

# The Importance of Effective Duct Sealing Specifications



 **HARDCAST**  
A **CARLISLE** COMPANY

Safely Sealed for Life®



**Indoor air quality is very important to us. Hardcast takes pride in manufacturing high quality, environmentally friendly products. All Hardcast water-based liquid sealants have achieved UL GREENGUARD Gold Certification.**

Hardcast liquid sealants are ideal for all occupied spaces, but especially where indoor air quality is vital, such as schools and healthcare facilities where children and sensitive adults spend extended periods of time.

There is a way to conserve energy and improve IAQ, and that is through high-quality, permanent sealing solutions for HVAC systems.

## Improving Indoor Air Quality

The HVAC system can save energy, but equally important, it can significantly improve our indoor air quality. The more efficient an HVAC system, the purer the indoor air quality. Why is indoor air quality (IAQ) so important??

### Why IAQ Is Important:

- According to the U.S. Environmental Protection Agency, Americans spend an average of 90% of their time indoors
- Approximately 34.1 million Americans have been diagnosed with asthma
- Indoor pollutant levels can be typically 2–5 times higher (sometimes even 100 times higher) than outdoor pollutant levels

Effective duct sealing significantly improves IAQ and contributes directly to LEED® credits IEQ 7.1 and 7.2 by removing heating and cooling inconsistencies (or hot and cold spots) throughout a building. These hot and cold spots are one of the biggest complaints of facility managers.

## Why UL GREENGUARD Gold

- GREENGUARD Gold and CA01350 both cover formaldehyde and 34 other compounds from CDPH Standard Method

GREENGUARD Gold also includes health-based emission limits for 350 additional chemicals with occupational exposure limits (ACGIH TLVs) GREENGUARD Gold also requires low emissions for Total VOC (TVOC) to limit overall exposure to over 12,000 compounds

## Sealing Ducts & Saving Energy

Why should you care about sealing ducts? Not only do HVAC systems play a role in occupant comfort and indoor air quality, but they also account for nearly 40% of the energy consumed by buildings in the United States. When 77% of the electricity we consume goes just to operate the buildings we live and work in every day, it becomes more important than ever that a properly sealed duct system can help save energy and reduce costs.

### Leaking Ducts Contribute to:

- Nearly 30% loss in a building's energy
- Reduced lifecycle & capacity of HVAC system
- Heating/cooling inconsistencies throughout building
- Increased utility costs

In light commercial buildings, leaking ductwork often goes unnoticed because most of these buildings do not involve a commissioner, and many of them may not have an HVAC designer. Leaking ductwork can cause significant energy loss, not to mention financial cost, especially if it goes unnoticed.

### Properly Sealed Ducts Contribute to:

- Significantly reduced energy loss throughout the building
- Increased heating/cooling consistency
- Reduced utility costs
- Enhanced lifecycle performance of HVAC system

### IECC Code Requirements:

- ASHRAE Std. 90.1; All ducts are required to be constructed to Seal Class A
- 2009 & 2012 International Energy Conservation Code-IECC:  
All Residential is test; Commercial <3" must be sealed but not tested; over 3" must be sealed and tested at 25% surface area or greater
- ENERGY STAR and LEED Programs both require duct sealing and testing

## Hardcast Offers True Sustainable Solutions

**Safely sealed for life — what does that mean to you? The building occupant can breathe easy! UL GREENGUARD Gold certification represents the most comprehensive VOC emissions testing for building products. UL 2818 tests for over 12,000 chemicals. Annual retesting assures continued safety. Accept nothing less.**

Hardcast has been a pioneer in the HVAC industry for more than 50 years, and offers an extensive line of premium, high-performance duct sealants and insulation adhesives that are specifically designed to enhance indoor air quality, provide optimal thermal comfort and energy efficiency throughout the building. All of Hardcast's products are also backed by industry-leading warranties, ensuring long-term durability and consistent performance.

Let Hardcast help you with an effective duct sealing specification that will accomplish your goals of IAQ, Thermal Comfort and Energy Efficiency for the HVAC System.

## Hardcast Duct Sealants

Here is a glimpse into some of our premium duct-sealing solutions.

### Iron-Grip® 601

- all-purpose, fiber-free, water-based duct sealant
- for use on all types of metal duct, flex duct, duct fabric & flexible tubing runouts
- highly flexible, accommodates minor vibration & movement without cracking
- 10 year indoor warranty
- 10 year outdoor warranty with AFT-701



### Versa-Grip™ 181

- premium-grade, all-purpose, water-based duct sealant
- for use on all types of metal duct, glass fiber duct board, flex duct, duct fabric & flexible tubing runouts
- built-in fiber reinforcement provides exceptional strength
- enhanced UV resistance
- 5 year indoor warranty
- 10 year outdoor warranty with AFT-701



### Spray-Seal™

- all-purpose, high-performance, sprayable, water-based duct sealant
- for use on all types of metal duct, duct fabric & flex duct
- accommodates minor vibration & movement without cracking
- significantly decreases labor, installation time & material used
- 10 year indoor warranty
- 10 year outdoor warranty with AFT-701



### TPO Line Set Wrap

- TPO exterior with proven roofing membrane technology
- resists mechanical damage
- aggressive grip & adhesion
- immediate leak proof results
- easy, fast application
- stays flexible
- no dry time
- scoring Tool provided with each roll\*
- Title 24 compliant Installation (see installation instructions)
- Class II Vapor Barrier
- meets or exceeds the IECC code criteria for protection against:
  - UV, moisture, equipment maintenance, & wind



### Foil-Grip™ 1404-181BFX

- UL 181BFX listed, pressure-sensitive, rolled mastic sealant
- superior tack for instant adhesion to galvanized metal, flex duct, PVC-coated pipe & PVC-coated ductwork
- excellent UV & water infiltration resistance
- easy tear provides quick installation



### Foil-Grip 1402 Printed/Unprinted

- pressure-sensitive, 40-year-cycle, duct joint & general-purpose rolled mastic sealant
- instant water-resistant grip to most surfaces including sheet metal, duct board, flex board, PVC-coated duct & duct wrap vapor barriers
- suitable for sub-grade application on PVC-coated duct



### Foil-Grip 1403-181BFX

- listed pressure sensitive, 40-year cycle, duct seam and joint rolled mastic sealant
- instant water-resistant grip to sheet metal, duct board, flex duct, PVC coated duct, and duct wrap vapor barriers
- excellent cold weather adhesion
- initially repositionable before squeegeeing



### Aluma-Grip™ AFT-701

- heavy-duty, pressure-sensitive, 40-year-cycle, duct joint rolled sealant
- aggressive water-resistant grip to most surfaces including sheet metal, duct board, flex duct, PVC-coated duct & duct wrap vapor barriers
- suitable for subgrade application on PVC-coated duct
- rooftop and exterior 5 year warranty when used alone
- rooftop and exterior 10 year warranty when used with an approved Hardcast Liquid Sealant





# Hardcast Internal HVAC System Sealants and Coatings

Designed and Tested For Use Inside the Duct and Plenum

## RS-100

- ASTM E84 0/0
- UL 181 water-based spray sealant
- engineered to seal joints, penetrations & seams from the ductwork interior
- meets & exceeds SMACNA pressure classes
- enhanced flexibility allows for system operation without cracking
- formulated with EPA-registered chemicals to resist microbial growth
- 10 year indoor warranty



## Smoke & Soot

- ASTM E84 0/5
- spray-applied coating that resists microbial growth
- locks down offensive particles, and removes odors from the air-stream of fugitive emissions from fire deposits below the detectable limit
- negates the need to replace the entire duct by merely resurfacing the existing substrate
- 3rd party environmental testing
- PNAH (Polynuclear Aromatic Hydrocarbon) reduced after coating
- significant reduction in respirable particulate
- available in white and black
- 10 year indoor warranty



## RE-500

- ASTM E84 0/5
- high-performance, spray-applied insulation encapsulant & coating for use inside ductwork
- formulated with EPA-registered chemicals to resist microbial growth
- low VOCs; ideal for hospital & school applications
- semi-gloss finish provides a non-stick surface that inhibits fiberglass degradation & debris accumulation
- available in white and black
- 10 year indoor warranty



## Pan-Grip and Pan-Grip Flex

- ASTM E84 tested 0/35 and 5/35
- multicomponent Novolac based epoxy
- ideal for residential, commercial and industrial application
- designed to seal and repair corroded and leaking surfaces in all HVAC systems
- coating is impervious to water, non-rusting, chemical resistant
- cures under water
- Pan-Grip Flex is designed for high traffic areas and for applications with heavy vibration



## Several independent studies conclude: The #1 and #2 facility occupant complaints are “it’s too hot” and “it’s too cold”.

Adverse thermal comfort and air quality issues can impact employee productivity, efficiency, comfort and morale. And while well intentioned, but improper, system adjustments can be made to address thermal complaints, these adjustments may not solve the main issue.

Hardcast has the permanent solution to improve your building's indoor air quality, support the delivery of proper airflow and save you money on your heating and cooling costs.

Properly sealing your ductwork with Hardcast products can:

- Satisfy employee and patient demand for comfort
- Decrease your building's energy consumption
- Reduce plug load and thermostat hijacking
- Qualify your building for LEED credits
- Lower heating and cooling costs
- Increase peak efficiency from your HVAC system



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