

# KoolDuct<sup>®</sup>

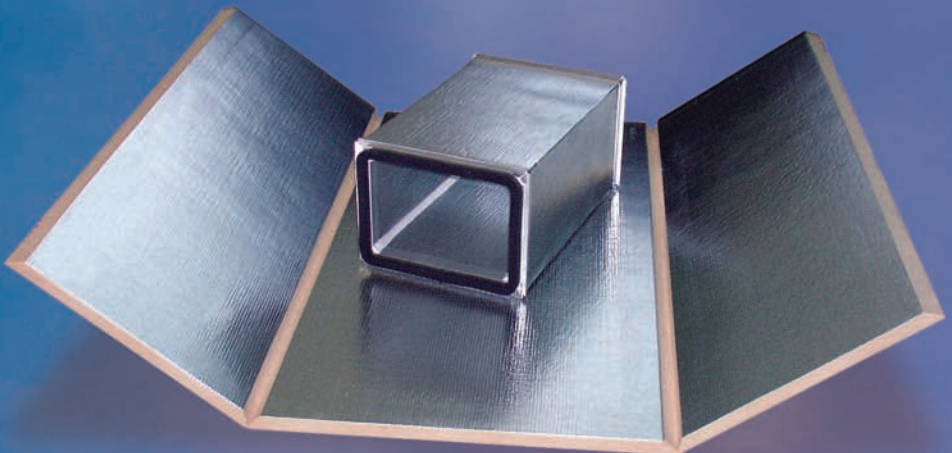
High Performance Pre-Insulated Ductwork

A Better Design for Superior Energy  
Performance and Improved Indoor Air Quality.



## Features & Benefits

- KoolDuct® offers a **significant installed cost savings** over other alternative insulated sheet metal systems, depending on the size of the ductwork and complexity of the project.
- KoolDuct offers many **design advantages** over traditional sheet metal systems, resolving issues such as weight, space, installation time, and energy performance.
- All authorized contractors attend a **specialized training program** to ensure that uniform quality standards are maintained.
- All ductwork fabrication materials are supplied by PTM, ensuring the highest **quality and consistency** in your ductwork project.
- KoolDuct is ideal for jobs where a **non-fibrous solution** is desired. The air stream in the sealed duct flows only on aluminum, making it ideally suited for high specification applications.
- The patented jointing system combined with the fully sealed duct seams produce a system that is **virtually airtight and leak-free**.
- KoolDuct yields **significant savings in reduced heating and cooling loads** due to the superior insulating properties of the phenolic panel and minimal air leakage of the jointing system.
- KoolDuct can be installed flush to the slab, **saving valuable space** within a suspended ceiling.
- The aluminum grip flanges of the jointing system enable **quick connection** to components such as fire dampers, VCDs, attenuators, and conventional sheet metal ductwork.





*The fully sealed duct seams combined with a patented jointing system produces ductwork that meets SMACNA's Leakage Class 6.*



*The KoolDuct System has only 15% of the weight of insulated sheet metal ductwork, so transporting and installing is easy and fast.*



*Low equivalent thickness of insulation combined with the elimination of insulator's working space above the duct saves 6" - 8".*

## Description

The KoolDuct® System is a pre-insulated, high performance air duct system for industrial and high-end commercial applications.

The system uses a CFC-free phenolic foam board faced on both sides with reinforced foil. Patented, specially engineered, aluminum flanges are designed to connect the duct sections to assure a strong, tight closure.

The KoolDuct System offers significant advantages over sheet metal ductwork. Weight, space, installation time, installed costs, air leakage and energy performance are just a few of these benefits. It is a complete system which includes:

- Complete line of components and accessories for the fabrication and installation of ductwork systems.
- Professional hand tools and automatic machinery to facilitate the fabrication of ductwork on a small, medium and large scale.
- Custom training program.
- Cost estimation software.

## Application

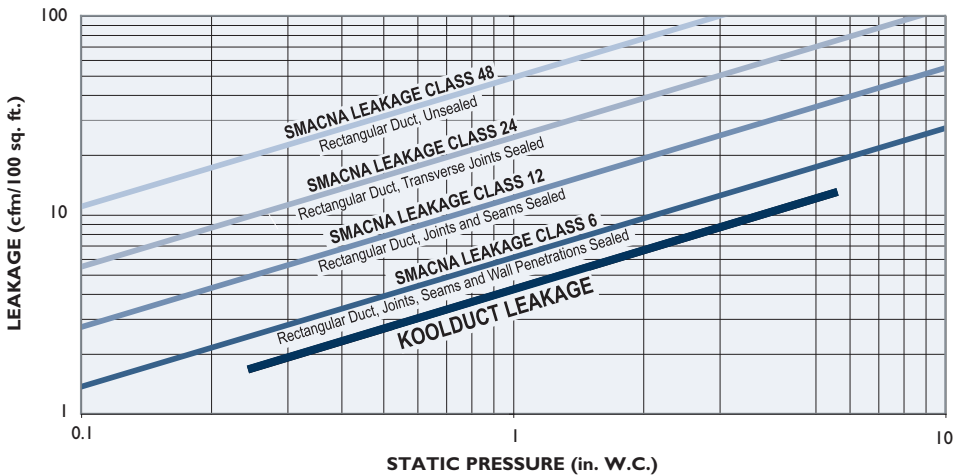
The KoolDuct System is used in commercial, residential and industrial applications. The ducting is versatile and can be installed internally or externally, and concealed above a false ceiling or visibly mounted. It is easily modified and repaired and can be fabricated on-site with non-powered tools.

# Energy Analysis

|                                | MEASUREMENT UNITS            | KOOLDUCT®  | SHEET METAL WITH R4.2 WRAP | SHEET METAL WITH R6 WRAP |
|--------------------------------|------------------------------|------------|----------------------------|--------------------------|
| Insulation Thickness           | inches                       | 0.875      | 1.5                        | 2                        |
| Installed Insulation Thickness | inches                       | 0.875      | 1.125                      | 1.625                    |
| Installed R-Value              | FT <sup>2</sup> , °F, Hr/BTU | R-6.7      | R-3.9                      | R-5.6                    |
| Cooling Loss Thermal           | BTU/hr                       | 44,571     | 77,333                     | 53,538                   |
| Leakage Performance            | SMACNA                       | Class 6    | Class 24                   | Class 24                 |
| Leakage per 100sf @ 2" w.g.    | cfm                          | 9.4        | 40                         | 40                       |
| Leakage Loss                   | BTU/hr                       | 51,468     | 219,011                    | 219,011                  |
| Total Cooling Loss             | BTU/hr                       | 96,039     | 296,345                    | 272,500                  |
| Annual Cooling Loss            | BTU/yr (Millions)            | 420.65     | 1,297.99                   | 1,193.55                 |
| Cost of Total BTU Loss         | \$8.00 p/m.BTU               | \$3,365.21 | \$10,383.93                | \$9,548.40               |
| Losses compared with KoolDuct  | % greater loss               |            | 309%                       | 284%                     |

Assumptions: Delta T: 30°F (17°C), T inside = 55°F (13°C), T outside = 85°F (30°C)  
 Ductwork Static Pressure: 2" w.g., low pressure system  
 Total Duct Surface Area: 10,000 ft<sup>2</sup>, unconditioned space  
 All calculations are based on manufacturer's supplied data

## KoolDuct® Tested Air Leakage



## LEED Eligible Product

Use of this product may help building projects meet green building standards as set by the Leadership in Energy and Environmental Design (LEED) Green Building Rating System.



# Forms Available

## CLOSED CELL PHENOLIC PANELS

|            |                                       |                                   |
|------------|---------------------------------------|-----------------------------------|
| Thickness  | 7/8"<br>(22 mm)                       | 1 3/16"<br>(30 mm)                |
| R-Value    | R-6                                   | R-8                               |
| Facing     | Scrim Reinforced Aluminum, Both Sides |                                   |
| Density    | 3.5 pcf<br>(60Kg/m <sup>3</sup> )     | 3.5 pcf<br>(60Kg/m <sup>3</sup> ) |
| Dimensions | 154 3/4" x 47 1/4"                    |                                   |

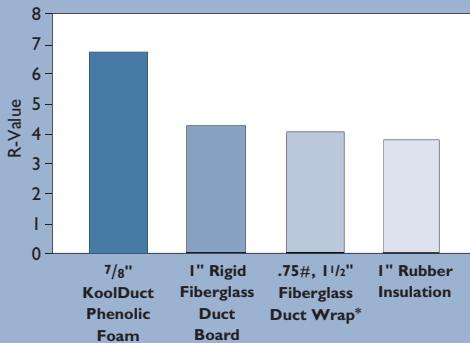
# Acoustical Data Insertion Loss

(DB/10LF) (ASTM E 477)

1/3 Octave Band Center Frequency  
(Cycles/Sec.)

|      | 7/8"<br>(22mm)<br>12 x 12 | 7/8"<br>(22mm)<br>12 x 24 |
|------|---------------------------|---------------------------|
| 63   | 1                         | 3                         |
| 125  | -1                        | 3                         |
| 250  | 13                        | 8                         |
| 500  | 4                         | 4                         |
| 1000 | 4                         | 3                         |
| 2000 | 2                         | 2                         |
| 4000 | 1                         | 1                         |
| 8000 | 4                         | 3                         |

# Insulation Comparison



\* Installed @ 25% compression

# Specification Compliance

## In U.S. and Canada:

- UL (C-UL) 181, Class I system
- DW 144, Class B
- SMACNA leakage, Class 6
- NFPA 255

# Technical Data

## Surface Burning Characteristics

- UL (C-UL) Classified
- Does not exceed 25 Flame Spread, 50 Smoke Developed when tested in accordance with ASTM E 84.

## Thermal Resistance

- R-6 at 7/8"  
(1.2 R.S.I. @ 22 mm)
- R-8 at 1 3/16"  
(1.5 R.S.I. @ 30 mm)

## Thermal Conductivity (both panels)

- 0.13 BTU in/hr<sup>2</sup>F @ 75°F  
(0.18 W/mC @ 10°C)

## Service Temperature

- 176°F (80°C)

## Maximum Air Velocity

- 5000 fpm (25 m/s)

## Internal Static Pressure

- 4" w.g. (1000 PA) Positive  
(UL rating: 15" w.g. positive, 4.5" w.g. negative)

## Sound Attenuation

- Weighted SRI: 17dB

## Microbial Growth

- Does not promote or support the growth of mold, fungi or bacteria.



## PTM Manufacturing

PTM Manufacturing, LLC, is an industry leader in advanced HVAC system air distribution and insulation technologies designed to improve building energy efficiency, reduce total energy consumption and lower cost. We provide custom-engineered, LEED approved exterior and interior air handling systems that support sustainable building practices for industrial, commercial and residential applications.

PTM distributes and fabricates the KoolDuct® product line – used worldwide as a premier air conveyance system. Designed to combine insulation and ducting for more thermally efficient HVAC performance, KoolDuct practically eliminates system air leakage, improves indoor air quality, boosts overall energy efficiency and can reduce unit fan operation by as much as 30%.

PTM also manufactures and distributes its patented Techna-Duc® insulation systems for exterior HVAC ducting applications. Techna-Duc forms a water-tight shield against the environment and has been documented to reduce system energy output by up to 25%.

**New construction or retrofit, PTM can  
maximize your building's HVAC efficiency  
...contact us to find out how.**

**800-455-1402 OR 302-455-9733**