QDUCT®

2019 QDUCT® PRODUCT CATALOG

AQC INDUSTRIES

Made in the USA

Rev 6.3.19

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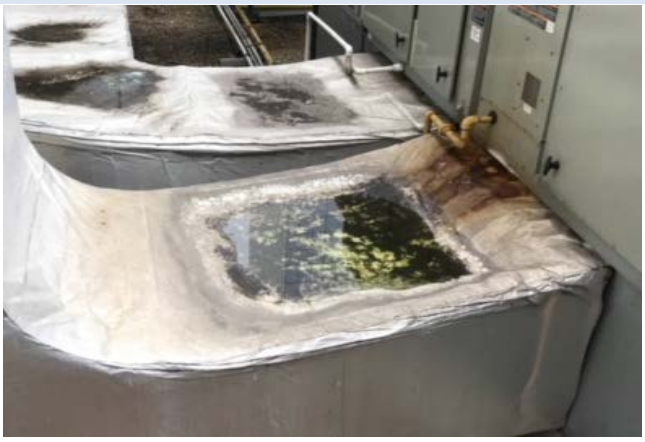
INTRODUCTION

ABOUT AQC INDUSTRIES

AQC Industries has revolutionized air-duct systems for use indoors, outdoors and underground in commercial, industrial and residential applications. The BlueDuct®, QDuct® and PalDuct™ Preinsulated Duct Systems are advanced alternatives to fiberglass and sheet metal ductwork with many benefits, including energy and labor savings. AQC engineers, technicians and representatives work closely with customers to provide consistent high-quality products, CAD services and contractor training. AQC's products are offered through knowledgeable distributors and representatives throughout North America.

BACKGROUND ON OUTDOOR DUCT

When HVAC systems are designed, it is often required to route air outside of the building's envelope. This typically occurs when the building's ceiling and interior mechanical space are too constrained to efficiently route ductwork, or when new HVAC equipment is installed on the exterior of the building. Frequently, architects and designers are opting to route ductwork above the useable ceiling to provide a more unique interior for their building.



Historically, little attention has been paid to the differences between indoor & outdoor duct systems, and the significant costs associated with traditional metal ducting in an outdoor environment. Outdoor ductwork presents an entire new set of engineering challenges that must be addressed. These include exposure to the sun and environmental conditions, wind and snow loading, mold and mildew growth, water intrusion prevention, duct corrosion, and many more.

Simply installing traditional duct systems in an exterior environment without careful consideration of these engineering challenges can result in significant energy loss and reduction of system life expectancy.

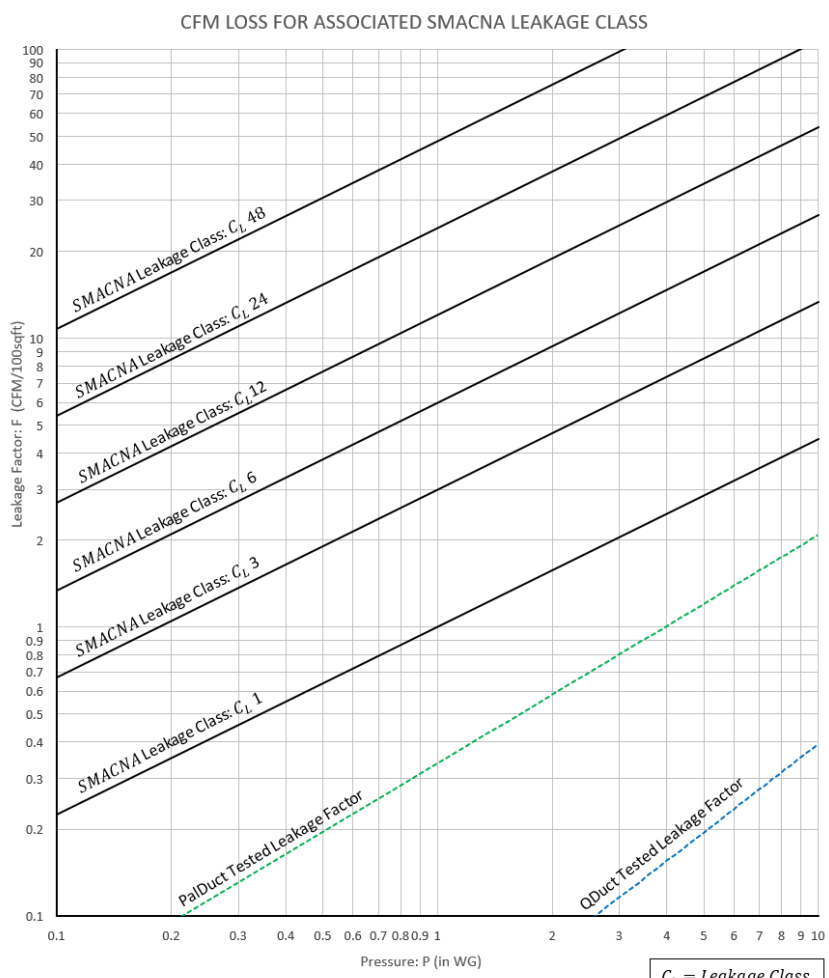
INTRODUCTION TO QDUCT®

Engineered for exterior applications, QDuct® Outdoor Pre-Insulated Duct System is constructed to withstand harsh weather conditions in all climates. QDuct® is fabricated from multiple layers of ridged thermoset phenolic insulation panels that are laminated together to form a composite interlocking duct system with redundant seals for industry leading low leakage & maximum energy efficiency. Each phenolic panel is both internally & externally lined with a thermally bonded embossed aluminum cladding providing sequential layers of fiber-free high-performance insulation and corrosion resistant ingress protection. QDuct®'s exterior can be topped with an optional sloped roof, fabricated from impact resistant closed cell tapered insulation panels for prevention of water accumulation & increased thermal energy performance. Finally, QDuct® receives an external layer of an all-weather, low permeability, multi- layered aluminum laminate cladding for enhanced ingress protection from the elements.

BENEFITS & FEATURES

INDUSTRY LEADING LOW LEAKAGE

For outdoor duct systems, air leakage can be a major cause of degraded system performance and energy loss. Not to mention a path for water to seep into the ventilation, causing mold and mildew. The QDuct® system is the only product on the market that utilizes a patented interlocking flange-less duct connection that has been tested to meet and exceed SMACNA Class 1 Leakage rates.



(Based on SMACNA HVAC Air Duct Leakage Test Manual, 1985 Edition, Figure 4-1 'Duct Leakage Classification")

SLOPED ROOF

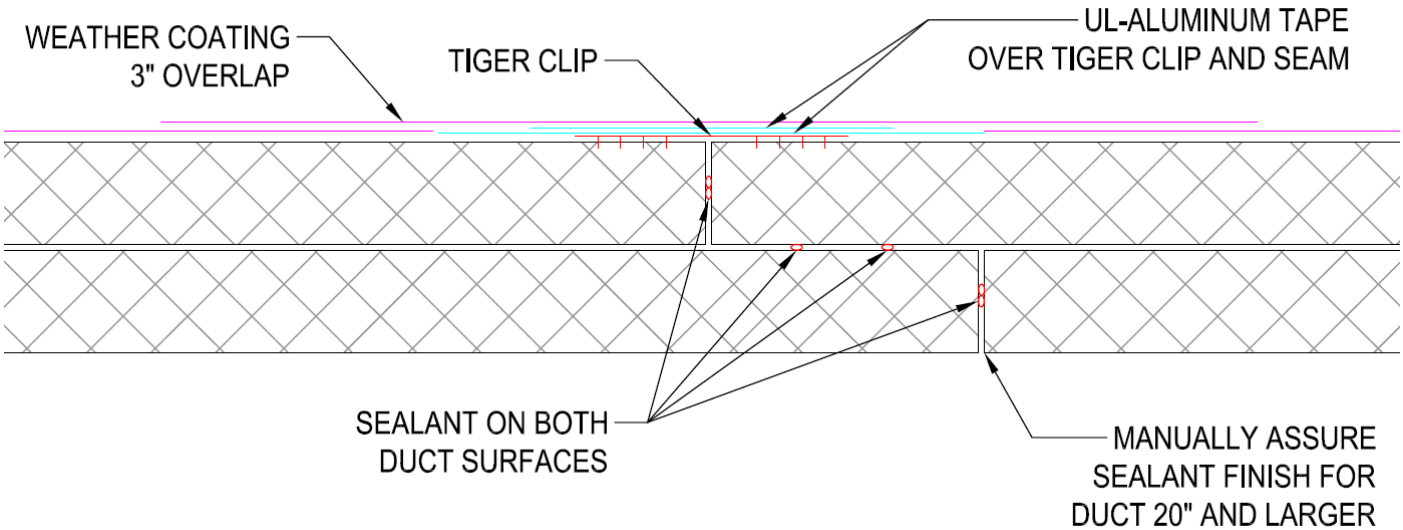
Many traditional outdoor duct systems suffer from water ponding on top of the ducts. results in mold, mildew and rusting that can eventually make its way into the duct system and diminish the air quality of the system. QDuct®'s patent pending sloped roof design helps to ensure water is quickly shed from the duct surface.

QUICK SUPPORT MOUNTING SYSTEM

QDuct®'s patent pending support mounting system utilizes external channel strut connected to the internal bracing structure of the QDuct® system. Allowing for quick and easy mounting of ducts to support rails for both horizontal and vertical mounting orientations, saving contractors time and money.

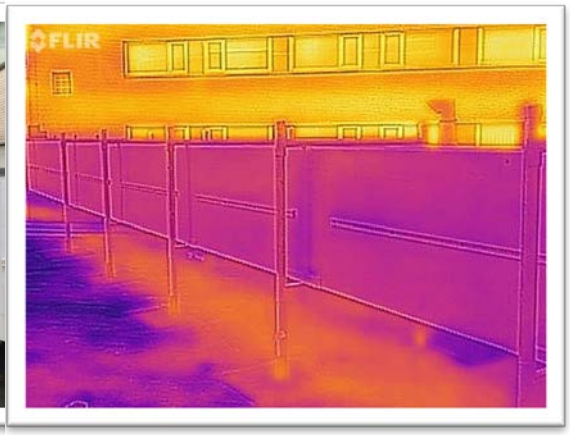
UNMATCHED THERMAL PERFORMANCE

Thanks to QDuct®'s patented interlocking flange-less connection, QDuct® is the only known phenolic duct system with no through metal at the connection joint. Thermal images of QDuct® show it all when tested side by side with other duct systems. The following page shows thermal comparison images of three outdoor phenolic duct systems. All three systems are moving warm air during cold ambient conditions. The dark colors show cooler surfaces, while the brighter colors show warm surfaces (or thermal loss).



QDUCT® PHENOLIC DUCT SYSTEM

Connection Type: Interlocking flange-less connection
SMACNA Leakage Class: 1

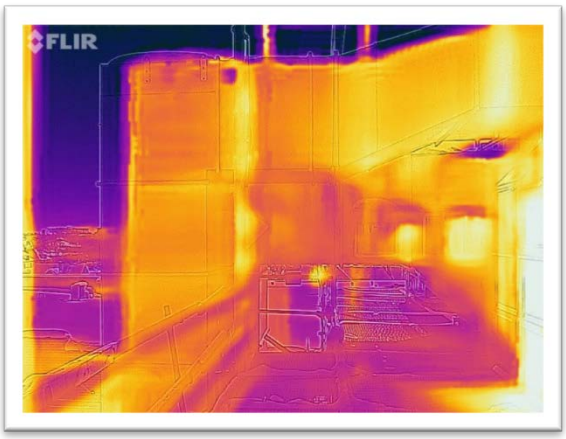



COMPETITOR "T-DUCT" PHENOLIC DUCT SYSTEM

Connection Type: 4-Bolt Flange Connections
SMACNA Leakage Class: 3

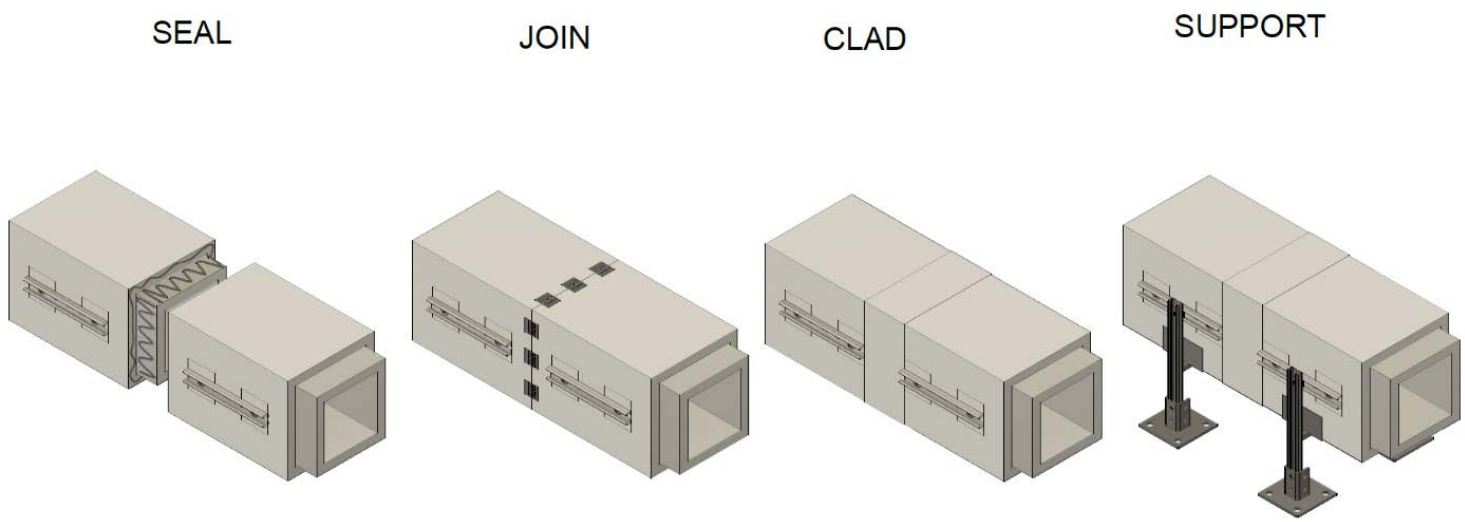

COMPETITOR "PR-DUCT" PHENOLIC DUCT SYSTEM

Connection Type: TDC/TDF (Transverse Duct Connection/Flange)
SMACNA Leakage Class: 6

FAST INSTALLATION

The QDuct® system does not require training in welding, metal working, or other high skill trades for installation. QDuct®'s joints & fittings arrive on site fully fabricated ready for joining and mounting to support system. Contractors have told us the QDuct® system installs in half the time of other metal & phenolic outdoor duct systems. Additionally, the QDuct® system is pre-insulated from the factory, eliminating the need to hire an additional contractor to perform insulation and cladding.



RUGGED DESIGN

QDuct® is comprised of two or more layers of closed cell phenolic ridged foam insulation, with each layer of phenolic sandwiched between layers of aluminum jacketing. This ridged phenolic panel and aluminum composite material is then externally clad in an additional layer of a zero-permeable, 6-ply, UV resistant all-weather jacketing. The standard, flat roof variant, of the QDuct® system can be enhanced by the addition of a factory installed sloped roof consisting of an additional layer of high impact resistant tapered roof insulation foam and an additional layer of the all- weather jacketing.

REDUCED WEIGHT

QDuct®'s light weight design allows a crew of two to three do the work normally completed by a crew of five or more. In fact, the QDuct® system can reduce the weight of duct system by over 40%, when compared with traditional sheet metal and insulation. QDuct® weighs approximately 1-1.5 lbs/sqft depending upon insulation and pressure classification.

FREE INSTALLATION TRAINING

AQC provides installation training for new contractors, either by hosted webinar or onsite installation training. This training ensures Installers are well prepared for a quick and successful install.

FIELD FLEXIBLE DESIGN

The QDuct® system can be easily field modified, saving the installer from costly and time-consuming change orders. Additionally, when modifications are completed per manufacturer's directions, the unequaled performance and warranty of the system is maintained.

IMPROVED AIR QUALITY

The QDuct® system is design from the ground up to improve indoor air quality over traditional wool/fiberglass insulated metal ductwork. QDuct®'s insulation is composed of a fiber-free closed cell phenolic ridged insulation and then the system is internally lined with an antimicrobial embossed aluminum liner providing a clean and durable finish.

TECHNICAL DATA

R-VALUES

- R-10: Double Panel: 2” wall thickness (nominal)
- R-12: Double Panel: 2.5” wall thickness (nominal)
- R-16: Triple Panel: 3.5” wall thickness (nominal)
- R-18: Triple Panel: 4” wall thickness (nominal)
- R-22: Quad Panel: 4.5” wall thickness (nominal)
- R-24: Quad Panel: 5” wall thickness (nominal)

PRESSURE CLASSIFICATION & LEAKAGE CLASS

- Standard Pressure: Pressure Classification ±4” WG (1000 Pa) @ SMACNA Leakage Class 1
- High Pressure: Pressure Classification = ±7” WG (1750 Pa) @ SMACNA Leakage Class 1

ACCESSORIES

- Sloped Roof (Additional R-8.6 of Roof Insulation)
- Unistrut Support Mounts
- Union Fabrication
- Non-Ferrous Construction

OPERATING LIMITATIONS

It is recommended that the AQC QDuct® System is used only as supply, return, fresh and exhaust air ductwork for HVAC systems within the limits shown in the table below. QDuct® is not to be used as grease duct, in duct systems exposed to flame, or systems which would expose the ductwork to conditions outside of the operating limitations below.

Mean Air Velocity (Max)	6890 fpm (35 $\frac{m}{s}$)
Design Pressure (Max)	±7in wg (1750 Pa)
Maximum Temperature (Internal)	176°F (80°C) During Continuous Operation
Maximum Temperature (External)	176°F (80°C) During Continuous Operation
Size Limitations	6”x6” to 120”x120” (Consult AQC for custom size options)

PRESTIGE PROJECTS

VERIZON CENTER: MANKATO, MN

CHURCHILL ELEMENTARY SCHOOL: CLOQUET, MN

WASHINGTON ELEMENTARY SCHOOL: CLOQUET, MN

ORDERING INFORMATION

RFQ

For more information on ordering samples, requesting a quote or product information please visit www.AQCIND.com. You can place a request for quote (RFQ) directly from our website at www.aqcind.com/rfq

OTHER PRODUCTS BY AQC INDUSTRIES

BLUEDUCT® a πPal™ Duct Delivery Partner