



## **SOUTHWARK METAL MANUFACTURING CO.**

*Philadelphia, PA • Greenville, SC • Indianapolis, IN • Southaven, MS • Fremont, NE*  
Corporate Headquarters: 2800 Red Lion Road • Philadelphia, PA 19114  
Telephone: (215) 735-3401 • (800) 523-1052 • Fax: (215) 735-3406

### **SOUTHWARK METAL MFG CO. "DUCT SCHOOL" COURSE DESCRIPTIONS**

#### **Air Flow Dynamics and Residential Duct Sizing (4hrs)**

**Course Description:** This course provides all the primary information and theory needed to understand how air flows in a residential HVAC system. It explains how the quantity of flow is calculated based on the energy demand for a particular residence and the effect that the system components have on this air flow. This course also provides more advanced information and theory needed to calculate the proper duct size in a residential forced air system. It will explain how basic air flow fundamentals must be used along with complete information on the dwelling, all installation components, proposed equipment, and best practices for installation. This course can provide 4 NATE Continuing Education Hours (CEH) to approved technicians.

#### **Topics include:**

- Air flow measurements and terminology
- Heat gain/heat loss dynamics and calculations
- Basic residential design and air flow calculation
- Sensible heat formula and CFM calculation
- System component pressure drop dynamics
- Forced air pipe/duct and fittings review
- Duct sizing theory and velocity limits
- Complete instruction for the use of the sheet metal duct calculator
- Supply distribution system and return distribution system review and calculations
- Duct gauges and good installation practices
- Residential venting engineering and installation and filter size calculations

#### **Residential Duct Sizing (2 hrs)**

*Students must have a basic understanding of airflow dynamics before taking this course.*

**Course Description:** This course provides all the information and theory needed to calculate the proper duct size in a residential forced air system. The course briefly reviews the basics of air flow, but assumes the student is familiar with the calculation of CFM and basic forced air system design. The course will explain how basic air flow fundamentals must be used along with complete information on the dwelling, all installation components, proposed equipment, and best practices for installation. This course can provide 2 NATE Continuing Education Hours (CEH) to approved technicians.

#### **Topics include:**

- Duct sizing theory and velocity limits
- Complete instruction for the use of the sheet metal duct calculator
- Supply distribution system and return distribution system review and calculations
- Duct gauges and good installation practices
- Residential venting engineering and installation and filter size calculations

### **PREFABRICATED DUCTS AND FITTINGS FOR RESIDENTIAL HEATING AND COOLING SYSTEMS**



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### **Best Practices (1 hr)**

**Course Description:** This course covers the proper installation, sealing, and testing of sheet metal ducting in a residential HVAC forced air system. This course can provide 1 NATE Continuing Education Hour (CEH) to approved technicians.

#### **Topics include:**

- Criteria for a quality forced air system
- Good air distribution concepts
- Duct leakage as a major energy waster
- Concepts of duct leakage from ducts located inside and outside the conditioned envelope
- Good sheet metal installation practices
- Sealing materials and specifications
- Where and how to seal sheet metal
- System pressure testing procedures
- Sealing standards and codes
- Top Ten HVAC problem areas