

**A GUIDE TO REACH
SYSTEM RELIABILITY**



Reimagine tomorrow.



Commercial HVAC Buyers Guide

How to confidently select your HVAC contractor, compare options and quotes, and enjoy system reliability.

If you are reading this document, you may be in need of heating, ventilation and air conditioning (HVAC) assistance or advice. Whether the space is too hot (or too cold), or you have comfort complaints from tenants, you may be looking for guidance. How do you find the right contractor that can answer your questions and help meet your needs? Unfortunately there are more stories about bad contractors than good ones. Do not worry; there are good contractors that care about their work and your systems.

Productivity, staff and customers are impacted when a system is operating poorly – or not at all. Ultimately we all want comfort and efficiency while getting the most for our money. This is why we, as buyers, must be educated—knowing where to begin is both important and empowering.

WHERE DO I START?

The process begins with a contractor assessing the equipment. In the event you don't have a company that you currently work with, the next section is intended to provide ideas on finding and selecting a contractor.

1) Make a list

- Ask business associates, family and friends for referrals
- Visit SRP's website for a list of HVAC Alliance participants:
http://www.srpnet.com/maps/COM_hvacFL.aspx
- Find your local Better Business Bureau (BBB) at www.bbb.org for listings of contractors in your area
- Check out local "Best of.." award winners

2) Items to look for:

- How long has the company been in business?
- Do they have a legitimate place of business, or are they operating out of their home or service vehicle?
- Properly licensed by state and local municipalities?
- Are they members of a national trade association? For example, ACCA (The Indoor Environment & Energy Efficiency Association), American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE)
- What codes and industry standards do they follow to perform work? For example, ACCA Manual N is an industry recognized standard for commercial load calculations.
- What tests are conducted?

ASSESSMENT OF YOUR EQUIPMENT

An experienced contractor will have the knowledge necessary to diagnose and determine the correct course of action when inspecting existing equipment. The contractor should ask you questions about how often the equipment is maintained and when the last maintenance occurred.

A contractor should learn about your business and how you use the space you occupy, the age of the building, the age of the equipment, and more. The options concerning equipment can take one of two paths:

1. The system is new(er) and in need of attention or repair
2. The existing equipment should be replaced

Both of these paths and the information you will need to confidently navigate them with your contractor are covered in the scenarios below.

Scenario 1: New(er) Equipment In Need of Attention or Repair

The average lifespan of equipment falls between 10 and 20 years, with many factors that influence longevity of equipment. Even with repair work, a written estimate should be provided by your contractor. Items to look for on the estimate include:

- Parts to be replaced, along with prices
- Labor costs
- Other recommended (but not required) work, such as: cleaning the coil, cabinet and fan motor; belt replacement; tightening connections and lubricating moving parts
- Schedule for repair
- Payment schedule

It is important to be diligent with maintenance of HVAC systems. When an HVAC unit receives proper maintenance, the unit can run for 15 years or even longer. When a HVAC system is not routinely cared for, issues may arise that ultimately shorten the life of the equipment, cause excessive maintenance costs, and cause the system to be more expensive to operate. Selecting a firm to maintain your system will allow you to build a relationship with a trusted company.

Scenario 2: Existing Equipment in Need of Replacement

There comes a time in the life of a piece of equipment when it is advisable to replace rather than repair.

Examples include:

- Equipment production changes that impact availability of repair parts
- Refrigerants that are phased out of production
- Escalating repair costs as more frequent part failure occurs because the system is reaching the end of its service life.

Any of these scenarios can require a higher level of investment in the maintenance of the system.

Equipment replacement is not inexpensive. By working with your trusted maintenance provider, they can help you build your budget and plan for both repair and replacement equipment needs, ensuring that there are no major surprises.

If your equipment is in need of retirement, please note numerous items affect the size of the equipment. Some contractors find it easy to simply quote a one-for-one replacement. There are likely aspects of your building that have changed that will influence, or even reduce, the size of the replacement equipment.

In a commercial setting, there are a several factors that affect the size of a HVAC system, which differ from residential systems. The contractor assessing your facility's HVAC system replacement needs should consider the following:

- What is the climate where the building is located?
 - What internal loads are present?
 - Cooking equipment
 - Exhaust systems (kitchen, lab fume hoods, restrooms)
 - Manufacturing equipment
 - Lighting, computers, printers, big screen TVs, server rooms, etc.
- How is the building constructed?
 - Amount of South or West facing glass
 - Insulation levels
 - Square footage
- How much outdoor air is required to be introduced into the space?

Sometimes contractors mention a “rule of thumb” when it comes to sizing systems. A rule of thumb has its place when providing a high level assessment; however, a rule of thumb is no substitute for right sizing a system.

The biggest temptation is to oversize a system. After all, more is better, right? Not in this case. An oversized system will likely cost more to purchase, as well as cost more to operate every day of the life of the equipment. Also, oversized systems turn on, run for a few minutes, then quickly cycle off. Occupant comfort is compromised due to the short run times and larger temperature fluctuations, and this can cause a host of other problems when there is a large amount of humidity present.

As we also saw in Scenario 1, a written estimate should be provided. Items to look for include:

- Manufacturer and model number of equipment, including efficiency ratings
- Curb for roof mounted equipment
- Electrical wiring, breakers, disconnects
- Cost to remove and recycle or dispose of refrigerant
- Equipment removal and disposal
- Outdoor air economizers
- Controls – thermostat, EMS, connections to fire alarm systems, smoke detectors, etc.
- Dampers – balancing dampers, fire dampers, opposed blade dampers (if required)
- Labor costs
- Miscellaneous costs that may be associated with performing the work:
 - Installation of permanent ladders or guard rails
 - Special curbing or supports to meet seismic requirement of the code
 - Crane (handy in placing new and removing old equipment from roof)
 - Permits
- Installation schedule
- Payment schedule

TECHNICAL LANGUAGE/TERMS

Typical industry terminology for equipment efficiency is SEER, EER, HSPF, COP, IPLV and AFUE. In general, the higher these numbers are, the more efficient the equipment is. The more efficient, the lower the overall cost to operate the equipment. High-efficiency systems are typically higher quality and operate quieter than their standard efficiency counterparts.

INCENTIVES TO UPGRADE TO HIGHER EFFICIENCY EQUIPMENT

Energy efficiency incentives that defray or offset the cost of higher efficiency equipment may be available. Ask your contractor about any state tax incentives and SRP Business Solutions rebates. The contractor should be well versed and help you select equipment that qualifies for a rebate.



What HVAC equipment rebates are available through SRP Standard Business Solutions?

HVAC Equipment	Rebate Amount
Unitary air conditioners, heat pumps and packaged terminal units	\$60–\$85 per ton
Direct evaporative cooler	\$.06 per CFM
Direct/indirect evaporative coolers (IDEC)	\$.06 per CFM
Programmable and smart thermostats	\$40 each
Variable-frequency drives on fans and pumps	\$75 per horsepower
Electronically commutated motors (ECM)	\$125 per horsepower, up to 1 horsepower
Outside air economizers	\$40 per ton
Energy management systems (EMS)	\$.25 per square foot
Hotel room occupancy controls	\$50 per room
Carbon dioxide sensors	\$85-\$120 each
Carbon monoxide sensors	\$250 each
Chillers	Rebates vary

HOW TO COMPARE ESTIMATES

Selecting the lowest price quote may be the process your company uses. Or, your company's policy may be to pick the estimate that is in the middle of the pack. Regardless, we encourage you to consider the following when making your selection:

- If a bid stands out as substantially higher than the others, ask the contractor why. They may have identified something that the other companies missed.
- A low bid should be scrutinized for what was omitted compared to the other bids.
- Compare options and efficiency standards.
- Compare guarantees and warranties.
- Be wary of the company that wants cash only, or payment in part or in full up front.
- Be wary of the invoice that contains a single line with a lump sum amount and contains no detail.
- If one contractor stands out with a different recommendation than the rest, such as replacement when all other companies submit repair options, examine closely.

NEGOTIATING PRICE

Some companies are hard wired to negotiate prices, even after selecting the contractor they are most comfortable with. A negotiation involves trade-offs, and knowing those trade-offs will help you make the best decision possible. The following is a partial list of items to prepare for in the event this path is taken:

- When the equipment price is reduced, one tradeoff involves substituting lower efficiency or shorter manufacturer warranty. Lower efficiency equates to higher operating cost.
- Check the fine print to ensure equipment disposal does not shift to you.
- Be prepared to compare all aspects of the bid without overlooking the miscellaneous costs.
- Will the contractor perform a comprehensive assessment to ensure the right size equipment is proposed, or are rules of thumb being used?
- Does the bid include an annual service agreement? These are often provided for the first year—this may be taken away during price negotiation.
- Sometimes mechanical contractors have an electrical 'subcontractor' perform any needed electrical modifications. This could be removed from the bid and left for you to find - and contract separately with—the electrician.

TARGETING SOLUTIONS

For greater efficiency and lower operating costs, look for solutions that include:

- Equipment efficiencies greater than code requirement; ask about the minimum code requirement and how the proposed equipment compares
- Variable speed motors
- Multi-stage operation
- Controls that allow for set-back and after hours operation
- Duct system recommendations – leaky ducts will cause your system to operate longer and cost more to operate

For greater comfort, look for solutions that include:

- Variable speed motors
- Multi-stage operation (multi-stage compressor or multiple compressors that operate based on needs of building)
- Duct work assessment – leaky ducts will divert conditioned air away from occupants and interior space

For quieter operation, look for systems that include:

- Sound blankets or extra insulation on cabinets and boxes
- Use of fans with advanced air blade design
- Noise level rating of equipment (closer the score to 0, the better)

NEXT STEPS

Now that you are armed with the necessary information to confidently select your HVAC contractor and begin the process of repairing or replacing your equipment, you can rest easy knowing that your research has put you in a good position for system reliability and longevity.

Want more information on rebates that are available?

savewithsrpbiz.com

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SRP BUSINESS SOLUTIONS

SRP is committed to helping you save energy and money. We offer a rebate program for every size and type of business.

- Standard Business Solutions**
- Small Business Solutions**
- Custom Business Solutions**

Find out which rebate programs are for you:

- Savewithsrpbiz.com**
- Program administrator, (602) 236-3054**