

The Residential Air Duct Cleaning Planning Guide

Topics include:

- Benefits of residential air duct cleaning.
- What is air duct cleaning?
- Is there a need for air duct cleaning?
- Does HVAC system cleaning really work?
- What qualifications do I need?
- Are there licensing requirements?
- What service offering is right for you?
- Know your competitors.
- Pricing and pricing strategies.
- Equipment selection.
- What does it cost?
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Blueprint for Success

Introduction

Residential air duct cleaning as part of the growing indoor air quality market represents a tremendous opportunity. To take advantage of this opportunity you need to consider many issues and questions. The "Blueprint for Success" planning guide was developed to help walk you through the many issues and questions you will have as you consider this tremendous opportunity.

"Blueprint for Success" is based on over 15 years of experience helping companies and people like you, who want to become residential/light commercial air duct cleaning contractors, reach their goals.

Benefits of residential air duct cleaning.

Residential air duct cleaning represents a tremendous business opportunities as part of the growing indoor air quality field. Since the early 1990's the duct cleaning business growth rate has exceeded 50%. Industry analysts are predicting this to continue for some time. Residential air duct cleaning offers you many attractive features including:

- Excellent gross margins (40% to 60%).
- Can provide significant add-on revenues with existing customers.
- Can generate new customers for your existing products and services.
- Can help sell other IAQ related products and services.
- Can generate revenues during slow times of the year.
- Can help identify potential HVAC retrofit customers &

What is air duct cleaning?

Air duct cleaning is more than cleaning air ducts. A more appropriate term to use would be "HVAC system cleaning" (HVAC means heating, ventilating and air conditioning). The HVAC system includes all of the registers, grilles and diffusers, the supply ductwork and the return ductwork. In residential systems it also includes the furnace or air handler.

Some surfaces, like the inside of the furnace or air handler, you clean via contact vacuuming. Others, like ductwork, you put under negative pressure with a vacuum collection unit and then dislodge the accumulated dirt and debris with your air washing and power brushing tools. This dirt and debris is collected (via the negative pressure or suction from the vacuum collection unit) and blown (via air washing tools) to the vacuum collection unit. Coils can be cleaned via air washing or with coil cleaning solutions and water. If microbial contamination is a concern the HVAC system can be cleaned and then sanitized. In some HVAC systems there is fiberglass insulation. In many of these systems this insulation is deteriorated over time and must either be replaced or repaired. The goal is to remove all of the accumulated dirt, debris and other contamination found in the system. This is called source removal.

Is there a need for air duct cleaning?

Yes. The number of homes and buildings in your area only limits the market potential for residential air duct cleaning. Not every home or building needs to

have its air ducts cleaned right now but here is a good possibility that over time the clean air ducts of today will become the dirty air ducts of tomorrow. Inadequate filtration, pets, activities within the building or home, renovation and construction debris, and microbial contamination are just some of the reasons why air duct systems become dirty and/or contaminated.

Does HVAC system cleaning really work?

Yes, if done properly, HVAC system cleaning can improve the indoor air quality of the home or building and in most cases can improve the efficiency of the HVAC system. Common sense tells us that if you remove the accumulated dirt, debris and contaminants from the fan, coils, ductwork and other components in a HVAC system the air quality of that building will be improved and the HVAC system should run more efficiently. There have not been a lot of studies done to look at this question but the National Air Duct Cleaning Association (NADCA) and the Environmental Protection Agency (EPA) did a pilot study that did indicate That, when done properly, dust level were reduced and efficiency of the HVAC system improved.

The pilot study was designed to evaluate the effectiveness of HVAC system cleaning in residences. The study was conducted on 9 homes in North Carolina during 1996 with pre and post testing. The results showed:

- Dust levels prior to cleaning were:
 - Supply ducts 1.48 to 26.03 g/sq. meter
 - Return ducts 5.26 to 35.11 g/sq. meter
- Dust levels after cleaning

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were:

- All ducts 0.06 to 1.97 g/sq. meter
- Improved system performance was indicated by:
 - Supply air flows increased 4 to 38% in 8 homes measured
 - Air handling unit blower motor current increased in the 4 homes that were measured
 - Static pressure in return ducts increased in the 6 homes that were measured.

To obtain a copy of the study you can contact NADCA @ 202-737-2926.

What qualifications do I need to clean HVAC systems?

The ability to learn and understand how HVAC systems works, the ability to learn how to inspect, clean and decontaminate a HVAC system, and the commitment to doing quality work. Many people start out doing residential air duct cleaning since residential HVAC systems are easier to understand. Later on some choose to expand into commercial air duct cleaning.

Now if you have a mechanical contracting background you already have knowledge of how an HVAC systems works but there are many trades that are entering into the air duct cleaning business including:

- Mechanical contractors
- Plumbing contractors
- Mold abatement contractors
- Fire restoration contractors
- Carpet cleaning contractors
- Chimney sweeps

Even if you are an individual without these types of

backgrounds you can become a successful air duct-cleaning contractor. Your success will be based on your desire to learn what is required, your ability to provide quality work and your ability to provide good customer service.

Are there licensing requirements?

Every state is different. In some states you don't need anything, while in other states you must obtain a mechanical contractors license. The National Air Duct Cleaners Association (NADCA) keeps track of state requirements so your first step may be to call them at 202-737-2926. They can share the information they have with you and then you can check with your appropriate state agency.

What service offering is right for you?

There are no right or wrong answers because you can be successful no matter what level of services you offer. The level of service you offer will, however, determine whom you are competing against, what type of clients you will serve and what equipment you will need. You need to examine your own capabilities and select from the Residential Air Duct Cleaning Matrix (on next page) what services you want to offer your customers.

In addition to deciding what services you want to offer you must decide what level of cleaning you want to offer. Currently there are three levels of cleaning quality when cleaning ductwork.

1. The first level is air washing only. Air washing is the use of high-pressure

air that comes from your air compressor through an air hose to an air nozzle. This air nozzle delivers the streams of high-pressure air, which dislodges the accumulated dirt and debris. The suction from the vacuum collection system and the high-pressure air from the air nozzle move the dirt and debris that has been dislodged from the ductwork into the vacuum collection system.

2. The next level of cleaning is achieved by using air whips. Air whips is a combination of air washing (high pressure air) with some agitation from the whips. This is a higher level of cleaning because; in addition to air washing the whips make contact with some of the interior ductwork. Again, the suction from the vacuum collection system and the high-pressure air from the air nozzle move the dirt and debris that has been dislodged from the ductwork into the vacuum collection system.

3. The highest level of cleaning is achieved by power brushing and air washing because it does the best job of removing the accumulated dirt and debris in the ductwork. The brushing does the best job of dislodging the accumulated dirt and debris because it is making physical contact with more of the interior ductwork than the other methods. Air washing after brushing is necessary to help move the dirt and debris out of the ductwork to the vacuum collection system.

**Residential
Air Duct
Cleaning
Guidelines**

Residential Air Duct Cleaning Matrix			
Basic Cleaning Tasks	Applicable Cleaning Methods		
	(good)	(better)	(best)
<input type="checkbox"/> Visual Inspection Before & After Cleaning	flashlight & mirror	periscope	remote camera system
<input type="checkbox"/> Remove, Clean and Replace: Supply Registers Return Grilles	air wash	contact vacuum	wet clean
<input type="checkbox"/> Clean Supply Ductwork & Plenum	air wash	air whips	power brush
<input type="checkbox"/> Clean Return Air Ductwork & Plenum	air wash	air whips	power brush
<input type="checkbox"/> Install Access Panels as Needed	same gauge sheet metal, seal edges		
<input type="checkbox"/> Clean Blower Motor & Assembly:	air wash in place	vacuum in place	remove, wet clean, replace
<input type="checkbox"/> Clean Air Stream Side of Heat Exchanger	air wash		
<input type="checkbox"/> Clean Secondary Heat Exchanger	air wash		
<input type="checkbox"/> Clean Evaporator Coil, Drain & Pan:	air wash in place	wet clean in place	remove, wet clean, replace
<input type="checkbox"/> Replace Air Filter	with same	with upgrade	
<input type="checkbox"/> Wash Air Cleaner	wet clean		
Additional Services			
<input type="checkbox"/> Clean Dryer Vent	air wash	air whips	power brush
<input type="checkbox"/> Sanitize System	fog in		
<input type="checkbox"/> Install UV Lights	in coil area		
Select Services you will provide by putting an "x" in the box on the left	Select Cleaning Methods you will use by putting an "x" in the box under that method		

An example of different levels of cleaning quality is washing your car. There are car washes that use just high-pressure water with soap and others use high-pressure water, soap and brushes. Both clean you car but which method gets it cleaner? Brushing gets your car cleaner because it makes physical contact with most of

your car. Likewise brushing cleans ductwork better because it makes physical contact with most of the ductwork.

Look at the Residential Air Duct Cleaning matrix and think about the level of cleaning you want to provide and what services you want to provide. A good way to

work through these choices is to ask yourself what would I want done at my house.

Copy the matrix, put an "X" in the boxes on the left margin by all the services you want to offer and then make an "X" in the boxes below each of the cleaning methods you want to use.

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Know your competitors.

You need to know your competitors, what levels of service they offer and what they charge for their services. You find this out by doing a little market research. Make several copies of the Residential Air Duct Cleaning Matrix (one for each competitor). Use this as guide and checklist as you call your potential competitors and find out what level of service they offer, what level of cleaning they offer and at what prices. Call a good sampling (3-5) of your competitors and ask for a quote on cleaning your house or your mother's house. During this process ask lots of questions using the matrix as your guide.

You could find contractors that charge \$200.00 and contractors that charge \$600.00. You need to understand why there is this difference in price and what the customer gets for the extra \$400.00. You will find that there are different levels of cleaning (air washing, air whips, power brushing, contact vacuuming) and different levels of services (from cleaning just the supply/return ductwork only to cleaning every component in the HVAC system.)

This type of market research will give you a good understanding of current market pricing and what services are included for that price.

"Know Your Competition" Questions

1. Do you offer before and after visual documentation?
2. Can you describe how you clean the supply and return ducts?
 - Do you power brush, air whip or air wash?
3. Can you describe how you clean the grilles and

registers?

- Do you air wash, contact vacuum or wet clean?
4. Can you describe how you clean the furnace or air handler?
 - Do you clean the blower/fan section?
 - i. Do you air wash or contact vacuum?
 - Do you clean the coil?
 - i. Do you air wash, contact vacuum or apply a coil cleaner and then rinse?
 - iii. Do you do this in place or do you remove the coil?
 - Do you clean/inspect the heat exchanger?
 - i. Do you air wash?
 6. Do you replace the filter or offer upgrades?
 7. I have ___ supply registers and ___ return registers how much would you charge?
 8. About how long would this take?
 9. Do you use a one or two person crew?
 10. Are they NADCA certified (ASCS = Air System Cleaning Specialist)
 11. Do you offer dryer vent cleaning? What does that cost?
 12. Do you offer sanitizing? What does that cost?
 13. Do you offer/install UV lights? What does that cost?
 14. Do you offer any kind of a guarantee?

Pricing and pricing strategies

There are several ways to determine what you will charge your customers.

- By the number of vents.
- By the square feet of the house.
- By what services you deliver to your customer.

The bottom line is that you need to make at least \$50.00 per man-hour to have gross profits that ranges from 40%

to 60%. If you pay close attention to your other expenses (marketing, overhead etc) and keep them in the 25% to 30% range you can make 10% to 35% net profit.

Some contractors quote the project over the phone based on the number of vents. Others quote over the phone by the number of rooms or floors. We recommend visiting the home to do an inspection (to determine need) and then sitting down with your customer and explain the different services you offer and the different levels of cleaning. This gives you the opportunity to set yourself apart from the competition and to maximize your revenues on each project.

We recommend the ladder pricing approach. It gives you the flexibility to compete with the lower price contractors yet gives you the ability to sell up to higher levels of cleaning and more services. The prices listed here are starting points. Based on the research you did on your competitors you should adjust these to fit your market area and the services you will offer.

Pricing Cleaning Services

Visual Inspection

Free

Supply & return ductwork & plenum:

- Air washing \$ 15.00 per vent
- Air whipping \$ 20.00 per vent
- Brushing & air washing

\$ 25.00 per vent

Remove, clean & replace all registers & grilles:

- Air washing \$ 25.00
- Contact vacuuming \$ 30.00
- Wet cleaning \$ 35.00

Clean blower motor & assembly:

- Air washing \$ 25.00
- Contact vacuuming \$ 35.00

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- Remove, wet clean & replace \$ 65.00

Clean coil & drain pan:

- Air wash in place \$ 15.00
- Contact vacuum \$ 20.00
- Wet clean in place \$ 25.00
- Remove, wet clean & replace \$ 50.00

Heat exchanger:

- Air washing \$15.00

Replace air filter:

- Same \$ free
- Upgrade \$ 5.00

Additional Services

Clean dryer vent:

- Air washing \$ 20.00
- Air whipping \$ 25.00
- Brushing & air washing \$ 30.00

Sanitizing:

- Fogging \$100.00

UV lights

- For coil area from \$250.00

Equipment selection.

Lets start with a basic explanation of the different types of vacuum collection systems that are available.

- The large truck mounted units offer lots of suction so you typically do not have to zone off the HVAC. These units sit outside and a large 50' to 100' long suction hose is brought into the home or building. You are limited to cleaning residential and one or two story commercial buildings with the truck mounted units. These units are also the most expensive.
- Trailer mounted and portable gas vacuum collection systems are less expensive than truck mounted units, but like them, they sit outside and you bring in the large 50' to 100' long suction hose. Depending on the system you may or may not have to zone off the HVAC system to achieve the suction you need. You

are limited to cleaning residential and one or two story commercial buildings.

- Portable electric vacuum collection systems offer the most flexibility in that you can clean virtually any type (residential, apartments, condos, light commercial and commercial) of building with them. You bring these collectors into the building and position them where you can be the most productive. You zone off (divide up) the HVAC system to achieve the suction you need to clean. These units operate on 110 or 220 volt, 50 or 60 Hz., and have HEPA filtration.

The services you have decided to offer will determine what type of equipment you will need. In generic terms a typical equipment package will include:

- Vacuum collection system – puts ductwork under negative pressure (suction).
- Agitation tools – used to dislodge accumulated dirt, debris and contaminates.
- Power brushing systems
- Air whip systems
- Air washing tools
- Air compressor – provides high-pressure air for air washing tools and air whips.
- HEPA filtered wet/dry vac – used to contact vacuum surfaces
- Duct accessing tools and service panels – used to cut access openings, isolation, and closing access openings.
- Visual inspection system (optional) – used to show client pre (existing) and post (after cleaning)

conditions in the ductwork.

- Chemicals and chemical dispensing tools (optional)
- Sanitizer and fogger, coil cleaner, degreaser etc.

You also need to supply miscellaneous items (hand tools, ladders, drop cloths, etc) and a truck or trailer to transport the equipment.

That a copy of the matrix where you indicated what services you want to offer and what cleaning methods you want to use and fax it to several equipment supplies for a quote. The equipment suppliers can then tailor the quote to your specific needs.

What does it cost to get into residential air duct cleaning?

The cost will vary depending on the equipment you choose but a basic equipment package will range from \$6,000.00 to \$9,000.00. There are different purchasing options that can greatly affect your payments.

- Leasing gives you the lowest first cost and lowest monthly payment which can be an important consideration when you are starting out. Lease payment will run from \$160.00 to \$250.00.
- You can also pay for the equipment up front and avoid any financing/ interest charges. This gives you the lowest over all cost.

In addition you will need a truck/van or trailer to transport the equipment.

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- If you already have one there would be no additional cost.
- A new trailer with a top and ramp can cost \$2,750.00 and a new truck or van can cost \$15,000.00 to \$25,000.00.
- Used vehicles and trailers can reduce this cost.

What about training?

Training is very important. You want to learn how to maximize your cleaning productivity (for greater profits and revenues) as well as maximizing your cleaning quality (for greater customer satisfaction and more referrals). 90% to 95% of your HVAC system cleaning cost is labor. If you can improve your labor productivity by even 5% or 10% you will be more profitable on each project and have more time to do additional revenue producing projects. So you want to learn and implement the best practices and procedures you can. "Hands-on" training from an experienced trainer were you learn by doing is most beneficial and will get you up to speed the quickest.

This training should be based on the actual air duct cleaning experience of the equipment supplier. You may want to specify that the trainer be certified as an "Air System Cleaning Specialist (ASCS)" by NADCA. This will insure that the trainer has (at minimum) the expertise to pass the certification test.

Revenue projections.

The revenue you generate will depend on what services you are going to offer and what your overhead (rent, advertising, phone, vehicle, lease, etc) expenses will be. Since everyone's situation is different we recommend that you do an in depth analysis to estimate your specific revenues potential and expected

We can look at a few examples that can give you a reasonable idea. less 25% overhead and marketing expense

One-person crew (owner/operator)

- Offering services that will total \$200.00 and takes 3 hours to complete.
- \$200.00 per job x 2 jobs per day
= \$400.00 x 5 days a week
= \$2,000.00
- x 50 weeks a year = \$100,000.00
- x 50% profit margin = \$50,000.00 gross profit
- less 25% overhead and marketing expense = \$37,500.00 net profit (this is in addition to the regular wages paid)

One-person crew (owner/operator)

- Offering services that will total \$300.00 and take 4 hours to complete.
- \$300.00 per job x 2 jobs per day = \$600.00
- x 5 days a week = \$3,000.00
- x 50 weeks a year = \$150,000.00
- x 50% profit margin = \$75,000.00 gross profit
- less 30% overhead and marketing expense = \$52,500.00 net profit (this is in addition to the regular wages paid)

Two-person crew (owner and helper)

- Offering services that will total \$400.00 and take 3 hours (6 man hours) to complete.
- \$400.00 per job x 2 jobs per day = \$800.00
- x 5 days a week = \$4,000.00
- x 50 weeks a year = \$200,000.00
- x 50% profit margin = \$100,000.00 gross profit
- less 30% overhead and marketing expense = \$70,000.00 net profit (this is in addition to the regular wages paid)

Two-person crew (owner and helper)

- Offering services that will total \$500.00 and take 4 hours (8 man hours) to complete.
- \$500.00 per job x 2 jobs per day = \$1,000.00
- x 5 days a week = \$5,000.00
- x 50 weeks a year = \$250,000.00
- x 50% profit margin = \$125,000.00 gross profit
- less 35% overhead and marketing expense = \$81,250.00 net profit (this is in addition to the regular wages paid)

How do you market residential air duct cleaning?

The best marketing you can do is delivering quality work. Satisfied customers (who will refer you) are the least expensive and most effective marketing tool created.

It is estimated that 60% or more of your business will come from referrals. Quality work is your first and most important marketing tool.

To get the other 40% you need to spend additional dollars and use the traditional advertising and marketing tools including:

- You're first marketing effort should be a news release to your existing customer base (if you already have a related business) telling them that you are now offering this new service.
- Offer free inspection
- Leave behind sticker
- Door hangers on every home around every job
- Referral rewards program for existing customers
- Signage on your truck/van or trailer

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- Shirts or uniforms for crew
- Direct mail
- Yellow Pages advertising
- Local home shows
- Advertising in local magazines/newspapers
- Inserts
- Card packs
- Advertisements
- Telemarketing
- Internet/web site
- Radio

A word about NADCA.

National Air Duct Cleaners Association (NADCA) is a non-profit trade association dedicated to the continuous progression and improvement of the heating ventilating and air conditioning (HVAC) hygiene industry. NADCA's mission is to lead the domestic and international HVAC hygiene industry in standard setting, research, information dissemination and promotion of ethical practices.

NADCA has created a standard called ACR 2006 that is recognized industry-wide. NADCA has also created three certification programs: :

- Air System Cleaning Specialist (ASCS)
- Certified Ventilation System Inspector (CVI)
- Ventilation System Mold Remediator (VSMR)

In addition NADCA offers these training programs:

- Basics of Residential HVAC Cleaning
- Basics of Commercial HVAC Cleaning
- Blueprint, Estimating & Project Management

Consumers can find a wealth of information on the NADCA web site including:

- Residential customers FAQ's.
- How to select a Qualified Residential Contractor.
- Residential Pre Cleaning Check List.
- Residential Post Cleaning Check list.
- NADCA Code of Ethics.
- Find a NADCA certified contractor near you using the locator.

NADCA offers both consumers and contractors many benefits. We encourage you to look into NADCA and become involved in our industry!

NADCA – National Air Duct Cleaners Association

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Summary.

Thank you for the time you spent reviewing the "Blueprint For Success – Planning Guide." We hope it has been helpful in answering many of the initial questions you may have. Residential air duct cleaning as part of the growing indoor air quality market represent a tremendous opportunity. For over 15 years Vac Systems International has helped companies and people like you enter this market.

Our sole purpose is to help you succeed.

If you have any questions about this publication or any aspect of air duct cleaning please contact:



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"Blueprint for Success" is a series of articles and publications developed by Vac Systems International to help you succeed as an air duct cleaning contractor. In addition to this publication they include:

- Commercial Planning Guide.
- Selecting the Right Tool for the Job Guide.
- Introduction to Coating HVAC Systems Guide
- How to Select a Portable Vacuum Collection System for Commercial Air Duct Cleaning Guide.
- "Profit follows productivity" article.
- "The air duct cleaning opportunity for HVAC Contractors" article.