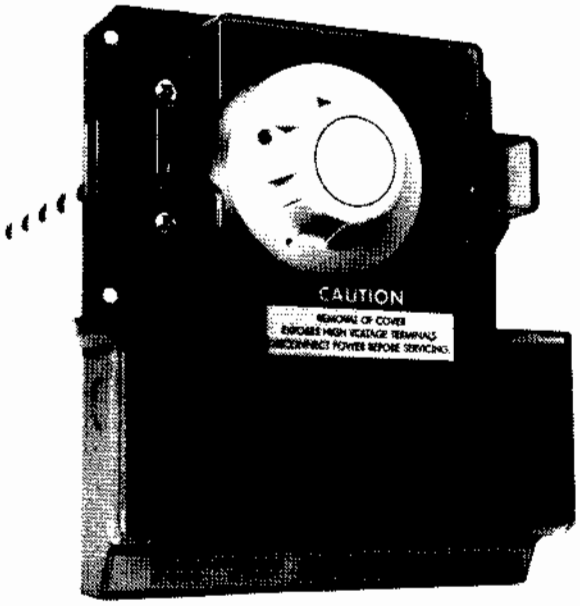
AIR PRODUCTS & CONTROLS, LTD.

RW-AA ANALOG ADDRESSABLE DUCT SMOKE DETECTORS

PRODUCT DESCRIPTION



The RW-AA Analog addressable Duct Smoke Detectors provide early detection of smoke and products of combustion present in air moving through an HVAC duct. These devices are designed for prevention of smoke re-circulation in areas by the air handling systems. Fans, blowers, and complete systems may be shut down in the event of smoke detection.

The RW-AA may utilize an Apollo photoelectric or ionization detector head.

These devices have unique features that benefit the installer and the end user; it's user friendly addressing, extended data and alarm features meet the demands of today's high-technology environments.

Each Apollo detector head is supplied with an XPERT card. In order to determine the proper address, consult the coding guide. Place a screwdriver in the pips slit and give it a firm twist. Removal of the proper pips completes the coding procedure. Slide the coded XPERT card into the side of the base, making sure it locks into position. Once the detector head is placed into the base, the remaining pips will operate the address-buttons on the detector head and the address will be read by the heads electronics.

UNDERWRITERS' LABORATORIES LISTED

Made in U.S.A.

Air sampling is accomplished by two tubes which protrude into the duct. An exhaust tube of one standard length (7.5") is provided with the detector housing. Intake sampling tubes, which must be ordered separately, are supplied in three standard lengths.

Duct mounting is accomplished by the use of a template and 4 sheet metal screws, which are provided.

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- Remote Alarm LED May Be Added
- Less Labor Intensive
- New UL 268A Listing
- Two Wire Supply, Polarity Insensitive
- Very Low Standby Current
- LED Alarm Indication On Sensor Head
- Rugged Steel Backbox With Clear Plastic Cover
- Installation *Without* Cover Removal (Mechanical)
- Installation Template Included
- Large Terminal Connection Screws

- Interchangeable "Plug-In" Photoelectric or Ionization Heads
- Dust Filtering *Included* in Detector Head
- No Additional Screens or Filters to Clean or Replace
- Only Three Standard Tube Lengths Required

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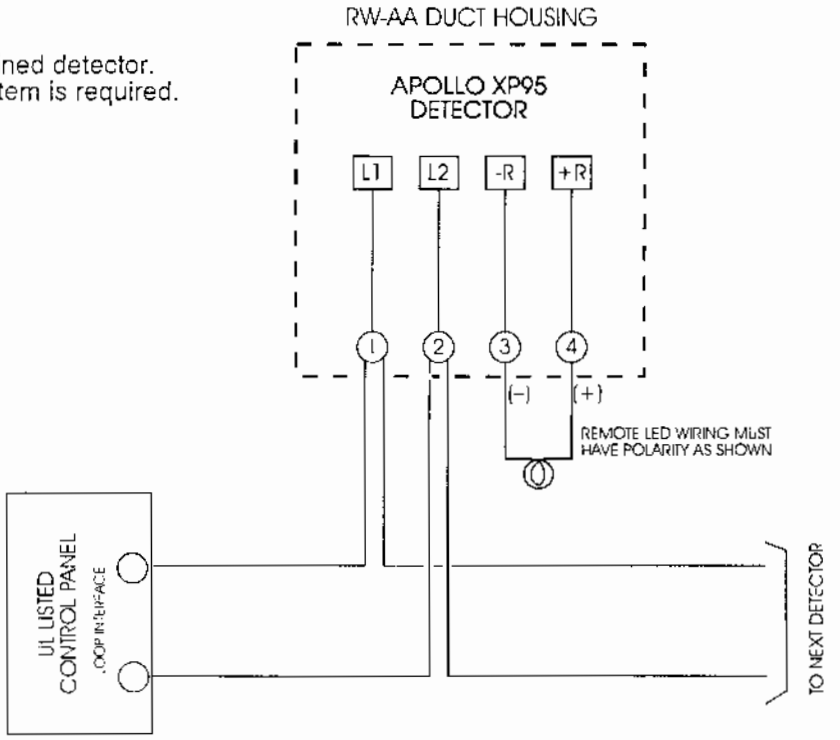
Your Trusted Source for Fire Safety

This is not a self-contained detector.
A custom Fire Alarm System is required.

WIRING

This is not a self-contained detector.
A custom Fire Alarm System is required.



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PRODUCT SPECIFICATIONS

MODEL NUMBERS:	RW-AA-N	ionization duct smoke detector incorporating Apollo Ionization detector XP95A 55000-550
	RW-AA-P	photoelectric duct smoke detector incorporating Apollo photoelectric detector XP95A 55000-650
	STS-2.5	Sampling tube for 6" to 2.5' duct width
	STS-5.0	Sampling tube for 2.5' to 5.0' duct width
	STS-10.0	Sampling tube for 5.0' to 10.0' duct width
QUIESCENT CURRENT:	RW-AA-N	280 microamps ionization
	RW-AA-P	340 microamps photoelectric
POWER-UP SURGE CURRENT:	RW-AA-N	1 milliamps ionization
	RW-AA-P	1 milliamps photoelectric
SUPPLY VOLTAGE:	17 to 28 V.D.C.	
RADIOACTIVE ELEMENT:	For RW-AA-N only, Americium 241; 0.9 Micro-Curies	
AIR VELOCITY:	300 to 4000 ft./min.	
APPROVAL:	Underwriters Laboratories Listed, (UL268A)	
AMBIENT TEMPERATURE:	30°F to 120°F (0°C TO 49°C)	
HUMIDITY:	10% to 85% R.H.	
MATERIAL:	18GA steel backbox, clear plastic cover	
MAX. NET WT:	4.0 lbs.	
MOUNTING:	Template and necessary hardware supplied	
DIMENSIONS:	10" H x 8.25" W x 2.25" D (25.4 cm H X 21 cm W x 5.7 cm D)	

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ENGINEERS & ARCHITECTS SPECIFICATIONS

Air duct smoke detectors shall be Air Products & Controls, Ltd. RW-Series. For ionization detectors the model number is RW-AA-N, for photoelectric detectors the model number is RW-AA-P. The detectors shall be listed by Underwriters Laboratories per U.L. 268A. The detectors shall operate at air velocities from 300 feet per minute to 4000 feet per minute.

The duct detector housings shall be of metal construction and complete mechanical installation may be performed without removal of detector cover.

Detector heads shall not require additional filters or screens which must be maintained.

The housing shall contain a detector base which will accept photoelectric or ionization detector heads.

Terminal connections shall be of the screw type and be a minimum of #6 screw. All wiring must comply with local codes and regulations.

AIR PRODUCTS AND CONTROLS INC.

INSTALLATION INSTRUCTIONS FOR

RW—AA ANALOGUE ADDRESSABLE DUCT SMOKE DETECTORS

1749 EAST HIGHWOOD
PONTIAC, MICHIGAN 48340
(248) 332-3900 / FAX (248) 332-8807

RW-AA-N — Ionization
RW-AA-P — Photoelectric

I. MOUNTING THE DETECTOR (See Figure 1) CAUTION — To prevent false alarms the detectors should not be mounted in areas of extreme high or low temperatures, in areas where high humidity exists, in areas where duct air may contain gases or excess dust. Refer to NFPA 90A, 72E, and 101.

A. DUCT PREPARATION
1. Remove paper backing from mounting template (packaged in installation kit) and affix to duct at desired location.
2. Using template as a guide, drill 4 mounting holes (3/32" diameter) for duct mounting screws (4 #12 x 1/2" sheet metal screws packaged in installation kit). Drill or punch holes for sampling tubes in air ducts (1-3/8" diameter), using template as a guide. Clean all holes.

B. VERIFY AIR FLOW AND DIRECTION
1. The RW detectors are designed for use in ducts where the air velocities are from 500 to 4000 feet per minute. Verify this by checking specifications of installation and if necessary, use an Alnor Model 6,000P velocity meter (or equivalent) to check the air velocity. See Figure 2 for sampling tube orientation to air flow direction.

C. SAMPLING TUBE ASSEMBLY (See Figure 2)
The sampling tubes may be ordered to desired length or ordered in one of 3 standard lengths and cut per requirements. The intake sampling tube is a piece of steel piping with a series of holes drilled the entire length of the tube and should extend the entire width of the duct. The holes must be facing into the air flow (see Figure 2). The exhaust tube is a piece of steel piping approximately 7-1/2" long.

INTAKE SAMPLING TUBES STANDARD LENGTHS:

STS-2.5	For duct widths of 1.0' to 2.5'
STS-5.0	For duct widths of 2.5' to 5.0'
STS-10-0	For duct widths of 5.0' to 10.0'

1. Cut the intake sampling tube to the desired length.
2. Firmly insert the stopper (packaged in installation kit) in the end of the INTAKE sampling tube.

D. MOUNT SAMPLING TUBES (See Figure 2)
1. Sampling tube connectors are equipped with set screws which allow the tubes to be mounted only in directions shown in Figure 2. Establish proper orientation considering air flow direction.
2. Insert intake and exhaust tubes into connectors, align set screw to set screw hole in tubes and tighten firmly.

E. DETECTOR MOUNTING (See Figure 1 & 2) (Ionization Models for side mount only)
1. Move detector/sampling tube assembly into position and using 4 duct mounting screws (4 #12 x 1/2 sheet metal screws, packaged in installation kit), secure to duct.

F. AIR SAMPLING VERIFICATION (See Figure 3)
To verify proper sampling of air, use a Dwyer Model 4000 differential pressure gage (or equivalent). See Figure 3 for gage connections. The pressure differential between input sampling tube and exhaust tube should be greater than 0.01" of water and less than 1.2" of water.

G. Proceed to electrical installation and testing instructions that follow.

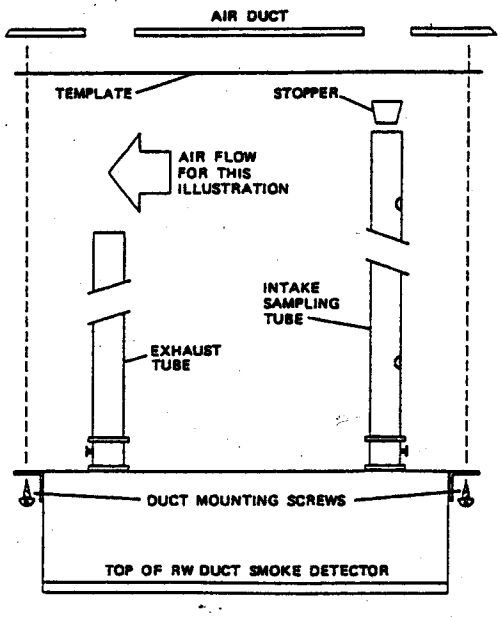


FIG. 1 DETECTOR MOUNTING

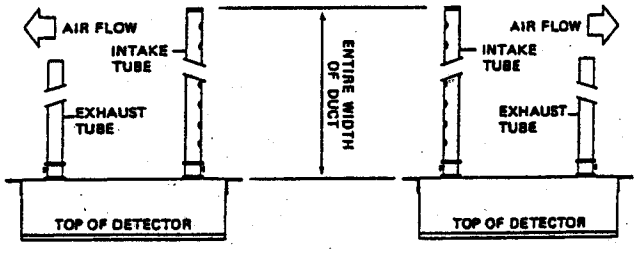


FIG. 2 SAMPLING TUBE ORIENTATION

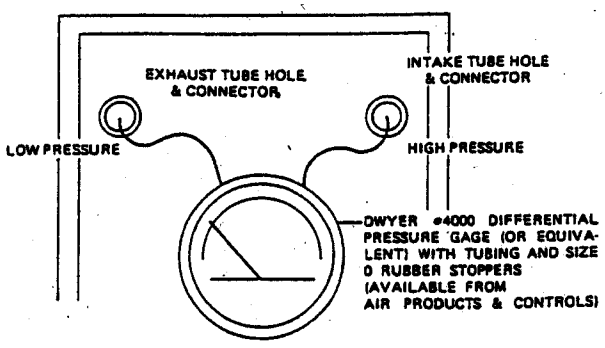


FIG. 3 AIR SAMPLING VERIFICATION

II. ELECTRICAL INSTALLATION

A. GENERAL INFORMATION

Wiring must conform to applicable local codes, ordinances and regulations covering this type of device. Wire the detectors according to engineering drawings for particular job requirements. This detector is not intended for open area protection nor should it be used for open air protection. Refer to NFPA 90A and NFPA 72E (National Fire Protection Association Publications) for general and additional information on Duct Smoke Detectors concerning operation and installation. Terminals are suitable for up to #14 gauge wire.

B. DETECTOR WIRING

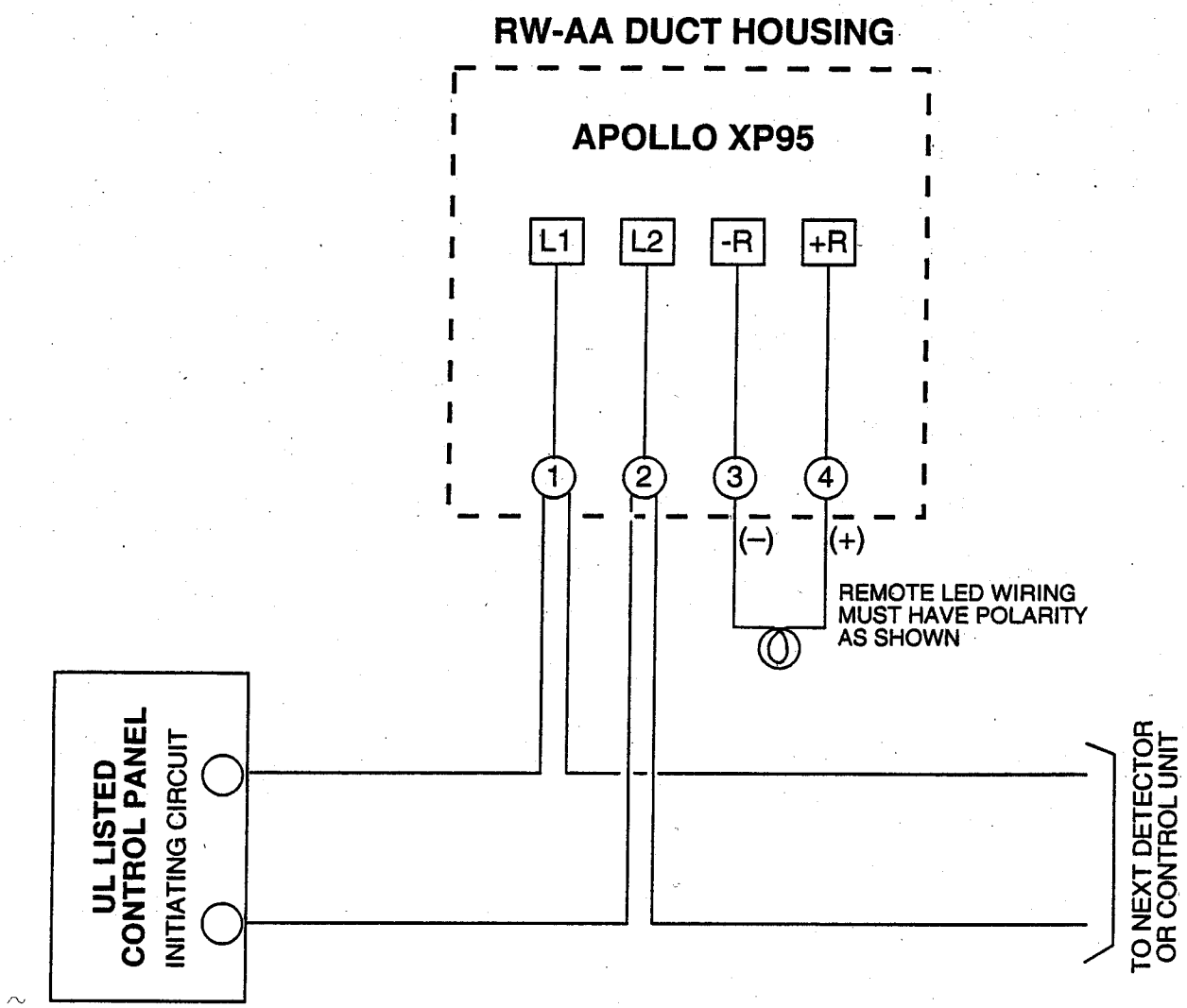
1. With power source de-energized, smoke detector not installed, wire all connections per engineering drawings. Refer to Figure A for power connections.
2. With all wiring in place, install the detector head.
3. Energize the detector.

C. TESTING INSTALLATION

1. Install smoke detector head Apollo part #55000-550 Ionization for RW-AA-N, and #5500-650 photoelectric for RW-AA-P.
2. Test the detector operation by lighting a piece of clothesline, placing it approximately 3 inches from the head and blowing across the lit area toward the detector head. The LED on the head should illuminated within one minute.
3. Replace cover.

D. WIRING TERMINALS

FIG. A



E. SPECIFICATIONS:

MODEL NUMBERS:	RW-AA-N	Ionization Duct Smoke Detector
	RW-AA-P	Photoelectric Duct Smoke Detector
OUIESCENT CURRENT:	RW-AA-N 280	Microamps
	RW-AA-P 340	Microamps
POWER-UP SURGE CURRENT:	RW-AA-N 1	Milliamps
	RW-AA-P 1	Milliamps
RADIOACTIVE ELEMENTS:	For RW-AA-N Americium 241, 0.9 Micro-Curies	
SENSITIVITY:	Factory Set	
AIR VELOCITY:	500 feet per minute to 4000 feet per minute	
AMBIENT TEMPERATURE:	32°F to 120°F (0°C to 49°C)	
HUMIDITY:	10% R.H. To 85% R.H.	

A HALMA GROUP COMPANY

DO NOT EXPOSE TO CORROSIVE ATMOSPHERES

CITY OF NEW YORK
DEPARTMENT OF BUILDINGS

Pursuant to Administrative Code Section 27-131, the following equipment or material has been found acceptable for use in accordance with the Report of Materials and Equipment Acceptance (MEA) Division.

Richard C. Visconti, R.A., Acting Commissioner
MEA 73-92-E Vol. XXI
Report of Material and Equipment Acceptance Division

Manufacturer - Air Products and Controls, Inc., 1749 East Highwood, Pontiac, MI 48340
Trade Name(s) - Air Products and Controls, Inc.
Product - Relay Modules and Air Duct Smoke Detectors.
Pertinent Code Section(s) - Reference Standard 17.
PrescribedTest(s) - Compliance with U.L. 864 and U.L. 268A.
Laboratory - Underwriters Laboratories, Inc.
Test Report - U.L. File No. S3403 Project 85NK27071 dated February 10, 1986 and revised January 8, 1996 and U.L. letter dated January 16, 1997 and U.L. File No. S2829.
Description - The following devices are intended for general purpose relay switching and incorporate multiple voltage operation. All models are listed by Underwriters Laboratories as control unit accessories and are within relay specifications.

PAM-1: This relay provides 10amp Form C contacts and may be energized by one of three input voltages: 24VAC, 24VDC, or 115VAC.

PAM-2: This relay provides 7amp Form C contacts and may be energized by one of two input voltages: 24VDC or 12VDC.

PAM-3: This relay provides 10amp Form C (N.O.) contacts and has a wide input voltage range: 9VDC to 40VDC @ 15ma.

PAM-4: This relay provides 10amp Form C contacts and has a wide input voltage range: 9VDC to 40VDC @ 15ma.

The following model numbers are air duct smoke detectors which provide early warning of smoke moving through air ducts and intended to prevent the spread of smoke through a protected area.

RW-024/230-N/P: Air duct smoke detector ion and photo will operate on any one of three input voltages: 230VAC, 24VAC, or 24VDC and provides two (2) Form C alarm contacts and one (1) Form C trouble contact.

RW-2W-N/P: Two wire air duct smoke detector ion and photo will operate on 24VDC with a compatible control panel.

RW-DC-N/P: Air duct smoke detector ion and photo will operate on 24VDC and provides two (2) Form C alarm contacts.

RW-AA-N/P: Analog addressable air duct smoke detector operates on 24 VDC with a compatible control panel.

All shipments and deliveries of such equipment shall be provided with a metal tag, suitably placed, certifying that the equipment shipped or delivered is equivalent to those tested and accepted for use, as provided for in Section 27-131 of the Building Code.

Final Acceptance July 14, 1999

Examined By Mark Jacoby

CALIFORNIA DEPARTMENT OF FORESTRY & FIRE PROTECTION
OFFICE OF THE STATE FIRE MARSHAL
FIRE ENGINEERING - BUILDING MATERIALS LISTING PROGRAM

LISTING SERVICE

LISTING No. 3241-1004:102

CATEGORY: Duct Smoke Detector, Ionization (w/ or w/o Base)

LISTEE: Air Products and Controls Inc., 1749 E. Highwood, Pontiac, MI 48340
Contact: *Richard Steele (248) 332-3900 *FAX (248) 332-8807

DESIGN: Model RW-AA-N, analog addressable duct smoke detector. Refer to listee's data sheet for detailed product description and operational considerations.

INSTALLATION: In accordance with listee's printed installation instructions, applicable codes & ordinances and in a manner acceptable to the authority having jurisdiction.

MARKING: Listee's name, model number, electrical rating and UL label.

APPROVAL: Listed as a ionization duct smoke detector for use in ducts where the velocity is between 500 and 4000 ft/min. Unit employs Apollo's listed smoke detector model 55000-550 and detector base 45681-210, (CSFM Listing No. 7271-11394:103).

*Rev. 05-28-2004

This listing is based upon technical data submitted by the applicant. CSFM Fire Engineering staff has reviewed the test results and/or other data but does not make an independent verification of any claims. This listing is not an endorsement or recommendation of the item listed. This listing should not be used to verify correct operational requirements or installation criteria. Refer to listee's data sheet, installation instructions and/or other suitable information sources.

Date Issued: **JUNE 22, 2004** *Listing Expires **June 30, 2005***

Authorized By: ***DIANE K. AREND**, Senior Deputy Program Manager*

CALIFORNIA DEPARTMENT OF FORESTRY & FIRE PROTECTION
OFFICE OF THE STATE FIRE MARSHAL
FIRE ENGINEERING - BUILDING MATERIALS LISTING PROGRAM

LISTING SERVICE

LISTING No. 3242-1004:103

CATEGORY: Duct Smoke Detector, Photo. (w/ or w/o Base)

LISTEE: Air Products and Controls Inc., 1749 E. Highwood, Pontiac, MI 48340
Contact: *Richard Steele (248) 332-3900 *FAX (248) 332-8807

DESIGN: Model RW-AA-P analog addressable duct smoke detector. Refer to listee's data sheet for detailed product description and operational considerations.

INSTALLATION: In accordance with listee's printed installation instructions, applicable codes & ordinances and in a manner acceptable to the authority having jurisdiction.

MARKING: Listee's name, model number, electrical rating and UL label.

APPROVAL: Listed as a photoelectric duct smoke detector for use in ducts where the velocity is between 500 and 4000 ft/min. Unit employs Apollo's listed smoke detector model 55000-650 and model 45681-210 base (CSFM Listing No. 7272-1394:104).

*Rev. 05-28-2004

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