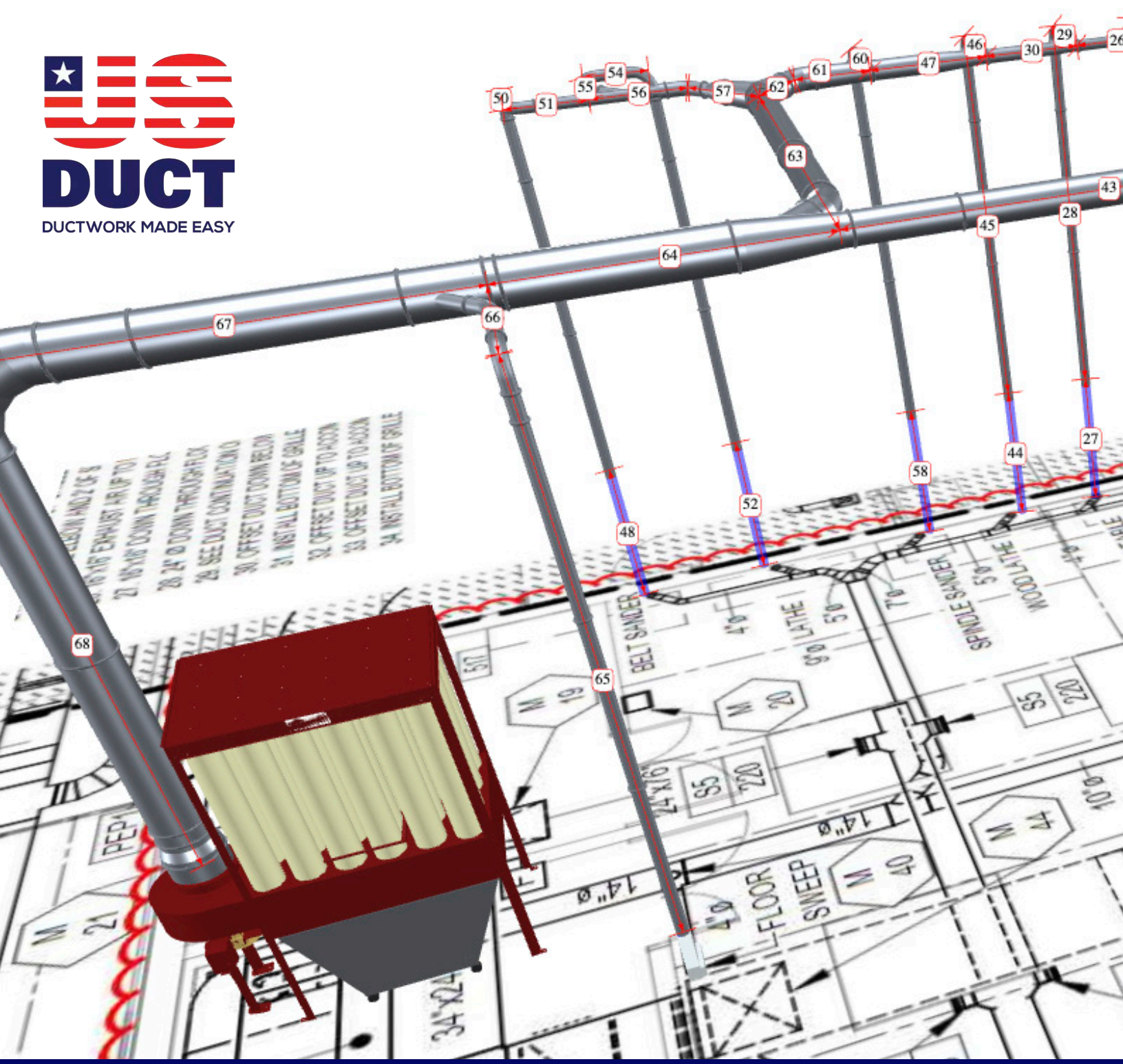
US DUCT
DUCTWORK MADE EASY



DESIGN AN INDUSTRIAL VENTILATION SYSTEM IN THREE STEPS

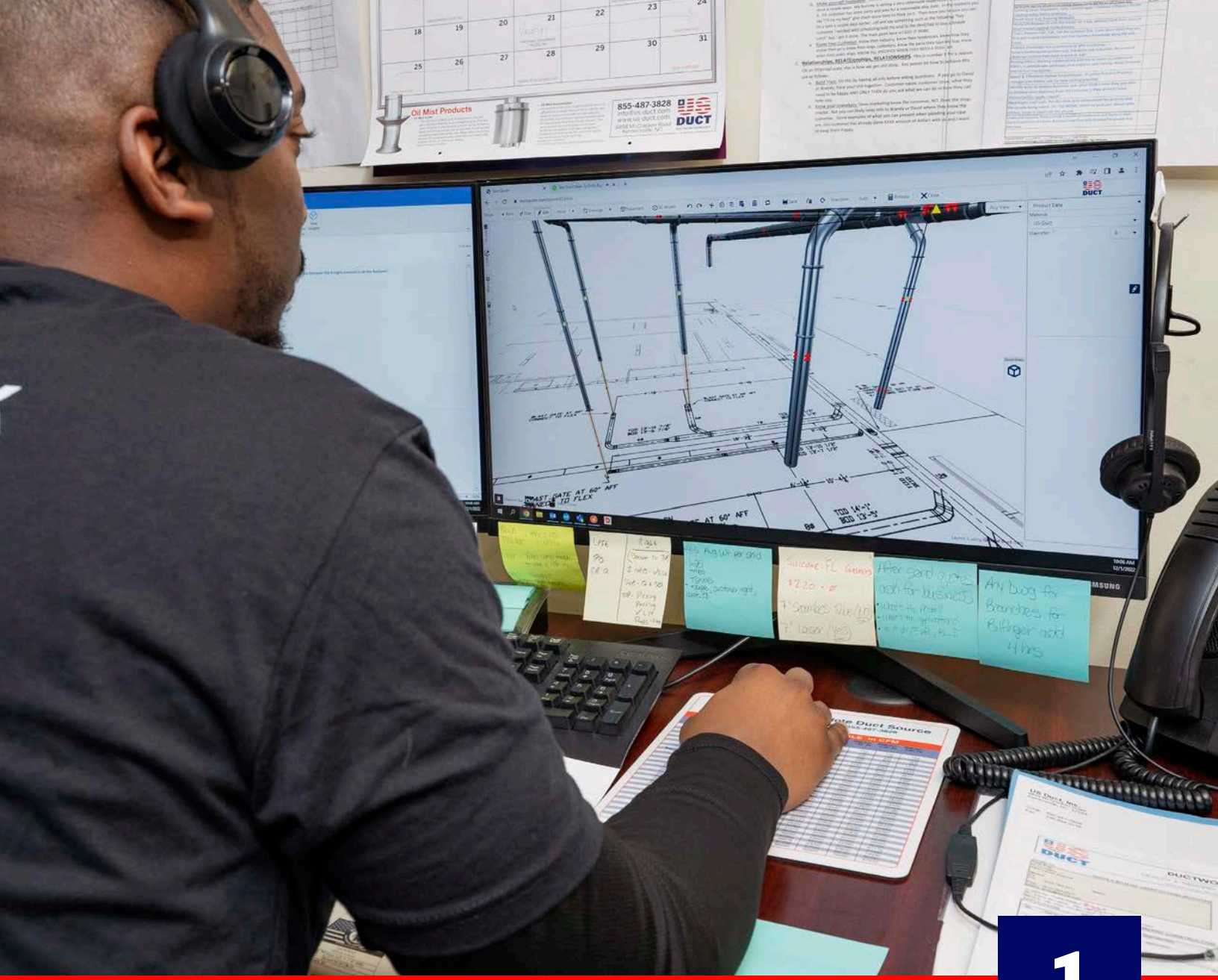
DUCTWORK DESIGN DOESN'T HAVE TO BE COMPLICATED.

WITH DUCTQUOTE, YOU CAN BE A DUCTWORK HERO.

We won't sugar coat it: design is a critical first step to an industrial ventilation system. An effective design considers the **material conveyed**, the **current floor plan**, any **future expansion** or **changes** to the floorplan, pick up points, exit points… the list goes on.

While ductwork design requires time and knowledge, you don't necessarily need to be a seasoned expert to get it right.

With the right tools and a little bit of guidance, you can design a system that gets the job done and be a ductwork hero.



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DETERMINE THE APPLICATION

When you work with a Duct Guy, you'll hear us ask again and again: What's the application? For ductwork, the material you're conveying impacts what type of ductwork you use, the radius, and any special components required to maintain safety.

DUCTWORK MATERIAL:

STAINLESS STEEL VS. GALVANIZED STEEL VS. CARBON STEEL

STAINLESS STEEL DUCTING

All ducting steels have the same basic iron and carbon composition. However, stainless steel ductwork also contains a healthy dose of chromium, the alloy that gives stainless steel its **famous corrosion resistance**. The two most common stainless steel grades for ducting are 304 and 316. The critical difference is molybdenum's presence in the 316 grade, an alloy that drastically enhances corrosion resistance, especially for more saline or chloride-exposed environments.

For outdoor and some corrosive ductwork applications, 304 is an economical and practical choice for most environments, but investing in 316 ducting and components may be well worth it in areas or applications with high chloride exposure.

GALVANIZED STEEL DUCTING

Galvanized steel ductwork can be identified by the crystallization patterning on the surface, often called a "spangle." Most ductwork manufactured with galvanized metal is hot-dip galvanized to coat the steel with a thin zinc layer, which creates a layer of zinc carbonate—a dull gray, relatively durable material that stops further corrosion—on the metal and protects the steel below from the elements. Galvanized steel is widely used in ductwork applications that require **rust resistance or high-temperature applications, typically up to 392°F.**

CARBON STEEL DUCTING

Carbon steel ducting has a high carbon content, typically around 2% to 2.5% by weight. This increase in carbon composition **makes the ducting more durable than stainless or galvanized steel when under pressure.**

CONNECTION TYPE:

CLAMP-TOGETHER DUCT VS. US TUBING

CLAMP-TOGETHER DUCT

Clamp-Together Duct is an easy-to-install industrial ductwork system. There are three major components of the system that make it the fastest, easiest, and most cost-effective way to address dust collection:

- A five-foot, laser-welded pipe with rolled-lip ends
- An 11-inch adjustable sleeve with rolled-lip ends
- An over-center, stainless steel clamp

The 11” adjustable sleeve is what makes this style of ductwork so versatile and easy to manage. The sleeve’s interior diameter is slightly larger than the pipe’s outside diameter, allowing it to slip over the laser-welded pipe. This creates a telescoping capability to ensure the exact fit between components, even if the pipe is cut shorter than needed.

That means **precision measuring and cutting aren’t needed, and you don’t need to be skilled at bolting, welding, or riveting to create strong joints.** The stainless steel duct clamp is designed for repeatable and long-term service. The over-center latch draws a secure, contoured band around the components’ rolled-lip ends and seals them tightly. The clamp holds the duct firmly but is **ready for easy release for the next move or modification.** Unlike other types of connection types, this is all done WITHOUT removing screws, tape, or bolts.

US TUBING

US Tubing is an airtight and modular ducting system that uses a V-shaped gasket and torque-tightened clamp. It's designed to create leak-free connections and provide The Ultimate Seal®.

The torque-tightened clamp and full gasket system make US Tubing an **airtight—and mist-tight—solution for maintaining efficient processes and a clean facility.**

Each ductwork component has a Vanstone-flanged end, meaning the end is turned at a 90-degree angle to the pipe.

Rather than embedding the gasket within the clamp or applying it to the lip's face (as it is commonly done with rolled lip duct), it's applied directly to the end of the flanged duct.

Its V shape allows it to fit snugly around the pipe's end as it fully encompasses the edge.

With the gasket snug and secure around the end of the flanged duct, a high-strength, torque-tightened clamp is applied around the pieces.

This **force compresses the pipe and gasket together more strongly than securing the gasket with a pre-set tension, ensuring that the system is airtight and leak-free.**

For safety purposes, a latch on each handle helps to protect the fixture from any accidental release.

DUCT DIAMETER

Properly sized duct keeps the air moving at the correct velocity and prevents the material from “settling-out” and further obstructing the flow. The size (and ductwork type) are also important to avoid corrosion, dust build up, and static electricity, which can ignite dust and cause an explosion.

Sizing pipe for a system for dust collection depends largely on the Cubic Feet per Minute (CFM) of your system. CFM is usually regulated by the fan speed of the collector as well as the capacity (or diameter) of the duct installed. Systems are often sized with a fan that offers little more than the maximum CFM needed for the collection system. Smaller dust particles may require a lower velocity, but extraction for larger particles may need a higher velocity to keep them suspended in the air stream.

HOODS

You need a good estimate of the volume of air (CFM) you need to capture. The application will help determine the placement and/or orientation of the hood to the capture area. High turbulence applications, like duct capture for a bag dump at a hopper entrance, will require a larger/wider hood design than low turbulence applications, like welding fumes. This will also determine the total size (diameters) of pick-ups for the hood.

COLLECTOR

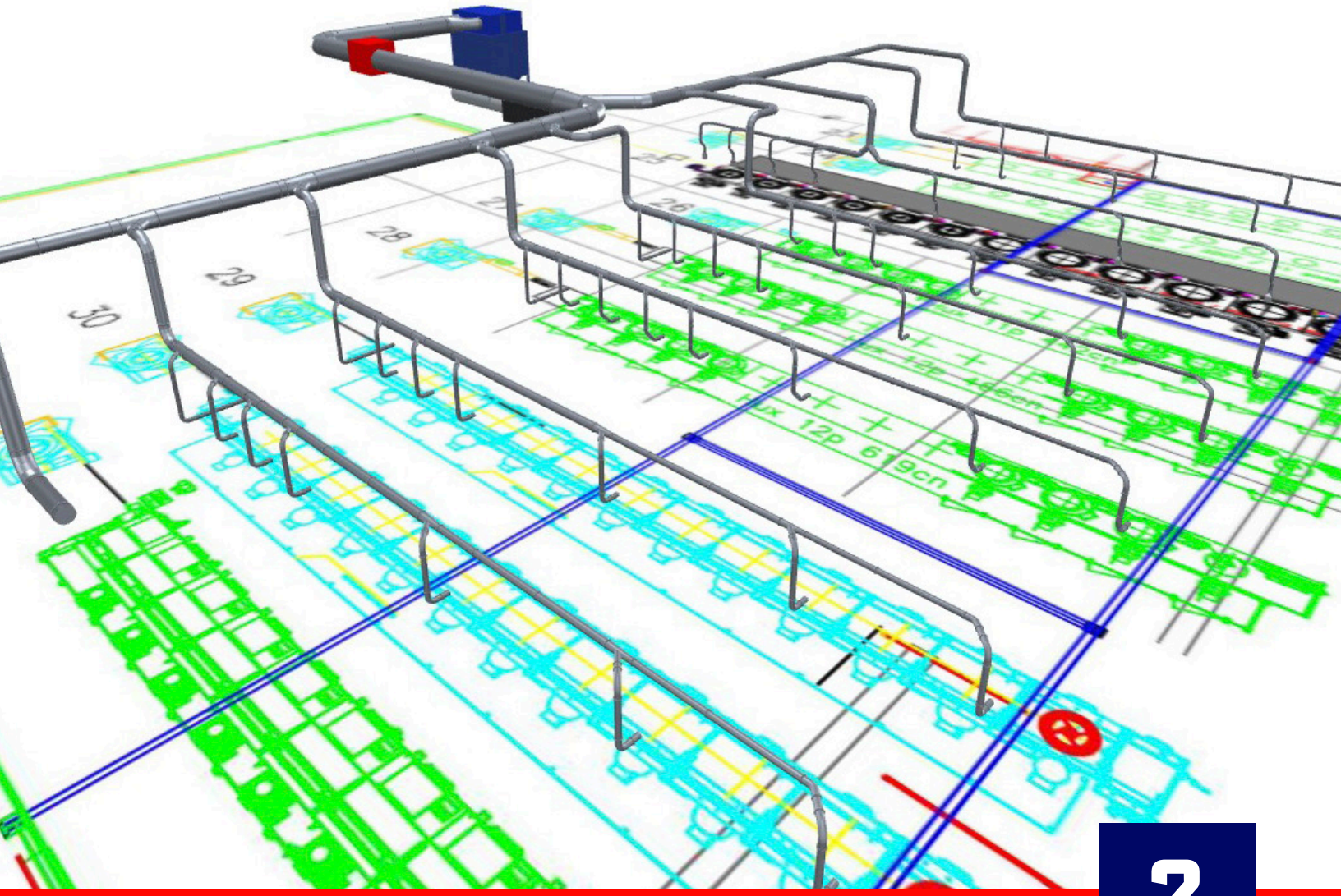
When designing a ductwork system, it's important to understand the height, size, and connection style for the collector inlet(s) so the duct and collector can connect properly. It also tells you if you need to design a "collector manifold" for collectors with multiple inlets. The same is true for collector outlets if return air is part of the design request.

Knowing the capacity of the collector (CFM) is also important. If the sum of the pick-up CFM values exceeds this capacity, gates will need to be added to allow closing off parts of the collection dust system, thus lowering the effective system capacity to better parallel the collector.

PRO TIP: CONSIDER WHAT SPECIAL COMPONENTS YOU MAY NEED

Think of special components as **performance and safety upgrades** to your system. To ensure that your ductwork is efficient and effective, you may need to integrate a component that captures oil mist from leaking on the floor or extinguishes sparks before they enter the ductwork system.

- Spark Traps
- Oil Mist Curbs
- Oil Mist Accumulators
- Industrial Dust Cyclones
- Silencers
- Vibration Dampeners
- No Loss Stacks
- Rain Caps
- Clean Out Doors
- Flex House
- Viewing Spools



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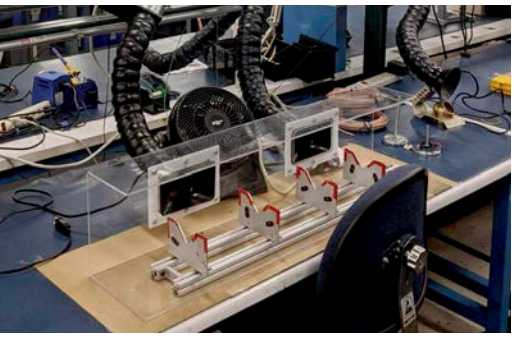
KNOW THE FLOOR PLAN

You'll need to know what machines are going into the system and where they will go. Even if you're starting with a blank floor plan, the layout of the building might also impact your ductwork designs.

EXIT POINTS

An exit point is any point where the air stream leaves the duct system. The number of inlets to the collector/fan determines the number of exit points.



PICKUPS

A pickup is an entry point to the ducting system where the contaminant (dust, fumes, etc) is collected.

CEILING HEIGHT

The trunk will need to be supported using hangers, and you will need some space between the duct and the ceiling to operate the clamps for Clamp-Together Duct or the wrench used to tighten the bolts for flanged duct.

PRO TIP: CREATING A COLLECTOR INLET MANIFOLD

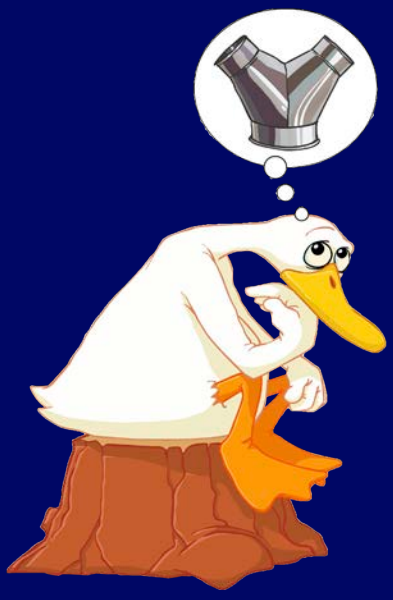
Due to how the calculations for fan pressure are done, DuctQuote REQUIRES only one (1) exit point. To create a “collector inlet manifold,” you must turn the air flow direction around (backwards) so the multiple inlets become outlets. Remember to detach the manifold from the rest of the system to allow the flow direction reversal.

ADAPTERS FOR MACHINES/COLLECTORS

Adapters are how you change from one connection style to another. They are used most often at machine or collector connections. However, they can also allow a new section of duct of one style to connect to an existing duct of another style.

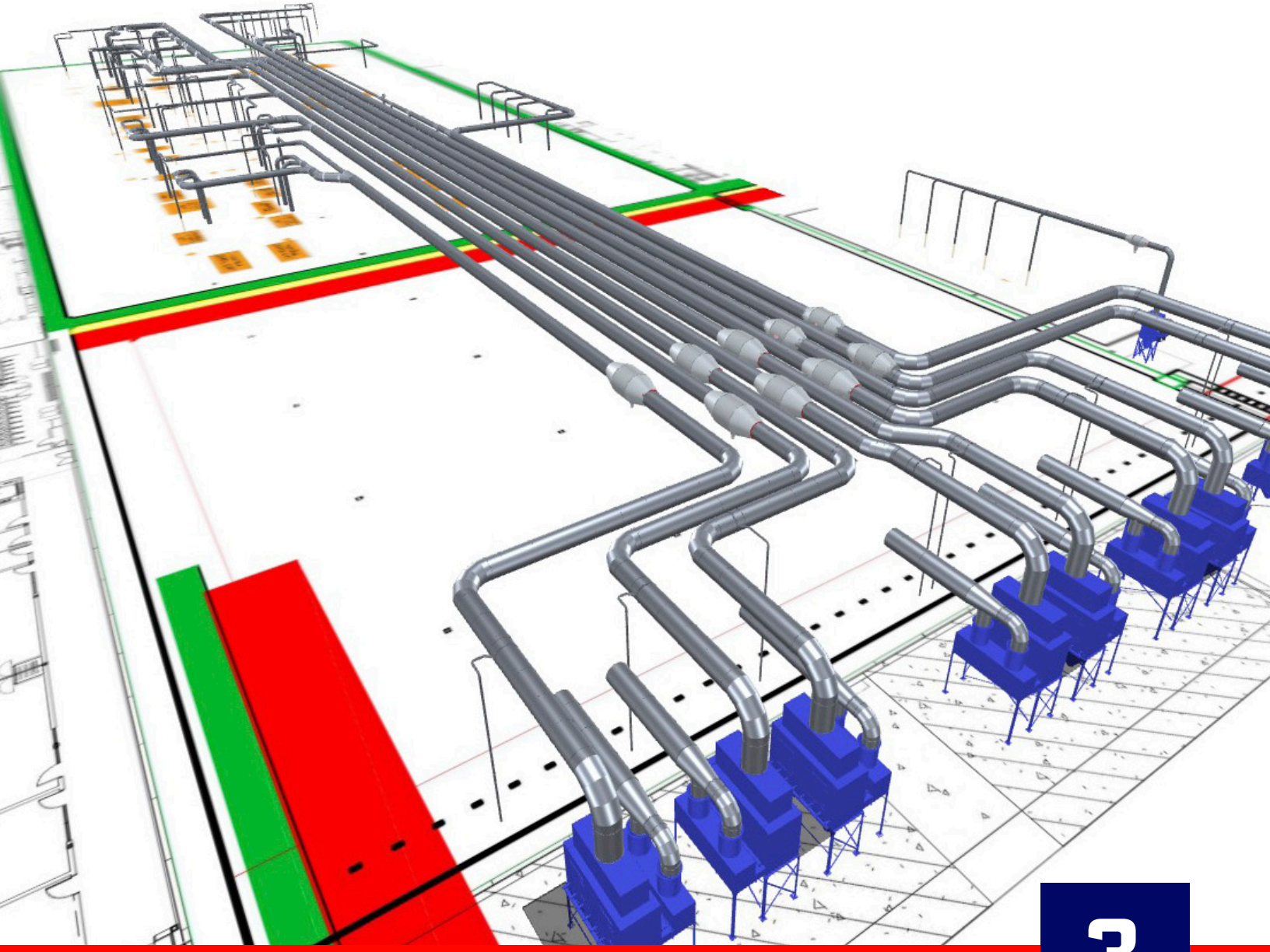
CORNERS OR OTHER OBSTRUCTIONS TO AVOID

You must work around columns, existing utilities, walls, and stairways as they can obstruct the duct path. Anything in the facility that can't be moved will impact the ductwork layout.



PRO TIP: CONSIDER THE FUTURE PLANS OF THE FACILITY

If you anticipate any changes—downsizing, expanding, moving machines, adding new functions—within your shop, make sure you're using Clamp-Together Duct or US Tubing. These types of ductwork are **designed for repeated use,** so you can modify and fine-tune your ductwork system. The ability to adjust your ductwork will ultimately **save you time and money!**



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CREATE THE LAYOUT IN 3D (!)

We're living in a digital world, so there's no reason why your ductwork designs need to be stuck on paper. That's where DuctQuote—a free web-based drawing software and quoting tool—can help you modernize your designs.

DESIGN IN 3D

DuctQuote gives you the ability to see how the ductwork system fits into your client's facility and if there are any issues (like obstructions or equipment that's been moved) that were missed. The interactive 3D rendering of the ductwork system that lets clients zoom in and out or see the facility from an overhead view or the floor level. Presenting designs in 3D not only gives clients the ability to navigate through the facility as if they were there, but it also helps give them confidence in you and the ductwork.

MAKE CHANGES ON THE FLY

The drag-and-drop style of DuctQuote makes it easier to adjust your ductwork system as floor plans or machine placement change. If you need to move a machine or try a different layout, you can make those changes and let DuctQuote do the rest. DuctQuote has several tools that allow you to edit the length of straight sections, delete and redraw areas, or clone existing sections.

PRO TIP: LET DUCTQUOTE CALCULATE THE FAN PRESSURE AND TOTAL VOLUME (CFM)

To calculate the fan pressure and the total volume (CFM) for the duct system, DuctQuote has two possible methods:

1. Add equipment to your layout, then add connections to that equipment. You will need to define the flow characteristics and size of each connection. DuctQuote will use this information to calculate the pressure and volume.

2. The second way is to use the automatic mode for the "open ends." You provide a target velocity and size the pickup "open ends" to match the diameters of the ports they will be attached to when installing. DuctQuote will then size and calculate accordingly.

FOOLPROOF

Our Duct Guys aim to make ductwork easy—and DuctQuote makes ductwork design easy. If your design has extra pieces of ductwork, conflicting airflows, or misaligned angles between connections, DuctQuote will let you know. Those yellow warning symbols may be pesky, but they'll help you troubleshoot your designs to ensure you've got all the correct pieces and parts you need for a complete and accurate system.

ACCURATE QUOTING + PARTS LISTS FOR PROPOSALS

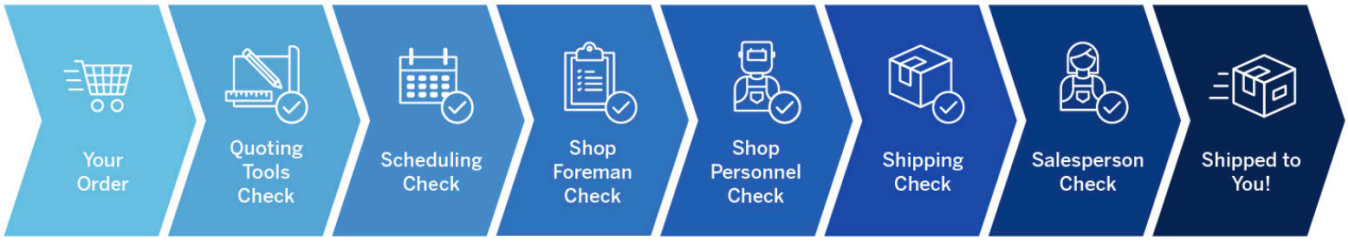
With a click of a button, DuctQuote automatically produces a proposal you can use to bid on projects. It will generate a bill of materials that includes the quantities, item numbers, part descriptions, and line pricing based on your designs. You can further customize this information with airflow calculations, a pricing discount, and the 3-D rendering of the project. A detailed ductwork system drawing can potentially make the difference between winning and losing a bid, and an accurate bill of materials and project estimate means you can sell with speed and confidence.

YOU'VE WON THE BID! WHAT'S NEXT?

US Duct is structured to provide the best in service and delivery—from design to installation. You've got the design down, and that helped you win your latest bid. Now let the Duct Guys continue to support your project.

ORDER ACCURACY

Our schedulers, fabricators, and welders alike are trained to raise flags and ask questions when something doesn't line up with the original order. Both shipping personnel and your Duct Guy will have their eyes on the final order before it gets shipped out to you.



ON-TIME SHIPPING +"INCREDIBLE GUARANTEE"

We ship based on your schedule, not ours; we want to ensure you're getting everything you need in your order. If the ordered product is not delivered on time* or is not 100% correct with regard to quality, quantity, dimensions, etc., we will have the correction made within 24 hours** and credit you for 2%*** of the ENTIRE order.

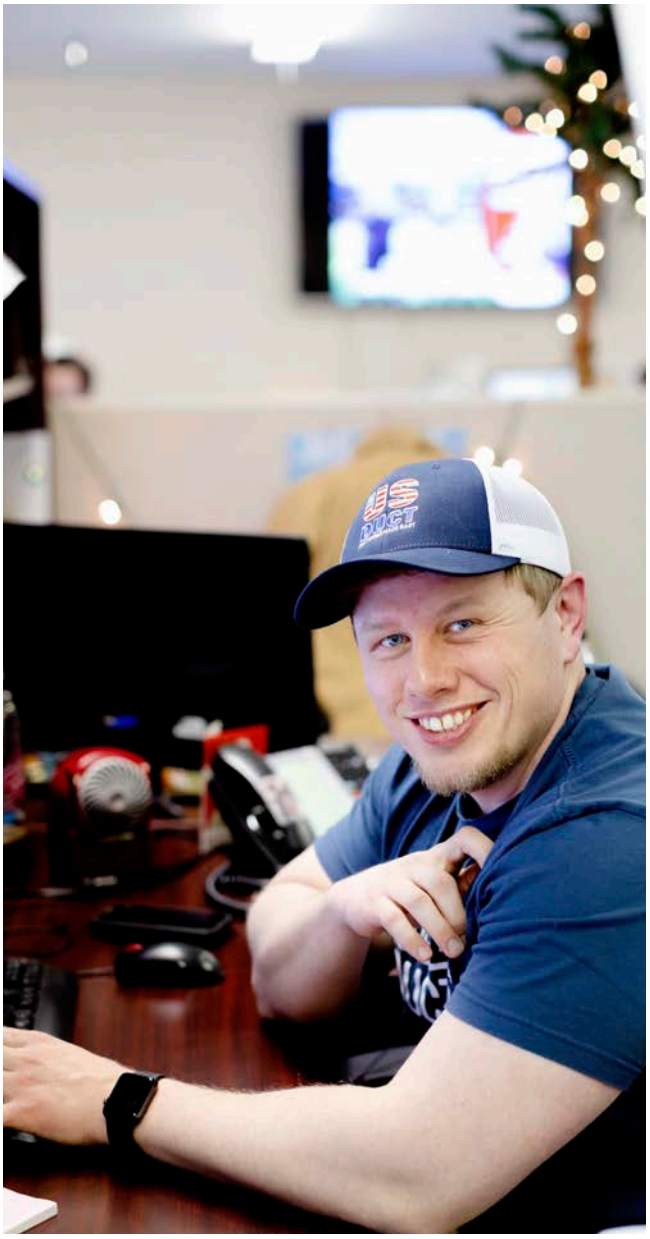
* From time to time, there will be delays related to problems beyond our control. However, this on-time guarantee means that you will be notified in advance of any issues so as to adjust on your end. If you are not notified days in advance, then we are obligated to the delivery date, and the guarantee is in effect. Additionally, we have to have complete control of the freight/truck/method as that is the only way to control the timeliness of delivery.

** This is for standard products only. Specials will be made immediately but may require a longer time.

***2% credit up to $1,250 per order.

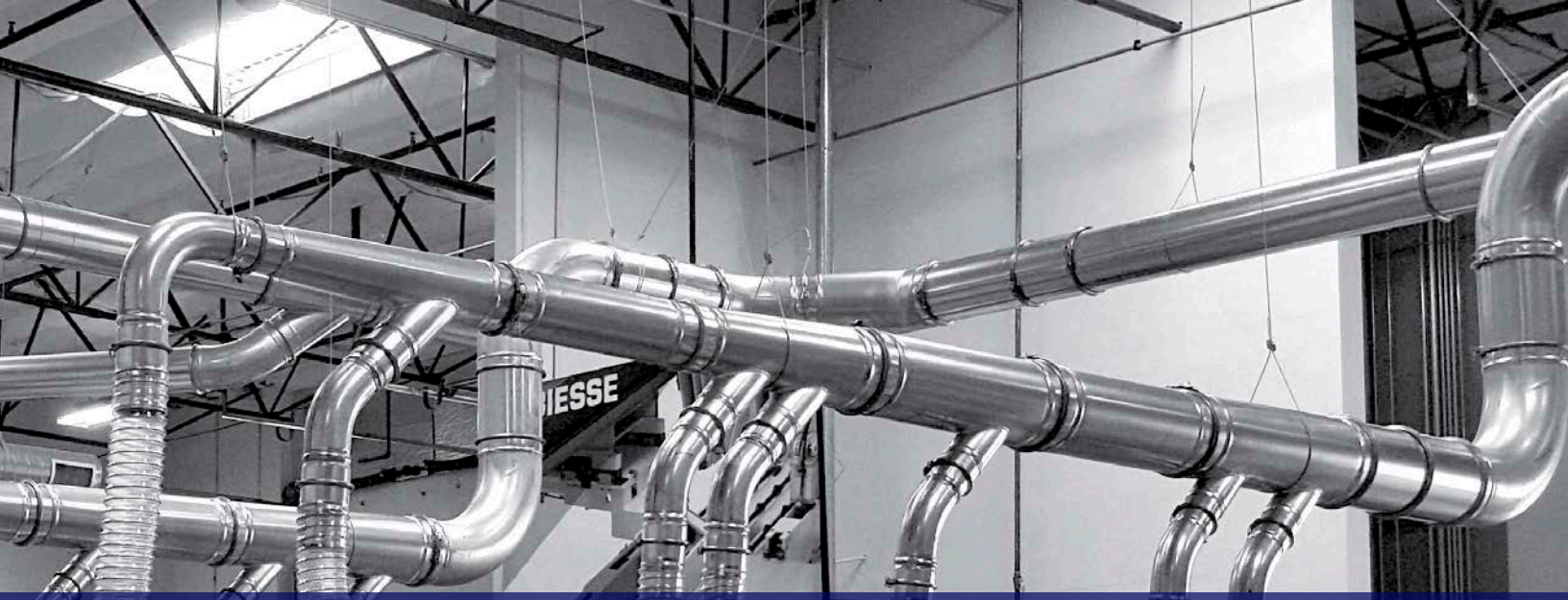
INSTALL INSTRUCTIONS

We'll also provide you with installation instructions for your specific designs. It'll **outline the order in which to install the ductwork system**, making the setup as easy as 1, 2, 3 (4, 5, 6)!



ONGOING SUPPORT FROM A DUCT GUY

When you succeed, we succeed. It's that simple. When you think about it, we're all in business to do business. Your Duct Guy is **a seasoned professional who will answer the phone when you call (no more voicemail jail).** They're available to answer questions, review orders, and ensure ductwork is easy for you.



US DUCT IS AN AMERICAN-OWNED AND OPERATED, INDUSTRY-LEADING MANUFACTURER AND SUPPLIER OF INDUSTRIAL DUCTWORK SYSTEMS AND CUSTOM SOLUTIONS.

The combination of a dedicated sales team and skilled fabricators gives contractors, ductwork installers, and OEM representatives everything needed to select and sell ductwork to end-users.

We have extensive knowledge of ductwork applications, design, and manufacturing that allows us to offer comprehensive lines of clamp together ductwork, airflow components, and special solution products. From take-off design services to on-time delivery to installation, we will provide the support you need for any project—and any type of dust collection.

We know that when you succeed, we succeed. That's why we're committed to being a reliable, long-term partner. Our goal is to save your time and money and remove the stress of manufacturing and selling ductwork.

CONTACT A DUCT GUY TO SEE HOW US DUCT CAN MAKE DUCTWORK EASY FOR YOU.

US DUCT

DUCTWORK MADE EASY

336-530-1690 **info@us-duct.com**