

A White Paper for QDuct®

Competitive Analysis FAQ for



Summary

QDuct® is AQC's premier outdoor air duct and fitting system, designed specifically for exterior air systems using patented phenolic panels approved by SMACNA that meet all codes for duct in the United States. Engineers and architects have been asking for a specifiable, engineered outdoor duct system that would improve energy efficiency and IAQ by reducing leakage and minimizing the chance of mold growth while carrying a 10-year manufacturer's warranty. QDuct was designed to meet this need. In fact, QDuct was specifically designed to address common shortfalls and issues such as leakage, water intrusion, mold, mildew, inadequate thermal efficiency, difficulty installing insulation in the field, corrosion, sustainability, and challenges of outdoor duct system provided by the low bid sheet metal and insulation contractors. This document provides information on how QDuct compares to current exterior duct practices as well as its other phenolic ducts. Certainly, both QDuct and other phenolic ducts have greatly improved the challenges of exterior sheet metal duct and provide owners, engineers, architects and contractors a better option that is new to the HVAC industry.

For more information and documents referred to in this FAQ, please refer to our web site www.aqcind.com.

A White Paper for QDuct®

Competitive Analysis FAQ



1. “Connection Quality: How does QDuct® compare to others?” Page 3
2. “Ease and Speed of Installation: How does QDuct® compare to others?... Page 3
3. “No-Through-Metal: How does QDuct® compare to others” Page 4
4. “Durability: How does QDuct® compare to others?” Page 5
5. “Smooth Exterior Surface: How does QDuct® compare to others?” Page 5
6. “Wall Thickness: How does QDuct® compare to others?” Page 6
7. “Insulation Value: How does QDuct® compare to others?” Page 7
8. “Leakage: How does QDuct® compare to others?” Page 7
9. “IAQ: How does QDuct® compare to others?” Page 8
10. “Market Duration: How does QDuct® compare to others?” Page 8
11. “Manufacturer Qualifications: How does QDuct® compare to others?”Page 8
12. “Warranty: How does QDuct® compare to others?”Page 9
13. “How can I get answers to more questions?” Page 9

A White Paper for QDuct®

Competitive Analysis FAQ



1. *“Connection Quality: How does QDuct® compare to others?”*

QDuct® is pre-assembled with specially designed ends for fast and easy field connections that produce an interlocking quadruple-sealed joint. In the field, the contractor will apply four beads of QDuct sealant (one inner layer, one outer layer on both ducts to be connected), press the two interlocking sections together and apply tiger clips to ensure a tightly sealed system. UL-181 butyl tape is then applied over the joint and then the connection is covered with exterior cladding to complete the quadruple seal. All of the materials needed for the connection are provided by AQC and shipped with the QDuct. All sections of duct are factory fabricated and labeled with a unique part number that corresponds to a location identified on a CAD drawing supplied by AQC for ease of installation. The duct is securely packaged on skids and/or crated and the corners are protected with Styrofoam protectors.

Other phenolic systems use a common indoor “four-bolt” flange joining method. This is susceptible to leakage and standards vary by contractor. This susceptibility increases over time as the connection system, field applied insulation and the duct are made of different materials that will expand and contract at different rates with the fluctuation in ambient temperatures from summer to winter.

2. *“Ease and Speed of Installation: How does QDuct® compare to others?”*

QDuct® like other AQC products has been designed for simple and fast installation. Contractors have recorded that each connection only takes 2 laborers 5-10 minutes (for a small to large duct) per connection. This is up to 6 times faster than the competition.

A White Paper for QDuct®

Competitive Analysis FAQ



Standard metal systems are secured using metal flanges that create thermal bridging; increasing the opportunity for leakage and sweating and must be field insulated or internally lined with fiberglass which increases the opportunity for mold and mildew.

Other phenolic ducts use a common indoor “four-bolt” flange joining method. This connection is more time consuming with several more steps required. Contractors have recorded that each connection takes 2 laborers 30-60 minutes (for a small to large duct) per connection. Also, cold temperatures increase the challenge to the installing contractor due to the amount of sealant used to field finish the exterior cladding. These four bolt flange connections then create thermal bridges that are not well insulated and will be subject to increased leakage (see #3 below).

3. “No-Through-Metal: How does QDuct® compare to others?”

QDuct® interlocking connection is a true no-through-metal design. Thermal bridging from the interior of the duct to the exterior of the duct is non-existent with QDuct. The connection points have the same R-value as the rest of the QDuct system.

Standard metal systems have thermal bridging at every joint and often at the duct support stands that must be secured to the duct and then insulated in conjunction with the duct. Other phenolic ducts use a common indoor “four-bolt” flange joining method that is a one-piece metal connection that bridges from the interior of the duct to the exterior of the duct. This design is prone to sweating both in the duct interior during cold weather and at the duct exterior during warm weather. Sometimes, the installing contractor will add a neoprene tape to the flange; however, the R-value of this connection is far below that of the other phenolic systems.

A White Paper for QDuct®

Competitive Analysis FAQ



4. *“Durability: How does QDuct® compare to others?”*

QDuct® has 3 layers of rigidity and protection. First & Second, the two duct layers are made from Pal Duct UL181 listed Phenolic Panels with a minimum of 60 micron inner aluminum liner on the interior 30 mm of phenolic closed cell foam insulation and 200 microns of exterior aluminum. The second layer will be a 20mm or 30 mm panel depending on R-Value (this is a combined 4 sheets of aluminum). Third, the system is wrapped with a zero permeable, 5-ply aluminum, weatherproof, exterior jacketing system.

Standard metal systems depend primarily on the durability of the metal and are often left to the discretion of the insulation contractor for the additional insulation and jacketing which create inconsistency. Other phenolic ducts have a rigid vinyl coating exterior and do standup well to hail. The exterior vinyl requires a great deal of field finish work for the installing contractor. Other phenolic systems interior; however, have only a perforated, 25-micron interior liner. Special care is needed to not damage the interior liner during installation.

5. *“Smooth Exterior Surface: How does QDuct® compare to others?”*

QDuct® has a smooth exterior surface. The connections are flush with the duct exterior and the internal support rods do not penetrate to the exterior of the duct.

A White Paper for QDuct®

Competitive Analysis FAQ



Standard metal systems are extremely inconsistent and vary depending on the insulation contractor. Finished system is completed using a variety of materials and is often very unattractive and damaged easily by severe weather. Other phenolic ducts have a standing seam at each connection. This standing seam is less attractive and it can pool water, snow and ice on the duct. The installing contractor needs to field cut, attach and seal a vinyl cap that is a decorative piece that cover the four-bolt connection and can mask any evidence of leaking and sweating at the joints. In addition, the interior support rods are exposed to the exterior of the duct increasing the thermal bridging and increasing the potential for air and water leaks.

6. *Wall Thickness: How does QDuct® compare to others?*

QDuct® has a standard design of 2.0” thick. One common option is available for 2.5”. Special thickness greater than 2.5” thick are available.

Standard metal systems will vary on approved insulating material and jacketing to attain the required R-Value. Other phenolic ducts currently have a variety of options for wall thickness depending on the required R-Value.

A White Paper for QDuct®

Competitive Analysis FAQ



7. *Insulation Value: How does QDuct® compare to others?"*

QDuct® insulation values vary with the wall thickness. The standard 2.0" wall QDuct® system has an R-10 insulation value. An option is available for: 2.5" with R-12. Special R-values greater than R-12 are available.

Standard metal systems will vary on approved insulating material and jacketing. Other phenolic ducts currently have a variety of options for insulation values per the various wall thicknesses.

8. *Leakage: How does QDuct® compare to others?"*

QDuct® has been tested to +4" and -4" with zero leakage.

Standard metal systems attempt to attain less than 5%. Other phenolic ducts use the KoolDuct product that has been UL listed to 4" static pressure.

A White Paper for QDuct®

Competitive Analysis FAQ



9. *“IAQ: How does QDuct® compare to others?”*

QDuct® has a solid interior 60-micron thick aluminum liner that is bonded to the phenolic foam. The surface is completely sealed cleanable.

Standard metal systems are subject to reduced IAQ because of open cell material that may increase the promotion of mold and mildew. Other phenolic ducts have a perforated interior 25-micron thick aluminum liner. A fiberglass mesh backing is used to help adhere the aluminum to the phenolic foam. Special care is needed to not damage the interior liner during installation. Also, moisture can enter the foil between the foam through the perforations.

10. *“Market Duration: How does QDuct® compare to others?”*

QDuct® has been on the market for over 1 year with multiple successful installations.

Other phenolic ducts have been on the market for over 3 years with multiple installations.

11. *“Manufacturer Qualifications: How does QDuct® compare to others?”*

QDuct® is made by AQC Industries with consistent quality and consistent manufacturing processes by only one company. AQC has been manufacturing specialized, engineered duct systems for over 12 years.

A White Paper for QDuct®

Competitive Analysis FAQ



Standard metal systems are installed and fabricated by the low bid contractor with varying degrees of quality. Other phenolic ducts are made by multiple contractor licensees around the USA with a variety of experience levels and varying degrees of quality.

12. “Warranty: How does QDuct® compare to others?”

QDuct® 10-year warranty.

Standard metal systems typically carry a 1yr warranty. Other phenolic ducts 10-year warranty

13. “How can I get answers to more questions?”

For more questions regarding AQC’s QDuct® system, please contact AQC at:

E- mail: team@aqcind.com

Phone: 1-877-783-1520