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Automated Performance Testing (APT) System

After 3 years of development and testing, our Automated Performance Testing (APT) system is now completed and available for sale. The APT system is a multi-purpose diagnostic tool which fully automates blower door airtightness testing, and can also be used to analyze building performance problems by simultaneously monitoring pressures, CO, relative humidity, temperature and other performance variables.

Automated Blower Door Testing

During a blower door test, the APT system automatically adjusts the speed of the blower door fan while monitoring and collecting both building pressure and fan flow data. Test results are immediately calculated and displayed on your computer screen and can be easily saved to a file and retrieved at any time. A choice of printed reports are available including a simple one page homeowner report, and a more detailed technical report. The system also includes a cruise control feature which continuously adjusts the speed of the blower door fan to maintain a constant building pressure while the operator performs additional diagnostic procedures (e.g. pressure pan testing, series leakage measurements).

Advantages of Automated vs. Manual Testing

⇒ *With the APT system, you will now be able to perform accurate and repeatable airtightness tests in windy weather conditions where manual testing was extremely difficult or impossible.*

By automating the test procedure, the APT system is able to quickly gather and analyze hundreds of times more readings during a single test sequence than would be practical with a manual blower door test. Quickly collecting large samples of data in windy conditions greatly improves the repeatability of your test results.

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⇒ ***Automated operation eliminates many common operator errors and ensures that tests are performed the same way every time.***

During the test, the APT system provides a series of on-screen messages to the operator to ensure that proper testing procedures are followed. It even tells you when to switch low-flow rings. The APT system also detects common set-up and equipment problems (e.g. hoses connected to the wrong pressure tap) and provides appropriate warning messages to the operator.

⇒ ***If you are a frequent blower door user, the APT system should save you significant time.***

Automated operation eliminates the need to zero pressure gauges, adjust and tweak the fan speed, write down test data, and manually enter data into an analysis program. The APT system also eliminates the need to measure offset (or baseline) building pressures due to wind and stack effect - this is done automatically at the beginning and end of each test. And the cruise control feature makes it much easier for 1 person to perform series leakage measurements such as “add-a-hole” or “leakage area matching method”.

APT Operation and Compatibility

The heart of the APT system is a data acquisition box which monitors both building pressure and fan flow, while simultaneously sending the fan speed controller instructions to increase or decrease speed as needed. The test is controlled from an operator supplied laptop computer using our custom software.

The system is easy to set up, and is compatible with all existing Model 3 Minneapolis Blower Door systems. Two standard pressure hoses and one phone cable are used to connect the data box to your blower door, and a second cable connects the data box to your computer. The only change needed for existing blower door systems is to have us modify your speed controller to allow for automated fan control through the APT system.

Data Logging Building Performance

The versatile APT system can also be used to monitor many of the variables that affect the comfort, durability, air quality, combustion safety, and energy efficiency of a building. The system comes with separate data logging software which monitors the data box’s pressure channels and 8 built-in analog voltage channels which can be connected to a variety of sensors available from TEC or other manufacturers.

By simultaneously monitoring pressures and other variables such as relative humidity, temperature, and carbon monoxide, you can more easily diagnose building performance problems by seeing how these variables change over time. The data logging software includes a graphical display that allows you to observe the data as they are being collected and saved.

Typical Data Logging Applications

- ◆ Measure conditions causing backdrafting of combustion appliances.
- ◆ Analyze the cause of a CO alarm event.
- ◆ Determine the causes of high humidity or mold problems.
- ◆ Locate pressure imbalances in buildings with complex ventilation and air handling systems.

Pricing

- | | |
|---|---------|
| ◆ APT-2 (2 pressure, 8 analog channels) * | \$1,700 |
| ◆ APT-8 (3 pressure, 8 analog channels) * | \$2,000 |
| ◆ Additional Pressure Channel for APT-8 (up to 8 total pressure channels) | \$ 200 |
| ◆ CO Sensor (0 to 2,000 ppm) | \$ 250 |
| ◆ Temperature Sensor (-40°F to 212 °F) | \$ 50 |
| ◆ Relative Humidity (0 - 100% RH) | \$ 50 |
| ◆ Carrying Case for APT System & Access. | \$ 125 |
| ◆ Computer Stand (for laptop) | \$ 100 |
| ◆ Retrofit BD Controller w/ Phone Jack | \$ 50 |

* Includes Data Acquisition Box with Blower Door Testing and Data Logging Software.

TEC Web Site to Expand

Over the next year, we will be updating our web site (www.energyconservatory.com) to make it more useful and interesting for both existing and future customers. The expanded site will include a complete listing of up to date product information, descriptions and explanations of typical air leakage problems in buildings and duct systems, technical bulletins on testing procedures and equipment maintenance, a national listing of contractors providing Blower Door and Duct Blaster testing services (see side box), and of course useful web links. You will also be able to view past *Update* articles through the new site.

If you would like your company included on our list of Blower Door and Duct Blaster testing contractors (soon to be available on our web site), follow these simple instructions.

- ⇒ Write TEC a short letter indicating your interest in being on our list. Please include your company name, address, phone number and contact person.
- ⇒ Indicate whether your company provides air leakage testing for buildings, duct systems or both, and whether you provide airsealing services.
- ⇒ Send the letter to TEC, 5158 Bloomington Ave. S., Mpls, MN 55417 Attn: Contractor List.

Theatrical Fog Machine

The NESS Mini-Fogger is the perfect partner for your Duct Blaster®. The portable and lightweight (6 lb) Mini-Fogger is used to inject theatrical fog through the Duct Blaster and into the duct system to visually demonstrate the location and extent of leakage in the ductwork. The Fog Machine produces a dense non-toxic theatrical fog after a warm-up time of only 4 minutes. The Mini-Fogger makes a fantastic presentation for homeowners and builders, and can help crews find hidden leakage sites in attic and crawlspace ducts.

The Mini-Fogger comes with 30 foot remote controller, 1 gallon of fog fluid, and costs \$350. Additional gallons of fog fluid can be purchased for \$40 ea.

Product Briefs

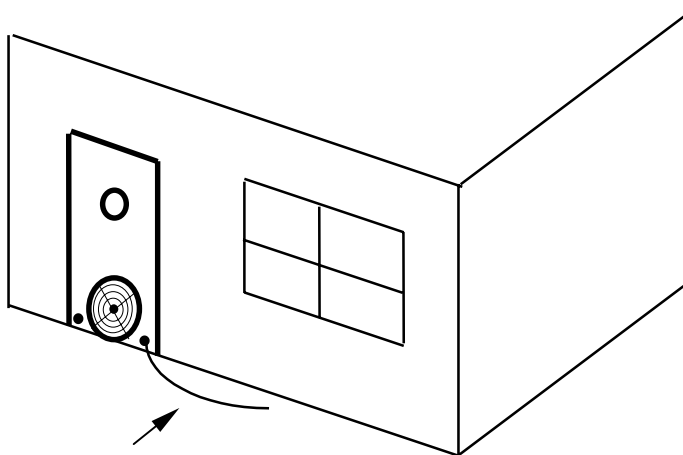
- ⇒ Our popular Home Health and Comfort consumer brochure is now available for \$0.60 ea. (originally it cost \$1.25). This colorful 4 page brochure makes it easy for homeowners to understand the problems associated with duct leakage and the benefits of hiring a professional contractor to diagnose and repair their duct system. It can be used during a sales presentation, or as a direct mail piece to generate leads. TEC's 11 minute Home Health and Comfort Video is still available for \$15.00.
- ⇒ We recently added a larger pressure pan to our product line. The new 22"x22"x2" pan is designed for large central return registers commonly found in sun belt states. The pan comes with a 6' extension pole for \$65. Our standard 10"x14"x4" pressure pan with extension pole is still available for \$50.
- ⇒ TEC now offers lease to own financing through Empire National Leasing Inc.. Empire has a number of financing options available, with terms from 1 to 5 years. Leasing offers many advantages including cash flow management, possible tax savings, and it doesn't affect access to your existing capital.
- ⇒ We now carry the Telaire 1050 Carbon Dioxide Monitor with 0-2000 PPM display and 0-5 VDC monitor output for \$500. The Telaire monitor comes complete with cable for easy connection to our APT data logging system.

Technical Tips

- **The location of the outside end of the building pressure hose is very important when setting up your blower door.**

When installing the building pressure hose, be sure the outside end of the hose is at least 5 feet to the side of the exhaust airflow from the blower door fan (see diagram below). Although it is common practice (and was our recommended installation procedure for years) for blower door operators to insert the open end of the hose just a few inches through the patch on the nylon panel, and leave it, we have determined that this set up practice can produce inaccurate building pressure readings due to the exhaust airflow from the fan hitting the end of the hose.

A good location for the end of the building pressure hose is at the base of the building where it meets the ground. We have redesigned our nylon blower door panels with two access holes near the floor to make it easier to properly install your building pressure hose.



Outside Pressure Hose
should be placed away from
fan exhaust airflow.

UPDATE

BULK RATE
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