

Model Radon Demonstration House

Operating Instructions

by NYSWDA

The Model Radon House crafted by the New York State Weatherization Directors Association, Inc. (NYSWDA) was made for easy operation and maintenance. Following these instructions will ensure long and reliable service.

Introduction:

1 The Model Radon House comes in a durable padded carrying case for easy handling and shipping. Inside the case are the model house, power cord, power adapter, a bottle of Tiny Fogger fluid, a small syringe, MSDS sheet and instructions. The fluid reservoir in the model house will not leak as long as the house is upright or on its back.

2 The Model Radon House operates on 12 VDC. The power adapter plugs in on the left side of the house.

3 There are 3 labeled rocker switches and a momentary push button on the left side control panel. These are labeled Smoke (for smoke generator), Stack (for simulating stack effect), Lights (for turning on lights for both floors), and Radon (for radon exhaust fan).

4 The front clear panel is magnetically held to the house. A gentle pull allows for removal and cleaning. The smoke generator is located in the sub slab area on the lower left. A sump pit cover is on the right in the basement. The working radon mitigation system is the small clear tube that exits the left rim joist and goes up the left side the house. There is a small radon fan housing on the outside of the house. Yes, the radon stand-pipe goes through the eaves of the roof (for simplicity reasons only). The radon pipe going up through the center of the house represents a new-build radon mitigation system. It is not operable on the model.

Operation:

1 After removing the model radon house from its case, rotate the feet perpendicular to the base. Plug in the power adapter. Make sure the front cover is fully secured and square to the model. Set the sump cover to open or closed as desired.

2 Turn on the Lights at the switch on the control panel at the lower left side of the house.

3 Push and hold the Smoke button for 10 seconds. You should see a thin stream of smoke (fog) exiting the smoke generator in the sub-slab area. This smoke stream should get thicker the longer you hold the button.

4 If the smoke stream stays very thin, the generator needs additional fogger fluid. Using the syringe, extract 1 cc of fogger fluid from the bottle. Remove the orange cap from the tube above the control panel. Insert the syringe tip fully and very slowly squeeze the syringe until it is empty. Replace the orange cap. Wait a few

minutes for the fluid to wick from the reservoir to the heater. Try pushing the Smoke button again for ten seconds. You should now have a thick stream of smoke.

5 Turn on the Stack effect switch. This simulates stack effect in a home. The sub-slab smoke will be drawn up into the house just as radon is drawn into a real home.

6 After a sufficient amount of time has elapsed, turn on the Radon fan switch. The sub-slab smoke will be gradually evacuated. Note the exhaust from the radon stack pipe.

7 Alternative method: Start the demonstration with the Stack effect switch already on and the Radon fan switch already on, then activate the Smoke generator.

Cleaning and Maintenance:

1 Periodic cleaning is necessary for optimal performance and display. Gently pull the front panel away from the model until the magnetic strips release. Wipe up any residue with a soft lint-free cloth. A mild cleaner may be used. Clean the inside and the outside of the clear Lexan front panel using plastic cleaner or eyeglass cleaner with a soft eyeglass cleaning cloth to minimize scratching.

2 The smoke generator may stop working completely at some point in the future. This typically indicates the heating element needs replacing. These are available at [Hobby King](#) or [RC Mart](#) but are tricky to replace. They can be replaced or rebuilt by NYSWDA. Each coil should be pretested before reassembly to ensure optimum performance.

Technical Info:

The Model Radon House is built using sintered PVC sheet goods typically used for residential trim boards.

The house graphics are a printed vinyl with a protective clear vinyl layer.

The warm white LED strip lighting is available from a number of sources.

The three computer fans are all 12 VDC and approximately rated 2.2 CFM each. The stack effect fan has been derated with a series resistor.

The clear front cover is made from Lexan. Clean using a no-scratch cloth and cleaner.

The smoke generator (radon gas simulator) is a modified Burn Effect V3. It uses a PWM (Pulse Width Modulated) signal to control a power MOSFET to regulate the heating element.

Caution!

The Tiny Fogger fluid is readily available online from a number of sources. Do not use any other fluid; the generator has been tuned to match this type fluid. Using other fluids which may contain glycerin may cause a fire.