

INSPECTION REPORT – COMMERCIAL PROPERTY

Buyer's Name: Mike Gengler - Chairman
Town of Mt. Pleasant

Address: P.O. Box 491
Monticello, WI 53570

Phone: (608) 938-4549

Email: m.gengler@att.net

Location of Building Inspected: 120 W. North Avenue
Monticello, WI 53570

Type of Building Inspected: Commercial

Age of Building: 1919 - East Building (per Mike Gengler)
1948 - West Building (per Mike Gengler)

Inspection Performed By: Stephen G. Schraufnagel, Architect
Registered Home Inspector No. 106-536

Mitchell Tromberg, Field Technician

Mike Gengler - Chairman

Date and Time of Inspection: December 17, 2015 @ 8:30 a.m.

Attachments: *ACM Test Reports (Exhibit A)*
Learn About Asbestos (Exhibit B)
EPA Lead Based Paint Rule ((Exhibit C)
Beaver Basement Water Control System (Exhibit D)

Attachments Continued:

HUD Fire Ratings (Exhibit E)
Duct Cleaning (Exhibit F)
Catch Basin Detail (Exhibit G)
GFCIs Fact Sheet (Exhibit H)
Infrared Photos (Exhibit I)
Fuel Tank Data / RR Sites Map (Exhibit J)
Estimated Budgets (Exhibit K)

General Description: This property consists of two (attached) buildings located on the northeast corner of the intersection of West North Avenue and North Monroe Street. The east portion of the building was constructed in 1919 (approximately 5,100 sq. ft. footprint), while the west portion was constructed in 1948 (approximately 3,800 sq. ft. footprint). The facility was most recently used as an automotive dealership and garage. The east building is a two-story building with a partial basement. The main level is set up as offices and a showroom, the second level is an unused gymnasium/assembly, and the lower level is unfinished and was used for storage. The west building is a single story structure and was used as an automotive garage.

Sidewalks, Driveway and General Drainage: The buildings are accessed from West North Avenue on the south side of the property, from the alleys on the north and east sides of the property. There is no access to the building from North Monroe Street on the west.

Sidewalks are present along both West North Avenue and North Monroe Street.

Street parking is located on both the south and west sides of the property. Off-street parking is located on the southwest corner of the site, as well as off the alley on the north side of the site.

Overall drainage of the area is to the southwest.

Foundation System (Crawlspace, full Basement, height in Crawlspace, etc.): The 1919 building is constructed on a partial basement. The southeast portion of the building is presumed to be on a frost protected foundation wall and slab. The basement portion of the building has poured concrete walls. The ceiling height in the lower level is approximately 7 feet.

The 1948 addition is presumed to be constructed on a frost-protected foundation wall and slab.

Framing System (Wood, spacing, beams and columns): The 1919 building is a brick constructed structure. Laminated wood arch trusses are spaced at approximately 16'-6" on center (o.c.) with 2x10 purlins spaced at 16" o.c. and wood board sheathing. The main and second level floors are concrete, with integral concrete joists.

The 1948 building is a concrete masonry unit (CMU) structure with CMU pilasters on the east and west walls. The pilasters support wood bow trusses spaced at 16' o.c. with 2x10 purlins spaced at 16" o.c. and a wood board sheathing. The ceiling height is approximately 13'-8".

Roofing System (Layers and life expectancy, venting, eave trough and drainage): The arched roof of the 1919 building has fiberglass shingles approximately 1/2 way up each side of

the roof and an EPDM roof membrane that covers the top section. This roof system has an estimated 5-10 years of remaining life expectancy, with general maintenance and repairs.

The roof of the 1948 building is a wood sheathed roof with an EPDM roof membrane. This roof system has an estimated life expectancy of 3-5 years, with general maintenance and repairs. There is evidence of past repair work that has been insufficient to correct the leaking. Three mechanical vent fans are located at the center of the roof. Snow stops and 5" eave troughs are present.

Siding (Layers, wood, vinyl, type, painting, etc.): The 1919 building has an exposed brick exterior wall on the south side. The east side has a cementitious coating over the brick facade and the north wall has a metal siding over furring strips.

Egress: There is a metal fire escape from the second level located on the north side of the building. The fire escape is lightly framed and in poor condition.

Windows and Doors (Combinations, glass type, cladding, etc.): The 1919 building has predominately double pane glass windows on the main level and single pane, wood-framed windows on the second level.

The 1948 building has double pane fixed windows.

Full glass entry doors are located on the south and west sides of the 1919 building. There is also a service door on the east side and an overhead door, to the lower level, on the north side.

The 1948 building has a 14'-0" x 14'-0" overhead door on the south side and a 12'-6" x 12'-6" overhead door on the north side. The overhead doors have General Electric openers. Service doors are present on both overhead doors.

The buildings are connected by a full glass entry door and a custom sliding wood door. The interior doors on the 1919 building are predominately wood.

Interior Floor, Wall and Ceiling Finishes: The main level of the 1919 building has a combination of carpet floor covering and exposed concrete, with several small areas of tile. The second level predominately has a 2 1/4" strip wood floor, with some 9x9 tile and exposed concrete in the loft area. The lower level has exposed concrete floors.

The main level walls of the 1919 building are a combination of painted concrete (and brick) and painted drywall. The second level has painted plaster, and the lower level has exposed concrete.

The main level ceiling finishes of the 1919 building are a combination of painted concrete and a suspended ceiling system. The second level has a plaster ceiling and the lower level has a painted concrete ceiling.

The 1948 building has exposed concrete floors, painted CMU walls and a metal ceiling.

Insulation (Foundation, walls and ceiling / roof): The foundation and roof of the 1919 building appear to be uninsulated. The insulation value and type contained in the main level walls was not accessible; however, through infrared thermal imaging, it was determined to be poorly insulated.

The walls of the 1948 building appear to be uninsulated. The ceiling has an average of 18" of a blown fiberglass insulation, yielding an R-50 insulation level.

Electrical System (Company source, service type, panel, etc.): The buildings are serviced by an overhead power line located in the alley on the east side of the building. Power enters the building through the east wall of the 1919 building where the main 200-amp Square D panel is located.

There is a 125-amp Cutler-Hammer subpanel located in the lower level.

There is a fused subpanel located on the south wall of the gymnasium on the second level.

There is a Square D subpanel located on the east wall of the 1948 building.

Heating and Air Conditioning Systems (Including supply source, fireplace, etc.): The main level of the 1919 building is heated by three, natural gas, forced air furnaces.

(1) Carrier - 80,000 btu input, 78,000 btu output, SN: 1012A47996

(2) Comfortmaker - 100,000 btu input, 90,000 btu output, SN: L940242127

(3) Comfortmaker - 100,000 btu input, 90,000 btu output, SN: L940242098

There are three Ruud air conditioning condensers located on the north side of the building.

The second level is presently unheated; however, there is a Herman Nelson unit heater located in the northeast corner.

There are two unit heaters located in the northeast corner of 1948 building, a Reznor (UDBP, 30,000 btu to 400,000 btu output, or similar) natural gas unit heater and an INOV8 waste oil heater (200,000 btu output).

The natural gas meter and regulator are located on the north side of the building.

Plumbing System (Materials used, water heater, pressure tank, etc.): Visible plumbing lines in the buildings are predominately copper.

There is a 10 gallon, State, electric water heater located adjacent to the restrooms on the east wall of the 1919 building.

There is a 40 gallon, A.O. Smith, natural gas water heater located in the northeast corner of the 1948 building.

Sanitary and Water Supply Systems (City, field, tanks, mound, depth of well, etc.): Water and sewer services are provided by the Town of Monticello.

The floor drains in the 1948 building drain to an open pit in the lower level of the 1919 building. There is a 4" cast iron sewer line leaving through the floor of the lower level.

Indoor Air Quality: Air temperature and humidity readings were taken on each level of the buildings using an Extech Industries RH401 Psychrometer and IR Thermometer. Thermostats in the building were set at approximately 48° F.

Building	Location	Temperature	Humidity
1919 Building	Lower Level	49.7° F	88.9%
	Main Level	48.7° F	62.1%
	Second Level	unheated	unconditioned
1948 building	Main Level	49.0° F	48.0%

There is a vehicle exhaust collection and venting system in the 1948 building. It appears that the ductwork for this system is routed under the concrete floor to floor grills. This system was not tested.

The following general observations were noted during my inspection. These corrections/repairs **are recommended** to be made, so that these buildings will be in reasonable compliance with current construction standards and building codes.

Interior:

1919 Building:

- Eight asbestos containing materials (ACM) samples were collected and tested. The pipe wrap in the northeast corner of the second level and the 9x9 floor tile on the second level were identified to be ACM and will need to be properly removed from the building if any remodeling work is performed. See the attached Exhibit A for the test results and Exhibit B for further information on ACM.
- Approximately eight lead based paint (LBP) tests were conducted and lead based paint was found on the second level window sashes. See the attached Exhibit C for further information on LBP.



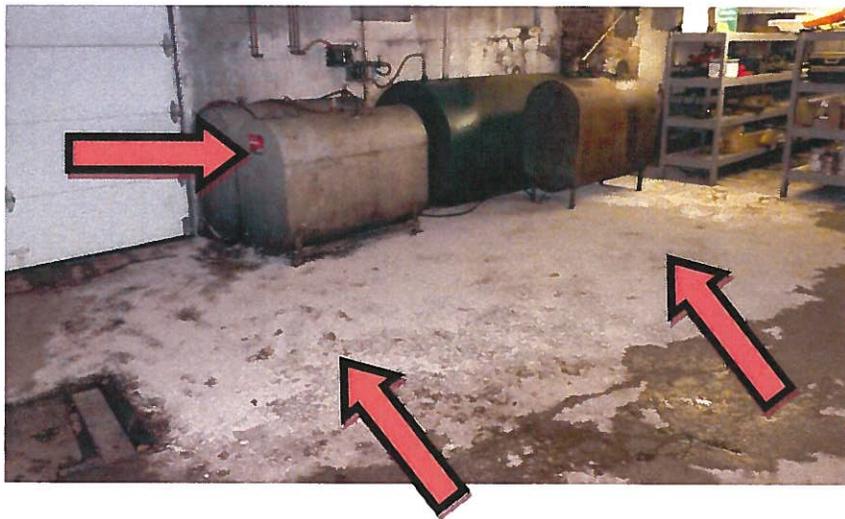
- Standing water was noted in the lower level. This is the cause of the high humidity levels in the lower level and the musky smell present in the building. It is also a potential source of mold and mildew growth. All cracks in the foundation walls need to be sealed and it is **recommended** that a Beaver Basement Water Control System (or similar) be installed. See the attached Exhibit D. This work, in conjunction with work outlined in the exterior and mechanical sections, could resolve approximately 75% of the moisture issues in the lower level.



- The lower level needs to be thoroughly cleaned (1/2 cup bleach : 1 gallon water) to remove any mold or mildew that occurred as a result of the current moisture issues.
- There appears to be a small chemical spill in the south end of the lower level. This needs to be properly cleaned up.



- An excessive amount of an "oil dry" product was spread on the floor of the lower level. The unused oil tanks need to be removed and this area needs to be properly cleaned.



- An appropriate guardrail, with balusters, needs to be added to the stairway to the lower level and the graspable handrail needs to be repaired.
- There are several cracks and holes in the main level concrete floor that need to be properly repaired and sealed.
- The existing restrooms are not ADA compliant. New restrooms will need to be constructed to order to meet ADA requirements for door widths, turning radii, fixture heights, etc. The number of restrooms required will be determined by the occupancy load based on the new floor plan. For this size building two to three stalls for each the Men's and Women's restrooms is typical.
- There is evidence of water damage on the east exterior wall near where the electrical service enters the building. This area needs to be thoroughly cleaned and any damaged materials need to be replaced.

- Proper exit signage and emergency lighting will need to be installed throughout the building.
- The carpets need to be professionally cleaned at the change of ownership.
- Consideration should be given to removing the existing water damaged plaster on the ceiling of the second level. This will both reduce the weight of the roof system and would allow for future insulation.
- Consideration should be given to reconstructing the stairway to the second level to eliminate the ramp at the bottom landing and to provide the proper head height clearance above the stairs.

1948 Building:

- There are multiple cracks in the concrete floor that need to be properly sealed.
- The trench drains and catch basins are full of sediment and need to be cleaned out.



- Proper exit signage and emergency lighting will need to be installed throughout the building.

Exterior:

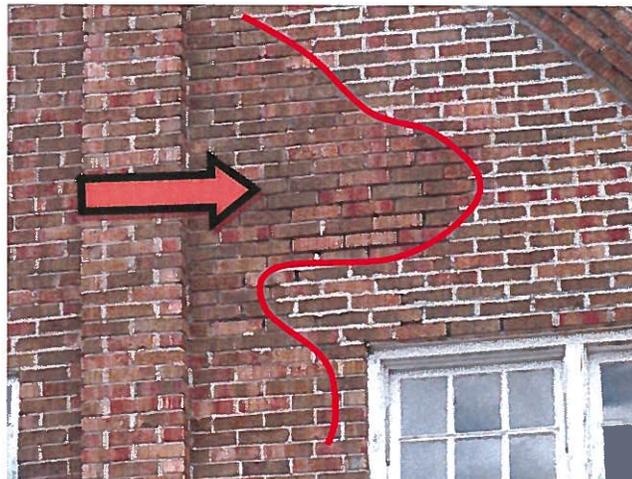
1919 Building:

- ADA compliant entrances and fire exits need to be constructed. The current entrances to the building have steps and will need to be reconstructed with ramps.
- There are numerous areas where the slope of the grade allows stormwater to flow toward the building foundation. This includes two open voids under the concrete approach to the lower level overhead door. All grade (where applicable) should be corrected to provide a minimum of a 2% slope away from the building. All open voids,

gaps between the foundation and aprons, etc., where water may penetrate, should be filled and/or properly sealed.



- Although previous work has been performed, tuckpointing will be required on a majority of the brick facade. This work is necessary to stabilize the brick facade and to keep water from penetrating. A small percentage of damaged brick (approximately 5%) will also need to be replaced during this work.



- The catch basin at the base of the ramp to the lower level overhead door is filled with debris and needs to be cleaned. Consideration should be given to installing a larger trench drain in this area to ensure that, during large rain events, no water is allowed into the building.



- The cementitious coating on the east side of the building is cracked in several locations and needs to be repaired.
- The wasp nest needs to be removed from the exterior light at the north door from the second level and a light bulb needs to be installed.

1948 Building:

- There are several nonstructural cracks in the CMU walls that need to be properly sealed.
- The concrete paving on the west portion of the property is in poor condition. Several sections are cracked and need to be repaired, while other sections will need to be replaced.

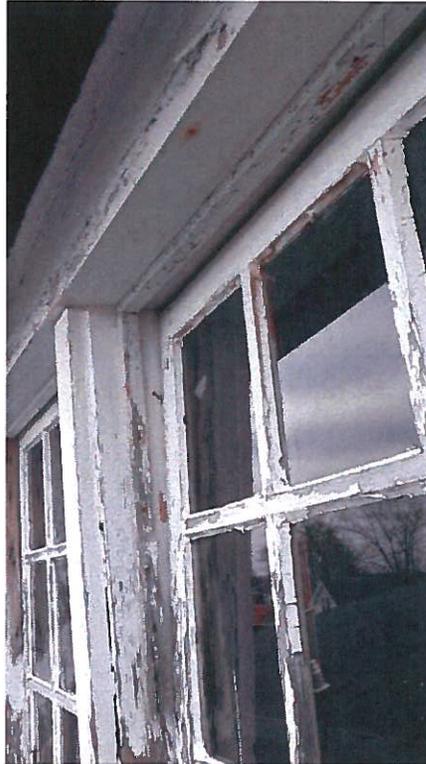
Fire Separation:

- Based upon occupancy uses, a fire separation will be required between the 1919 building and the 1948 building.
 - The 1919 building has been used for business offices and is therefore classified as a "Group B" occupancy. Upon the change of ownership, the intended use of the main level of the building will be as an assembly space and will therefore need to be classified as a "Group A" occupancy.
 - The 1948 building has been, and will be, used for storing vehicles, and is therefore considered a "Group S-1" occupancy.
 - A 2-hour fire separation is required between "Group S-1" and "Group A" occupancies.
- The existing brick wall common wall between the 1919 building and the 1948 building provides the required fire separation between the intended "Group S-1" and "Group A" occupancies. See the attached Exhibit E. All openings in the wall, such as doors, windows, etc., will need to have the proper fire rating.

Windows and Doors:

1919 Building:

- The second level windows are in poor condition and need to be repaired or replaced immediately.



- Several of the windows on the main level need to be recaulked. Consideration should be given to replacing these windows with more energy efficient units.
- The weatherstripping needs to be installed on the lower level overhead door.

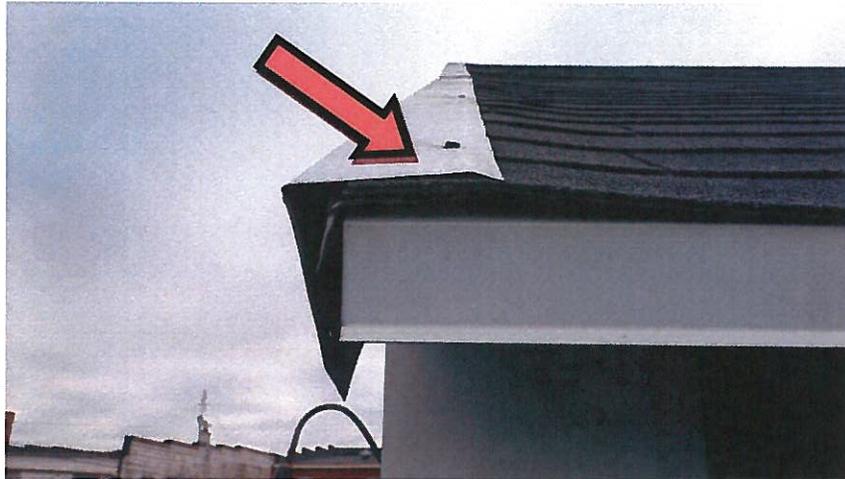
1948 Building:

- The lower panels on the overhead door on the south side of the building are damaged and should be replaced.
- Per our discussion with Mike Gengler, and after visiting with the existing garage facility, a minimum of an 18'-0" wide door will need to be installed on at least one side of the building. The present door heights appear to be adequate.
- Several of the window frames need to be caulked on the exterior side.

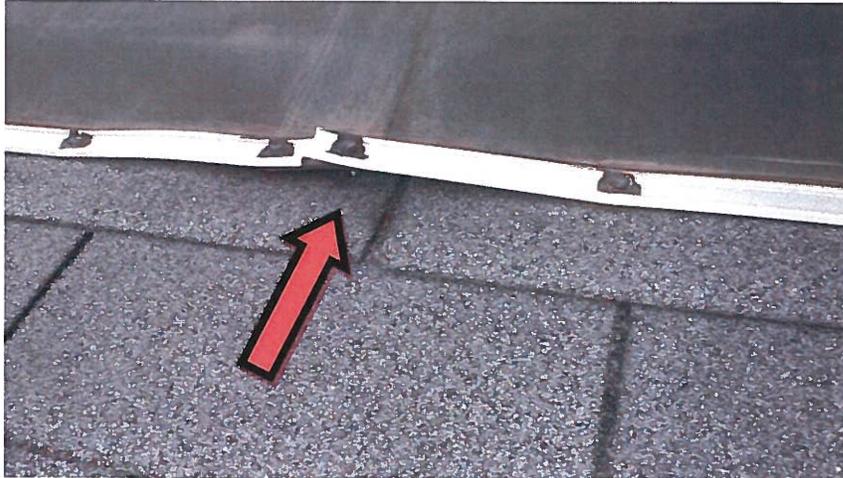
Attic / Roof System:

1919 Building:

- There are several sections of flashing that are loose or improperly installed. This needs to be repaired.



- There are several small sections of the EPDM termination strip that are loose and need to be refastened. All fasteners need to be re-caulked.



- Consideration should be given to insulating the roof system. This would both make the second level space usable and decrease the heating costs for the main level.

1948 Building:

- The EPDM roof has several failed seams that need to be repaired immediately.



- There appears to be heat tape present at the eaves, indicating previous ice buildup. It is likely that the continued use of heat tape will be required.
- The existing 5" eave trough system is undersized to handle the volume of stormwater from the roof. At the next re-roofing, consideration should be given to installing a larger, appropriately sized commercial system with a minimum size of 6".
- There are several sections of loose soffit and fascia that need to be repaired.

Mechanical:

1919 Building:

- Proper ventilation is needed for the entire building, including the lower level. Proper air movement and exchange will help to eliminate the moisture issues in the lower level and improve the air quality throughout the building.
- The existing open plumbing system in the lower level needs to be replaced with a properly vented closed system.



- The water heater should have the hot and cold water lines coming off the top of the heater insulated for the first 6 feet. The pressure relief line also needs to be extended to within 6" of the floor.
- All three of the furnace filters are dirty and beyond their usable life. These filters need to be changed on a regular basis (typically every three months depending on use).
- All existing ductwork and registers in the building should be thoroughly cleaned. This needs to be done by a qualified serviceman. See the attached Exhibit F for additional information.
- Consideration should be given to removing the existing, unused radiators (presently disconnected) from the second level.

1948 Building:

- The floor drains do not flow into an approved catch basin. The current catch basin does allow sediment to settle out; however, it does not prevent floating contaminants, such as oil, from getting into the plumbing system. An approved catch basin needs to be installed. See the attached Exhibit G for an example of an approved catch basin.



- The drain line from the eye wash station is broken and needs to be repaired.
- The water heater should have the hot and cold water lines coming off the top of the heater insulated for the first 6 feet.
- The chimney for the waste oil burner is loose above the roofline. If the unit will not be used, consideration should be given to its removal.

Electrical:

1919 Building:

- The guide wire for the electrical service coming to the building has failed and needs to be repaired. There is currently excessive sag and tension on the energized wires.



- All electrical receptacles located in the bathrooms and garages need to be Ground Fault Circuit Interrupted (GFCI) protected and labeled accordingly. An overall lack of GFCI protection and labeling was noted. Please see the attached Exhibit H.

- One of the breakers in the main electrical panel on the east wall of the main level was tripped. The cause of this should be determined and repaired, as necessary.
- All electrical connections need to be made in proper boxes with covers.
- The existing fuse panel on the second level needs to be replaced with modern breakers.

1948 Building:

- All electrical receptacles located in potentially wet locations, such as garages, need to be Ground Fault Circuit Interrupted (GFCI) protected and labeled accordingly. Please see the attached Exhibit H.
- All exterior electrical receptacles need to have the proper bubble covers installed to protect the receptacle when a cord is plugged in.
- The proper clear working space (30" wide by 36" deep) is not provided in front of the electric panel.

Infrared:

- Infrared Camera Imaging (ICI) was performed on this building, using a FLIR E30 Infrared Thermal Imaging camera, and showed low to marginal insulation throughout the buildings, with the exception of the ceiling in the 1948 building, which is well insulated. See the attached Exhibit I.

Miscellaneous:

- A 5 lb. ABC fire extinguisher is recommended on all floor levels, along with a 10 lb. ABC fire extinguisher in all workshops and garages.
- A smoke detector is required on each level of the building. The NFPA recommends that smoke detectors (not just the batteries, but also the entire unit) be replaced after 10 years. We recommend a dual sensor model, which embeds both photoelectric and ionization technology.
- A carbon monoxide detector is required on each level of the building. The National Fire Protection Agency (NFPA) recommends that carbon monoxide detectors be replaced approximately every 2 years.
- As a potential building owner, you should be aware that during our winter season, snow removal is recommended for all roofs that have a snow depth reaching 16". The removal should be done by a properly trained roofing contractor, providing that type of service.
- Information provided by Mike Gengler shows that three fuel tanks were removed from the site in September of 1990. In addition, the State of Wisconsin DNR's RR Sites Map

does not identify any past or present clean-up work performed on the site. Given the 25+ years of inactivity, no further investigation is recommended at this time. See the attached Exhibit J for the Tank Details and RR Sites Map.

- The attached Exhibit k outlines the estimated cost of the major repairs identified within this report.

Approximately 575 digital photos were taken and a photo CD is included with this report.

In summary, these buildings are in **fair** condition and are in need of upgrades. They will be in reasonable compliance with current construction practices and building codes **after** the above-listed corrections/repairs are made.

Submitted by:

A handwritten signature in black ink, appearing to read 'S. Schraufnagel', written in a cursive style.

Stephen G. Schraufnagel, Architect
Commercial Building Inspector I.D. No. 641330

*Our inspection report is intended to serve as a general guide to help the client make his / her own evaluation of the overall condition of the building - it does not reflect the value of the premises, nor make any representation about the potential purchase. The report expresses the personal opinions of this inspector, based upon his visual impressions of the conditions that existed at the time of the inspection. The inspection and the report are not intended to be technically exhaustive, nor does it imply that every component has been inspected, nor that every possible defect was discovered. No disassembly of equipment; opening of walls; moving of furniture, appliances, personal items, or stored items; or excavation has been performed. All components and conditions, which by the nature of their location are concealed, camouflaged or difficult to inspect, are excluded from the report. This inspection was performed in compliance with generally accepted Standards of Practice.



EMSL Analytical, Inc.

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EMSL Order: 351508473
Customer ID: TWIN50
Customer PO:
Project ID:

Attention: Tracy Jacobs
 Twin Ports Testing, Inc.
 1301 North 3rd Street
 Superior, WI 54880

Phone: (218) 390-0162
Fax: (715) 392-7163
Received Date: 12/29/2015 9:15 AM
Analysis Date: 12/29/2015
Collected Date: 12/15/2015

Project: 15A0396 / C & S Design

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

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
3-Plaster <i>351508473-0003</i>	TN. Of Mt. Pleasant-Gym Ceiling	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
3-Skim Coat <i>351508473-0003A</i>	TN. Of Mt. Pleasant-Gym Ceiling	White Non-Fibrous Homogeneous	5% Cellulose	95% Non-fibrous (Other)	None Detected
3-Tar Paper <i>351508473-0003B</i>	TN. Of Mt. Pleasant-Gym Ceiling	Black Fibrous Homogeneous	50% Cellulose	50% Non-fibrous (Other)	None Detected
4 <i>351508473-0004</i>	TN. Of Mt. Pleasant-2nd Level-east ceiling	Black Non-Fibrous Homogeneous	10% Cellulose	90% Non-fibrous (Other)	None Detected
5 <i>351508473-0005</i>	TN. Of Mt. Pleasant-2nd Level pipe wrap @ NW Unit	Gray Fibrous Homogeneous		25% Non-fibrous (Other)	75% Chrysotile
6-Floor Tile <i>351508473-0006</i>	TN. Of Mt. Pleasant-2nd Level NE Floor	Red Non-Fibrous Homogeneous		90% Non-fibrous (Other)	10% Chrysotile
6-Mastic <i>351508473-0006A</i>	TN. Of Mt. Pleasant-2nd Level NE Floor	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
7 <i>351508473-0007</i>	TN. Of Mt. Pleasant-Basement Ceiling	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected

Analyst(s) _____
 Miles DelBusso (8)



 Rachel Travis, Laboratory Manager
 or Other Approved Signatory

EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST or any agency of the federal government. Non-friable organically bound materials present a problem matrix and therefore EMSL recommends gravimetric reduction prior to analysis. Samples received in good condition unless otherwise noted. Estimated accuracy, precision and uncertainty data available upon request. Unless requested by the client, building materials manufactured with multiple layers (i.e. linoleum, wallboard, etc.) are reported as a single sample. Reporting limit is 1%

Samples analyzed by EMSL Analytical, Inc. Minneapolis, Mn NVLAP Lab Code 200019-0

Initial report from: 12/30/2015 09:07:43

Menu



Learn About Asbestos

- What is Asbestos?
- Where Can I Find Asbestos?
- How Can People Be Exposed to Asbestos?
- Health Effects From Exposure to Asbestos

What is Asbestos?

Asbestos is a mineral fiber that occurs in rock and soil.

Learn about vermiculite and asbestos-contaminated vermiculite insulation

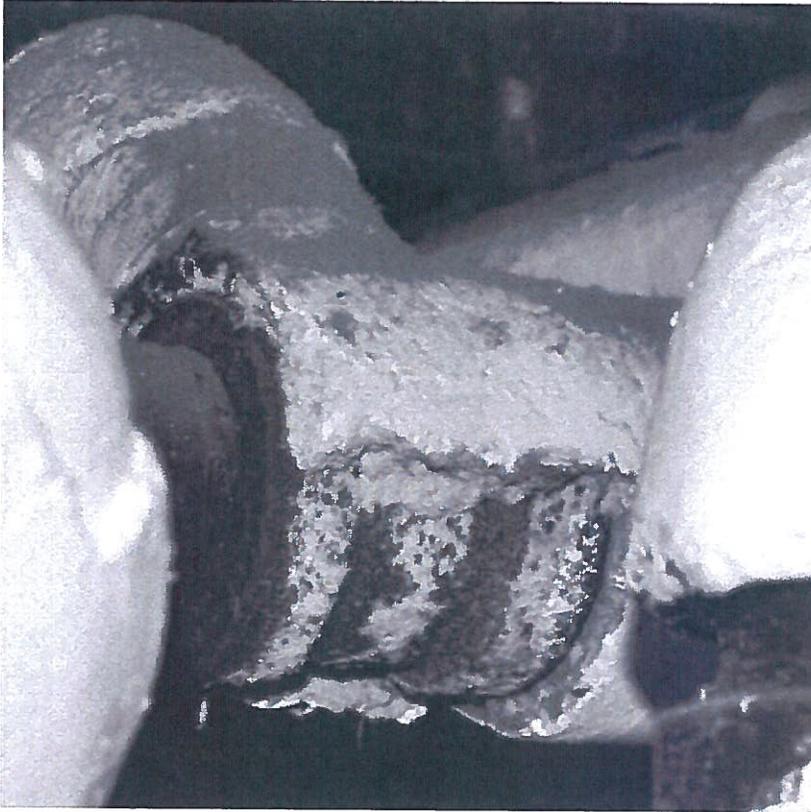
Where Can I Find Asbestos?

Because of its fiber strength and heat resistance asbestos has been used in a variety of building construction materials for insulation and as a fire retardant. Asbestos has also been used in a wide range of manufactured goods, mostly in building materials (roofing shingles, ceiling and floor tiles, paper products, and asbestos cement products), friction products (automobile clutch, brake, and transmission parts), heat-resistant fabrics, packaging, gaskets, and coatings.

Most uses of asbestos are not banned. A few are banned under existing regulations.

Where asbestos may be found:

- Attic and wall insulation produced containing vermiculite
- Vinyl floor tiles and the backing on vinyl sheet flooring and adhesives
- Roofing and siding shingles
- Textured paint and patching compounds used on wall and ceilings
- Walls and floors around wood-burning stoves protected with asbestos paper, millboard, or cement sheets
- Hot water and steam pipes coated with asbestos material or covered with an asbestos blanket or tape
- Oil and coal furnaces and door gaskets with asbestos insulation
- Heat-resistant fabrics
- Automobile clutches and brakes



Asbestos pipe wrap (joint partially removed)

Read more about other places where asbestos can be found:

- Schools
- Workplace
- Soils and rock: naturally-occurring asbestos (PDF) (7 pp, 277 K, About PDF)
- Drinking water
- Air: regulations

How Can People Be Exposed to Asbestos?

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. In general, exposure may occur only when the asbestos-containing material is disturbed or damaged in some way to release particles and fibers into the air.

Health Effects From Exposure to Asbestos

Exposure to asbestos increases your risk of developing lung disease. That risk is made worse by smoking. In general, the greater the exposure to asbestos, the greater the chance of developing harmful health effects.

Disease symptoms may take many years to develop following exposure.

Asbestos-related conditions can be difficult to identify. Healthcare providers usually identify the possibility of asbestos exposure and related health conditions like lung disease by taking a thorough medical history. This includes looking at the person's medical, work, cultural and environmental history.

After a doctor suspects an asbestos-related health condition, he or she can use a number of tools to help make the actual diagnosis. Some of these tools are physical examination, chest x-ray and pulmonary function tests. Your doctor may also refer you to a specialist who treats diseases caused by asbestos.

Three of the major health effects associated with asbestos exposure are:

- lung cancer
- mesothelioma, a rare form of cancer that is found in the thin lining of the lung, chest and the abdomen and heart
- asbestosis, a serious progressive, long-term, non-cancer disease of the lungs

For more information on these and other health effects of asbestos exposure see the Agency for Toxic Substances and Disease Registry, the National Institute for Occupational Safety and Health and the National Cancer Institute.

Learn what to do to protect your family

Last updated on February 19, 2015

EPA Lead Base Paint Rule

The Environmental Protection Agency's new rule dealing with lead-safe work practices goes into effect on April 22, 2010. Anyone receiving compensation for renovating, repairing, and painting work in residences built before 1978 that disturbs painted surfaces is subject to the new Renovation, Repair and Painting Rule (RRP). Also affected by the RRP are those performing similar work on facilities occupied by children under six years of age, such as schools and day-care centers built prior to 1978.

The requirements under the rule apply to maintenance, renovation, or repair activities where six square feet (about the size of a poster) or more of a painted surface is disturbed inside, or where 20 square feet or more of painted surface (about the size of a door) is disturbed on the exterior. Window replacement also is covered by the rule. Under the new rule, child-occupied facilities are defined as public or commercial buildings where children under age six are present on a regular basis. Those affected by the rule will be required to:

- Apply to EPA to be approved as a Certified Renovation Firm.
- Receive the necessary training and certification from an EPA-accredited training provider for Lead Safe Work Practices.
- Assign a Certified Renovator to be present at each project.
- Ensure that lead-safe work practices are used throughout the project.
- Provide consumers or tenants with the EPA pamphlet "Renovate Right" prior to the start of any project that will disturb six or more square feet of interior painted surface or 20 or more square feet of exterior painted surfaces in housing and child occupied facilities built before 1978.
- Maintain records documenting that the required information has been provided at each project subject to the rule.

Landlords who perform the work described above are also affected by the rule and bound by the same requirements.

EPA notes that lead, a toxic metal that was used for many years in products such as lead-based paint, may cause a range of health effects from behavioral problems and learning disabilities, to seizures and death. Children six years old and under are most at risk. In 1978 the sale and use of lead-based paint was banned for residential use.

Until the new rule takes effect, contractors should follow these three simple procedures: contain the work area; minimize dust; and clean up thoroughly. For more information, go to www.epa.gov/lead or call the National Lead Information Center at 1-800-424-LEAD (5323).

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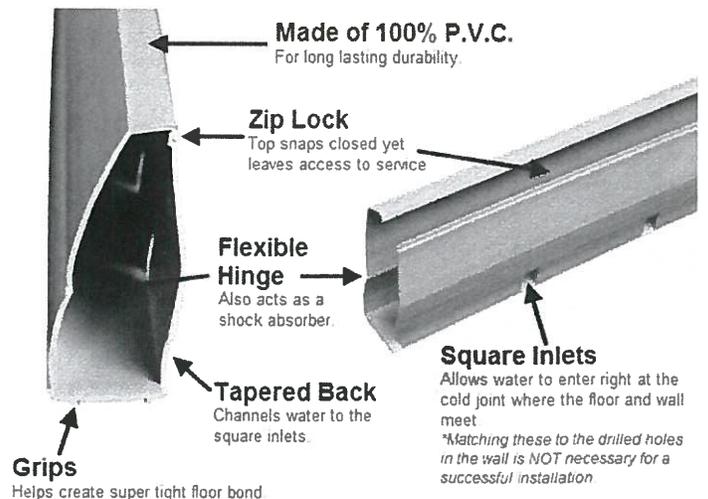
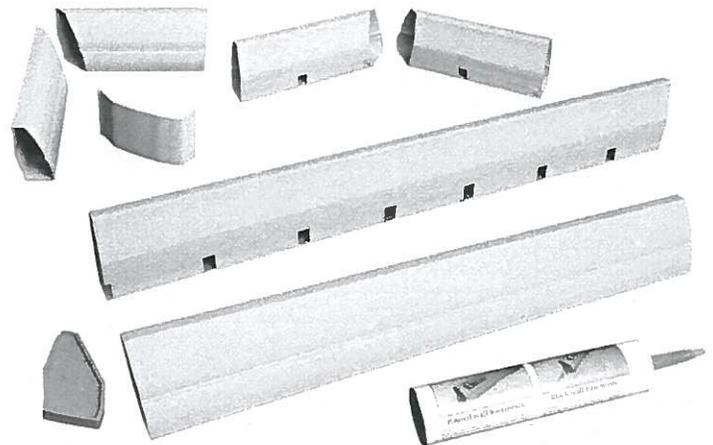
DIY LEVEL 2 | Basement Waterproofing System

High quality brand name basement waterproofing products go into every job ... No Generic Items! Designed by Beaver Basement Water Control Systems producing dry basements since 1965.

The Level 2 system is a simple step up in quality and engineering from the Level 1 system. The Level 2 system has a supporting back wall and comes in 4' 6" sections which require fewer seams and should reduce installation time.

The Level 2 system has a hollow interior, the same as the Level 1 system, but the biggest difference the Level 2 system has to offer is a hinge, which allows access to the interior of the system for ease of access. The hinge also acts as a shock absorber should the kids or washing machine ever come in contact with the system.

If you have a wet basement or are wondering how to fix a basement water problem chances are you



need to relieve hydrostatic pressure along your basement walls. Most basement water problems are caused by water collecting around the foundation creating hydrostatic pressure.

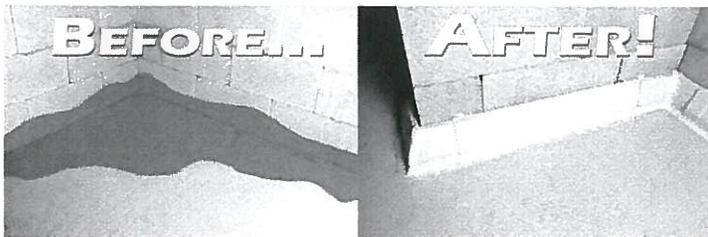
The pressure forces water through the joint where the wall and floor meet, and even through cracks and pores in the concrete walls. Now you can dry up your wet basement with our easy to use basement waterproofing products.

Helpful Links

- > Take a look at the installation steps to install the Level 2 Basement Waterproofing System.
- > Help with how to measure and determine your customized product list.
- > Do a cost comparison analysis between Do-It-Yourself vs. a Professional Installation.
- > Read more about why basements leak to better understand which system is best for you.

[ORDER THIS KIT NOW](#)

How the Beaver System Works ...



Most wet basement problems are caused by water collecting around the foundation, creating hydrostatic pressure. The pressure forces water through the joint where the wall and floor meet,

Introducing a new way to fix wet basements at a fraction of the price.

The Beaver waterproofing system offers homeowners quality construction, superior performance, and the opportunity to turn their wet basements into additional living space, at just a fraction of the cost of ordinary contractor installed drain-tile systems. The Beaver basement waterproofing system makes sense!

The Beaver basement water control systems will

and even through cracks and pores in the concrete block wall. The Beaver System solves the problem by doing what paints, plugs and crack sealers can't do; it collects the water and quietly drains it away to your sump-pump or floor drain.

Hydrostatic Pressure is relieved by drilling holes in the concrete block cavities at floor level. The Beaver baseboard level one is a hollow baseboard channel that is installed along the perimeter of the basement walls. The system is bonded to the floor using our technologically advanced waterproof Beaver Seal adhesive. When water collects around the foundation it seeps in from the weep holes in the blocks and from the seam where the wall and floor join. Then the water is collected and channeled using the hollow backed baseboard and is directed to your sump-pump or floor drain.

Poured wall basements ...

Poured-wall basements have cracks from the upper part of the wall extending down to the floor. These cracks seep water and relieve water pressure around the basement.

Simply clean the surface in and around any cracks that may exist on the basement walls. Cleaning the surface properly will require the use of a 3M metal paint stripper-wheel with your electric drill as shown in the installation guide. Once the surface is prepared seal all vertical cracks except for the lower 3 to 4 inches of the crack with the Beaver waterproof adhesive which is included in your kit.

Extra tubes may be required depending on how large and number of cracks that exist. The lower 3 to 4 inches of the crack must be kept open to

solve your water problems by doing what paints, plugs and crack sealers can't do; it collects the water and channels it to your sump-pump or floor drain. EASY Do-It-Yourself Installation of a Proven System that will DRY UP Your Basement!

The Beaver Basement Water Control System is the dependable and affordable way to dry up your basement. Our systems have 47 years of proven performance and more than 15 million feet now in use and still operating perfectly!

- Watch the Basement Waterproofing System installation video.
- Help with how to measure and determine your customized product list.
- Do a cost comparison analysis between Do-It-Yourself vs. a Professional Installation.
- Read more about why basements leak to better understand which system is best for you.

Block wall basements ...

The Beaver System is just as effective in block wall basements as it is in those with solid poured walls. In a block wall application weep holes will need to be drilled into each block to relieve the hydrostatic pressure. Once weep holes are drilled it allows air to circulate within the block cavities and helps to keep them dry, which will eliminate upper wall moisture.

The Beaver System will collect water seepage from the weep holes drilled in the lower blocks. Once the water is safely collected in the system it will naturally flow to your floor drain or sump-pump.

relieve hydrostatic pressure and allow water into the system. The Beaver System will collect water seepage from the vertical wall cracks and from the joint where floor and wall meet. Once the water is safely collected in the system it will naturally flow to your floor drain or sump-pump.



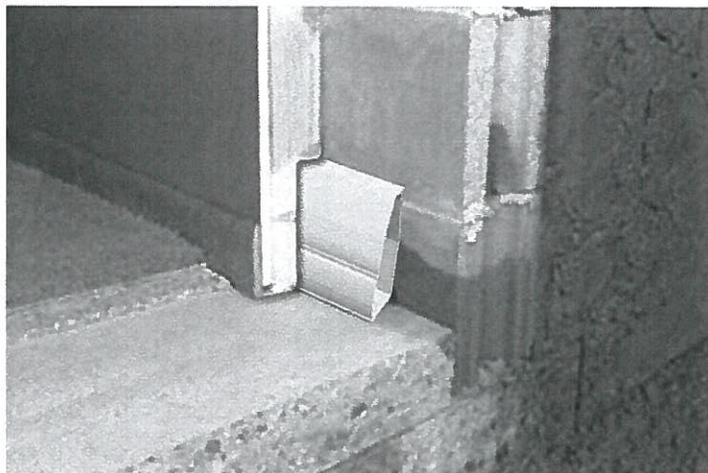
Finishing with paint or paneling

...

It's easy to paint or panel a basement fitted with the Beaver System. The Beaver baseboard can be painted the day after installation with any good quality oil or latex paint.

Before paneling, fasten a vapor barrier of plastic film at the top of the wall and allow it to extend all the way to the floor. Cut it off at floor level and tuck it behind the baseboard. Nail furring strips over the plastic film. The plastic barrier will collect any water that penetrates the upper wall and guide it into the Beaver baseboard.

Paneling the basement walls for a recreation room or extra bedroom can be accomplished with 2" x 2" furring strips, sheetrock or paneling and normal installation procedures. But, the traditional "floorplated furring strip" is fastened horizontally to the wall just above the baseboard. Sheetrock or paneling is then installed over the furring strips. A trim board can be added to enclose the system.



Quick Links

- > [Why Basements Get Wet](#)
- > [Do-It-Yourself vs. PRO](#)

Testimonials

I have to admit that I was skeptical at first that any

FINALLY I CAN FINISH MY BASEMENT! I'm so glad I

- > Shop Our Online Store
- > Waterproofing Products
- > DIY Installation Guide
- > Calculate Project Costs

DIY product could actually stop the amount of water my basement was taking on, but your basement waterproofing kit has dried up my basement and continues to do so month after month!

found you guys and even happier that you offer a high quality product with easy installation instructions. My entire basement is now dry. Thank you!



Sarah Becker,
Wichita, KS



Adam Berline,
Madison, WI

Compare DIY kits vs. a professional installation in minutes!

Dry up your wet basement at a fraction of the cost of other products.

Calculate exactly what you will need for your custom basement waterproofing project.

FAST QUOTE!

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U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT

Fire Ratings



Introduction

The tables and histograms that follow are to be used only within the analytical framework described in this Guideline.

Histograms precede any table with ten or more entries. The use and interpretation of the histograms is explained in Section 2, above.

The table format is similar to the one used by the model codes. Figure VI below, taken from an entry in Table 1.1.2, explains the column headings:

■ **Item Code.** This column contains the item code for each building element. The code consists of a four-place series, such as W-4-M-50, where:

W = type of building element;
W = walls, F = floors, etc.

4 = the building element thickness rounded **down** to the nearest one-inch increment (for example, 4 5/8" is rounded off to 4").

M = the general type of material from which the building element is constructed; M = masonry, W = wood, etc.

50 = the sequence number of the particular building element in a table.

■ **Thickness.** This column identifies the dimension with the greatest impact on fire resistance. The critical dimension for walls (the example shown here) is **thickness**, but it differs for other building elements. For instance, the critical dimension for beams is **depth** and for some floor/ceiling assemblies it is **membrane thickness**. The dimension shown is the one measured at the time of actual testing to within ±1/8-inch tolerance. The thickness includes facings when they are part of the wall construction.

■ **Construction Details.** This column provides a brief description of the building element.

■ **Performance.** This column is subdivided into two columns in most tables. The first is labeled "Load" and either lists the load that the building element was subjected to during the fire test or refers to a note at the bottom of the table that provides information on the load or other significant details. If the building element was not subjected to a load during the test, the entry will be "n/a" for "not applicable." The second

column is labeled "Time" and denotes the actual fire endurance time observed in the fire test.

■ **Reference Number.** This column refers to the 1942 National Bureau of Standards publication, Building Material Standard 92, "Fire-Resistance Classifications of Building Constructions" (1). The column is subdivided into three parts: Pre-BMS-92, BMS-92, and Post BMS-92. Table entries refer to the number of the entry in the bibliography containing the original source reference for the test data.

■ **Notes.** The entries in this column refer to notes at the end of the table that contain a more detailed explanation of certain aspects of the test. In some tables, note numbers also appear under the headings "Construction Details" and "Load."

■ **Rec Hours.** This column lists the recommended fire endurance rating, in hours or minutes, of the subject building element. This rating is always less than or equal to the rating under the "Time" column.

Item Code	Thickness	Construction Details	Performance		Reference Number			Notes	Rec Hours
			Load	Time	Pre BMS 92	BMS 92	Post-BMS 92		
W-4-M-50	4 5/8"	Core structural clay tile; see notes 12, 16, 21; facings on unexposed side only; see note 18.	n/a	25 min.	-	1	-	3,4,24	1/3

Figure VI. Sample Fire Rating Table.

Figure 1.1.6
Masonry Walls, 12" (300 mm) to less than 14" (350 mm) thick

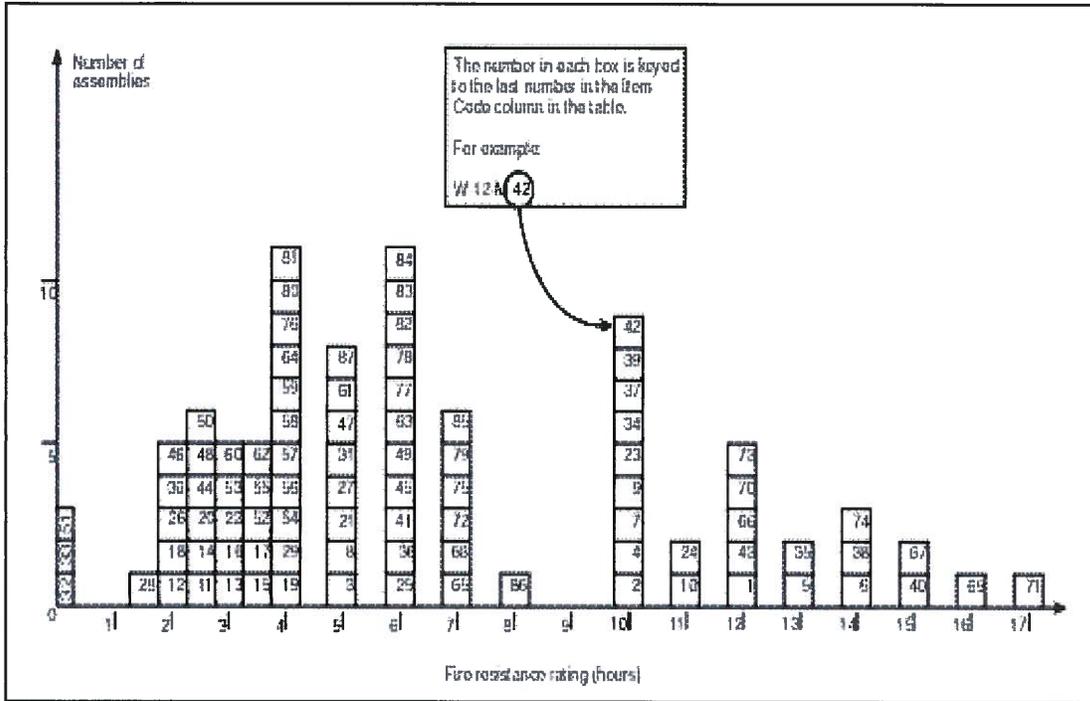


Table 1.1.6
Masonry Walls 12" (300 mm) to less than 14" (350 mm) thick

Item Code	Thick-ness	Construction Details	Performance		Reference Number			Notes	Rec Hours
			Load	Time	Pre BMS 92	BMS	Post-BMS 92		
W-12-M-1	12"	Core: solid clay or shale brick; no facings	n/a	12 hrs	-	1	-	1	12
W-12-M-2	12"	Core: solid clay or shale brick; no facings	160 psi	10 hrs	-	1	-	1,44	10
W-12-M-3	12"	Core: hollow rolok of clay or shale; no facings	160 psi	5 hrs	-	1	-	1,44	5
W-12-M-4	12"	Core: hollow rolok bak of clay or shale; no facings	160 psi	10 hrs	-	1	-	1,44	10
W-12-M-5	12"	Core: concrete brick; no facings	160 psi	13 hrs	-	1	-	1,44	13
W-12-M-6	12"	Core: sand-lime brick; no facings	n/a	14 hrs	-	1	-	1	14
W-12-M-7	12"	Core: sand-lime brick; no facings	160 psi	10 hrs	-	1	-	1,44	10
W-12-M-8	12"	Cored clay or shale bricks; units in wall thickness: 1; cells in wall thickness: 2; minimum % solids: 70; no facings	120 psi	5 hrs	-	1	-	1,45	5

Table 1.1.6, continued (Masonry Walls, 12" to less than 14" thick)

Item Code	Thick-ness	Construction Details	Performance		Reference Number			Notes	Rec Hours
			Load	Time	Pre BMS 92	BMS	Post-BMS 92		
W-12-M-9	12"	Cored clay or shale bricks; units in wall thickness: 3; cells in wall thickness: 3; minimum % solids: 87; no facings	160 psi	10 hrs	-	1	-	1,44	10
W-12-M-10	12"	Cored clay or shale bricks; units in wall thickness: 3; cells in wall thickness: 3; minimum % solids: 87; no facings	n/a	11 hrs	-	1	-	1	11
W-12-M-11	12"	Core: clay or shale structural tile; see notes 2, 6, 9, 18; no facings	80 psi	2 hrs 30 min	-	1	-	1,20	2 1/2
W-12-M-12	12"	Core: clay or shale structural tile; see notes 2, 4, 9, 19; no facings	80 psi	2 hrs	-	1	-	1,20	2
W-12-M-13	12"	Core: clay or shale structural tile; see notes 2, 6, 14, 19; no facings	80 psi	3 hrs	-	1	-	1,20	3
W-12-M-14	12"	Core: clay or shale structural tile; see notes 2, 6, 14, 18; no facings	80 psi	2 hrs 30 min	-	1	-	1,20	2 1/2
W-12-M-15	12"	Core: clay or shale structural tile; see notes 2, 4, 13, 18; no facings	80 psi	3 hrs 30 min	-	1	-	1,20	3 1/2
W-12-M-16	12"	Core: clay or shale structural tile; see notes 2, 4, 13, 19; no facings	80 psi	3 hrs	-	1	-	1,20	3
W-12-M-17	12"	Core: clay or shale structural tile; see notes 3, 6, 9, 18; no facings	80 psi	3 hrs 30 min	-	1	-	1,20	3 1/2
W-12-M-18	12"	Core: clay or shale structural tile; see notes 3, 6, 9, 19; no facings	80 psi	2 hrs	-	1	-	1,20	2
W-12-M-19	12"	Core: clay or shale structural tile; see notes 3, 6, 14, 18; no facings	80 psi	4 hrs	-	1	-	1,20	4
W-12-M-20	12"	Core: clay or shale structural tile; see notes 3, 6, 14, 19; no facings	80 psi	2 hrs 30 min	-	1	-	1,20	2 1/2
W-12-M-21	12"	Core: clay or shale structural tile; see notes 3, 6, 16, 18; no facings	80 psi	5 hrs	-	1	-	1,20	5
W-12-M-22	12"	Core: clay or shale structural tile; see notes 3, 6, 16, 19; no facings	80 psi	3 hrs	-	1	-	1,20	3
W-12-M-23	12"	Core: 8", 70% solid clay or shale structural tile; 4" brick facing on one side	80 psi	10 hrs	-	1	-	1,20	10
W-12-M-24	12"	Core: 8", 70% solid clay or shale structural tile; 4" brick facing on one side	n/a	11 hrs	-	1	-	1	11
W-12-M-25	12"	Core: 8", 40% solid clay or shale structural tile; 4" brick facing on one side	80 psi	6 hrs	-	1	-	1,20	6
W-12-M-26	12"	Cored concrete masonry; see notes 1, 9, 15, 16, 20; no facings	80 psi	2 hrs	-	1	-	1,20	2
W-12-M-27	12"	Cored concrete masonry; see notes 2, 18, 26, 34, 41; no facings	80 psi	5 hrs	-	1	-	1,20	5
W-12-M-28	12"	Cored concrete masonry; see notes 2, 19, 26, 31, 41; no facings	80 psi	1 hr 30 min	-	1	-	1,20	1 1/2

Table 1.1.6, continued (Masonry Walls, 12" to less than 14" thick)

Item Code	Thick-ness	Construction Details	Performance		Reference Number			Notes	Rec Hours
			Load	Time	Pre BMS 92	BMS	Post-BMS 92		
W-12-M-29	12"	Cored concrete masonry; see notes 2, 18, 26, 31, 41; no facings	80 psi	4 hrs	-	1	-	1,20	4
W-12-M-30	12"	Cored concrete masonry; see notes 3, 19, 27, 31, 43; no facings	80 psi	2 hrs	-	1	-	1,20	2
W-12-M-31	12"	Cored concrete masonry; see notes 3, 18, 27, 31, 43; no facings	80 psi	5 hrs	-	1	-	1,20	5
W-12-M-32	12"	Cored concrete masonry; see notes 2, 19, 26, 32, 43; no facings	80 psi	25 min	-	1	-	1,20	1/3
W-12-M-33	12"	Cored concrete masonry; see notes 2, 18, 26, 32, 43; no facings	80 psi	25 min	-	1	-	1,20	1/3
W-12-M-34	12 1/2"	Core: solid clay or shale brick; 1/2" of 1:3 sanded gypsum plaster facing on one side	160 psi	10 hrs	-	1	-	1,44	10
W-12-M-35	12 1/2"	Core: solid clay or shale brick; 1/2" of 1:3 sanded gypsum plaster facing on one side	n/a	13 hrs	-	1	-	1	13
W-12-M-36	12 1/2"	Core: hollow rolok of clay or shale; 1/2" of 1:3 sanded gypsum plaster facing on one side	160 psi	6 hrs	-	1	-	1,44	6
W-12-M-37	12 1/2"	Core: hollow rolok bak of clay or shale; 1/2" of 1:3 sanded gypsum plaster facing on one side	160 psi	10 hrs	-	1	-	1,44	10
W-12-M-38	12 1/2"	Core: concrete; 1/2" of 1:3 sanded gypsum plaster facing on one side	160 psi	14 hrs	-	1	-	1,44	14
W-12-M-39	12 1/2"	Core: sand-lime brick; 1/2" of 1:3 sanded gypsum plaster facing on one side	160 psi	10 hrs	-	1	-	1,44	10
W-12-M-40	12 1/2"	Core: sand-lime brick; 1/2" of 1:3 sanded gypsum plaster facing on one side	n/a	15 hrs	-	1	-	1	15
W-12-M-41	12 1/2"	Units in wall thickness: 1; cells in wall thickness: 2; minimum % solids: 70; cored clay or shale brick; 1/2" of 1:3 sanded gypsum plaster facing on one side	120 psi	6 hrs	-	1	-	1,45	6
W-12-M-42	12 1/2"	Cored clay or shale bricks; units in wall thickness: 3; cells in wall thickness: 3; minimum % solids: 87; 1/2" of 1:3 sanded gypsum plaster facings on one side	160 psi	10 hrs	-	1	-	1,44	10
W-12-M-43	12 1/2"	Cored clay or shale bricks; units in wall thickness: 3; cells in wall thickness: 3; minimum % solids: 87; 1/2" of 1:3 sanded gypsum plaster facing on one side	n/a	12 hrs	-	1	-	1	12
W-12-M-44	12 1/2"	Cored concrete masonry; see notes 2, 19, 26, 34, 41; facing on fire side only; see note 38	80 psi	2 hrs 30 min	-	1	-	1,20	2 1/2

Table 1.1.6, continued (Masonry Walls, 12" to less than 14" thick)

Item Code	Thick-ness	Construction Details	Performance		Reference Number			Notes	Rec Hours
			Load	Time	Pre BMS 92	BMS	Post-BMS 92		
W-12-M-45	12 1/2"	Cored concrete masonry; see notes 2, 18, 26, 34, 39, 41; facing on one side only; see note 38	80 psi	6 hrs	-	1	-	1,20	6
W-12-M-46	12 1/2"	Cored concrete masonry; see notes 2, 19, 26, 34, 41; facing on fire side only; see note 38	80 psi	2 hrs	-	1	-	1,20	2
W-12-M-47	12 1/2"	Cored concrete masonry; see notes 2, 18, 26, 31, 41; facings one side of wall only; see note 38	80 psi	5 hrs	-	1	-	1,20	5
W-12-M-48	12 1/2"	Cored concrete masonry; see notes 3, 19, 27, 31, 43; facing on fire side only; see note 38	80 psi	2 hrs 30 min	-	1	-	1,20	2 1/2
W-12-M-49	12 1/2"	Cored concrete masonry; see notes 3, 18, 27, 31, 43; facing one side only; see note 38	80 psi	6 hrs	-	1	-	1,20	6
W-12-M-50	12 1/2"	Cored concrete masonry; see notes 2, 19, 26, 32, 43; facing on fire side only; see note 38	80 psi	2 hrs 30 min	-	1	-	1,20	2 1/2
W-12-M-51	12 1/2"	Cored concrete masonry; see notes 2, 18, 26, 32, 43; facing one side only; see note 38	80 psi	25 min	-	1	-	1,20	1/3
W-12-M-52	12 5/8"	Clay or shale structural tile; see notes 2, 6, 9, 18; facing: side 1—see note 17; side 2—none	80 psi	3 hrs 30 min	-	1	-	1,20	3 1/2
W-12-M-53	12 5/8"	Clay or shale structural tile; see notes 2, 6, 9, 19; facing on fire side only; see note 17	80 psi	3 hrs	-	1	-	1,20	3
W-12-M-54	12 5/8"	Clay or shale structural tile; see notes 2, 6, 14, 19; facing: side 1—see note 17; side 2—none	80 psi	4 hrs	-	1	-	1,20	4
W-12-M-55	12 5/8"	Clay or shale structural tile; see notes 2, 6, 14, 18; facings on exposed side only; see note 17	80 psi	3 hrs 30 min	-	1	-	1,20	3 1/2
W-12-M-56	12 5/8"	Clay or shale structural tile; see notes 2, 4, 13, 18; facings: side 1—see note 17; side 2—none	80 psi	4 hrs	-	1	-	1,20	4
W-12-M-57	12 5/8"	Clay or shale structural tile; see notes 1, 4, 13, 19; facings on fire side only; see note 17	80 psi	4 hrs	-	1	-	1,20	4
W-12-M-58	12 5/8"	Clay or shale structural tile; see notes 3, 6, 9, 18; facings: side 1—see note 17; side 2—none	80 psi	4 hrs	-	1	-	1,20	4
W-12-M-59	12 5/8"	Clay or shale structural tile; see notes 3, 6, 9, 19; facings on fire side only; see note 17	80 psi	3 hrs	-	1	-	1,20	3
W-12-M-60	12 5/8"	Clay or shale structural tile; see notes 3, 6, 14, 18; facings: side 1—see note 17; side 2—none	80 psi	5 hrs	-	1	-	1,20	5

Table 1.1.6, continued (Masonry walls, 12" to less than 14" thick)

Item Code	Thick-ness	Construction Details	Performance		Reference Number			Notes	Rec Hours
			Load	Time	Pre BMS 92	BMS	Post-BMS 92		
W-12-M-61	12 5/8"	Clay or shale structural tile; see notes 3, 6, 14, 19; facings: fire side only; see note 17	80 psi	3 hrs 30 min	-	1	-	1,20	3 1/2
W-12-M-62	12 5/8"	Clay or shale structural tile; see notes 3, 6, 16, 18; facings: side 1—see note 17; side 2—none	80 psi	6 hrs	-	1	-	1,20	6
W-12-M-63	12 5/8"	Clay or shale structural tile; see notes 3, 6, 16, 19; facing fire side only; see note 17	80 psi	4 hrs	-	1	-	1,20	4
W-12-M-64	12 5/8"	Core: 8", 40% solid clay or shale structural tile; facings 4" brick plus 5/8" of 1:3 sanded gypsum plaster on one side	80 psi	7 hrs	-	1	-	1,20	7
W-13-M-65	13"	Core:solid clay or shale brick; 1/2" of 1:3 sanded gypsum plaster facing on both sides	160 psi	12 hrs	-	1	-	1,44	12
W-13-M-66	13"	Core: solid clay or shale brick; 1/2" of 1:3 sanded gypsum plaster facing on both sides	n/a	15 hrs	-	1	-	1,20	15
W-13-M-67	13"	Core: solid clay or shale brick; 1/2" of 1:3 sanded gypsum plaster facings on both sides	n/a	15 hrs	-	1	-	1	15
W-13-M-68	13"	Core: hollow rolok of clay or shale; 1/2" of 1:3 sanded gypsum plaster facings on both sides	80 psi	7 hrs	-	1	-	1,20	7
W-13-M-69	13"	Core: concrete brick; 1/2" of 1:3 sanded gypsum plaster facings on both sides	160 psi	16 hrs	-	1	-	1,44	16
W-13-M-70	13"	Core: sand-lime brick; 1/2" of 1:3 sanded gypsum plaster facings on both sides	160 psi	12 hrs	-	1	-	1,44	12
W-13-M-71	13"	Core: sand-lime brick; 1/2" of 1:3 sanded gypsum plaster facings on both sides	n/a	17 hrs	-	1	-	1	17
W-13-M-72	13"	Cored clay or shale bricks; units in wall thickness: 1; cells in wall thickness: 2; minimum % solids: 70; 1/2" of 1:3 sanded gypsum plaster facings on both sides	120 psi	7 hrs	-	1	-	1,45	7
W-13-M-73	13"	Cored clay or shale bricks; units in wall thickness: 3; cells in wall thickness: 3; minimum % solids: 87; 1/2" of 1:3 sanded gypsum plaster facings on both sides	160 psi	12 hrs	-	1	-	1,44	12
W-13-M-74	13"	Cored clay or shale bricks; units in wall thickness: 3; cells in wall thickness: 2; minimum % solids: 87; 1/2" of 1:3 sanded gypsum plaster facings on both sides	n/a	14 hrs	-	1	-	1	14

Table 1.1.6, continued (Masonry Walls, 12" to less than 14" thick)

Item Code	Thick-ness	Construction Details	Performance		Reference Number			Notes	Rec Hours
			Load	Time	Pre BMS 92	BMS	Post-BMS 92		
W-13-M-75	13"	Cored concrete masonry; see notes 18, 23, 28, 39, 41; no facings	80 psi	7 hrs	-	1	-	1,20	7
W-13-M-76	13"	Cored concrete masonry; see notes 19, 23, 28, 39, 41; no facings	80 psi	4 hrs	-	1	-	1,20	4
W-13-M-77	13"	Cored concrete masonry; see notes 3, 18, 27, 31, 43; facings on both sides; see note 38	80 psi	6 hrs	-	1	-	1,20	6
W-13-M-78	13"	Cored concrete masonry; see notes 2, 18, 26, 31, 41; facings on both sides; see note 38	80 psi	6 hrs	-	1	-	1,20	6
W-13-M-79	13"	Cored concrete masonry; see notes 2, 18, 26, 34, 41; facings on both sides of wall; see note 38	80 psi	7 hrs	-	1	-	1,20	7
W-13-M-80	13 1/4"	Core: clay or shale structural tile; see notes 2, 6, 9, 18; facings: see note 17 for both sides	80 psi	4 hrs	-	1	-	1,20	4
W-13-M-81	13 1/4"	Core: clay or shale structural tile; see notes 2, 6, 14, 19; facings: see note 17 for both sides	80 psi	4 hrs	-	1	-	1,20	4
W-13-M-82	13 1/4"	Core: clay or shale structural tile; see notes 2, 4, 13, 18; facings: see note 17 for both sides	80 psi	6 hrs	-	1	-	1,20	6
W-13-M-83	13 1/4"	Core: clay or shale structural tile; see notes 3, 6, 9, 18; facings: see note 17 for both sides	80 psi	6 hrs	-	1	-	1,20	6
W-13-M-84	13 1/4"	Core: clay or shale structural tile; see notes 3, 6, 14, 18; facings: see note 17 for both sides	80 psi	6 hrs	-	1	-	1,20	6
W-13-M-85	13 1/4"	Core: clay or shale structural tile; see notes 3, 6, 16, 18; facings: see note 17 for both sides	80 psi	7 hrs	-	1	-	1,20	7
W-13-M-86	13 1/2"	Cored concrete masonry; see notes 18, 23, 28, 39, 41; facing on one side only; see note 38	80 psi	8 hrs	-	1	-	1,20	8
W-13-M-87	13 1/2"	Cored concrete masonry; see notes 19, 23, 28, 39, 41; facing on fire side only; see note 38	80 psi	5 hrs	-	1	-	1,20	5

Table 1.1.6—Notes**Masonry Walls, 12" to less than 14" thick**

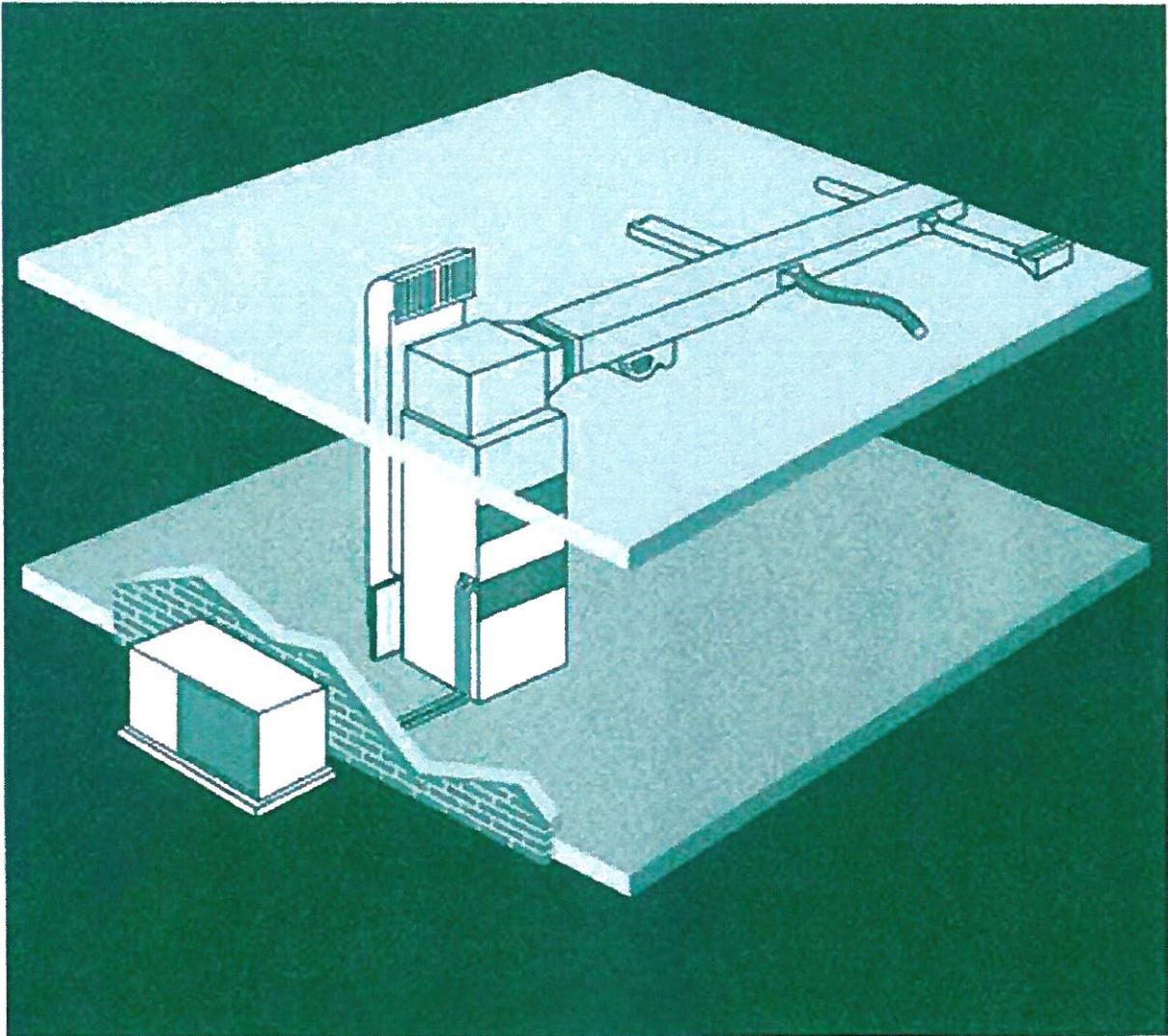
1. Tested at NBS under ASASpec. No. A2-1934.
2. One unit in wall thickness.
3. Two units in wall thickness.
4. Two or three units in wall thickness.
5. Two cells in wall thickness.
6. Three or four cells in wall thickness.
7. Four or five cells in wall thickness.
8. Five or six cells in wall thickness.
9. Minimum % of solid materials in units: 40%.
10. Minimum % of solid materials in units: 43%.
11. Minimum % of solid materials in units: 46%.
12. Minimum % of solid materials in units: 48%.
13. Minimum % of solid materials in units: 49%.

United States
Environmental Protection
Agency

Indoor Environments
Division (6609J)
Office of Air and Radiation

EPA 402-K-97-002
October 1997

EPA Should You Have the Air
Ducts In Your Home
Cleaned?



Should You Have the Air Ducts in Your Home Cleaned? Summary

Knowledge about air duct cleaning is in its early stages, so a blanket recommendation cannot be offered as to whether you should have the air ducts in your home cleaned. The U.S. Environmental Protection Agency (EPA) urges you to read this document in its entirety as it provides important information on the subject.

Duct cleaning has never been shown to actually prevent health problems. Neither do studies conclusively demonstrate that particle (e.g., dust) levels in homes increase because of dirty air ducts. This is because much of the dirt in air ducts adheres to duct surfaces and does not necessarily enter the living space. It is important to keep in mind that dirty air ducts are only one of many possible sources of particles that are present in homes. Pollutants that enter the home both from outdoors and indoor activities such as cooking, cleaning, smoking, or just moving around can cause greater exposure to contaminants than dirty air ducts. Moreover, there is no evidence that a light amount of household dust or other particulate matter *in air ducts* poses any risk to your health.

You *should* consider having the air ducts in your home cleaned if:

- ✓ **There is substantial visible mold growth is present in hard surface (e.g., sheet metal) ducts or on other components of your heating and cooling system.** There are several important points to understand concerning mold detection in duct systems:
 - Many sections of your heating and cooling system may not be accessible for a visible inspection, so ask the service provider to show you any mold they say exists.
 - You should be aware that although a substance may look like mold, a positive determination of whether it *is* mold can be made only by an expert and may require laboratory analysis for final confirmation. For about \$50, some microbiology laboratories can tell you whether a substance sent to them on a clear strip of sticky household tape is mold or just something that resembles it.
 - If you have insulated air ducts and the insulation gets wet or moldy it should be removed and replaced as it cannot be effectively cleaned.
 - If the conditions causing the mold growth in the first place are not corrected, mold growth will recur.
- ✓ **Ducts are infested with vermin (e.g., rodents or insects); or**
- ✓ **Ducts are clogged with excessive amounts of dust and debris and/or particles are actually released into the home from your supply registers.**

If any of the conditions identified above exists, it usually suggests one or more underlying causes. *Prior to any cleaning, retrofitting, or replacing of your ducts, the cause or causes must be corrected or else the problem will likely recur.*

Some research suggests that cleaning heating and cooling system components (e.g., cooling coils, fans and heat exchangers) may improve the efficiency of your system, resulting in a longer operating life, as well as some energy and maintenance cost savings. However, little evidence exists that cleaning only the ducts will improve the efficiency of the system.

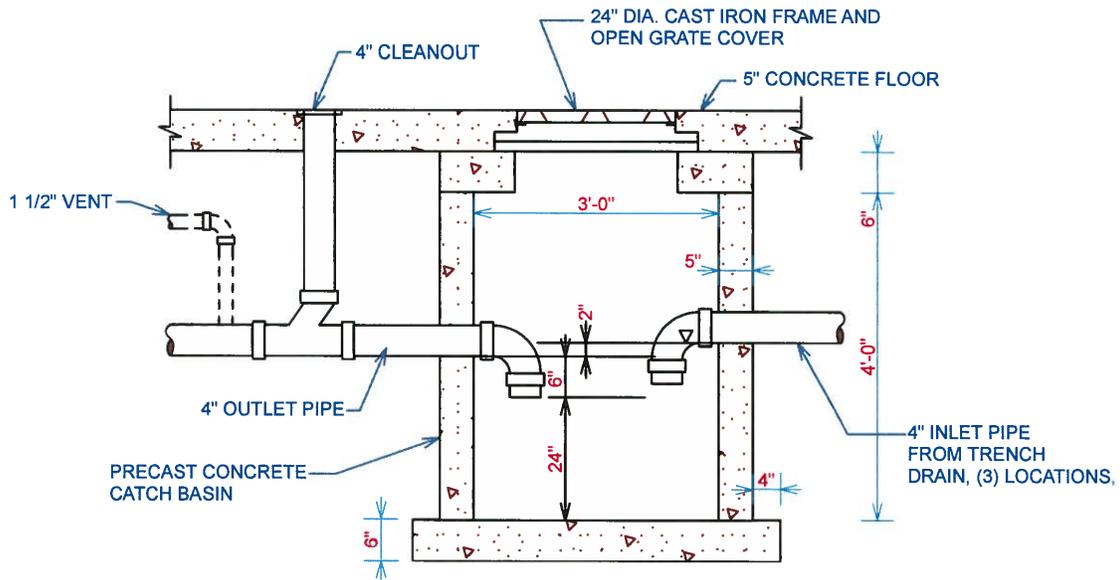
You may consider having your air ducts cleaned simply because it seems logical that air ducts will get dirty over time and should be occasionally cleaned. Provided that the cleaning is done properly, no evidence suggests that such cleaning would be detrimental. EPA does not recommend that the air ducts be cleaned routinely, but only as needed. EPA does, however, recommend that if you have a fuel burning furnace, stove or fireplace, they be inspected for proper functioning and serviced before each heating season to protect against carbon monoxide poisoning.

If you decide to have your air ducts cleaned, take the same consumer precautions you normally would in assessing the service provider's competence and reliability.

Air duct cleaning service providers may tell you that they need to apply a chemical biocide to the inside of your ducts as a means to kill bacteria (germs) and fungi (mold) and prevent future biological growth. They may also propose the applications of a "sealant" to prevent dust and dirt particles from being released into the air or to seal air leaks. You should fully understand the pros and cons of permitting application of chemical biocides or sealants. While the targeted use of chemical biocides and sealants may be appropriate under specific circumstances, research has not demonstrated their effectiveness in duct cleaning or their potential adverse health effects. No chemical biocides are currently registered by EPA for use in internally-insulated air duct system (See page 13).

Whether or not you decide to have the air ducts in your home cleaned, preventing water and dirt from entering the system is the most effective way to prevent contamination (See page 11).

TYPICAL DETAIL NOT FOR CONSTRUCTION



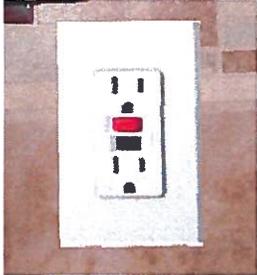
GARAGE CATCH BASIN DETAIL



Exhibit H CPSC Fact Sheet

WHAT IS A GFCI?

A ground fault circuit interrupter, called a GFCI or GFI, is an inexpensive electrical device that can either be installed in your electrical system or built into a power cord to protect you from severe electrical shocks. GFCIs have played a key role in reducing electrocutions. Greater use of GFCIs could further reduce electrocutions and mitigate thousands of electrical burn and shock injuries still occurring in and around the home each year.



Ground fault protection is integrated into GFCI receptacles and GFCI circuit breakers for installation into your electrical system, especially for circuit outlets in particularly vulnerable areas such as where electrical equipment is near water. Portable GFCIs are also available to provide on-the-spot ground fault protection even if a GFCI is not installed on the circuit.



The GFCI is designed to protect people from severe or fatal electric shocks but because a GFCI detects ground faults, it can also prevent some electrical fires and reduce the severity of other fires by interrupting the flow of electric current.



What Is A Ground Fault?

A ground fault is an unintentional electrical path between a power source and a grounded surface. Ground faults most often occur when equipment is damaged or defective, such that live electrical parts are no longer adequately protected from unintended contact. If your body provides a path to the ground for this current, you could be burned, severely shocked or electrocuted.



How Do They Work?

A GFCI constantly monitors current flowing through a circuit. If the current flowing into the circuit differs by a very small amount (as little as 0.006 amperes) from the returning current, the GFCI interrupts power faster than a blink of an eye to prevent a lethal dose of electricity. GFCIs are designed to operate before the electricity can affect your heartbeat. A GFCI works even on two-slot receptacles.

Here's an example: A bare wire inside an appliance touches its metal case. The case is then charged with electricity. If you touch the appliance with one hand while another part of your body is touching a grounded metal object, such as a water faucet, you will get shocked. If the appliance is plugged into an outlet protected by a GFCI, the power will be shut off before a fatal shock can occur.

Where to Install/Use

The circuits that require GFCI protection are designated by the *National Electrical Code (NEC)*.¹ The NEC typically only applies to new construction/major renovations. The coverage of GFCI protection has gradually increased over the years.

NEC GFCI requirements (and effective date):

- Underwater pool lighting (since 1968)
- Receptacles:
 - Outdoors (since 1973)
 - Bathrooms (since 1975)
 - Garages (since 1978)
 - Kitchens (since 1987)
 - Crawl spaces and unfinished basements (since 1990)
 - Wet bar sinks (since 1993)
 - Laundry and utility sinks (since 2005)

Also consider portable GFCI protection:

- Whenever operating electrically-powered garden equipment (mower, hedge trimmer, edger, etc.)
- With electric tools (drills, saws, sanders, etc.) for do-it-yourself work in and around the house



CPSC Fact Sheet

How to Install

Circuit breaker and receptacle-type GFCIs may be installed in your home by a qualified electrician. Receptacle-type GFCIs may be installed by consumers with adequate knowledge and skills to conform to proper electrical wiring practices and the instructions accompanying the device. When in doubt about the proper procedure, contact a qualified electrician; do not attempt to install it yourself.

A portable GFCI gets plugged into a receptacle just like any other cord-and-plug-connected device.

How to Test

Test every GFCI:

- After installation
- At least once a month
- After a power failure²
- According to the manufacturer's instructions.

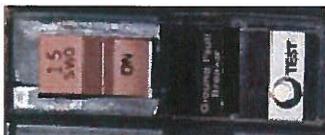
If you do not have the instructions follow this procedure:

- Plug a lamp into the outlet and turn the lamp on.
- Press the GFCI's test button. Did the light go out? If not, the GFCI is not working or has not been correctly installed. Contact a qualified electrician to correct the wiring and/or replace the defective GFCI.
- Press the reset button. Did the light come back on? If not, replace the GFCI.

Types of GFCIs

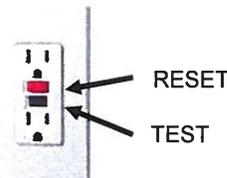
CIRCUIT BREAKER

- A circuit breaker with a built-in GFCI may be installed in a panel box to add protection to the circuits it supplies.
- Protects against both a ground fault and a circuit overload
- Protects the wiring and every outlet, lighting fixture, or appliance on the branch circuit that it supplies.



RECEPTACLE

- Used in place of the standard duplex receptacle.
- Fits into a standard outlet box and protects against ground-faults for whatever is plugged into the outlet and other electrical outlets further "down stream" in the branch circuit.
- Can even replace older ungrounded, two-slot receptacles with new GFCI receptacles. Must use supplied label "NO EQUIPMENT GROUND GFCI PROTECTED" to identify that the receptacle is not grounded.



PORTABLE

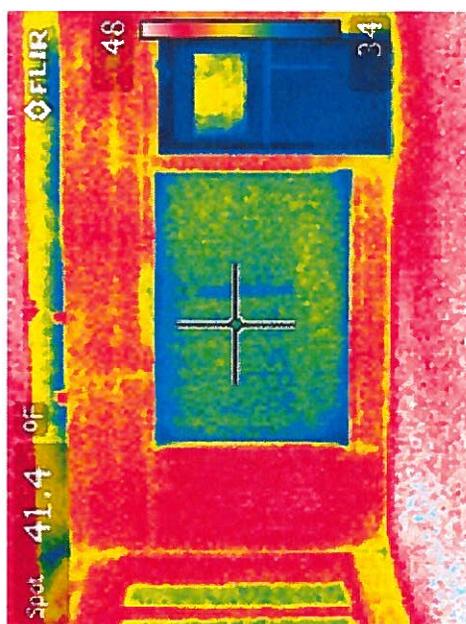
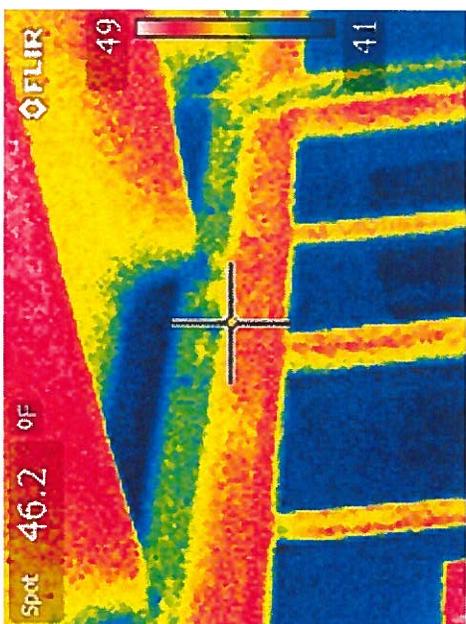
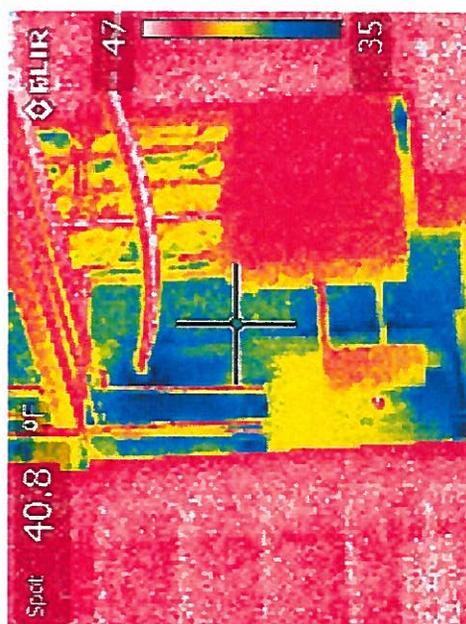
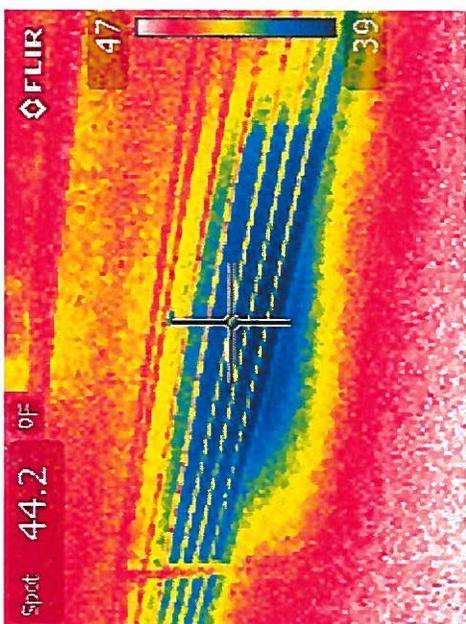
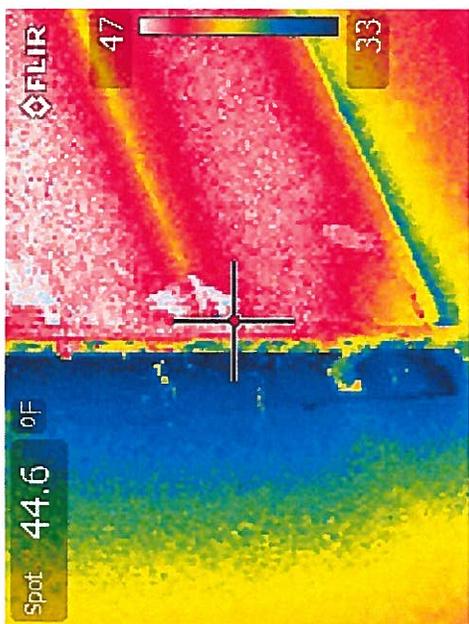
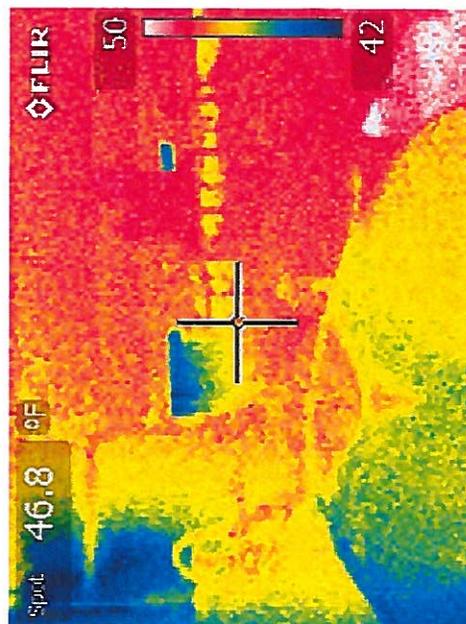
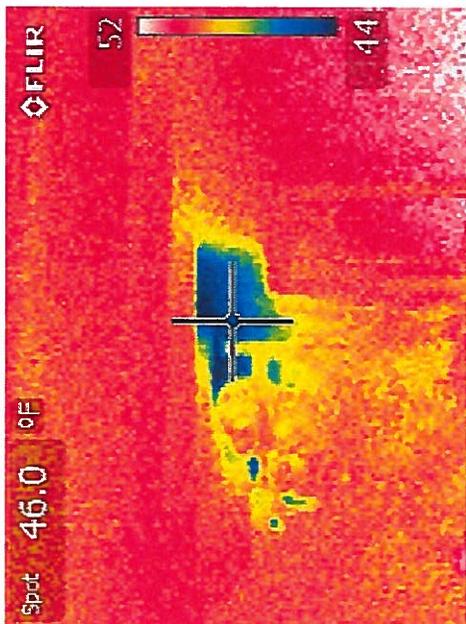
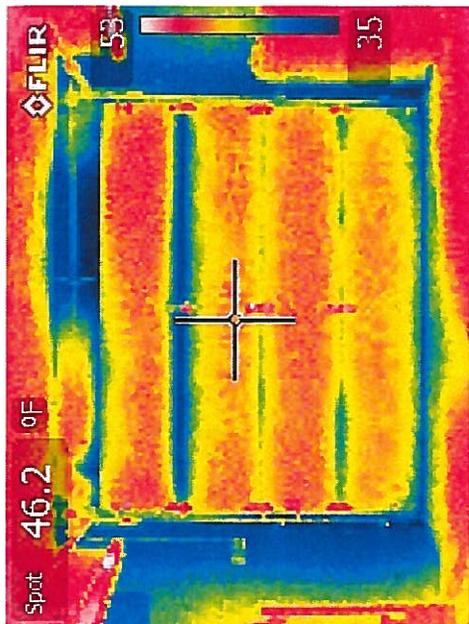
- Used where installed GFCIs are not practical.
- One type contains the GFCI circuitry in a plastic enclosure with plug blades in the back and receptacle slots in the front. It can be plugged into a receptacle, then the electrical product is plugged into the GFCI.
- Another type of portable GFCI is an extension cord combined with a GFCI. It adds flexibility in using receptacles that are not protected by GFCIs.

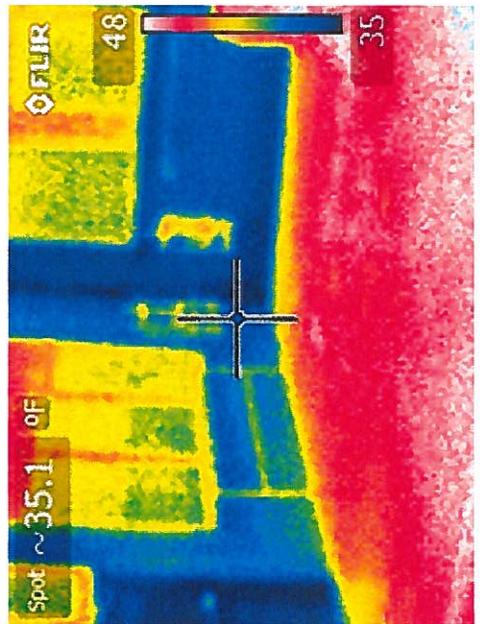
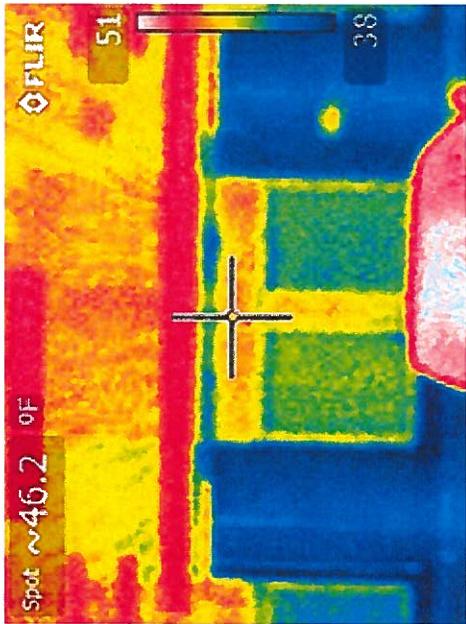
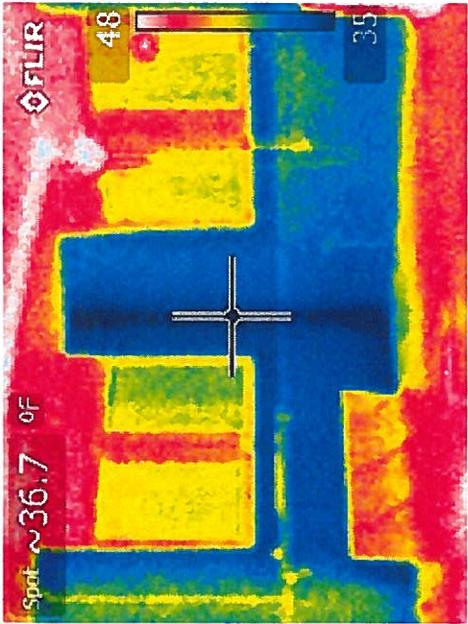
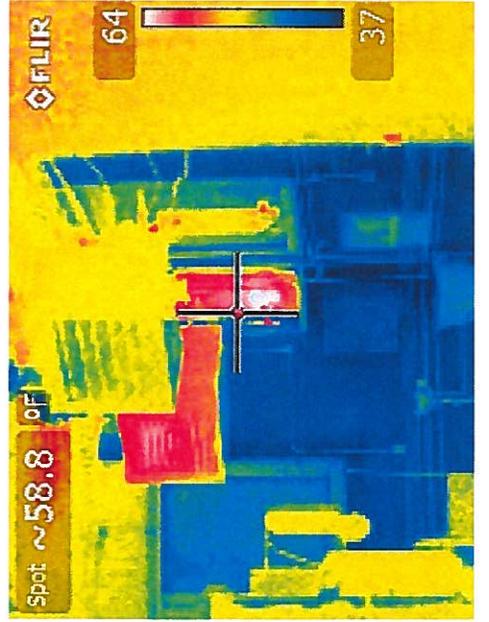
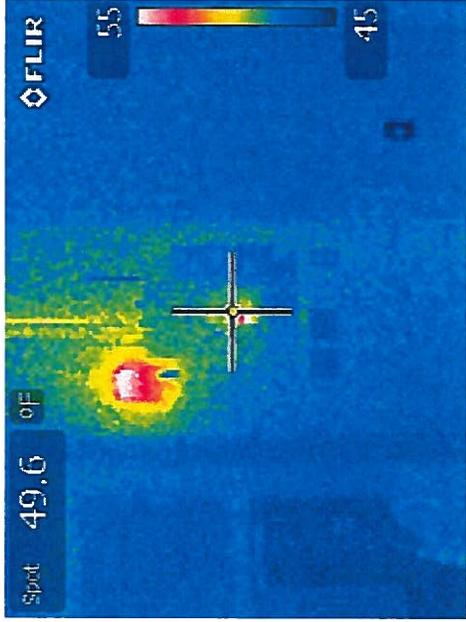
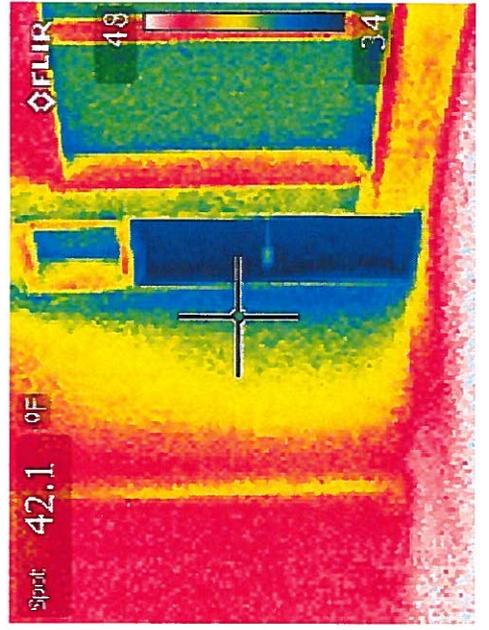
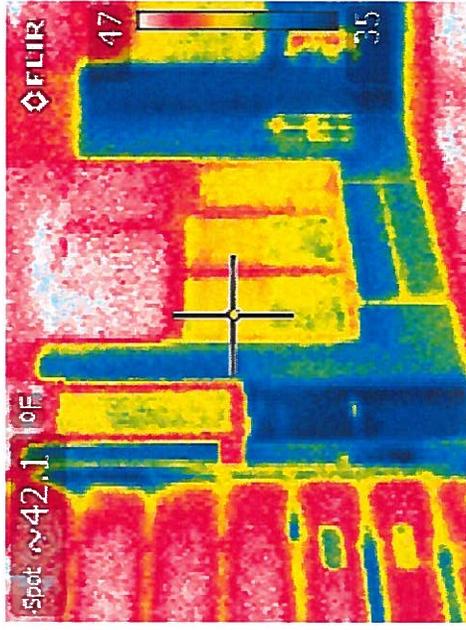
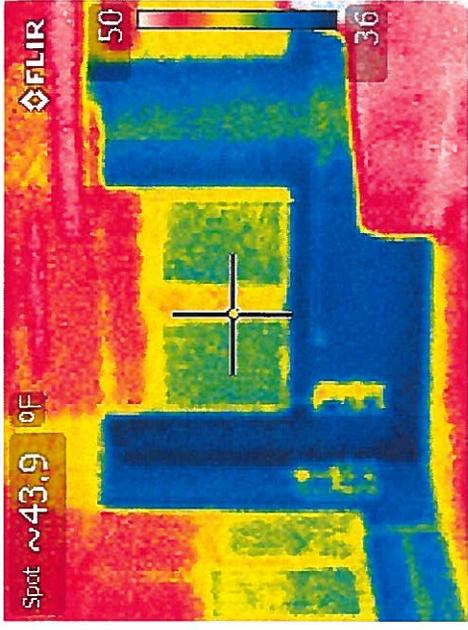


¹ The NEC is published by the National Fire Protection Association (NFPA 70). It is the most widely adopted building code for requirements for electrical system installations in the U.S. It may be adopted into law by states, counties or local jurisdictions for enforcement by inspection authorities and is currently revised every three years.

² Blackouts and other power disturbances can sometimes damage a GFCIs ability to function properly.

Exhibit I





Search Instructions	Search by Site, Owner, or Tank Characteristics	Search by Tank ID
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Tank Detail

Site and Owner

Site Info	County & Municipality	Owner
Facility ID: <u>98334</u> KARLEN FORD INC 120 W NORTH ST MONTICELLO Landowner Type: Private	23 - GREEN Village of MONTICELLO Fire Dept ID: 2306 - Monticello	ID: <u>365394</u> ROYAL W KARLEN JR 310 GREENVIEW AVE MONTICELLO WI 53570 9529
Site Anniversary Date:	Dispensers have Sumps: Unknown	

Underground Storage Tank - ID: 395624, Wang ID: 230600120, Closed/Removed as of 09/13/1990

Install Date:	Capacity in Gallons:	550	Contents:	Unleaded Gasoline
Tank Occupancy:	Mercantile/Commercial	Marketer:	N	CAS Number:
Federally Regulated:	Y	Spill Protection:	Required - Not Installed	Overfill Protection:
Overfill Prot Type:	null	Containment Sump Installed:	Unknown	Required - Not Installed
Corrosion Protect Type:	Unknown	Date of Lining:		Lining Inspected Date:
Leak Detection:	Unknown	Cath Test Date:		Cath Expire Date:
Leak Test Meth:		Leak Expire Date:		Leak Test Date:
Construction Material:	Other	Wall Size:	Single	Underground Piping:
Close Order Date:		Close Order By:		Y

Piping - Closed/Removed

Flex Connectors:	UST mainfolded:	Related Tank ID:
Type:	Aboveground Piping:	Aboveground Pipe Construction:
Construction Material:	Unknown	Leak Detection:
Cath Test Date:	Cath Expire Date:	Unknown
Leak Test Date:	Leak Expire Date:	Leak Test Meth:
Catastrophic Leak Detection:	Cat Leak Test Date:	Pipe Wall Size:
		Single
		Piping System Type:
		Unknown

Inspections [Click here for login page](#)

Trans ID	Type	Status	Date Fiscal Yr
** No inspections for this tank **			

[Close this response window](#)

[Search Instructions](#)

[Search by Site, Owner, or Tank Characteristics](#)

[Search by Tank ID](#)

Tank Detail

Site and Owner

Site Info

Facility ID: 98334
120 W NORTH ST
MONTICELLO
Landowner Type: Private

County & Municipality

KARLEN FORD INC 23 - GREEN
Village of MONTICELLO
Fire Dept ID: 2306 - Monticello

Owner

ID: 365394
ROYAL W KARLEN JR
310 GREENVIEW AVE
MONTICELLO WI 53570 9529

Site Anniversary Date: Dispensers have Sumps: Unknown

Underground Storage Tank - ID: 395623, Wang ID: 230600119, Closed/Removed as of 09/01/1990

Install Date:		Capacity in Gallons:	550	Contents:	Leaded Gasoline
Tank Occupancy:	Mercantile/Commercial	Marketer:	N	CAS Number:	Required
Federally Regulated:	Y	Spill Protection:	- Not Installed	Overfill Protection:	Required - Not Installed
Overfill Prot Type:	null	Containment Sump Installed:	Unknown		
Corrosion Protect Type:		Date of Lining:		Lining Inspected Date:	
Leak Detection:	null	Cath Test Date:		Cath Expire Date:	
Leak Test Meth:		Leak Expire Date:		Leak Test Date:	
Construction Material:	Other	Wall Size:	Single	Underground Piping:	Y
Close Order Date:		Close Order By:			

Piping - Closed/Removed

Flex Connectors:		UST mainfolded:		Related Tank ID:	
Type:		Aboveground Piping:		Aboveground Pipe Construction:	
Construction Material:		Corrosion Protect Type:		Leak Detection:	null
Cath Test Date:		Cath Expire Date:		Leak Test Meth:	
Leak Test Date:		Leak Expire Date:		Pipe Wall Size:	Single
Catastrophic Leak Detection:		Cat Leak Test Date:		Piping System Type:	

Inspections [Click here for login page](#)

Trans ID	Type Status	Date Fiscal Yr
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** No inspections for this tank **

[Close this response window](#)

Search Instructions	Search by Site, Owner, or Tank Characteristics	Search by Tank ID
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Tank Detail

Site and Owner

Site Info

Facility ID: 98334 KARLEN FORD INC 23 - GREEN
 120 W NORTH ST
 MONTICELLO
 Landowner Type: Private

County & Municipality

Village of MONTICELLO
 Fire Dept ID: 2306 - Monticello

Owner

ID: 365394
 ROYAL W KARLEN JR
 310 GREENVIEW AVE
 MONTICELLO WI 53570 9529

Site Anniversary Date: Dispensers have Sumps: Unknown

Underground Storage Tank - ID: 395624, Wang ID: 230600120, Closed/Removed as of 09/13/1990

Install Date:	Capacity in Gallons:	550	Contents:	Unleaded Gasoline
Tank Occupancy:	Mercantile/Commercial	Marketer:	N	CAS Number:
			Required	Required
Federally Regulated:	Y	Spill Protection:	- Not Installed	Overfill Protection:
				- Not Installed
Overfill Prot Type:	null	Containment Sump Installed:	Unknown	
Corrosion Protect Type:		Date of Lining:		
Leak Detection:	Unknown	Cath Test Date:		
Leak Test Meth:		Leak Expire Date:		
Construction Material:	Other	Wall Size:	Single	Underground Piping:
				Y
Close Order Date:		Close Order By:		

Piping - Closed/Removed

Flex Connectors:	UST mainfolded:	Related Tank ID:
Type:	Aboveground Piping:	Aboveground Pipe Construction:
Construction Material:	Unknown	Leak Detection:
		Unknown
Cath Test Date:	Cath Expire Date:	Leak Test Meth:
Leak Test Date:	Leak Expire Date:	Pipe Wall Size:
		Single
Catastrophic Leak Detection:	Cat Leak Test Date:	Piping System Type:
		Unknown

Inspections [Click here for login page](#)

Trans ID	Type	Status	Date Fiscal Yr
** No inspections for this tank **			

[Close this response window](#)



Legend

- Open Site (ongoing cleanup)
- Open Site Boundary
- Closed Site (completed cleanup)
- Closed Site Boundary
- Groundwater Contamination
- Soil Contamination
- Groundwater and Soil Contamination
- Contamination From Another Property
- Dryclean Environmental Response Fund (DERF)
- Green Space Grant (2004-2009)
- Ready for Reuse
- Site Assessment Grant (2001-2009)
- State Funded Response
- Sustainable Urban Development Zone (SUDZ)
- General Liability Clarification Letters
- Superfund NPL
- Voluntary Party Liability Exemption
- Rivers and Streams
- Open Water
- Municipality
- State Boundaries
- County Boundaries
- Major Roads
 - Interstate Highway
 - State Highway
 - US Highway

Notes

DISCLAIMER: The information shown on these maps has been obtained from various sources, and are of varying age, reliability and resolution. These maps are not intended to be used for navigation, nor are these maps an authoritative source of information about legal land ownership or public access. No warranty, expressed or implied, is made regarding accuracy, applicability for a particular use, completeness, or legality of the information depicted on this map. For more information, see the DNR Legal Notices web page: <http://dnr.wi.gov/org/legal/>

Note: Not all sites are mapped.

0.1 Miles

0.06

0



NAD_1983_HARN_Wisconsin_TM

1:3,960



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**Town of Mt. Pleasant
120 West North Ave
Monticello, WI 53570
January 12, 2016**

Proposed Minimum Repairs and Upgrades Budget for the 1919 Building

(Item)	(Cost)
1. Tuckpointing and repair to the exterior brick facade.	\$22,750.00
2. Repair/replacement of the roof flashing that is improperly installed.	7,500.00
3. Installation of a new Beaver Basement Water Control System in the lower level. Including a complete cleaning of the lower level to remove any mold or mildew growth.	9,500.00
4. Modifications necessary for American with Disabilities Act (ADA), including an approved handicap entry to the building and complaint men's and women's restrooms.	14,000.00
5. Installation of a proper plumbing system in the lower level.	3,750.00
6. Upgrades to the electrical system, including the replacement of the fused subpanel in the lower level, installation of GFCI protection where required, etc.	6,750.00
7. Installation of an appropriately sized energy recovery ventilator (ERV) to provide fresh air and proper air circulation.	8,500.00
8. Installation of the proper fire rated doors between the 1919 building and the 1948 building.	6,500.00
9. Replacement, or repair of the second level windows.	12,500.00
10. Improvement of exterior grades to move stormwater away from the building foundation.	9,000.00

11. Contingency: Based upon 10% of the estimated project cost. 10,075.00

12. State of Wisconsin and Local Building Permit fees. 1,750.00

SUBTOTAL ESTIMATED PROJECT COST \$ 112,575.00

13. Architectural and Engineering Fee: Includes all the required design drawings, specifications and construction contract administration to complete the above work. This is based on 10% of the cost of construction 11,250.00

TOTAL ESTIMATED PROJECT COST \$ 123,825.00

Future work required if the second level is to be usable:

1. Remove all asbestos containing materials (ACM), as noted in the inspection report. \$8,000.00

2. Remove all lead based paint (LBP), as noted in the inspection report. 3,500.00

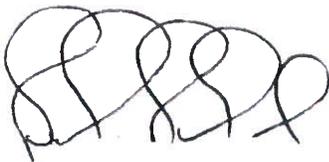
3. Structural upgrades made to the existing second level fire escape, including engineering fees, permits, etc. 8,000.00

TOTAL ESTIMATED SECOND LEVEL COST \$19,500.00

This estimate does not include upgrades to the interior finishes, such as repainting, recarpeting, general remodeling for future use, upgrades or repair to the second level, including additional insulation and wall/ceiling coverings, etc.

If these upgrades are undertaken it is estimated that an additional allowance of \$95,000 to \$115,000 will be required.

Submitted by,



Stephen G. Schraufnagel, Architect
LEED Accredited Professional

**Town of Mt. Pleasant
120 West North Ave
Monticello, WI 53570
January 12, 2016**

Proposed Minimum Repairs and Upgrades Budget for the 1948 Building

(Item)	(Cost)
1. Repairs to the EPDM roof membrane, including seam repairs, new flashing, etc.	\$6,500.00
2. Repair/replacement of the damaged exterior concrete aprons, sidewalks including those necessary to achieve proper drainage away from the building.	32,500.00
3. Repair and sealing of all cracks in the concrete masonry unit (CMU) walls.	4,500.00
4. Repair and sealing of all cracks in the concrete floor.	2,500.00
5. Installation of a proper trench drain, catch basin and related plumbing.	12,500.00
6. Upgrades to the electrical system, including installation of GFCI protection where required.	3,500.00
7. Installation of new 18'-0" wide overhead door on the south elevation, including a new header, flashing, door opener, etc.	23,750.00
8. Installation of an appropriately sized energy recovery ventilator (ERV) to provide fresh air and proper air circulation.	7,500.00
9. Contingency: Based upon 10% of the estimated project cost.	7,500.00
10. State of Wisconsin and Local Building Permit fees.	<u>1,000.00</u>
SUBTOTAL ESTIMATED PROJECT COST	\$ 82,750.00

11. Architectural and Engineering Fee: Includes all the required design drawings, specifications and construction contract administration to complete the above work. This is based on 10% of the cost of construction 8,275.00

TOTAL ESTIMATED PROJECT COST **\$ 91,025.00**

This estimate does not include upgrades to the interior finishes such as repainting, general remodeling for future uses, etc.

Submitted by,

A handwritten signature in black ink, consisting of several overlapping loops and curves, positioned below the text 'Submitted by,'.

Stephen G. Schraufnagel, Architect
LEED Accredited Professional