

THE BLUE DUCT®

Underground Preinsulated Duct System



Installation Instructions



Installation Videos
www.aqcind.com

AQC
INDUSTRIES

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This document, along with the *IAPMO REPORT 0621* and/or *ICC-ES LISTING PMG-1023* should be printed and readily available at the installation site. The BlueDuct® is a user-friendly system that will save installation time and labor. Installation videos, code documentation and this guide are provided on our website, www.aqcind.com. This document is to be used in conjunction with AQC Industries' installation certification training offered on a regular basis. AQC Industries highly recommends all installing contractors be AQC certified for installing The BlueDuct.

GENERAL

To ensure an air and water tight-sealed system, strictly adhere to the following instructions. The BlueDuct sealant, clamp and *Maxseal* gasket material must be used as directed. The use of non-approved sealant or gasket will void the warranty.

TOOLS

- | | |
|---|-----------------------------------|
| 1. Circular saw, reciprocating saw, or jig saw | 6. Safety glasses |
| 2. Adjustable clutch drill with 1/4" and 5/16" hex driver and 7/16"-deep socket | 7. Gloves (recommended for caulk) |
| 3. Utility knife | 8. Black permanent marker |
| 4. Caulk gun | 9. Torque wrench |
| 5. 7/16" wrench (for flanged duct) | |

SITE CONDITION AND PREPERATION

The BlueDuct is not intended to be installed where ground water is present. If ground water is present, a drain tile and pumping system is recommended before installation.

EXCAVATION

Excavation work and trench elevations should be closely coordinated with the certified Blue Duct installer on the site. If non-porous soil (i.e. clay, shale, solid rock) is present a sump pumping or drainage system is recommended to ensure the water is re-directed. The trench width should be 2 times the duct diameter. Where multiple ducts are installed side by side, the minimum separation between ducts is one half of the diameter of the largest duct. After the excavation has been made, special bedding is not required for The BlueDuct. The Blue Duct can rest on AQC Industries' foam trench blocks, directly on the ground, in sand, or on light aggregate. It is recommended to share this information with the on-site general contractor and excavation crew.

CONNECTING NONFLANGED DUCT

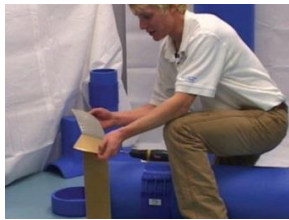
The BlueDuct pipe can be easily cut with a circular saw. Trim all edges as necessary. The required items include a clamp with factory installed screws, Maxseal gasket material and a drill. Our 6", 8" and 10" clamps include three 3" threaded stainless screws and the 12", 14", 16" and 18" clamps include four 3" threaded stainless steel screws. For best results and ease of installation, keep the clamps, gaskets and caulk at between 40° and 90°F. For high ambient temperatures above 90°F consult AQC Industries for special installation instructions.

Note: Moving of pre-assembled nonflanged duct is not recommended. All connections should be made in the trench.

1. Place two sections of duct end to end with the clamp on one of the ducts.
2. Wrap the gasket around the duct and apply pressure to overlap.
3. Place the clamp around the gasket, lining up the clamp with the gasket.
4. Tighten the clamp screws with the adjustable clutch drill.

Caution:

- Tightening the screws too fast may cause galling.
- Over-tightening the screws may cause damage to the clamp.
- The two ends of the clamps do not have to meet each other to be airtight.



Peel off gasket backing.



Tack gasket halfway
around duct.



Tack gasket down and
apply pressure.



Slide clamp over
gasket and tighten
screws.

SADDLE

1. Center the saddle on top of the pipe at the desired air supply register location. Trace around the saddle with a black permanent marker.
2. Use the outline created as a template. Draw another line 1-1/2" inside the first outline. Cut on the inner template line and remove any loose material from inside the pipe.
3. Apply a 1/4" bead of The BlueDuct sealant on the saddle and the pipe surfaces.
4. Place the saddle on the pipe plumb and level.
5. Place the 1-1/4" saddle screws in the premarked locations on the saddle. All of the screws must be used to create a good seal.
6. Caulk around the saddle with The BlueDuct sealant after the screws have been installed and cover screw heads with sealant.
7. Once the concrete has been poured, cut off the protruding caps and install the floor register.



Draw outside line.



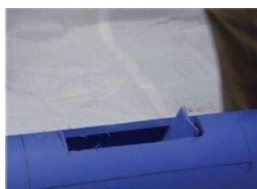
Draw inside line.



Cut along inside line.



Cut square edges.



Step on cut panel to
apply pressure.



Continuous 1/4"
sealant bead.



Continuous 1/4"
sealant bead.



Secure both ends
and drill screws into
premarked locations
and cover screw
heads with sealant.

OFFSET FOOTER BOOT

The offset footer boot allows The BlueDuct underground system to connect wall registers to floor registers. The wall registers may be cut as high as 8" above the floor.

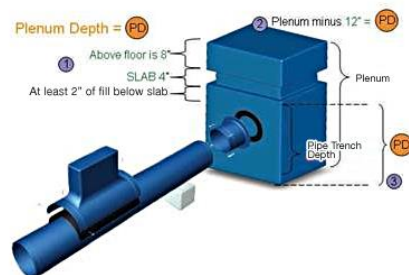
1. Find the desired register location.
2. Place the offset footer boot plumb and level. Connect it to the pipe using a clamp and gasket.
3. Refer to Connecting Nonflanged Duct on page 2 of this guide.

PLENUM

The BlueDuct plenum is a complete unit designed to transition the underground duct to the above-ground duct or equipment. To find the plenum depth, subtract 8" from the floor and 4" slab thicknesses, but not the 2" aggregate fill (1). The plenum depth should equal plenum length minus 12" from the top (2). For pipe depth add 2" (below slab level) to the pipe diameter (3). Dig a hole in the desired location and insert the plenum. Mark the take-off location and cut the holes at the desired elevation.

Each diffuser boot is a legal clean-out. The duct does not need to be sloped back to the plenum. If a water problem should occur, drill a hole 8" above the concrete in the side of the protruding plenum. Use a shop vacuum to remove any water.

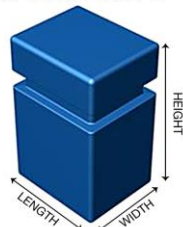
Then place a rubber plumbing test plug in the hole according to the size drilled. Mark the furnace opening, above-ground duct or other equipment and cut the plenum. Or use a template for a quick and easy guide for cutting the plenum.



Plenum Sizes >



25" W x 30" L x 48" H
20" W x 24" L x 36" H



PLENUM ADAPTER TO A PLENUM OR DIFFUSER ADAPTER

1. Hold the plenum adapter up to the plenum at the desired location and trace around the inside and outside with a black permanent marker.
2. Use a jigsaw or reciprocating saw to cut out the smaller circle to fit the plenum adapter.
3. Caulk both surfaces with a 1/4" bead of The BlueDuct sealant.
4. Secure with 2-1/4" plenum adapter screws and caulk around the plenum adapter and cover screw heads with sealant. All screws must be used to ensure the plenum adapter has been sealed. The diagram here illustrates how to create and use a template marked area.



FLANGED DUCT

For best results in connecting and sealing flanged duct, cut in the middle of a rib, keeping both sides even throughout the entire circumference of the duct.

1. Put two beads of The BlueDuct sealant on each of the connecting flanged pieces.
2. Use alignment straps and alignment pins to help keep the duct in place. Alignment straps are available for 20" to 48"-diameter ducts. Contact your representative to obtain The BlueDuct tools.
3. Once connected, apply The BlueDuct sealant to the flange, ensuring that there is no area void of sealant.
4. Apply a bead of The BlueDuct sealant on the interior of the connection in addition to the exterior of the flange.
5. Drill bolts with the torque set between 25 and 30 in. lbs. of torque.
6. After bolts are tightened, caulk over both sides of the bolts with The BlueDuct sealant.

When the duct needs to be cut between the flanges, use a clamp and gasket to connect the ducts.



LEAK TESTING

Currently UMC, IMC and IRC do not require leak testing of underground ductwork. When leak testing is desired, the dynamic (duct blaster) test method per SMACNA guideline is recommended. Allow 24 hours for The BlueDuct sealant to cure before performing the leak test. In high ambient conditions, additional curing time may be required.

BACKFILL

Pea gravel or sand is recommended. Spread the backfill material evenly around the duct, in no more than 1ft. lift increments, and ensure there are no gaps. Cement is not required to fill in around the duct since the tamped fill holds the duct in place.

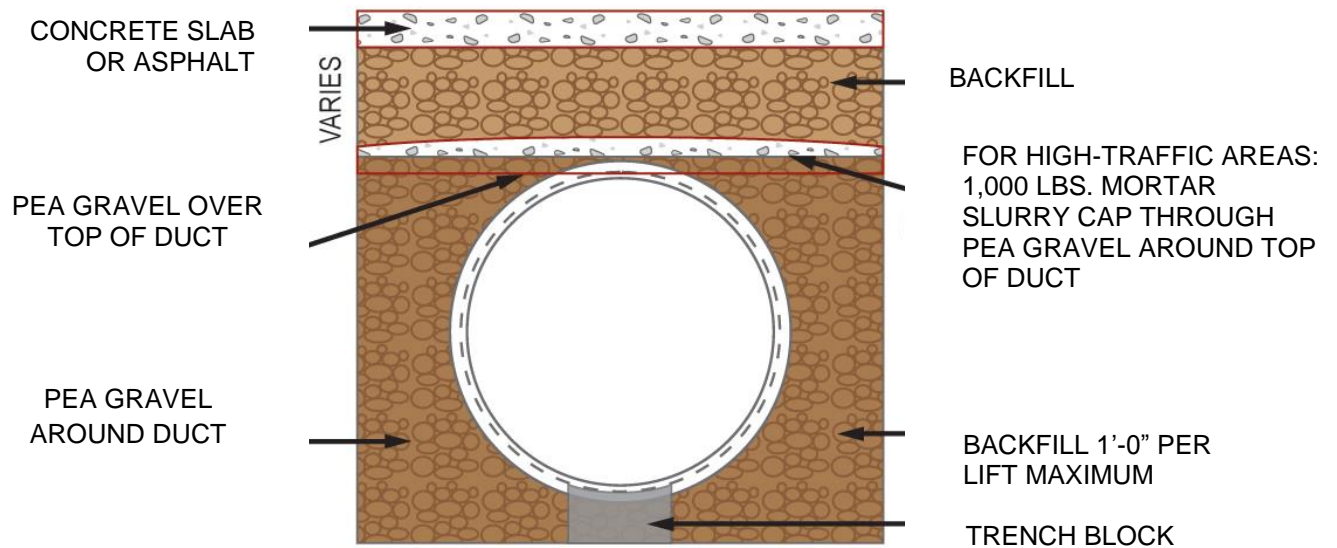
If heavy rain or increasing water table is likely to occur prior to backfilling, it is recommended that the duct be anchored. Contact the factory for anchoring recommendations.

Important: Allow 24 to 48 hours for the sealant to fully cure before backfilling. It is strongly encouraged to backfill soon after 24 to 48 hours to protect the open trench from filling with water during a heavy rain. If the duct is fully assembled, sealed and not yet backfilled, protect the duct from extreme heat and direct sunlight to prevent the air trapped inside the duct from reaching an elevated temperature.

Light Equipment Crossover: For high cross over traffic with light equipment, a 1,000 lb. (minimum of 2" deep) slurry cap should be placed on top of pea gravel. When backfilling or grading, care should be taken to not push heavy loads directly on the duct. Running heavy equipment over the duct should be avoided. The BlueDuct can be crushed under careless abuse.

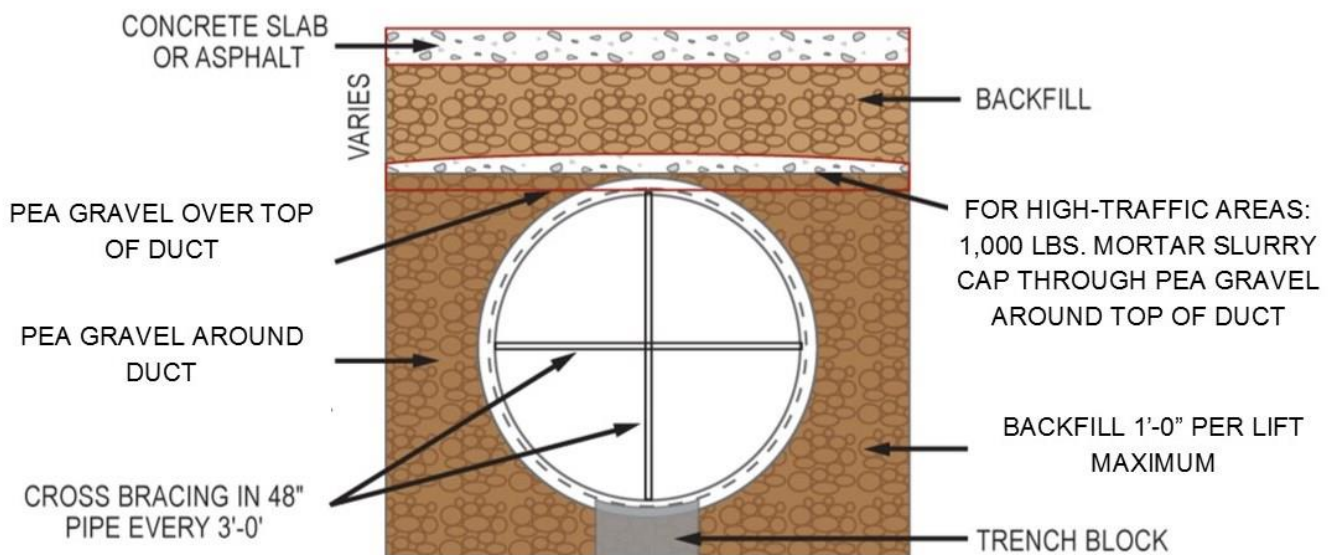
As all underground duct systems, The BlueDuct is never intended to be driven over before concrete is poured. Use extreme caution once installed.

BACKFILL DETAIL (LESS THAN 48")



TRENCH DETAIL

BACKFILL DETAIL (48")



48" PIPE TRENCH DETAIL

WARRANTY

AQC Industries Limited Warranty in General

AQC Industries (AQC) warrants The BlueDuct® Products sold either directly or through its resellers (representatives and distributors) in accordance with the limited warranty set forth in this document (the Limited Warranty). Except as expressly provided in the Limited Warranty, AQC makes no representation or warranty of any kind, express or implied, with respect to The BlueDuct® Product, whether as to merchantability, fitness for a particular purpose, warranties arising from course of dealing or usage or trade or any other matter.

AQC does not install The BlueDuct® Products and has no responsibility or obligation with respect to installation. AQC DISCLAIMS ALL WARRANTIES RELATED TO INSTALLATION OF THE BlueDuct® PRODUCTS. AQC offers webinar based BlueDuct Installation Training Certification to installing contractors at no charge, and recommends this training prior to installing The BlueDuct® Product.

AQC Industries Limited Warranty

AQC Industries (AQC) warrants that in normal and contemplated use and service, The BlueDuct® Products shall be free from defects in manufacturing materials and workmanship for a period of ten (10) years from the date of manufacture set forth on each of The BlueDuct® Products (the Limited Warranty). The Limited Warranty shall only be applicable if AQC is given prompt written notice specifying the nature of the warranty claim within the applicable warranty period.

Upon confirmation by AQC that a BlueDuct® Product proves to be defective in manufacturing, materials or workmanship, the exclusive remedy shall be for AQC to, at its option, repair or replace the defective BLUEDUCT® Product or issue a credit or refund. The Limited Warranty does not extend to any BlueDuct product subjected to misuse, accident, or alteration. This Limited Warranty does not extend to improper installation.

This Limited Warranty does not cover any loss caused by accidents or careless handling of a BlueDuct® Product. This Limited Warranty does not apply to any BlueDuct® Product which has been damaged in transit, abused, altered, modified, used in a manner not originally intended, or used. This Limited Warranty does not cover any BlueDuct® Product that has been installed in a manner not consistent with The BlueDuct® Product instructions.

The Limited Warranty set forth above is the only warranty AQC makes for The BlueDuct® Products and is in lieu of all warranties express, implied or statutory, including, without limitation, warranties of merchantability, fitness for a particular purpose and infringement, and warranties arising from course of dealing, usage of trade or otherwise. THE REMEDIES SET FORTH IN THIS LIMITED WARRANTY ARE THE ONLY REMEDIES AVAILABLE TO ANY PERSON CLAIMING FOR BREACH OF WARRANTY OR FOR ANY DAMAGES OF ANY KIND OR NATURE. AQC SHALL NOT HAVE ANY OTHER LIABILITY OF ANY DESCRIPTION, WHETHER ARISING OUT OF WARRANTY (INCLUDING ANY IMPLIED WARRANTIES) OR ANY OTHER CONTRACT, NEGLIGENCE, TORT OR OTHERWISE, INCLUDING, BUT NOT LIMITED TO, COST FOR REMOVAL OF DEFECTIVE PRODUCT, COST FOR INSTALLATION OF ANY REPLACEMENT PRODUCT, COMMERCIAL LOSS FROM ANY CAUSE, BUSINESS INTERRUPTION OF ANY NATURE, LOSS OF PROFITS OR ANY OTHER CONSEQUENTIAL LOSS OR DAMAGE, EVEN IF AQC SHALL HAVE BEEN ADVISED OF THE POSSIBILITY OF SUCH LOSS OR DAMAGE.

In the event any implied warranties (including, but not limited to the implied warranties of merchantability and fitness for a particular purpose) are found to exist, such warranties are limited (i) in duration to the period of the limited warranties set forth in this Limited Warranty, and (ii) in amount to the total amount paid to AQC for the product in question.



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