Codes:	
P = Plastic	V = Vial	NP = Non preserved	S = Sulfuric	GW = Groundwater	S = Soil
G = Glass	St = Sterile	I = Cooled 4°C	H = HCl	WW = Wastewater	Sl = Sludge
AG = Amber Glass		N = Nitric	SH = NaOH	DW = Potable Water	A = Air
O = Other (describe)		M = Methanol	SB = $NaHSO_4$	O = Other (describe)	B = Bulk/Solid

Date Collected	Time Collected	Sample ID	G = Grab C = Comp.	Containers # + Code	Preservative Code	Matrix Code	Analyses Requested
2/24/03	16:00	10B	C	1 Bag	NP	Bulk	Asbestos, in bulk material (PLM)
		10C					
		11A					
		11B					
		11C					
		12A					
		12B					
		12C					
		13A					
		13B					

Client Information

Company Name:	EAM – North, R. I. Analytical Laboratories
Address:	131 Coolidge Street, Bldg. 2
City / State / Zip:	Hudson, MA 01749
Telephone:	978-568-0041 Fax: 978-568-0078
Contact Person:	William H. Hopper – Senior Project Manager

Project Information

Project Name:	Fitchburg City Hall
P.O. Number:	Project Number: 030084
Report To:	William Hopper Phone: 978-568-0041 Fax: 978-568-0078
Sampled by:	WH Email address: whopper@rianalytical.com
Quote No:	

Relinquished by:	Date	Time	Received by:	Date	Time
William Hopper	2/25/03	1645	eastern connection	2/25/03	1645
eastern connection	2/25/03	1830	RMayo	2/25/03	1830

Turn Around Time:

- ✓ Normal | X | EMAIL Report
- 5 business days
  Surcharges may apply
- Rush _____ (business days)

Project Comments

use pos. stop.

Samples are retained within the lab for a period of three months, after which they are disposed of at an EPA-approved asbestos landfill. If the client wishes to retain samples after analysis, requests must be made before the expiration of the three-month period.

Lab Use Only

- Sample Pick Up Only
- RIAL sampled, attach field hours
- Shipped on ice

Workorder No: 0302-02423

White Copy Original (Accompanies Samples) Yellow Copy Sample Collector Pink Copy Client's Copy

R.I. Analytical Laboratories, Inc.

41 Illinois Avenue
Warwick, RI 02888
Phone: 800-937-2580
Fax: 401-738-1970

131 Coolidge Street, Bldg. 2
Hudson, MA 01749
Phone: 888-228-3334
Fax: 978-568-0078

CHAIN OF CUSTODY RECORD

Container Type Codes:		Preservative Codes:		Matrix Codes:	
P = Plastic	V = Vial	NP = Non preserved	S = Sulfuric	GW = Groundwater	S = Soil
G = Glass	St = Sterile	I = Cooled 4°C	H = HCl	WW = Wastewater	Sl = Sludge
AG = Amber Glass		N = Nitric	SH = NaOH	DW = Potable Water	A = Air
O = Other (describe)		M = Methanol	SB = $NaHSO_4$	O = Other (describe)	B = Bulk/Solid

Date Collected	Time Collected	Sample ID	G = Grab C = Comp.	Containers # + Code	Preservative Code	Matrix Code	Analyses Requested
2/24/03	16:00	13C	C	1 Bag	NP	Bulk	Asbestos, in bulk material (PLM)
		14A					
		14B					
		14C					
		15A					
		15B					
		15C					
		16A					
		16B					
		16C					

Client Information

Company Name:	EAM – North, R. I. Analytical Laboratories
Address:	131 Coolidge Street, Bldg. 2
City / State / Zip:	Hudson, MA 01749
Telephone:	978-568-0041 Fax: 978-568-0078
Contact Person:	William H. Hopper – Senior Project Manager

Project Information

Project Name:	Fitchburg City Hall
P.O. Number:	Project Number: 030084
Report To:	William Hopper Phone: 978-568-0041 Fax: 978-568-0078
Sampled by:	WH Email address: whopper@rianalytical.com
Quote No:	

Relinquished by:	Date	Time	Received by:	Date	Time
William Hopper	2/25/03	1645	eastern connection	2/25/03	1645
eastern connection	2/25/03	1830	[illegible]	2/25/03	1830

Turn Around Time:			
✓	Normal	X	EMAIL Report
	5 business days Surcharges may apply.		
	Rush (business days)		

Project Comments

use pos. stop

Samples are retained within the lab for a period of three months, after which they are disposed of at an EPA-approved asbestos landfill. If the client wishes to retain samples after analysis, requests must be made before the expiration of the three-month period.

Lab Use Only	
	Sample Pick Up Only
	RIAL sampled; attach field hours
	Shipped on ice
Workorder No:	0302-02122

White Copy Original (Accompanies Samples) Yellow Copy - Sample Collector Pink Copy - Client's Copy

R.I. Analytical Laboratories, Inc.

41 Illinois Avenue
Warwick, RI 02888
Phone: 800-937-2580
Fax: 401-738-1970

131 Coolidge Street, Bldg. 2
Hudson, MA 01749
Phone: 888-228-3334
Fax: 978-568-0078

CHAIN OF CUSTODY RECORD

Container Type Codes:		Preservative Codes:		Matrix Codes:	
P = Plastic	V = Vial	NP = Non preserved	S = Sulfuric	GW = Groundwater	S = Soil
G = Glass	St = Sterile	I = Cooled 4°C	H = HCl	WW = Wastewater	Sl = Sludge
AG = Amber Glass		N = Nitric	SH = NaOH	DW = Potable Water	A = Air
O = Other (describe)		M = Methanol	SB = $NaHSO_4$	O = Other (describe)	B = Bulk/Solid

Date Collected	Time Collected	Sample ID	G = Grab C = Comp.	Containers # + Code	Preservative Code	Matrix Code	Analyses Requested
2/24/03	16:00	17A	C	1 Bag	NP	Bulk	Asbestos, in bulk material (PLM)
		17B					
		17C					
		18A					
		18B					
		18C					
		19A					
		19B					
		19C					
		20A					

Client Information

Company Name:	EAM – North, R. I. Analytical Laboratories
Address:	131 Coolidge Street, Bldg. 2
City / State / Zip:	Hudson, MA 01749
Telephone:	978-568-0041 Fax: 978-568-0078
Contact Person:	William H. Hopper – Senior Project Manager

Project Information

Project Name:	Fitchburg City Hall		
P.O. Number:		Project Number:	0300834
Report To:	William Hopper	Phone: 978-568-0041	Fax: 978-568-0078
Sampled by:	WH	Email address:	whopper@rianalytical.com
Quote No:			

Relinquished by:	Date	Time	Received by:	Date	Time
William Hoffman	2/25/03	1645	eastern connection	2/25/03	1645
eastern connection	2/25/03	1830	[illegible]	2/25/03	1830

Turn Around Time:

- ✓ Normal | X | EMAIL Report
- 5 business days
  Surcharges may apply.
- Rush _____ (business days)

Project Comments

Use POS. Stop.

Samples are retained within the lab for a period of three months, after which they are disposed of at an EPA-approved asbestos landfill. If the client wishes to retain samples after analysis, requests must be made before the expiration of the three-month period.

Lab Use Only

- Sample Pick Up Only
- RIAL sampled, attach field hours
- Shipped on ice

Workorder No: 0302-02422

White Copy Original (Accompanies Samples) Yellow Copy Sample Collector Pink Copy Client's Copy

R.I. Analytical Laboratories, Inc.

41 Illinois Avenue
Warwick, RI 02888
Phone: 800-937-2580
Fax: 401-738-1970

131 Coolidge Street, Bldg. 2
Hudson, MA 01749
Phone: 888-228-3334
Fax: 978-568-0078

CHAIN OF CUSTODY RECORD

Container Type Codes:		Preservative Codes:		Matrix Codes:	
P = Plastic	V = Vial	NP = Non preserved	S = Sulfuric	GW = Groundwater	S = Soil
G = Glass	St = Sterile	I = Cooled 4°C	H = HCl	WW = Wastewater	Sl = Sludge
AG = Amber Glass		N = Nitric	SH = NaOH	DW = Potable Water	A = Air
O = Other (describe)		M = Methanol	SB = $NaHSO_4$	O = Other (describe)	B = Bulk/Solid

Date Collected	Time Collected	Sample ID	G = Grab C = Comp.	Containers # + Code	Preservative Code	Matrix Code	Analyses Requested
2/24/03	16:02	20B	C	1 Bag	NP	Bulk	Asbestos, in bulk material (PLM)
		20C					
		21A					
		21B					
		21C					
		22A					
		22B					
		22C					
		23A					
		23B					

Client Information

Company Name:	EAM – North, R. I. Analytical Laboratories
Address:	131 Coolidge Street, Bldg. 2
City / State / Zip:	Hudson, MA 01749
Telephone:	978-568-0041 Fax: 978-568-0078
Contact Person:	William H. Hopper – Senior Project Manager

Project Information

Project Name:	Fitchburg city Hall
P.O. Number:	Project Number: 030084
Report To:	William Hopper Phone: 978-568-0041 Fax: 978-568-0078
Sampled by:	WH Email address: whopper@rianalytical.com
Quote No:	

Relinquished by:	Date	Time	Received by:	Date	Time
William Hopper	2/25/03	1045	eastern connection	2/25/03	1045
eastern connection	2/25/03	1830	KMellyo	2/25/03	1830

Turn Around Time:

- ✓ Normal | X | EMAIL Report
- 5 business days
  Surcharges may apply.
- Rush (business days)

Project Comments

use POS. Stop.

Samples are retained within the lab for a period of three months, after which they are disposed of at an EPA-approved asbestos landfill. If the client wishes to retain samples after analysis, requests must be made before the expiration of the three-month period.

Lab Use Only

- Sample Pick Up Only
- RIAL sampled; attach field hours
- Shipped on ice

Workorder No:

White Copy Original (Accompanies Samples) Yellow Copy Sample Collector Pink Copy Client's Copy

R.I. Analytical Laboratories, Inc.

41 Illinois Avenue
Warwick, RI 02888
Phone: 800-937-2580
Fax: 401-738-1970

131 Coolidge Street, Bldg. 2
Hudson, MA 01749
Phone: 888-228-3334
Fax: 978-568-0078

CHAIN OF CUSTODY RECORD

Container Type Codes:		Preservative Codes:		Matrix Codes:	
P = Plastic	V = Vial	NP = Non preserved	S = Sulfuric	GW = Groundwater	S = Soil
G = Glass	St = Sterile	I = Cooled 4°C	H = HCl	WW = Wastewater	Sl = Sludge
AG = Amber Glass		N = Nitric	SH = NaOH	DW = Potable Water	A = Air
O = Other (describe)		M = Methanol	SB = $NaHSO_4$	O = Other (describe)	B = Bulk/Solid

Date Collected	Time Collected	Sample ID	G = Grab C = Comp.	Containers # + Code	Preservative Code	Matrix Code	Analyses Requested
2/24/03	16:00	23C	C	1 Bag	NP	Bulk	Asbestos, in bulk material (PLM)
		23D					
		23E					
		24A					
		24B					
		24C					
		25A					
		25B					
		25C					
		26A					

Client Information

Company Name:	EAM – North, R. I. Analytical Laboratories
Address:	131 Coolidge Street, Bldg. 2
City / State / Zip:	Hudson, MA 01749
Telephone:	978-568-0041 Fax: 978-568-0078
Contact Person:	William H. Hopper – Senior Project Manager

Project Information

Project Name:	Fitchburg city Hall
P.O. Number:	Project Number: 030084
Report To:	William Hopper Phone: 978-568-0041 Fax: 978-568-0078
Sampled by:	WH Email address: whopper@rianalytical.com
Quote No:	

Relinquished by:	Date	Time	Received by:	Date	Time
William Hopper	2/25/03	1645	eastern Connection	2/25/03	1645
eastern Connection	2/25/03	1830	KMayo	2/25/03	1830

Turn Around Time:

- ✓ Normal | X | EMAIL Report
- 5 business days
  Surcharges may apply.
- Rush ____ (business days)

Project Comments

Use POS Stop.

Samples are retained within the lab for a period of three months, after which they are disposed of at an EPA-approved asbestos landfill. If the client wishes to retain samples after analysis, requests must be made before the expiration of the three-month period.

Lab Use Only

- Sample Pick Up Only
- RIAI sampled; attach field hours
- Shipped on ice

Workorder No: 0302-0242

White Copy Original (Accompanies Samples) Yellow Copy – Sample Collector Pink Copy – Client's Copy

R.I. Analytical Laboratories, Inc.

41 Illinois Avenue
Warwick, RI 02888
Phone: 800-937-2580
Fax: 401-738-1970

131 Coolidge Street, Bldg. 2
Hudson, MA 01749
Phone: 888-228-3334
Fax: 978-568-0078

CHAIN OF CUSTODY RECORD

Page 1 of

Container Type Codes:		Preservative Codes:		Matrix Codes:	
P = Plastic	V = Vial	NP = Non preserved	S = Sulfuric	GW = Groundwater	S = Soil
G = Glass	St = Sterile	I = Cooled 4°C	H = HCl	WW = Wastewater	Sl = Sludge
AG = Amber Glass		N = Nitric	SH = NaOH	DW = Potable Water	A = Air
O = Other (describe)		M = Methanol	SB = $NaHSO_4$	O = Other (describe)	B = Bulk/Solid

Date Collected	Time Collected	Sample ID	G = Grab C = Comp.	Containers # + Code	Preservative Code	Matrix Code	Analyses Requested
2/24/03	16:00	17D	C	1 Bag	NP	Bulk	Asbestos, in bulk material (PLM)
		17E					
		26B					
		26C					
		27A					
		27B					
		27C					
		28A					
		28B					
		28C					

Client Information

Company Name:	EAM – North, R. I. Analytical Laboratories
Address:	131 Coolidge Street, Bldg. 2
City / State / Zip:	Hudson, MA 01749
Telephone:	978-568-0041 Fax: 978-568-0078
Contact Person:	William H. Hopper – Senior Project Manager

Project Information

Project Name:	Fitchburg City Hall		
P.O. Number:		Project Number:	0300084
Report To:	William Hopper	Phone: 978-568-0041	Fax: 978-568-0078
Sampled by:	WHH	Email address:	whopper@rianalytical.com
Quote No:			

Relinquished by:	Date	Time	Received by:	Date	Time
William Hopper	2/25/03	1045	eastern connection	2/25/03	1045
eastern connection	2/25/03	1830	KMayo	2/25/03	1830

Turn Around Time:

✓	Normal	X	EMAIL Report
	5 business days Surcharges may apply.		
	Rush _____ (business days)		

Project Comments

use POS stops

Samples are retained within the lab for a period of three months, after which they are disposed of at an EPA-approved asbestos landfill. If the client wishes to retain samples after analysis, requests must be made before the expiration of the three-month period.

Lab Use Only

	Sample Pick Up Only
	RIAL sampled; attach field hours
	Shipped on ice

Workorder No: 0302-0243

White Copy Original (Accompanies Samples) Yellow Copy - Sample Collector Pink Copy Client's Copy

R.I. Analytical Laboratories, Inc.

41 Illinois Avenue
Warwick, RI 02888
Phone: 800-937-2580
Fax: 401-738-1970

131 Coolidge Street, Bldg. 2
Hudson, MA 01749
Phone: 888-228-3334
Fax: 978-568-0078

CHAIN OF CUSTODY RECORD

Page 1 of 1

Container Type Codes:		Preservative Codes:		Matrix Codes:	
P = Plastic	V = Vial	NP = Non preserved	S = Sulfuric	GW = Groundwater	S = Soil
G = Glass	St = Sterile	I = Cooled 4°C	H = HCl	WW = Wastewater	Sl = Sludge
AG = Amber Glass		N = Nitric	SH = NaOH	DW = Potable Water	A = Air
O = Other (describe)		M = Methanol	SB = $NaHSO_4$	O = Other (describe)	B = Bulk/Solid

Date Collected	Time Collected	Sample ID	G = Grab C = Comp.	Containers # + Code	Preservative Code	Matrix Code	Analyses Requested
3/24/03	16:00	29A	C	1 Bag	NP	Bulk	Asbestos, in bulk material (PLM)
		29B					
		29C					
		30A					
		31A					
		31B					
		31C					
		32A					
		32B					
		32C					

Client Information

Company Name: EAM – North, R. I. Analytical Laboratories
Address: 131 Coolidge Street, Bldg. 2
City / State / Zip: Hudson, MA 01749
Telephone: 978-568-0041 Fax: 978-568-0078
Contact Person: William H. Hopper – Senior Project Manager

Project Information

Project Name: Fitchburg City Hall
P.O. Number: Project Number: 030084
Report To: William Hopper Phone: 978-568-0041 Fax: 978-568-0078
Sampled by: WH Email address: whopper@rianalytical.com
Quote No:

Relinquished by:	Date	Time	Received by:	Date	Time
William Hopper	3/25/03	1645	eastern connection	3/25/03	1645
eastern connection	3/25/03	1830	KMayo	3/25/03	1830

Turn Around Time:

- ✓ Normal | X | EMAIL Report
- 5 business days
  Surcharges may apply.
- Rush _____ (business days)

Project Comments

Use Pos. stops

Samples are retained within the lab for a period of three months, after which they are disposed of at an EPA-approved asbestos landfill. If the client wishes to retain samples after analysis, requests must be made before the expiration of the three-month period.

Lab Use Only

- Sample Pick Up Only
- RIAL sampled, attach field hours
- Shipped on ice

Workorder No: 030-02422

White Copy Original (Accompanies Samples) Yellow Copy – Sample Collector Pink Copy – Client's Copy

R.I. Analytical Laboratories, Inc.

41 Illinois Avenue
Warwick, RI 02888
Phone: 800-937-2580
Fax: 401-738-1970

131 Coolidge Street, Bldg. 2
Hudson, MA 01749
Phone: 888-228-3334
Fax: 978-568-0078

CHAIN OF CUSTODY RECORD

Container Type Codes:		Preservative Codes:		Matrix Codes:	
P = Plastic	V = Vial	NP = Non preserved	S = Sulfuric	GW = Groundwater	S = Soil
G = Glass	St = Sterile	I = Cooled 4°C	H = HCl	WW = Wastewater	Sl = Sludge
AG = Amber Glass		N = Nitric	SH = NaOH	DW = Potable Water	A = Air
O = Other (describe)		M = Methanol	SB = $NaHSO_4$	O = Other (describe)	B = Bulk/Solid

Date Collected	Time Collected	Sample ID	G = Grab C = Comp.	Containers # + Code	Preservative Code	Matrix Code	Analyses Requested
2/24/03	16:20	33A	C	1 Bag	NP	Bulk	Asbestos, in bulk material (PLM)
		33B					
		33C					
		34A					
		34B					
		34C					
		35A					
		35B					
		35C					
		36A					

Client Information

Company Name:	EAM – North, R. I. Analytical Laboratories
Address:	131 Coolidge Street, Bldg. 2
City / State / Zip:	Hudson, MA 01749
Telephone:	978-568-0041 Fax: 978-568-0078
Contact Person:	William H. Hopper – Senior Project Manager

Project Information

Project Name:	Fitchburg City Hall		
P.O. Number:		Project Number:	0300084
Report To:	William Hopper	Phone: 978-568-0041	Fax: 978-568-0078
Sampled by:	WHH	Email address:	whopper@rianalytical.com
Quote No:			

Relinquished by:	Date	Time	Received by:	Date	Time
William Hopper	3/25/03	1645	Eastern Connection	3/25/03	1645
Eastern Connection	3/25/03	1830	K Mayo	3/25/03	1830

Turn Around Time:

- ✓ Normal | X | EMAIL Report
- 5 business days Surcharges may apply.
- Rush _____ (business days)

Project Comments

Use Pos. Stops

Samples are retained within the lab for a period of three months, after which they are disposed of at an EPA-approved asbestos landfill. If the client wishes to retain samples after analysis, requests must be made before the expiration of the three-month period.

Lab Use Only

- Sample Pick Up Only
- RIAL sampled; attach field hours
- Shipped on ice

Workorder No: 0302-02432

White Copy Original (Accompanies Samples) Yellow Copy – Sample Collector Pink Copy – Client's Copy

R.I. Analytical Laboratories, Inc.

41 Illinois Avenue
Warwick, RI 02888
Phone: 800-937-2580
Fax: 401-738-1970

131 Coolidge Street, Bldg. 2
Hudson, MA 01749
Phone: 888-228-3334
Fax: 978-568-0078

CHAIN OF CUSTODY RECORD

Page 3 of

Container Type Codes:		Preservative Codes:		Matrix Codes:	
P = Plastic	V = Vial	NP = Non preserved	S = Sulfuric	GW = Groundwater	S = Soil
G = Glass	St = Sterile	I = Cooled 4°C	H = HCl	WW = Wastewater	Sl = Sludge
AG = Amber Glass		N = Nitric	SH = NaOH	DW = Potable Water	A = Air
O = Other (describe)		M = Methanol	SB = $NaHSO_4$	O = Other (describe)	B = Bulk/Solid

Date Collected	Time Collected	Sample ID	G = Grab C = Comp.	Containers # + Code	Preservative Code	Matrix Code	Analyses Requested
2/24/03	16:00	36B	C	1 Bag	NP	Bulk	Asbestos, in bulk material (PLM)
		36C					
		37A					
		37B					
		37C					
		38A					
		38B					
		38C					
		39A					
		39B					

Client Information

Company Name:	EAM – North, R. I. Analytical Laboratories
Address:	131 Coolidge Street, Bldg. 2
City / State / Zip:	Hudson, MA 01749
Telephone:	978-568-0041 Fax: 978-568-0078
Contact Person:	William H. Hopper – Senior Project Manager

Project Information

Project Name:	Fitchburg city Hall
P.O. Number:	Project Number: 030084
Report To:	William Hopper Phone: 978-568-0041 Fax: 978-568-0078
Sampled by:	WH Email address: whopper@rianalytical.com
Quote No:	

Relinquished by:	Date	Time	Received by:	Date	Time
William Hopper	3/25/03	1645	Eastern Connection	2/25/03	~~1830~~ 1645
Eastern Connection	2/25/03	1830	K Mayo	2/25/03	1830

Turn Around Time:

- ~~Normal~~ X EMAIL Report
- 5 business days Surcharges may apply.
- Rush _____ (business days)

Project Comments

use pos. stops.

Samples are retained within the lab for a period of three months, after which they are disposed of at an EPA-approved asbestos landfill. If the client wishes to retain samples after analysis, requests must be made before the expiration of the three-month period.

Lab Use Only

- Sample Pick Up Only
- RIAL sampled, attach field hours
- Shipped on ice

Workorder No: 03021039222

White Copy Original (Accompanies Samples) Yellow Copy – Sample Collector Pink Copy – Client's Copy

R.I. Analytical Laboratories, Inc.

41 Illinois Avenue
Warwick, RI 02888
Phone: 800-937-2580
Fax: 401-738-1970

131 Coolidge Street, Bldg. 2
Hudson, MA 01749
Phone: 888-228-3334
Fax: 978-568-0078

CHAIN OF CUSTODY RECORD

Page 1 of 4

Container Type Codes:		Preservative Codes:		Matrix Codes:	
P = Plastic	V = Vial	NP = Non preserved	S = Sulfuric	GW = Groundwater	S = Soil
G = Glass	St = Sterile	I = Cooled 4°C	H = HCl	WW = Wastewater	Sl = Sludge
AG = Amber Glass		N = Nitric	SH = NaOH	DW = Potable Water	A = Air
O = Other (describe)		M = Methanol	SB = $NaHSO_4$	O = Other (describe)	B = Bulk/Solid

Date Collected	Time Collected	Sample ID	G = Grab C = Comp.	Containers # + Code	Preservative Code	Matrix Code	Analyses Requested
2/24/03	16:00	39C	C	1 Bag	NP	Bulk	Asbestos, in bulk material (PLM)
		40A					
		40B					
		40C					
		41A					
		41B					
		41C					
		42A					
		42B					
		42C					

Client Information

Company Name:	EAM – North, R. I. Analytical Laboratories
Address:	131 Coolidge Street, Bldg. 2
City / State / Zip:	Hudson, MA 01749
Telephone:	978-568-0041 Fax: 978-568-0078
Contact Person:	William H. Hopper – Senior Project Manager

Project Information

Project Name:	Fitchburg City Hall		
P.O. Number:		Project Number:	0300084
Report To:	William Hopper	Phone: 978-568-0041	Fax: 978-568-0078
Sampled by:	WHH	Email address:	whopper@rianalytical.com
Quote No:			

Relinquished by:	Date	Time	Received by:	Date	Time
William Hopper	2/25/03	1645	Eastern Connection	2/25/03	1645
Eastern Connection	2/25/03	1830	KMcGo	2/25/03	1830

Turn Around Time:

- ✓ Normal | X | EMAIL Report
- 5 business days
  Surcharges may apply.
- Rush _____ (business days)

Project Comments

use POS steps.

Samples are retained within the lab for a period of three months, after which they are disposed of at an EPA-approved asbestos landfill. If the client wishes to retain samples after analysis, requests must be made before the expiration of the three-month period.

Lab Use Only

- Sample Pick Up Only
- RIAL sampled; attach field hours
- Shipped on ice

Workorder No: 0302-02423

White Copy Original (Accompanies Samples) Yellow Copy Sample Collector Pink Copy Client's Copy

R.I. Analytical Laboratories, Inc.

41 Illinois Avenue
Warwick, RI 02888
Phone: 800-937-2580
Fax: 401-738-1970

131 Coolidge Street, Bldg. 2
Hudson, MA 01749
Phone: 888-228-3334
Fax: 978-568-0078

CHAIN OF CUSTODY RECORD

Page 1 of 5

Container Type Codes:		Preservative Codes:		Matrix Codes:	
P = Plastic	V = Vial	NP = Non preserved	S = Sulfuric	GW = Groundwater	S = Soil
G = Glass	St = Sterile	I = Cooled 4°C	H = HCl	WW = Wastewater	Sl = Sludge
AG = Amber Glass		N = Nitric	SH = NaOH	DW = Potable Water	A = Air
O = Other (describe)		M = Methanol	SB = $NaHSO_4$	O = Other (describe)	B = Bulk/Solid

Date Collected	Time Collected	Sample ID	G = Grab C = Comp.	Containers # + Code	Preservative Code	Matrix Code	Analyses Requested
2/24/03	16:50	43A	C	1 Bag	NP	Bulk	Asbestos, in bulk material (PLM)
		43B					
		43C					
		44A					
		44B					
		44C					
		45A					
		45B					
		45C					
		46A					

Client Information

Company Name: EAM – North, R. I. Analytical Laboratories
Address: 131 Coolidge Street, Bldg. 2
City / State / Zip: Hudson, MA 01749
Telephone: 978-568-0041 Fax: 978-568-0078
Contact Person: William H. Hopper – Senior Project Manager

Project Information

Project Name: Fitchburg city Hall
P.O. Number: Project Number: 030084
Report To: William Hopper Phone: 978-568-0041 Fax: 978-568-0078
Sampled by: WH Email address: whopper@rianalytical.com
Quote No:

Relinquished by:	Date	Time	Received by:	Date	Time
William Hopper	2/25/03	1645	eastern connection	2/25/03	1645
eastern Connection	2/25/03	1830	tMayo	2/25/03	1830

Turn Around Time:

- ✓ Normal | X | EMAIL Report
- 5 business days
  Surcharges may apply.
- Rush _____ (business days)

Project Comments

use pos. stops.

Samples are retained within the lab for a period of three months, after which they are disposed of at an EPA-approved asbestos landfill. If the client wishes to retain samples after analysis, requests must be made before the expiration of the three-month period.

Lab Use Only

- Sample Pick Up Only
- RIAL sampled; attach field hours
- Shipped on ice

Workorder No 030-00420

White Copy Original (Accompanies Samples) Yellow Copy – Sample Collector Pink Copy – Client's Copy

R.I. Analytical Laboratories, Inc.

41 Illinois Avenue
Warwick, RI 02888
Phone: 800-937-2580
Fax: 401-738-1970

131 Coolidge Street, Bldg. 2
Hudson, MA 01749
Phone: 888-228-3334
Fax: 978-568-0078

CHAIN OF CUSTODY RECORD

Page 1 of 6

Container Type Codes:		Preservative Codes:		Matrix Codes:	
P = Plastic	V = Vial	NP = Non preserved	S = Sulfuric	GW = Groundwater	S = Soil
G = Glass	St = Sterile	I = Cooled 4°C	H = HCl	WW = Wastewater	Sl = Sludge
AG = Amber Glass		N = Nitric	SH = NaOH	DW = Potable Water	A = Air
O = Other (describe)		M = Methanol	SB = $NaHSO_4$	O = Other (describe)	B = Bulk/Solid

Date Collected	Time Collected	Sample ID	G = Grab C = Comp.	Containers # + Code	Preservative Code	Matrix Code	Analyses Requested
2/24/03	16:00	46B	G	vial	NP	Bulk	PLM
		46C					
		47A					
		47B					
		47C					
		48A					
		48B					
		48C					
		49A					
		49B					

Client Information

Company Name:	EAM – North, R. I. Analytical Laboratories
Address:	131 Coolidge Street, Bldg. 2
City / State / Zip:	Hudson, MA 01749
Telephone:	978-568-0041 Fax: 978-568-0078
Contact Person:	William H. Hopper – Senior Project Manager

Project Information

Project Name:	Fitchburg city Hall
P.O. Number:	Project Number: 030084
Report To:	William Hopper Phone: 978-568-0041 Fax: 978-568-0078
Sampled by:	WHH Email address: whopper@rianalytical.com
Quote No:	

Relinquished by:	Date	Time	Received by:	Date	Time
William Hopper	2/25/03	1645	eastern connection	2/25/03	1645
eastern connection	2/25/03	1830	JHMap	2/25/03	1830

Turn Around Time:

- ~~Normal~~ | X | EMAIL Report
- 5 business days
  Surcharges may apply.
- Rush _____ (business days)

Project Comments

use pos stops.

Lab Use Only

- Sample Pick Up Only
- RIAL sampled; attach field hours
- Shipped on ice

Workorder No: 0302-0220

White Copy Original (Accompanies Samples) Yellow Copy – Sample Collector Pink Copy – Client's Copy

R.I. Analytical Laboratories, Inc.

41 Illinois Avenue
Warwick, RI 02888
Phone: 800-937-2580
Fax: 401-738-1970

131 Coolidge Street, Bldg. 2
Hudson, MA 01749
Phone: 888-228-3334
Fax: 978-568-0078

CHAIN OF CUSTODY RECORD

Page 1 of

Container Type Codes:		Preservative Codes:		Matrix Codes:	
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G = Glass	St = Sterile	I = Cooled 4°C	H = HCl	WW = Wastewater	Sl = Sludge
AG = Amber Glass		N = Nitric	SH = NaOH	DW = Potable Water	A = Air
O = Other (describe)		M = Methanol	SB = $NaHSO_4$	O = Other (describe)	B = Bulk/Solid

Date Collected	Time Collected	Sample ID	G = Grab C = Comp.	Containers # + Code	Preservative Code	Matrix Code	Analyses Requested
2/24/03	16:00	49C	G	Vial	NP	Bulk	PLM
		50A					
		50B					
		50C					
		51A					
		51B					
		51C					
		52A					
		52B					
		52C					

Client Information

Company Name:	EAM – North, R. I. Analytical Laboratories
Address:	131 Coolidge Street, Bldg. 2
City / State / Zip:	Hudson, MA 01749
Telephone:	978-568-0041 Fax: 978-568-0078
Contact Person:	William H. Hopper – Senior Project Manager

Project Information

Project Name:	Fitchburg City Hall
P.O. Number:	Project Number: 0300084
Report To:	William Hopper Phone: 978-568-0041 Fax: 978-568-0078
Sampled by:	Email address: whopper@rianalytical.com
Quote No:	

Relinquished by:	Date	Time	Received by:	Date	Time
William Hopper	2/25/03	1645	Eastern Connection	2/25/03	1645
Eastern Connection	2/25/03	1830	K Mayo	2/25/03	1830

Turn Around Time:

- ✓ Normal | X | EMAIL Report
- 5 business days Surcharges may apply.
- Rush _____ (business days)

Project Comments

Use pos. stops

Lab Use Only

- Sample Pick Up Only
- RIAL sampled; attach field hours
- Shipped on ice

Workorder No: 0302-024227

White Copy Original (Accompanies Samples) Yellow Copy – Sample Collector Pink Copy - Client's Copy

R.I. Analytical Laboratories, Inc.

41 Illinois Avenue
Warwick, RI 02888
Phone: 800-937-2580
Fax: 401-738-1970

131 Coolidge Street, Bldg. 2
Hudson, MA 01749
Phone: 888-228-3334
Fax: 978-568-0078

CHAIN OF CUSTODY RECORD

Container Type Codes:		Preservative Codes:		Matrix Codes:	
P = Plastic	V = Vial	NP = Non preserved	S = Sulfuric	GW = Groundwater	S = Soil
G = Glass	St = Sterile	I = Cooled 4°C	H = HCl	WW = Wastewater	Sl = Sludge
AG = Amber Glass		N = Nitric	SH = NaOH	DW = Potable Water	A = Air
O = Other (describe)		M = Methanol	SB = $NaHSO_4$	O = Other (describe)	B = Bulk/Solid

Date Collected	Time Collected	Sample ID	G = Grab C = Comp.	Containers # + Code	Preservative Code	Matrix Code	Analyses Requested
2/24/03	16.00	53A	G	vial	NP	Bulk	PLM
		53B					
		53C					
		54A					
		54B					
		54C					
		30B *					
		30C *					

Client Information

Company Name:	EAM – North, R. I. Analytical Laboratories
Address:	131 Coolidge Street, Bldg. 2
City / State / Zip:	Hudson, MA 01749
Telephone:	978-568-0041 Fax: 978-568-0078
Contact Person:	William H. Hopper – Senior Project Manager

Project Information

Project Name:	Fitchburg City Hall
P.O. Number:	Project Number: 03C084
Report To:	William Hopper Phone: 978-568-0041 Fax: 978-568-0078
Sampled by:	Eastern Email address: whopper@rianalytical.com
Quote No:	

Relinquished by:	Date	Time	Received by:	Date	Time
William Hopper	3/25/03	1615	Eastern Connection	2/25/03	1645
Eastern Connection	2/25/03	1830	K Mello	2/25/03	1830

Turn Around Time:		
✓	Normal	X EMAIL Report
	5 business days Surcharges may apply.	
	Rush _____ (business days)	

Project Comments

use pos stops.

* Added 3/5/03 SB

Lab Use Only	
	Sample Pick Up Only
	RIAL sampled; attach field hours
	Shipped on ice
Workorder No:	03-02422

APPENDIX E

Space Use Questionnaire

Fitchburg City Hall
Space Needs Questionnaire

Name: _____

Dept.: _____

1. How many people work in your department and what are their functions? Please indicate full time and part time personnel. What do you anticipate will be your future staffing?

2. How do members of your staff interact with each other in performing their duties?

3. What hours is your department open? Do you post evening hours? Do you anticipate your hours changing?

4. Is it desirable or necessary for your department to interact with the public? If yes, what is the nature of this interaction? How frequent is this interaction? If no, is it undesirable for the public to have easy access to your department offices?

5. With what other departments does your department interact? What is the nature of this interaction and how frequent is it? Do you share any equipment (e.g., copiers, printers, faxes) and if so, with whom? Is sharing a problem?

6. Do you or your department have any need for privacy? Please describe a typical situation where privacy is needed.

7. Do you or your department have need for meeting space? How many people would be meeting? How often do you meet?

8. Evaluate your current space in meeting the needs you have described. What problems do you have with your space?

9. What other spaces in the building would you like to have that you do not currently have (e.g., lunch room, storage)?

10. Please provide a list of your current furnishings and equipment that you will keep or will need to have replaced with comparable items. Please be as specific as possible.

    Desks:

    Workstations (L-shaped):

    File cabinets:

    Lateral file cabinets:

    Flat file cabinets:

Tables (please indicate sizes):

Chairs:

Safes:

Bookcases:

Computers:

Printers:

Copiers:

Faxes:

Other:

11. Do you anticipate needing additional furniture? If, so, please list.

APPENDIX F

Cost Estimate

Fitchburg City Hall
Fitchburg, MA

Schematic Cost Estimate

D. G. Jones & Partners, Inc.
196 Boston Avenue, #3800
Medford, MA 02155
email : boston@dgjones.com

March 21, 2003

Contents

SUMMARY

			Scheme A			Scheme B			Scheme C			Scheme E		
	GROSS FLOOR AREA	=	**36,175**			**36,571**			**33,517**			**38,536**		
Div#	**Division Name**		**Cost $**	**$/sf**	**% of Bldg.**	**Cost $**	**$/sf**	**% of Bldg.**	**Cost $**	**$/sf**	**% of Bldg.**	**Cost $**	**$/sf**	**% of Bldg.**
2	Excavation, Etc.		3,844	0.11	0.09%	16,822	0.46	0.38%	47,944	1.43	0.88%	4,907	0.13	0.21%
3	Concrete		17,830	0.49	0.44%	141,920	3.88	3.22%	308,644	9.21	5.64%	27,317	0.71	1.16%
4	Masonry		394,456	10.90	9.71%	509,085	13.92	11.54%	690,163	20.59	12.61%	450,351	11.69	19.13%
5	Metals		113,153	3.13	2.79%	280,325	7.67	6.35%	668,226	19.94	12.21%	75,100	1.95	3.19%
6	Wood & Plastics		392,884	10.86	9.67%	374,589	10.24	8.49%	409,581	12.22	7.48%	81,634	2.12	3.47%
7	Thermal & Moisture Protection		334,498	9.25	8.23%	337,617	9.23	7.65%	363,234	10.84	6.64%	327,276	8.49	13.90%
8	Doors & Windows		329,060	9.10	8.10%	310,465	8.49	7.04%	336,957	10.05	6.16%	227,685	5.91	9.67%
9	Finishes		481,841	13.32	11.86%	477,430	13.05	10.82%	448,563	13.38	8.20%	146,765	3.81	6.23%
10	Specialties		33,850	0.94	0.83%	36,590	1.00	0.83%	47,580	1.42	0.87%	33,850	0.88	1.44%
11	Equipment		5,500	0.15	0.14%	5,500	0.15	0.12%	5,500	0.16	0.10%	0	0.00	0.00%
12	Furnishings		10,830	0.30	0.27%	17,330	0.47	0.39%	30,580	0.91	0.56%	1,600	0.04	0.07%
13	Special Construction		150,375	4.16	3.70%	135,525	3.71	3.07%	224,750	6.71	4.11%	0	0.00	0.00%
14	Conveying Systems		118,965	3.29	2.93%	97,335	2.66	2.21%	75,705	2.26	1.38%	118,965	3.09	5.05%
15	Plumbing		107,351	2.97	2.64%	115,017	3.15	2.61%	108,265	3.23	1.98%	91,582	2.38	3.89%
15	Fire Protection		129,984	3.59	3.20%	131,205	3.59	2.97%	122,045	3.64	2.23%	119,637	3.10	5.08%
15	HVAC		682,197	18.86	16.79%	697,870	19.08	15.81%	879,543	26.24	16.07%	269,812	7.00	11.46%
16	Electrical		460,557	12.73	11.34%	452,974	12.39	10.26%	454,130	13.55	8.30%	202,235	5.25	8.59%
2	Demolition/Alteration		294,855	8.15	7.26%	275,328	7.53	6.24%	250,875	7.49	4.58%	175,869	4.56	7.47%
	Sub-Total Building		**4,062,029**	**112.29**	**100%**	**4,412,928**	**120.67**	**100%**	**5,472,284**	**163.27**	**100%**	**2,354,583**	**61.10**	**100%**
2	Site Work/Site Utilities		745,226	20.60		769,250	21.03		811,884	24.22		720,775	18.70	
	Sub-Total Construction		**4,807,255**	**132.89**		**5,182,177**	**141.70**		**6,284,167**	**187.49**		**3,075,358**	**79.80**	
1	General Requirements		553,375	15.30		558,475	15.27		575,475	17.17		338,525	8.78	
	Escalation to bid date 1Q2003	0.00%	0	0.00		0	0.00		0	0.00		0	0.00	
	Design Contingency	15.00%	804,095	22.23		861,098	23.55		1,028,946	30.70		512,082	13.29	
	Construction Contingency	10.00%	616,472	17.04		660,175	18.05		788,859	23.54		392,597	10.19	
	Total Construction Cost		**6,781,197**	**187.46**		**7,261,925**	**198.57**		**8,677,447**	**258.90**		**4,318,562**	**112.07**	

Notes

1. Brief project description:-
   Scheme A is a renovation of a three storey building w/basement & assoc sitework/utilities.
   - Scheme B is a renovation & addition of a three storey building w/basement & assoc sitework/utilities.
   - Scheme C is new construction of a three storey building w/basement & assoc sitework/utilities
   - Scheme E is minor renovation & addition of a stairwell to a three storey building w/basement & assoc sitework/utilities.

2. The estimate is based on the following:-
   - Non-union.
   - Minimum #4 bona fide bids received on each contract.
   - General contractor type project.
   - Single contract for Scheme B and single contracts for Scheme B1/C.

3. The gross floor area of Scheme A is 36,175 sf, Scheme B is 36,571 sf, Scheme C is 33,517 and Scheme E is 38,536 sf is based on the following:-
   - Measurement is taken to the outside face of the exterior wall, measured through all stair wells, elevator shafts and ducts.

4. Story heights:-
   - Varies

5. General Requirements for this project includes the following and is priced on Page 8/1:-
   - Field office expenses.
   - Field personnel.
   - Insurance.
   - Main office expenses.
   - Performance bond.
   - Preparation of progress schedules.
   - Compilation/preparation of site survey data.
   - Preparation of shop drawings.
   - Construction photographs.
   - Temporary utilities.
   - Temporary construction.
   - Construction aids (safety nets, personnel protection equipment, scaffolding, etc.).
   - Barriers and enclosures.
   - Security.
   - Access roads.
   - Temporary controls.
   - Project signs.
   - Field offices and sheds.
   - Equipment rental.
   - Final cleaning.

6. Special Conditions for this project are included within Gereral Requirements on Page 8/1.

Notes (Cont'd)

7. Escalation is not applicable as bid date is 1Q2003.

8. Design contingency is an allowance for future design modifications/additions, which alter the cost of the building as the design progresses, this percentage reduces as the design develops. It is based on a percentage of the sum of Sub-Total Construction, General Requirements and Escalation. For this level of estimate the following has been included:-
   - 15%

9. Construction contingency is an allowance for scope/design modifications made by the owner during construction and also for any unforeseen circumstances. It is based on a percentage of the sum of Sub-Total Construction, General Requirements, Escalation and Design Contingency. The following has been included:-
   - 10%

10. This estimate has been prepared from the following design information:-
    - Scheme A: Architectural and site sketches received 02/18/2003 and dated 12/04/2002.
    - Scheme B: Architectural and site sketches received 02/18/2003 and dated 11/10/2002.
    - Scheme C: Architectural and site sketches received 02/18/2003 and dated 12/04/2002.
    - Scheme E: Architectural and site sketches received 02/18/2003 and dated 01/23/2003.
    - Existing: Architectural and site sketches received 02/18/2003 and dated 11/10/2002. MEP report received 02/15/2003.
    - Structural report from Foley & Buhl received 03/06/2003 dated 02/24/2003.
    - Telephone with Kang Associates, Inc

11. The estimate includes the following:-
    - See Estimate.

12. The estimate excludes the following:-
    - Utility company backcharges.
    - Building permit.
    - Sales tax.
    - Design consultant's fees.
    - Excavation in rock.
    - Ground water treatment/removal.
    - Cameras, monitors, videos, etc.
    - Fire pump.
    - Cabling & equipment to telecomms.

Notes (Cont'd)

13. Allowances:-
    - Asbestos Abatement $50,000 schemes A, B, C and Lead Disposal $5,000 to all Schemes.

14. Assumptions:-
    - 12 lb/sf for structural framing of new additions.
    - 15% of exterior wall to new construction is exterior windows.

15. Estimates by other firms:-
    - Foley & Buhl report Asbestos Abatement $26,430 for Scheme E only.

16. Common abbreviations included in this estimate:-
    - cd = construction documents.
    - cf = cubic foot.
    - cy = cubic yard.
    - dd = design development.
    - ea = each.
    - flr = floor.
    - lb = pound.
    - lf = linear foot.
    - ls = lump sum.
    - ly = linear yard.
    - opg = opening.
    - rsr = riser.
    - sd = schematic design.
    - sf = square foot.
    - sog = slab on grade
    - sy = square yard.
    - tn = ton.

17. Builders work in connection (BWIC) with conveying, mechanical and electrical systems includes the following:-
    - Drilling and coring.
    - Chasing.
    - Cutting and patching.

Description	Qty	Unit	Rate	Amount
Excavation, Etc.				
Excavate over area to reduce levels		cy	10.50	not required
Excavate for strip footing to elevator	27	cy	13.50	365
Excavate for isolated pad footing	87	cy	13.50	1,175
Excavate for elevator pit	13	cy	16.50	215
6" compacted structural fill below sog	72	sf	1.25	90
Allow for temporary support to excavation work	1	ls	2,000.00	2,000
Perimeter drain to foundation w/gravel, fabric, etc		lf	8.00	not required
Excavation, Etc.	**Total**			**3,844**

Description	Qty	Unit	Rate	Amount
Concrete				
03300 Cast-In-Place Concrete				
Cast in place concrete:-				
- 12" thick elevator mat footing	72	sf	5.00	360
- wall to elevator pit 12" thick	96	sf	7.00	672
- column footing, supporting	16	cy	148.00	2,368
- sog, 4" thick		sf	2.75	not required
- column pier:-				
- attached	2	cy	158.00	316
- concrete beam		cy	153.00	not required
- sog to vault	508	sf	5.00	not required
Concrete topping to:-				
- topping to metal deck		sf	2.50	
- metal pan stair, 4' wide	8	flr	300.00	2,400
Allow for housekeeping pads	1	ls	1,000.00	1,000
03100 Concrete Formwork				
Formwork to sides/edges of concrete:-				
- 12" thick elevator mat footing	34	sf	6.00	204
- wall to elevator pit 12" thick	192	sf	6.50	1,248
- column footing, supporting	576	sf	7.00	4,032
- column pier:-				
- attached	144	sf	7.50	1,080
- sog to vault	117	sf	5.00	not required
- topping, allow	1	ls	300.00	300
03200 Concrete Reinforcement				
Reinforcing bars to concrete:-				
- 12" thick elevator mat footing	333	lb	0.92	306
- wall to elevator pit 12" thick	711	lb	0.92	654
- column footing, supporting	2,400	lb	0.92	2,208
- column pier:-				
- attached	400	lb	0.92	368
WWF to:-				
- sog, 4" thick, structural	261	sf	0.65	170
- topping	261	sf	0.55	144
03400 Site Concrete				
Included with relevant Site Work item				
Concrete	**Total**			**17,830**

Description	Qty	Unit	Rate	Amount
Masonry				
04080 Masonry Anchorage and Reinforcement				
Install only the following:-				
- restraining angles to brace top of masonry walls	1	ls	2,000.00	2,000
- shelf & relieving angles	1	ls	4,000.00	4,000
04202 Unit Masonry Construction				
See 04220				
04220 Concrete Masonry Units				
Interior masonry partition, complete:-				
- elevator shaftwall, 8" thick, reinforced	1,530	sf	12.00	18,360
- 8" thick cmu wall around vault	1,620	sf	10.50	17,010
Repoint extg brick façade:-				
- 75% north/east/south/west elevation	13,639	sf	11.00	150,026
Clean exterior masonry, 100%	18,185	sf	3.50	63,648
Brick veneer exterior wall finish, 25% new				
- 4" thick	4,546	sf	26.00	118,203
xxxxx Stone Repair				
Repair stone lintels, sills & other trims	2,386	lf	5.00	11,930
Repair stone lintels, sills & other trims to circular wdw	20	lf	5.00	100
xxxxx Granite Steps				
Granite steps to side entrance, 9# steps, 12' long	108	lf	85.00	9,180
Masonry	**Total**			**394,456**

Description	Qty	Unit	Rate	Amount
Metals				
05120 Structural Steel				
Structural steel w/connections etc. (placing difficulties)	2	ton	2,750.00	5,500
Allow for miscellaneous structural steel etc, complete	1	ton	2,800.00	2,800
Addition of joist hangers to 1st, 2nd 3rd & attic , comple	3,200	lf	12.00	38,400
Addition of steel columns, assume 12' high	120	lf	20.00	2,400
Allow for possible vertical support to 2nd & 3rd level	1	ls	5,000.00	5,000
05300 Steel Deck				
Metal deck to copper roof only, sloping		sf	2.30	not required
Metal deck over vault w/steel angle supports	769	sf	4.75	3,653
05512 Steel Stair Assemblies				
Metal pan stair complete w/stringers, railings, handrails, etc:-				
- 4' wide to basement only	8	flr	4,750.00	38,000
05515 Custom Fabricated Steel Ladders				
Elevator pit ladder	1	ea	400.00	400
Mechancial space ladder	1	ea	600.00	600
05502 Metal Fabrications				
Miscellaneous:-				
- bearing & levelling plates	1	ls	200.00	200
- metals generally	1	ls	5,000.00	5,000
Miscelleaneous framing & support:-				
- penetration framing & support	1	ls	1,000.00	1,000
- framing, platforms & support to equipment	1	ls	1,250.00	1,250
Furnish only the following:-				
- restraining angles to brace top of masonry walls	1	ls	2,500.00	2,500
- shelf & relieving angles	1	ls	2,500.00	2,500
05533 Grate Flooring and Decking Assemblies				
Metal grate w/framing to areaway:-				
- elevator sump pit	1	ea	250.00	250
05565 Fabricated Steel Bollard Assemblies				
Included in Site Work				
05588 Countertop Supports				
Allow for custom fabricated metal countertop support				
brackets	1	ls	1,000.00	1,000
05592 Elevator Sill Support				
Elevator sill angle	18	lf	25.00	450
05593 Elevator Hoistway Beam				
Allow for structural beam in elevator hoistway for installation				
& maintenance of hydraulic elevator	1	ea	1,000.00	1,000
05722 Ornamental Metail Rail Assemblies				
05738 Mullion Partition Closure Assemblies				
05800 - Expansion Control				
Allow for expansion joint cover assembly	1	ls	1,250.00	1,250
Metals	**Total**			**113,153**

Description	Qty	Unit	Rate	Amount
Wood & Plastics				
06062 Interior Finish Wood Types				
Plywood backing panels for electrical/tel backboards	1	ls	200.00	200
06100 Rough Carpentry				
Allow for:-				
- sleepers	1	ls	2,500.00	2,500
- blocking	1	ls	3,000.00	3,000
- curbs	1	ls	1,500.00	1,500
- cants	1	ls	1,000.00	1,000
- edgings	1	ls	1,000.00	1,000
- grounds	1	ls	1,250.00	1,250
- nailers	1	ls	2,000.00	2,000
- furring	1	ls	1,000.00	1,000
Tie extg wood framing to exterior masonry walls	1,800	lf	10.00	18,000
New wood truss	1	ea	3,500.00	3,500
Patch & repair subflooring in selected areas, 15% of				
total gfa	5,426	sf	1.75	9,496
1 3/4 x 7 1/4 LVL glue-laminated beam @ 16" oc	1	ls	24,219.14	24,219
1 3/4 x 5 1/2 LVL glue-laminated beam @ 16" oc	1	ls	2,708.31	2,708
3/4 T & G plywood glued and nailed, complete	3,113	sf	3.00	9,339
Structural wood framing to roof, complete w/decking	1,566	sf	6.00	9,396
New beam below & above to second floor, complete	156	lf	18.00	2,808
Allow for posts, up @ second floor level, assume 10' hig	120	lf	8.00	960
Underlayment throughout under new finishes	29,723	sf	1.00	29,723
06416 Plastic Laminate Countertops				
Plastic laminate:-				
- countertop				
- 36" wide, service counter	66	lf	185.00	12,210
- 24" wide, service counter	12	lf	155.00	1,860
- wall cabinet	266	lf	130.00	34,580
- base cabinet w/countertop, 12" wide	11	lf	270.00	2,970
- base cabinet	78	lf	200.00	15,600
- vanity countertop w/backsplash & fascia	30	lf	80.00	2,400
06452 Interior Standing Running Trim				
Allow for:-				
- miscelleaneous standing/running trim	785	lf	8.00	6,280
- crown molding to halls & 1# meeting room only	1,247	lf	35.00	43,645
- chair rail	171	lf	20.00	3,420
- window casings to exterior windows	1,911	lf	6.00	11,466
06452 Interior Standing Running Trim (cont'd)				
Clothes pole & hat shelf to each general office	216	lf	15.00	3,240
Oak wainscoting to 1st, 2nd & 3rd floor corridor only, 4'	3,728	sf	22.00	82,016
Oak base to all office areas				see Divison #9
Cork floor tiles to corridors, assume 12" x 12"	4,283	sf	10.00	42,830
xxxxx Exterior Siding				
New cedar fascia & soffit boards to exterior, complete	376	lf	18.00	6,768
Wood & Plastics	**Total**			**392,884**

Description	Qty	Unit	Rate	Amount
Thermal & Moisture Protection				
07101 Waterproofing, Damproofing & Caulking				
Vapor barrier to:-				
- sog		sf	0.30	not required
- roof, slope roof only	11,840	sf	0.30	3,552
Crystalline waterproofing to elevator pit/rigging pit	168	sf	12.00	2,016
07200 Insulation				
2" composite polystyrene insulation to:-				
- sog, 2" thick		sf	1.40	not required
2" rigid insulation to exterior walls	21,140	sf	1.70	35,938
15# felt paper to roof	11,840	sf	0.20	2,368
Polystyrene insulation to roof, 2# 1 1/2" thick to flat roof only		sf	3.00	not required
Thermal barrier, 1/2" type X Dens-Deck to roof		sf	0.25	not required
Allow for batt insulation to attic space	5,954	sf	0.85	5,061
07201 Roofing & Flashing				
Terne (zinc coated) roof covering, sloped	11,840	sf	20.00	236,800
Ridge vent, sloping roof only	150	lf	5.00	750
Soffit vents	376	lf	4.00	1,504
Perimeter detail to sloped roof	376	lf	8.00	3,008
Lead coated copper:-				
- gutter	440	lf	10.00	4,400
- leader	320	lf	9.00	2,880
07842 Fire Stopping and Smoke Stopping				
Allow for firestopping & smoke stopping (gfa)	36,175	sf	0.75	27,131
07912 Compressible Fillers				
Allow	1	ls	750.00	750
xxxxx Sealant				
Bathroom sealant	250	lf	1.25	313
Allow for sealant to miscellaneous joints	1	ls	500.00	500
Exterior sealant to windows only	2,011	lf	2.50	5,028
07922 Joint Sealers & Fillers				
Allow	1	ls	2,500.00	2,500
Thermal & Moisture Protection	**Total**			**334,498**

Description	Qty	Unit	Rate	Amount
Doors & Windows				
08110 Steel Doors and Frames				
Hollow metal frame to:-				
- sl	82	ea	125.00	10,250
- dl	1	ea	150.00	150
- dl to loading dock	1	ea	150.00	150
08210 Wood Doors				
Flush wood door to basement & non-corridor:-				
- sl	37	ea	375.00	13,875
- dl		ea	750.00	not required
Panelled wood door to all corridor areas:-				
- sl	45	ea	500.00	22,500
- dl, w	1	ea	1,000.00	1,000
Aluminum clad wood entrance doors & frames:-				
- sl, exterior	3	ea	2,100.00	6,300
- dl	1	ea	2,500.00	2,500
- dl main entrance, exterior	1	ea	2,750.00	2,750
- dl to loading dock	1	ea	2,500.00	2,500
xxxxx Overhead Coiling Doors				
Oak rolling counter door to service counter, 12' wide x 4	5	ea	7,750.00	38,750
Oak rolling counter door to service counter, 9' wide x 4'	2	ea	6,000.00	12,000
08305 Access Doors and Panels				
Furnish access doors & panels	1	ls	1,000.00	1,000
08710 Finish Hardware				
Finish hardware set, per opening:-				
- interior door:-				
- sl	82	ea	375.00	30,750
- dl	1	ea	535.00	535
08810 Glass & Glazing				
Half height glass to corridor doors, 2' x 3', complete				
- sl	45	ea	275.00	12,375
- dl	1	ea	550.00	550
Full height glass to DL exterior doors, 2' x 6', complete	5	ea	400.00	2,000
Full height glass to SL exterior doors, 2' x 6', complete	3	ea	200.00	600
Interior glass w/wood framed windows, complete	120	sf	50.00	6,000
New exterior wood windows w/framing complete	2,955	sf	55.00	162,525
Doors & Windows	**Total**			**329,060**

Description	Qty	Unit	Rate	Amount
Finishes				
09252 Gypsum Drywall				
Interior drywall partition complete w/metal stud framing,				
insulation, 5/8" gwb & plaster skim coat:-				
- elevator shaft wall	1,360	sf	8.00	10,880
- gwb both sides	20,680	sf	6.00	124,080
5/8" GWB w/metal z-channels & plaster skim coat:-				
- inside face of exterior wall	21,140	sf	3.30	69,762
GWB fascia to all exterior windows	436	sf	12.00	5,232
Allow for drywall lining to columns	960	sf	5.75	5,520
Allow for blocking & attachments	1	ls	1,500.00	1,500
09310 Ceramic Tile				
Ceramic:-				
- floor tile	1,272	sf	10.50	13,356
- base tile	584	lf	8.50	4,964
xxxxx Plaster Ceiling				
Plaster ceiling in front of exterior windows, 2' wide	872	sf	6.00	5,232
09510 Acoustical Ceilings				
ACT, 2x4	16,472	sf	2.50	41,180
ACT, 2x2	5,875	sf	2.60	15,275
xxxxx Wood Base				
Wood base, oak	453	lf	9.00	4,077
09654 Resilient Stair Finishes				
Resilient stair risers & treads, 5' wide	8	flr	700.00	5,600
Allow for:-				
- mastics & leveling compounds	1	ls	500.00	500
- rubber stair accessories	1	ls	1,250.00	1,250
09701 Resilient Floor				
Resileint flooring to:-				
- floor	7,374	sf	2.40	17,698
- base	4,275	lf	2.10	8,978
09680 Carpet				
Carpet	1,866	sy	28.00	52,248
Allow for surface preparation prior to carpet installation	16,794	sf	0.50	8,397
			C/F	**395,728**

Description	Qty	Unit	Rate	Amount
Finishes			**B/F**	**395,728**
09910 Painting				
Paint to:-				
- walls	64,820	sf	0.80	51,856
- plaster ceiling	872	sf	1.00	872
- exposed structure	7,551	sf	1.10	8,306
- ladder	2	ea	85.00	170
- SL door & frame (per side)	164	ea	55.00	9,020
- DL door & frame (per side)	2	ea	85.00	170
- interior windows, etc (per side)	120	sf	3.00	360
- exterior windows, etc (per side)	1,911	lf	1.50	2,867
- new cedar fascia & soffit boards to exterior	376	lf	1.50	564
- chair rail	171	lf	1.50	257
- crown molding to halls & 1# meeting room only	1,247	lf	2.50	3,118
- sill/apron/etc	785	lf	2.50	1,963
- allow for additional standing/running trim	1	ls	1,000.00	1,000
- oak wainscott to corridors	3,728	sf	1.50	5,592
Finishes	**Total**			**481,841**
Specialties				
10200 Louvers & Vents				
Aluminum mechanical louver to exterior wall, complete:-				
- elevator ventilation, assume 2' x 2'	1	ea	220.00	220
- bathroom exhaust, 2' x 2'	10	ea	220.00	2,200
- mechanical system, new heating system	1	ls	600.00	600
10430 Exterior Signage				
Allow for exterior signage	1	ls	7,500.00	7,500
10440 Signage				
Allow for interior signage	1	ls	10,000.00	10,000
10522 Fire Extinguishers, Cabinets & Accessories				
Fire extinguisher:-				
- hand carried fire extinquisher	8	ea	65.00	520
- fire extinguisher & cabinet, recessed type	4	ea	115.00	460
Allow for mounting brackets, etc	1	ls	300.00	300
10810 Toilet Accessories				
Bathroom accessories				
- toilet, single	10	ea	950.00	9,500
xxxxx Directory Signs				
Directory sign	3	ea	850.00	2,550
Specialties	**Total**			**33,850**

Description	Qty	Unit	Rate	Amount
Equipment				
11133 - Motorized Projection Screens				
In-focus projector to third floor, electric, 12' long	1	ea	5,500.00	5,500
Equipment	**Total**			**5,500**
Furnishings				
12482 Entrance Mats				
Recessed synthetic fiber entrance mats				
- 6' x 4'	4	ea	400.00	1,600
xxxxx Metal Storage Shelving				
Allow for metal storage shelving, 5# tier to:-				
- vault	197	lf	65.00	not required
- storage, second floor	42	lf	65.00	2,730
- general storage, basement floor, assume 100' lf	100	lf	65.00	6,500
Furnishings	**Total**			**10,830**
Special Construction				
xxxxx Vault Panels & Doors				
Pre-fab vault panels, assume 9' high, complete	1,935	sf	75.00	145,125
EO for sl door to ditto	3	ea	1,750.00	5,250
Special Construction	**Total**			**150,375**
Conveying Systems				
14240 Hydraulic Elevators				
Elevator, hydraulic, 2000lb, 6# stop, 120fpm, passenger	1	ea	110,000.00	110,000
w/front and side entry				
Allow for elevator cab fit out		ls		included above
Sub Bid	**Total**			**110,000**
Builders work in connection with Conveying @ 3%	1	ls	3,300.00	3,300
General Contractor's overhead and profit @ 5%	1	ls	5,665.00	5,665
Conveying Systems	**Total**			**118,965**

Description	Qty	Unit	Rate	Amount
Plumbing				
Allow for the following w/associated piping, accessories, etc:-				
- water closet, handicap	10	ea	1,750.00	17,500
- lavatory, handicap	10	ea	1,725.00	17,250
- drinking fountain	4	ea	1,250.00	5,000
- sink	2	ea	1,600.00	3,200
- janitor sink	4	ea	1,850.00	7,400
- floor drains, hydrants, clean outs, etc (gfa)	36,175	sf	0.35	12,661
- recirculating pumps for hot water	1	ls	2,500.00	2,500
- sewerage pumps	1	ls	2,500.00	2,500
- hot water tank	1	ea	5,000.00	5,000
Underground piping	1	ls	7,000.00	7,000
Upgrade extg water service	1	ls	1,500.00	1,500
Allow for sump pumps to boiler room	1	ls	2,250.00	2,250
Allow for gas piping modification	1	ls	4,500.00	4,500
Allow for rainwater installations & CTE piping to flat roof only		sf	0.85	not required
Allow for access panels	1	ls	1,000.00	1,000
Allow for seismic bracing to pipework	1	ls	5,000.00	5,000
Test & balance	1	ls	5,000.00	5,000
Sub Bid				**99,261**
Builders work in connection with Plumbing @ 3%	1	ls	2,977.84	2,978
General contractor's overhead and profit @ 5%	1	ls	5,111.95	5,112
Plumbing	**Total**			**107,351**
Fire Protection				
Wet type standpipe/sprinkler system complete w/alarm				
valves (gfa)	26,675	sf	2.65	70,689
Dry type standpipe/sprinkler system complete w/alarm				
valves (gfa) to attic space only	9,500	sf	3.00	28,500
Allow for backflow preventer	1	ea	2,250.00	2,250
Double check valve assembly	1	ea	2,750.00	2,750
Allow for seismic bracing to pipework	1	ls	7,500.00	7,500
Test & balance	1	ls	8,500.00	8,500
Sub Bid	**Total**			**120,189**
Builders work in connection with F.Protection @ 3%	1	ls	3,605.66	3,606
General contractor's overhead and profit @ 5%	1	ls	6,189.72	6,190
Fire Protection	**Total**			**129,984**

Description	Qty	Unit	Rate	Amount
HVAC				
Equipment				
Re-use extg boiler & burner	1	ls	10,000.00	10,000
New hot water distribution system	1	ls	15,000.00	15,000
New air conditioning & ventilation systems (gfa)	36,175	sf	0.75	27,131
Exhaust fans to all toilet areas	10	ea	500.00	5,000
Fan coil Units	45	ea	750.00	33,750
Allow for miscellaneous equipment	1	ls	5,000.00	5,000
Ductwork				
Allow for ductwork (gfa)	36,175	sf	7.00	253,225
Pipework				
Allow for pipework, accessories, insulation, etc (gfa)	36,175	sf	4.00	144,700
ATC				
Allow for automatic ddc system (gfa)	36,175	sf	2.75	99,481
General				
Allow for seismic restraint & vibration isolation	1	ls	12,500.00	12,500
Test & balance	1	ls	25,000.00	25,000
Sub Bid	**Total**			**630,788**
Builders work in connection with HVAC @ 3%	1	ls	18,923.63	18,924
General Contractor's overhead and profit @ 5%	1	ls	32,485.56	32,486
HVAC	**Total**			**682,197**

Description	Qty	Unit	Rate	Amount
Electrical				
Panelboards, Etc.				
Main switchboard 120/208 v, 1600A	1	ea	15,000.00	15,000
Allow for panelboards, transformers, etc (gfa)	36,175	sf	0.50	18,088
Allow for check up & refurbishment of extg generator	1	ea	5,000.00	5,000
Feeders				
Allow for feeders (gfa)	36,175	sf	0.90	32,558
Small Power				
Allow for small power (gfa)	36,175	sf	1.70	61,498
Allow for power to kitchen equipment		ls	500.00	not required
Allow for power to mechanical equipment	1	ls	15,000.00	15,000
Allow for power to miscellaneous equipment	1	ls	500.00	500
Allow for power to elevator	1	ls	3,000.00	3,000
Lighting				
Allow for lighting (gfa)	36,175	sf	4.00	144,700
Allow for switching (gfa)	36,175	sf	0.75	27,131
Fire Alarm				
Allow for upgrading extg fire alarm system complete (gfa	36,175	sf	1.10	39,793
Telephone/Communication system (empty conduit & cable)				
Allow for tele/data (gfa)	36,175	sf	0.40	14,470
TV Systems (empty conduit system)				
TV outlet	10	ea	60.00	600
Security System				
Allow for security system (gfa)	36,175	sf	0.15	5,426
Lightning Protection				
Allow	36,175	sf	0.30	10,853
Grounding				
Allow for grounding	36,175	sf	0.20	7,235
General				
Allow for seismic restraint	1	ls	10,000.00	10,000
Test	1	ls	15,000.00	15,000
Sub Bid	**Total**			**425,850**
Builders work in connection with Electrical @ 3%	1	ls	12,775.50	12,776
General contractor's overhead and profit @ 5%	1	ls	21,931.28	21,931
Electrical	**Total**			**460,557**

Description	Qty	Unit	Rate	Amount
Demolition/Alteration				
Demolish toilet structure, incl fdns etc				
- roof	132	sf	5.00	660
- front	189	sf	5.00	945
- side	108	sf	5.00	540
Demolish wheelchair structure, incl fdns etc				
- roof	56	sf	5.00	280
- front	63	sf	5.00	315
- side	126	sf	5.00	630
Demolish teller structure, incl fdns etc				
- roof	30	sf	5.00	150
- front	80	sf	5.00	400
- side	54	sf	5.00	270
Demolish wood louvers to cooling tower, complete	257	sf	2.00	514
Demolish epdm roof to ditto	118	sf	2.00	236
Demolish finishes (gfa)	36,175	sf	0.75	27,131
Demolish underlayment & unsuitable subflooring (gfa)	36,175	sf	0.50	18,088
Demolish vault walls @ basement	2,600	sf	1.00	2,600
Demolish shaftwall, complete	1,170	sf	3.00	3,510
Demolish drywall partition, complete	23,130	sf	1.00	23,130
Demolish bearing wall, complete	1,480	sf	3.00	4,440
Demolish exterior wall, complete	240	sf	3.00	720
Demolish slate dormers to east & west elevations:-				
- roof	1,638	sf	1.50	2,457
- front	783	sf	1.50	1,175
- side	140	sf	1.50	210
Demolish slate roofing system, complete	10,274	sf	3.00	30,822
Demolish fascia and soffit boards, complete	376	lf	1.10	414
Demolish door & frame complete				
- SL door, interior	99	ea	25.00	2,475
- SL vault door, interior	11	ea	100.00	1,100
- DL door, interior	1	ea	50.00	50
- SL door, exterior w/curved window over doorway	2	ea	50.00	100
- DL door, exterior w/curved window over doorway	3	ea	150.00	450
Form sl door opening to cmu wall & mg	3	ea	250.00	750
Demolish stairs to the following locations:-				
- extg mail room, basement level	1	flr	500.00	500
- extg storage room, 4' wide, basement level	1	flr	450.00	450
- extg city clerk, 3' wide, basement level	1	flr	450.00	450
- extg boiler rm, 5' wide, basement level to third level	3	flr	450.00	1,350
- extg treasurer rm 4' wide, first level to fourth level	4	flr	500.00	2,000
Demolish 2# steps, 5' wide to extg basement level	2	ea		
Back fill to ditto, complete, assume average 8' deep	10	cy	25.00	250
Demolish granite side entrance steps, 9# steps, 12' long	1	ea	500.00	500
			C/F	**130,061**

Description	Qty	Unit	Rate	Amount
Demolition/Alteration			**B/F**	**130,061**
Demolish areaway 21' long x 5' wide including steps 4' wide,				
complete	1	ea	1,500.00	1,500
Back fill to ditto, complete, assume average 8' deep	31	cy	25.00	775
Form dl door opening to exterior wall, complete	1	ea	300.00	300
Infill sl exterior door opening, basement level complete	2	ea	300.00	600
Infill dl interior door opening, basement level complete	1	ea	500.00	500
Infill sl interior door opening, complete	5	ea	300.00	1,500
Demolish areaway 8' long x 3' wide to extg mail room	1	ea	450.00	450
Back fill to ditto, complete, assume average 6' deep	5	cy	25.00	125
Carefully remove & dispose of extg elevator, complete	1	ls	7,500.00	7,500
Carefully remove & dispose of extg wheel chair lift, com	1	ls	750.00	750
Demolish sanitary fixtures including piping etc & cap to:-				
- wc	9	ea	55.00	495
- sink, toilet room	8	ea	50.00	400
Demolish exterior windows, complete	2,955	sf	2.50	7,388
Demolish leaders & gutters, complete	760	lf	1.00	760
Demolish cooling tower on roof & mg	1	ea	3,000.00	3,000
Demolish metal grate fire escape w/ladder, 4# levels	1	ea	750.00	750
Infill existing elevator pit	6	cy	20.00	120
Saw cut opening to suspended floor slab for elevator shaft & mg				
- 8' x 9'	4	ea	1,250.00	5,000
Saw cut opening to new stairwell & mg				
- 12' x 9'	3	ea	2,500.00	7,500
- 16' x 4	3	ea	1,350.00	4,050
Infill suspended floor slab, 8 ' x 9' complete	3	ea	850.00	2,550
New sog to elevator pit, 8' x 8' complete	3	ea	150.00	450
Infill roof structure & finish, 8 ' x 9' complete	1	ea	850.00	850
Infill roof structure & finish to elevator pit, 8' x 9' complet	1	ea	150.00	150
Infill suspended floor slab to demolished stairs:-				
- 6' x 8' from basement level to third level	3	ea	800.00	2,400
- 6' x 8' from first level to fourth level	4	ea	800.00	3,200
- 4' x 9' from basement level to first level	1	ea	800.00	800
- 10' x 4' from basement level to first level	1	ea	800.00	800
Allow for general demolition	1	ls	10,000.00	10,000
Allow for general demolition of MEP systems (gfa)	36,175	sf	0.75	27,131
Remove rubbish off site	1	ls	10,000.00	10,000
Allow for:-				
- temporary shoring/support	1	ls	7,500.00	7,500
- make safe MEP prior to commencement of work	1	ls	500.00	500
- asbestos containing material	1	ls	50,000.00	50,000
- lead disposal	1	ls	5,000.00	5,000
Demolition/Alteration	**Total**			**294,855**

Description	Qty	Unit	Rate	Amount
Site Work/Site Utilities				
Demolition				
Demolish two level parking structure, complete (gfa)	28,212	sf	1.00	28,212
Demolish extg surface parking & driveway complete	16,271	sf	0.50	8,136
Earthwork				
Strip and stockpile top soil & later re-spread	1	ls	1,000.00	1,000
Excavate for new service access assume avg 6' deep	262	cy	13.50	3,537
Cut/fill over area to parking lot only, assumed balanced	27,834	sf	0.10	2,783
xxxxx Parking Garage				
New 2 level parking garage incl substructure, superstructure				
etc, complete (gfa)	28,212	sf	20.00	564,240
Paving				
Vehicular bituminous concrete paving, sub base, etc	13,728	sf	2.20	30,202
Pedestrian concrete paving, sub base, etc		sf	6.00	not required
Integral concrete curbing to parking garage	1,020	lf	8.00	8,160
Granite curbing to surface parking/driveway only	1,221	lf	18.00	21,978
Painted crosswalk	2	ea	250.00	500
Allow for additional site concrete	1	ls	500.00	500
Allow for directional signage	1	ls	500.00	500
Allow for handicap signage	1	ls	500.00	500
Allow for road markings to parking lot	1	ls	1,000.00	1,000
Site Improvements				
Allow for protection of extg site improvements	1	ls	1,000.00	1,000
Allow for exterior signage	1	ls	1,000.00	1,000
Concrete pad w/gravel subbase for condenser unit	100	sf	10.00	1,000
Retaining wall including fdns, etc avg height 6' to acces	65	lf	250.00	16,250
Saw cut new & extg paving	50	lf	5.00	250
Landscaping				
Allow for protection of extg vegetation	1	ls	850.00	850
Seeding w/top soil	10,511	sf	0.35	3,679
Trees:-				
- shade	4	ea	725.00	2,900
Shrubs:-				
- medium deciduous	10	ea	45.00	450
- small deciduous	10	ea	35.00	350
- small semi-evergreen (shaped)	10	ea	35.00	350
Allow for landscape maintenance	1	ls	1,500.00	1,500
			C/F	**700,826**

Description	Qty	Unit	Rate	Amount
Site Work/Site Utilities			**B/F**	**700,826**
Site Utilities				
Site utility work including trenches, etc complete:-				
- protect extg utilities	1	ls	2,000.00	2,000
- water:-				not required
- sewer:-				not required
- storm	1	ls	8,500.00	8,500
- electrical:-				not required
- transformer, assume 75 kva	1	ea	6,000.00	6,000
- primary feed to transformer, trench & conduit or	20	lf	20.00	400
- secondary feed from transformer to building	100	lf	75.00	7,500
- gas	1	ls	5,000.00	not required
- fire	1	ls	5,000.00	5,000
- tel/data	1	ls	2,500.00	2,500
Allow for site lighting to parking lot	1	ls	12,500.00	12,500
	Total			**745,226**

Description	Qty	Unit	Rate	Amount
Excavation, Etc.				
Excavate for basement, assume 8' deep average	338	cy	10.50	3,549
Excavate for strip footing to elevator	27	cy	13.50	365
Excavate for strip footing	302	cy	13.50	4,077
Excavate for isolated pad footing	87	cy	13.50	1,175
Excavate for elevator pit	13	cy	16.50	215
6" compacted structural fill below sog	3,087	sf	1.25	3,859
Allow for temporary support to excavation work	1	ls	2,000.00	2,000
Perimeter drain to foundation w/gravel, fabric, etc	198	lf	8.00	1,584
Excavation, Etc.	**Total**			**16,822**

Description	Qty	Unit	Rate	Amount
Concrete				
03300 Cast-In-Place Concrete				
Cast in place concrete:-				
- 12" thick elevator mat footing	72	sf	5.00	360
- wall to elevator pit 12" thick	96	sf	7.00	672
- strip footing	20	cy	135.00	2,700
- basement foundation wall, 12" thick, avg height 8'	1,056	sf	10.00	10,560
- foundation wall, 12" thick, height 4'	568	sf	10.00	5,680
- column footing, supporting	16	cy	148.00	2,368
- sog, 4" thick	3,087	sf	2.75	8,489
- column pier:-				
- attached	2	cy	158.00	316
Concrete topping to:-				
- topping to metal deck	9,575	sf	2.50	23,938
- metal pan stair, 4' wide	6	flr	300.00	1,800
Allow for housekeeping pads	1	ls	1,000.00	1,000
03100 Concrete Formwork				
Formwork to sides/edges of concrete:-				
- 12" thick elevator mat footing	34	sf	6.00	204
- wall to elevator pit 12" thick	192	sf	6.50	1,248
- strip footing	400	sf	6.50	2,600
- basement foundation wall, 12" thick, avg height 8'	2,112	sf	6.50	13,728
- foundation wall, 12" thick, height 4'	1,136	sf	10.00	11,360
- column footing, supporting	576	sf	7.00	4,032
- sog, 4" thick	92	sf	7.50	690
- column pier:-				
- attached	144	sf	7.50	1,080
- sog to vault	78	sf	5.00	390
- topping	420	sf	5.00	2,100
03200 Concrete Reinforcement				
Reinforcing bars to concrete:-				
- 12" thick elevator mat footing	333	lb	0.92	306
- wall to elevator pit 12" thick	711	lb	0.92	654
- strip footing	2,500	lb	0.92	2,300
- basement foundation wall, 12" thick, avg height 8'	7,822	lb	0.92	7,196
- foundation wall, 12" thick, height 4'	2,630	lb	10.00	26,300
- column footing, supporting	2,400	lb	0.92	2,208
- column pier:-				
- attached	400	lb	0.92	368
WWF to:-				
- sog, 4" thick, structural	3,087	sf	0.65	2,007
- topping	9,575	sf	0.55	5,266
03400 Site Concrete				
Included with relevant Site Work item				
Concrete	**Total**			**141,920**

Description	Qty	Unit	Rate	Amount
Masonry				
04080 Masonry Anchorage and Reinforcement				
Install only the following:-				
- restraining angles to brace top of masonry walls	1	ls	2,000.00	2,000
- shelf & relieving angles	1	ls	4,000.00	4,000
04202 Unit Masonry Construction				
See 04220				
04220 Concrete Masonry Units				
Interior masonry partition, complete:-				
- elevator shaftwall, 8" thick, reinforced	1,530	sf	12.00	18,360
- 8" thick cmu wall around vault	1,550	sf	10.50	16,275
- cmu back up to exterior wall	7,140	sf	10.00	71,400
- 8" cmu to dock area	290	sf	10.00	2,900
Repoint extg brick façade:-				
- 75% north/east/south/west elevation	2,658	sf	11.00	29,235
Clean exterior masonry, 100%	10,631	sf	3.50	37,209
Brick veneer exterior wall finish, 25% new				
- 4" thick, 25% new	2,658	sf	26.00	69,102
- 4" thick, 100% new	7,140	sf	26.00	185,640
xxxxx Stone Repair				
Repair stone lintels, sills & other trims	977	lf	5.00	4,885
Repair stone lintels, sills & other trims to circular wdw	20	lf	5.00	100
Stone lintels, sills & other trims	1,176	lf	50.00	58,800
xxxxx Granite Steps				
Granite steps to side entrance, 9# steps, 12' long	108	lf	85.00	9,180
Masonry	**Total**			**509,085**

Description	Qty	Unit	Rate	Amount
Metals				
05120 Structural Steel				
Structural steel w/connections etc (gfa)	76	ton	2,100.00	159,600
Allow for miscellaneous structural steel etc, complete	3	ton	2,200.00	6,600
Allow for miscellaneous structural steel etc, complete	1	ton	1,900.00	1,900
Addition of joist hangers to 1st, 2nd 3rd & attic , comple	3,200	lf	3.00	9,600
Addition of steel columns, assume 12' high	10	ea	1,350.00	13,500
Allow for possible vertical support to 2nd & 3rd level	1	ls	5,000.00	5,000
05300 Steel Deck				
Metal deck over vault w/steel angle supports				not required
Metal deck	9,575	sf	4.00	38,300
05512 Steel Stair Assemblies				
Metal pan stair complete w/stringers, railings, handrails, etc:-				
- 4' wide	6	flr	4,750.00	28,500
05515 Custom Fabricated Steel Ladders				
Elevator pit ladder	1	ea	400.00	400
Mechancial space ladder	1	ea	600.00	600
05502 Metal Fabrications				
Miscellaneous:-				
- bearing & levelling plates	1	ls	200.00	200
- metals generally	1	ls	5,000.00	5,000
Miscelleaneous framing & support:-				
- penetration framing & support	1	ls	1,000.00	1,000
- framing, platforms & support to equipment	1	ls	1,250.00	1,250
Furnish only the following:-				
- restraining angles to brace top of masonry walls	1	ls	2,500.00	2,500
- shelf & relieving angles	1	ls	2,500.00	2,500
05533 Grate Flooring and Decking Assemblies				
Metal grate w/framing to areaway:-				
- elevator sump pit	1	ea	250.00	250
05565 Fabricated Steel Bollard Assemblies				
Included in Site Work				
05588 Countertop Supports				
Allow for custom fabricated metal countertop support				
brackets	1	ls	1,000.00	1,000
05592 Elevator Sill Support				
Elevator sill angle	15	lf	25.00	375
05593 Elevator Hoistway Beam				
Allow for structural beam in elevator hoistway for installation				
& maintenance of hydraulic elevator	1	ea	1,000.00	1,000
05722 Ornamental Metail Rail Assemblies				
05738 Mullion Partition Closure Assemblies				
05800 - Expansion Control				
Allow for expansion joint cover assembly	1	ls	1,250.00	1,250
Metals	**Total**			**280,325**

Description	Qty	Unit	Rate	Amount
Wood & Plastics				
06062 Interior Finish Wood Types				
Plywood backing panels for electrical/tel backboards				
06100 Rough Carpentry	1	ls	200.00	200
Allow for:-				
- sleepers				
- blocking	1	ls	2,500.00	2,500
- curbs	1	ls	3,000.00	3,000
- cants	1	ls	1,500.00	1,500
- edgings	1	ls	1,000.00	1,000
- grounds	1	ls	1,000.00	1,000
- nailers	1	ls	1,250.00	1,250
- furring	1	ls	2,000.00	2,000
Plywood sheathing roof deck to new roof	3,541	sf	6.00	21,246
Allow for wood trusses	3,541	sf	7.50	26,558
Tie extg wood framing to exterior masonry walls	1,800	lf	10.00	18,000
New wood truss to extg building	1	ea	3,500.00	3,500
Patch & repair subflooring in selected areas, 15% of				
total gfa	3,586	sf	1.75	6,276
Structural wood framing to roof, complete w/decking	1,566	sf	6.00	9,396
Underlayment throughout under new finishes	30,483	sf	1.00	30,483
06416 Plastic Laminate Countertops				
Plastic laminate:-				
- countertop				
- 24" wide, service counter	57	lf	155.00	8,835
- wall cabinet	279	lf	130.00	36,270
- base cabinet w/countertop, 12" wide	14	lf	270.00	3,780
- base cabinet	57	lf	200.00	11,400
- vanity countertop w/backsplash & fascia	35	lf	80.00	2,800
06452 Interior Standing Running Trim				
Allow for:-				
- miscelleaneous standing/running trim	720	lf	8.00	5,760
- crown molding to halls & 1# meeting room only	1,183	lf	35.00	41,405
- chair rail	273	lf	20.00	5,460
- window casings to exterior windows	2,153	lf	6.00	12,918
06452 Interior Standing Running Trim (cont'd)				
Clothes pole & hat shelf to each general office	240	lf	15.00	3,600
Oak wainscoting to 1st, 2nd & 3rd floor corridor only, 4'	3,516	sf	22.00	77,352
Oak base to all office areas				see Divison #9
Cork floor tiles to corridors, assume 12" x 12"	3,710	sf	10.00	37,100
Wood & Plastics	**Total**			**374,589**

Description	Qty	Unit	Rate	Amount
Thermal & Moisture Protection				
07101 Waterproofing, Damproofing & Caulking				
Vapor barrier to:-				
- sog	3,087	sf	0.30	926
- roof, slope roof only	11,461	sf	0.30	3,438
Damproofing to basement fountation wall	1,056	sf	0.90	950
Crystalline waterproofing to elevator pit/rigging pit	168	sf	12.00	2,016
07200 Insulation				
2" composite polystyrene insulation to:-				
- sog, 2" thick	3,087	sf	1.40	4,322
2" rigid insulation to exterior walls	19,395	sf	1.70	32,972
15# felt paper to roof	11,461	sf	0.20	2,292
Polystyrene insulation to roof, 2# 1 1/2" thick to flat roof only		sf	3.00	not required
Thermal barrier, 1/2" type X Dens-Deck to roof		sf	0.25	not required
Allow for batt insulation to attic space	11,461	sf	0.85	9,742
07201 Roofing & Flashing				
Terne (zinc coated) roof covering, sloped	11,461	sf	20.00	229,220
Ridge vent, sloping roof only	180	lf	5.00	900
Soffit vents	490	lf	4.00	1,960
Perimeter detail to sloped roof	490	lf	8.00	3,920
Lead coated copper:-				
- gutter	472	lf	10.00	4,720
- leader	400	lf	9.00	3,600
07842 Fire Stopping and Smoke Stopping				
Allow for firestopping & smoke stopping (gfa)	36,175	sf	0.75	27,131
07912 Compressible Fillers				
Allow	1	ls	750.00	750
xxxxx Sealant				
Bathroom sealant	300	lf	1.25	375
Allow for sealant to miscellaneous joints	1	ls	500.00	500
Exterior sealant to windows only	2,153	lf	2.50	5,383
07922 Joint Sealers & Fillers				
Allow	1	ls	2,500.00	2,500
Thermal & Moisture Protection	**Total**			**337,617**

Description	Qty	Unit	Rate	Amount
Doors & Windows				
08110 Steel Doors and Frames				
Hollow metal frame to:-				
- sl	80	ea	125.00	10,000
- dl	2	ea	150.00	300
08210 Wood Doors				
Flush wood door to basement & non-corridor:-				
- sl	40	ea	375.00	15,000
- dl		ea	750.00	not required
Panelled wood door to all corridor areas:-				
- sl	40	ea	500.00	20,000
- dl, w	2	ea	1,000.00	2,000
Aluminum clad wood entrance doors & frames:-				
- sl, exterior	1	ea	2,100.00	2,100
- dl	2	ea	2,500.00	5,000
- dl main entrance, exterior	1	ea	2,750.00	2,750
xxxxx Overhead Coiling Doors				
Oak rolling counter door to service counter, 12' wide x 4	5	ea	7,750.00	38,750
Oak rolling counter door to service counter, 9' wide x 4'	1	ea	6,000.00	6,000
Aluminum overhead coiling door to dock area, 12' x 8'	1	ea	8,500.00	8,500
08305 Access Doors and Panels				
Furnish access doors & panels	1	ls	1,000.00	1,000
08710 Finish Hardware				
Finish hardware set, per opening:-				
- interior door:-				
- sl	80	ea	375.00	30,000
- dl	2	ea	535.00	1,070
08810 Glass & Glazing				
Half height glass to corridor doors, 2' x 3', complete				
- sl	40	ea	275.00	11,000
- dl	2	ea	550.00	1,100
Full height glass to DL exterior doors, 2' x 6', complete	3	ea	400.00	1,200
Full height glass to SL exterior doors, 2' x 6', complete	1	ea	200.00	200
Interior glass w/wood framed windows, complete		sf	50.00	not required
New exterior wood windows w/framing complete	2,809	sf	55.00	154,495
Doors & Windows	**Total**			**310,465**

Description	Qty	Unit	Rate	Amount
Finishes				
09252 Gypsum Drywall				
Interior drywall partition complete w/metal stud framing,				
insulation, 5/8" gwb & plaster skim coat:-				
- elevator shaft wall	1,020	sf	8.00	8,160
- gwb both sides	21,970	sf	6.00	131,820
5/8" GWB w/metal z-channels & plaster skim coat:-				
- inside face of exterior wall	19,395	sf	3.30	64,004
Exterior soffit to first floor level	160	sf	6.00	960
GWB fascia to all exterior windows	368	sf	12.00	4,416
Allow for drywall lining to columns	960	sf	5.75	5,520
Allow for blocking & attachments	1	ls	1,500.00	1,500
09310 Ceramic Tile				
Ceramic:-				
- floor tile	798	sf	10.50	8,379
- base tile	457	lf	8.50	3,885
xxxxx Plaster Ceiling				
Plaster ceiling in front of exterior windows, 2' wide	736	sf	6.00	4,416
09510 Acoustical Ceilings				
ACT, 2x4	16,260	sf	2.50	40,650
ACT, 2x2	5,230	sf	2.60	13,598
xxxxx Wood Base				
Wood base, oak	649	lf	9.00	5,841
09654 Resilient Stair Finishes				
Resilient stair risers & treads, 4' wide	6	flr	700.00	4,200
Allow for:-				
- mastics & leveling compounds	1	ls	500.00	500
- rubber stair accessories	1	ls	1,250.00	1,250
09701 Resilient Floor				
Resileint flooring to:-				
- floor	8,993	sf	2.40	21,583
- base	4,555	lf	2.10	9,566
09680 Carpet				
Carpet	1,887	sy	28.00	52,833
Allow for surface preparation prior to carpet installation	16,982	sf	0.50	8,491
			C/F	**391,571**

Description	Qty	Unit	Rate	Amount
Finishes			**B/F**	**391,571**
09910 Painting				
Paint to:-				
- walls	65,315	sf	0.80	52,252
- plaster ceiling	736	sf	1.00	736
- exposed structure	8,998	sf	1.10	9,898
- exterior soffit	160	sf	1.10	176
- ladder	2	ea	85.00	170
- SL door & frame (per side)	160	ea	55.00	8,800
- DL door & frame (per side)	4	ea	85.00	340
- interior windows, etc (per side)		sf	3.00	not required
- exterior windows, etc (per side)	2,153	lf	1.50	3,230
- crown molding to halls & 1# meeting room only	1,183	lf	1.50	1,775
- chair rail	273	lf	1.50	410
- sill/apron/etc	720	lf	2.50	1,800
- allow for additional standing/running trim	1	ls	1,000.00	1,000
- oak wainscott to corridors	3,516	sf	1.50	5,274
Finishes	**Total**			**477,430**
Specialties				
10200 Louvers & Vents				
Aluminum mechanical louver to exterior wall, complete:-				
- elevator ventilation, assume 2' x 2'	1	ea	220.00	220
- bathroom exhaust, 2' x 2'	12	ea	220.00	2,640
- mechanical system, new heating system	1	ls	1,000.00	1,000
10430 Exterior Signage				
Allow for exterior signage	1	ls	7,500.00	7,500
10440 Signage				
Allow for interior signage	1	ls	10,000.00	10,000
10522 Fire Extinguishers, Cabinets & Accessories				
Fire extinguisher:-				
- hand carried fire extinquisher	8	ea	65.00	520
- fire extinguisher & cabinet, recessed type	4	ea	115.00	460
Allow for mounting brackets, etc	1	ls	300.00	300
10810 Toilet Accessories				
Bathroom accessories				
- toilet, single	12	ea	950.00	11,400
xxxxx Directory Signs				
Directory sign	3	ea	850.00	2,550
Specialties	**Total**			**36,590**

Description	Qty	Unit	Rate	Amount
Equipment				
11133 - Motorized Projection Screens				
In-focus projector to third floor, electric, 12' long	1	ea	5,500.00	5,500
Equipment	**Total**			**5,500**
Furnishings				
12482 Entrance Mats				
Recessed synthetic fiber entrance mats				
- 6' x 4'	4	ea	400.00	1,600
xxxxx Metal Storage Shelving				
Allow for metal storage shelving, 5# tier to:-				
- storage, second floor	42	lf	65.00	2,730
- general storage,attic space, assume 200' lf	200	lf	65.00	13,000
Furnishings	**Total**			**17,330**
Special Construction				
xxxxx Vault Panels & Doors				
Pre-fab vault panels, assume 9' high, complete	1,737	sf	75.00	130,275
EO for sl door to ditto	3	ea	1,750.00	5,250
Special Construction	**Total**			**135,525**
Conveying Systems				
14240 Hydraulic Elevators				
Elevator, hydraulic, 2000lb, 5# stop, 120fpm, passenger				
w/front and rear entry	1	ea	90,000.00	90,000
Allow for elevator cab fit out		ls		included above
Sub Bid	**Total**			**90,000**
Builders work in connection with Conveying @ 3%	1	ls	2,700.00	2,700
General Contractor's overhead and profit @ 5%	1	ls	4,635.00	4,635
Conveying Systems	**Total**			**97,335**

Description	Qty	Unit	Rate	Amount
Plumbing				
Allow for the following w/associated piping, accessories, etc:-				
- water closet, handicap	12	ea	1,750.00	21,000
- lavatory, handicap	12	ea	1,725.00	20,700
- drinking fountain	4	ea	1,250.00	5,000
- sink	2	ea	1,600.00	3,200
- janitor sink	4	ea	1,850.00	7,400
- floor drains, hydrants, clean outs, etc (gfa)	36,571	sf	0.35	12,800
- recirculating pumps for hot water	1	ls	2,500.00	2,500
- sewerage pumps	1	ls	2,500.00	2,500
- hot water tank	1	ea	5,000.00	5,000
Underground piping	1	ls	7,000.00	7,000
Upgrade extg water service	1	ls	1,500.00	1,500
Allow for sump pumps to boiler room	1	ls	2,250.00	2,250
Allow for gas piping modification	1	ls	4,500.00	4,500
Allow for access panels	1	ls	1,000.00	1,000
Allow for seismic bracing to pipework	1	ls	5,000.00	5,000
Test & balance	1	ls	5,000.00	5,000
Sub Bid				**106,350**
Builders work in connection with Plumbing @ 3%	1	ls	3,190.50	3,190
General contractor's overhead and profit @ 5%	1	ls	5,477.02	5,477
Plumbing	**Total**			**115,017**
Fire Protection				
Wet type standpipe/sprinkler system complete w/alarm				
valves (gfa)	26,843	sf	2.65	71,134
Dry type standpipe/sprinkler system complete w/alarm				
valves (gfa) to attic space only	9,728	sf	3.00	29,184
Allow for backflow preventer	1	ea	2,250.00	2,250
Double check valve assembly	1	ea	2,750.00	2,750
Allow for seismic bracing to pipework	1	ls	7,500.00	7,500
Test & balance	1	ls	8,500.00	8,500
Sub Bid	**Total**			**121,318**
Builders work in connection with F.Protection @ 3%	1	ls	3,639.54	3,640
General contractor's overhead and profit @ 5%	1	ls	6,247.87	6,248
Fire Protection	**Total**			**131,205**

Description	Qty	Unit	Rate	Amount
HVAC				
Equipment				
Re-use extg boiler & burner	1	ls	10,000.00	10,000
New hot water distribution system	1	ls	15,000.00	15,000
New air conditioning & ventilation systems (gfa)	36,571	sf	0.75	27,428
Exhaust fans to all toilet areas	10	ea	500.00	5,000
Fan coil Units	45	ea	750.00	33,750
Allow for miscellaneous equipment	1	ls	5,000.00	5,000
Ductwork				
Allow for ductwork (gfa)	36,571	sf	7.00	255,997
16" flue to boiler, assume 50' high	50	lf	125.00	6,250
Pipework				
Allow for pipework, accessories, insulation, etc (gfa)	36,571	sf	4.00	146,284
ATC				
Allow for automatic ddc system (gfa)	36,571	sf	2.75	100,570
General				
Allow for seismic restraint & vibration isolation	1	ls	15,000.00	15,000
Test & balance	1	ls	25,000.00	25,000
Sub Bid	**Total**			**645,280**
Builders work in connection with HVAC @ 3%	1	ls	19,358.39	19,358
General Contractor's overhead and profit @ 5%	1	ls	33,231.89	33,232
HVAC	**Total**			**697,870**

Description	Qty	Unit	Rate	Amount
Electrical				
Panelboards, Etc.				
Main switchboard 120/208 v, 1600A	1	ea	15,000.00	15,000
Allow for panelboards, transformers, etc (gfa)	36,571	sf	0.50	18,286
Allow for check up & refurbishment of extg generator	1	ea	5,000.00	5,000
Feeders				
Allow for feeders (gfa)	36,571	sf	0.90	32,914
Secondary electrical service into building	1	ls	3,000.00	not required
Small Power				
Allow for small power (gfa)	36,571	sf	1.70	62,171
Allow for power to kitchen equipment		ls	500.00	not required
Allow for power to mechanical equipment	1	ls	15,000.00	15,000
Allow for power to miscellaneous equipment	1	ls	500.00	500
Allow for power to elevator	1	ls	3,000.00	3,000
Lighting				
Allow for lighting (gfa)	36,571	sf	4.00	146,284
Allow for switching (gfa)	36,571	sf	0.75	27,428
Fire Alarm				
Allow for upgrading extg fire alarm system complete (gfa	36,571	sf	1.10	40,228
Telephone/Communication system (empty conduit & cable)				
Allow for tele/data (gfa)	36,571	sf	0.40	14,628
TV Systems (empty conduit system)				
TV outlet	10	ea	60.00	600
Security System				
Allow for security system (gfa)	36,571	sf	0.15	5,486
Lightning Protection				
Allow		sf	0.30	
Grounding				
Allow for grounding	36,571	sf	0.20	7,314
General				
Allow for seismic restraint	1	ls	10,000.00	10,000
Test	1	ls	15,000.00	15,000
Sub Bid	**Total**			**418,839**
Builders work in connection with Electrical @ 3%	1	ls	12,565.16	12,565
General contractor's overhead and profit @ 5%	1	ls	21,570.19	21,570
Electrical	**Total**			**452,974**

Description	Qty	Unit	Rate	Amount
Demolition/Alteration				
Demolish Building structure, incl fdns etc, complete				
- roof	3,920	sf	5.00	19,600
- front	3,350	sf	5.00	16,750
- side	4,116	sf	5.00	20,580
Demolish toilet structure, incl fdns etc				
- roof	132	sf	5.00	660
- front	189	sf	5.00	945
- side	108	sf	5.00	540
Demolish wheelchair structure, incl fdns etc				
- roof	56	sf	5.00	280
- front	63	sf	5.00	315
- side	126	sf	5.00	630
Demolish wood louvers to cooling tower, complete	257	sf	2.00	514
Demolish epdm roof to ditto	118	sf	2.00	236
Demolish finishes (gfa)	23,909	sf	0.75	17,932
Demolish underlayment & unsuitable subflooring (gfa)	23,909	sf	0.50	11,955
Demolish vault walls @ basement	1,460	sf	1.00	1,460
Demolish shaftwall, complete	1,170	sf	3.00	excluded
Demolish drywall partition, complete	12,450	sf	1.00	12,450
Demolish bearing wall, complete	400	sf	3.00	1,200
Demolish slate roofing system, complete	7,920	sf	3.00	23,760
Demolish fascia and soffit boards, complete	240	lf	1.10	264
Demolish door & frame complete				
- SL door, interior	47	ea	25.00	1,175
- SL vault door, interior	2	ea	100.00	200
- DL door, interior	1	ea	50.00	50
- SL door, exterior w/curved window over doorway	2	ea	50.00	100
- DL door, exterior w/curved window over doorway	1	ea	150.00	150
Form sl door opening to cmu wall & mg	8	ea	250.00	2,000
Form dl door opening to cmu wall & mg	2	ea	250.00	500
Form opening to exterior wall, 8' x 9' @ dock area	1	ea	500.00	500
Demolish stairs to the following locations:-				
- extg storage room, 4' wide, basement level	1	flr	450.00	450
- extg city clerk, 3' wide, basement level	1	flr	450.00	450
Demolish 2# steps, 5' wide to extg basement level	2	ea		
Back fill to ditto, complete, assume average 8' deep	10	cy	25.00	250
Demolish areaway 21' long x 5' wide including steps 4' wide,				
complete	1	ea	1,500.00	1,500
Back fill to ditto, complete, assume average 8' deep	31	cy	25.00	775
			C/F	**138,170**

Description	Qty	Unit	Rate	Amount
Demolition/Alteration			**B/F**	**138,170**
Demolish granite side entrance steps, 9# steps, 12' long	1	ea	500.00	500
Infill sl exterior door opening, basement level complete	3	ea	300.00	900
Infill window opening to basement	8	sf	25.00	200
Infill sl interior door opening, complete	6	ea	300.00	1,800
Carefully remove & dispose of extg wheel chair lift, com	1	ls	750.00	750
Demolish sanitary fixtures including piping etc & cap to:-				
- wc	9	ea	55.00	495
- sink, toilet room	8	ea	50.00	400
Demolish exterior windows, complete	1,549	sf	2.50	3,873
Demolish leaders & gutters, complete	512	lf	1.00	512
Demolish metal grate fire escape w/ladder, 4# levels	1	ea	750.00	750
Saw cut opening to suspended floor slab for elevator shaft & mg				
- 8' x 9'	4	ea	1,250.00	5,000
Saw cut opening to new stairwell & mg				
- 9' x 13'	3	ea	2,500.00	7,500
- 12' x 8'	3	ea	1,350.00	4,050
Allow for general demolition	1	ls	10,000.00	10,000
Allow for general demolition of MEP systems (gfa)	36,571	sf	0.75	27,428
Remove rubbish off site	1	ls	10,000.00	10,000
Allow for:-				
- temporary shoring/support	1	ls	7,500.00	7,500
- make safe MEP prior to commencement of work	1	ls	500.00	500
- asbestos containing material	1	ls	50,000.00	50,000
- lead disposal	1	ls	5,000.00	5,000
Demolition/Alteration	**Total**			**275,328**

Description	Qty	Unit	Rate	Amount
Site Work/Site Utilities				
Demolition				
Demolish two level parking structure, complete (gfa)	28,212	sf	1.00	28,212
Demolish extg surface parking & driveway complete	16,271	sf	0.50	8,136
Earthwork				
Strip and stockpile top soil & later re-spread	1	ls	1,000.00	1,000
Excavate for new service access assume avg 6' deep	236	cy	13.50	3,186
Cut/fill over area to parking lot only, assumed balanced	26,416	sf	0.10	2,642
xxxxx Parking Garage				
New 2 level parking garage incl substructure, superstructure				
etc, complete (gfa)	28,212	sf	20.00	564,240
Paving				
Vehicular bituminous concrete paving, sub base, etc	12,310	sf	2.20	27,082
Pedestrian concrete pavers, sub base, etc	1,591	sf	10.00	15,910
Integral concrete curbing to parking garage	1,020	lf	8.00	8,160
Granite curbing to surface parking/driveway only	979	lf	18.00	17,622
Painted crosswalk	2	ea	250.00	500
Allow for additional site concrete	1	ls	500.00	500
Allow for directional signage	1	ls	500.00	500
Allow for handicap signage	1	ls	500.00	500
Allow for road markings to parking lot	1	ls	1,000.00	1,000
Site Improvements				
Allow for protection of extg site improvements	1	ls	1,000.00	1,000
Allow for exterior signage	1	ls	1,000.00	1,000
Concrete pad w/gravel subbase for condenser unit	100	sf	10.00	1,000
Retaining wall including fdns, etc avg height 6' to acces	130	lf	250.00	32,500
Saw cut new & extg paving	75	lf	5.00	375
Landscaping				
Allow for protection of extg vegetation	1	ls	850.00	850
Seeding w/top soil	9,673	sf	0.35	3,386
Trees:-				
- shade	4	ea	725.00	2,900
Shrubs:-				
- medium deciduous	10	ea	45.00	450
- small deciduous	10	ea	35.00	350
- small semi-evergreen (shaped)	10	ea	35.00	350
Allow for landscape maintenance	1	ls	1,500.00	1,500
			C/F	**724,850**

Description	Qty	Unit	Rate	Amount
Site Work/Site Utilities			**B/F**	**724,850**
Site Utilities				
Site utility work including trenches, etc complete:-				
- protect extg utilities	1	ls	2,000.00	2,000
- water:-				not required
- sewer:-				not required
- storm	1	ls	8,500.00	8,500
- electrical:-				not required
- transformer, assume 75 kva	1	ea	6,000.00	6,000
- primary feed to transformer, trench & conduit or	20	lf	20.00	400
- secondary feed from transformer to building	100	lf	75.00	7,500
- gas	1	ls	5,000.00	not required
- fire	1	ls	5,000.00	5,000
- tel/data	1	ls	2,500.00	2,500
Allow for site lighting to parking lot	1	ls	12,500.00	12,500
Site Work/Site Utilities	**Total**			**769,250**

Description	Qty	Unit	Rate	Amount
Excavation, Etc.				
Excavate for basement, assume 6' deep average	2,001	cy	10.50	21,011
Excavate for strip footing to elevator	27	cy	13.50	365
Excavate for strip footing	620	cy	13.50	8,370
Excavate for isolated pad footing	87	cy	13.50	1,175
Excavate for elevator pit	13	cy	16.50	215
6" compacted structural fill below sog	9,077	sf	1.25	11,346
Allow for temporary support to excavation work	1	ls	1,000.00	1,000
Perimeter drain to foundation w/gravel, fabric, etc	558	lf	8.00	4,464
Excavation, Etc.	**Total**			**47,944**

Description	Qty	Unit	Rate	Amount
Concrete				
03300 Cast-In-Place Concrete				
Cast in place concrete:-				
- 12" thick elevator mat footing	72	sf	5.00	360
- wall to elevator pit 12" thick	96	sf	7.00	672
- strip footing	41	cy	135.00	5,535
- basement foundation wall, 12" thick, avg height 8'	4,464	sf	10.00	44,640
- column footing, supporting	16	cy	148.00	2,368
- sog, 4" thick	9,005	sf	2.75	24,764
- column pier:-				
- attached	2	cy	158.00	316
- concrete beam		cy	153.00	not required
- sog to vault	1073	sf	5.00	5,365
Concrete topping to:-				
- topping to metal deck	26,209	sf	2.50	65,523
- metal pan stair, 4' wide	6	flr	300.00	1,800
- metal pan stair, 4' wide, curved	1	flr	500.00	500
Allow for housekeeping pads	1	ls	1,000.00	1,000
03100 Concrete Formwork				
Formwork to sides/edges of concrete:-				
- 12" thick elevator mat footing	34	sf	6.00	204
- wall to elevator pit 12" thick	192	sf	6.50	1,248
- strip footing	1,116	sf	6.50	7,254
- basement foundation wall, 12" thick, avg height 8'	8,928	sf	6.50	58,032
- column footing, supporting	576	sf	7.00	4,032
- sog, 4" thick	184	sf	7.50	1,380
- column pier:-				
- attached	144	sf	7.50	1,080
- sog to vault	229	sf	5.00	1,145
- topping	523	sf	5.00	2,615
03200 Concrete Reinforcement				
Reinforcing bars to concrete:-				
- 12" thick elevator mat footing	333	lb	0.92	306
- wall to elevator pit 12" thick	711	lb	0.92	654
- strip footing	5,125	lb	0.92	4,715
- basement foundation wall, 16" thick, avg height 8'	33,067	lb	0.92	30,422
- column footing, supporting	2,400	lb	0.92	2,208
- column pier:-				
- attached	400	lb	0.92	368
- sog to vault	3,974	lb	5.00	19,870
WWF to:-				
- sog, 4" thick, structural	9,005	sf	0.65	5,853
- topping	26,209	sf	0.55	14,415
03400 Site Concrete				
Included with relevant Site Work item				
Concrete	**Total**			**308,644**

Description	Qty	Unit	Rate	Amount
Masonry				
04080 Masonry Anchorage and Reinforcement				
Install only the following:-				
- restraining angles to brace top of masonry walls	1	ls	4,000.00	4,000
- shelf & relieving angles	1	ls	6,000.00	6,000
04202 Unit Masonry Construction				
See 04220				
04220 Concrete Masonry Units				
Interior masonry partition, complete:-				
- elevator shaftwall, 8" thick, reinforced	1,530	sf	12.00	18,360
- 8" thick cmu wall around vault	2,540	sf	10.50	26,670
- 8" cmu wall to basement area	1,580	sf	10.00	15,800
- cmu back up to exterior wall				not required
Brick veneer exterior wall finish:-				
- 4" thick	17,116	sf	26.00	445,006
- detailing to brick	1	ls	33,375.42	33,375
xxxxx Stone				
Stone lintels, sills & other trims	2,819	lf	50.00	140,952
Masonry	**Total**			**690,163**

Description	Qty	Unit	Rate	Amount
Metals				
05120 Structural Steel				
Structural steel w/connections etc (gfa)	176	ton	2,100.00	369,600
Allow for miscellaneous structural steel etc, complete	8	ton	2,200.00	17,600
05300 Steel Deck				
Metal deck over vault w/steel angle supports	1,073	sf	4.75	5,097
Metal floor deck	26,209	sf	4.00	104,836
05400 Cold Formed Metal Framing				
6" metal studs @ 16" oc	21,580	sf	4.25	91,713
05512 Steel Stair Assemblies				
Metal pan stair complete w/stringers, railings, handrails, etc:-				
- 4' wide	6	flr	4,750.00	28,500
- 4' wide, curved	1	flr	5,250.00	5,250
05515 Custom Fabricated Steel Ladders				
Elevator pit ladder	1	ea	400.00	400
Mechancial space ladder	1	ea	600.00	600
05502 Metal Fabrications				
Miscellaneous:-				
- bearing & levelling plates	1	ls	200.00	200
- metals generally	1	ls	5,000.00	5,000
Miscelleaneous framing & support:-				
- penetration framing & support	1	ls	1,000.00	1,000
- framing, platforms & support to equipment	1	ls	1,250.00	1,250
Furnish only the following:-				
- restraining angles to brace top of masonry walls	1	ls	2,500.00	2,500
- shelf & relieving angles	1	ls	2,500.00	2,500
- lintels	1,074	lf	25.00	26,850
05533 Grate Flooring and Decking Assemblies				
Metal grate w/framing to areaway:-				
- elevator sump pit	1	ea	250.00	250
05565 Fabricated Steel Bollard Assemblies				
Included in Site Work				
05588 Countertop Supports				
Allow for custom fabricated metal countertop support				
brackets	1	ls	1,000.00	1,000
05592 Elevator Sill Support				
Elevator sill angle	12	lf	25.00	300
05593 Elevator Hoistway Beam				
Allow for structural beam in elevator hoistway for installation				
& maintenance of hydraulic elevator	1	ea	1,000.00	1,000
05722 Ornamental Metail Rail Assemblies				
Metal railing to second floor only, curved	18	lf	85.00	1,530
05738 Mullion Partition Closure Assemblies				
05800 - Expansion Control				
Allow for expansion joint cover assembly	1	ls	1,250.00	1,250
Metals	**Total**			**668,226**

Description	Qty	Unit	Rate	Amount
Wood & Plastics				
06062 Interior Finish Wood Types				
Plywood backing panels for electrical/tel backboards	1	ls	200.00	200
06100 Rough Carpentry				
Allow for:-				
- sleepers	1	ls	2,500.00	2,500
- blocking	1	ls	3,000.00	3,000
- curbs	1	ls	1,500.00	1,500
- cants	1	ls	1,000.00	1,000
- edgings	1	ls	1,000.00	1,000
- grounds	1	ls	1,250.00	1,250
- nailers	1	ls	2,000.00	2,000
- furring	1	ls	1,000.00	1,000
Plywood sheathing roof deck to new roof	10,741	sf	6.00	64,446
Allow for wood trusses	10,741	sf	7.50	80,558
06416 Plastic Laminate Countertops				
Plastic laminate:-				
- countertop				
- 24" wide, service counter	86	lf	155.00	13,330
- wall cabinet	329	lf	130.00	42,770
- base cabinet w/countertop, 12" wide	12	lf	270.00	3,240
- base cabinet	86	lf	200.00	17,200
- vanity countertop w/backsplash & fascia	29	lf	80.00	2,320
06452 Interior Standing Running Trim				
Allow for:-				
- miscelleaneous standing/running trim	706	lf	8.00	5,648
- crown molding to halls & 1# meeting room only	1,061	lf	35.00	37,135
- chair rail	170	lf	20.00	3,400
- window casings to exterior windows	1,111	lf	6.00	6,666
Clothes pole & hat shelf to each general office	246	lf	15.00	3,690
Oak wainscoting to 1st, 2nd & 3rd floor corridor only, 4'	3,564	sf	22.00	78,408
Oak base to all office areas				see Divison #9
Cork floor tiles to corridors, assume 12" x 12"	3,732	sf	10.00	37,320
Wood & Plastics	**Total**			**409,581**

Description	Qty	Unit	Rate	Amount
Thermal & Moisture Protection				
07101 Waterproofing, Damproofing & Caulking				
Vapor barrier to:-				
- sog	9,005	sf	0.30	2,702
- roof, slope roof only	10,741	sf	0.30	3,222
- exterior wall	21,580	sf	0.30	6,474
Damproofing to basement fountation wall	4,464	sf	0.90	4,018
Crystalline waterproofing to elevator pit/rigging pit	168	sf	12.00	2,016
07200 Insulation				
2" composite polystyrene insulation to:-				
- sog, 2" thick	9,005	sf	1.40	12,607
2" rigid insulation to exterior walls	21,580	sf	1.70	36,685
15# felt paper to roof	10,741	sf	0.20	2,148
Polystyrene insulation to roof, 2# 1 1/2" thick to flat roof only		sf	3.00	not required
Thermal barrier, 1/2" type X Dens-Deck to roof		sf	0.25	not required
Allow for batt insulation to attic space	10,741	sf	0.85	9,130
07201 Roofing & Flashing				
Terne (zinc coated) roof covering, sloped	10,741	sf	20.00	214,820
Ridge vent, sloping roof only	200	lf	5.00	1,000
Soffit vents	596	lf	4.00	2,384
Perimeter detail to sloped roof	596	lf	8.00	4,768
Lead coated copper:-				
- gutter	616	lf	10.00	6,160
- leader	460	lf	9.00	4,140
07206 Fiberglass and Blanket Insulation				
6" batt insulation to exterior wall	21,580	sf	0.80	17,264
07842 Fire Stopping and Smoke Stopping				
Allow for firestopping & smoke stopping (gfa)	33,517	sf	0.75	25,138
07912 Compressible Fillers				
Allow	1	ls	1,500.00	1,500
xxxxx Sealant				
Bathroom sealant	225	lf	1.25	281
Allow for sealant to miscellaneous joints	1	ls	500.00	500
Exterior sealant to windows only	1,111	lf	2.50	2,778
07922 Joint Sealers & Fillers				
Allow	1	ls	3,500.00	3,500
Thermal & Moisture Protection	**Total**			**363,234**

Description	Qty	Unit	Rate	Amount
Doors & Windows				
08110 Steel Doors and Frames				
Hollow metal frame to:-				
- sl	71	ea	125.00	8,875
- dl	4	ea	150.00	600
08210 Wood Doors				
Flush wood door to basement & non-corridor:-				
- sl	33	ea	375.00	12,375
- dl	1	ea	750.00	750
Panelled wood door to all corridor areas:-				
- sl	38	ea	500.00	19,000
- dl, w	3	ea	1,000.00	3,000
Aluminum clad wood entrance doors & frames:-				
- sl, exterior	4	ea	2,100.00	8,400
- dl	3	ea	2,500.00	7,500
- dl main entrance, exterior	3	ea	2,750.00	8,250
- dl dock entrance, exterior	1	ea	2,150.00	2,150
xxxxx Overhead Coiling Doors				
Oak rolling counter door to service counter, 16' wide x 4	1	ea	8,250.00	8,250
Oak rolling counter door to service counter, 12' wide x 4	5	ea	7,750.00	38,750
Oak rolling counter door to service counter, 10' wide x 4	1	ea	6,250.00	6,250
Aluminum overhead coiling door to dock area, 12' x 8'	1	ea	8,500.00	8,500
08305 Access Doors and Panels				
Furnish access doors & panels	1	ls	1,000.00	1,000
08710 Finish Hardware				
Finish hardware set, per opening:-				
- interior door:-				
- sl	71	ea	375.00	26,625
- dl	4	ea	535.00	2,140
08810 Glass & Glazing				
Half height glass to corridor doors, 2' x 3', complete				
- sl	38	ea	275.00	10,450
- dl	3	ea	550.00	1,650
Full height glass to DL exterior doors, 2' x 6', complete	6	ea	400.00	2,400
Full height glass to SL exterior doors, 2' x 6', complete	4	ea	200.00	800
Interior glass w/wood framed windows, complete	88	sf	50.00	4,400
New exterior wood windows w/framing complete	2,380	sf	55.00	130,922
Curtain wall system incl framing etc, complete	598	sf	40.00	23,920
Doors & Windows	**Total**			**336,957**

Description	Qty	Unit	Rate	Amount
Finishes				
09252 Gypsum Drywall				
Interior drywall partition complete w/metal stud framing,				
insulation, 5/8" gwb & plaster skim coat:-				
- elevator shaft wall	1,000	sf	8.00	8,000
- gwb both sides	21,770	sf	6.00	130,620
GWB lining to interior face of exterior wall w/taped finish	21,580	sf	1.80	38,843
GWB sheathing (denseglas) to inside face of brick vene	21,580	sf	0.75	16,185
Exterior soffit to canopy	120	sf	6.00	720
Allow for drywall lining to columns	960	sf	5.75	5,520
Allow for blocking & attachments	1	ls	1,500.00	1,500
09310 Ceramic Tile				
Ceramic:-				
- floor tile	636	sf	10.50	6,678
- base tile	384	lf	8.50	3,264
09510 Acoustical Ceilings				
ACT, 2x4	15,049	sf	2.50	37,623
ACT, 2x2	5,340	sf	2.60	13,884
xxxxx Wood Base				
Wood base, oak	1,061	lf	9.00	9,549
09654 Resilient Stair Finishes				
Resilient stair risers & treads, 4' wide	6	flr	700.00	4,200
Resilient stair risers & treads, 4' wide, curved	1	flr	700.00	700
Allow for:-				
- mastics & leveling compounds	1	ls	500.00	500
- rubber stair accessories	1	ls	1,250.00	1,250
09701 Resilient Floor				
Resileint flooring to:-				
- floor	7,940	sf	2.40	19,056
- base	4,883	lf	2.10	10,254
09680 Carpet				
Carpet	1,780	sy	28.00	49,843
Allow for surface preparation prior to carpet installation	16,021	sf	0.50	8,011
			C/F	**366,199**

Description	Qty	Unit	Rate	Amount
Finishes			**B/F**	**366,199**
09910 Painting				
Paint to:-				
- walls	66,120	sf	0.80	52,896
- exposed structure	7,940	sf	1.10	8,734
- exterior soffit	120	sf	1.10	132
- ladder	2	ea	85.00	170
- SL door & frame (per side)	142	ea	55.00	7,810
- DL door & frame (per side)	8	ea	85.00	680
- interior windows, etc (per side)	88	sf	3.00	264
- exterior windows, etc (per side)	1,111	lf	1.50	1,667
- crown molding to halls & 1# meeting room only	1,061	lf	1.5	1,592
- chair rail	170	lf	1.5	255
- sill/apron/etc	706	lf	2.50	1,765
- allow for additional standing/running trim	1	ls	1,000.00	1,000
- oak wainscott to corridors	3,564	sf	1.50	5,346
- railing to second floor only, curved	18	lf	3.00	54
Finishes	**Total**			**448,563**
Specialties				
10200 Louvers & Vents				
Aluminum mechanical louver to exterior wall, complete:-				
- elevator ventilation, assume 2' x 2'	1	ea	220.00	220
- bathroom exhaust, 2' x 2'	9	ea	220.00	1,980
- mechanical system, new heating system	4	ls	1,000.00	4,000
10430 Exterior Signage				
Allow for exterior signage	1	ls	7,500.00	7,500
10440 Signage				
Allow for interior signage	1	ls	10,000.00	10,000
10522 Fire Extinguishers, Cabinets & Accessories				
Fire extinguisher:-				
- hand carried fire extinquisher	8	ea	65.00	520
- fire extinguisher & cabinet, recessed type	4	ea	115.00	460
Allow for mounting brackets, etc	1	ls	300.00	300
10810 Toilet Accessories				
Bathroom accessories				
- toilet, single	9	ea	950.00	8,550
xxxxx Directory Signs				
Directory sign	3	ea	850.00	2,550
10535 Awnings and Canopies				
Allow for entrance canopy to front & back, assume size				
10' x 6' plan area, complete	2	ea	5,750.00	11,500
Specialties	**Total**			**47,580**

Description	Qty	Unit	Rate	Amount
Equipment				
11133 - Motorized Projection Screens				
In-focus projector to third floor, electric, 12' long	1	ea	5,500.00	5,500
Equipment	**Total**			**5,500**
Furnishings				
12482 Entrance Mats				
Recessed synthetic fiber entrance mats				
- 6' x 4'	3	ea	400.00	1,200
xxxxx Metal Storage Shelving				
Allow for metal storage shelving, 5# tier to:-				
- vault	252	lf	65.00	16,380
- storage, second floor		lf	65.00	
- general storage, basement, assume 200' lf	200	lf	65.00	13,000
Furnishings	**Total**			**30,580**
Special Construction				
xxxxx Vault Panels & Doors				
Pre-fab vault panels, assume 9' high, complete	2,880	sf	75.00	216,000
EO for sl door to ditto	5	ea	1,750.00	8,750
Special Construction	**Total**			**224,750**
Conveying Systems				
14240 Hydraulic Elevators				
Elevator, hydraulic, 2000lb, 5# stop, 120fpm, passenger	1	ea	70,000.00	70,000
Allow for elevator cab fit out		ls		included above
Sub Bid	**Total**			**70,000**
Builders work in connection with Conveying @ 3%	1	ls	2,100.00	2,100
General Contractor's overhead and profit @ 5%	1	ls	3,605.00	3,605
Conveying Systems	**Total**			**75,705**

Description	Qty	Unit	Rate	Amount
Plumbing				
Allow for the following w/associated piping, accessories, etc:-				
- water closet, handicap	9	ea	1,750.00	15,750
- lavatory, handicap	9	ea	1,725.00	15,525
- drinking fountain	4	ea	1,250.00	5,000
- sink	2	ea	1,600.00	3,200
- janitor sink	4	ea	1,850.00	7,400
- floor drains, hydrants, clean outs, etc (gfa)	33,517	sf	0.35	11,731
- recirculating pumps for hot water	1	ls	2,500.00	2,500
- sewerage pumps	1	ls	2,500.00	2,500
- hot water tank	1	ea	5,000.00	5,000
Underground piping	1	ls	7,000.00	7,000
Water service	1	ls	3,500.00	3,500
Allow for sump pumps to boiler room	1	ls	3,000.00	3,000
Allow for gas piping	1	ls	7,000.00	7,000
Allow for access panels	1	ls	1,000.00	1,000
Allow for seismic bracing to pipework	1	ls	5,000.00	5,000
Test & balance	1	ls	5,000.00	5,000
Sub Bid				**100,106**
Builders work in connection with Plumbing @ 3%	1	ls	3,003.18	3,003
General contractor's overhead and profit @ 5%	1	ls	5,155.46	5,155
Plumbing	**Total**			**108,265**
Fire Protection				
Wet type standpipe/sprinkler system complete w/alarm				
valves (gfa)	24,866	sf	2.65	65,895
Dry type standpipe/sprinkler system complete w/alarm				
valves (gfa) to attic space only	8,651	sf	3.00	25,953
Allow for backflow preventer	1	ea	2,250.00	2,250
Double check valve assembly	1	ea	2,750.00	2,750
Allow for seismic bracing to pipework	1	ls	7,500.00	7,500
Test & balance	1	ls	8,500.00	8,500
Sub Bid	**Total**			**112,848**
Builders work in connection with F.Protection @ 3%	1	ls	3,385.44	3,385
General contractor's overhead and profit @ 5%	1	ls	5,811.67	5,812
Fire Protection	**Total**			**122,045**

Description	Qty	Unit	Rate	Amount
HVAC				
Equipment				
New VAV HVAC system (gfa)	33,517	sf	7.00	234,619
Exhaust fans to all toilet areas	9	ea	500.00	4,500
Ductwork				
Allow for ductwork (gfa)	33,517	sf	7.00	234,619
16" flue to boiler, assume 50' high	50	lf	125.00	6,250
Pipework				
Allow for pipework, accessories, insulation, etc (gfa)	33,517	sf	6.00	201,102
ATC				
Allow for automatic ddc system (gfa)	33,517	sf	2.75	92,172
General				
Allow for seismic restraint & vibration isolation	1	ls	15,000.00	15,000
Test & balance	1	ls	25,000.00	25,000
Sub Bid	**Total**			**813,262**
Builders work in connection with HVAC @ 3%	1	ls	24,397.85	24,398
General Contractor's overhead and profit @ 5%	1	ls	41,882.98	41,883
HVAC	**Total**			**879,543**

Description	Qty	Unit	Rate	Amount
Electrical				
Panelboards, Etc.				
Main switchboard 120/208 v, 1600A	1	ea	15,000.00	15,000
Allow for panelboards, transformers, etc (gfa)	33,517	sf	1.25	41,896
Feeders				
Allow for feeders (gfa)	33,517	sf	0.90	30,165
Small Power				
Allow for small power (gfa)	33,517	sf	1.70	56,979
Allow for power to kitchen equipment		ls	500.00	not required
Allow for power to mechanical equipment	1	ls	15,000.00	15,000
Allow for power to miscellaneous equipment	1	ls	1,000.00	1,000
Allow for power to elevator	1	ls	3,000.00	3,000
Lighting				
Allow for lighting (gfa)	33,517	sf	4.00	134,068
Allow for switching (gfa)	33,517	sf	0.75	25,138
Fire Alarm				
Allow for upgrading extg fire alarm system complete (gfa	33,517	sf	1.10	36,869
Telephone/Communication system (empty conduit & cable)				
Allow for tele/data (gfa)	33,517	sf	0.40	13,407
TV Systems (empty conduit system)				
TV outlet	10	ea	60.00	600
Security System				
Allow for security system (gfa)	33,517	sf	0.15	5,028
Lightning Protection				
Allow	33,517	sf	0.30	10,055
Grounding				
Allow for grounding	33,517	sf	0.20	6,703
General				
Allow for seismic restraint	1	ls	10,000.00	10,000
Test	1	ls	15,000.00	15,000
Sub Bid	**Total**			**419,908**
Builders work in connection with Electrical @ 3%	1	ls	12,597.23	12,597
General contractor's overhead and profit @ 5%	1	ls	21,625.25	21,625
Electrical	**Total**			**454,130**

Description	Qty	Unit	Rate	Amount
Demolition/Alteration				
Demolish building structure, incl fdns etc, complete (gfa	36,175	sf	5.00	180,875
Remove rubbish off site	1	ls	15,000.00	15,000
Allow for:-				
- temporary shoring/support	1	ls	7,500.00	not required
- asbestos containing material	1	ls	50,000.00	50,000
- lead disposal	1	ls	5,000.00	5,000
Demolition/Alteration	**Total**			**250,875**

Description	Qty	Unit	Rate	Amount
Site Work/Site Utilities				
Demolition				
Demolish two level parking structure, complete (gfa)	28,212	sf	1.00	28,212
Demolish extg surface parking & driveway complete	16,271	sf	0.50	8,136
Earthwork				
Strip and stockpile top soil & later re-spread	1	ls	1,000.00	1,000
Excavate for new service access assume avg 6' deep	352	cy	13.50	4,752
Cut/fill over area to parking lot only, assumed balanced	26,747	sf	0.10	2,675
xxxxx Parking Garage				
New 2 level parking garage incl substructure, superstructure				
etc, complete (gfa)	28,212	sf	20.00	564,240
Paving				
Vehicular bituminous concrete paving, sub base, etc	12,641	sf	2.20	27,810
Pedestrian concrete pavers, sub base, etc	1,591	sf	10.00	15,910
Integral concrete curbing to parking garage	1,020	lf	8.00	8,160
Granite curbing to surface parking/driveway only	1,005	lf	18.00	18,090
Painted crosswalk	2	ea	250.00	500
Allow for additional site concrete	1	ls	500.00	500
Allow for directional signage	1	ls	500.00	500
Allow for handicap signage	1	ls	500.00	500
Allow for road markings to parking lot	1	ls	1,000.00	1,000
Site Improvements				
Allow for protection of extg site improvements	1	ls	1,000.00	1,000
Allow for exterior signage	1	ls	1,000.00	1,000
Concrete pad w/gravel subbase for condenser unit	100	sf	10.00	1,000
Retaining wall including fdns, etc avg height 6' to acces	130	lf	250.00	32,500
Saw cut new & extg paving	75	lf	5.00	375
Landscaping				
Allow for protection of extg vegetation	1	ls	850.00	850
Seeding w/top soil	9,569	sf	0.35	3,349
Trees:-				
- large shade	1	ea	925.00	925
- shade	6	ea	725.00	4,350
Shrubs:-				
- medium deciduous	10	ea	45.00	450
- small deciduous	10	ea	35.00	350
- small semi-evergreen (shaped)	10	ea	35.00	350
Allow for landscape maintenance	1	ls	1,500.00	1,500
			C/F	**729,984**

Description	Qty	Unit	Rate	Amount
Site Work/Site Utilities			**B/F**	**729,984**
Site Utilities				
Site utility work including trenches, etc complete:-				
- protect extg utilities	1	ls	2,000.00	2,000
- water	1	ls	10,000.00	10,000
- sewer	1	ls	15,000.00	15,000
- storm	1	ls	8,500.00	8,500
- electrical	1	ls	7,500.00	7,500
- transformer, assume 75 kva	1	ea	6,000.00	6,000
- primary feed to transformer, trench & conduit or	20	lf	20.00	400
- secondary feed from transformer to building	100	lf	75.00	7,500
- gas	1	ls	5,000.00	5,000
- fire	1	ls	5,000.00	5,000
- tel/data	1	ls	2,500.00	2,500
Allow for site lighting to parking lot	1	ls	12,500.00	12,500
Site Work/Site Utilities	**Total**			**811,884**

Description	Qty	Unit	Rate	Amount
Excavation, Etc.				
Excavate over area to reduce levels	107	cy	10.50	1,124
Excavate for strip footing to elevator	27	cy	13.50	365
Excavate for isolated pad footing	87	cy	13.50	1,175
Excavate for strip footing	62	cy	13.50	837
Excavate for elevator pit	13	cy	16.50	215
6" compacted structural fill below sog	234	sf	1.25	293
Allow for temporary support to excavation work	1	ls	500.00	500
Perimeter drain to foundation w/gravel, fabric, etc	50	lf	8.00	400
Excavation, Etc.	**Total**			**4,907**

Description	Qty	Unit	Rate	Amount
Concrete				
03300 Cast-In-Place Concrete				
Cast in place concrete:-				
- 12" thick elevator mat footing	72	sf	5.00	360
- wall to elevator pit 12" thick	96	sf	7.00	672
- strip footing	4	cy	135.00	540
- basement foundation wall, 12" thick, avg height 8'	288	sf	10.00	2,880
- column footing, supporting	16	cy	148.00	2,368
- sog, 4" thick	162	sf	2.75	446
- column pier:-				
- attached	2	cy	158.00	316
Concrete topping to:-				
- topping to metal deck		sf	2.50	not required
- metal pan stair, 4' wide	4	flr	300.00	1,200
Allow for housekeeping pads	1	ls	1,000.00	1,000
03100 Concrete Formwork				
Formwork to sides/edges of concrete:-				
- 12" thick elevator mat footing	34	sf	6.00	204
- wall to elevator pit 12" thick	192	sf	6.50	1,248
- strip footing	112	sf	6.50	728
- basement foundation wall, 12" thick, avg height 8'	576	sf	6.50	3,744
- column footing, supporting	576	sf	7.00	4,032
- sog, 4" thick	18	sf	7.50	135
- column pier:-				
- attached	144	sf	7.50	1,080
- sog to vault		sf	5.00	not required
- topping, allow	1	ls	300.00	300
03200 Concrete Reinforcement				
Reinforcing bars to concrete:-				
- 12" thick elevator mat footing	333	lb	0.92	306
- wall to elevator pit 12" thick	711	lb	0.92	654
- strip footing	500	lb	0.92	460
- basement foundation wall, 12" thick, avg height 8'	2,133	lb	0.92	1,962
- column footing, supporting	2,400	lb	0.92	2,208
- column pier:-				
- attached	400	lb	0.92	368
WWF to:-				
- sog, 4" thick, structural	162	sf	0.65	105
- topping		sf	0.55	not required
03400 Site Concrete				
Included with relevant Site Work item				
Concrete	**Total**			**27,317**

Description	Qty	Unit	Rate	Amount
Masonry				
04080 Masonry Anchorage and Reinforcement				
Install only the following:-				
- restraining angles to brace top of masonry walls	1	ls	2,000.00	2,000
- shelf & relieving angles	1	ls	4,000.00	4,000
04202 Unit Masonry Construction				
See 04220				
04220 Concrete Masonry Units				
Interior masonry partition, complete:-				
- elevator shaftwall, 8" thick, reinforced	1,530	sf	12.00	18,360
- cmu back up to exterior wall	1,368	sf	10.00	13,680
Repoint extg brick façade:-				
- 75% north/east/south/west elevation	13,639	sf	11.00	150,026
Clean exterior masonry, 100%	18,185	sf	3.50	63,648
Brick veneer exterior wall finish, 25% new				
- 4" thick	4,546	sf	30.00	136,388
- 4" thick, stairwell	1,368	sf	30.00	41,040
xxxxx Stone Repair				
Repair stone lintels, sills & other trims	2,386	lf	5.00	11,930
Repair stone lintels, sills & other trims to circular wdw	20	lf	5.00	100
xxxxx Granite Steps				
Granite steps to side entrance, 9# steps, 12' long	108	lf	85.00	9,180
Masonry	**Total**			**450,351**

Description	Qty	Unit	Rate	Amount
Metals				
05120 Structural Steel				
Structural steel w/connections etc. (placing difficulties)	4	ton	2,100.00	8,400
Allow for miscellaneous structural steel etc, complete	1	ton	2,200.00	2,200
Addition of joist hangers to 1st, 2nd 3rd & attic complete	3,200	lf	3.00	9,600
Addition of steel columns, assume 12' high	10	ea	1,350.00	13,500
Allow for possible vertical support to 2nd & 3rd level	1	ls	5,000.00	5,000
05300 Steel Deck				
Metal deck to copper roof only, sloping		sf	2.30	not required
Metal deck over vault w/steel angle supports		sf	4.75	not required
05512 Steel Stair Assemblies				
Metal pan stair complete w/stringers, railings, handrails, etc:-				
- 4' wide to basement only	4	flr	4,750.00	19,000
05515 Custom Fabricated Steel Ladders				
Elevator pit ladder	1	ea	400.00	400
Mechancial space ladder	1	ea	600.00	600
05502 Metal Fabrications				
Miscellaneous:-				
- bearing & levelling plates	1	ls	200.00	200
- metals generally	1	ls	5,000.00	5,000
Miscelleaneous framing & support:-				
- penetration framing & support	1	ls	1,000.00	1,000
- framing, platforms & support to equipment	1	ls	1,250.00	1,250
Furnish only the following:-				
- restraining angles to brace top of masonry walls	1	ls	2,500.00	2,500
- shelf & relieving angles	1	ls	2,500.00	2,500
05533 Grate Flooring and Decking Assemblies				
Metal grate w/framing to areaway:-				
- elevator sump pit	1	ea	250.00	250
05565 Fabricated Steel Bollard Assemblies				
Included in Site Work				
05588 Countertop Supports				
Allow for custom fabricated metal countertop support				
brackets	1	ls	1,000.00	1,000
05592 Elevator Sill Support				
Elevator sill angle	18	lf	25.00	450
05593 Elevator Hoistway Beam				
Allow for structural beam in elevator hoistway for installation				
& maintenance of hydraulic elevator	1	ea	1,000.00	1,000
05722 Ornamental Metail Rail Assemblies				
05738 Mullion Partition Closure Assemblies				
05800 - Expansion Control				
Allow for expansion joint cover assembly	1	ls	1,250.00	1,250
Metals	**Total**			**75,100**

Description	Qty	Unit	Rate	Amount
Wood & Plastics				
06062 Interior Finish Wood Types				
Plywood backing panels for electrical/tel backboards	1	ls	200.00	200
06100 Rough Carpentry				
Allow for:-				
- sleepers	1	ls	2,500.00	2,500
- blocking	1	ls	3,000.00	3,000
- curbs	1	ls	1,500.00	1,500
- cants	1	ls	1,000.00	1,000
- edgings	1	ls	1,000.00	1,000
- grounds	1	ls	1,250.00	1,250
- nailers	1	ls	2,000.00	2,000
- furring	1	ls	1,000.00	1,000
Tie extg wood framing to exterior masonry walls	1,800	lf	10.00	18,000
Partial replacement/repair of damaged truss	1	ea	2,000.00	2,000
Patch & repair subflooring in selected areas, 15% of				
total gfa	5,426	sf	1.75	9,496
Underlayment throughout under new finishes	10,434	sf	1.00	10,434
06416 Plastic Laminate Countertops				
Plastic laminate:-				
- base cabinet w/countertop, 12" wide to 3rd & 4th leve	20	lf	270.00	5,400
- vanity countertop w/backsplash & fascia	24	lf	80.00	1,920
06452 Interior Standing Running Trim				
Allow for:-				
- window casings to exterior windows	1,911	lf	6.00	11,466
xxxxx Exterior Siding				
New cedar fascia & soffit boards to exterior, complete	526	lf	18.00	9,468
Wood & Plastics	**Total**			**81,634**

Description	Qty	Unit	Rate	Amount
Thermal & Moisture Protection				
07101 Waterproofing, Damproofing & Caulking				
Vapor barrier to:-				
- sog	162	sf	0.30	49
- roof, slope roof only	13,216	sf	0.30	3,965
Damproofing to basement fountation wall stairwell	288	sf	0.90	259
Crystalline waterproofing to elevator pit/rigging pit	168	sf	12.00	2,016
07200 Insulation				
15# felt paper to roof	13,216	sf	0.20	2,643
Polystyrene insulation to roof, 2# 1 1/2" thick to flat roof only		sf	3.00	not required
Allow for batt insulation to attic space	5,954	sf	0.85	5,061
07201 Roofing & Flashing				
Terne (zinc coated) roof covering, sloped	13,216	sf	20.00	264,320
Ridge vent, sloping roof only	150	lf	5.00	750
Soffit vents	526	lf	4.00	2,104
Perimeter detail to sloped roof	526	lf	8.00	4,208
Lead coated copper:-				
- gutter	440	lf	10.00	4,400
- leader	320	lf	9.00	2,880
07534 EPDM Roofing System				
EPDM roof fully adhered w/4" min. insul & board	162	sf	6.40	1,037
Lead coated copper trims to flat roof	36	lf	12.00	432
Allow for roof walkways	1	ls	500.00	500
07842 Fire Stopping and Smoke Stopping				
Allow for firestopping & smoke stopping (gfa)	38,536	sf	0.75	28,902
07912 Compressible Fillers				
Allow	1	ls	750.00	750
xxxxx Sealant				
Bathroom sealant	200	lf	1.25	250
Interior sealant		lf	1.50	
Exterior sealant to windows only	100	lf	2.50	250
07922 Joint Sealers & Fillers				
Allow	1	ls	2,500.00	2,500
Thermal & Moisture Protection	**Total**			**327,276**

Description	Qty	Unit	Rate	Amount
Doors & Windows				
08110 Steel Doors and Frames				
Hollow metal frame to:-				
- sl	24	ea	125.00	3,000
08210 Wood Doors				
Flush wood door to basement & non-corridor:-				
- sl	7	ea	375.00	2,625
Panelled wood door to all corridor areas:-				
- sl	17	ea	500.00	8,500
- dl		ea	1,000.00	not required
Aluminum clad wood entrance doors & frames:-				
- sl, exterior	3	ea	2,100.00	6,300
- dl	1	ea	2,500.00	2,500
- dl main entrance, exterior	2	ea	2,750.00	5,500
08305 Access Doors and Panels				
Furnish access doors & panels	1	ls	500.00	500
08710 Finish Hardware				
Finish hardware set, per opening:-				
- interior door:-				
- sl	24	ea	375.00	9,000
08810 Glass & Glazing				
Interior glass w/wood framed windows, complete	64	sf	50.00	3,200
New exterior wood windows w/framing complete	3,392	sf	55.00	186,560
Doors & Windows	**Total**			**227,685**

Description	Qty	Unit	Rate	Amount
Finishes				
09252 Gypsum Drywall				
Interior drywall partition complete w/metal stud framing,				
insulation, 5/8" gwb & plaster skim coat:-				
- elevator shaft wall	1,360	sf	8.00	10,880
- gwb both sides	3,716	sf	6.00	22,296
5/8" GWB w/metal z-channels & plaster skim coat:-				
- inside face of exterior wall	1,368	sf	3.30	4,514
GWB fascia to all exterior windows	436	sf	12.00	5,232
Allow for drywall lining to columns	960	sf	5.75	5,520
Allow for blocking & attachments	1	ls	750.00	750
Allow for patching finishes & replacing clg tiles due to structural				
and HVAC changes to non-renovated areas.	1	ls	1,200.00	1,200
09310 Ceramic Tile				
Ceramic:-				
- floor tile	466	sf	10.50	4,893
- base tile	288	lf	8.50	2,448
xxxxx Plaster Ceiling				
Plaster ceiling in front of exterior windows, 2' wide	872	sf	6.00	5,232
09510 Acoustical Ceilings				
ACT, 2x4	10,602	sf	2.50	26,505
09654 Resilient Stair Finishes				
Resilient stair risers & treads, 5' wide	4	flr	700.00	2,800
Allow for:-				
- mastics & leveling compounds	1	ls	500.00	500
- rubber stair accessories	1	ls	1,250.00	1,250
09701 Resilient Floor				
Resileint flooring to:-				
- floor	4,199	sf	2.40	10,078
- base	2,100	lf	2.10	4,409
09680 Carpet				
Carpet	641	sy	28.00	17,948
Allow for surface preparation prior to carpet installation	5,769	sf	0.50	2,885
09910 Painting				
Paint to:-				
- walls	11,120	sf	0.80	8,896
- plaster ceiling	872	sf	1.00	872
- ladder	2	ea	85.00	170
- SL door & frame (per side)	48	ea	55.00	2,640
- interior windows, etc (per side)	64	sf	3.00	192
- exterior windows, etc (per side)	1,911	lf	1.50	2,867
- new cedar fascia & soffit boards to exterior	526	lf	1.50	789
- sill/apron/etc				not required
- allow for additional standing/running trim	1	ls	1,000.00	1,000
Finishes	**Total**			**146,765**

Description	Qty	Unit	Rate	Amount
Specialties				
10200 Louvers & Vents				
Aluminum mechanical louver to exterior wall, complete:-				
- elevator ventilation, assume 2' x 2'	1	ea	220.00	220
- bathroom exhaust, 2' x 2'	10	ea	220.00	2,200
- mechanical system, new heating system	1	ls	600.00	600
10430 Exterior Signage				
Allow for exterior signage	1	ls	7,500.00	7,500
10440 Signage				
Allow for interior signage	1	ls	10,000.00	10,000
10522 Fire Extinguishers, Cabinets & Accessories				
Fire extinguisher:-				
- hand carried fire extinquisher	8	ea	65.00	520
- fire extinguisher & cabinet, recessed type	4	ea	115.00	460
Allow for mounting brackets, etc	1	ls	300.00	300
10810 Toilet Accessories				
Bathroom accessories				
- toilet, single	10	ea	950.00	9,500
xxxxx Directory Signs				
Directory sign	3	ea	850.00	2,550
Specialties	**Total**			**33,850**
Equipment				
No work in this Division				
Equipment	**Total**			
Furnishings				
12482 Entrance Mats				
Recessed synthetic fiber entrance mats				
- 6' x 4'	4	ea	400.00	1,600
Furnishings	**Total**			**1,600**

Description	Qty	Unit	Rate	Amount
Special Construction				
No work in this Division				
Special Construction	**Total**			
Conveying Systems				
14240 Hydraulic Elevators				
Elevator, hydraulic, 2000lb, 6# stop, 120fpm, passenger	1	ea	110,000.00	110,000
w/front and rear entry				
Allow for elevator cab fit out		ls		included above
Sub Bid	**Total**			**110,000**
Builders work in connection with Conveying @ 3%	1	ls	3,300.00	3,300
General Contractor's overhead and profit @ 5%	1	ls	5,665.00	5,665
Conveying Systems	**Total**			**118,965**

Description	Qty	Unit	Rate	Amount
Plumbing				
Allow for the following w/associated piping, accessories, etc:-				
- water closet, handicap	8	ea	1,750.00	14,000
- lavatory, handicap	8	ea	1,725.00	13,800
- drinking fountain	4	ea	1,250.00	5,000
- sink	1	ea	1,600.00	not required
- janitor sink	4	ea	1,850.00	7,400
- floor drains, hydrants, clean outs, etc (gfa)	38,536	sf	0.35	13,488
- recirculating pumps for hot water	1	ls	2,500.00	2,500
- sewerage pumps	1	ls	2,500.00	2,500
- hot water tank	1	ea	5,000.00	5,000
Underground piping	1	ls	1,500.00	1,500
Upgrade extg water service	1	ls	1,500.00	1,500
Allow for sump pumps to boiler room	1	ls	2,250.00	2,250
Allow for gas piping modification	1	ls	4,500.00	4,500
Allow for rainwater installations to flat roof only	162	sf	1.50	243
Allow for access panels	1	ls	1,000.00	1,000
Allow for seismic bracing to pipework	1	ls	5,000.00	5,000
Test & balance	1	ls	5,000.00	5,000
Sub Bid				**84,681**
Builders work in connection with Plumbing @ 3%	1	ls	2,540.42	2,540
General contractor's overhead and profit @ 5%	1	ls	4,361.05	4,361
Plumbing	**Total**			**91,582**
Fire Protection				
Modify wet type standpipe/sprinkler system complete w/alarm				
valves (gfa)	28,874	sf	2.10	60,635
Dry type standpipe/sprinkler system complete w/alarm				
valves (gfa) to attic space only	9,662	sf	3.00	28,986
Allow for backflow preventer	1	ea	2,250.00	2,250
Double check valve assembly	1	ea	2,750.00	2,750
Allow for seismic bracing to pipework	1	ls	7,500.00	7,500
Test & balance	1	ls	8,500.00	8,500
Sub Bid	**Total**			**110,621**
Builders work in connection with F.Protection @ 3%	1	ls	3,318.64	3,319
General contractor's overhead and profit @ 5%	1	ls	5,697.00	5,697
Fire Protection	**Total**			**119,637**

Description	Qty	Unit	Rate	Amount
HVAC				
Equipment				
Re-use extg boiler & burner	1	ls	15,000.00	15,000
New air conditioning & ventilation systems to reno only	10,602	sf	1.75	18,554
Exhaust fans to all toilet areas	8	ea	500.00	4,000
Allow for air handlers to meeting rooms	1	ls	20,000.00	20,000
Fan coil Units	45	ea	750.00	33,750
Allow for miscellaneous equipment	1	ls	2,000.00	2,000
Ductwork				
Allow for ductwork to renovated only	10,602	sf	5.75	60,962
Pipework				
Allow for pipework, accessories, insulation, etc to reno c	10,602	sf	4.00	42,408
ATC				
Allow for automatic ddc system to renovated areas only	10,602	sf	3.00	31,806
General				
Allow for seismic restraint & vibration isolation	1	ls	8,500.00	8,500
Test & balance	1	ls	12,500.00	12,500
Sub Bid	**Total**			**249,479**
Builders work in connection with HVAC @ 3%	1	ls	7,484.37	7,484
General Contractor's overhead and profit @ 5%	1	ls	12,848.17	12,848
HVAC	**Total**			**269,812**

Description	Qty	Unit	Rate	Amount
Electrical				
Panelboards, Etc.				
Main switchboard 120/208 v, 1600A	1	ea	15,000.00	15,000
Allow for panelboards, transformers, etc renovated only	10,602	sf	0.50	5,301
Allow for check up & refurbishment of extg generator	1	ea	5,000.00	5,000
Feeders				
Allow for feeders, renovated only	10,602	sf	1.10	11,662
Small Power				
Allow for small power renovated only	10,602	sf	1.90	20,144
Allow for power to kitchen equipment		ls	500.00	not required
Allow for power to mechanical equipment	1	ls	6,500.00	6,500
Allow for power to miscellaneous equipment	1	ls	500.00	500
Allow for power to elevator	1	ls	3,000.00	3,000
Lighting				
Allow for lighting (gfa)	10,602	sf	5.00	53,010
Allow for switching (gfa)	10,602	sf	1.00	10,602
Fire Alarm				
Allow for upgrading extg fire alarm system complete (gfa	10,602	sf	1.25	13,253
Telephone/Communication system (empty conduit & cable)				
Allow for tele/data (gfa)	10,602	sf	0.75	7,952
TV Systems (empty conduit system)				
TV outlet	10	ea	60.00	not required
Security System				
Allow for security system (gfa)	10,602	sf	0.55	not required
Lightning Protection				
Allow	10,602	sf	0.45	4,771
Grounding				
Allow for grounding	10,602	sf	0.50	5,301
General				
Allow for seismic restraint	1	ls	10,000.00	10,000
Test	1	ls	15,000.00	15,000
Sub Bid	**Total**			**186,995**
Builders work in connection with Electrical @ 3%	1	ls	5,609.85	5,610
General contractor's overhead and profit @ 5%	1	ls	9,630.24	9,630
Electrical	**Total**			**202,235**

Description	Qty	Unit	Rate	Amount
Demolition/Alteration				
Demolish wheelchair structure, incl fdns etc				
- roof	56	sf	5.00	280
- front	63	sf	5.00	315
- side	126	sf	5.00	630
Demolish finishes (gfa) to renovated areas only	10,602	sf	0.75	7,952
Demolish underlayment & unsuitable subflooring (gfa)	10,602	sf	0.50	5,301
Demolish shaftwall, complete	1,170	sf	3.00	3,510
Demolish drywall partition, complete	3,570	sf	1.00	3,570
Demolish bearing wall, complete	100	sf	3.00	300
Demolish exterior wall, complete		sf	3.00	
Demolish roof finish to dormers, complete	1,376	sf	1.50	2,064
Demolish slate roofing system, complete	10,274	sf	3.00	30,822
Demolish fascia and soffit boards, complete	526	lf	1.10	579
Demolish door & frame complete				
- SL door, interior	19	ea	25.00	475
- SL door, exterior w/curved window over doorway	2	ea	50.00	100
- DL door, exterior w/curved window over doorway	3	ea	150.00	450
Form sl door opening to cmu wall & mg	3	ea	250.00	750
Demolish stairs to the following locations:-				
- extg boiler rm, 5' wide, basement level to third level	3	flr	450.00	1,350
- extg treasurer rm 4' wide, first level to fourth level	4	flr	500.00	2,000
Demolish wood steps, 4' wide, 7# steps & mg	1	ea	150.00	150
Demolish granite side entrance steps, 9# steps, 12' long	1	ea	500.00	500
Infill sl door opening to exterior wall, complete	2	ea	500.00	1,000
Infill sl door opening to interior wall, complete	12	ea	200.00	2,400
Carefully remove & dispose of extg elevator, complete	1	ls	7,500.00	7,500
Carefully remove & dispose of extg wheel chair lift, com	1	ls	750.00	750
Demolish sanitary fixtures including piping etc & cap to:-				
- wc	6	ea	55.00	330
- sink, toilet room	5	ea	50.00	250
Demolish exterior windows, complete	3,392	sf	2.50	8,480
Demolish leaders & gutters, complete	760	lf	1.00	760
Demolish cooling tower on roof & mg	1	ea	3,000.00	not required
Demolish metal grate fire escape w/ladder, 4# levels	1	ea	1,200.00	1,200
Infill existing elevator pit	6	cy	20.00	120
Saw cut opening to suspended floor slab for elevator shaft & mg:-				
- 8' x 9'	4	ea	1,250.00	5,000
Saw cut opening to new stairwell & mg:-				
- 12' x 9'	4	ea	2,250.00	9,000
Saw cut opening to create void:-				
- 12' x 5'	1	ea	1,000.00	1,000
Infill suspended floor slab, 8 ' x 9' complete	3	ea	850.00	2,550
			C/F	**101,437**

Description	Qty	Unit	Rate	Amount
Demolition/Alteration			**B/F**	**101,437**
New sog to elevator pit, 8' x 8' complete	3	ea	150.00	450
Infill roof structure & finish, 8 ' x 9' complete	1	ea	850.00	850
Infill roof structure & finish to elevator pit, 8' x 8' complet	1	ea	150.00	150
Infill suspended floor slab to demolished stairs:-				
- 6' x 8' from basement level to third level	3	ea	800.00	2,400
- 6' x 8' from first level to fourth level	4	ea	800.00	3,200
Allow for general demolition	1	ls	10,000.00	10,000
Allow for general demolition of MEP systems in renovated				
areas only	10,602	sf	0.75	7,952
Remove rubbish off site	1	ls	10,000.00	10,000
Allow for:-				
- temporary shoring/support	1	ls	7,500.00	7,500
- make safe MEP prior to commencement of work	1	ls	500.00	500
- asbestos containing material (ACM) by R.I Analytical	1	ls	26,430.00	26,430
- lead disposal	1	ls	5,000.00	5000
Demolition/Alteration	**Total**			**175,869**

Description	Qty	Unit	Rate	Amount
Site Work/Site Utilities				
Demolition				
Demolish two level parking structure, complete (gfa)	28,212	sf	1.00	28,212
Demolish extg surface parking & driveway complete	16,271	sf	0.50	8,136
Earthwork				
Strip and stockpile top soil & later re-spread	1	ls	1,000.00	1,000
Excavate for new service access assume avg 6' deep	262	cy	13.50	not required
Cut/fill over area to parking lot only, assumed balanced	26,654	sf	0.10	2,665
Clear and clean path to second basement egress	1	ls	750.00	750
xxxxx Parking Garage				
New 2 level parking garage incl substructure, superstructure				
etc, complete (gfa)	28,212	sf	20.00	564,240
Paving				
Vehicular bituminous concrete paving, sub base, etc	12,548	sf	2.20	27,606
Pedestrian concrete paving, sub base, etc		sf	6.00	not required
Integral concrete curbing to parking garage	1,020	lf	8.00	8,160
Granite curbing to surface parking/driveway only	1,071	lf	18.00	19,278
Painted crosswalk	2	ea	250.00	500
Allow for additional site concrete	1	ls	500.00	500
Allow for directional signage	1	ls	500.00	500
Allow for handicap signage	1	ls	500.00	500
Allow for road markings to parking lot	1	ls	1,000.00	1,000
Site Improvements				
Allow for protection of extg site improvements	1	ls	1,000.00	1,000
Allow for exterior signage	1	ls	1,000.00	1,000
Concrete pad w/gravel subbase for condenser unit	100	sf	10.00	1,000
Retaining wall including fdns, etc avg height 6' to acces	65	lf	250.00	not required
Saw cut new & extg paving	50	lf	5.00	250
Landscaping				
Allow for protection of extg vegetation	1	ls	850.00	850
Seeding w/top soil	10,511	sf	0.35	3,679
Trees:-				
- shade	4	ea	725.00	2,900
Shrubs:-				
- medium deciduous	10	ea	45.00	450
- small deciduous	10	ea	35.00	350
- small semi-evergreen (shaped)	10	ea	35.00	350
Allow for landscape maintenance	1	ls	1,500.00	1,500
			C/F	**676,375**

Description	Qty	Unit	Rate	Amount
Site Work/Site Utilities			**B/F**	**676,375**
Site Utilities				
Site utility work including trenches, etc complete:-				
- protect extg utilities	1	ls	2,000.00	2,000
- water:-				not required
- sewer:-				not required
- storm	1	ls	8,500.00	8,500
- electrical:-				not required
- transformer, assume 75 kva	1	ea	6,000.00	6,000
- primary feed to transformer, trench & conduit or	20	lf	20.00	400
- secondary feed from transformer to building	100	lf	75.00	7,500
- gas	1	ls	5,000.00	not required
- fire	1	ls	5,000.00	5,000
- tel/data	1	ls	2,500.00	2,500
Allow for site lighting to parking lot	1	ls	12,500.00	12,500
Site Work/Site Utilities	**Total**			**720,775**

Description	Qty	Unit	Rate	Amount
Alternate #1 : Scheme C CMU Back-up ilo of 6" Metal Stud				
Add				
8" cmu back up to exterior wall	21,580	sf	10.00	215,796
Dampproof membrane to inside face of brick veneer	21,580	sf	0.90	19,422
2" rigid insulation	21,580	sf	1.70	36,685
Furring & GWB to interior face of exterior wall	21,580	sf	3.20	69,055
Deduct				
6" metal studs @ 16" oc	21,580	sf	4.25	-91,713
6" batt insulation to exterior wall	21,580	sf	0.80	-17,264
GWB lining to interior face of exterior wall w/taped finish	21,580	sf	1.80	-38,843
GWB sheathing (denseglas) to inside face of brick vene	21,580	sf	1.15	-24,817
Sub-Total Construction				**168,321**
General Requirements	9.16%			not applicable
Escalation to bid date 1Q2003				
Design Contingency	15.00%			25,248
Construction Contingency	10.00%			19,357
Alternate #1 :	**Total ADD**			**212,926**

Description	Qty	Unit	Rate	Amount
General Requirements for Scheme A				
Field personnel:-				
- project manager	65	week	1,750.00	113,750
- project superintendent	49	week	1,450.00	71,050
- field engineer	49	week	1,200.00	58,800
- MEP coordinator	42	week	1,200.00	50,400
- labourer	65	week	950.00	61,750
Insurances	1	ls	47,000.00	47,000
Main office expenses	1	ls	15,000.00	15,000
Performance bond.	1	ls	32,900.00	32,900
Preparation of progress schedules.	1	ls	5,000.00	5,000
Compilation/preparation of site survey data.	1	ls	5,000.00	5,000
Preparation of shop drawings.	1	ls	7,500.00	7,500
Construction photographs.	15	mth	50.00	750
Temporary utilities	65	week	75.00	4,875
Temporary construction.	65	week	50.00	3,250
Construction aids (safety nets, personnel protection				
equipment, partial scaffolding, etc)	65	week	75.00	4,875
Barriers and enclosures.	65	week	25.00	1,625
Security.	15	mth	350.00	5,250
Access roads.	65	week	50.00	3,250
Temporary controls.	65	week	50.00	3,250
Project signs.	15	mth	50.00	750
Field offices and sheds	1	ls	15,000.00	15,000
Field office expenses.	65	week	200.00	13,000
Equipment rental	1	ls	3,000.00	3,000
Snow removal (4 times a year)	4	ea	650.00	2,600
Winter protection	1	ls	10,000.00	10,000
Interim cleaning	65	week	150.00	9,750
Final cleaning	1	ls	4,000.00	4,000
General Requirements for Scheme A	**Total**			**553,375**

Description	Qty	Unit	Rate	Amount
General Requirements for Scheme B				
Field personnel:-				
- project manager	65	week	1,750.00	113,750
- project superintendent	49	week	1,450.00	71,050
- field engineer	49	week	1,200.00	58,800
- MEP coordinator	42	week	1,200.00	50,400
- labourer	65	week	950.00	61,750
Insurances	1	ls	50,000.00	50,000
Main office expenses	1	ls	15,000.00	15,000
Performance bond.	1	ls	35,000.00	35,000
Preparation of progress schedules.	1	ls	5,000.00	5,000
Compilation/preparation of site survey data.	1	ls	5,000.00	5,000
Preparation of shop drawings.	1	ls	7,500.00	7,500
Construction photographs.	15	mth	50.00	750
Temporary utilities	65	week	75.00	4,875
Temporary construction.	65	week	50.00	3,250
Construction aids (safety nets, personnel protection				
equipment, partial scaffolding, etc)	65	week	75.00	4,875
Barriers and enclosures.	65	week	25.00	1,625
Security.	15	mth	350.00	5,250
Access roads.	65	week	50.00	3,250
Temporary controls.	65	week	50.00	3,250
Project signs.	15	mth	50.00	750
Field offices and sheds	1	ls	15,000.00	15,000
Field office expenses.	65	week	200.00	13,000
Equipment rental	1	ls	3,000.00	3,000
Snow removal (4 times a year)	4	ea	650.00	2,600
Winter protection	1	ls	10,000.00	10,000
Interim cleaning	65	week	150.00	9,750
Final cleaning	1	ls	4,000.00	4,000
General Requirements for Scheme B	**Total**			**558,475**

Description	Qty	Unit	Rate	Amount
General Requirements for Scheme C				
Field personnel:-				
- project manager	65	week	1,750.00	113,750
- project superintendent	49	week	1,450.00	71,050
- field engineer	49	week	1,200.00	58,800
- MEP coordinator	42	week	1,200.00	50,400
- labourer	65	week	950.00	61,750
Insurances	1	ls	60,000.00	60,000
Main office expenses	1	ls	15,000.00	15,000
Performance bond.	1	ls	42,000.00	42,000
Preparation of progress schedules.	1	ls	5,000.00	5,000
Compilation/preparation of site survey data.	1	ls	5,000.00	5,000
Preparation of shop drawings.	1	ls	7,500.00	7,500
Construction photographs.	15	mth	50.00	750
Temporary utilities	65	week	75.00	4,875
Temporary construction.	65	week	50.00	3,250
Construction aids (safety nets, personnel protection				
equipment, partial scaffolding, etc)	65	week	75.00	4,875
Barriers and enclosures.	65	week	25.00	1,625
Security.	15	mth	350.00	5,250
Access roads.	65	week	50.00	3,250
Temporary controls.	65	week	50.00	3,250
Project signs.	15	mth	50.00	750
Field offices and sheds	1	ls	15,000.00	15,000
Field office expenses.	65	week	200.00	13,000
Equipment rental	1	ls	3,000.00	3,000
Snow removal (4 times a year)	4	ea	650.00	2,600
Winter protection	1	ls	10,000.00	10,000
Interim cleaning	65	week	150.00	9,750
Final cleaning	1	ls	4,000.00	4,000
General Requirements for Scheme C	**Total**			**575,475**

Description	Qty	Unit	Rate	Amount
General Requirements for Scheme E				
Field personnel:-				
- project manager	39	week	1,750.00	68,250
- project superintendent	29	week	1,450.00	42,050
- field engineer	29	week	1,200.00	34,800
- MEP coordinator	25	week	1,200.00	30,000
- labourer	39	week	950.00	37,050
Insurances	1	ls	17,000.00	17,000
Main office expenses	1	ls	15,000.00	15,000
Performance bond.	1	ls	11,900.00	11,900
Preparation of progress schedules.	1	ls	5,000.00	5,000
Compilation/preparation of site survey data.	1	ls	5,000.00	5,000
Preparation of shop drawings.	1	ls	7,500.00	7,500
Construction photographs.	9	mth	50.00	450
Temporary utilities	39	week	75.00	2,925
Temporary construction.	39	week	50.00	1,950
Construction aids (safety nets, personnel protection				
equipment, partial scaffolding, etc)	39	week	75.00	2,925
Barriers and enclosures.	39	week	25.00	975
Security.	9	mth	350.00	3,150
Access roads.	39	week	50.00	1,950
Temporary controls.	39	week	50.00	1,950
Project signs.	9	mth	50.00	450
Field offices and sheds	1	ls	15,000.00	15,000
Field office expenses.	39	week	200.00	7,800
Equipment rental	1	ls	3,000.00	3,000
Snow removal (4 times a year)	4	ea	650.00	2,600
Winter protection	1	ls	10,000.00	10,000
Interim cleaning	39	week	150.00	5,850
Final cleaning	1	ls	4,000.00	4,000
General Requirements for Scheme E	**Total**			**338,525**

APPENDICES

- Appendix K – 1999 Roof Truss Inspection

653 Mount Auburn Street
Watertown, Massachusetts 02472
Telephone 617-926-6100 Telefax 617-924-4431 email: souzatrue@souzatrue.com

SOUZA, TRUE
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JEROME A. YURKOSKI, P. E.

October 26, 1999

Fitchburg Building Department
Fitchburg City Hall
718 Main Street
Fitchburg, MA 01420

Attn: Mr. Michael Gallant, Building Commissioner

Re: Roof Truss Inspection
Fitchburg City Hall

Dear Mr. Gallant:

As requested, we have inspected the roof structure of the Fitchburg City Hall regarding the condition of one of the roof trusses. The inspection was carried out on October 12, 1999 by Raymond Busser. The purpose of the inspection was to determine the cause of the sagging roof truss and to develop recommendations for its repair.

The building was built in the 1850's with an addition constructed at the south end in the 1870's. There were no drawings of the building available for our review.

Description of Structure

The building consists of exterior brick bearing walls with wood roof trusses supported on the exterior walls. The original building has a slate shingle roof which was installed over original metal roofing.(See Photos 1 thru 4.) The roof over the addition is asphalt shingle. The roof structure consists of wood sheathing supported by wood rafters on wood purlins supported on the wood trusses.

There are several different types of trusses in the building, two at the original building and three in the addition. The trusses of the original building are made up of large wood members for the top and bottom chords and the diagonals. Steel rods are used for the vertical tension members. Refer to attached Truss Elevations for details of trusses T-1 and T-2. An attic floor is made up by floor joists spanning between the bottom chords of the trusses.

Observations

The truss in question is located at the north end of the building (identified as Truss T-1A on the attached plan). Observations include a large check in the west top chord(Photo 5) and that one of the diagonals has "fallen" out of the east top chord(Photo 6.) A large deflection in the top chord has occurred at the location of the fallen diagonal. There were observed gaps between the top of the top chords and the nuts of the far east and far west steel rod verticals of 6 inches and 2 inches, respectively(Photo 6.) It could not be determined if there were gaps present at the central verticals as well.

There was some rot visible at the ends of the trusses (roof eaves) but none at the interior. Inspection of other trusses revealed approximately 1/8 inch gaps between nut and top chord, typically, except for the truss adjacent to the truss in question (Truss T-1B), where the nuts were tight. It did not appear that there was any significant deflection of bottom chords of any of the trusses. Wood blocking was noted at many of the diagonals to fill gaps between the end of the diagonal and the top chord. No other deficiencies were observed in any of the trusses, purlins or rafters.(Photos 7, 8 and 9 show typical conditions of trusses and purlins.)

Viewing the roof from the outside of the building, there is a visible sag in the roof at the east side at the location of the affected truss. Only a slight deflection was visible on the west side of the roof.(Photos 4 and 5)

Analysis

A structural analysis was performed on the two types of trusses of the original building to determine the stresses in the trusses. There was no information available on the design loads, therefore, current code specified snow and live loads were used, along with actual dead loads of the roofing and structure.

The analysis shows that under full snow, live and dead loads the rafters, purlins and trusses are adequate, assuming they are in good condition. When subjected to an unbalanced snow load of 1.5 x Basic Snow Load on leeward(east) side of the roof and no snow load on windward side, the purlins are overstressed. A portion of the bottom chord of the truss is also overstressed. Rafters and other truss members are still adequate. This unbalanced snow loading is specified in the Massachusetts State Building Code for new construction to account for build up of snow on the leeward side of gable roofs due to wind. It appears that the City Hall building is orientated in such a way that the "sagging" side of the truss is the leeward side of the roof. It is noted that the existing trusses are not required to be brought up to the current code, however, the unbalanced loading was analyzed for informational purposes as a potential contributor to the truss damage.

The T-2 trusses have a higher capacity than the T-1 trusses.

Conclusion

The most critical problem with the truss is the fallen compression diagonal. This appears to be more a result of age and initial construction quality than just an overloading problem. The existence of blocking at other truss diagonals gives the impression that some of the diagonals were cut too short. This combined with shrinkage of the wood and vibrations could result in the diagonal falling out of the top chord. Removal of this diagonal leaves only the steel rod vertical at this location, which was not designed for nor can it support compression loads. The result is the large deflection of the truss top chord visible at this location.

In addition, the check in the top chord at the opposite end of the truss could have contributed to the "fallen" diagonal by weakening the top chord on that side and changing the load distribution in the truss members enough to loosen the opposite diagonal.

As pointed out at the time of our inspection, the slate roof was not original to the building and its installation has added a significant weight to the roof structure. However, it appears that the trusses are adequate to carry this additional load under typical conditions, i.e., basic snow load without unbalanced load.

In summary, it is our feeling that age, construction quality, material quality and possible large unbalanced snow loading have all combined to produce the damage to the truss and the sagging of the roof.

Recommendations

The current condition of the roof truss poses a threat to the integrity of the building and safety of its occupants. Immediate measures should be taken to repair the truss prior to the onset of the coming snow season.

Actions required for the repair of the truss include the following:

1. Jack up the top chord to its original location and secure the loose diagonal.
2. Provide stiffening elements to both ends of the top chord(sloping portions).
3. Tighten nuts at ends of steel rod verticals.

In addition, minor work on all other trusses should be performed which would consist of inspecting and tightening all nuts and connecting all diagonals members to the top chord. This can be done by nailing through the top chord into the tops of the diagonals.

Details for stiffening of the top chord are included in this report. Jacking of the top chord should be done in such a way that jacking loads are placed properly at panel points of the bottom chord of the truss.

Since there are no other trusses exhibiting any distress, we do not feel that any work is required for the other trusses, with the exception of tightening nuts and fastening diagonals. However, periodic inspection is recommended to monitor their condition.

Cost Estimate

Due to the difficult access and cramped quarters in parts of the attic, the cost of the recommended repair work is dictated primarily by labor costs with material cost being only a small part of the total.

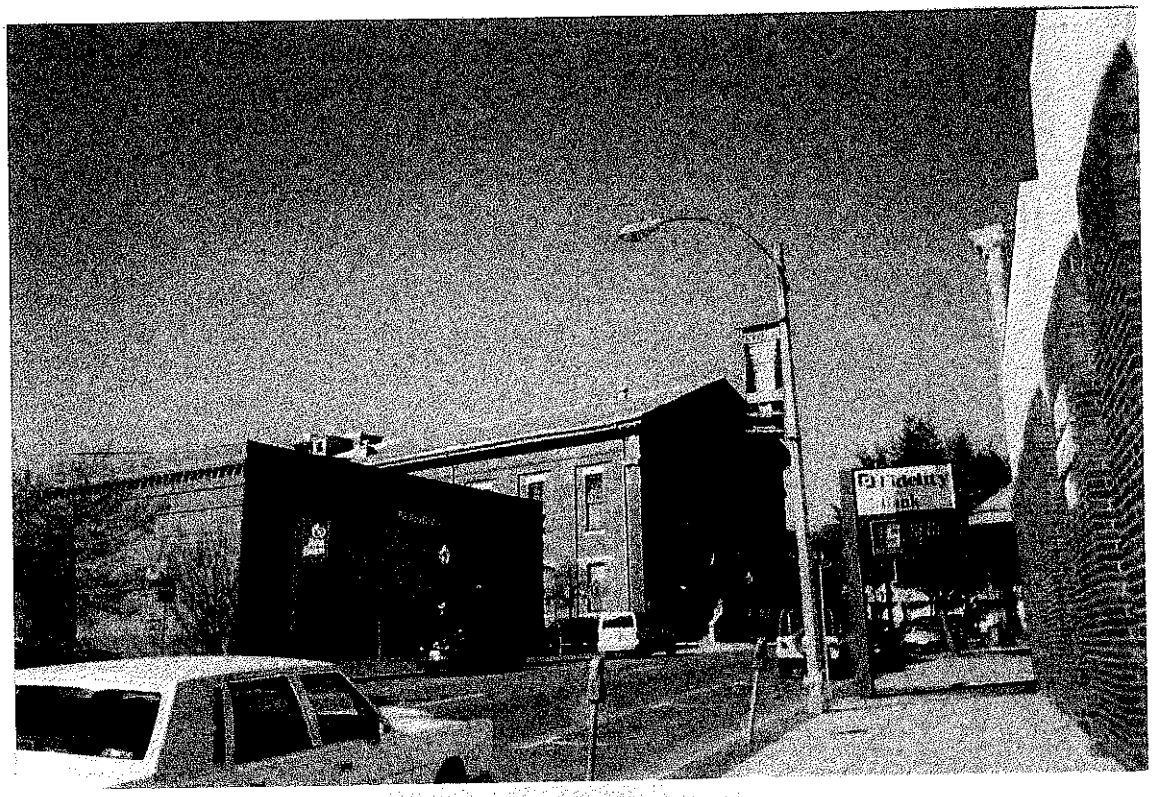
The anticipated cost of these repairs is approximately $ 10,000 for repair of the failed truss and another $ 2,000 for minor work to other trusses.

We trust that this report will satisfy your immediate needs. If you have any further questions or concerns, please do not hesitate to call.

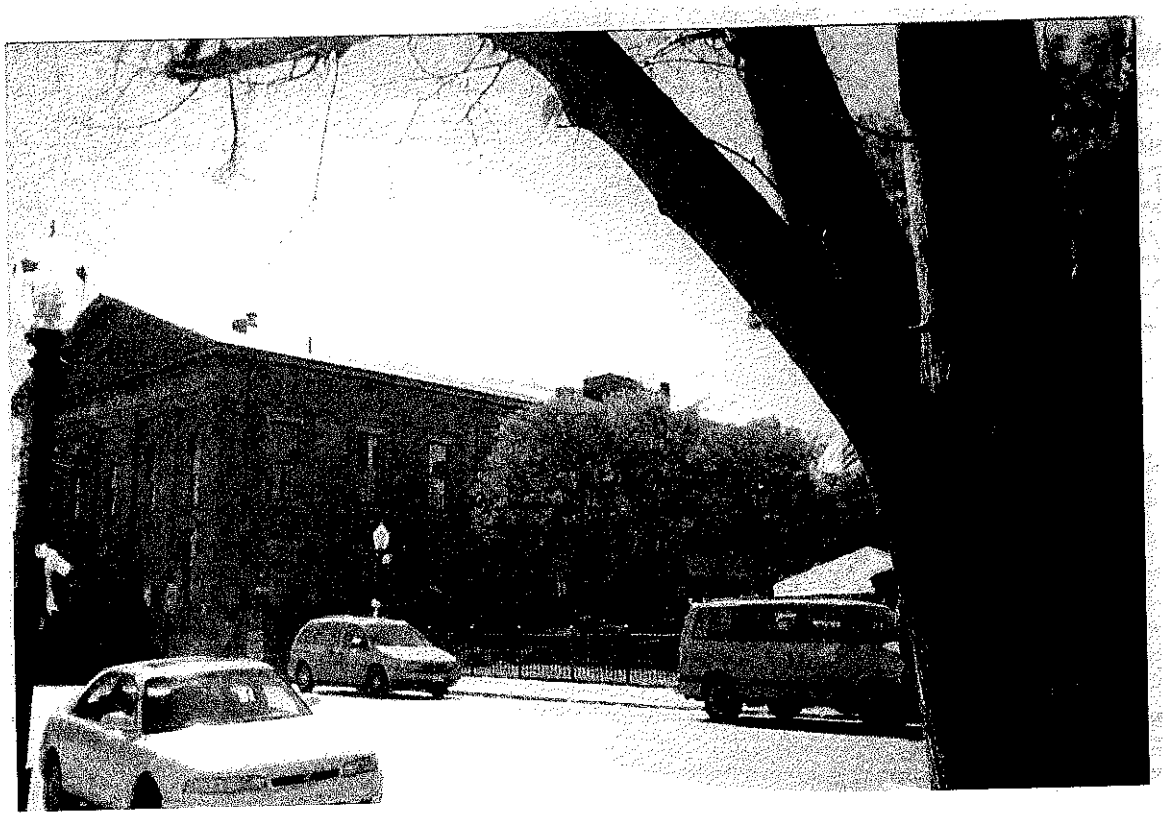
Very truly yours,

Raymond H. Busser
Project Engineer

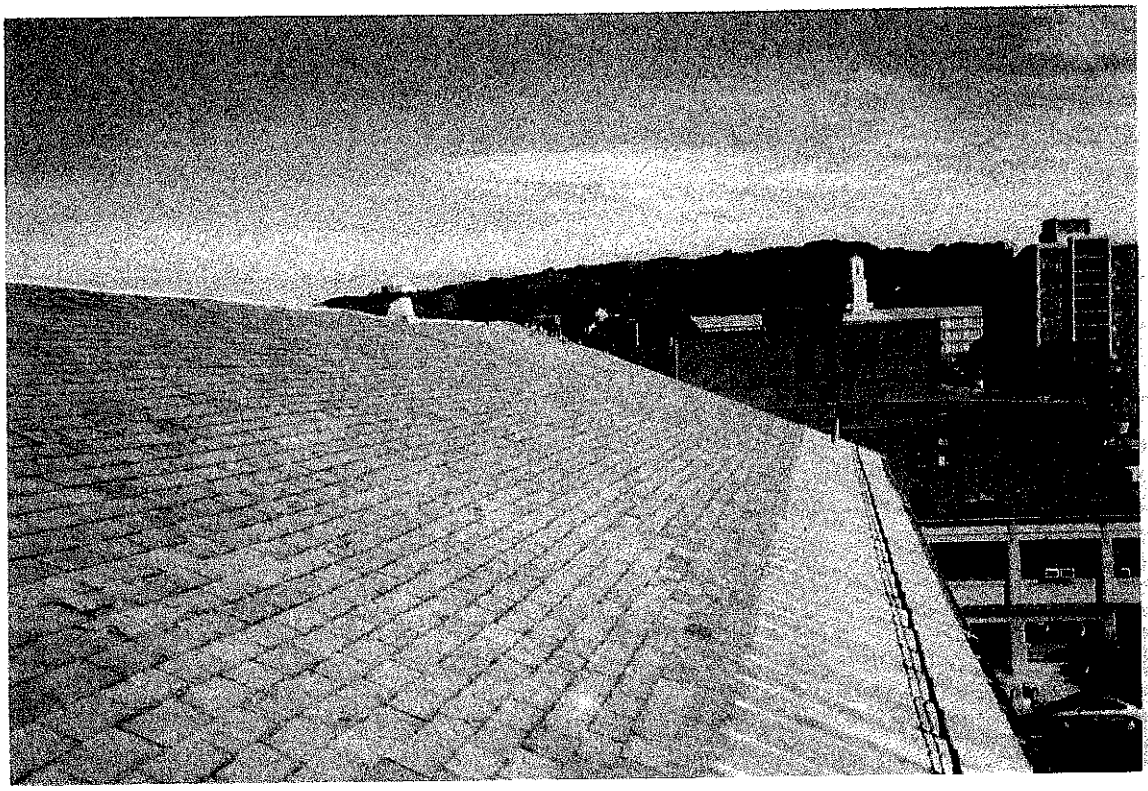
Enclosures



PHOTOGRAPH #1 - EXTERIOR OF BUILDING LOOKING WEST

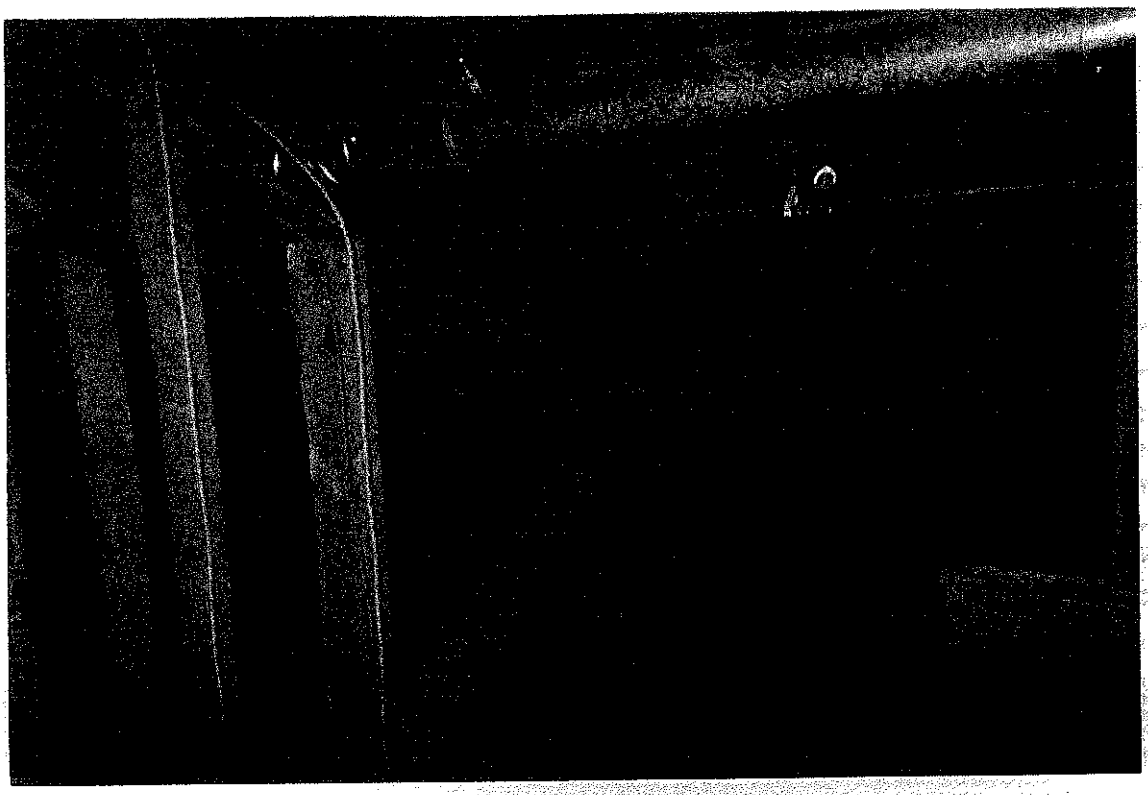


PHOTOGRAPH #2 - EXTERIOR OF BUILDING LOOKING EAST



PHOTOGRAPH #3 - EAST SIDE OF ROOF LOOKING NORTH

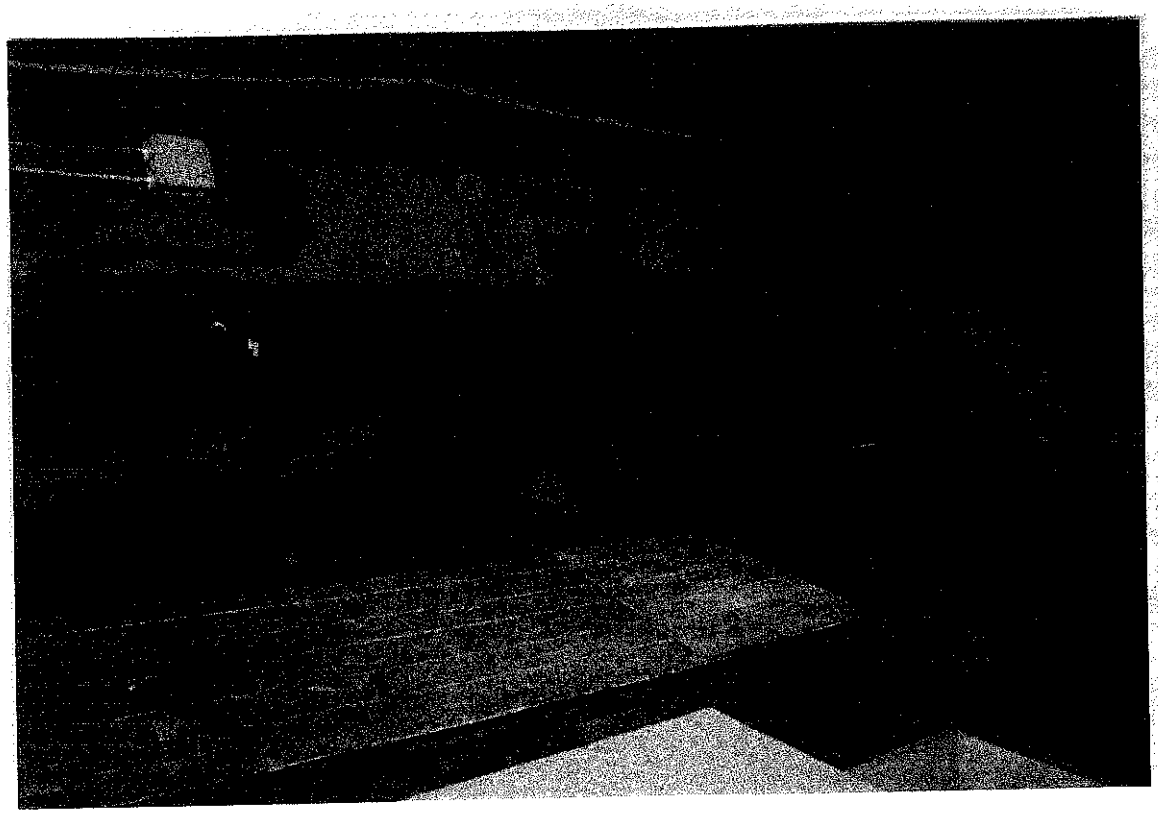
PHOTOGRAPH #4 - WEST SIDE OF ROOF LOOKING NORTH



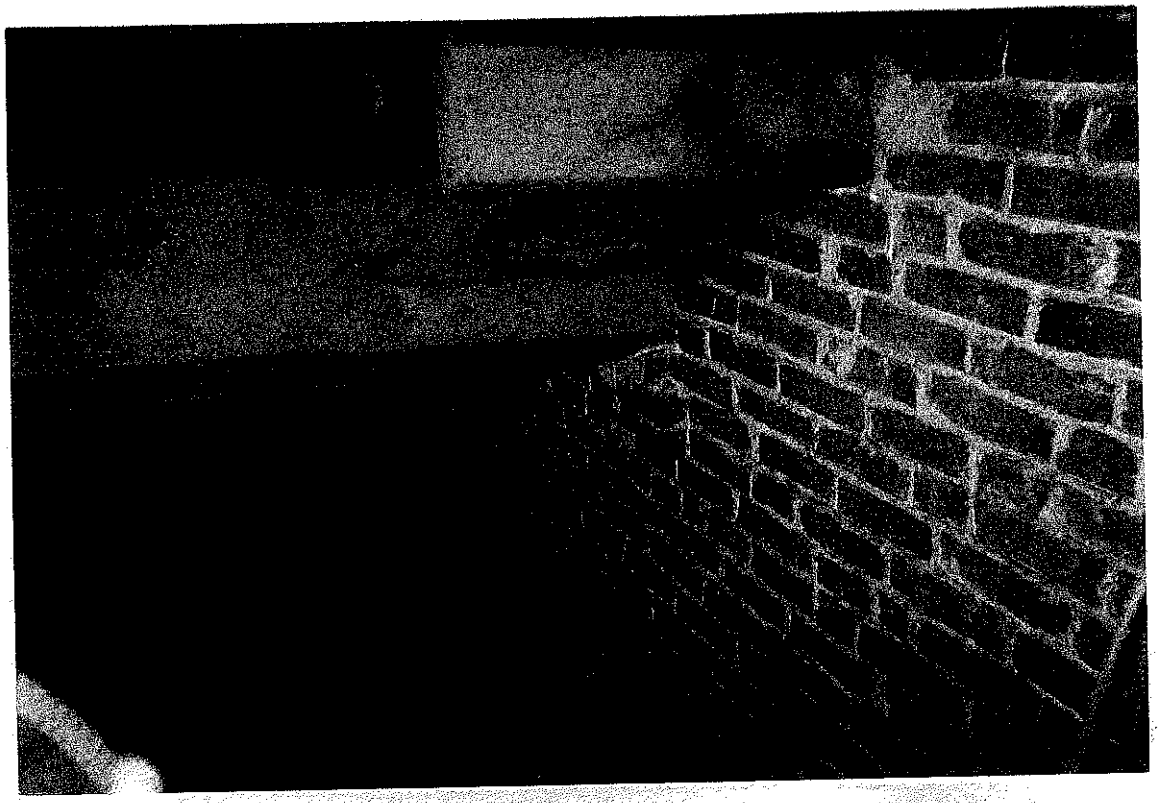
PHOTOGRAPH #5 - CHECK IN TOP CHORD OF TRUSS T-1A, WEST END

PHOTOGRAPH #6 - LOOSE DIAGONAL AND DEFLECTED TOP CHORD OF TRUSS T-1A, EAST END

PHOTOGRAPH #7 - TYPICAL CONDITION AT TOP OF VERTICAL ROD



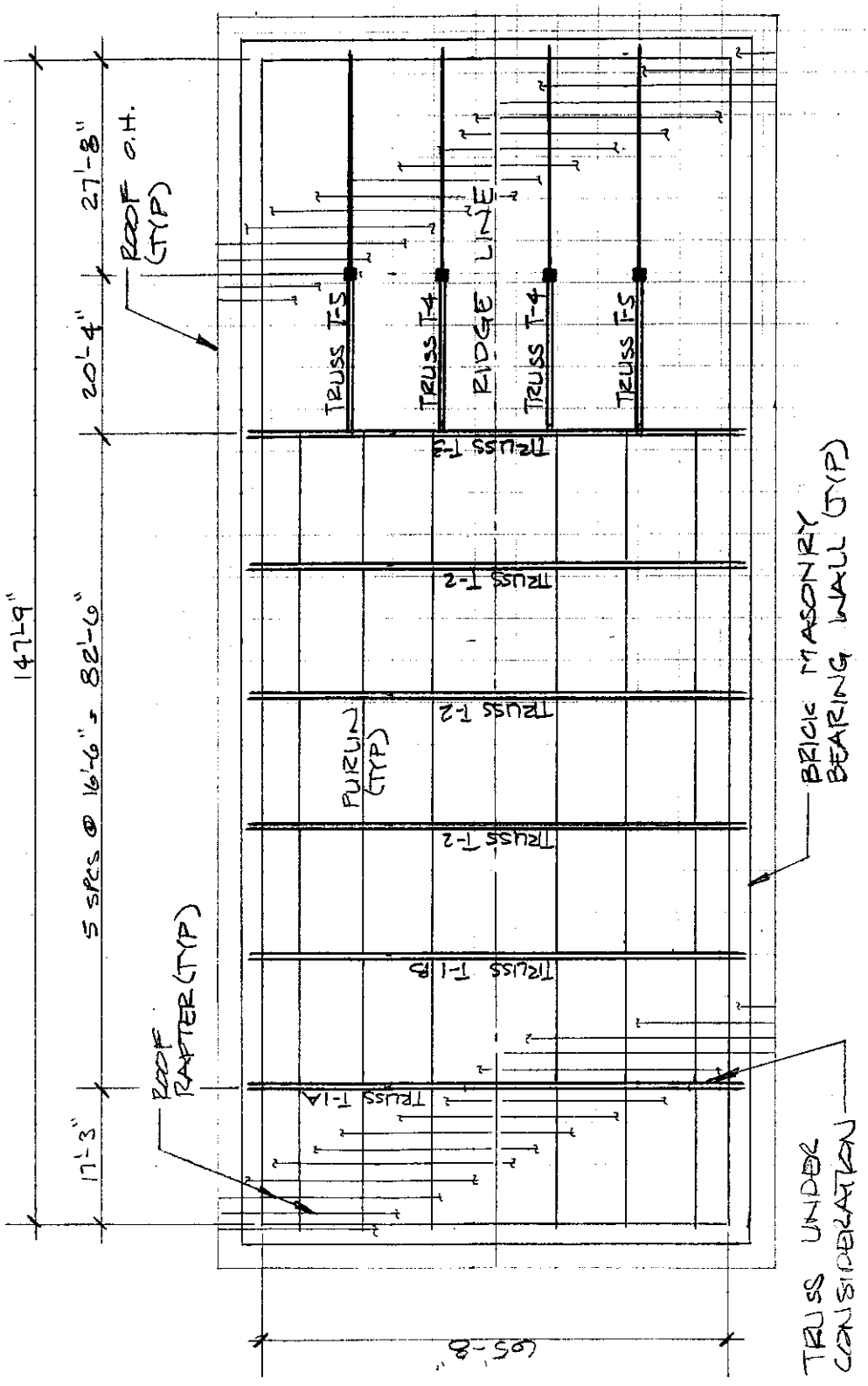
PHOTOGRAPH #8 - TYPICAL CONDITION AT END OF TRUSS



PHOTOGRAPH #9 - TYPICAL PURLIN CONDITION AT EXTERIOR WALL

SOUZA, TRUE
AND PARTNERS, INC.
CONSULTING ENGINEERS

JOB NO. 99147 SHEET NO. 10
JOB FITCHBURG CITY HALL DATE 10/12/99
CLIENT CITY OF FITCHBURG BY RJS

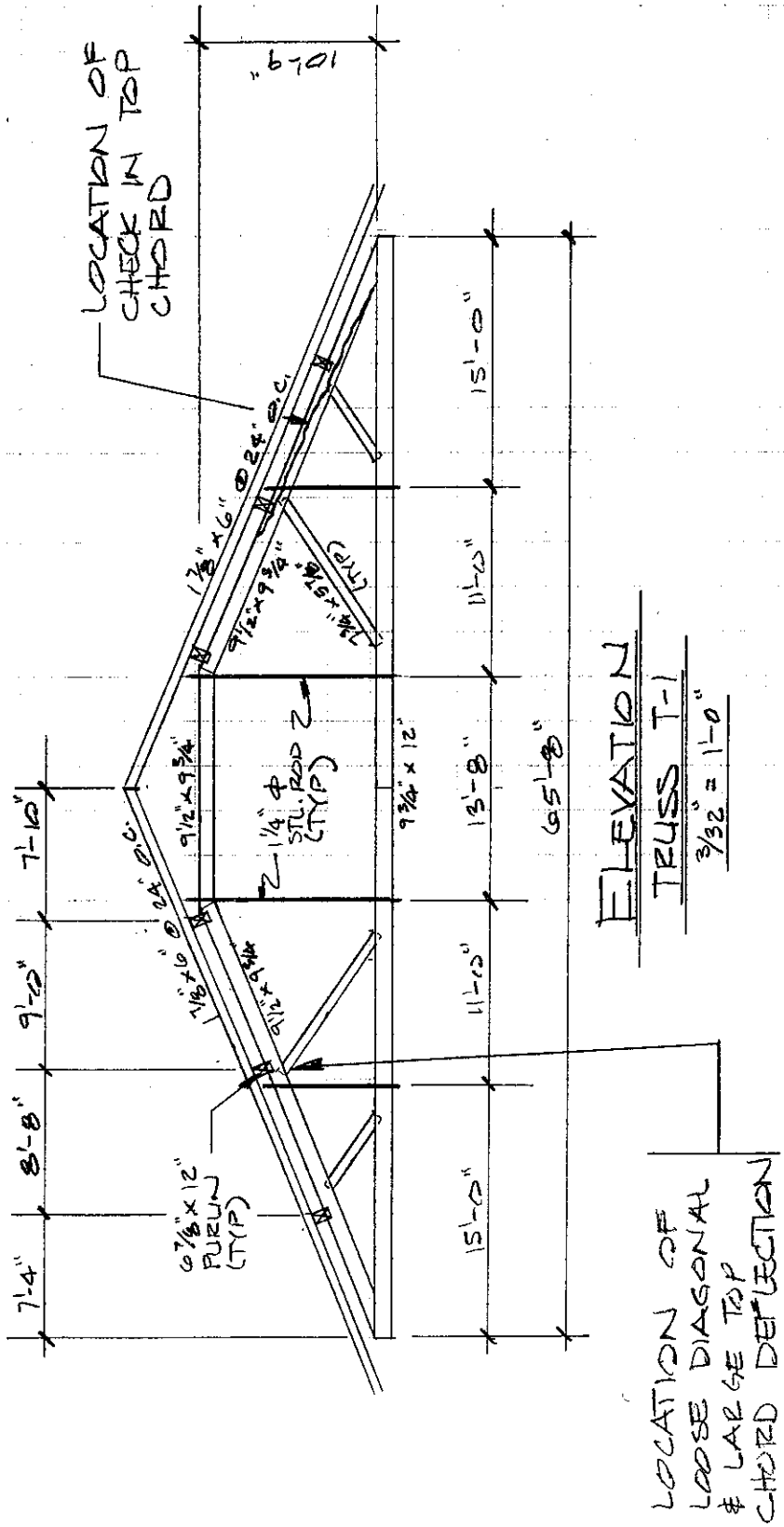


ROOF FRAMING PLAN
3/64" = 1'-0"

N (APPROX.)

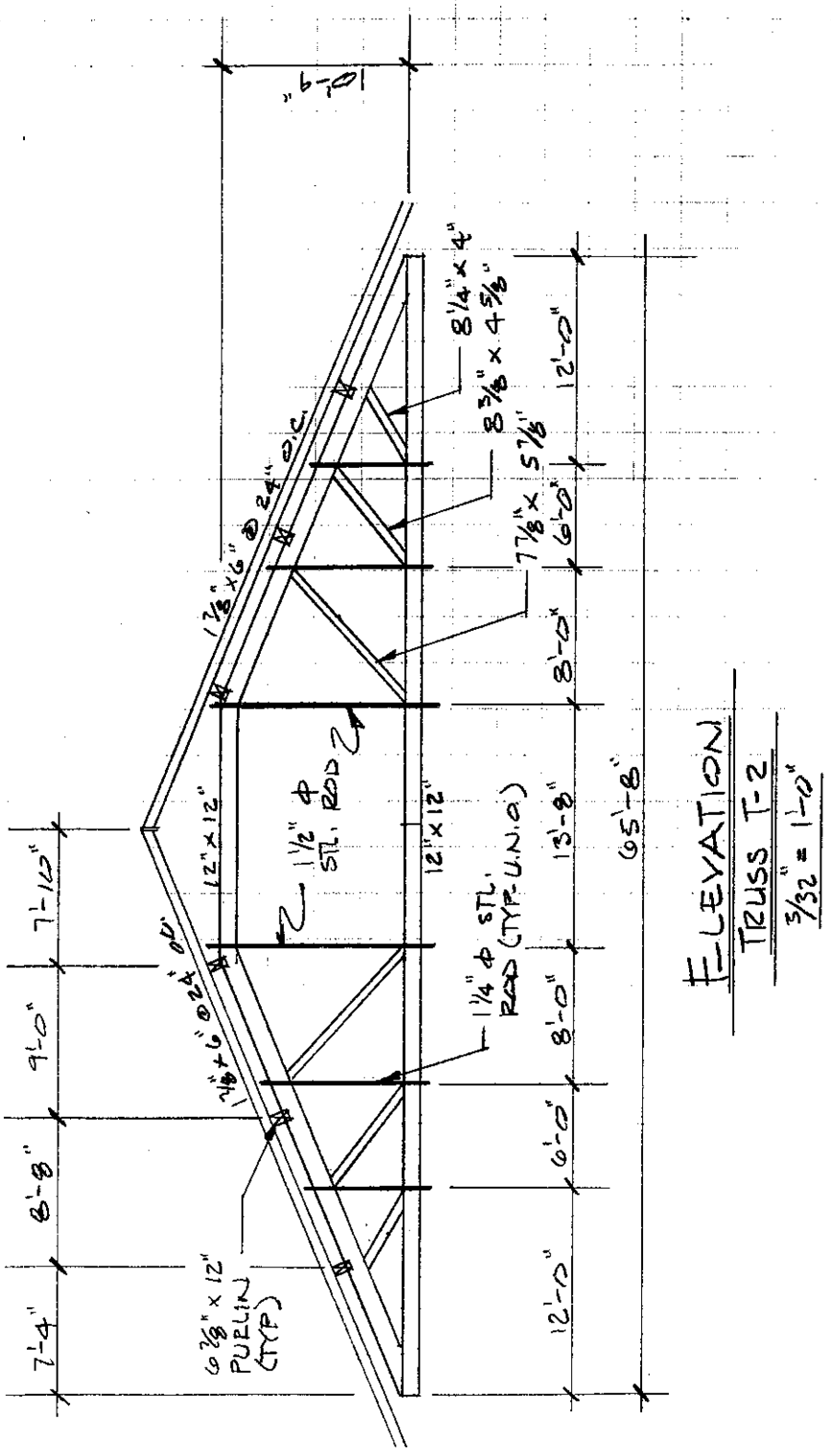
SOUZA, TRUE
AND PARTNERS, INC.
CONSULTING ENGINEERS

JOB NO. 99147 SHEET NO. 11
JOB FITCHBURG CITY HALL DATE 10/12/99
CLIENT CITY OF FITCHBURG BY PG



SOUZA, TRUE
AND PARTNERS, INC.
CONSULTING ENGINEERS

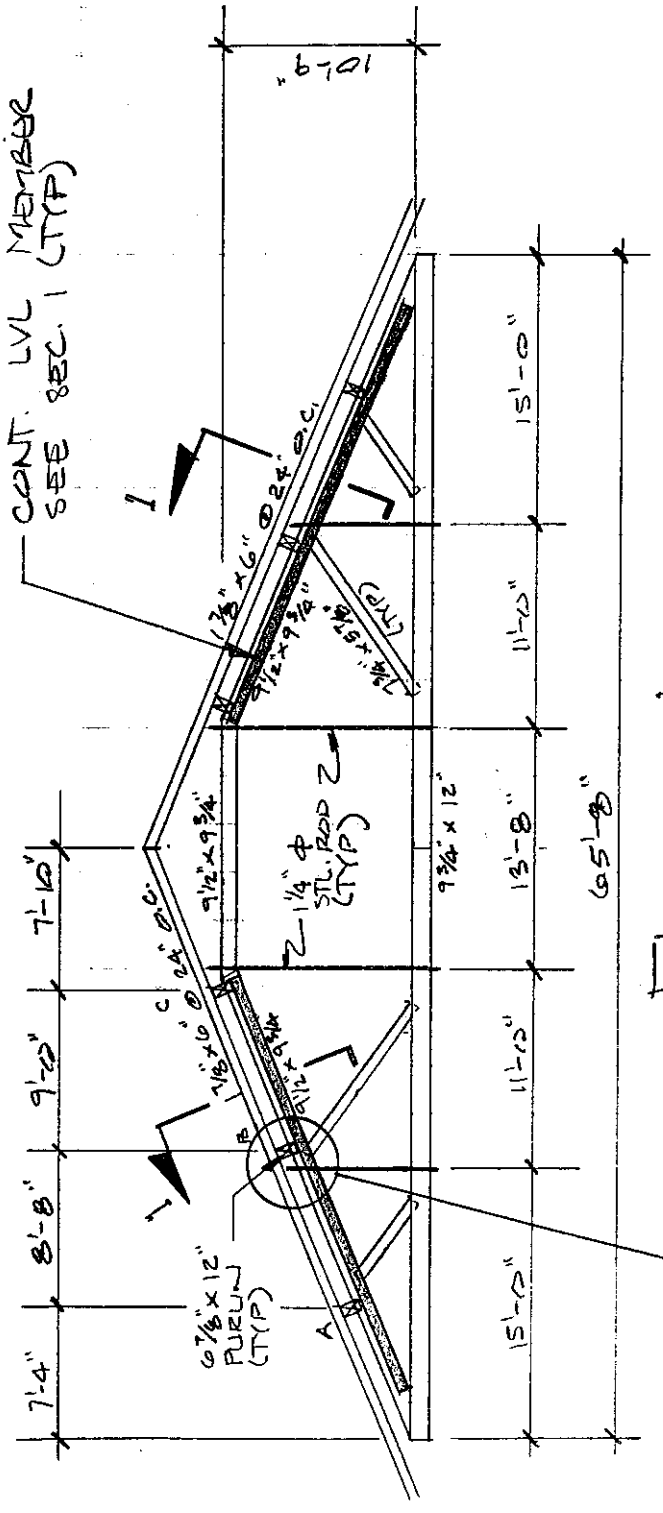
JOB NO. 99147 SHEET NO. 12
JOB FITCHBURG CITY HALL DATE 10/12/99
CLIENT CITY OF FITCHBURG BY RKS



ELEVATION
TRUSS T-2
3/32" = 1'-0"

SOUZA, TRUE
AND PARTNERS, INC.
CONSULTING ENGINEERS

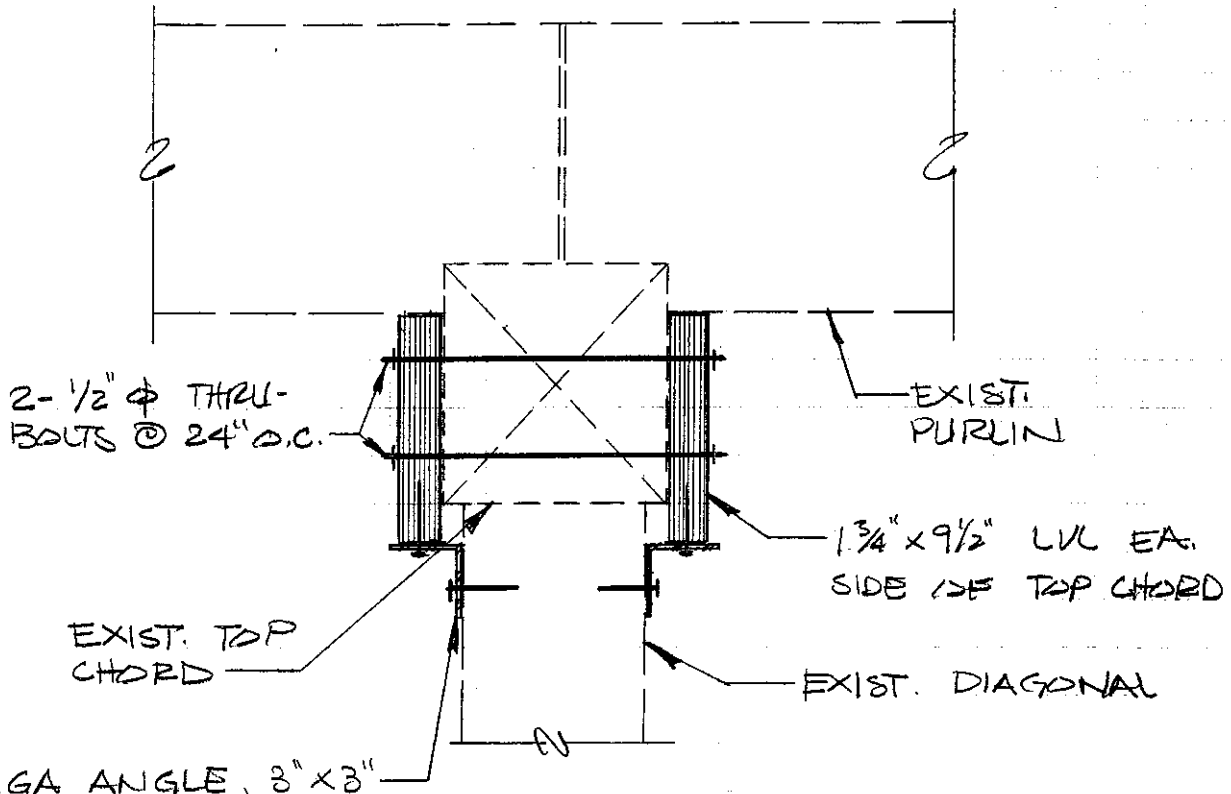
JOB NO. 99147 SHEET NO. 13
JOB FITCHBURG CITY HALL DATE 10/12/99
CLIENT CITY OF FITCHBURG BY PG



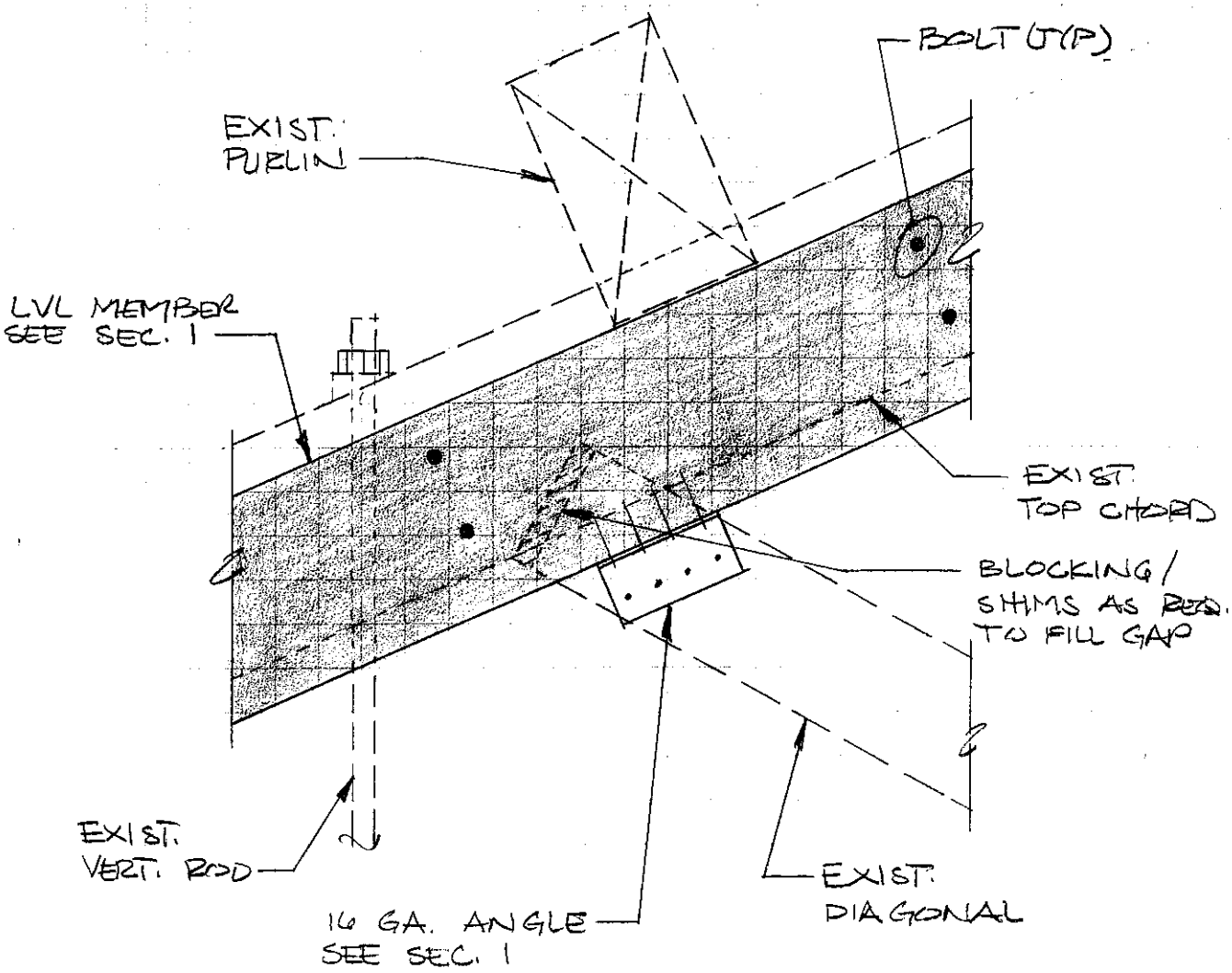
ELEVATION
TRUSS T-1
3/32" = 1'-0"

DETAIL A

REPAIR



SECTION 1
TOP CHORD STIFFENING
1 1/2" = 1'-0"



DETAIL A
DIAGONAL CONNECTION
1 1/2" = 1'-0"

APPENDICES

- Appendix L – 1999 Condition of Exterior Surfaces Report

Report to the City of Fitchburg
Condition of the Exterior Surfaces
Fitchburg City Hall

Prepared by

KBA ARCHITECTS
Knight, Bagge & Anderson, Inc

205 Portland Street
Boston, Massachusetts 02114
(617) 227-6602
fax (617) 723-5266

December 16, 1999

Report to the City of Fitchburg
Condition of the Exterior Surfaces
Fitchburg City Hall

INTRODUCTION

This report was commissioned by the Building Commissioner of the Fitchburg Building Department under the guidance of purchase order # 7514, and is to include a study of existing exterior conditions of the Fitchburg City Hall. The condition of the masonry, windows, roofing and handicapped accessibility at the main entrance were all examined. The report includes data concerning these existing conditions, and the recommendation of KBA Architects for improvements.

A preliminary cost budget has been included within the report for construction and estimated fees to include design development, preparation of construction documents and administration during construction. On numerous occasions during the last two months, KBA was present on site and examined the condition of the masonry, masonry joints, the layout at the main stairs, the deterioration of the granite as well as reviewing the overall condition of the slate roof and the remaining surfaces and materials of the exterior walls and surfaces. Included within the report is asbestos and lead testing performed on various samples of window caulking and paint chips from the exterior of the building analyzed by HUB Testing Laboratories, Inc. of Waltham, Massachusetts.

We trust the information within the report allows for educated decisions as it relates to future costs and proposed work to maintain the exterior surfaces, or replace materials which have outlived their useful life expectancy, and the repair of these any further would be a poor use of expended funds.

Report to the City of Fitchburg
Condition of the Exterior Surfaces
Fitchburg City Hall

EXTERIOR WALL SURFACES

The exterior walls of the Fitchburg City Hall are made up of a number of different materials. Included within these surfaces are brick, masonry units and mortar joints obviously installed and repaired at many different times throughout the life of the existing City Hall. The brick installed on the City Hall shows a combination of different colored bricks, both water-struck and wire cut brick, and different colored mortars, both from original installation and numerous repointing jobs throughout it's life. Both the brick and the mortar are distinctive in the irregularity with which they appear in color, texture and maintenance.

The masonry exposed on the exterior of the building also includes granite windowsills, as well as granite foundation bases and smooth granite at the entrance stairs. All of these units show various levels of disrepair, which can also be seen in the granite fascia panels, and ballisters of the front entrance stair.

The suggested repair of the brick at this point would be to thoroughly grind out with diamond saw all mortar joints, replace all damaged deteriorated or cracked brick, repair all loose brick areas and then repoint the entire brick mortar surface with new mortar joints for both consistency and longevity. Upon the completion of all exterior masonry work, the entire building should be waterproofed with an agent called Hydrozo-Clear Double 7, which prevents water molecules from penetrating the surface, but will enable the brick to allow water vapor to escape.

Report to the City of Fitchburg
Condition of the Exterior Surfaces
Fitchburg City Hall

ROOFING MATERIAL

The roof is made up of very light and pale slate used to cover the surfaces of the roof top dormers around windows and louver vents at the high point of the City Hall. This slate appears to be in poor condition with a number of slate tiles missing, a number of corners chipped and a number of tiles cracked. This slate appears very similar to the condition of the roof slate, which seem to indicate both materials come from the same quarry. It appears from observation through binoculars, and from examining some actual samples that had fallen to the ground that this may be a very shale-like Pennsylvania slate that will delaminate and fragment over time. This may indicate that the slate has reached its useful life expectancy and should be replaced at both wall surfaces and at the roof throughout.

To maintain the historical quality of the building, the slate could be replaced around the dormer windows, however, the roof top slate creates an excessive weight situation on already deteriorated wood trusses within the attic. This is being examined under a separate contract, and the recommendation may be to replace the roof top slate with a new simulated slate product that is substantially less weight and substantially less costly to replace in actual slate tiles. It was previously discovered that a standing seam metal roof was initially on the building and covered with slate in 1880. This would be a very good choice of product, to maintain historical character and add a roof that is much lighter in weight.

Report to the City of Fitchburg
Condition of the Exterior Surfaces
Fitchburg City Hall

DETAIL STONEWORK

The stone work around the ocular window at the gable end of the building appears to be in very poor condition with numerous areas chipped, cracked or missing. Some have been repaired in past endeavors, and the quality of this work was poor. The stonework around these windows would be extremely costly to replace in kind, but should be seriously considered in order to maintain the integrity of the building. A fiberglass mold could be taken of this perimeter material and cast to replicate the stonework, particularly at these high areas that will not have close visual observation.

As discussed earlier, the granite stonework in terms of the recessed panels around the entrance stair, the stairs themselves and the granite sills below the windows show excessive deterioration. The stairs have metal nosings, which are missing, loose and/or rusted. The stairs themselves are in poor condition. The jointwork in these areas, as well as the excessive efflorescence, staining and build-up of mold and moss indicates a long-term water problem, which must be addressed as soon as possible. Some of the stonework can be cleaned, scraped and repointed, while other sections need to be replaced.

Report to the City of Fitchburg
Condition of the Exterior Surfaces
Fitchburg City Hall

WINDOWS

The windows of the City Hall are primarily wood double-hung windows, and those on the lower floors observed from the outside as well as those on the upper floors observed from the inside show excessive deterioration of the wood and may have reached their useful life expectancy. The wood has been painted numerous times or it has dried or flaked off, and the wood is extremely dried-out from sun bleaching, or excessive rot is apparent from water penetration. It is typically recommended that these windows would be replaced in their entirety with a new aluminum window to match the style of the existing wood double-hung windows.

The Pella window company also can custom fabricate wood windows to match the style of these windows exactly to maintain historical character, but could install the windows with a double insulated glazing to improve on the thermal characteristics of the windows. Interviews with a few people in the hallways of City Hall and in the various offices obviously confirmed that the windows are extremely drafty. Those sitting next to them are cold in the winter. The windows do not function properly to prop open in all cases to allow spring air or summer ventilation.

On one side of the building there is some glass block and some glazed openings at the upper floor. Although the glass block does not appear to be in poor condition, some of the joints could be repointed and if any of the glass block, upon closer observation, required replacement, it could be attempted to cut out the sections. This would be a time consuming and difficult process and the glass blocks in these areas could be replaced.

Report to the City of Fitchburg
Condition of the Exterior Surfaces
Fitchburg City Hall

EXPOSED WOOD DETAILING

The upper penthouse and ventilating shaft of City Hall above the elevator appear to have deteriorated or missing fascia altogether. All of the upper wood surfaces require patching, cleaning and repainting, and should be included in any repairs of the roof project itself. The copper standing seam roof and metal bar snow guard along the bottom edge of the roof line appears to be in fair condition, and could be examined to see if it is warranted for this to remain in place along with the replacement of the roof above this line. Some repairs may be necessary along this area as well. This would include replacement of metal and wood gutters, fascia, soft moldings and dental moldings along the whole upper roof structure.

It is strongly recommended that during the replacement or repairs of these exterior surface conditions with new materials that an extensive pigeon and bird examination be given to the building with the recommended placement of numerous wire deterrents, which will keep the pigeons from roosting on the upper levels of the building. Not only is this a nuisance and a poor site issue, but the feces generated from this will continually stain and damage the building both in terms of appearance and material deterioration.

Report to the City of Fitchburg
Condition of the Exterior Surfaces
Fitchburg City Hall

HANDICAP ACCESSIBILITY

This is a brief overview of the conditions discovered at the Fitchburg City Hall. The issue related to handicapped accessibility is extremely difficult to analyze at the front entrance. The chair-lift currently in use along the right side of the building may still be the best possible access point to City Hall, due to the fact of the numerous stairs found at the front of the building. The front staircase has eight (8) risers leading up to the first central platform. This indicates a rise of more than fifty-six (56") inches, and therefor at a one and twelve slope required by both the Architectural Access Board of Massachusetts ("AAB") and the American Disabilities Act ("ADA") would require a ramp a minimum of fifty-six (56) feet long. With the required leveling off platform after each thirty feet, means that this ramp would be in excess of sixty (60) feet. The installation would occur along the side or front of the building in order to function properly for use by the physically challenged. The threshold at the main entrance is beyond the proper heights for access as well and the entire front entrance platform would have to be raised, as well as the doors and hardware to this location altered.

Although we didn't endeavor to examine the interior of the building for further handicapped issues, it is apparent from our knowledge and past use that most of the doors, door hardware and the hallways and floor levels would be extremely difficult for proper maneuverability and access without major interior improvements, including a new and larger elevator to meet current codes for accessibility.

On the following pages we have included an estimated cost for construction and design for some future repairs and/or replacements and have also included a number of photographs taken at various site visits which will help qualify and locate the issues described in the preceding pages.

KNIGHT BAGGE & ANDERSON, INC., ARCHITECTS				ESTIMATE SHEET		
205 Poirtland Street						
Boston, MA 02114				Doc # EstM010ppl		
Client City of Fitchburg						
Title City Hall Exterior Renovations				Job Number M01099		
Line Nunber	Description	Quantity	Unit	Unit Cost	Total Cost	Remarks
1	Windows, N Wall	210	SF	$65	$13,650	
2	Windows, S Wall	710	SF	$65	$46,150	
3	Windows, E Wall	1390	SF	$65	$90,350	
4	Windows, W Wall	1130	SF	$65	$73,450	
5	Remove Windows	3440	SF	$7	$24,080	
6					$0	
7	Doors & Entrances N Wall	175	SF	$50	$8,750	
8	Doors & Entrances S Wall	0			$0	
9	Doors & Entrances E Wall	135	SF	$50	$6,750	
10	Doors & Entrances W Wall	190	SF	$50	$9,500	
11	Remove Doors	500	SF	$6	$3,000	
12					$0	
13	Gross Area of Brick	12914	SF			
14	Replace Brick	600	SF	$20	$12,000	
15	Cut joints & clean & repoint	10000	SF	$9	$90,000	
16	Clean & repoint	2314	SF	$2	$4,628	
17					$0	
18	Roofing Remove Existing	12480	SF	$2	$24,960	
19	Roofing New Slate	12480	SF	$40	$499,200	
20						
21	Slate Siding Replace	500	SF	$40	$20,000	
22						
23	Cornice Work Patch & repair	540	LF	$25	$13,500	
24						
25	StoneWork Clean & point					
26	N Wall @ top of wall	295	SF	$6	$1,770	minor patching
27	N Wall @ base of wall	100	SF	$6	$600	minor patching
28	N Wall Entr stairs & rails	1	LS	$10,000	$10,000	minor patching
29	S Wall @ base of wall	200	SF	$6	$1,200	minor patching
30	E Wall @ base of wall	460	SF	$6	$2,760	minor patching
31	W Wall @ base of wall	460	SF	$6	$2,760	minor patching
32	Miscellaneous Sills & Lintels	1	LS	$2,500	$2,500	minor patching
33						
34	Caulking	4000	LF	$3	$12,000	
35						
36						
37	Handicap Ramp	1	EA	$85,000	$85,000	
38						
39	Dumpsters	10	EA	$800	$8,000	
40						
41						
42	Subtotal				$1,066,558	
43	General Conditions 10%				$106,656	
44	Overhead 5%				$58,661	
45	Profit 5%				$61,594	
46	Subtotal				$1,293,468	
47						
48	Contingency 7%				$64,673	
	TOTALS				$1,358,142	

Note: Window costs include reliable historical 1 replica- (like Pella) and includes asbestos and lead abatement. Installation of a new standing seam metal roof could be a savings of $320,000.

HUB TESTING LABORATORY, INC.

Environmental Testing Service

95 Beaver Street – Waltham, MA 02453
(781) 893-8330 (781) 893-4414 (fax)

3 November 1999

Report For: Mr. Kevin Buckley, AIA
Knight, Bagge & Anderson, Inc.
Architects
205 Portland Street
Boston, MA 02114

Project: Fitchburg City Hall
Fitchburg, MA

Hub I.D.: 12145

Date Received: 26 October 1999

Scope: Two samples of window caulking and glazing materials and two samples of paint chips were received by Hub Testing Laboratory. It was requested that the window materials be analyzed for the presence of asbestos and it was requested that the paint chips be analyzed for the presence of lead.

Analysis: Analysis for the presence of asbestos was performed using Polarized Light Microscopy EPA/600/R-93/116, July 1993.

Results:

Sample I.D.	Material	Composition %
12145-1	Window Glazing	*Chrysotile 05 Mineral Chip 95

Color: White

Condition: Received in good condition

Sample I.D.	Material	Composition %
12145-2	Window Caulking	Non-fibrous 100

Color: Brown

Condition: Received in good condition
* chrysotile is a common form of asbestos

Comment: Sample 12145-1 is an asbestos containing material and sample 12145-2 is not an asbestos containing material. The samples were collected and supplied by the client.

This analysis pertains only to the samples analyzed. This report shall not be reproduced except in full, without the written approval of the laboratory.

Analysis: Analysis for the presence of lead was performed using EPA Method 7420.

Results: **Lead**

Sample I.D.	Location/Material	Total lead (%)
12145-3	Black Paint	0.112
12145-4	Brown Paint	1.78

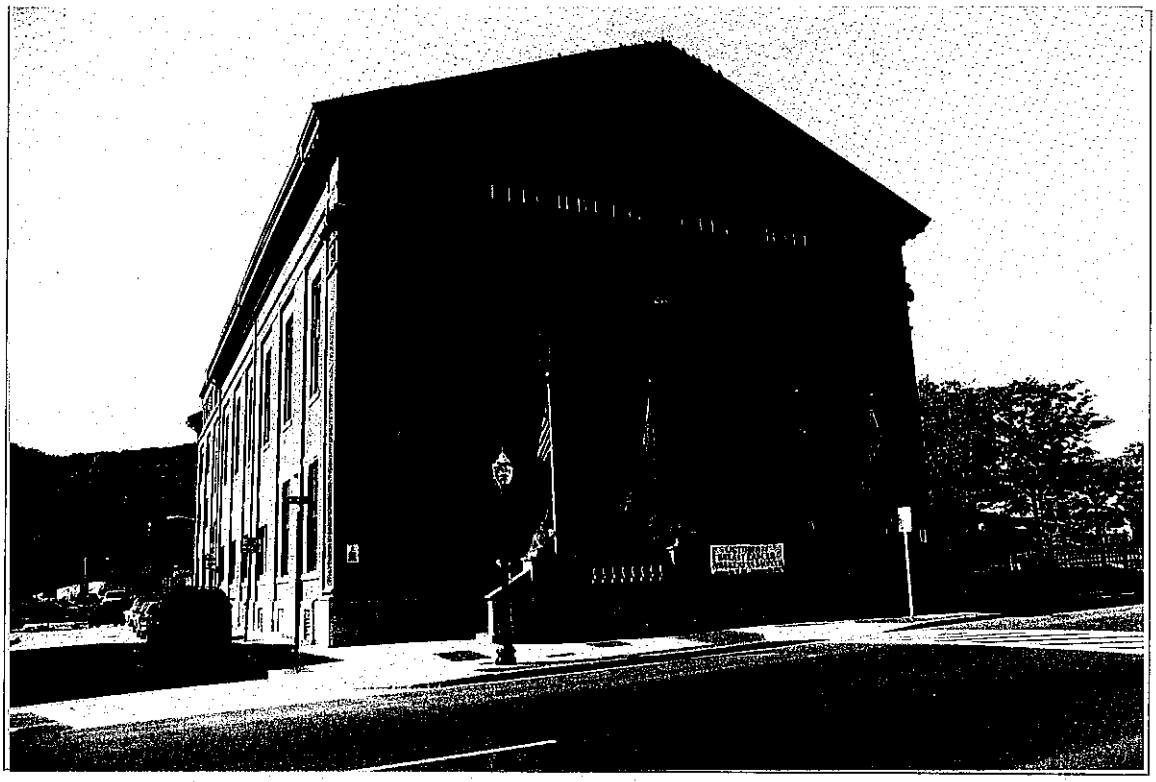
QC Parameter	Duplicate % Difference	Matrix Spike % Recovery	Lab Control Std. % Recovery
Lead	4	108	103

NLLAP Lab ID: 101352

Comment: H.U.D. and the State of Massachusetts (DLWD) lead regulations state that paint containing lead at 0.5% by weight or greater is determined to be lead based paint. Sample 12145-3 is not a lead based paint and sample 12145-4 is a lead based paint.

Susan Boyle
Vice President
MA. Analytical
Lab #AA000013
NVLAP Code 1045

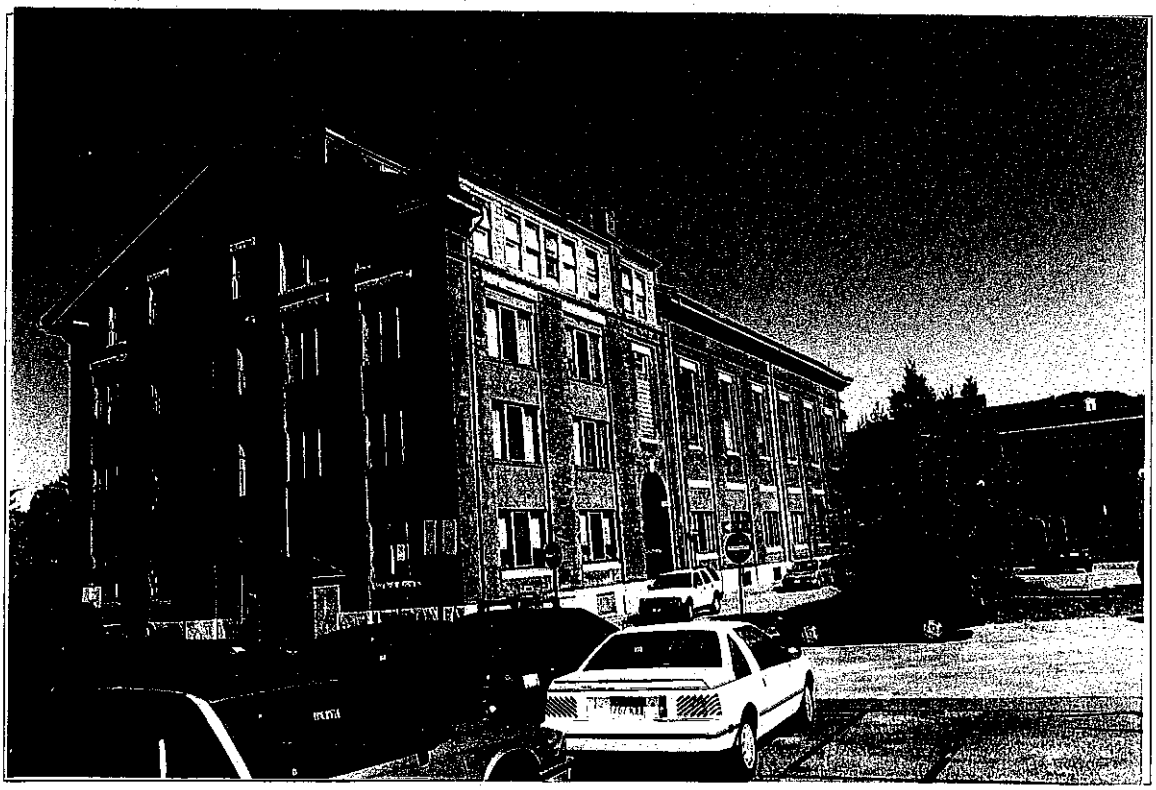
Exterior Conditions Report
Fitchburg City Hall
Fitchburg, Massachusetts



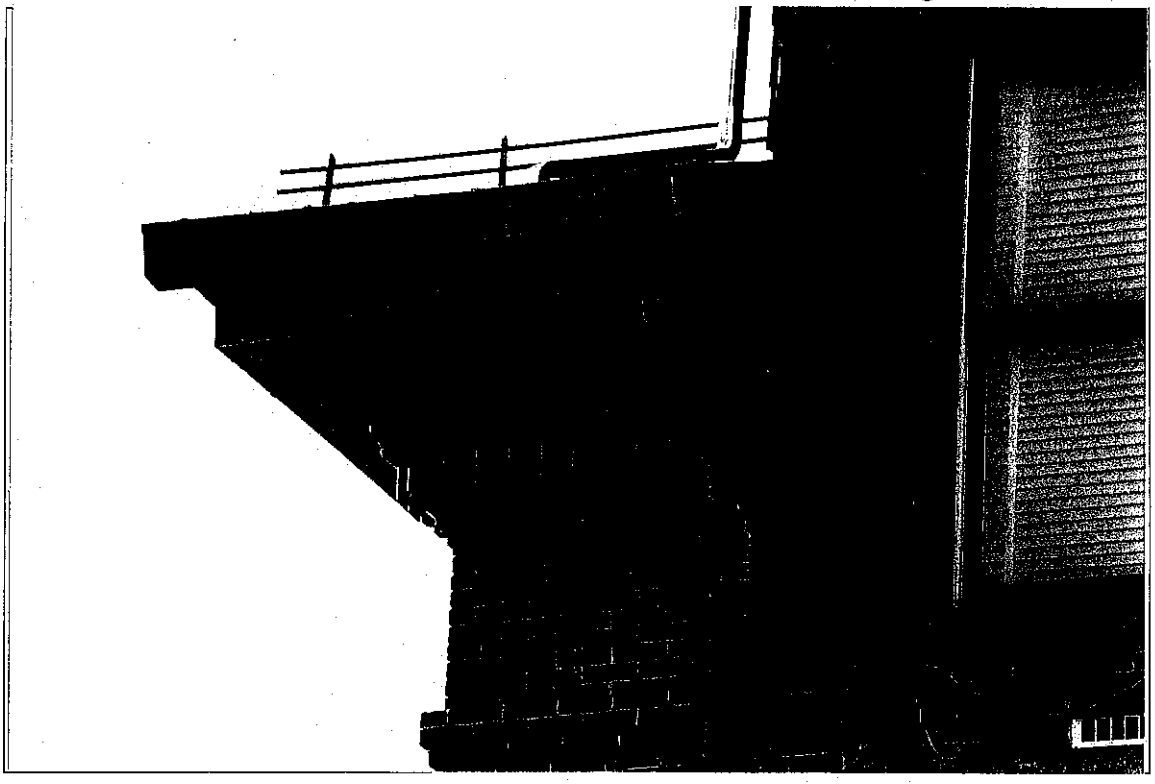
FRONT ENTRANCE - NORTH ELEVATION

SIDE (REAR) SOUTH ELEVATION

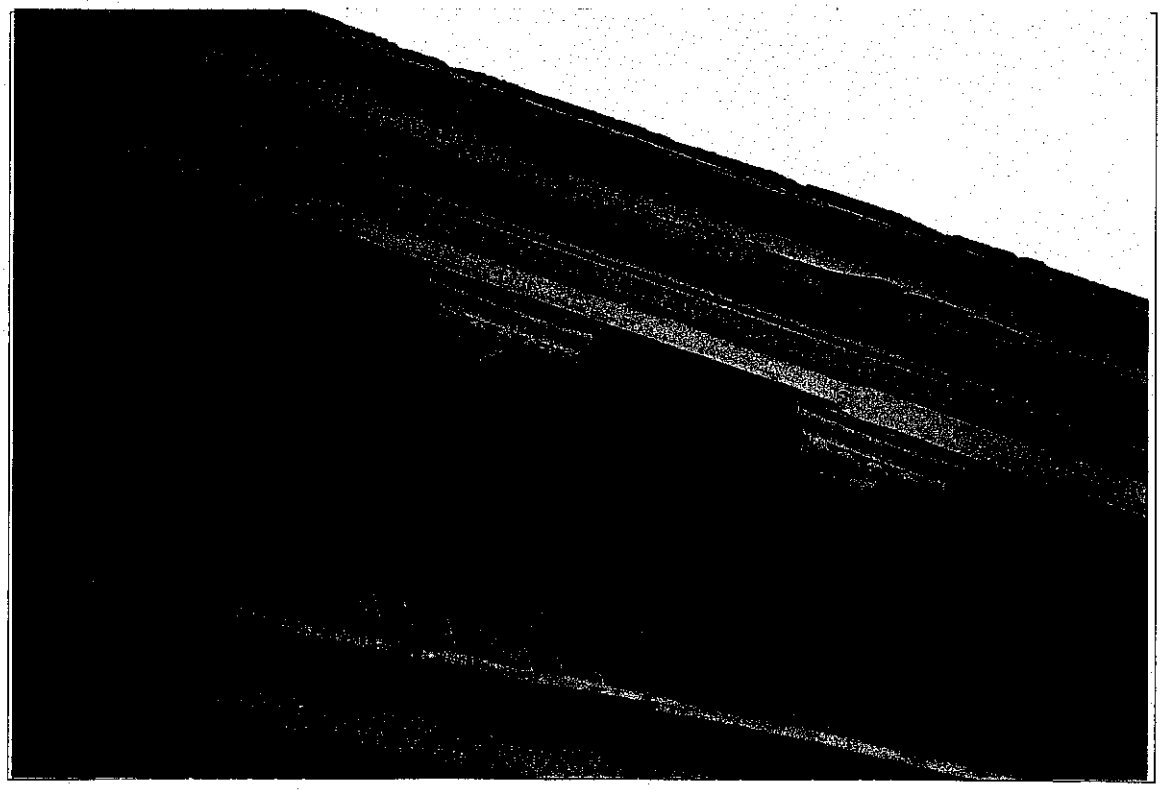
WEST (SIDE) ELEVATION



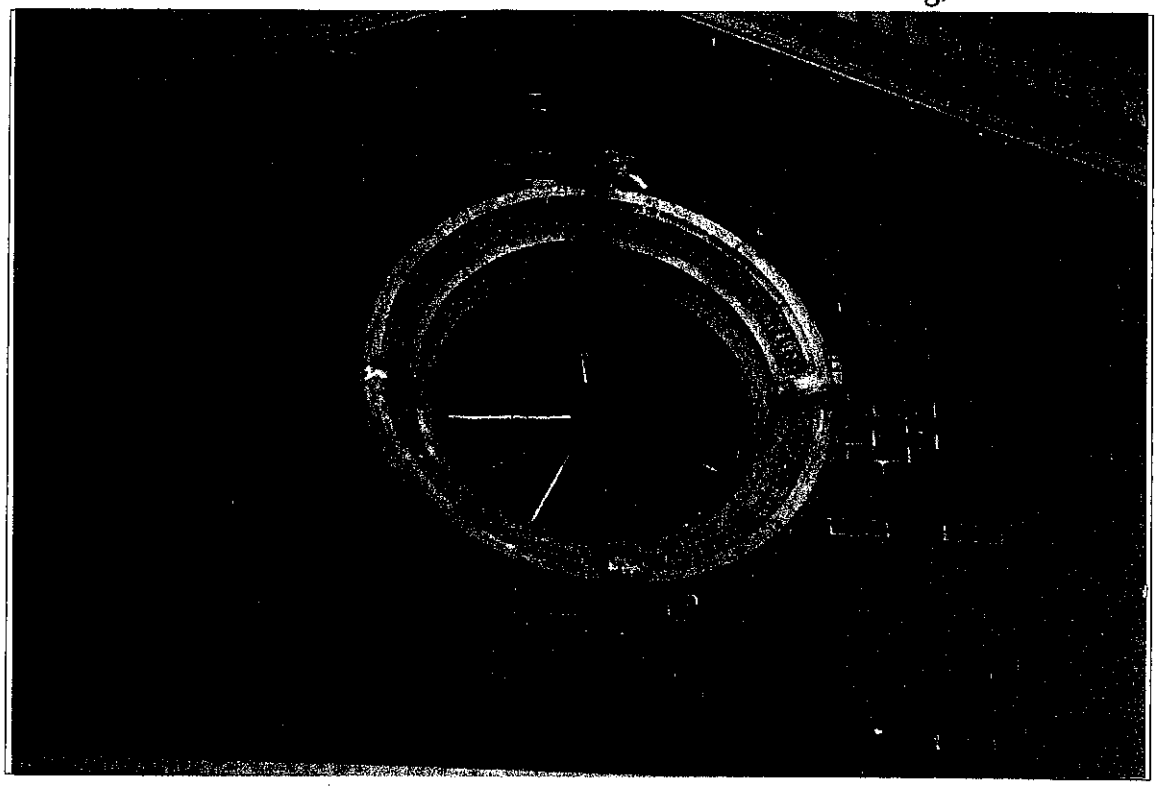
EAST (SIDE) ELEVATION



REAR FASCIA / SOFFIT DETAIL



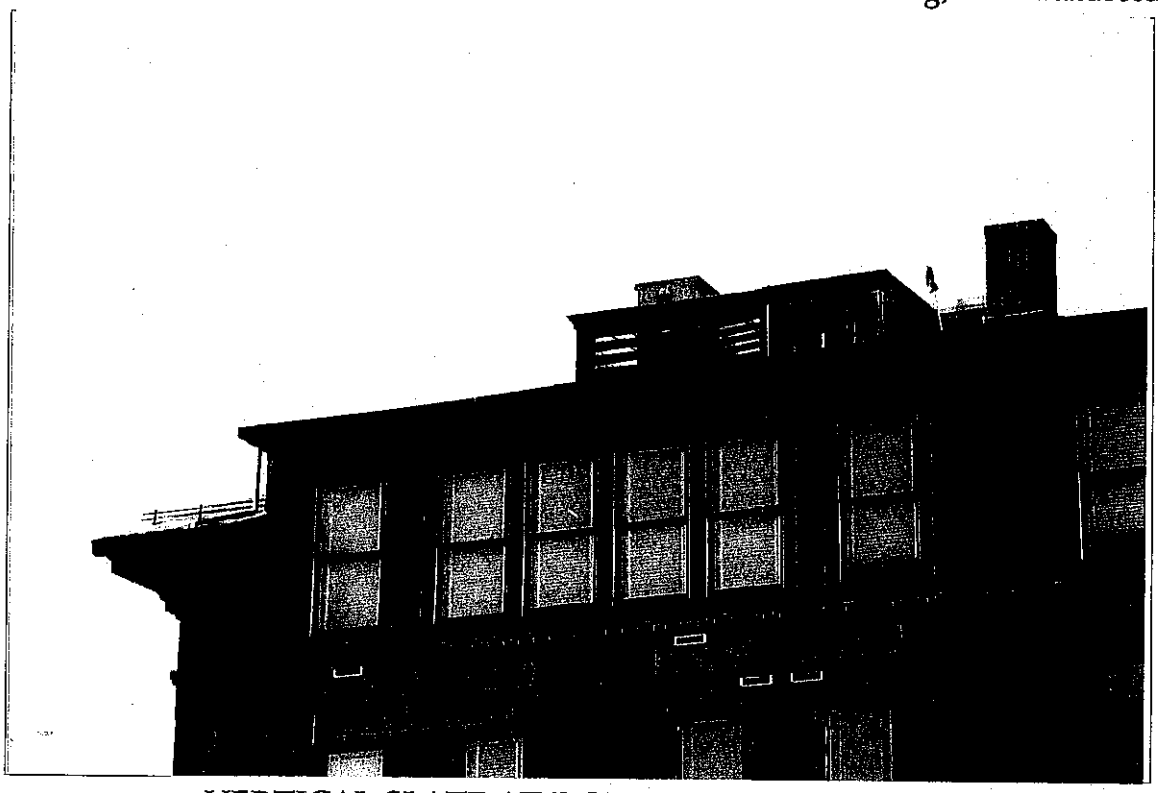
FRONT FASCIA / SOFFIT DETAIL



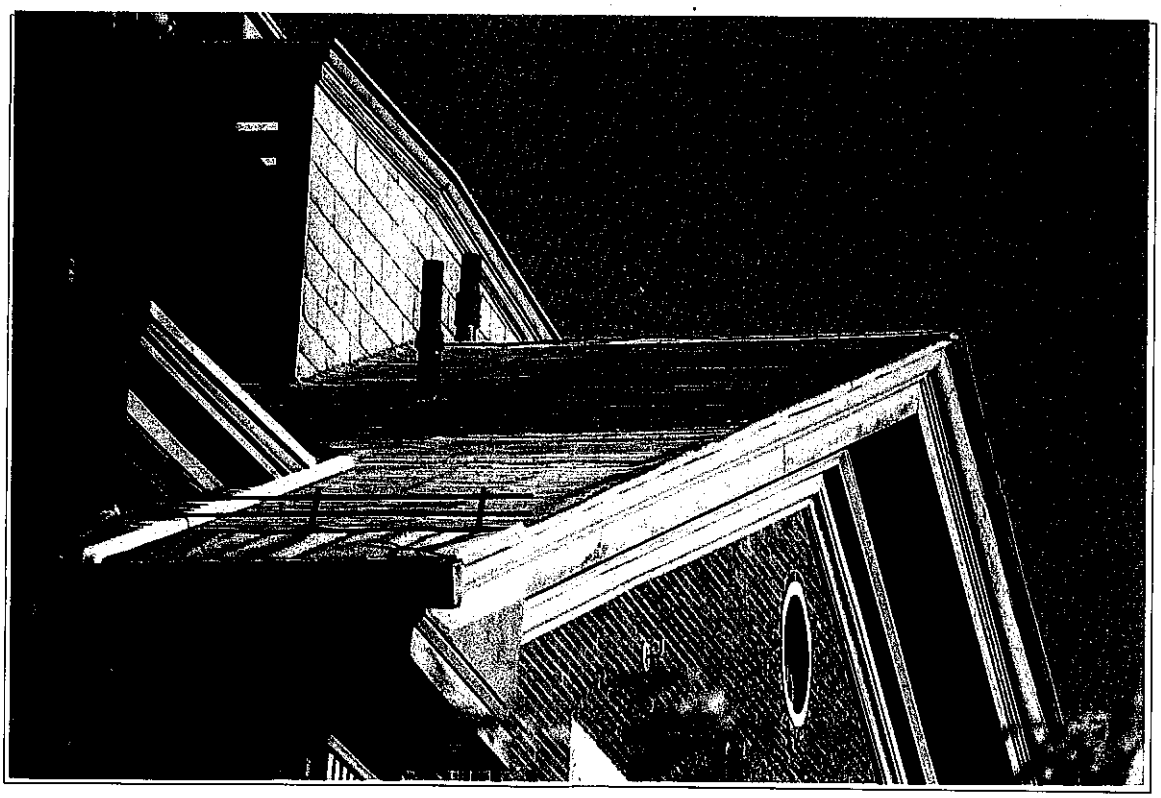
OCULAR WINDOW (FRONT ELEVATION)

DETERIORATION OF LIMESTONE FRAME

Exterior Conditions Report
Fitchburg City Hall
Fitchburg, Massachusetts

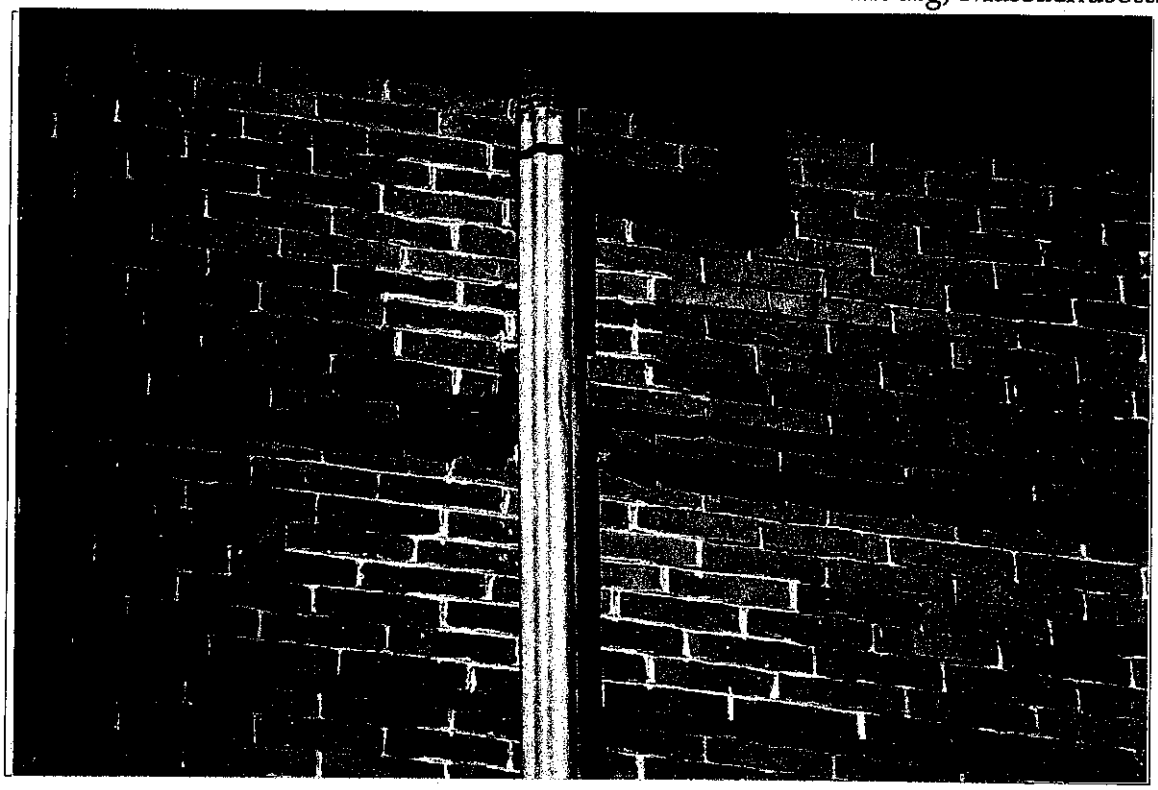


VERTICAL SLATE AT DORMER

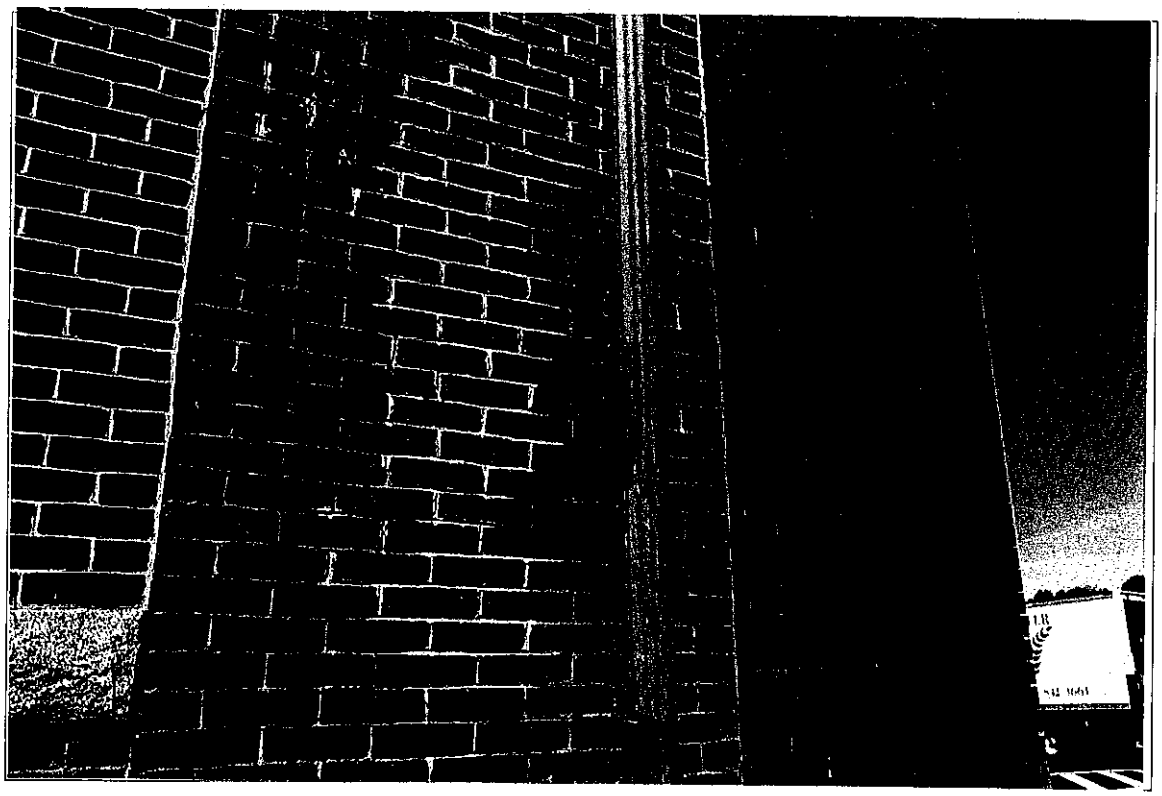


SLATE ROOF WITH COPPER ICE DAM

Exterior Conditions Report
Fitchburg City Hall
Fitchburg, Massachusetts

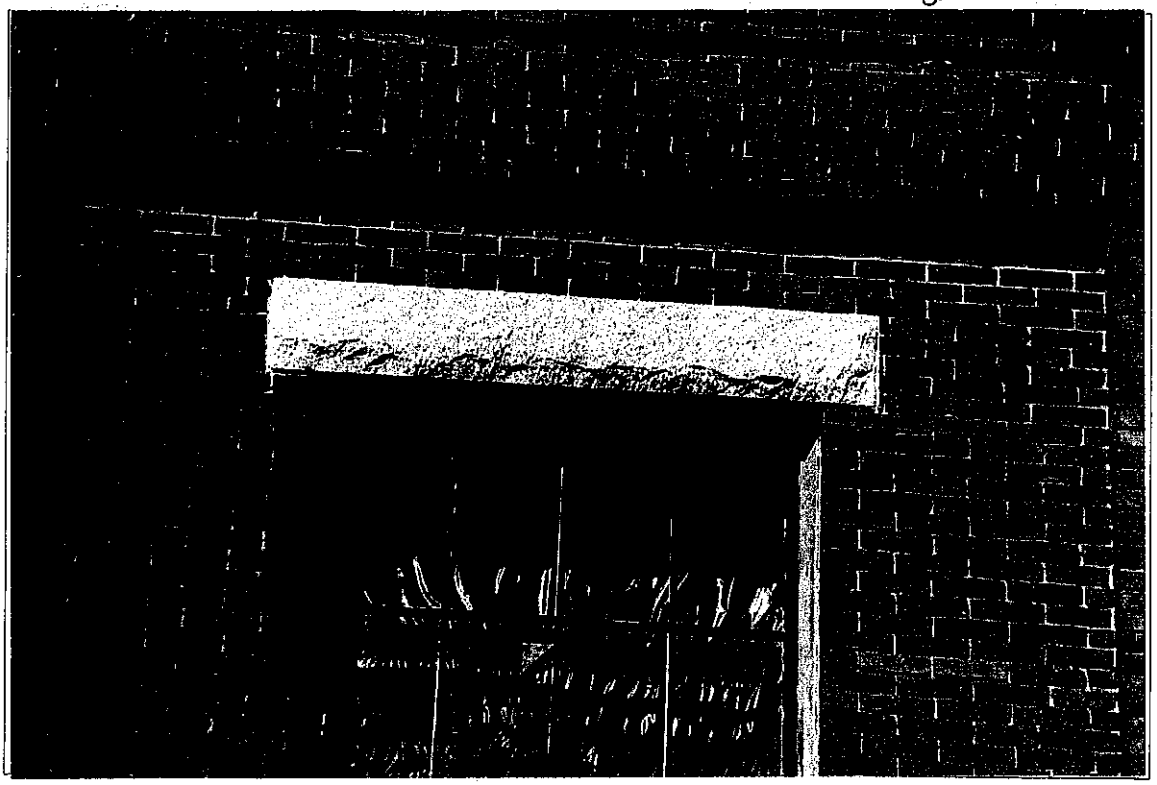


BROKEN BRICK AT CORBEL DETAIL



VARIOUS BRICK TYPES AND MORTAR JOINTS

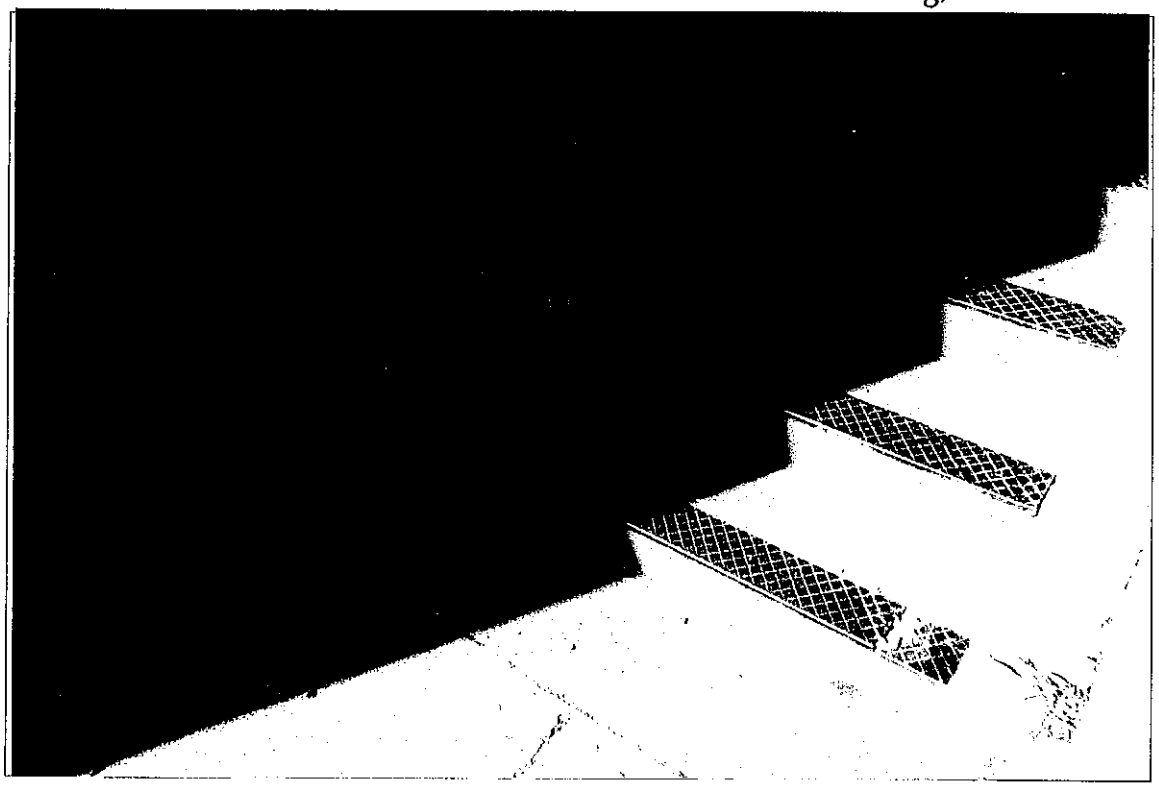
Exterior Conditions Report
Fitchburg City Hall
Fitchburg, Massachusetts



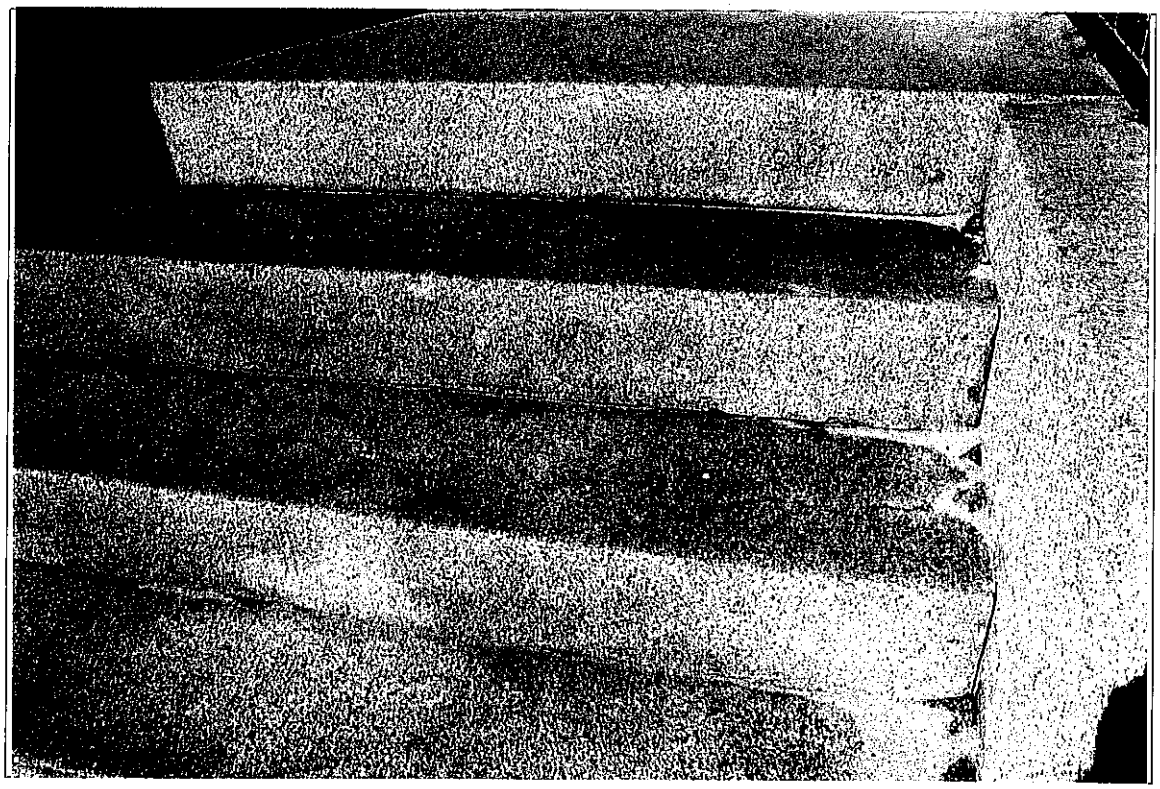
GRANITE WINDOW LINTEL

OPEN BRICK JOINTS BELOW SLATE
WINDOW STOOL

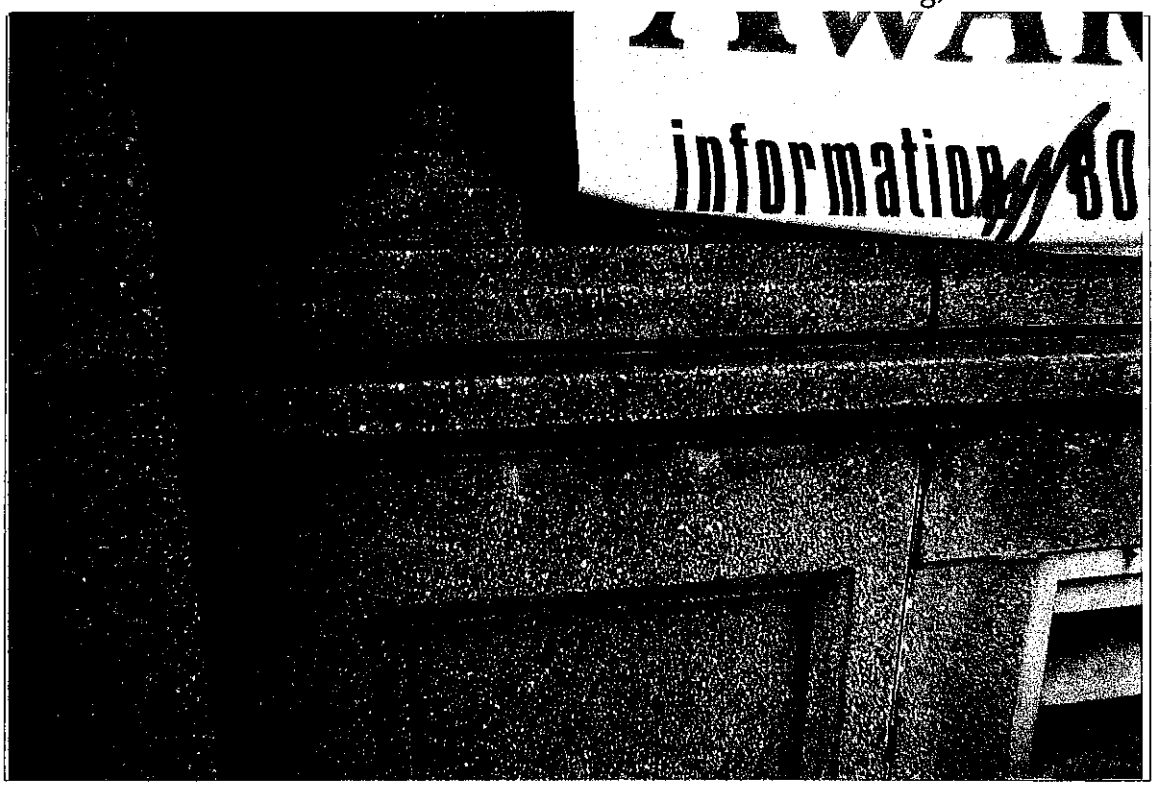
Exterior Conditions Report
Fitchburg City Hall
Fitchburg, Massachusetts



RUSTED STAIR NOSINGS AT FRONT ENTRANCE



OPEN SETTING JOINTS AT SIDE STAIR



OPEN JOINTS AT GRANITE BALLUSTERS

EFFLORESCENCE AND WATER STAINS AT
GRANITE BASE