CROSS CONSULTING ENGINEERS, P.C.

Peter H. Cross, P.E., L.S.
President
Peter J. Garceau, P.E.
Vice President

103 Fairfax Road, St. Albans, Vermont 05478-6271 • Tel. : 802.524.2113 • Fax: 802.524.9681
E-mail: pcross@crossconsultingengineers.com

June 19, 2018

City of St Albans
P.O. Box 867
St. Albans, VT 05478

Attn: Chip Sawyer, Director of Planning & Development

Subject: Structural Evaluation of Existing Building
85-87 North Main St., St Albans, VT

File: 18003

Dear Chip:

In accordance with your request, I visited the site of the existing building at 83-85 North Main St in St. Albans, VT on June 5, 2018 to perform a preliminary review of the existing structure. The 2 story building is long and narrow, with store front windows and a recessed entry on North Main St. At one point a two-story addition was added on the east end. The majority of the first floor is retail space and the second story is primarily residential space. Both stories of the addition are unheated storage space. Currently the entire building is vacant. The building has a footprint of 3818 SF, 5616 SF of heated floor space and 2020 SF of unheated storage space.

The structure shares a single gable roof with the rear storage addition. Both sections of the building are wood framed with a non-structural brick façade facing North Main St. The 2nd floor framing in the original structure consists of sawn lumber with 2"x4" joists added later to relevel the second floor. The original roof framing is also sawn lumber and has not been reinforced. The 2nd floor of the rear addition has wall and ceiling framing constructed of contemporary 2" x 4" and 2"x 6" framing lumber. The addition is supported by a poured concrete slab on grade. I was unable to access the crawl space of the original structure or view the first-floor framing. However, the structural integrity is suspect as observed by the sloping first floor and obvious weak areas. I was also unable to view the attic of the addition.

We have reviewed the historic assessment of this structure prepared by the architectural historian, Sue Jamele. She has indicated that this building 'does not contribute to the historic district'. It has been heavily altered over the years. This report will consider the structural condition of the building and offer an estimate of the cost to rehabilitate the structure to make it functional as a downtown structure. Our cost estimate assumes any future use of this building to be retail on the ground floor and residential on the 2nd floor.

Interior and exterior photos are found at the end of this report.

EXTERIOR WALLS

Overall, the exterior walls of both the original structure and addition appear to be stable. The brick façade looks to be in good condition, with some mortar missing below the store front windows. All of the entrances on the south side have been boarded up. The wood siding was replaced after the addition was added some time ago and it appears repairs were made with metal siding on the north side of the structure.

Exterior wall framing could not be readily observed but appears to have limited insulation present.

ROOF FRAMING

The roof framing in the original section of the building is composed of 2" x 6.5" rough sawn common rafters at 24" on center, with 1" board sheathing perpendicular to the rafters below the roofing. The rafters frame into a timber ridge board and a timber plate at the top of the eave walls. Timber collar ties are located 1.5' down from the ridge. The roof framing was visible from an area with no second-floor ceiling. There was no attic insulation in this area. The remainder of the building did have an attic floor and was poorly covered in a combination of blown cellulose and fiberglass batt insulation.

Overall, the roof framing in the original section of the building appears compromised, with some sagging of the common rafters. This portion of the roof system is structurally inadequate and will not meet current Building Code design snow loads and will require modifications. Additionally, an attic floor will need to be constructed where there isn't one and insulation provided throughout the attic space.

The roof framing in the addition was not accessible to evaluate. The roof ridge did look level and the eaves looked sound.

BASEMENT

There appears to be a crawl space under the front section of the building, but no access could be found. Therefore, the condition of the foundation is unknown.

The addition is supported by a slab on grade which appears to be in good condition.

FIRST FLOOR FRAMING

The 1st floor framing in the original section of the building was not accessible to evaluate. However, it is unlikely that the floor framing meets today's building code requirements and may be compromised by high moisture in the concealed crawl space. Observations made from the first floor indicate sagging floor joists and obvious weak areas.

OTHER FRAMING

The second-floor framing in the original section of the building consists of original rough sawn lumber, two layers of 1" boards, a newer subfloor above and newer levelling framing. The original joists are 2" x 7.5" at 18"-24" on center spanning approximately 13' to rough sawn timber beams. The original joists have been notched significantly for plumbing and electrical and attempts have been made to reinforce the floor with new joists that parallel the older joists. Most of the original 1" boards on top of the joists have been removed and a new 2" x 4" subfloor has been constructed above the original floor in an attempt to relevel the floor above. The new 2" x 4" joists run perpendicular to the original joists and support a layer of plywood below the flooring on the second floor. The beams are supported by columns that were not able to be visually inspected due to interior finish work covering the structural elements.

Overall the second-floor framing in the original section of the building is poor and would require significant modifications. The current framing is not adequate to meet current building codes for residential or commercial uses.

The second-floor framing in the addition consists of 2" x 6" joists at 16" o.c. with 1" boards as flooring. The floor is level and may be sufficient for the current light storage use.

ELECTRICAL AND HEATING

All visible electric wires were Romex wires and the building has 4 electric meters and 4 breaker boxes. The main breaker is 200 amps. The electrical system throughout the building appears to be in reasonable condition.

The building has no functioning heating, ventilation or air-conditioning system. A complete new system will be required to rehabilitate the structure.

ASBESTOS ABATEMENT

An asbestos inspection has not yet been completed on this structure. Based on experience with other structures of similar age, it can be expected that some asbestos will be encountered in the floor tile and on pipe insulation. A budget number has been provided to account for this in the cost estimate below.

SUMMARY OF BUILDING DEFICIENCIES

- The roof over the original section of the building would need to be reinforced to meet Code and be structurally adequate.
- The first-floor framing would need to be removed, the crawl space upgraded to prevent moisture migration and a new first floor constructed.
- A ceiling would need to be constructed where there isn't one on the 2nd floor and insulation added throughout the attic.

- The second-floor framing will require significant reinforcing and re-leveling to meet current Code requirements.
- Upgrade all finishes including floors, ceilings, walls, paint and insulation.
- Electrical upgrades including general lighting, emergency and exit lighting.
- Mechanical system upgrades to heating, ventilating and air conditioning system.
- Upgrade all doors and perform major cosmetic improvements.

A rough order of magnitude cost estimate has been prepared to completely upgrade this building to meet current building codes and energy codes. In addition, estimates have been prepared to upgrade non code issues including architectural finishes and appearance of the building. The estimate is broken down as follows:

Structural Improvements	
Demolition of Select Structural Features	$30,000
Crawl Space Moisture Mitigation	$ 7,500
First Floor Framing System	$75,816
2nd Floor Framing System	$91,632
Rafter & Roof Reinforcement	$57,270
Architectural Improvements	
Internal Cosmetic Improvement	$129,168
Energy Efficiency Improvements	$44,928
Siding Improvements	$22,000
Asbestos Abatement	$25,000
Heating, Ventilation and Air Conditioning	$58,000
Electrical	$25,000
Contractors OH&P	$68,000
Architectural	$44,400
Permit Fees	$ 8,000
Total Cost of Improvements	$686,714

This building is in poor structural condition and requires structural upgrades and improvements to architectural finishes and mechanical and electrical systems in order to be a fully functional and safe commercial structure. The cost for these improvements is estimated to be $686,714, equaling a cost of $122/sf. The building has been heavily modified from its original design, and it is not cost effective to rehabilitate the structure. Spending $122/sf to upgrade this structure will still leave a marginally functional building that does not have significant historic value. It should be considered for demolition and replacement with a more suitable structure that will complement the downtown shopping district.

Submitted by:
CROSS CONSULTING ENGINEERS, P.C.

By_____
Peter H. Cross, P.E.

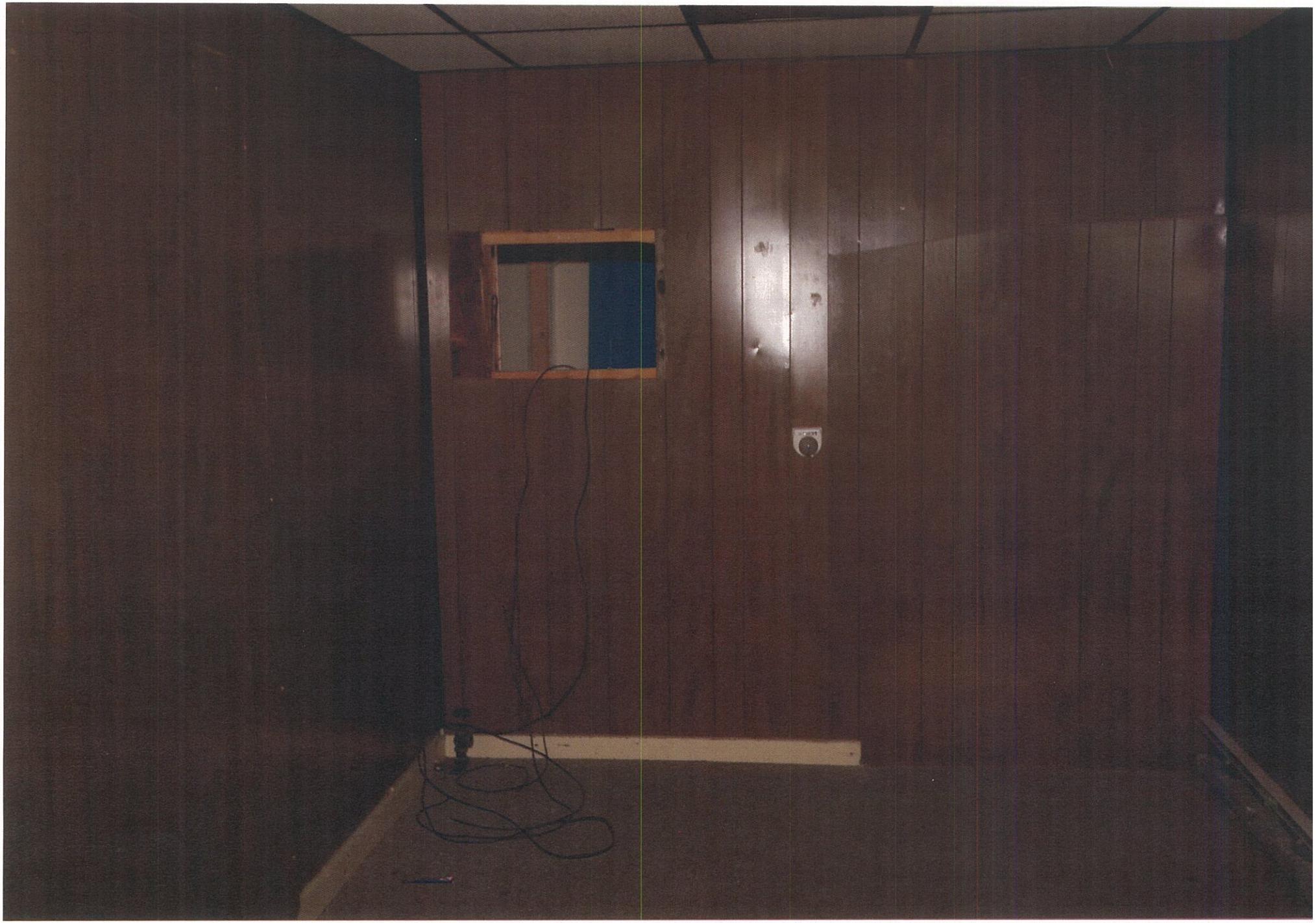
\R:\2018\18003- COSA, Survey, corner Main & Congress St\Engineering Assessments\85-87 North Main St\85-87 North Main St - StructuralReport.docx

Encl: As Stated


ST ALBANS


2
HOUR
PARKING
8AM-5PM
EXCEPT
SUNDAYS AND
HOLIDAYS
83-85


EXIT



CROSS CONSULTING ENGINEERS, P.C.

Peter H. Cross, P.E., L.S.
President
Peter J. Garceau, P.E.
Vice President

103 Fairfax Road, St. Albans, Vermont 05478-6271 • Tel. : 802.524.2113 • Fax: 802.524.9681
E-mail: pcross@crossconsultingengineers.com

June 13, 2018

City of St Albans
P.O. Box 867
St. Albans, VT 05478

Attn: Chip Sawyer, Director of Planning & Development

Subject: Structural Evaluation of Existing Building
87-89-91 North Main St., St Albans, VT

File: 18003

Dear Chip:

In accordance with your request, I visited the site of the building at 87-89-91 North Main St in St. Albans, VT on June 5, 2018 to perform a preliminary review of the existing structure. The 2-story building is long and narrow, with store front windows and a recessed entry on North Main St. The building consists of two main structures. The first is along North Main St. and has a stone foundation with brick exterior walls. The second is a two-story wood framed structure, with a stone foundation, that appears to be a later addition. A wood framed stairway was added to the north side of the original brick structure to access the second floor of the entire building, and an additional single story 'shed' addition was added to the east of the brick structure and south of the wood framed structure. The first floor of the building was most recently used for retail and storage space and the entire second floor previously contained three residential apartments. Currently the entire building is vacant. The building has 5222 SF of heated floor space and a ground floor footprint of 2747 SF.

The original brick structure has a single gable roof and stone foundation with full basement. The wood framed addition also has a single gable roof and shares part of the same basement. The first floor, roof and ceiling framing throughout consist of sawn lumber. I was unable to view the second-floor framing under the one-story addition or the structural components of the stairway.

EXTERIOR WALLS

Overall, the exterior walls of the brick structure appear to be stable with little mortar missing along the storefront. Some of the brick has been painted to match the wood siding of the wood framed structure. The exterior walls of the wood framed structure and stairway are in poor condition. The walls are bowing out and the ridge of the roof is deflecting downward. The eaves are being pushed outward by the roof and the siding is rotten in some locations. Additionally, the balconies (porches) are all collapsing and slope away from the exterior walls significantly.

ROOF FRAMING

The roof in the brick section of the building has been severely compromised by a structure fire that occurred many years ago. The structure is constructed of rough sawn rafters spaced 30"-40" apart with 1" board sheathing perpendicular to the rafters running up the slope below the roofing. The rafters frame into a 5-sided timber ridge and into a timber plate at the top of the brick exterior walls. The 5-sided timber ridge and many of the rafters are severely charred and not structurally sound. A small number of rafters were replaced after the fire. The 1" board sheathing was also replaced after the fire in the brick section, but not in the wood frame section. The ceiling framing was not visually inspected because of the presence of blown cellulose insulation. There is a notable sag in the main ridgeline of this portion of the building and the eaves are being pushed outward by the rafters. This portion of the roof system is structurally inadequate, is unsafe and will require complete reconstruction if the building is to be re-used.

The roof in the 2-story wood framed portion of the building has also been severely compromised by a structure fire. The structure is composed of rough sawn rafters with 1" board sheathing perpendicular to the rafters running up the slope below the roofing. The rafters butt up against each other at the ridge line (no ridge board), and are supported at the bottom by a timber eave plate at the top of the wood framed exterior walls. The rafters, 1" board sheathing and gable end walls are severely charred and are not structurally sound. A small number of sheathing boards were replaced after the fire, and it appears a new deck was installed on top of the charred sheathing under newer asphalt shingles. Attempts were also made to reinforce the charred rafters with newer sawn lumber, however none of the rafters were replaced. The ceiling framing was not visually inspected because of the presence of blown cellulose insulation. There is a notable sag in the main ridgeline of this portion of the building and the eaves are being pushed out by the rafters. This portion of the roof system is structurally inadequate and will require significant reinforcement or complete replacement if the building is to be re-used.

The roof framing over the one-story addition and stairway was not accessible to evaluate from the interior. This small addition roof did look sound and structurally adequate from the exterior. The roof over the stairway did not look sound and appeared to be structurally inadequate from the exterior.

BASEMENT

There is a full basement located below the front portions of the building. There is a partial concrete slab floor and a stone and mortar foundation wall on all sides. Much of the basement contains a dirt floor and exhibits high moisture levels. The foundation walls are in fair condition but indications of water migration through the walls are present. Some of the mortar is soft and flaking; an indicator of weak mortar and high moisture.

The dirt floor is uneven and the clear height in the basement varies. There is substantial debris built up on the floor of the basement.

FIRST FLOOR FRAMING

The first-floor framing system exhibits considerable deflections throughout. This is due to a low capacity structural system. It was not designed for the loads that would be placed on it today. The first-floor framing will not meet today's building code requirements for live loads. Also, the high moisture in the basement likely means that some of the floor system is compromised by rot.

Over the years, plumbing installation has weakened the system by notching or removing floor joists.

OTHER FRAMING

The 2nd floor framing was not accessible to evaluate.

ELECTRICAL AND HEATING AND SPRINKLER

All visible electric wires are Romex wires and the building has multiple electric meters and panel boxes. The electrical system throughout the building is in fair condition but improvements are needed to bring this up to Code. A central gas fired boiler is located in the basement. The system is due to be upgraded. Significant heat distribution improvements are needed.

There is no central fire alarm system in the building.

This building has a sprinkler system fed off a water main extending from Congress Street. At least some parts of the system are a dry system, due to sprinkler coverage in unheated spaces. A fairly new compressor is located in the basement to operate the dry portions of the sprinkler system

ASBESTOS ABATEMENT

An asbestos inspection has not yet been completed on this structure. Based on experience with other structures of similar age, it can be expected that some asbestos will be encountered in the floor tile and on pipe insulation. A budget number has been provided to account for this in the cost estimate below

RECOMMENDATIONS

- The moisture in the basement can be addressed by improving drainage around the entire building. The portion of the basement with a dirt floor needs to be cleaned, a vapor barrier installed, and a new concrete floor placed.
- The entire roof system needs to be replaced. The new system needs to be designed to meet the snow loads required by Code. The new roof could be

constructed of pre-fabricated wood trusses, although those are not in keeping with the original design of the building.

- The roof shingles need to be replaced.
- The 2nd floor and ceiling framing should be investigated for structural integrity.
- The first-floor framing system needs significant re-work. The floors need to be leveled, new floor joists added to increase live load capacity, and the beams need to be reinforced and columns added. The system needs to be engineered to meet today's Code requirements.
- Exterior masonry re-pointing is needed in select areas. The wood siding on much of the building is in poor condition and should be replaced or covered by a different material.

In addition, to provide for a fully Code compliant functional building, upgrades are required to the following features:

a) Upgrade all finishes including floors, ceilings, walls, paint and insulation.
b) Electrical upgrades including general lighting, emergency and exit lighting, and fire alarm system.
c) Mechanical system upgrades to heating, plumbing and ventilating systems.
d) Upgrade windows and doors.
e) Abate asbestos.

A rough order of magnitude cost estimate has been prepared to completely upgrade this building to meet current building codes and energy codes. In addition, estimates have been prepared to upgrade non-code issues including architectural finishes and appearance of the building. The estimate is broken down as follows:

Structural Improvements	
Foundation Drainage System	$12,000
Foundation and Basement Floor Upgrades	$52,000
Roof Replacement	$96,145
First Floor Reinforcement	$74,200
2nd Floor Framing Reinforcement	$59,400
Masonry Improvements	$15,000
Architectural Improvements	
Internal Cosmetic Improvement	$120,100
Energy Efficiency Improvements	$40,000
Siding Improvements	$35,000

Asbestos Abatement	$25,000
Heating, Plumbing, Ventilation	$85,000
Electrical	$25,000
Contractors OH&P	$76,600
Architectural/Engineering	$50,000
Permit Fees	$ 9,000
Total Cost of Improvements	$774,445

This building is in poor structural condition and requires structural upgrades and improvements to architectural finishes and mechanical and electrical systems in order to be a fully functional and safe commercial structure. The cost for these improvements is estimated to be $774,445 for a cost per square foot of $148/sf. It's architectural and historical value has been evaluated by an architectural historian. Although the historian believes this structure to have historical significance, the high cost for rehabilitation indicate it should be considered for demolition and replacement with a more suitable structure that will complement the City's Downtown Business District.

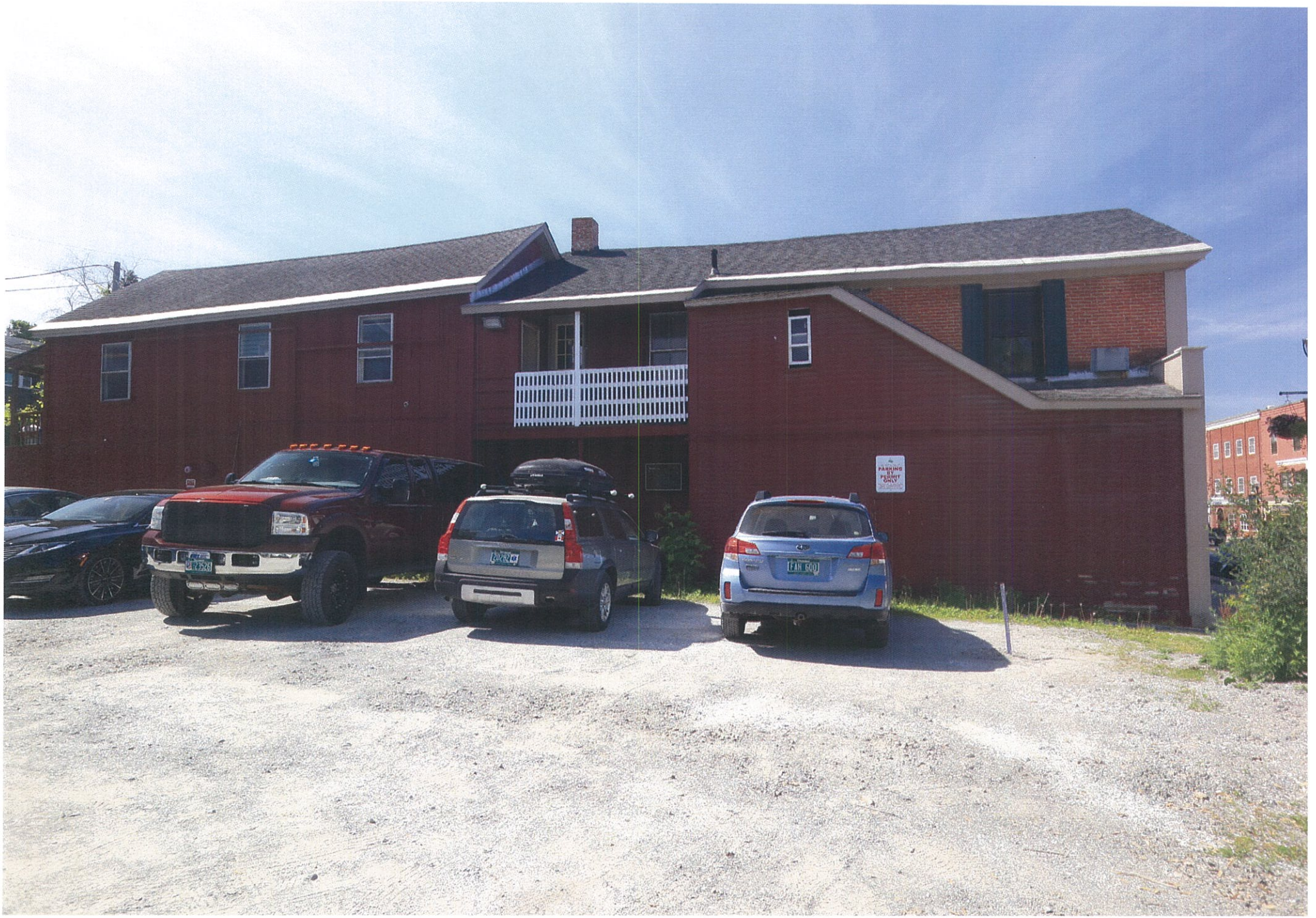
Please call with any questions or concerns.

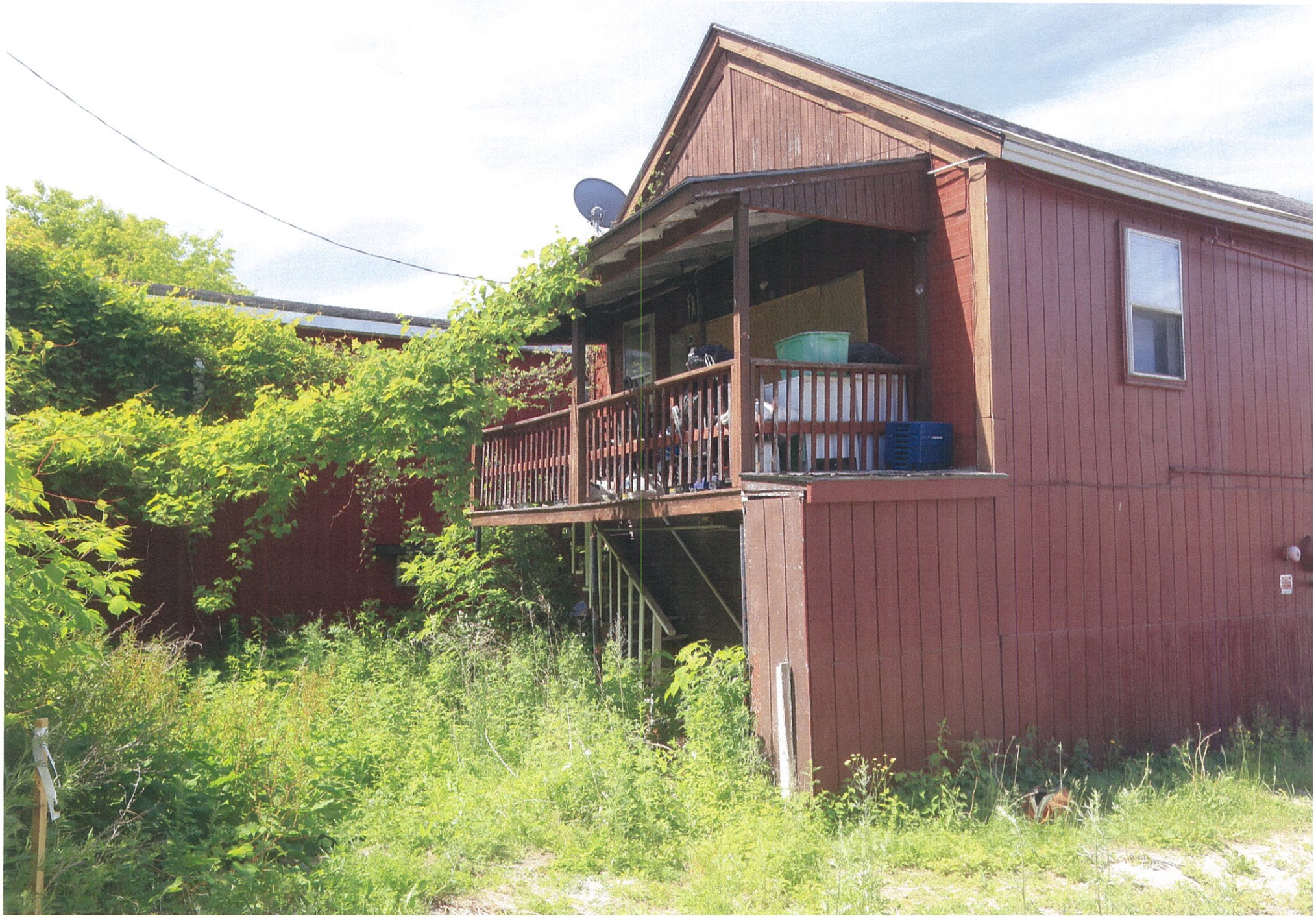
Submitted by:
CROSS CONSULTING ENGINEERS, P.C.

By_____
Peter Cross, P.E.

\R:\2018\18003- COSA, Survey, corner Main & Congress St\Engineering Assessments\87-89-91 North Main St\87-89-91 North Main St - StructuralReport.docx

Encl: As Stated


PARKING
BY
PERMIT
ONLY



CROSS CONSULTING ENGINEERS, P.C.

Peter H. Cross, P.E., L.S.
President
Peter J. Garceau, P.E.
Vice President

103 Fairfax Road, St. Albans, Vermont 05478-6271 • Tel. : 802.524.2113 • Fax: 802.524.9681
E-mail: pcross@crossconsultingengineers.com

June 13, 2018

City of St Albans
P.O. Box 867
St. Albans, VT 05478

Attn: Chip Sawyer, Director of Planning & Development

Subject: Structural Evaluation of Existing Building
8-10 Congress Street, St Albans, VT

File: 18003

Dear Chip:

In accordance with your request, I visited the site of the existing building at 10 Congress Street in St Albans, VT on June 12, 2018 to perform a preliminary review of the existing structure. The 2-story building is rectangular in shape with a side entrance to access the 2nd floor. There is a newer, single story addition on the south end. Currently the first floor is vacant and the second floor is occupied by a professional office. The building has 2600 SF of heated floor space and a footprint of 1300 SF.

This 2-story, gabled roof building is comprised of two separate structures having a common ridgeline. The original structure is wood frame with sawn lumber studs and rafters and wood first and second floor framing systems. The southern addition is +/- 12' long, with dimension lumber wood frame walls, rafters and floor joists. The original structure is supported by a stone and mortar foundation. The rear addition is supported by a poured concrete foundation. The entire building has a full basement. This inspection included the attic, first and second floors and basement of the 2-story building. The 2nd floor framing was only visible in one location.

EXTERIOR WALLS

The wood stud exterior walls of the original structure are infilled wood shavings and, in some locations with brick, thereby reducing the opportunity to add insulation between the studs. While the walls appear stable, the deflection in the ridge line of the roof means the tops of the walls are deflecting outward. The exterior siding is in poor condition. The windows and doors are old and in poor condition and in need of replacement. The rear addition is more modern and is in better condition.

ROOF FRAMING

The roof is composed of 3"x 5" rough sawn common rafters at 33" o.c. with 1" board sheathing perpendicular to the rafters. The rafters frame into a timber ridge that is not structural and into a timber plate at the top of the exterior walls. Several wood trusses help to tie the system together. The attic floor is wood and there is evidence of blown cellulose insulation so the actual ceiling framing is unknown.

Overall, the roof framing in this portion of the building appears to have low structural capacity. There is excessive sagging of the common rafters and outward bowing of the eaves plates.

The roof framing for the newer addition is in better condition, but may still not be adequate to meet today's Code requirements. The attic in the addition is insulated with fiberglass batts.

The roof shingles are well beyond their useful life. Given the condition of the roof framing and roof shingles, the entire roof system should be removed and replaced if the building is to continue to be used.

BASEMENT

There is a full basement located below the 2-story building. The southern end has a concrete slab floor and a poured concrete foundation wall. The northern portion has a stone and mortar foundation and a dirt floor. Columns are resting on poured concrete footings.

Much of the basement is moist where the dirt floor exists. There is substantial mortar decay evidenced by the powdered mortar piles along the base of the foundation wall. Mortar in the walls is very soft and severely comprises the integrity of the foundation. While the foundation is still in fair condition, the entire stone foundation needs repointing and exterior and interior drainage should be installed. A new concrete floor over a vapor barrier is needed to prevent further degradation within the basement. The southern portion of the basement with the concrete slab appears relatively dry.

FIRST FLOOR FRAMING

Most of the first-floor framing is comprised of 3"x8" joists spaced about 22" on center. The joists are supported by cross beams at roughly 13 ft intervals. The beams are supported from the stone walls and from an assortment of posts and columns. There is also an interior brick chimney in the south end of the northern section. The chimney exhibits signs of prior leakage. The first floor is reasonably level, but the framing system has been compromised by moisture, settlement and plumbing work. It is unlikely that the current framing is adequate to meet Code for the current use.

OTHER FRAMING

The 2nd floor framing was accessible in one location where the ceiling was missing. The framing system consists of the same 3" x 8" floor joists as the first floor. The floor is out of level and not suitable for commercial loads.

The second floor of the addition was not observable, but the floor appears to be in better condition than the older section of the building. A professional office currently occupies all of the second floor.

ELECTRICAL AND HEATING

All visible electric wires are Romex wires and the building has multiple electric meters and panel boxes. The electrical system throughout the building is in fair condition but improvements are needed to bring this up to Code. The service entrance size may not be adequate for re-use.

A central gas fired boiler is located in the basement. The system needs to be replaced. Significant heat distribution improvements are needed.

There is no central fire alarm system or sprinkler system in the building.

ASBESTOS ABATEMENT

An asbestos inspection has not yet been completed on this structure. Based on experience with other structures of similar age, it can be expected that some asbestos will be encountered in the floor tile and on pipe insulation. A budget number has been provided to account for this in the cost estimate below.

RECOMMENDATIONS

- The drainage around the entire building and under the floor slab needs to be addressed. A new concrete floor and vapor barrier are needed in the front portion of the building.
- The roof system for the entire building should be replaced. The severe ridge deflection and light framing system indicate that it is not feasible to simply reinforce the roof. Also, the roof shingles are in very poor condition and need replacing. A new trussed roof with new roof sheathing and shingles is required.
- The first-floor framing system requires significant reinforcement, with additional floor joists, beams, columns and footing. The floor needs to be leveled.
- The 2nd floor and ceiling framing should be investigated for structural integrity. This will require the removal of much of the first-floor ceiling so observations can be made.

In addition, to provide for a fully Code compliant functional building, upgrades are required to the following features:

a) Upgrade all finishes including floors, ceilings, walls, paint and insulation.
b) Electrical upgrades including general lighting, emergency and exit lighting.
c) Mechanical system upgrades to heating, ventilating and air conditioning system.
d) Exterior siding improvements.
e) New roof covering.
f) Upgrade windows and doors.
g) Abate asbestos.

A rough order of magnitude cost estimate has been prepared to completely upgrade this building to meet current building codes and energy codes. In addition, estimates have been prepared to upgrade non code issues including architectural finishes and appearance of the building. The estimate is broken down as follows:

Structural Improvements	
Foundation Drainage System	$35,000
Foundation Upgrades	$45,000
Rafter & Roof Reinforcement	$35,000
First Floor Reinforcement	$23,000
Architectural Improvements	
Internal Cosmetic Improvement	$59,800
Energy Efficiency Improvements	$40,000
Siding Improvements	$25,000
Asbestos Abatement	$12,000
Heating, Ventilation and Air Conditioning	$75,000
Electrical	$25,000
Contractors OH&P	$45,000
Architectural/Engineering	$29,400
Permit Fees	$ 7,000
Total Cost of Improvements	$456,200

This building is in poor structural condition and requires structural upgrades and improvements to architectural finishes and mechanical and electrical systems in order to be a fully functional and safe commercial structure. The cost for these improvements is estimated to be $456,200 for a cost per square foot of $175/sf. It's architectural and historical value has been evaluated by an architectural historian. Although the historian believes this structure to have historical significance, the high cost for rehabilitation indicate it should be considered for demolition and replacement with a more suitable structure that will complement the City's Downtown Business District.

Please call with any questions or concerns.

Submitted by:
CROSS CONSULTING ENGINEERS, P.C.

By_____
Peter Cross, P.E.

\R:\2018\18003- COSA, Survey, corner Main & Congress St\Engineering Assessments\8-10 Congress St\8-10 Congress St - StructuralReport.docx

Encl: As Stated


REVIVE
NO
PARKING
FOR SALE OR LEASE