

Air Management Industries (AMI) has been providing customers with quality air duct cleaning, air balancing, and duct sealing services since 1997. AMI provides the combined services of HVAC system cleaning and restoration along with testing and balancing. As a member of the National Air Duct Cleaners Association (NADCA), AMI adheres to the most current NADCA standards and provides clients with the advantage of having a contractor who is knowledgeable in all components of a building's air movement system.

AMI was tapped to work on a remediation project located in a medical office building in Southern California. The three-story building provides medical services including pediatrics, urgent care, x-ray, imaging services, an allergy department, and a pharmacy. The exhaust duct system serving this building had a measured 18% leakage. Leaky ducts are inefficient and cause HVAC systems to work much harder, increasing a building's energy bills and carbon footprint. Improperly sealed ducts can also circulate and deposit dirty, dusty air throughout a facility, causing problems for those who suffer from allergies and asthma.



The measured leakage on the 5400 CFM exhaust fan was 970 CFM (18%). The mechanical engineer on this project required the leakage to be below 5% (or 270 CFM). The leakage was isolated to a three-story vertical exhaust shaft that measured 26" x 18"; however, the only point of entry to this exhaust shaft was through a small closet on the third floor of the building, making access extremely difficult.

Fortunately, Air Management Industries has experience in robotic duct sealing using Carlisle HVAC Products' ISAAC™ HVAC Robotic System. ISAAC (which stands for the Inspection, Sealing, and Advanced Cleaning robot) was created specifically for the inspection and repair of ductwork and is capable of accessing hard-to-reach ductwork, which would otherwise require much more complex and expensive renovations.

Southern California Ductwork Remediation

Contractor:

Air Management Industries

Job Location:

Southern California

Project Type:

Remediation

Carlisle HVAC Products Used:

- RS-100™ Duct Sealant
- ISAAC™ HVAC Robotic System

ISAAC was created specifically for the inspection and repair of ductwork and is capable of accessing hard-to-reach ductwork, which would otherwise require much more complex and expensive renovations.

ISAAC effectively seals duct leakage in one pass and is outfitted with a digital video recorder to provide footage of interior conditions. This innovative device can inspect, coat, and seal all types of ductwork from the inside, with a minimum of disruption to building occupants.

Using ISAAC and Carlisle HVAC Products' RS-100 Sprayable Water-Based Duct Sealant, AMI thoroughly coated the interior surfaces of the rigid metal ductwork. RS-100 is a water-based, robotically applied spray sealant engineered to seal joints and seams from the inside of the HVAC ductwork. The excellent physical properties of this product meet and exceed all SMACNA pressure classes, as well as provide resistance to mold growth and allow for system vibration without cracking. In addition, using RS-100 can contribute toward LEED® credit requirements.

After using ISAAC and RS-100 to coat the inside of the ductwork and allowing the sealant to properly dry, the airflow was re-measured at the previously leaky locations. The leakage was reduced from 970 CFM (18%) to less than 100 CFM (2%). The job took AMI one shift to complete and the system passed the leakage test the first time it was administered.

By sealing this exhaust system using ISAAC and RS-100, leakage was significantly reduced, the performance of the exhaust system was improved, and there is no longer contaminated exhaust air leaking throughout the facility. AMI provided a simple, cost-effective method for sealing the ductwork and ensuring proper airflow, which resulted in a satisfied customer whose air distribution system will operate at peak efficiency for years to come. States April Yungen, owner of AMI, "I have been very impressed with the product support and training from Carlisle. I feel they are as dedicated to my customers as I am."

For almost 50 years, Carlisle HVAC Products, a vendor partner and member of the National Air Duct Cleaners Association (NADCA), has been providing innovative, high-performance products for the Heating Ventilation and Air Conditioning (HVAC) industry. Carlisle HVAC's Hardcast and DynAir brands can provide contractors with all the materials necessary to ensure duct systems function at optimum levels. Carlisle HVAC offers rolled duct sealants, mastics, adhesives, coatings, airflow management hardware, and much more.

Products Used	Pre-Sealing Leakage	Post-Sealing Leakage	Leakage Reduction
RS-100 ISAAC Robot	970 cfm (18%)	100 cfm (2%)	89.6%



Before RS-100



After RS-100