



Not all duct systems are created equal

A white paper on spiral duct configurations

By William E. Thurman



Not all duct systems are created equal

We live in a fast paced, competitive environment. To get the contract, everyone is geared to be low at bid time. The bottom line is that the lowest product cost does not equate to the lowest overall installed cost. Overall value should not be overlooked, as all duct systems are not created equal.

In the following pages, we've assembled the toughest questions buyers and project managers have about purchasing a duct system.

Even more importantly, we're providing the answers.

If you don't find every answer you need, call me.

William E. Thurman,
President/CEO
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The Problem

Low first price however,
is not necessarily the
lowest overall cost

The construction market is an extremely competitive environment where the focus is typically on low price. Low first price however, is not necessarily the lowest overall cost or the best value. Material cost is important, but from a profit perspective, contractors should consider labor cost at bid time to determine which duct system would be more profitable.

An independent market survey commissioned by SMACNA¹ indicates the overall installed costs of duct systems to a building owner breaks down to 34.5% material cost for duct, and 65.5% for cost of labor to install, overhead and profit. This data is also supported by statistics from a U.S. Department of Commerce report². Obviously, these surveys indicate that the labor cost to install duct systems is a major cost element.

Reported Cost Structure

Duct System Installed Costs	SMACNA	U.S. Department of Commerce
Duct Product Material Costs	34.5%	35.6%
Installation Cost, Overhead, and Profit	65.5%	64.4%
Total Installed Duct Costs	100%	100%

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are created equal!

In the competitive bidding process everyone attempts to be low at bid time. The focus of being low is to receive the contract. Everyone thinks of duct systems as commodity products. There are no moving parts, so what's the big deal? The deal is that not all duct systems are created equal! Contractors and owners should not overlook VALUE as it could represent the lowest overall installed cost and the highest profits.

Spiral duct systems today are supplied in many different configurations and assemblies. These different configurations can cause installation labor to vary by as much as 50% or more. The air inside the duct system will see little, if any, performance differences due to configuration. The product weight may be exactly the same, however the field installation and the overall installed cost could be significantly different. Frequently, installing contractors see their job site labor exceed budget and cut into profits. Many contractors experience job site cost overruns without truly understanding the value factor of labor saving configurations.

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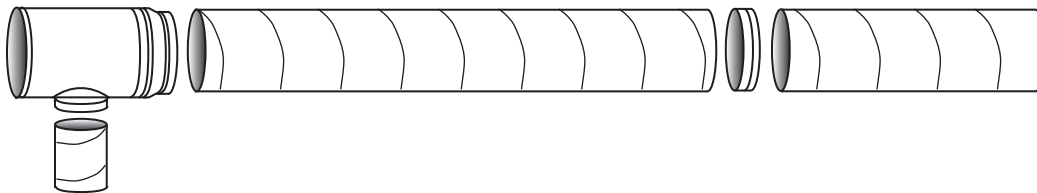
Realizing that installation labor costs can vary widely depending on location (from \$60.83 per hour in Philadelphia, \$53.61 in Chicago, \$38.84 in Denver, \$28.99 in Dallas, and \$22.30 in Orlando, based on average 2007 info³), it is important to control field labor cost (installed labor) for the contractor, especially in the regions with higher labor rates. This is where projects and profits are made or lost.

Labor cost can vary widely depending on location.

Understanding the Differences in Product Design

The impact of different configurations of a fairly common duct system can be seen in the following example:

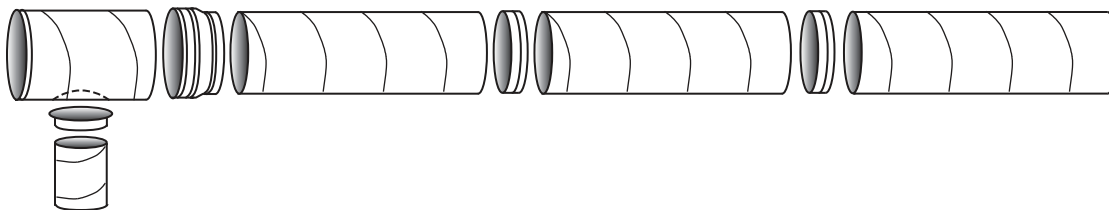
Scenario One - Complete Fittings and Cut to Length Duct



Consider this:

Pieces to Unload from Truck	=	5
Joints to Assemble in the Field	=	7
Branch Cuts to Make in the Field	=	0
Duct Cuts to Make in the Field	=	0 (Supplied cut to length)

Scenario Two - Uncut Duct and Loose Fittings



Consider this:

Pieces to Unload from Truck	=	9
Joints to Assemble in the Field	=	11
Branch Cuts to Make in the Field	=	1
Duct Cuts to Make in the Field	=	2 (Standard 10' duct lengths only)

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Nearly twice as many pieces to off-load and double the amount of field joints/cuts to perform in Scenario 2.

In the previous two examples, Scenario 2 has nearly twice as many pieces to off-load (9 versus 5) and double the amount of field joints/cuts to perform (14 versus 7). The economic impact of these two different configurations is demonstrated in the following chart. This comparison is based on a duct system with a total installed cost of \$100,000.

Cost Comparison	Scenario One		Scenario Two	
Total Overall Installed Cost	\$100,000		\$100,000	
Duct Product Material Costs	\$34,500	34.5%	\$31,050	31.0%
Installation Labor Costs	\$40,500	40.5%	\$52,650	52.7%
Overhead & Profit	\$25,000	25.0%	\$16,300	16.3%
Difference	\$8,700			

Assumptions:

Although the previous diagrams show Scenario Two has approximately 50% more field joints and cuts to perform (AKA labor for the contractor), for this analysis, a more conservative 30% increase in installation labor was used for the calculations. This comparison is based off of the SMACNA report that states Overhead & Profit averages 25% and Installation Labor costs as 40.5% of the total job costs.

Impact:

Let's say a contractor purchased Scenario 2 because the material costs for Scenario 1 was 10% higher (Sound familiar?). Looking at material costs only, this contractor appeared to save \$3,450 (10%) by purchasing the low cost duct system. But, by ignoring the labor savings and the overall installed value of the product represented by Scenario 1, this contractor lost the opportunity to increase his profits by 53.4% ($\$25,000 - \$16,300 = \$8,700$). By choosing Scenario 2, the contractor's field cost was over budget by \$12,150. All of which, comes out of his profit!

Lost the opportunity to increase his profits by 53.4%

How Can You Make More Profit On Your Next Spiral Duct Installation?

You can make more profit by carefully evaluating the differences in labor costs between the various products offered at bid time to determine which is the best value, not just lowest material cost.

For contractors in higher labor rate markets, a duct configuration cut to length with factory-installed fittings, may turn out to be the best overall value because of the significant labor savings.

Custom manifolded duct from SEMCO Duct & Acoustical Products Inc. offers complete factory built fittings and cut to length duct. When you choose manifolded duct, you get the advantages of having some of the labor preassembled for you. For example, if you have four or five fitting bodies for one particular section of duct, manifolded duct would allow you to just install one piece. In addition to the labor savings, a reduced number of pieces saves you time during the unloading and distribution of the pieces on the job site. Fewer pieces to distribute can also minimize the possibility of delivering to the wrong area of the job site, resulting in costly delays.

Another fringe benefit of custom manifolded round and oval duct is that factory installed fittings reduced the potential for leaks as compared to a hurried field installation of these fittings.

An excellent example of the variety of configurations available can be seen by referencing the "Contractor's Guide - The Dollars & "Sense" of Choosing a Duct System." In addition to the information provided in this white paper, this brochure offers a detailed comparison between five variations of customization offered from SEMCO Duct & Acoustical Products Inc and "how, when & where" each configuration should be considered.

You get the advantage of having some of the labor preassembled for you.

Conclusion

Compare apples to apples and not apples to oranges.

Before your next commercial or industrial duct bid, consider the labor associated with each of the manufacturer's products being offered and determine (pre-bid) which option will give you the most profit. It is important to remember that spiral duct may seem like a commodity, but there can still be value found within the product offering by considering the intensity of the labor involved. As the old adage goes, "make sure you are comparing apples to apples," when bidding on your next spiral duct application.

SEMCO Duct & Acoustical Products Inc. has offered contractors the ability to benefit from mass production by providing factory installed taps and fittings for over 40 years. To find out more about custom manifolded spiral duct, visit <http://www.semcoinc.com>. While you're there, be sure to check out the ductCHALLENGE for an interactive online job site comparison of custom manifolded duct versus standard uncut spiral duct supplied in ten-foot lengths with loose fittings.

For more information on additional labor saving options, read "Self-Sealing Duct Prevents Leaking Profits - A White Paper on Labor Saving Gasketed Spiral Duct".

1 SMACNA, 1998, "Duct Fabrication Market Survey," FMI, 1998-07-06

2 U.S. Census Bureau, Department of Commerce, 2002 Economic Census Construction Industry Series, "Plumbing, Heating, and Air-Conditioning Contractors: 2002," December 2004,

3 RSMMeans, "Labor Rates for the Construction Industry," 34th Edition, 2007, Reed Construction Data, Inc., ISBN 087629862-5



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