Feasibility Study for Adaptive Use of
The Former Wilbur, Campbell, & Stephens Co. Factory
599 River Street, Troy, NY
(a.k.a. the Mooradian’s Building)

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Foreword

New York State, a leader in 19th and 20th century industry, has seen those industries move elsewhere and businesses close over the last half-century. While this dynamic can be found throughout upstate New York, industrial corridors along water or transportation lines have the greatest concentration of vacant or greatly underutilized historic buildings. These industrial buildings are often found within struggling communities, as the loss of their dominant industry leads to population decline and closing of Main Street businesses.

From the opening of the Erie Canal in 1825 through the mid-20th century, companies built a rich and diverse assortment of headquarters, warehouses, mills, manufacturing and utility buildings reflecting the leading upstate industries. These include masonry-clad post and beam structures from the first half of the 19th century, through the Daylight Factories of the late 19th and early 20th centuries, and beyond to the large General Electric plants of the post-World War II period.

Throughout the second half of the 20th century, industry largely abandoned upstate New York, leaving behind canyons of historic industrial buildings. These buildings define the history of each municipality yet present very modern development challenges. Many communities have mixed feelings about these surviving reminders of their city’s boom and bust, seeing them as liabilities and remnants of the past, instead of assets and development opportunities.

The Preservation League’s Industrial Heritage Reuse Project is the first effort of its kind in New York State to promote historic industrial building redevelopment through condition survey and code analysis. Troy Architectural Program (TAP, Inc) has produced these feasibility studies for our five project sites, located within New York’s Capital Region in Montgomery, Schenectady, Albany, and Rensselaer Counties. We believe that these reports will spur industrial building rehabilitation in the project communities and provide models for similar properties across New York State.

Thank you to the J. M. Kaplan Fund for providing primary support for this project. We also thank the Erie Canalway National Heritage Corridor and National Grid for their project support.

Jay DiLorenzo, President
Preservation League of New York State
# Feasibility Study for Adaptive Use of 599 River Street, Troy, NY

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I. Overview:

This Feasibility Study is part of the Preservation League of New York State’s Industrial Heritage Reuse Project. By providing building owners with schematic re-use alternatives, code evaluations, cost estimates, a list of funding assistance, and an outline of approvals required, the Preservation League hopes owners and community officials will successfully package a development plan. The project is supported by the J.M. Kaplan Fund with additional assistance from the Erie Canalway National Heritage Corridor and National Grid.

II. Building Location:

The building is located in the North Central neighborhood of Troy, a commercial/residential district (former 19th century manufacturing buildings and worker housing). The property is located on the corner of River Street and Jay Street, and backs up to the Hudson River.

The building to the north is a similarly sized, sparsely occupied 19th century warehouse. The Owner is seeking approvals for redevelopment as housing. There is a large vacant parcel across the street and to the north. The future headquarters of a not-for-profit, Community Gardens, is under construction directly across the street. Other buildings are smaller one- to three-story, mostly commercial with a few residences.

There is a tavern and a bakery a few blocks to the north. The downtown entertainment district is about half a mile to the south, and Troy’s central business district is another half-mile beyond. Large employers such as Saint Mary’s Hospital, Samaritan Hospital, RPI, and Russell Sage College are all about 1 mile away. The access ramps to Route 7 and I-787 are about 1/8-mile to the east. River Street has a designated bike route and a bus line that run north/south. Frear Park, a large public park with a golf course, playing fields, pond and an ice rink, is one mile to the northeast.
III. Site and Building Description:

The site is 221.8’ x 150’ (about 0.75 acres) and backs up to the Hudson River where there is a concrete seawall that acts as a retaining wall. The building is located at the corner of the lot located closest to Jay and River Streets. The remainder of the property to the north and rear is paved and was used for parking and loading. The survey indicates a possible sewer easement running at the rear of the building along the River. The City has an interest in creating a bike trail along the River; although there is no formal agreement for allowing the bike trail access.

The building, which was last used as a furniture store, has been vacant for 8 years. It consists of 7-full stories with a partial basement at the rear. There are modern elevator, stair and loading dock additions. The exterior consists of load bearing brick walls. The two street facades are brick, nicely articulated, with some cut stone and ornamental metal detailing. The rear and north facades are simplified with unadorned brick and cut stone sills. The original building was built in 1899; the NE stair tower was added not long after with the other additions coming much later. The main entrance, sheltered by a modern portico on the north side, is accessed from the parking lot to the north.

About half of the windows are the original 12/12 wood double-hung windows; the others are 2 over 2’s with a few 1 over 1’s. Pretty consistently, the windows at the north and west elevations are a set of two double-hung windows one in front of the other. The windows are in varying condition from good to poor. The fourth and sixth floors feature long arcades that are a hallmark of the Romanesque Revival style. Several openings have been infilled with masonry.

The roof is a low-slope roof pitching to two interior roof drains. It has a shallow curb on all sides, a water tower, a few penthouses, skylights that have been covered up, and some ventilation devices. The roof material is EPDM that is beyond its useful life. There are some active leaks, and the membrane has areas of tenting and some tears. The ancillary roofs, also flat, are in poor condition. The freight elevator roof is actually coming off. The roof of the loading area is leaking, and the drain appears to be blocked.
The building has heavy timber columns, wood beams with steel connectors and 3” plank floors. The building is seven full stories plus a partial basement. The main entry level is on the north face, off the parking lot. Because the grade slopes down from the street, the entry door opens onto a floor level that is below grade at River Street. The space is wide open on all floors with few partitions and few finishes. The second and third floors have partitions built along the exterior walls blocking access to the windows.

There is minor structural damage to the beams and floors below the two roof drain areas. The exterior masonry is in good condition with some areas needing routine pointing and a few spots where the masonry is failing. At this time, the building is stable and mostly weather-tight.

**IV. Proposed Use:**

In 2006 TAP, Inc. worked with the previous owner to develop the building as mixed use residential and commercial. The Existing Building Code (EBC) has since changed, and the more common Work Compliance Method used successfully in 2006 no longer provides a path to compliance, due to a seemingly minor change to a table in the Change of Occupancy chapter. The result is that this code analysis method no longer allows the building’s upper stories to be converted to residential use. Therefore the building needed to be evaluated using the less common Performance Compliance Method (Chapter 13), which attributes points (plus and minus) to various safety features of the building.

At the request of the current owner, TAP has completed the EBC Chapter 13 Performance Compliance analysis for the reuse of 599 River Street as a multiple dwelling on the upper stories and a parking garage in the basement. Making certain assumptions about the fire ratings, fire-protection systems, HVAC systems, elevators, etc., TAP determined that the right conditions will allow the proposed uses in the building. This code analysis method requires complete flood hazard compliance, which should not pose any difficulties. In summary, the Group R-2 use may be used without an undue financial burden.
This study is based on the owner’s plan to convert the building to a multiple dwelling with 67 apartments. Below is a preliminary first floor plan and typical upper floor layout provided by the owner’s Project Architect.

Note:
Schematic design drawings provided by Dave Sadowsky, Architect, Petersburgh, NY, and used with permission.
V. Code Analysis:

Occupancy Classification: (BC 303.1)

Last known occupancy: Group M Mercantile (formerly retail furniture) [now vacant].

Proposed occupancies:
- Basement: Group S-2 garage
- 1st – 7th floors: Group R-2 apartments

Construction Classification: (BC 602)

This building has brick load-bearing exterior walls. Its interior structure is a combination of heavy timber and ordinary frame construction. It does not qualify as a Type IV Heavy Timber building, and is therefore classified as a Type IIIB (masonry exterior walls w/ combustible, non-fire-rated interior structure).

Allowable Height and Area: (BC T.503)

The Code definition of Bldg. Height = “vertical distance from grade plane to the average height of the highest roof surface.” This excludes parapets and small roof structures.

Actual (existing) height: approx. 92’ (from grade plane to main roof)
Actual (existing) # stories: 7
Actual 1st floor area: 12,296 SF (within exterior walls, excluding areas to be removed)
Actual 2nd through 6th flr area: 11,068 SF each floor (within exterior walls)
Actual Total building area: 78,704 SF + 5,036 SF partial basement = 83,740 SF

According to the more commonly used Work Area Compliance Method of the NYS Existing Building Code, when converted to Group R-2 occupancy, this building would be taller than allowable for a Type IIIB building per Building Code T. 503, and is, in fact, a high-rise building. To circumvent this obstacle, the Performance Compliance Method (chapter 13 code analysis) was used instead.

A quick comparison of the two code analysis methods: The Work Area method mainly addresses safety in the portions of the building that are under rehabilitation, allowing specific existing conditions and elements to remain, and requiring increased compliance with new-construction standards as the level of alterations increases. The Performance method uses a point system to evaluate the safety of the entire building, allowing many existing conditions to remain, provided that the life safety elements specified earn enough points to achieve building compliance.

The Chapter 13 Performance Compliance Method allows for the building to be used as a Group R-2 multiple dwelling when certain elements, fire-ratings, and systems of the building are provided.

Fire Separation:

Per the Performance Compliance Method, the following fire separations are required:

- A 2-hour separation between the garage and the residential floors.
- 1-hour floor/ceiling assemblies between the residential floors. (Must be upgraded from existing.)
- 1-hour rated fire partitions and floor/ceiling assemblies between tenancies.
- 1-hour fire-rated corridor walls.
- 2-hour stair, elevator, and miscellaneous shaft enclosures, with appropriate opening protective.
Fire Protection Systems:

Sprinkler:

There is a sprinkler system that is not in service. **The new use will require a new sprinkler system installed in compliance with NFPA 13.**

Standpipe:

There are no standpipes in the building. A **new Class I standpipe system is required, with hose connections located in every required stairway, including at the highest landing of a stairway with access to the roof.**

Fire alarm and detection:

Currently there are no fire alarm systems in the building. **Both manual and automatic fire alarm systems shall be installed throughout the building and connected to a fire alarm panel, monitored by a central station.**

Exits:

There are three existing enclosed stairs, one of which requires that you traverse an exterior balcony to access it. The proposed plan calls for removing the enclosed stair that is accessed from the balcony.

**For the Group R-2 apartments, two exits are required.** The existing stairs at the NE and SW corners of the building are sufficient, and the 3rd stair accessed by balconies is not needed to meet Code.

**For the Group S-2 basement parking garage, one exit is permitted** where the maximum occupancy load of the space is 29 people.

Additional Performance Compliance Method requirements:

Per the Performance Compliance Method of the EBC (chapter 13 analysis), the following fire protection features are required:

- For smoke control, one of the enclosed exit stairways must maintain its operable exterior windows.
- The HVAC system(s) must comply with §1017.4 of the *Building Code of New York State* and §M602 of the *Mechanical Code of New York State*. Generally, these sections prohibit corridors from serving as air ducts or from containing plenums, require automatic shut-down of air-handling systems that serve corridors, and regulate the construction of plenums and allowable materials within a plenum.
- A smoke detecting system will be installed throughout the building in compliance with the Code for new construction.
- At least one elevator that meets new construction requirements must serve all occupied floors.
Handicapped Accessibility:

Per the Existing Building Code, buildings with a change of occupancy shall have all of the following accessible features:
1. At least one accessible building entrance.
2. At least one accessible route from accessible entrance to primary function areas.
3. Signage per BC 1110.
4. Accessible parking, if parking is provided.
5. At least one accessible passenger loading zone, if loading zones are provided.
6. At least one accessible route connecting accessible parking to accessible entrance.
7. At least one accessible toilet room per BC 1109.2.1, where WC’s provided.
8. Where >4 Group R-2 dwelling units, 25% shall comply with BC 1107.2.

The main entrance on the north side is an accessible building entrance and there is an existing passenger elevator which is poorly located for the proposed use.

The Group R-2 apts. require an accessible building entrance, accessible routes, vertical accessibility to each floor, and 25% of all units must be accessible. The existing elevator will likely be abandoned due to its awkward location, and the proposed plan calls for a new elevator and hoistway in a better location to provide vertical accessibility.
VI. Scope of Work Needed:

This building needs a substantial amount of work to convert it to housing. Because the building is mostly raw space, with nothing to be reused, almost every building system is a big-ticket item.

The first priority is to replace the failing roofing and flashings, followed by repairs to the structural system damaged by leaks. This will include replacing all damaged beams and subfloor.

The building envelope needs extensive work. It has not had routine masonry maintenance in many years, and, as a result, while not in hazardous condition, the magnitude of the required masonry repair is substantial. It is vitally important that this building receive masonry repair within the next few years, or secondary problems will begin to occur. In addition, window repair/replacement, and insulation of walls and attic/roof are required to bring it into compliance with the Energy Conservation Construction Code of NYS (NYS Energy Code).

It is important to note that if the building is listed on the National and State Register of Historic Places, it would be exempt from the current (2010) NYS Energy Code, although this exemption is likely to sunset in the next 2-3 years. However, to keep the utility bills reasonable and the building occupants comfortable, it is recommended that the Energy Code be followed as much as possible.

A new elevator in a more efficient location is desirable, and is part of the design proposed by the owner.

There are no finished spaces in the building to be reused, so tenant fit-up (framing, drywall, floor and ceiling finishes, interior doors and hardware, etc.) will be extensive. All new Mechanical, Electrical, Plumbing and Fire Protection systems need to be installed throughout the building.

Also of concern is the condition of the seawall. Due to its proximity to the building, the sea wall must be maintained, as failure of the sea wall could result in erosion of land adjacent to the building, which would jeopardize the stability of the rear wall of the building. The seawall must be inspected from the water side to determine if it requires any repair.

VII. Cost Estimate

At this stage of the project (the conceptual stage when no details are available), it is useful to use square foot costs to estimate the construction costs. The estimated costs represent what the project may be built for, based on data of what other similar projects have been built for, but it is no guarantee, merely a useful starting point.

For this project, a square foot cost could range from $120 - $150 per SF. At a total area of 83,740 SF (including basement), that means a total budget of about $10 – 12.5 million for construction renovation. Other costs that should be considered include:

- Site work
- Abatement of hazardous materials
- High-end finishes and equipment if desired
- Architectural and Engineering fees
- Financing and Legal fees
- Administration time
- Accounting and Insurance
- Developer’s fee
VIII. Approval Processes:

1. City of Troy Zoning and Planning, including SEQR:

   The project is located in the Hoosick Street Waterfront Overlay District. The proposed use is allowed in this district. There is inadequate parking on the lot for the number of units proposed, but a Zoning variance was granted for the parking deficiency in August 2014.

2. Listing the building on the NYS and National Register:

   TAP, Inc is under contract to nominate the building to the State and National Historic Registers and to prepare Part One of the Historic Tax Credit Certification.

   The draft Nomination is shared with local officials for feedback, and then submitted to the State Review Board for approval and entry onto the State Register. Nominations must be submitted 3 months in advance of the Review Board’s meeting. After State approval, the Nomination is sent to the National Park Service for approval and entry onto the National Register. For more information, visit the NYSPHPO website: http://nysparks.com/shpo/national-register/

   The process to get the building listed can take a minimum of 6 months. Listing the building helps pave the way for using the Historic Tax Credits. See the “Funding Assistance” section of this study.

3. Building Permit

   Once the Planning waivers and approvals are obtained, a building permit is required. To apply for a permit, submit the following to the Building Dept.
   - Building Permit Application;
   - Stamped drawings from a licensed architect or engineer which address structural issues, building code issues, energy code issues, and all mechanicals;
   - Estimate of the cost of construction, upon which the permit fee is based;
   - Payment for the building permit fee; and
   - Proof of liability insurance with the City of Troy additionally insured must be submitted along with proof of worker’s compensation insurance.

   The process of hiring an architect, finalizing the design, complying with all code requirements, producing construction documents, undergoing building department review, and obtaining a building permit can take a minimum of 4-6 months, if everything goes smoothly. Common delays which can increase this time include, but are not limited to, extensive design exploration, change of direction or scope of work during design phase, negotiating design elements with the SHPO or code official, and cash flow problems.
IX. Funding Assistance:

1. State and Federal Historic Tax Credits:
   http://www.nps.gov/tps/tax-incentives.htm
   http://nysparks.com/shpo/tax-credit-programs/

   Once the building is listed on the National Register of Historic Places, it may be eligible for both Federal and NYS Rehabilitation Tax Credits, totaling 40% of the cost of the rehabilitation. The credits may be taken by the property owner, or syndicated to investors whose purchase of the credits provides upfront financing for rehabilitation.

   The Federal Rehabilitation Tax Credit program is administered by the National Park Service (NPS) and the Internal Revenue Service in partnership with the State Historic Preservation Office (SHPO). An income tax credit of 20% of the cost of substantial rehabilitation is available for the rehabilitation of “certified historic,” income-producing buildings. Owner-occupied residential properties do not qualify for this tax credit.

   Part 1 of this process is obtaining “certified historic structure” status, by securing National Register eligibility and beginning the National Register designation process, to get the building listed on the National Register. Part 2 consists of a property narrative, pictures that document the architectural and historical features of the building in its current state, and a description of the proposed work. It should be filed with the SHPO before the rehabilitation begins, and both SHPO and the NPS must approve all proposed work. This process can take several months.

   After the rehabilitation is complete, Part 3 is submitted and the SHPO and NPS review the work and certify compliance with the Part 2 approved scope of work. The 20% credit is based on the total qualified rehabilitation expenses incurred. Working with a tax professional is recommended to properly claim this credit.

   The NYS Rehabilitation Tax Credit must be used with the Federal Rehabilitation Tax Credit Program for Income Producing Properties. Owners of income producing properties that have been approved to receive the 20% federal rehabilitation tax credit automatically qualify for the additional 20% state rehabilitation tax credit if the property is located in an eligible census tract and the Part 2 and Part 3 state fees have been paid. There is no application form. After Part 3 of the federal application is approved by the National Park Service and, the state fees are paid, the New York State Office of Parks, Recreation, and Historic Preservation will issue a certification allowing owners to take the state credit.

2. Low Income Housing Tax Credits
   http://www.nyshcr.org/Programs/LIHC/ [federal]
   http://www.nyshcr.org/Programs/SLIHC/ [state]

   The LIHC program provides a federal income tax credit for project owners who develop rental housing that meets federal criteria for income, occupancy, and rent, with state approval. (Typically the units must serve those whose household income does not exceed 60% of area median income.)

   The SLIHC provides a state income tax credit to investors in qualified low-income housing. Assisted units must serve households whose incomes meet more stringent criteria than the federal program (typically 90% of area median income).
3. **New York State Consolidated Funding Application**

   In 2011, Governor Andrew M. Cuomo created 10 Regional Councils to develop long-term strategic plans for economic growth. The annual Consolidated Funding Application became the umbrella, single-grant procedure for these key programs:

   - **The Environmental Protection Fund**
     [http://nysparks.com/grants/grant-programs.aspx](http://nysparks.com/grants/grant-programs.aspx)

     The Environmental Protection Fund is a matching grant program to improve, protect, preserve, rehabilitate, restore or acquire properties listed on the State or National Registers of Historic Places and for structural assessments and/or planning for such projects.

   - **New York Main Street**
     [http://www.nyshcr.org/Programs/NYMainStreet/](http://www.nyshcr.org/Programs/NYMainStreet/)

     The New York Main Street (NYMS) Program provides resources to assist New York’s communities with Main Street and downtown revitalization efforts. The program funds projects that provide economic development and housing opportunities in downtown, mixed-use commercial districts. A primary goal of the program is to stimulate reinvestment and leverage additional funds to establish and sustain downtown and neighborhood revitalization efforts. Funds may be used to help rehabilitate upper-floor space and larger anchor projects.

   - **Community Development Block Grant**
     [http://www.nyshcr.org/Funding/](http://www.nyshcr.org/Funding/)

     The (CDBG) program is a federally funded program administered by the NYS Office of Community Renewal (OCR). The funds, provided to small communities (below 50,000 population) and counties in New York State, support activities that focus on community development needs such as creating or expanding job opportunities, providing safe affordable housing, and/or addressing local public infrastructure and public facilities.

   - **NYSERDA**
     [https://www.nyserda.ny.gov/](https://www.nyserda.ny.gov/)

     The New York State Energy Research and Development Authority offers financial incentives to assist large commercial projects make energy efficiency improvements. A similar program exists for multi-family buildings of five or more units.

4. **NYS Brownfield Redevelopment Programs**

   - **Environmental Restoration Program**

     Under the Environmental Restoration Program, the NYS Department of Environmental Conservation provides grants to municipalities and community-based organizations to reimburse up to 90 percent of on-site eligible costs and 100% of off-site eligible costs for site investigation
and remediation activities. Once remediated, the property may then be reused for commercial, industrial, residential or public use.

- **Brownfield Opportunity Areas Program**

  The Brownfield Opportunity Areas Program, made possible by the Superfund/Brownfield law in October 2003, provides municipalities and community-based organizations with assistance, up to 90 percent of the eligible project costs, to complete revitalization plans and implementation strategies for areas or communities affected by the presence of brownfield sites, and site assessments for strategic brownfield sites.

5. **The Community Preservation Corporation (CPC):**
   [http://www.communityp.com](http://www.communityp.com)

  The Community Preservation Corporation (CPC) is a not-for-profit mortgage finance company which specializes in lending for the preservation and construction of multi-family affordable housing and downtown revitalization projects throughout New York State. CPC offers a range of products, including:

  - Construction financing
  - Permanent financing
  - Freddie Mac
  - Coop financing
  - Supportive and Special Needs Housing financing

6. **Industrial Development Agencies and Local Development Corporations**

   An IDA is a municipal-sponsored agency designed to promote economic development because the agency can offer several benefits to private companies as inducements for them to relocate to, expand in or remain in their jurisdictions. An IDA can:

   - Offer tax breaks to eligible projects whose developers in turn may agree to a PILOT (Payment in Lieu of Taxes,) usually for an amount less than the true tax amount;
   - Acquire, own and dispose of property;
   - Directly issue debt;
   - Own property that is exempt from property taxes and mortgage recording taxes, and;
   - Make purchases exempt from state and local sales taxes in support of an approved project.

   A LDC is a private, not-for-profit corporations often created by, or for the benefit of, local governments for economic development. A LDC can:

   - Construct, acquire, rehabilitate, and improve industrial or manufacturing plants;
   - Assist financially in such construction, acquisition, rehabilitation, and improvement;
   - Maintain such plants for others;
   - Acquire real or personal property by purchase, lease, gift, or bequest;
   - Borrow money and issue bonds, notes, and other obligations therefore;
   - Sell, lease, mortgage or otherwise dispose of any such plants or any of their real or personal property upon terms determined by the LDC.
These local IDA and LDC may assist in the reuse of historic properties:
Rensselaer County

City of Troy
www.troyny.gov/Departments/EconomicDevelopment/TroyIDA.aspx
http://troyny.gov/Departments/EconomicDevelopment/TroyTLDC.aspx

Many of these programs have complex requirements. It is recommended that you work with a developer, attorney, accountant, and/or architect who have experience with the program requirements.

X. Summary of Recommendations:

599 River Street in Troy is a typical manufacturing building, classified as a Type IIIB construction type. While a building of this construction type and height would be grandfathered in for continued use as Group M, it is not acceptable for the proposed use as Group R-2, when using the common Work Compliance Method.

TAP recommends the Performance Compliance Method of the EBC (chapter 13) to allow this building to be used as a Group R-2.

The plan for the building calls for apartments on all floors, with parking in the at-grade basement. TAP endorses this proposal. From a code standpoint, it is a viable project.

An accessible route must be provided into the building, and 25% of the apartments must be accessible (minimum Type B).

The building is eligible to be listed on the National Register, and the nomination and Part 1 work is already underway.

This building is a stable structure with serious localized damage due to roof leaks and lack of maintenance. The scope of repair work needed to make the building habitable is extensive. The cost of energy conservation measures, the repair of structural and surficial damages, the installation of all new mechanical, electrical and plumbing systems, and the extensive window repair required suggest a substantial project budget.

TAP estimates the cost at $10 to $12.5 million.

This project benefits from an owner experienced with rehab and tax credits. It has the potential to be a successful project.
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Older buildings often contain materials that are environmental hazards or contaminants, both in their existing state and during their removal. Many of these materials are regulated by the federal Environmental Protection Agency (EPA) or other governmental bodies. Since contamination of the surrounding air, soil, and adjacent building spaces can occur during removal, it is important to follow safe removal practices to protect the health of workers, neighbors, and future building occupants. Below is a list of the most commonly found environmental contaminants and the best practices for removal.

1. Lead

Lead exposure continues to be a significant health concern despite federal and state policies and practices aimed at reducing it. Lead-based paint is a major source of lead poisoning for children and can also affect adults. Lead exposure from lead plumbing pipes is another potential source. The lifelong effects of childhood exposure, to even small amounts of lead or lead dust, are well established by medical research, and include learning disabilities, behavioral problems, and retarded mental and physical development. Severe lead poisoning in children and adults can cause irritability, poor muscle coordination and damage to the kidneys, nerves and brain. Lead poisoning also may increase blood pressure in adults. Because lead does not break down naturally, it remains a problem until removed.

Lead paint was outlawed for residential purposes in 1978, yet it is still present in millions of buildings and homes, particularly in neighborhoods with older building stock. Lead paint may be found on any surface, but is most commonly found on exterior-painted surfaces, interior woodwork, doors, and windows. When properly maintained and managed, this paint poses little risk, although friction surfaces (windows and window sills, doors and door frames, and stairs and railings) are a concern. Lead-based paint that peels or deteriorates is especially risky. Lead dust is most commonly found around friction surfaces, as well as in the soil around a building. Lead poisoning can occur not only through visible lead-based paint chips and flakes, but also from inhaling lead contaminated dust or soil.

Eliminating the lead hazard(s) in a building can be done by abatement work or by renovation, repair, and painting (RRP). Abatement work is a specialized activity designed to permanently remove lead in the building and includes lead-based paint inspections, risk assessments and paint removal. RRP activities (including most building renovations) disturb paint as a consequence of the activity, but they are often undertaken for reasons unrelated to lead issues. One can either presume the existence of lead-based paint and dust or have trained personnel take actual XRF readings to locate specific areas containing lead-based paint. Soil samples should also be taken since contamination of the soil is possible from paint chips. EPA requires individuals and firms who perform abatement projects in pre-1978 target housing and child-occupied facilities to be RRP-trained and certified, and to follow specific work practices, including verifying that the work area is clean (free of lead dust) after completion of the renovation.

If lead plumbing pipes still exist, either within the building or connecting the building to the water line in the road, there are two options. Either remove and replace them with copper or other code-allowed material, or install a reverse osmosis water system to purify the drinking water.

For more information about lead hazards and abatement, visit the website: http://www2.epa.gov/lead
2. Asbestos

Asbestos is a generic term referring to a group of naturally occurring fibrous minerals, prized for their thermal and insular properties, as well as their flexibility and durability. Vermiculite, a lightweight, granular, fire-resistant insulation, is also considered an asbestos containing material (ACM). Generally, asbestos-containing material that is in good condition and will not be disturbed (by renovations, for example) will not release asbestos fibers, and does not pose a health risk. Asbestos containing material is most hazardous when friable, or easily crumbled or powdered by hand. Asbestos fibers may be released into the air by the disturbance of asbestos-containing material during product use, demolition work, building or home maintenance, repair, and remodeling. Exposure may occur when the asbestos-containing material releases particles and fibers into the air, which are then inhaled or ingested. Exposure to asbestos increases your risk of developing lung disease and cancer.

Although the EPA began banning various types of asbestos containing materials in the 1970’s, many construction products containing asbestos are not banned and are actively used today. Therefore, ACM are still present in many buildings. Asbestos was and is commonly used as a fire retardant, heat insulator, sound reducer. It can be found in roofing cement and coatings, exterior shingles, drywall compound, flooring tiles and mastic, wall and ceiling insulation, pipe insulation, gaskets on furnace and boiler doors, and glazing compound on windows. Vermiculite is commonly found as attic or concrete block fill insulation.

Eliminating the hazard of asbestos before a renovation can only be done by identifying and removing the ACM. This work should be done by trained asbestos professionals, before demolition and construction begin. An asbestos inspector can inspect a building, take samples of suspected materials for testing, and advise about what corrections are needed. They can also ensure the corrective-action contractor has followed proper procedures, including proper clean up, and can monitor the air to ensure no increase of asbestos fibers. An asbestos contractor can remove the ACM.

For more information about asbestos and abatement, visit the website: http://www2.epa.gov/asbestos.

3. Mold

Molds are fungi, found both indoors and out, which reproduce and spread by spores. Exposure to molds can cause respiratory symptoms ranging from coughing and wheezing in healthy people, to nasal stuffiness, eye or skin irritation, or asthma in mold-sensitive people, to fever, shortness of breath, or lung infections in workers with long-term exposed to mold.

Mold grows best in warm, damp, and humid conditions, and mold spores can even survive in dry conditions that do not support normal mold growth. Indoors they can be found where humidity levels are high, such as basements or showers, or anywhere building elements are wet due to leaks in the building envelope (particularly roofs) or plumbing.

Eliminating the hazard of mold starts with identifying the sources of water, condensation, and humidity, and eliminating them via repairs, maintenance, or ventilation. Completely clean up mold, and dry water-damaged areas, using the most appropriate cleaning and drying methods for damaged/contaminated materials. These methods include:

- using a wet-vac to vacuum up actively wet areas;
- damp-wiping non-porous surfaces or scrubbing with a bleach solution;
- carefully containing and discarding wet and moldy porous surfaces such as wood and carpet in doubled 6-mil poly bags, or wrapping large items in plastic sheeting and securing with duct tape;
• using a HEPA-vacuum for final cleanup of remediation areas after materials have been thoroughly dried and contaminated materials removed. HEPA vacuums are also recommended for cleanup of dust that may have settled on surfaces outside the remediation area.

• To reduce the risk of airborne mold exposure, use appropriate Personal Protective Equipment (PPE)

The use of a biocide, such as chlorine bleach, is not recommended as a routine practice during mold remediation, although there may be instances where professional judgment may indicate its use. Any remaining spores will not grow if the moisture problem in the building has been resolved. If you choose to use disinfectants or biocides, always ventilate the area taking care not to distribute mold spores throughout an unaffected area. Biocides are toxic to humans, as well as to mold, so appropriate PPE should be worn. Some biocides are considered pesticides, and some States require that only registered pesticide applicators apply these products.

For more information about mold and its removal, visit the website: http://www2.epa.gov/mold.

4. Guano

Guano is bird excrement. It is often accompanied by other organic matter such as feathers, bones, carcasses, and the bugs and rodents that are attracted to such. Guano itself poses a respiratory health risk, particularly during removal when airborne particles are likely to be inhaled, while the live specimens (birds, bugs, etc.) carry disease and parasites.

Guano is present when there is or was a bird infestation; usually pigeons or even bats. Piles of guano can be seen where birds roost or below areas where birds perch. Typical locations include attic floors, tops of joists or other exposed horizontal members, on walls below nests, on debris and other floor surfaces.

Eliminating the hazard of guano starts with determining if there is an existing infestation, and taking measures to seal off all entry points to the building prior to removal. Using an Industrial Cleaning or Pest Control company is recommended over do-it-yourself or contractor removal, as these professionals know the governmental regulations and have all the proper personal protective equipment. Prior to actual removal, design a plan which includes the following:

• Identify all locations to be decontaminated (rooms, floors, walls, beams, sills, ductwork, etc.)
• Identify all locations to be protected from airborne dust, both within building and at perimeter.
• Identify all items to be removed (just guano and organic matter, or the contaminated materials like insulation also?)
• Wet or dry removal? (Wet reduces dust and airborne particulates.)
• Method of removal from building elements (shovel, scraper, wire brush, power washer, HEPA-vacuum?)
• Method of removal from building (bag, bucket, barrel) and route out of building. This is particularly important if the building is partially occupied.
• Disinfection/wet cleaning of areas and building elements after bulk removal with a 1:10 bleach solution.
• Disposal of material must comply with governmental regulations.
5. Radon

Exposure to radon in the home or workplace is responsible for an estimated 20,000 lung cancer deaths each year. Exposure to radon is the second leading cause of lung cancer after smoking. Radon is an odorless, tasteless and invisible gas produced by the decay of naturally occurring uranium in soil and water, and is a proven carcinogen. Lung cancer is the only known effect on human health from exposure to radon in air. Thus far, there is no evidence that children are at greater risk of lung cancer than are adults.

Radon in air is ubiquitous. Radon is found in outdoor air and in the indoor air of buildings of all kinds. According to the NYS Department of Health, there are 37 counties in NY designated as high radon risk areas and they include: Albany, Columbia, Rensselaer, Schoharie and Washington Counties. The EPA recommends radon mitigation in buildings where the radon level is 4 pCi/L (picocuries per liter) or more. Because there is no known safe level of exposure to radon, EPA also recommends mitigation for radon levels between 2 pCi/L and 4 pCi/L. The average radon concentration in the indoor air of America's homes is about 1.3 pCi/L. The average concentration of radon in outdoor air is 0.4 pCi/L or 1/10th of EPA's 4 pCi/L action level. Radon can also be found in the water supply, most commonly if the building’s water source is ground water.

Eliminating the hazard of radon begins with testing for its presence. Both long and short term radon testing devices are available, and will show the level of radon present in the air of the space tested. Since radon in the soil primarily enters a building through the foundation and floor slab, reducing radon in a building can be done by sealing cracks in foundations and slabs, and providing proper ventilation to allow the radon to exit the building by either natural or mechanical means. The primary method of radon reduction, or mitigation, is a vent pipe system and fan, which pulls radon from beneath the building and vents it to the outside. This system, known as a soil suction radon reduction system, does not require major changes to the building. If radon is found in the public water supply, the water supplier should be contacted to take action. If radon is found in the water from a private well, it can be removed by installing a point-of-entry treatment system or a point-of-use treatment device. Lowering high radon levels requires technical knowledge and special skills. A qualified contractor who is trained to fix radon problems can study the radon problem in the building and recommend the right treatment method.

For more information about radon hazards and mitigation, visit the website: [http://www2.epa.gov/radon](http://www2.epa.gov/radon).

6. Fuel Oil Storage Tanks

Fuel oil storage tanks, both under-ground and above-ground, can become an environmental hazard and a financial liability when they begin to leak. Clean-up costs due to a leak are borne by the owner. If a fuel oil leak contaminates the soil, clean-up costs can be $20,000 – $50,000. If it contaminates the groundwater, the costs can exceed $100,000.

Fuel oil storage tanks are used primarily for heating oil, but also for gasoline or other petroleum products. For comparison, a single-family home heating oil tank might be 275-1,000 gallons; a multi-family or commercial property might have tanks up to 20,000 gallons. They are commonly found in basements, yards, and underground. Because all responsibility for leaking tanks belongs to the owner, it is important to know if and where there are any such storage tanks on the property, especially underground tanks. The NYS Department of Conservation (NYSDEC) regulates both UST’s (underground storage tanks) and AST’s (above-ground storage tanks) when at least one tank exceeds 1,100 gallons. A building with (3) 500-gallon tanks, for example, would not be regulated. UST’s must be registered with DEC, require periodic testing, and must meet other performance standards.
Eliminating the hazard of fuel oil storage tanks starts with identifying their location, age, condition, and registry with the NYSDEC. If there are known petroleum tanks on the property, it is important to review their maintenance records, and keep them current. NYSDEC has rules and enforcement actions for buildings which fail to properly register tanks, report spills and remediate contamination. It is critical therefore to hire the right kind of consultant for leaking oil tanks, such as an environmental remediation specialist. Regulated heating oil tanks that are out of service for more than a year must undergo closure per NYSDEC’s closure requirements. The tank must be cleaned out, visually inspected for holes, but no groundwater or soil samples are ordinarily required to achieve closure unless there is visual evidence or a leak. It is therefore possible that a heating oil tank that was closed in place and obtained regulatory closure by NYSDEC may have impacted the property. It is always advisable for purchasers of property with abandoned heating oil tanks to review the closure documentation to see if sampling was conducted. In the absence of such documentation, purchasers should consider conducting their own sampling since the purchasers could be strictly liable under the state Navigation Law if an abandoned tank that was closed in place has impacted the environment. It is crucial that purchasers determine if abandoned tanks exist or are discovered, particularly heating oil tanks, and that prior to the closing or before the purchaser takes control, they be removed.

To search the NYSDEC database of known, regulated tanks, visit:  

For more information on petroleum bulk storage regulations, visit:  
http://www.dec.ny.gov/regulations/2387.html
EVALUATING HAZARD CATEGORIES per §912 of the Existing Building Code:

When considering a change of use to an existing building it is advisable to consider whether the proposed new use increases the hazard classification of the building. When a change of occupancy is made to an equal or lower hazard category, it is treated much like a continued use. But, when a change of occupancy is made to a higher hazard category in any of the categories, the building must meet many of the requirements of new construction for those categories. *These tables do not apply if using the EBC Chapter 13 Performance Compliance Method.*

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OCCUPANCY CLASSIFICATION per §302.1 of the Building Code of NYS

Structures or portions of structures shall be classified with respect to occupancy in one or more of the groups listed below. A room or space that is intended to be occupied at different times for different purposes shall comply with all of the requirements that are applicable to each of the purposes for which the room or space will be occupied.

**Occupancy Classifications:** *(Note descriptions below are summaries, not full quotes from code)*

1. **Assembly = Group A:**
   - A-1 Performing Arts or Motion Pictures
   - A-2 Food or Drink Consumption
   - A-3 Uses not Classified elsewhere in Group A
   - A-4 Spectator Seating Arenas
   - A-5 Outdoor Activities

2. **Business = Group B**

3. **Educational = Group E**

4. **Factory and Industrial = Group F:**
   - F-1 Moderate Hazard (all that are not F-2)
   - F-2 Low Hazard (non-combustibles)

5. **High Hazard = Group H:**
   - H-1 Detonation Hazard
   - H-2 High Flame Hazard
   - H-3 Readily Combustible
   - H-4 High Health Hazard
   - H-5 Hazardous Research & Development

6. **Institutional = Group I:**
   - I-1 Required Supervised Residential
   - I-2 24 hour care
   - I-3 Restrainted and Secured Persons
   - I-4 Daycare Facilities

7. **Mercantile = Group M** (retail or wholesale)

8. **Residential = Group R:**
   - R-1 Transient Occupancy
   - R-2 Apartment Houses
   - R-3 Permanent Residence not otherwise listed
   - R-4 Assisted Living, less than 16 people

9. **Storage = Group S:**
   - S-1, Moderate Hazard (all that are not S-2)
   - S-2 Low Hazard (non-combustibles)

10. **Utility and Miscellaneous = Group U**