

## SCS ENGINEERS

November 25, 2014  
File No. 25214203.00

Ms. Jennifer Borski  
Wisconsin Department of Natural Resources  
625 East County Road Y, Suite 700  
Oshkosh, WI 54901

Subject: Sub-Slab Depressurization System  
Donaldson's One Hour Cleaners  
110 West Cecil Street, Neenah, Wisconsin  
BRRTS #02-71-110797

Dear Ms. Borski:

SCS Engineers (SCS) coordinated installation of a sub-slab depressurization system (SSDS) at the Donaldson's One Hour Cleaners site, 110 West Cecil Street, Neenah, Wisconsin. The purpose of the SSDS is to reduce the potential for vapor migration into the building, which houses Donaldson's One Hour Cleaners, Village Clippers, and All-Sport Trophy. The potential source of vapors is the Donaldson's One Hour Cleaners, which had a release of dry cleaning solvents. The SSDS work was performed consistent with the Department's July 30, 2014, letter and follow-up communications.

### SUB-SLAB DEPRESSURIZATION SYSTEM

The SSDS was installed by Acura Services, LLC (Acura) on November 6 through 8, 2014. The work included installation of two pickup points through the floor slab of Donaldson's One Hour Cleaners and one pickup point through the floor slab of Village Clippers, installation of associated piping, and installation of two blowers. Soil excavated from the Donaldson's One Hour Cleaners pickup points was containerized and left on site for future disposal.

The two pickup points in Donaldson's One Hour Cleaners are connected to a single blower, which exhausts out the back side of the building. The pickup point in Village Clippers is connected to a single blower that exhausts out the back side of the building.

Following system start-up, Acura conducted sub-slab vacuum testing, which verified successful depressurization of the sub-slab under Donaldson's One Hour Cleaners, Village Clippers, and All-Sport Trophy.

Further details regarding SSDS construction and vacuum testing are provided in Acura's mitigation report, maintenance plan, and photos included in **Attachment A**.



## MITIGATION CONFIRMATION SAMPLING

As discussed with the Department, SCS plans to conduct mitigation confirmation sampling in February 2015. This sampling will include collection of indoor air and background outdoor air samples at All-Sport Trophy, Village Clippers, and Cranky Pat's Pizza & Pub (Cranky Pat's). It also includes collection of sub-slab samples from Cranky Pat's. SCS will notify the Department of the final sampling schedule at least 1 week prior to performing the work.

## CONCLUSION

An SSDS was installed in the Donaldson's One Hour Cleaners site. Post-mitigation vacuum testing confirms the system is functioning as intended. Follow-up vapor assessment sampling will be performed in February 2015 to further evaluate the effectiveness of the SSDS.

Please contact me at (608) 216-7329 if you have any questions concerning this letter.

Sincerely,



Robert Langdon  
Senior Project Manager  
**SCS ENGINEERS**

REL/lmh/JBT

cc: Brett Donaldson, Donaldson's One Hour Cleaners, Inc. (email)  
Don Gallo, Reinhart Boerner Van Deuren s.c. (email)  
Michelle Williams, Reinhart Boerner Van Deuren s.c. (email)

Enclosures: Attachment A – Acura Mitigation Report, Maintenance Plan, and Photos

## **ATTACHMENT A**

Acura Mitigation Report, Maintenance Plan, and Photos



**Radon & Soil Gas Mitigation Services**  
*Anthony G. Hendricks P.E.*

November 9, 2014

SCS Engineers  
Mr. Robert Langdon  
[rlangdon@scsengineers.com](mailto:rlangdon@scsengineers.com)  
(608) 216-7329

**Post Mitigation Report For**  
**Donaldson's One Hour Cleaners, 110 W. Cecil St., Neenah, WI 54956**

Communication Testing was done, November 20, 2013 at Donaldson's One Hour Cleaners, The Village Clippers, and All Sport Trophy. Although all three businesses are connected it's believed that Donaldson's was the original building and the structure housing the Village Clippers and All Sport Trophy was added at a later time. Based on the communication testing a design concept for two mitigation systems was developed.

November 6 thru 8 of 2014 two mitigation systems were installed. One system with a single pickup point was installed in the Village Clippers and a second system with two pickup points was installed in Donaldson's One Hour Cleaners.

**Building(s) Footprint**

Donaldson's One Hour Cleaners is approximately 43 feet long by 41 feet wide or approximately 1763 square feet.

Village Clippers is approximately 43 feet long by 20 feet wide or approximately 860 square feet.

All Sport Trophy is approximately 43 feet long by 40 feet wide or approximately 1720 square feet.

**System Description Donaldson's**

Two pickup points were opened through the concrete and excavated in Donaldson's. The first pickup point was located 18 feet from the common wall with the Village Clippers and 17 feet from the back wall of Donaldson's. The second pickup point was located approximately 15 feet from the back wall and one foot from the common wall with the Village Clippers. (See drawing for approximate locations.) Each hole had approximately 15 gallons of sub slab material removed. The material in pickup one was mixed with sand fill on top then a layer of clay like material then some dirty gravel near the bottom. Pickup point two was all a dirty pea gravel material. The two pickup points were



## **Radon & Soil Gas Mitigation Services**

*Anthony G. Hendricks P.E.*

connected with schedule 40 PVC 4 inch pipe. The piping was then run out of the building through the back wall. A fan was mounted on an upturned elbow and the fan connected and started up. The fan installed was an AMG Legend, capable of 2.6 inches WC operating at 150 watts, max of 1.32 amps. After the fan was started up the manometer installed on the riser pipe read 1.3 inches WC. The fan is pulling approximately 140 cfm.

### **Depressurization Measurements Made After Startup With Micro manometer**

D-1: 19 feet from pickup pt. 1; minus -0.026 WC;  
D-2: 17 feet from applied vacuum; 1) minus -0.012 WC  
D-3: 15 feet from applied vacuum; 1) minus -0.339 WC;  
(See Drawing for Approximate Locations of Test Holes.)

### **System Description Village Clippers & All Sport Trophy**

A pickup point was installed in the Village Clippers laundry room. Approximately 20 gallons of sub slab material was removed from the pickup point. The material under the slab was mostly moist dirty sand. A four inch pipe was routed out the back of the building and the fan installed on an upturned elbow. The fan installed was an AMG Legend, capable of 2.6 inches WC operating at 150 watts, max of 1.32 amps. After the fan was started up the manometer installed on the riser pipe read 2.1 inches WC. The fan is pulling approximately 50 cfm.

### **Measurements**

VC-1) A Sub Slab sample port installed under at cabinet by others: 16 feet from the pickup point ; minus -0.112 WC  
VC- 2) Sub slab : 9 feet from pickup point; minus 0.337 WC  
AS-1) A sub slab sample port installed by others in the storage area of All Sports Trophy about 17 feet from the pickup point; minus -0.098 WC  
(See Drawing for Approximate Locations)

### **Summary**

The follow up testing done with the micro manometers after startup of each system indicate very good depressurization under the slab which would indicate good capture of soil gases under the slab.

Prepared by: Anthony G. Hendricks P.E.

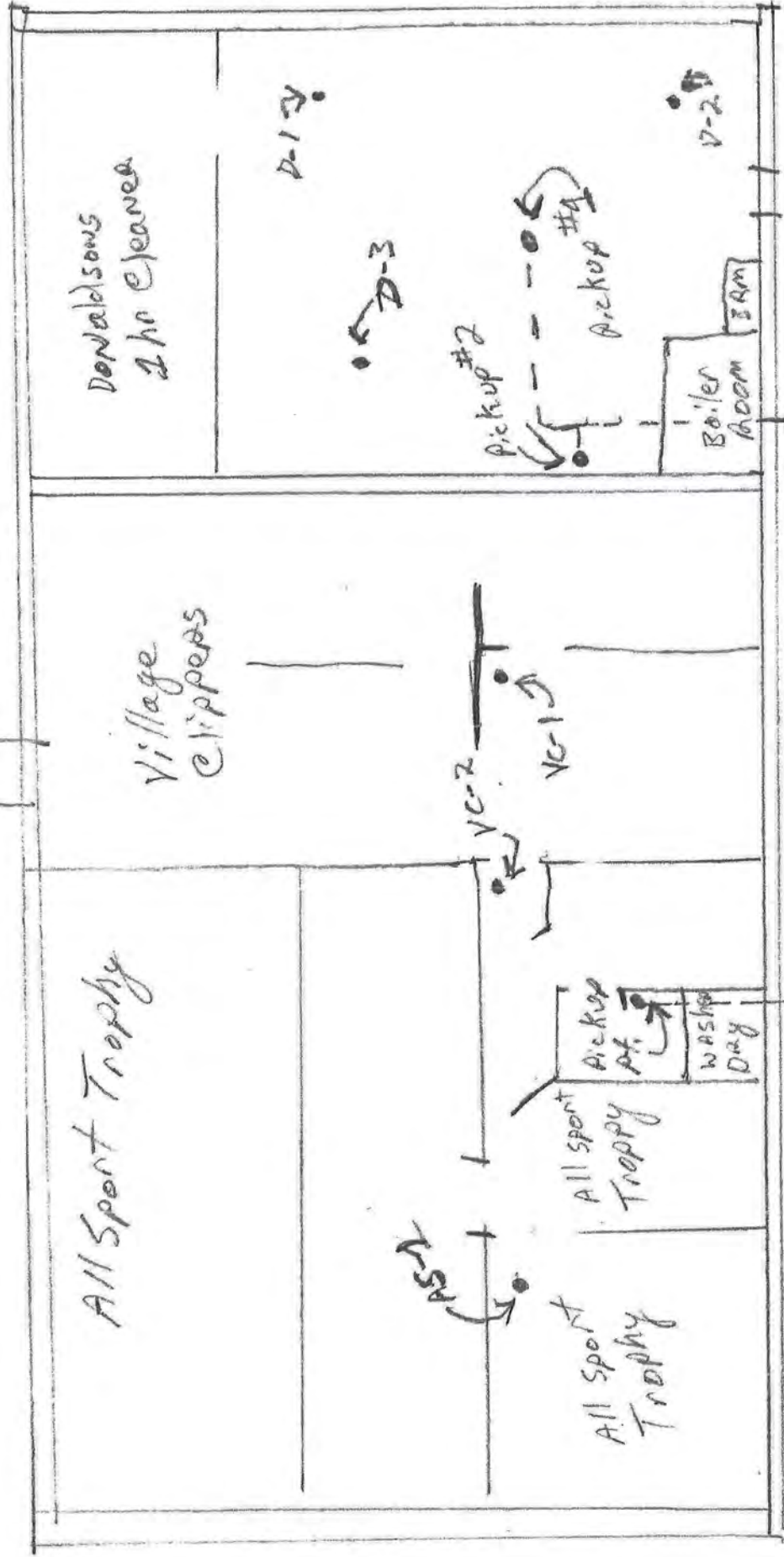
Donaldson's One Hour Cleaners

Alley cranky Pats

W. Cecil St.

4 N  
not to scale

parking lot



Fastenal





## Vapor Intrusion Mitigation Services *Anthony G. Hendricks P.E.*

### **Maintenance Plan For The Sub Slab Depressurization System**

#### **Donaldson's One Hour Cleaners & The Village Clippers**

Systems Installed November 2014

Systems Installed In The Year 2014

Installed by Acura Services LLC

#### **System Description**

One system was installed in the laundry area of The Village Clippers the pipe routed out back where the fan was installed on an upturned elbow. A second system was installed in Donaldson's. The system in Donaldson's has two pickup points. The piping is again routed outside and the fan mounted on the upturned elbow. (For more detail see the Post Mitigation Report & Drawing).

Soil gas enters a building due to a positive pressure under the slab (floor) of the basement. A sub slab depressurization system works by changing that positive pressure into a negative pressure. The negative pressure created by the pickup point and fan sucking on the pickup point causes the soil gas to flow to the pickup point and to be exhausted through the fan outside of the building. As long as that negative pressure is maintained the soil gas that would enter the building is captured and exhausted outside along with any harmful constituents in that gas. Harmful constituents of the gas include volatile organic compounds and radon for example.

#### **Fan Operation & Maintenance**

The fan, the manometer and the on/off switch are the only moving parts to this sub slab depressurization system. The fan is designed to run all day year round. If the fan stops or is shut down the pressure under the slab will probably return to positive and potentially allow sub slab soil vapors to enter the home. The functioning of the fan is therefore the most essential component of the system.

The manometer, which reads inches of water column, indicates the proper operation of the fan. The manometer reading at startup is recorded on a label affixed on the riser pipe beside the manometer. This reference allows you to compare that initial reading with any current reading. The manometer may bounce around a small amount due to changing weather conditions overall that variation will be small compared to the initial reading. Any significant change needs to be evaluated to insure that the system is operating properly.

If the manometer reading drops to zero, that is both sides of the manometer are at the same level the system needs to be checked out.



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### **Maintenance Plan For The Sub Slab Depressurization System**

Step One: Determine if the manometer is hooked up properly. A small tube on one side of the manometer has been placed in a hole drilled in the riser pipe. If for any reason that tube has been pulled out of the riser pipe or from the manometer the manometer will not read properly. To correct: reinsert the tube into the hole in the riser pipe and/ or the tube of the manometer. Once this is done the manometer reading should return to approximately the initial startup reading.

Step Two: After checking the manometer you find that the fan is not running. First check the breaker in the electric panel to see if it is on. If the breaker is off turn it to on. If the breaker is in the proper position go outside to check the lockable on/off switch for the fan. A child or other person may have turned the switch off. If in the off position move to the switch to the on position and listen for the fan to start up. Once the fan is on; check the manometer reading to verify that the fan is operating normally. To prevent this happening in the future you may insert a lock into the lockable on/off switch. Make sure the switch is in the on position. Verify by checking the manometer immediately.

Step Three: What if after checking the fan operation you find it's not running. On the riser pipe is the contact information for Acura Services LLC. Call for assistance. Although these are high quality fans made specifically for mitigation systems all mechanical devices can and will fail. When calling please have the following information available; 1) Startup Date; 2) Initial manometer reading; 3) Fan Model (This information will be on the fan name plate and/or the label on the riser pipe. )

#### **Warning Check The Manometer Regularly**

The manometer is the primary run indicator for the system. Get in the habit of checking the manometer regularly. All fans wear out eventually and since these systems are user friendly they tend to get ignored over time. If your laundry is in the basement a good habit is to check the manometer every time you do laundry. Checking the manometer a minimum of once a week is recommended. Daily is better.

The mitigation system is designed to protect your health from harmful soil vapors. You are responsible to see that the system is functioning properly. By keeping a regular check on the manometer you can feel confident that you and your family are being protected.

#### **If You Plan on Remodeling or Adding an Addition to Your Home?**

Some remodeling may impact the effectiveness of the system. Call Acura Services LLC to discuss the planned project so any potential impact to the mitigation system may be evaluated. **Warning;** Most builders do not understand the importance of mitigation systems and may give you assurances that the system will not be impacted. These assurances may not be valid.

#### **Maintenance**

The fan is the only major moving part. The fan is maintenance free. By checking the manometer regularly you'll be checking the proper operation of the fan. There is an Ice/Debris trap with a stainless steel screen





## **Vapor Intrusion Mitigation Services** *Anthony G. Hendricks P.E.*

### **Maintenance Plan For The Sub Slab Depressurization System**

just above the fan. The manufacture recommends that this be cleaned annually. Shut off the fan then remove the screw in plug. Clean out any debris trapped on the screen. Screw the plug back in and turn the fan back on. If you have any further questions about your mitigation system call Acura Services LLC. We take pride in our systems and want you and your family to enjoy a healthy home.

Prepared by: Anthony G. Hendricks P.E.

## Installation & Wiring Instructions for AMG In Line Centrifugal Duct Fans



Model: AMG Spirit, Fury, Legend, Hawk, Maverick,  
Prowler, Eagle



IMPORTANT NOTE : DO NOT CONNECT THE POWER SUPPLY UNTIL THE FAN IS COMPLETELY INSTALLED.  
MAKE SURE THE ELECTRICAL SERVICE TO THE FAN IS LOCKED IN "OFF" POSITION.

### PLEASE READ AND SAVE THESE INSTRUCTIONS :

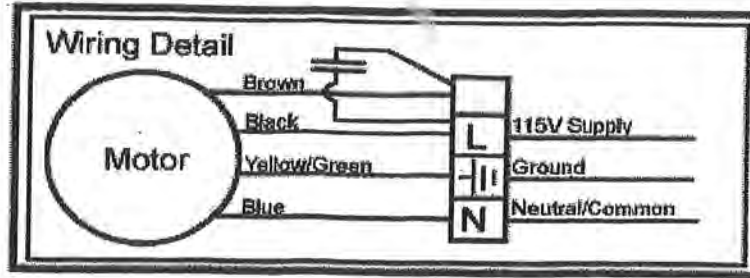
**Warning – To reduce the risk of fire, electric shock or injury to persons, observe the following.**

1. This unit is only for use in the manner intended by the manufacturer. If you have any questions contact the manufacturer Festa Manufacturing Enterprises LLC.
2. Installation work and electrical wiring must be done by qualified person'(s) in accordance with all applicable codes and standards, including fire-rated construction.
3. Sufficient air is needed for proper combustion and exhausting of gases through the flue, (chimney) of fuel burning equipment to prevent back drafting. Follow the heating equipment manufacturer's guideline and safety standards such as those published by the National Fire Protection Association (NFPA), and the American Society for Heating, Refrigeration and Air Conditioning Engineers (ASHRAE), and the local code authorities.
4. When cutting or drilling into wall or ceiling, do not damage electrical wiring and other hidden utilities.
5. Ducted fans must always be vented to the outdoors.
6. These units can be mounted indoors or outdoors.
7. Do not use these fans with solid state speed controllers.
8. The electric motor is protected by an internal overheat device to prevent/minimize motor damage. If the motor stops working, immediate inspection should be carried out by suitably qualified persons.
9. Before servicing or cleaning the unit, switch power off at service panel and lock the service disconnecting means to prevent power from being switched on accidentally. When the service disconnecting means cannot be locked, securely fasten a prominent warning device, such as a tag, to the service panel.
10. Do not use in a window.
11. If this unit is to be installed over a tub or shower, it must be marked as appropriate for the application and be connected to a GFCI (Ground Fault Circuit Interrupter) – protected branch circuit.
12. Never place a switch where it can be reached from a tub or shower.
13. CAUTION: For General Ventilating Use Only. Do Not use to Exhaust Hazardous Or Explosive Materials and Vapours.
12. CAUTION: This unit has an unguarded impeller. Do Not Use in Locations Readily Accessible To People or Animals.

#### **Installation of FME AMG PATRIOT Radon Fans.**

The FME AMG PATRIOT Fan can be mounted indoors or outdoors. We suggest that EPA recommendations be used in choosing the fan location. The AMG Fans may be mounted directly onto the piping system or fastened to a supporting structure. When mounting directly onto a vertical piping system, it is the installers responsibility to make provision to prevent the pipe system sliding into and onto the fan motor and impeller. When installing a system with short duct runs terminating close to the fan i.e. within 60" (1.5m) suitable guards should be incorporated. It is the responsibility of the installer to ensure that all aspects of the system are taken into consideration. Rigid ducting sections should be connected to fan spigots by flexible connectors and clips. The flexible connectors used should be suitable for routine servicing and vibration isolation.

## Electrical Connections



Ensure that the mains supply voltage, frequency, number of phases and power rating comply with the details on the unit rating label (situated internally on inside of box cover). All wiring must be in accordance with local and / or national electrical codes as applicable, or the appropriate standard in your country. The fan must be supplied through a double pole isolating switch having a contact separation of not less than 1/8" (3mm). Wiring to the terminal box should be made in liquid tight flexible conduit to facilitate easy maintenance.

### Operational Checks.

Ensure all duct connections are tight and leak free.

Check the system vacuum pressure with a manometer, ensure that the vacuum pressure is less than the maximum recommended operating pressure.

Check and verify Radon levels by testing to EPA protocol.

### Cleaning and Maintenance.

We would recommend that the fan be periodically checked against the listed operational checks to ensure trouble free long lasting operation.

## FIVE (5) YEAR WARRANTY

### Conditions of Warranty

Festa Manufacturing Enterprises ("FME") warrants that the AMG PATRIOT shall be free from defects in material and workmanship for a period of (5) years from the date of purchase by the customer. If within the applicable warranty period the Products prove to be defective by reason of faulty workmanship or materials, FME will undertake to have the defective Product (or any part thereof) replaced at no cost to the customer subject to the following conditions:

1. The Product has been purchased and used solely in accordance with all Environmental Protection Agency ("EPA") standard practices and state and local codes of practice.
2. The Product is returned promptly on being found defective, together with this warranty and proof of date of installation at the customers risk and expense to Festa Manufacturing Enterprises LLC. ("FME") from whom the Product was purchased. All enquiries must be through FME.
3. This warranty shall not apply to any Product failure or defect due to any cause beyond the reasonable control of FME including; damage caused through fire, flood, explosion, accident, misuse, wear and tear, neglect, incorrect adjustment or repair, damage caused through installation, adaptation, modification or use in an improper manner or inconsistent with the technical and/or safety standards required where the Product is used, or to damage occurring during transit to or from the customer.
4. If at any time during the Warranty Period any part or parts of the Product are replaced with a part or parts not supplied or approved by FME, or the Product has been dismantled or repaired by any person not authorized by FME, FME shall have the right to terminate this warranty in whole or in part immediately without further notice.
5. FME's decision on all matters relating to complaints and Products defects and failure (alleged or actual) shall be final. Any Product or defective part, which has been replaced, shall be FME's.
6. FME will offer to customers a Warranty of a full Five Years, from date of purchase, in accordance with the terms listed above.

**Festa Manufacturing Enterprises, LLC. 47A Progress Ave. Cranberry Twp., PA 16066**  
**Tel. Toll Free 1(800) 806-7866 Fax 1(412) 931-0754**



**Donaldson's One Hour Cleaners  
Neenah, Wisconsin  
SCS Engineers Project #25214203  
November 8, 2014**



**Photo 1:** Piping where two pickup points join in Donaldson's One Hour Cleaners.



**Photo 2:** Second pickup point in Donaldson's One Hour Cleaners.



**Donaldson's One Hour Cleaners  
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**Photo 3:** Manometer on first pickup point in Donaldson's One Hour Cleaners.



**Photo 4:** First pickup point in Donaldson's One Hour Cleaners.

**Donaldson's One Hour Cleaners  
Neenah, Wisconsin  
SCS Engineers Project #25214203  
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**Photo 5:** Fan and discharge behind Donaldson's One Hour Cleaners.

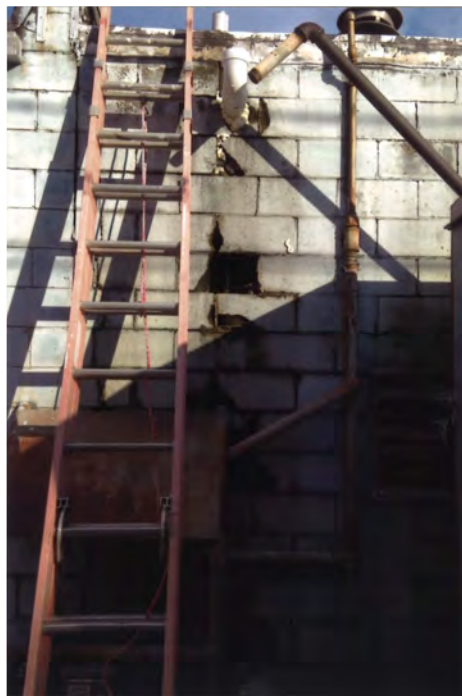


**Photo 6:** Pickup point in Village Clippers.

**Donaldson's One Hour Cleaners  
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**Photo 7:** Manometer in Village Clippers.



**Photo 8:** Wall behind Donaldson's One Hour Cleaners, existing condition.

**Donaldson's One Hour Cleaners  
Neenah, Wisconsin  
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**Photo 9:** Fan and discharge behind Village Clippers.