Radon Mitigation System Operation & Maintenance Manual

123 Your street
Medicine Hat, AB T1A 5P6

PREPARED FOR:
JOHN DOE

INSPECTION DATE:
Wednesday, March 30, 2022

PREPARED BY:
Westley Franks

HAT HOME INSPECTIONS

aphis Alberta Professional Home Inspectors

Hat Home Inspections
130 - 7th Street NE
Medicine Hat, AB T1A 5P6

403.977.7017
www.hathomeinspections.ca
wes@hathomeinspections.ca

June 5, 2022

Dear John Doe,

RE: Report No. 1244, v.2
123 Your street
Medicine Hat, AB
T1A 5P6

Thank you very much for choosing Hat Home Inspections to perform your Radon mitigation. I trust the experience was both useful and informative. Please feel free to contact me with any questions about the Radon mitigation system or your Radon levels.

The Radon mitigation was installed in accordance with the requirements of the Canadian National Radon Proficiency Program (C-NRPP) The intent of the Radon mitigation system is to reduce the Radon levels in the home to less than the Health Canada guidelines of 200 Bq/m3.

The Radon mitigation system is operating as indented, the system should never be turned off, it is meant to run continuously. You should inspect your system regularly to ensure it is operating and you should retest the Radon levels in your home after any renovations and at regular 2 year intervals. I cannot predict the future behavior of Radon in the building.

Again, thanks very much for choosing Hat Home Inspections.

Sincerely,

Westley Franks
on behalf of
Hat Home Inspections

Hat Home Inspections
130 - 7th Street NE
Medicine Hat, AB T1A 5P6
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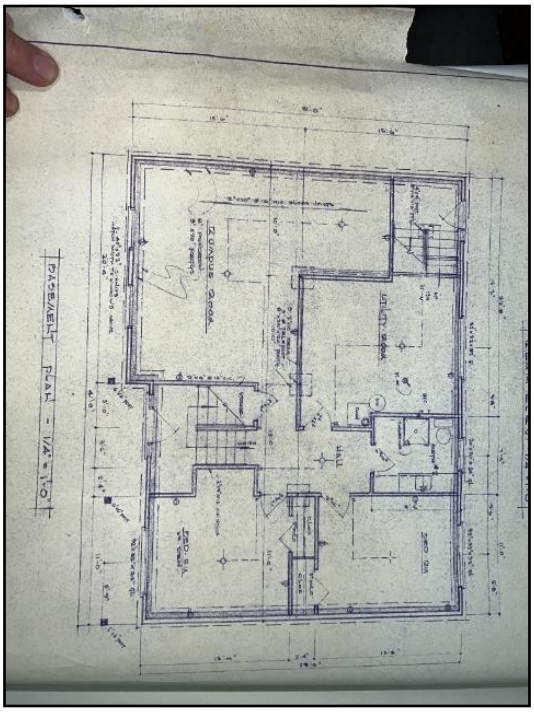
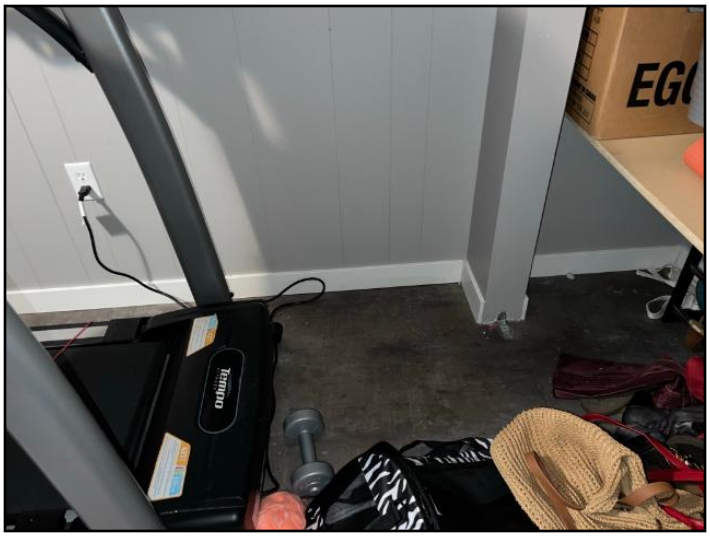
Building System Descriptions

General:

• Radon mitigation scene survey pictures

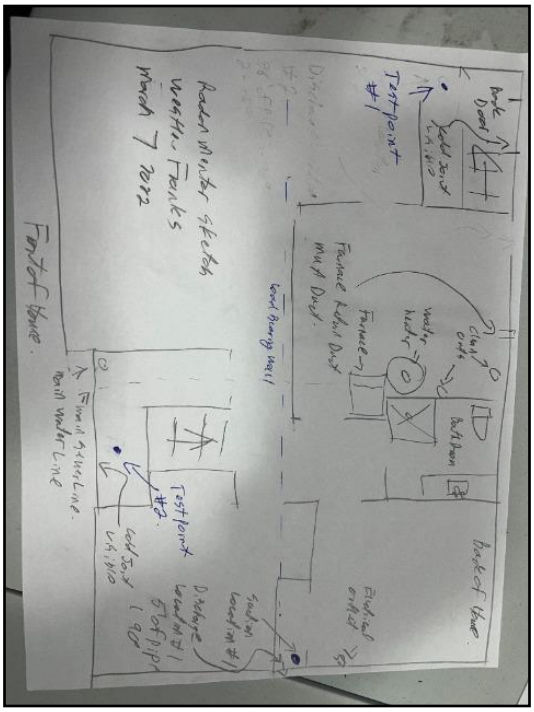


1. *Radon mitigation scene survey pictures*

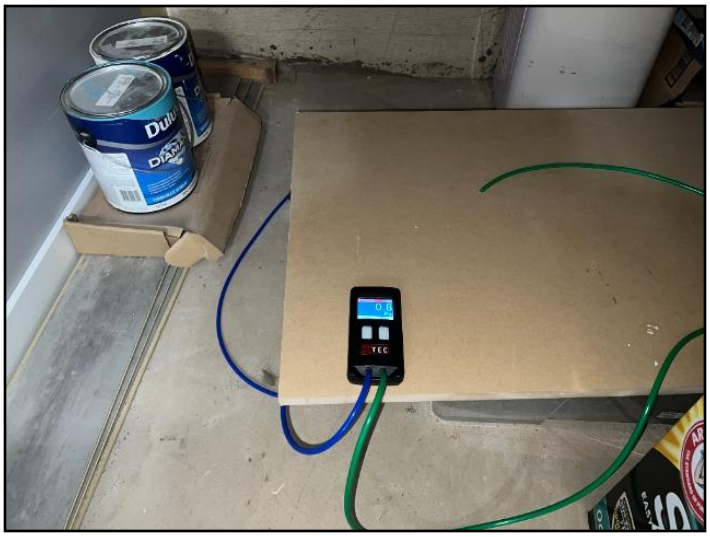


2. *Radon mitigation scene survey pictures*

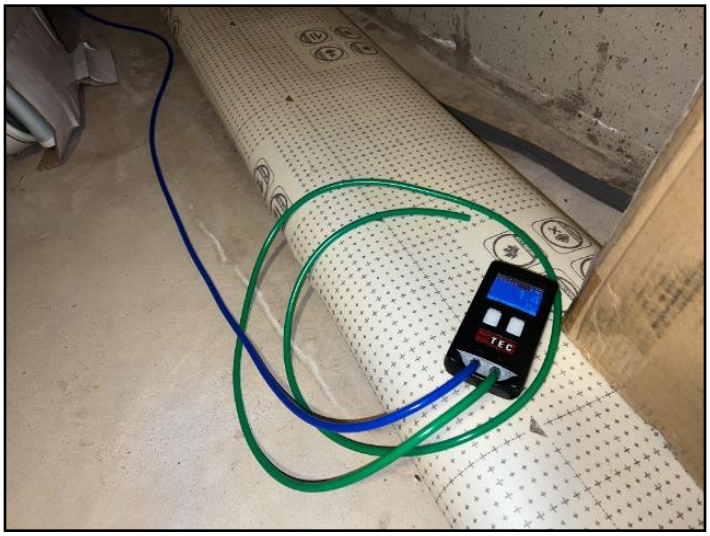
• Radon mitigation pressure field extension test pictures



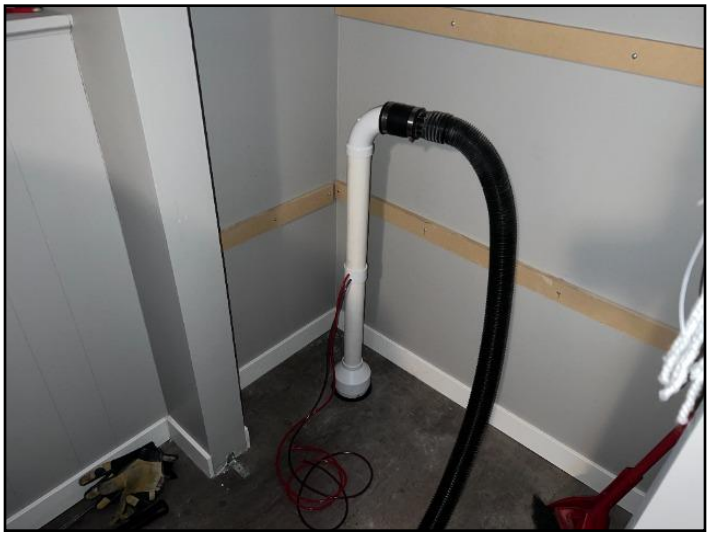
3. *Radon mitigation pressure field extension...*



4. *Radon mitigation pressure field extension...*



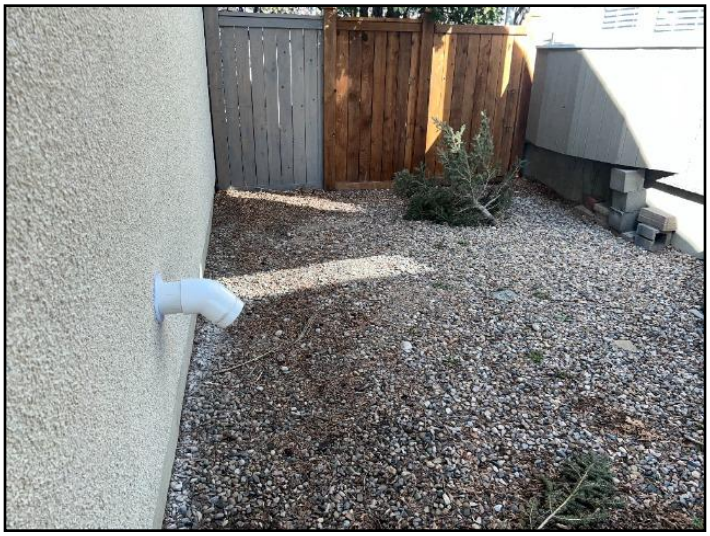
5. *Radon mitigation pressure field extension...*



6. *Radon mitigation pressure field extension...*

• Radon mitigation completed system pictures

7. *Radon mitigation completed system pictures*



8. *Radon mitigation completed system pictures*

9. *Radon mitigation completed system pictures*

10. *Radon mitigation completed system pictures*

Client name and building address:

• Name of client
John Doe
• Building Address
123 Your Street Medicine Hat AB

Building Information:

• Age of house
58 years old - built in 1964
• Foot print of house square feet
1250
• Bi-Level
• Foundation poured concrete
• Foundation floor concrete slab
• Soil conditions under slab
Pit run gravel and sand
• Basement bathtubs/showers
• Load bearing wall - probable interior footing
• Rim joist material and height above grade
Wood - 4 feet
• Finished basement
• Exterior finish
Stucco

HVAC systems in use: • Furnace induced draft • Water heater conventional • Kitchen range hood vented to exterior • Bathroom exhaust fans

Radon measurement equipment location: • Basement • Bed room

Radon measurement equipment information: • Radtrak2 Alpha Track • RadonEye continuous Radon monitor

Radon measurement start and end of testing:

• The Radon measurement started on

October 23, 2022
• The Radon measurement ended on
February 5, 2022

Radon measurement duration:
• Radon measurement days
104 days

Radon levels for the testing period:
• 90 day average Radon level Bq/m3
64 Bq/m3
• Peak Radon level Bq/m3
159 Bq/m3

Radon Mitigation Report - Radon Mitigation System Information:
• Radon mitigation system - The fan should NEVER be turned off
• Type: Active soil depressurization system
• Installer's name: Westley Franks
• Company: Hat Home Inspections
• Company address: 130 - 7th Street NE Medicine Hat AB
• Telephone number: 403-977-7017
• C-NRPP Radon measurement certification Number: CRT-202435
CRT-202435
• Date of Installation:
March 26, 2022
• Suction pressure in "Pascals" :
1.5 PA
• Additional Radon information is available at www.healthcanada.gc.ca/radon or call 1-800-622-6232, TTY 1-800-926-9105

Radon Mitigation Report - Foundation Sealing: • Areas of the foundation that where sealed • Foundation wall and slab joints • Plumbing penetrations

Radon Mitigation Report - System design data - Design and Post Mitigation:
• Design Pressure field extension (communication) test data | Fan simulation with shop vac
• Design outdoor air temperature on the day of diagnostics
March 6, 2022 | -10deg C
• Design Suction point / Fan location and data
Basement office closet | Cavity Pressure 237 PA | Air Flow Rate 6 L/S
• Design test point #1 location and data
Under Back stair case | Natural Pressure .8 PA | Pressure at observed flow rate -.1 PA | Change of .9 PA
• Design test point #2 location and data
Under front stair case | Natural Pressure 1.4 PA | Pressure at observed flow rate -4.1 PA | Change of 5.5 PA
• Design Target Cavity Pressure (soil resistance)
419.49 PA
• Design Target Cavity Design Airflow
5.32 PA
• Design Dynamic Piping Resistance
5.125 PA

• Winter Climate Zone
Moderate | Temp. adjustment 1.5 PA
• Building Exterior-Interior Pressure Difference
1 or 2 Story (with chimney) 9 PA
• Design Point Total Suction Pressure
431 PA
• Design Point Total Airflow
8 L/s
• System Operating Point Radon Fan Selected
Fantech Rn 2 Radon fan
• Post mitigation Pressure field extension (communication) test data | Selected Radon fan in operation

Radon Mitigation Report - System Description and Operating Principals: • How an active soil depressurization system operates | A Radon mitigation system utilizing active soil depressurization reduces radon entry mechanically with an indoor powered fan and piping system. Suction is created beneath the foundation which is stronger than the vacuum applied to the soil by the building and its HVAC systems. The system changes the pathway for Radon, it collects radon prior to entry and safely exhausts it at a proper location outside of the building • What type of active soil depressurization system has been installed • Sub-slab depressurization

Radon Mitigation Report - System Operating Procedures:
• Mechanical Components
Suction pit, 4" PVC piping, noise reduction bracing and strapping, In line Radon Fan, varmint guard
• Radon Fan size make and model
Fantech Rn 2 Inline Radon Fan Item # 89052
• Electrical Components
120v 15A outlet located near the Radon fan circuit # 9
• Interpretation of performance indicator including suggested actions to be taken. | The red U tub performance indicator should read out of level, this means the system is operating. If the two lines of the indicator are level this means the system is not operating and you should inspect the system to determine the cause or call Hat Home Inspections for assistance.
The performance indicator was reading 1.5 PA difference when the system was operational

11. *System not operating*

12. *System operating*

• Interpretation of active Radon Monitor including suggested actions to be taken. | The Radon Eye continuous Radon Monitor displays the Radon level of your home. If the level is below 200 Bq/m3 the system is operating properly. If the display of off or the level is above 200 Bq/m3 the system may not be operating properly and you should inspect the system to determine the cause, or call Hat home Inspections for assistance.

13. *Interpretation of active Radon Monitor...*

Radon Mitigation Report - Post mitigation short term Radon test and mechanical system checks:

• The system has been in operation for 24 hours
• The post mitigation short term Radon levels are:
13 Bq/m3 | 2 day test
• The Pre mitigation Radon Levels where:

64 Bq/m3 | 90 Day test
• The post mitigation short term change in Radon levels is:
51 Bq/m3 Change
• The Radon Mitigation system appears to be functioning properly and is reducing Radon levels. A follow up Long term Radon test is required for confirmation
• Post mitigation back drafting of natural draft combustion appliances test and corrective measures to mitigate back drafting
No back drafting of gas appliances was observed as a result of activating the Radon mitigation system.
• Post mitigation building depressurization test, levels and corrective measures to mitigate excessive building depressurization
Non-Conforming building depressurization was calculated and observed. | When the kitchen range hood, bathroom exhaust fan, furnace and dryer are all operated at the same time it is possible that Non-conforming depressurization of the home my occur.

Recommend installing a 204 CFM Make up air fan in line with the furnace fresh air to the return duct.
Recommend interlocking the furnace blower and the new MUA fan to run when either the Kitchen range hood or Bathroom exhaust fan are operating.

There was no increased Non-Conforming building depressurization observed when he Radon Fan was operating. This problem existed prior the the Radon mitigation fan being activated.

Radon Mitigation Report - Energy Consumption:
• Installed fan's estimated annual energy consumption
508.08 Kw per year
• Estimated annual cost of energy to operate the system
$34.55 per year | Energy rate on March 28 2022 | $.068 per Kw/hour

Radon Mitigation Report - Post Mitigation Long term follow up test data:
• Start date of post mitigation long term Radon test
March 29 2022
• End date of post mitigation long term Radon test
June 29, 2022
• Duration of post mitigation long term Radon test
91 days
• Location of Radon measurement test device
Basement bed room
• Type of Radon test device
Rad Track 2 Alpha track test kit
• Original starting long term average Radon level
58 Bq/m3
• Received a copy of the original test
Yes
• A RadTrack2 Alpha track test kit long term Radon test (minimum 91 days) was left activated in the home. I will return once the test is complete to retrieve it and send it to the lab, to determine your post mitigation Radon level.

Radon Mitigation Report - Recommended inspection and retest schedule: • Radon mitigation system inspection schedule | You should inspect your Radon mitigation system monthly to ensure that it is operating properly. | Check that the system is operating with the U tube performance indicator. | Check that your Radon level is below 200 Bq/m3 with

your continuous Radon monitor. • Radon levels retesting schedule | You should do a long term 91 day Radon test in the heating season with an approved RadTrack 2 Alpha track Radon test kit every 2 years • If the home is renovated a re-evaluation of Radon mitigation system is recommended • It is recommended that you conduct a long term test during the next winter heating season

Radon Mitigation Report - Hat Home Inspections Radon Mitigation System Warranty Information:

• Radon fan warranty and life span - 5 year factory material warranty - 1 year installation labor warranty | Life expectancy 5 - 10 years

5 year Factory Warranty | Life expectancy 5 - 10 years

• Performance indicator warranty and life span - 5 year factory material warranty - 1 year installation labor warranty | Life expectancy 5 - 10 years

5 year Factory Warranty | Life expectancy 5 - 10 years

• Continuous Radon monitor warranty and life span - 5 year factory warranty | Life expectancy 5 years | The RadonEye continuous Radon monitor has a 5 year factory calibration, after that time it should be replaced, re-calibration is not possible.

5 year Factory Warranty | Life expectancy 5 years

The Radon eye continuous Radon monitor has a 5 year factory calibration after that time it should be replaced

Replacement date; March 2027

• Limited Performance Warranty - 2 year limited performance warranty - Hat Home Inspections will warranty that the Radon mitigation system will reduce the Radon levels to below 200 Bq/m3 for 24 months (until the next recommended long term 91 day Radon test). The warranty period starts the day the system is installed. This warranty does not cover any system that has had its performance compromised by; inaccurate home owner disclosure of Radon levels, being shut off for any reason, building renovations, lack of maintenance, mechanical damage, modification, natural hazards, force majeure or any cause beyond Hat Home Inspections reasonable control. This limited performance warranty covers Radon reduction performance only, maintenance or replacement of the system and Radon testing is the responsibility of the owner.

1 year parts and labor warranty

Radon Mitigation Report - Appendix documents:

• Radon fan technical information
• U-Tube Manometer technical information
• Continuous Radon monitor technical information
• Depressurization test report form 3

Recommend installing a 204 CFM Make up air fan in line with the furnace fresh air to the return duct.

Recommend interlocking the furnace blower and the new MUA fan to run when either the Kitchen range hood or Bathroom exhaust fan are operating.

Observations and Recommendations

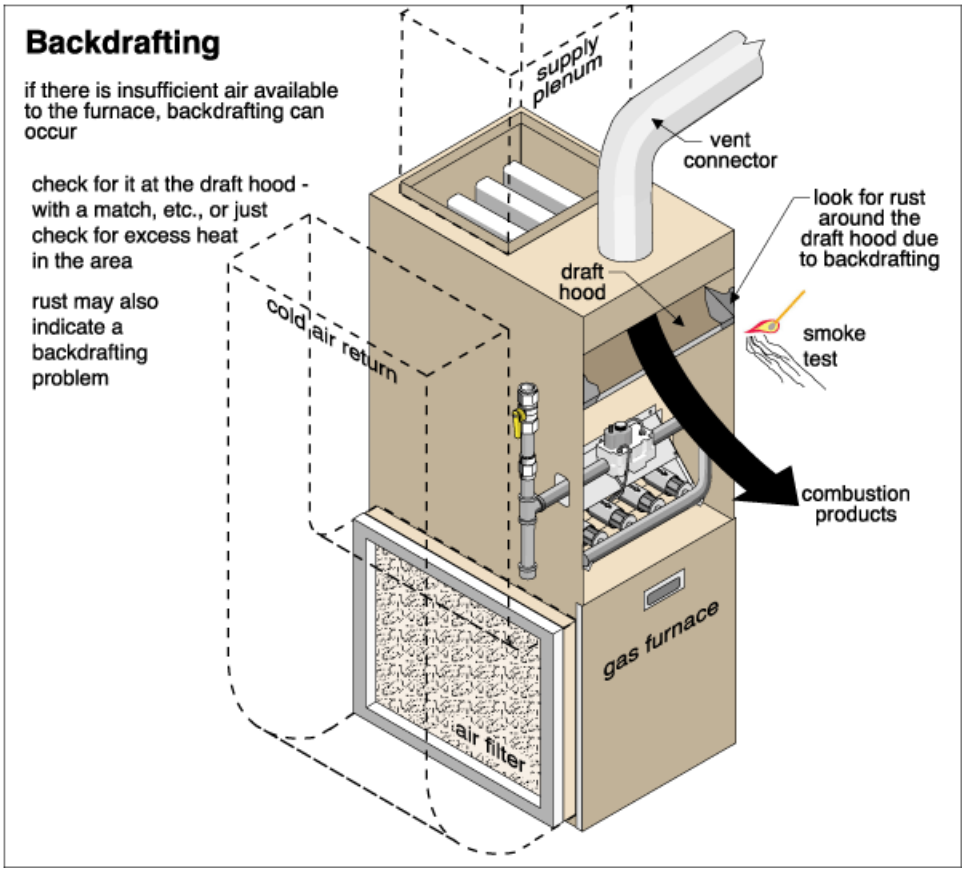
RECOMMENDATIONS \ Radon Testing

1. Condition: • House Depressurization (Non Conforming)

Location: Basement Utility / Furnace Room

Task: Improve by a qualified contractor

Time: Action is recommended as soon as possible this is a safety hazard



14. *House Depressurization (Non Conforming)*

END OF REPORT

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a systemair company

Rn2 Inline Radon Fan

4.5" pipe, plastic housing, 2.0" max SP
Item Number: 89052
Variant: 120V 1~ 60Hz

Rn2 Radon Fan is designed for active radon mitigation systems to employ for applications where medium suction and low flow are needed. It is a perfect choice for medium Radon levels and moderate sub-slab communication.

- Designed specifically for Active Soil Depressurization (ASD) mitigation applications
- Medium suction, low flow
- For residential applications
- Air-tight housing - zero leakage
- UV resistant plastic housing
- UL Listed for safety and outdoor use
- HVI certified fan performance
- 5-year factory warranty

Manufactured from two molded plastic pieces seamlessly joined. It is inherently and permanently airtight ensuring no Radon gas leakage. A large watertight electrical wiring enclosure ensures electrical installation quick and simple. Fan motor is thermal overload protected with automatic reset and can be installed both indoors or outdoors. To simplify installation on a 3" or 4" PVC pipe, use FRIK 4x3 or FRIK 4x4 Installation kits.

Technical parameters

Nominal data		
Voltage (nominal)	120	V
Frequency	60	Hz
Phase(s)	1~	
Input power	58	W
Input current	0.484	A
Impeller speed	2 533	r.p.m.
Air flow	max 78	L/s

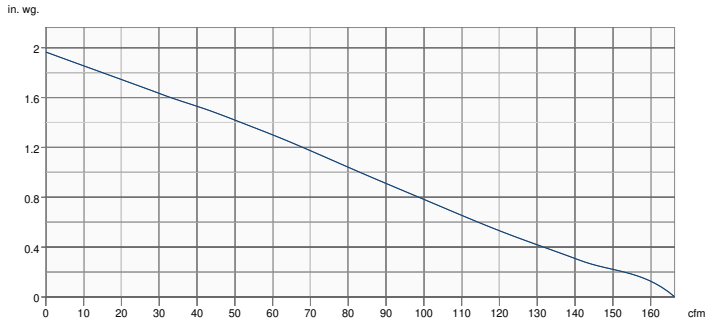
Protection/Classification		
Enclosure class, motor	IP44	
Insulation class	B	
Certificate	cULus, HVI	

Dimensions and weights		
Duct dimension; Circular, inlet	4	in.
Duct dimension; Circular, outlet	4	in.
Weight	4.9	lb

Optional		
Duct connection type	Circular	

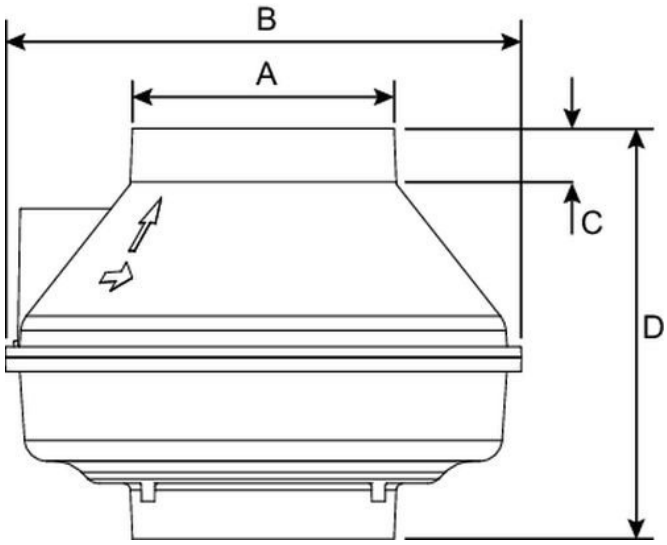
Performance

Performance curve



Hydraulic data	
Required air flow	-
Required static pressure	-
Working air flow	-
Working static pressure	-
Air density	0.075 lb/ft³
Power	-
Fan control - RPM	-
Current	-
Airflow efficiency	-
Control voltage	-
Supply voltage	-

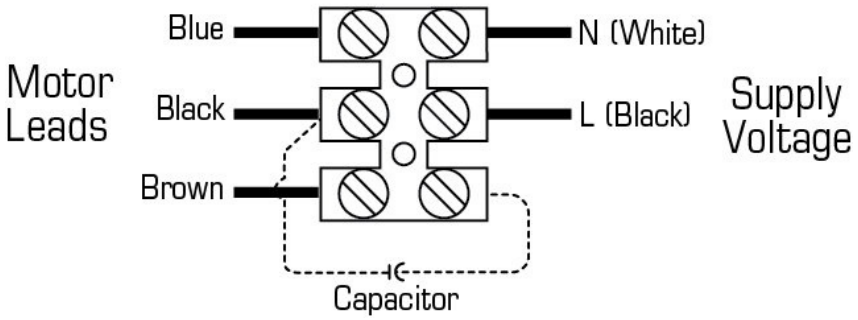
Dimensions



Model	A	B	C	D
Rn1	4 15/32 (114)	10 (254)	1 1/4 (32)	9 1/4 (235)
Rn2	4 15/32 (114)	10 (254)	1 1/4 (32)	9 1/4 (235)
Rn3	5 7/8 (149)	11 1/2 (292)	1 1/4 (32)	9 1/4 (235)

Dimensions in inches (mm).

Wiring


Blue
N (White)
Motor Leads
Black
L (Black)
Supply Voltage
Brown
Capacitor

Accessories

- FRIK 4x3 Rn Installation Kit (95904)
- LDVI® 4x3 Bulk Pack, 54 pcs (95908)
- FRIK 4x4 Rn Installation Kit (95905)
- LDVI® 4x4 Bulk Pack, 36 pcs (95909)

Documents

- Rn Series Brochure.pdf
- Rn2_Sales_Sheet.pdf
- 484840 Rn OIPM EN FR .pdf

Item name: **Rn2 Inline Radon Fan** | Product link: **https://shop.fantech.net/en-CA/productPermalink?p=111537** | Item Number: **89052** | Variant: **120V 1~ 60Hz** | Document type: **Product card** | Created at: **2022-03-11** | Generated by: **Fantech Online Catalogue** | **Language: English**

Page **6** of **6**

Rn2 Inline Radon Fan

Item #: 89052

Variant : 120V 1~ 60Hz

fantech® a systemair company

Description

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- Designed specifically for Active Soil Depressurization (ASD) mitigation applications
- Medium suction, low flow
- For residential applications
- Air-tight housing - zero leakage
- UV resistant plastic housing
- UL Listed for safety and outdoor use
- HVI certified fan performance
- 5-year factory warranty

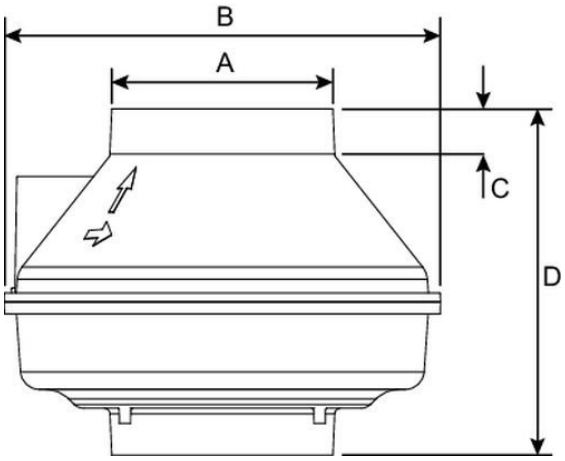
Manufactured from two molded plastic pieces seamlessly joined. It is inherently and permanently airtight ensuring no...

Find more details in our online catalogue

Technical parameters

Nominal data		
Voltage (nominal)	120	V
Frequency	60	Hz
Phase(s)	1~	
Input power	58	W
Input current	0.484	A
Impeller speed	2 533	r.p.m.
Air flow	max 78	L/s
Protection/Classification		
Enclosure class, motor	IP44	
Insulation class	B	
Certificate	cULus, HVI	
Dimensions and weights		
Duct dimension; Circular, inlet	4	in.
Duct dimension; Circular, outlet	4	in.
Weight	4.9	lb
Optional		
Duct connection type	Circular	

Dimensions



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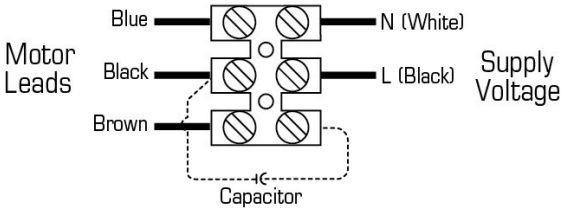
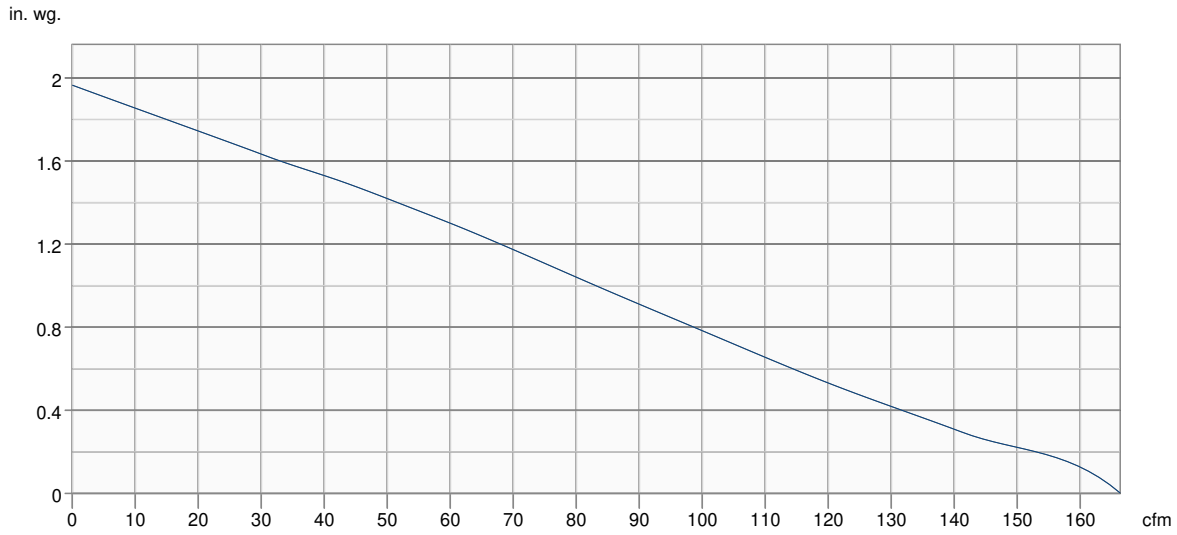
Dimensions in inches (mm).

Wiring



Performance curve



Hydraulic data	
Required air flow	-
Required static pressure	-
Working air flow	-
Working static pressure	-
Air density	0.075 lb/ft³
Power	-
Fan control - RPM	-
Current	-
Airflow efficiency	-
Control voltage	-
Supply voltage	-

Accessories

FRIK 4x3 Rn Installation Kit (95904)
LDVI® 4x3 Bulk Pack, 54 pcs (95908)
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Bulletin D-21

Flex-Tube® Manometer

Installation & Operating Instructions

1220/1230 Series
U-Tube and Well-Type Manometers

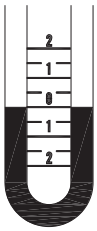

Fig. 1

With both ends of the tube open, the liquid is at the same height in each leg.

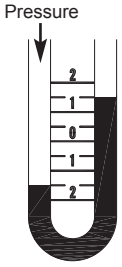

Fig. 2

The difference in height, "h", which is the sum of the readings above and below zero, indicates pressure.

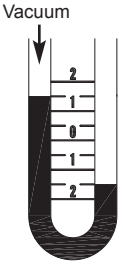

Fig. 3

The difference in height, "h", which is the sum of the readings above and below zero, indicates the amount of vacuum.

Measuring Pressure, Vacuum and Differential Pressure with Dwyer® Manometers
Dwyer manometers are available in two different styles. The W/M models use either water for readings in inches of water or mercury for readings in inches of mercury. The D models use Dwyer .826 specific gravity red gage fluid for readings in inches of water. The scales on the two styles have different lengths, so it is important to use the correct fluid.

Mounting Dwyer U-Tube Manometers
1221 - Mount to a vertical surface through holes in the scale.

1222 - Attach magnets to steel surface or remove magnets and mount through holes in scale.

1223 - Attach magnets to steel surface or through the hole in safety trap housing.

1227 - Because of angled connections, 1227 must be filled with indicating tube at an angle. After filling, check zero in vertical position. Clean all fluid from the exterior of the unit to prevent cracking of the backplate.

Note: Read vertical range on the right leg with the manometer vertical. Incline the manometer to zero for low range reading.

Mounting Dwyer Well Manometers
1230 - Mount to a vertical surface with flat-head screws through the holes in the scale.

1235 - Mount behind panel cutout to show only the tube and scale. Attach by drilling holes through the manometer's back-plate and panels. Make the panel cutout for the length and width of the tube and scale.

DWYER INSTRUMENTS, INC.
P.O. BOX 373 • MICHIGAN CITY, IN 46360, U.S.A.
Phone: 219/879-8000 www.dwyer-inst.com
Fax: 219/872-9057
e-mail: info@dwyer-inst.com

Filling U-Tube Manometers 1221 - 1222
Open both fittings to atmosphere. Slide scale to mid-point of travel. Add liquid to zero on scale. Clean all fluid from the exterior of the unit to prevent cracking of the backplate.

Filling 1223 - 1230 and 1235 Manometers
Remove large fitting from well using a 3/4″ open-end wrench. Also remove cork, disc, and O-ring. Be sure the other side is vented to atmosphere. Adjust zero to middle of travel. Add fluid to well up to the zero on scale. Replace cork, disc, and O-ring before replacing fitting. Clean all fluid from the exterior of the unit to prevent cracking of the backplate on 1223 models. To order red gage fluid, order part # A-101 (1 oz). To order fluorescein green color concentrate, order part # A-126 (1 oz).

Operation of 1221, 1222 and 1223 Manometers
Connect either side to pressure or vacuum, leaving the other side open to atmosphere. Add together the readings above and below zero.

It is normal for the two sides to have different readings and has no effect on accuracy. For differential pressure, connect both the high and low fittings. Add the readings above and below zero on the scale.

Operation of 1230 and1235 Manometers
Positive Pressure: Connect the well reservoir fitting to the pressure source, leaving the other side open to atmosphere.

Negative Pressure: Connect the top fitting to vacuum source, leaving well side open to atmosphere.

Differential Pressure: Connect higher pressure to well reservoir fitting and lower pressure to upper fitting.

Note: When finished, close fitting to prevent spilling or evaporation.

Maintenance
With proper care, Dwyer Flex-Tube® Manometers will continue to give accurate readings. If cleaning is needed, remove fittings, drain fluid, and rinse with mild soap and water. A cleaning brush (part #A-366) may be used to remove oxidation.

Avoid harsh soaps and solvents which may damage manometer and void warranty.

When replacing O-rings, apply a thin coat of petroleum jelly to assure a good seal. Do not coat O-ring used in the overpressure safety trap.

Avoid using fluids other than those specified. Corrosive fluids may damage the manometer.

If return is needed contact customer service to receive a return goods authorization number before shipping.

DWYER INSTRUMENTS, INC.
P.O. BOX 373 • MICHIGAN CITY, IN 46360, U.S.A.
Phone: 219/879-8000 www.dwyer-inst.com
Fax: 219/872-9057
e-mail: info@dwyer-inst.com

RadonEye - Technical Specifications

Ecosense

Type
Pulsed Ion chamber
First reliable data out
Within 60 minutes
Data storage interval
60 min moving average
(Reading every 10 min)
Data storage capacity
1 year
Sensitivity
30 cph/pCi/L
Accuracy/Precision (95% confidence interval)
After 1 hour
< ±10% at 30pCi/L
Operating range
0~40℃ (32°F ~ 104°F), RH < 80%
Measurement range
0.2 ~ 99.9 pCi/L (7~3,700 Bq/m³)
Power consumption
DC 12V, 0.1A
Size
Φ80(mm) x 120(mm), 240g
Data communication
Bluetooth LE (Android/iOS)
Display
0.96 inch OLED

Operating System
iOS 13 and Android 5.0 or later

In the Box
RadonEye
12V Adapter
Calibration certificate
Quick guide manual

Δ

Form 1
Predicted house depressurization
(See Clause 4.2.)

Predicted house depressurization for systems with spillage susceptible combustion appliances		Line #
1. Floor area *(Total heated floor area including basement; count crawl space at 1/2 actual area)*	Total floor area 750 m²	301
2. Allowable exhaust factors at 5 pascals*		
House type / Factor (L/sm²): Tight, R2000 0.06; Ordinary, R2000 0.11; British Columbia and Atlantic 0.17; Prairies and Territories 0.11; Ontario and Quebec 0.16; Built before 1990 0.28	*Allowable exhaust factor .28	302
	*Note: This information can come from chart on left or actual up-to-date test results.	
3. Allowable exhaust flow	Floor area (301) 750 m² × Allowable exhaust factor (302) _____ = Allowable exhaust flow 210 (L/s)	303
4. Actual exhaust flow	Exhaust _____ L/s	304
Supply / Exhaust	– minus _____	
	Supply _____ L/s	305
	+ plus _____	
	Dryer exhaust (default 75) 75 L/s	306
plus Dryer exhaust L/s	+ plus Large exhaust device over 75 L/s or small devices if allowable exhaust flow (303) is less than 75 L/s (a) 71 L/s	306a
plus Large exhaust devices a / b / c	+ plus Large exhaust device over 75 L/s or small devices if allowable exhaust flow (303) is less than 75 L/s (b) _____ L/s	306b
	+ plus Large exhaust device over 75 L/s or small devices if allowable exhaust flow (303) is less than 75 L/s (c) _____ L/s	306c
	+ plus kitchen range hood 75 L/s (d) 177 L/s	306d
(List large devices over 75 L/s or small devices with flow over the allowable exhaust flow (303) and less than 75 L/s)	= equals _____ Actual exhaust flow 323 L/s	307
5. Result	Actual exhaust flow (line 307) 225 L/s	
	– minus _____	
Note: *If line 307 is less than line 303, no action is required.*	Allowable exhaust flow (line 303) 210 L/s	
	= equals _____	
	Required make-up airflow 98 L/s	308
	@ depressurization limit _____ pa	
6. On-site test depressurization test	☒ Required ☐ Not required	309
Note: *As the calculation relies on a number of assumptions, it is strongly recommended that a house depressurization field test be conducted to verify compliance.*		

150

375

206 CFM MUA needed

206 CFM of MUA : Interlocking of Furnace Blower is Required

Form 3
Depressurization test report
(See Form 2.)

Depressurization test report

Combustion appliances

1. Induction Forced Flue Furnace — Depressurization limit 5 Pa
2. natural Draft water heater — Depressurization limit 5 Pa
3. _____ — Depressurization limit _____ Pa
4. _____ — Depressurization limit _____ Pa
5. _____ — Depressurization limit _____ Pa

Lowest depressurization limit 5 Pa

Test instrument

Make: TFC - DG-8
Type: Digital manometer.

in. w.c.	0.004	0.008	0.012	0.016	0.02	0.04	0.20
Pa	(1)	2	3	4	5	10	50

Test firm information

Job name: #1
Job number: #1
Name: Hat Home Inspections
Address: 130 - 7th ct NE
Postal code: T1A 5P6
Telephone: 403-977-7017
Email: wes@hathomeinspections.ca

House

Name: Wes Franks. House ID# #1
Address: 130 - 7th ct NE
City: Medicine Hat Province: AB
Telephone: 403-977-7017
Email: franks.wes@gmail.com

Measurements

Date of test: March 12/22. mm/dd/yy

Note: *Test to be carried out when house is substantially complete.*

Wind: 11 km/h km/h (mph)

Note: *Ideally wind conditions should be less than 15 km/h.*

See over for procedure description

Starting "rest" pressure 1.2 Pa (a)
EAV Venting system depressurization 0 Pa (b)
Measured depressurization 11.2 Pa (c)
Ending "rest" pressure 2.0 Pa (d)

11.2

Maximum depressurization

(a+d) /2 = 1.6 Pa (e)
(c) minus (e) = 9.6 Pa (f)
(f) is maximum house depressurization 9.6 Pa

Test results

The dwelling unit and systems at the time of test:
conforms **does not conform**
to the depressurization requirements of CSA F300

206 cfm mit needed.

Certification

I certify that the test has been performed in accordance with the test procedure in CSA F300.

Date: March. 12/22 mm/dd/yy
Telephone: 403-977-7017
Name: Westley Franks
Signature: Wes Franks

5 Mitigation solutions

The house shall meet the requirements of either the "Predicted house depressurization calculation" or the "House depressurization field test" outlined in Clause 4.2. A selection of potential solutions is available in Annexes C and D. After a solution has been implemented, reevaluate the house as per Clauses 4.2(a) and 4.2(b) to confirm its effectiveness.

Date of Preparation: January 2, 2013

MATERIAL SAFETY DATA SHEET

Use in case of an emergency only (613) 996-6666

SECTION I - PRODUCT AND PREPARATION INFORMATION 10C5

SCHWARTZ ADVANCED CHEMISTRY SOLUTIONS

777 McKay Road
Pickering, ON L1W 3A3
(905) 683-0411

Prepared by: Technical Committee

TRADE NAME: **C5 PVC CEMENT**
MANUFAC. CODE: **10C5**
PRODUCT CLASS: **ADHESIVE CLASS 3 UN 1133 PACKING GROUP II**
WHIMIS CLASS: **B2 D2B**

SECTION II - HAZARDOUS INGREDIENTS

INGREDIENT	CAS NO.	%	NATURE OF HEALTH HAZARD AND ROUTE OF ENTRY	TYPE OF HAZARD	EXPOSURE LIMIT	SOURCE	OTHER HAZARDS
METHYL ETHYL KETONE	78-93-3	30-60	HARMFUL IF INHALED, IRRITANT SKIN CONTACT	ACUTE	200 PPM	TLV	
CYCLOHEXANONE	108-94-1	7-13	HARMFUL IF INHALED, IRRITANT SKIN CONTACT	ACUTE	25 PPM	TLV	
TETRAHYDROFURAN	109-99-9	40-70	HARMFUL IF INHALED, IRRITANT SKIN CONTACT	ACUTE	200 PPM	TLV	
NON-HAZARDOUS		10-30					

SECTION III - PHYSICAL DATA

ODOUR AND APPEARANCE	PH VALUE	PERCENT VOLATILE BY VOLUME	EVAPORATION RATE
KETONE		86%	GREATER THAN BUTYL ACETATE
CLEAR		VOC LEVEL 510 g/L	
BOILING POINT		**FREEZING POINT**	**SPECIFIC GRAVITY**
66°C		°C	0.916

SECTION IV - FIRE AND EXPLOSION HAZARDS

FLAMMABILITY CLASSIFICATION /	FLASHPOINT	HAZARDOUS COMBUSTION PRODUCTS
Class 3, Division 2	14- °C TAG CUP	WHEN FORCED TO BURN, THIS PRODUCT GIVES OUT CARBON MONOXIDE, CARBON DIOXIDE, HYDROGEN CHLORIDE AND SMOKE
		EXTINGUISHING MEDIA
		Foam, dry chemical, carbon dioxide or any class B extinguishing agent

UNUSUAL FIRE AND EXPLOSION HAZARDS

Vapours may ignite explosively. Vapours may spread long distances. Prevent build-up of vapours. Extinguish all pilot lights and turn off heaters, non-explosion-proof electrical equipment and all other sources of ignition. Keep away from and do not store or use near heat, sparks or flames caused by such sources as electricity, static discharge, welding, grinding or flamecutting operation. Ground all equipment. Use spark-proof tools and conductive shoes to avoid sparking hazards.

SPECIAL FIREFIGHTING PROCEDURES

Exposure to vapours or products of combustion should be avoided. Self-contained breathing apparatus is recommended. Vapours may form an explosive mixture with air. Closed containers may rupture when exposed to extreme heat.

Date of Preparation: January 2, 2013

MATERIAL SAFETY DATA SHEET

Use in case of an emergency only (613) 996-6666

SECTION V - HEALTH HAZARD DATA: TOXICOLOGICAL PROPERTIES AND FIRST AID MEASURES 10C5

ACUTE EFFECTS OF OVEREXPOSURE

INHALATION: Excessive exposure to vapours or spray mists can result in headache, dizziness, incoordination and loss of consciousness. Irritation of the eyes, nose, throat and lungs can also occur when exposed to high vapour concentrations. Some reports have associated repeated and prolonged occupational overexposure to solvents with permanent nervous system damage.

EYE CONTACT: This material can cause eye irritation. The effects are usually reversible.

SKIN CONTACT: This material may cause defatting and irritation of skin (Dermatitis) upon prolonged or repeated contact.

INGESTION: Swallowing can cause nausea, vomiting, diarrhea and loss of consciousness.

EMERGENCY AND FIRST AID PROCEDUES

INHALATION: Remove victim to fresh air. Restore breathing. Treat symptomatically. Consult a physician.

SPLASH (EYES): Flush immediately with large amounts of water for at least 15 minutes. Take to a physician for medical treatment.

SPLASH (SKIN): Wash affected areas with soap and water. Remove contaminated clothing.

INGESTION: Drink 1 or 2 glasses of water to dilute. DO NOT INDUCE VOMITING. Consult a physician or Poison Control center immediately. Treat symptomatically.

CHRONIC EFFECTS OF OVEREXPOSURE

n/av

IRRITANT YES: Skin and Eye

SENSITIZER YES: Skin

SECTION VI - REACTIVITIY DATA

STABILITY:
Stable

HAZARDOUS POLYMERIZATIONS:
Will not occur

INCOMPATABILITY: (Materials to avoid)
Oxidizing compounds

CONDITIONS TO AVOID:
Vapour concentrations
Ignition sources

HAZARDOUS DECOMPOSITION PRODUCTS:
None known

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN in case material is Released or Spilled

Restrict access to area. Remove all sources of ignition. Ventilate area. Absorb spill with an absorbent material such as vermiculite or sand and place material into a closed container. If a large spill, dike area to prevent this material from entering water systems or sewers. Wear protective equipment during cleanup.

WASTE DISPOSAL METHOD

Dispose of this material in accordance with Federal, Provincial, and Municipal regulations.

SECTION VIII - SPECIAL PROTECTION INFORMATION

PERSONAL PROTECTION EQUIPMENT

PROTECTIVE GLOVES:

Chemical reistant gloves made of Viton should be used. Gloves made of nitrile, neoprene or rubber may be used for exposure of short duration.

EYE PROTECTION:

Chemical safety goggles should be worn to prevent eye contact. A face shield may also be necessary.

RESPIRATORY PROTECTION:

An organic vapour cartridge respiratory mask shall be worn to prevent the inhalation of vapours or spray mist when the TLB or PEL is exceeded. If respiratory protection is required, institute a complete repiratory protection program. Refer to the CSA Standard Z94.4 M1982 "Selection, Care and Use of Respirators" available from the Candadian Standard Association, Rexdale, Ontario. M9W 1R3

OTHER PROTECTIVE EQUIPMENT:

Eye wash fountain and safety showers must be available in areas where this material is used. Wear protective clothing to prevent skin contact.

ENGINEERING CONTROLS - VENTILATION:

General (dilution) ventilation is required during normal use. Local exhaust ventilation may be required during certain operations to keep exposure level below the limit listed in Section II of this data sheet.

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING

STORAGE: Keep storage area separate from populated work areas. Store in a cool, dry, well ventilated area, out of direct sunlight and away from incompatible materials and any source of ignition. Ventilation fans and electrical equipment should be non-sparking.

HANDLING: Avoid prolonged or repeated inhalation of vapours or spray mist. Avoid prolonged or repeated skin contact. Ground and bond equipment and container to prevent a static charge build-up.

ATTENTION: Emptied containers may retain hazardous residue and explosive vapours. Keep away from heat, sparks and flames. Do not cut puncture or weld near this container. Follow label warning until container is thoroughly cleaned or destroyed.

OTHER PRECAUTIONS

SAFETY DATA SHEET

Sikaflex®-1A

Version	Revision Date:	SDS Number:
1.0	02/27/2018	000000608991

SECTION 1. IDENTIFICATION

Product name : Sikaflex®-1A

Manufacturer or supplier's details

Company name : 601, avenue Delmar
Canada
Pointe-Claire, QC H9R 4A9
Sika Canada Inc.
www.sika.ca

Telephone : (514) 697-2610 / 1 (800) 933-7452

Telefax : (514) 694-2792

Health and Safety Services's e-mail address : ehs@ca.sika.com

Emergency telephone : CANUTEC (collect) (613) 996-6666 (24 hours)

Recommended use of the chemical and restrictions on use

For further information, refer to product data sheet.

SECTION 2. HAZARDS IDENTIFICATION

GHS Classification

Respiratory sensitization : Category 1

Skin sensitization : Category 1

Carcinogenicity (Inhalation) : Category 1A

GHS label elements

Hazard pictograms :

Signal Word : Danger

Hazard Statements : H317 May cause an allergic skin reaction.
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H350i May cause cancer by inhalation.

Precautionary Statements : **Prevention:**
P201 Obtain special instructions before use.

SAFETY DATA SHEET

Sikaflex®-1A

Version	Revision Date:	SDS Number:
1.0	02/27/2018	000000608991

P202 Do not handle until all safety precautions have been read and understood.
P261 Avoid breathing dust/ fume/ gas/ mist/ vapors/ spray.
P272 Contaminated work clothing must not be allowed out of the workplace.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
P284 In case of inadequate ventilation wear respiratory protection.
Response:
P302 + P352 IF ON SKIN: Wash with plenty of water.
P304 + P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P308 + P313 IF exposed or concerned: Get medical advice/ attention.
P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.
P362 + P364 Take off contaminated clothing and wash it before reuse.
Storage:
P405 Store locked up.
Disposal:
P501 Dispose of contents/ container to an approved waste disposal plant.

Other hazards

None known.

Supplemental information

If product is in liquid or paste form, physical or health hazards listed related to dust are not considered significant. However, product may contain substances that could be potential hazards if caused to become airborne due to grinding, sanding or other abrasive processes.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous ingredients

Chemical name	CAS-No.	Concentration (% w/w)
Quartz (SiO2) <5µm	14808-60-7	>= 0.1 - < 1
Toluene diisocyanate, oligomeric reaction products with 2,2'-oxydiethanol and propylidenetrimethanol	53317-61-6	>= 0.1 - < 1
4,4'-methylenediphenyl diisocyanate	101-68-8	>= 0.1 - < 1

SECTION 4. FIRST AID MEASURES

General advice : Move out of dangerous area.
Consult a physician.
Show this material safety data sheet to the doctor in attendance.

If inhaled : Move to fresh air.

radonova
The global leader in radon measurement

REPORT NUMBER 5817038:1
REPORT DATE 2022-05-04
REPORT PAGE 1 of 2
PRINT DATE 2022-05-04
OWN ID N/A
BY Radon Environmental Management Corp
REPORT RECEIVER(S) Hat Home Inspections

Hat Home Inspections
130 7th Street NE
Medicine Hat AB T1A 5P6
CANADA

RADON MONITORING REPORT

Description of the measurement

The measurement was performed with a closed alpha-track detector (Radtrak²®) following the quality guidance in CNRPP-AL-DF-v6.

The detector(s) arrived to Radonova Laboratories **2022-04-26**.
They were measured **2022-05-03**.

The detectors were deployed/retrieved by: Westley Franks, Certification license no: CRT-202435

Property data and address

MEASURE SITE ADDRESS
Hat Home Inspections
130 7th Street NE
Medicine Hat AB T1A 5P6

BUILDING ID

TYPE OF BUILDING:	BUILDING YEAR:	FOUNDATION TYPE:	PURPOSE OF TEST:
SF Detached	*1964*	*Basement*	*Primary Screening*

Test results

DETECTOR	MEASUREMENT PERIOD	DESCRIPTION / LOCATION	ROOM TYPE	FLOOR	RADON RESULT
360483-2 [Radtrak²®]	*2021-04-23 – 2022-03-29*	*Melisha's bderoom*	*Bedroom*	*Basement*	58 ± 8 Bq/m³

Comment to the results

Tryggve Rönnqvist (Electronically signed)

Signature Radonova Laboratories Laboratory Measurement Specialist

SWEDAC ACKREDITERING
Accred. no. 1489
Testing
ISO/IEC 17025

RADONOVA INC.
1 EAST 22nd STREET, SUITE 200
LOMBARD, IL 60148
331.814.2200, help@radonova.com

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The global leader in radon measurement

REPORT NUMBER	REPORT DATE
5817038:1	2022-05-04
REPORT PAGE	**PRINT DATE**
2 of 2	2022-05-04
	OWN ID
	N/A

What Does My Result Mean?

Health Canada recommends remediation if the radon concentration exceeds 200 Bq/m³.

Concentration (Bq/m³)	Recommended Action
Less than 200	No action required
Between 200 and 600	Mitigate within 2 years
600 and higher	Mitigate within 1 year

Health Canada recommends that the radon test performed in a home or public building be a long-term measurement. Health Canada does not recommend a test duration of less than one month. A minimum of 3 months is recommended and 12 months is optimum. It is strongly recommended that the result of any short-term measurement be confirmed with a "follow-up" long-term measurement. A single short-term measurement is not a sufficient basis for a decision to mitigate. Remedial measures should be undertaken in a dwelling whenever the average annual radon concentration exceeds 200 Bq/m³ in the normal occupancy area. The higher the radon concentration, the sooner remedial measures should be undertaken.

For more information, or to find a certified mitigation professional, visit the Canadian National Radon Proficiency Program (CNRPP) website at **www.c-nrpp.ca**.

Measurement method: Closed alpha-track detector (Radtrak²®/Radtrak³®)

The radon measurement was performed with a closed alpha-track detector following the quality assurance guidance given in CNRPP-AL-DF-v6. The detector container is manufactured from electrically conducting plastic. Through a small slit (filter), radon gas enters the detector. The track-detecting material (film) inside the detector is hit by alpha particles generated by the radon entering the container and the decay products formed from it. On the film, the alpha particles make small tracks which are enlarged through chemical etching and later analyzed via our proprietary Track-Etch(R) methodology to determine the radon exposure. Radonova Laboratories (P.O. Box 6522, SE-751 38 Uppsala, Sweden) is accredited (no. 1489) by SWEDAC to conduct radon-gas measurements using the closed alpha-track detector method. The analysis equipment is checked daily and the detectors are calibrated at regular intervals. CNRPP License CRT 201475.

Measured radon concentrations

For each detector, the measured value of the radon concentration is provided. For each value an uncertainty associated with the measurement to a 95% confidence level is also provided. For example a measurement result of 200 ± 30 Bq/m³ means that the radon concentration is most likely contained in the range 170 - 230 Bq/m³. If the start or end date of the measurement has not been provided, the radon concentration cannot be calculated. In such cases, the total exposure in kBqh/m³ will be reported. The average radon concentration can be calculated by dividing the total exposure with the number of measured hours and multiplying that result with 1000. The reported measured values are related to the detectors as received by Radonova Laboratories. Detector deployment is not performed by Radonova Laboratories. Measurement information such as monitoring period (dates) and placement location is provided to Radonova Laboratories by the end user.

Codes on non-reportable detectors

DNR	Not Reported – Detector Not Returned
VTW	Not Reported – Visibly Tampered With
FBD	Not Reported – Film Broken or Damaged
LIL	Not Reported – Lost in Lab
DTO	Not Reported – Detector Too Old

More information about radon can be found in the following Health Canada publications:

- Guide for Radon Measurements in Residential Dwellings
- (Homes) Radon – Reduction Guide for Canadians
- Radon: Is it in your Home?
- Radon – Another Reason to Quit

Signature on the report

With the signature on the report, the person responsible for the radon analysis at Radonova Laboratories hereby certifies that the measurement procedures follows the guidance in accordance with CNRPP-AL-DF-v6 and that the demands from SWEDAC are fulfilled.

Measurement information displayed in italics on report has been provided by the customer.

SWEDAC ACKREDITERING
Accred. no. 1489
Testing
ISO/IEC 17025

APPEND_CA_EN_001_REPORT_v220419:1.ppcd

RADONOVA INC.
1 EAST 22nd STREET, SUITE 200
LOMBARD, IL 60148
331.814.2200, help@radonova.com