Become An Empowered ACCA

Manual J, S & D Consumer!

The 7 BIGGEST MISTAKES People make when picking an ACCA Manual J, S & D HVAC Designer And How to Avoid Them

Here it is at last. The booklet you've been waiting for.

The "7 Biggest Mistakes People Make ..." Includes the following:

Read This Guide and You'll Discover:

- 7 Mistakes People Make When Picking A Manual J, S & D HVAC Designer
- The 3 Most Common Problems You'll Have When Choosing a Residential JSD Designer By Price Alone
- The 6 Costly Misconceptions About the ACCA Manual J, S & D HVAC design process
- 3 Simple Ways To Save Money
- The 10 Things You Need to Know When Selecting YOUR Residential ACCA Manual J, S & D Designer.
- How To Avoid The 6 Most Common HVAC Contractor Rip-offs

By Savoy Engineering Group

801 949-5337

Dear Homeowner, Contractor, Architect or Home builder,

Thank you for taking the time to read these tips on choosing a Quality HVAC Designer. This free information will help you pick the best HVAC Designer for you. The more knowledgeable you are about the heat gain and heat loss process, the more efficient and cost effective comfort system you will install.

Education is truly the first step to making a good decision. You do it before you buy a house, a car or anything else. Why not before you buy a furnace or air conditioner or hire someone?

You'll learn why you should never pick the HVAC Designer with the lowest price. You'll also learn why all HVAC Designers are different and why communication is so important. This guidance can make your ACCA Manual J, S & D experience painless and trouble free.

You start by reading this special report. This fact-filled report will reveal how to avoid **6 most common rip-offs**. You'll learn the **7 mistakes** to avoid when choosing an HVAC Designer and the **6 most costly misconceptions** about Heating & Cooling HVAC design. You'll also find information about **3 simple ways** to save money that could save you thousands of dollars!

This information was compiled to be a valuable resource. PLEASE TAKE A FEW MINUTES TO READ IT! If you have any questions, please call us at **801-949-5337**.

Sincerely,
Savoy Engineering Group

Savoy Engineering Group
Quality HVAC Designers since 2005!
www.load-calculations.com

We're Savoy Engineering Group and we've been providing Nationwide Quality ACCA Manual J, S & D HVAC design services since 2005!

In that time, we've learned that **ACCA Manual J, S & D Heating & Air Conditioning Design** is a subject of much confusion. Misconceptions, myths and out-and-out lies abound today and needs to be exposed.

This Consumer's Guide was prepared as an educational service to assist you in making an informed, intelligent decision about the heating & air conditioning design process and selecting a qualified HVAC designer to perform these calculations for you.

We have dedicated our company to consumer awareness and education and helping homeowners get the highest return from their furnace & air conditioning investment. We welcome your inquiries and will gladly answer your questions.

"The 7 Biggest Mistakes People Make When Picking a Residential HVAC Designer & How to Avoid Them."

Mistake #1 - You Pick an ACCA Manual J, S & D Designer Based Only on Price!

The old adage is really true. "You get what you pay for." This is especially true in the HVAC Design contracting business. If you want good, accurate HVAC design you should decide to deal with an HVAC design company because of the overall value you receive, NOT because they are the lowest priced.

Here's why...

Value = Quality + Service + Price

It is **impossible** for any company in any industry to offer the cheapest price, have the highest quality, and provide the best service all at the same time. You can get high quality and super service, but you can't get both and still get the lowest price.

Just like in your business, you hire the best people and buy the highest quality products -- consequently, you have to charge more for your services. Total Value is all three -- **Quality, Service and Price!**

The 3 most common problems YOU WILL have when you pick an HVAC designer who only offers the lowest price:

1) The first problem is that dirt-cheap HVAC Designers don't usually stand behind their work if it gets rejected by permit. Sure, other HVAC Designers might do your job for a little less money, but how will they treat you when you need a revision to cover in-field changes?

To give the cheapest price, they usually have low-wage, inexperienced designers that have not been adequately trained. **The end result is that you get what you pay for and the little bit of money you saved ends up costing you more in the long run!**

2) The second problem with a Manual J, S & D provider who offers the lowest price is that they tend to also offer the lowest quality. Your furnace and/or air conditioner is the biggest appliance in your home and one of the best investments you can make in your home if designed properly.

Plainly said, "Shoddy or low quality HVAC designs because of cheap price costs you money." No amount of savings is worth this. You've worked too hard and spent too much money on your home. Why throw it away for the few pennies you save on an HVAC designer?

3) And the third reason why picking the cheapest Manual J, S & D provider is a problem is that you might get charged extra for things other designers normally include in their quote in the first place. What seemed like a good price actually ends up costing you more in the end. This is just a tactic cheap HVAC designers use to get in the door.

To avoid buying on price alone, we suggest you choose two or three HVAC design companies and rank them in the order that is important to you such as **Quality first, Service second, and Price last.**

Mistake #2 - You Think All ACCA Manual J, S & D HVAC Designers Are the Same.

Every HVAC design company is different. No two designers are really the same. Every HVAC designer has different education and different design experience in ACCA Manual J load calculation, ACCA Manual S equipment verification and ACCA Manual D duct design. Every company has different design abilities.

HVAC design is art and craftsmanship combined. Most people who hire HVAC designers don't truly understand that heating and cooling design is not just crunching numbers. It takes craftsmanship to turn out quality work.

Communication is the key to picking the best HVAC Design Company for YOU.

Ask what type of work they do. Do they offer so many services that there is no way they can be expert at any particular one?
Ask what their average turnaround time is.
Ask if they work weekends.
Ask any other questions that are unique to your needs.

This will help you decide whether they are the best Manual J, S & D provider for YOU!

After you ask your questions, it will become pretty obvious which company you should choose. The company that wants your business will prove to you they are the best HVAC designer to do your work. Take your time to decide which ACCA Manual J, S & D HVAC designer you would like to use -- but when you decide, you must be loyal to them (see Mistake #3).

Mistake #3 - You Always Have 3 or More HVAC Designers Competing for Your Work.

You may think this is a good way to do business. And it is to some extent. But here is why it usually isn't a good way to deal with HVAC designers.

A quality HVAC designer has enough loyal customers that they don't have to deal with price shoppers. Once you find a good HVAC designer, you must be loyal to them. If you flip-flop from designer-to-designer, a good HVAC design firm won't be too motivated to keep YOU as a customer.

Price is important. But price should not be more important than good quality and good service.

This is what people typically like to do. They try to get everyone fighting for the same piece of pie. This might be an OK short-term strategy because you save a few bucks. But, when you need a favor or super fast service -- not one of these companies will instantly bend over backwards to help you. (And if you have been a price shopper in the past, they will probably charge you more!)

Every HVAC designer expects to bend over backwards for their loyal customers now and again. He or she might have to work all night or on a weekend to do a super rush job, or pull off a miracle. Provided the customer is loyal, the residential HVAC designer will do all he/she can to help you meet your needs.

All good HVAC designers will be loyal to you if YOU are loyal to them. Keep loyalty in mind when you pick your ACCA Manual J, S & D provider.

Mistake #4 - You Think Having the Right Software is All an HVAC Designer Needs to Do Your Design!

Many HVAC designers own great software, but that doesn't mean they know how to use it. You can have the "latest, greatest technological wonder gizmo", but if you don't know how to use it properly, you are better off not even picking the darn thing up.

Compare this to using all of the complicated controls on your DVD player. Studies show that half the people who own a DVD player don't even know how to set the clock, let alone use its advanced features. The same thing happens in the HVAC design industry.

Many HVAC designers have tools that have a lot of bells and whistles, but if he's a technician who doesn't know how to use the new features, you might as well go to a different company.

Make sure the HVAC designer is certified by ACCA as well as being competent in the software. This ensures your work will get done right the first time -- and on time!

Mistake #5 - You Don't Give Your HVAC Designer Enough Time or Information to Complete Your Job Properly!

Mistakes happen when you rush!

When you're in a hurry, you may forget to tell your HVAC Designer certain information. Or you might make a mistake in the R-values because you were concentrating on getting it done, instead of getting it done right.

Schedule. Schedule. Schedule.

Before you work on your HVAC design, talk with your ACCA Manual J, S & D provider. They should have a form which gathers all the needed information. Yes, a Manual J, S & D requires a lot of information be entered correctly. Get your installing HVAC contractor involved from the beginning because there might be a more efficient way to finish your project on time that you don't know about.

You can save time, money and headaches from the very beginning by communicating with your HVAC contractor and HVAC designer!

Why do most people do the opposite of this and wait until the last minute to talk to the HVAC designer and HVAC contractor? Because everyone takes the HVAC design process for granted. They think it’s easy and quick. Everyone thinks the designer and contractor can easily take care of his or her work. Most everyone thinks the HVAC designer is sitting around waiting for his or her job to come through the door. This isn't the case.

You should think of your ACCA Manual J, S & D provider as your "project partner". YOU need to work together with the HVAC designer AND the HVAC contractor.

Mistake #6 - You Pick HVAC Designers Who Won't Allow a minor Revision.

All reputable HVAC designers allow 1 small FREE revision to cover any permit office issues or any in-field changes automatically. This means if there are "as-built" changes on your job or if permit requests any changes, they will revise your design at no charge (up to a reasonable amount such as 2.0 hours). Unfortunately, there are unethical HVAC designers who won't do this. Instead, they won't grant 1 FREE revision and may not take any responsibility for their mistakes.

An unethical Manual JSD provider may hold your work hostage or may say that they will fix your job, but pin the problem on you and tack on an extra charge. There are about a hundred other things a not-so-good ACCA Manual J, S & D HVAC designer may do to you.

The best thing you can do is pick a quality HVAC designer who unconditionally guarantees their work. If there are minor "as-built" or permit office changes, they will change for FREE.

Mistake #7 - You Don't Ask for References.

This is probably the easiest way you can avoid any problems with a contractor. ALL good reputable HVAC designers will eagerly give you references. Ask your ACCA Manual J, S & D provider to give you at least three names of people who they have done business with. And also ask them how long they have worked with this customer.

Also ask them what type of job they did for those references. Try to get the names of customers who had similar things done that you need done.

This is the easiest way you can pick the right HVAC Designer for YOU!

Mistake #8 - You Don't Understand the "Lingo"

Bonus! Bonus! Bonus!

Alright, this wasn't one of the original "seven mistakes" for this guidance, but it IS important. It's so important, that we've decided to define the most common ACCA Manual J, S & D HVAC Design terms so YOU understand what HVAC Designers are saying!

Including: What is Manual J? What is Manual S? What is Manual D? What is a section cut? What is a window schedule? What is OEM data?

ACCA
The Air Conditioning Contractors of America, a national trade association that represents heating, ventilation, air conditioning, and refrigeration contractors.

AIR CONDITIONER
Equipment with the ability to absorb heat in occupied spaces and reject it to the outdoors.

AIR DISTRIBUTION SYSTEM
A network of continuous passageways made from tubular or rectangular thin-wall pipes and connectors (elbows, tees, and branch fittings), dampers, and plenums used to move air from one point to another.

AIR HANDLING UNIT
Equipment with a heating element and/or cooling coil and other components in a cabinet or casing.

AHRI
Air-Conditioning, Heating and Refrigeration Institute, a non-profit, voluntary organization composed of heating, air conditioning and refrigeration manufacturers. AHRI publishes standards for testing and rating heat pumps and air conditioners.

AHRI vs OEM PERFORMANCE DATA

There are two main sources for air conditioning, heat pump and furnace performance data: The Air-conditioning, Heating and Refrigeration Institute (AHRI) ratings, and the original manufacturer (OEM) performance data.

AHRI tests and publishes information pertaining to the "data plate" seasonal efficiency. AHRI publishes efficiency and capacity ratings based on the following special set conditions: 400 CFM/ton, outdoor dry bulb (DB) temperature = 95 ^{o}F, Indoor dry bulb temperature = 80^{o}F, indoor wet bulb = 67 ^{o}F


AHRI CERTIFIED
Certificate of Product Ratings
AHRI Certified Reference Number: 5721763 Date: 8/12/2013
Product: Split System: Air Cooled Condensing Unit, Coil with Blower
Outdoor Unit Model Number: 4SCU16LS148P
Indoor Unit Model Number: E(U,C,H)1FS2C+A4TXV02
Furnace Model Number: A93UH2V090C205
Manufacturer: AIREASE
Trade/Brand name: AIREASE
Manufacturer responsible for the rating of this system combination is AIREASE
Rated as follows in accordance with AHRI Standard 210/240-2008 for Unitary Air-Conditioning and Air-Source Heat Pump Equipment and subject to verification of rating accuracy by AHRI-sponsored, independent, third party testing:
Cooling Capacity (Btuh): 46500
EER Rating (Cooling): 11.00
SEER Rating (Cooling): 15.00
CERTIFICATE NO.:

However, many climates are more or less humid requiring 350 CFM to 450 CFM per ton. Many climates are above or below 95 ^{o}F outdoors. Most people like their houses cooler than 80 ^{o}F.

OEM performance data provides equipment capacities at various indoor and outdoor temperatures that are more realistic.

Manual S (continued)

Model AC-30 with Coil AC-030 (2.5 ton)											
Evaporator Air		Condenser Entering Air Temp – DB (F)									
CFM	EWB (F)	75		85		95		105		115	
		Capacity		Capacity		Capacity		Capacity		Capacity	
		Total	Sensible	Total	Sensible	Total	Sensible	Total	Sensible	Total	Sensible
875	72	34,610	18,190	33,100	17,620	29,830	16,390	28,040	15,730	26,500	15,170
	67	31,400	22,240	30,000	21,650	28,520	21,040	26,960	20,390	25,300	19,720
	63	28,620	26,290	27,350	25,680	26,020	25,040	24,640	24,340	23,340	23,340
	57	27,840	27,840	26,820	26,820	25,740	25,740	24,580	24,580	23,340	23,340
1000	72	35,250	19,090	33,680	18,500	32,030	17,890	30,280	17,260	28,430	16,590
	67	31,990	23,660	30,530	23,060	29,000	22,440	27,380	21,790	25,670	21,110
	63	29,300	28,220	28,020	27,560	26,770	26,770	25,540	25,540	24,220	24,220
	57	29,020	29,020	27,930	27,930	26,780	26,780	25,540	25,540	24,230	24,230
1125	72	35,720	19,920	34,110	19,330	32,410	18,710	30,610	18,070	28,700	17,390
	67	32,430	25,010	30,930	24,410	29,360	23,780	27,700	23,120	25,960	22,420
	63	29,970	29,970	28,850	28,850	27,630	27,630	26,340	26,340	24,950	24,950
	57	30,000	30,000	28,850	28,850	27,640	27,640	26,340	26,340	24,950	24,950

Figure 2. OEM performance data for XYZ AC-30 2.5-ton air conditioner.

BALANCING or AIR BALANCING
Adjusting an air conditioning system so that the right amount of air is delivered to the right places in your home in order to achieve the right heating or cooling effect.

BTU
British Thermal Unit, the measurement of heating and air conditioning capacity. A BTU is the amount of heat that must be added to one pound of water to raise its temperature one degree Fahrenheit.

COIL
A heating or cooling element made of pipe or tubing, usually with plates or fins.

CONDENSER (HEAT EXCHANGER)
The outside unit of a heating or air conditioning system. The refrigerant condenses from a gas to a liquid, and hot air from the building is released to the outside. Must be sized using ACCA Manual J heat gain results

DEHUMIDIFIER
A device that removes excess moisture from the air.

DOE
The U.S. Department of Energy, the federal agency that sets industry efficiency standards.

DRY BULB TEMPERTURE (DB)
The sensible temperature indicated by an ordinary thermometer.

DUCT
Conduits used to carry air. They can be round or rectangular, sheet metal or fiberglass or vinyl tubes. In air conditioning systems they carry air from the home to the air conditioning system or furnace and back to the home.

ERV
Energy Recovery Ventilator, a machine that draws fresh air into the home and exhausts stale air from the home. It uses a process to preheat or pre-cool (depending on the season) to reduce energy costs associated with conditioning the air.

ENERGY STAR®
A government supported branding used to identify energy efficient products. The branding was developed by the US Department of Energy and the US Environmental Protection Agency.

Money Isn't All You're Saving

EVAPORATOR
AKA heat exchanger. The component of a refrigeration system in which the refrigerant absorbs heat and vaporizes. For air conditioners the evaporator coil is always the indoor unit

FAN COIL
See AIR HANDLING UNIT

FURNACE
That part of a comfort conditioning which converts gas, oil, electricity or other fossil fuel into heat for distribution within a structure . A self-contained heating unit that is designed to deliver heated air to a home.

HEAT
Energy which can be transferred as a result of temperature differences

HEAT EXCHANGER
1. The part of a furnace that transfers heat from burning fuel to the air used to heat your home. Also, from a boiler to water for hydronic heating.
2. A device, such as a condenser or evaporator, in which heat is added or removed in order to heat or cool your home.

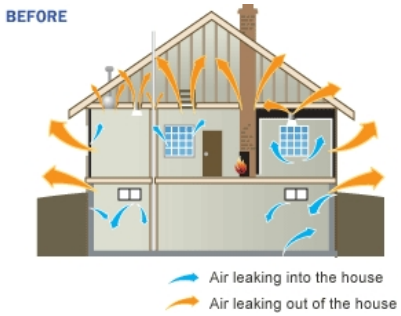
HEAT PUMP
A single refrigeration system designed to provide both heating and cooling. Compare to a furnace and an air conditioner, separate units that only heat or cool.

HRV
Heat Recovery Ventilator, a machine that brings fresh air into a home through a process that preheats the air so it has less impact on your utility bill.

HUMIDIFIER
A device that adds moisture to warm air for your home.

HVAC
Heating, ventilating, and air conditioning

INFILTRATION
Air that enters your home through holes, gaps, and cracks, (e.g., plumbing or electrical holes, the heating and air conditioning system, doors, and windows).

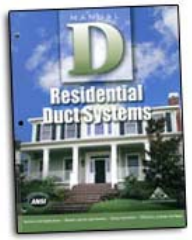


IAQ
Indoor air quality

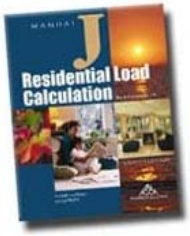
LATENT HEAT
The energy that suspends moisture vapor in the air.

LOAD CALCULATION
A mathematical determination of how much cooling and heating (BTUs) an HVAC system must deliver for occupant safety and comfort. It is based on a variety of factors: square footage, building orientation, number of occupants, size and placement of rooms, number and size of windows and doors, amount of insulation, number of floors, and climate.

MANUAL D®
An ACCA procedure covering the proper design, installation, maintenance, and repair of ductwork.



MANUAL J®
An ACCA procedure covering the method for calculating heating and cooling requirements (load calculation) for single-family detached homes and mobile homes.



MANUAL S®
An ACCA manual covering the selection of residential heating and cooling systems

MATCHED SYSTEM
An air conditioner or heat pump system composed of equipment that has been certified by ARI to work together to deliver the specified heating and cooling capacity at the stated efficiency rating.

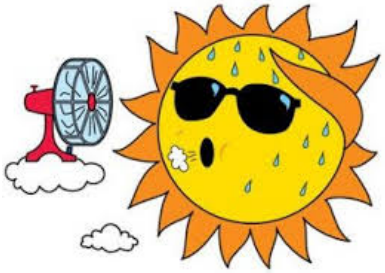
R-22
A refrigerant containing chlorine used in air conditioning systems. The EPA has mandated that R-22 cannot be manufactured after 2010 because it has been linked to the depletion of the ozone layer and global warming. Most commonly referred to by its trademarked name, Freon.

R-410A
The refrigerant that replaces R-22. It does not contain chlorine and is not hazardous to the environment.

REFRIGERANT
A fluid that absorbs heat at low temperatures and rejects heat at higher temperatures.

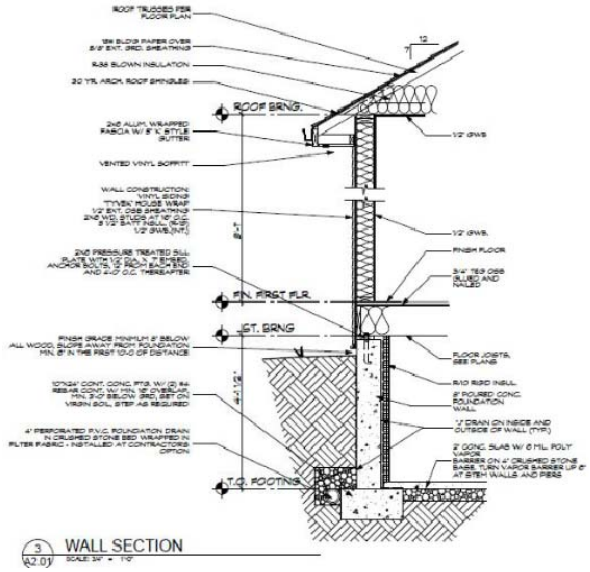
REGISTER
An outlet or grille which discharges supply air in a controlled pattern.

RELATIVE HUMIDITY (RH)
The percent of moisture actually in the air compared to the maximum amount of moisture the air can hold at that temperature.

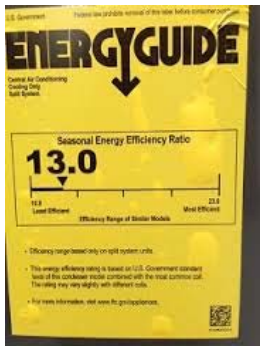


RETURN, RETURN AIR, RETURN SIDE
The path the air takes to get to an air-handling unit or furnace so it can be cooled or heated. It is the "return" path. The return side should be "balanced" with the supply side to ensure proper air flow and comfort.

SECTION CUT
A building section shows a view along an imaginary line cut through the building, indicating structural/construction elements.



SEER
Seasonal Energy Efficiency Ratio, an equipment efficiency rating that measures how much energy it takes to cool the air. As with MPG on a car, the higher the number the more efficient the unit.

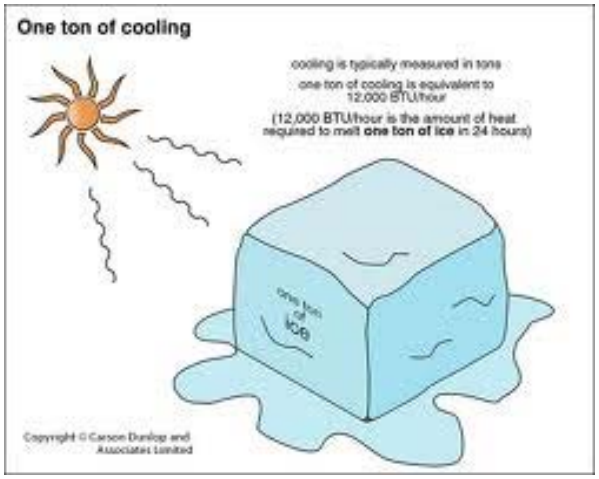


SENSIBLE HEAT
The temperature of the air. This type of heat is measured with a thermometer.

SPLIT SYSTEM
A two-component heating and cooling (heat pump) or cooling only (air conditioner) system. The condensing unit is installed outside; the air handling unit is installed inside (preferably in conditioned space). Refrigerant lines and wiring connect them together.

SUPPLY or SUPPLY SIDE
The part of an HVAC system that takes (supplies) the conditioned air from the air-handling unit or furnace to your home. The supply side should be "balanced" with the return side to ensure proper air flow and comfort.

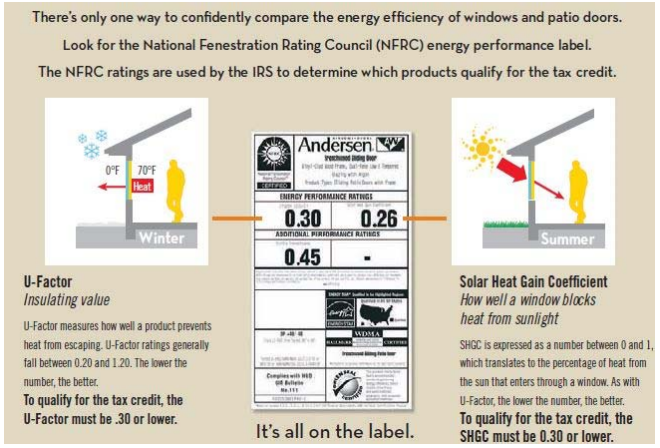
TON:
The unit used to measure the capacity of an air conditioning system. One ton of air conditioning removes 12,000 BTUs of heat energy per hour from your home.



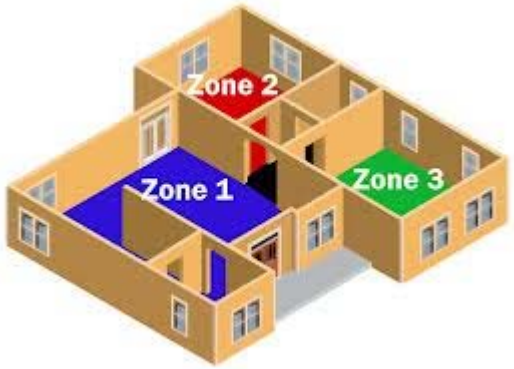
WINDOW SCHEDULE
tabulation, usually on a drawing, listing all windows on a project; also indicates size, type of sash and frame, and hardware required.

WINDOW SCHEDULE					
MARK	WIDTH	HEIGHT	COUNT	TEMPERED	COMMENTS
1	16' - 0"	4' - 0"	1		4 FIXED UNITS, MATCH WIDTH OF DOOR "1" BELOW
2	7' - 9"	5' - 0"	1		FIXED
3	3' - 4"	8' - 0"	1	X	FIXED
4	16' - 3"	4' - 6"	1		4 FIXED UNITS
5	16' - 3"	6' - 6"	1		4 FIXED UNITS WITH AWNINGS BELOW
6	16' - 3"	5' - 0"	1		FIXED, TILT / TURN LEFT AND RIGHT UNITS
7	12' - 0"	3' - 0"	1		3 FIXED UNITS
8	4' - 0"	4' - 6"	1		FIXED, TRAPEZOID
9	4' - 0"	6' - 6"	1		FIXED
10	4' - 0"	2' - 0"	2		AWNING
11	8' - 0"	8' - 0"	1	X	FIXED, IF POSSIBLE MAKE ONE UNIT, NO VERTICAL BREAK
12	8' - 0"	2' - 0"	1		AWNINGS (2)
13	4' -0'	5' - 0"	2	X	CASEMENT / TILT & TURN
14	8' - 0"	5' - 0"	1		FIXED
15	8' - 8"	2' - 0"	1		AWNINGS (2)
EXTERIOR DOORS					
1	16' -0'	8' - 0"	1	X	SWING, CONFIRM WITH OWNER
2	8' - 0"	8' - 0"	1	X	SWING, CONFIRM WITH OWNER
3	3' - 6"	8' - 0"	1	X	FRONT DOOR - SOLID
4	3' - 6"	8' - 0"	6	X	SWING, CONFIRM WITH OWNER

WINDOW SHGC & U-VALUE
Solar Heat Gain Coefficient refers to how much a space heats up from solar radiation (sunlight). U-value takes into account the airflow around the window and the emissivity of the glass. Emissivity is the ability of a product to absorb certain types of energy (specifically infrared) and radiate that energy through itself and out of a room.



ZONES, ZONED SYSTEM, ZONING
A single HVAC system that can meet different heating and cooling needs in different areas (zones). Each zone of a home has its own thermostat with which it can regulate the temperature and humidity in its area. One “zoned air conditioner” could be set for a high temperature in one zone and for a lower temperature in the other zone. Zone systems have two or more zones.



"The 6 Costly Misconceptions About ACCA Manual J, S & D Heating & Air Conditioning Design."

Misconception #1 – it’s O.K. to oversize my A/C and furnace – just in case.

No it’s not. Oversizing any HVAC system will result in increased energy use, reduced comfort, indoor air quality, building, and HVAC equipment durability. The oversized comfort system will “short cycle” in both the heating and cooling modes. In order to reach peak operational efficiency and effectiveness, the HVAC system needs to run for as long as possible to meet the loads. Department of Energy uses the analogy of a car: “highway driving at a steady speed will get the best fuel economy, while speeding up and slowing down puts undue wear and tear on the engine and braking systems, and reduces fuel efficiency.”

Misconception #2 – The AHRI certificate is all my HVAC contractor needs to select equipment for me.

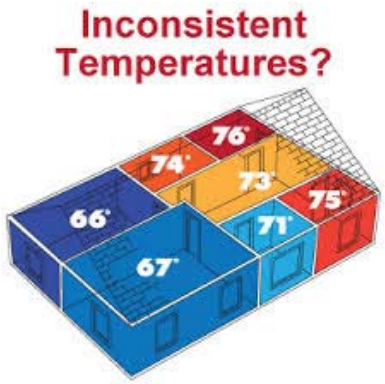
That's a good start but more should be done. Manufacturers of heating and cooling equipment certify the performance of their products with AHRI (Air Conditioning, Heating and Refrigeration Institute) who produces standards for rating such equipment. The problem is the data published in AHRI product directories is tested at 80 F indoor and 95 F indoor which is not realistic. AHRI directories should only be used to compare equipment efficiency ratings.

OEM expanded performance data should be used to select properly sized equipment. For example, furnaces should be designed with a temperature rise range of 35°F–65°F. The furnace manufacturer will provide blower performance data indicating the air flow that the unit can deliver at different levels of resistance.

For cooling equipment manufacturers OEM data include airflow, entering air wet-bulb temperature, outdoor temperature, and cooling capacities (typically, total and sensible capacities).

Misconception #3 - It's normal for some rooms to be hotter or cooler than others.

No. Each room should maintain proper temperature. With a properly designed ACCA Manual D air distribution system all should be comfortable. A properly designed system will have different size ducts and registers serving each room. The ducts and registers should only be identical if the rooms are identical and that is unusual.



Misconception #4 - Indoor air quality is not a problem at my house.

Not true. All houses have indoor air quality problems. They just differ in severity. All houses have some problems with dust. It is usually most noticeable right after you've dusted or when company is coming over. In the springtime, pollen can be a big problem. And if you have pets, there's pet hair and dander that get in your air. There are also fumes from painting, hairspray, cooking, and who knows what else. Plastic in your house is always giving off molecules as it sets up. If you have allergies, all these problems feel amplified by your sneezing and runny nose.

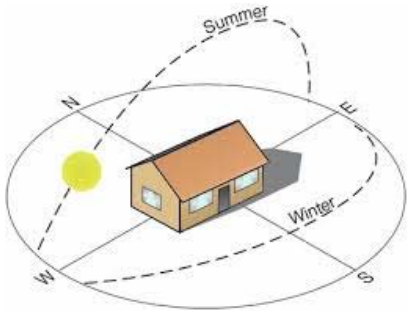
All houses have indoor air pollution, some are just worse than others.

Misconception #5 – I have been installing HVAC equipment for years and 400 sq. ft. per ton is accurate.

You must commission a qualified HVAC designer to calculate the needed heat gain and heat loss for your specific home. The only "correct" method for sizing HVAC equipment is called ACCA Manual J8 load calculation. Not just put in the same size system as the old one or, worse yet, use some archaic method such as "rule of thumb" of 1 ton = 400 sq. ft.

A home in Arizona requires far more cooling than a home in Minnesota. Have an accurate Manual J performed based on your home's specific design. Below are just a few of many parameters to be analyzed:

- What direction does your front door face?



- What kind of windows do you have (single or double-pane)?
- What is the R-value of the wall and ceiling insulation?

- Where do you live?
  - How cold are your winters?
  - How hot are your summers?

ACCA Manual J is the ONLY way to correctly size your air conditioner and furnace. Once these calculations are completed, your HVAC contractor will select the Right-Sized equipment for your home's heating and cooling loads.

Misconception #6 - The Company that offers the lowest price is the company you should hire.

Maybe -- but not always. Here are a few points to consider.

Point #1: The price you see offered may not be for the services you want performed. Before you select a company, decide what you want to accomplish. Price is usually an indication of quality.

More advanced and accomplished HVAC designers cost more. Better trained designers cost more. Reliable & better services cost more. You don't buy the cheapest car, clothes, or food. Don't let price be the deciding factor when choosing an HVAC designer.

Point #2: The price you see advertised may not be the price you pay. Many homeowners have learned that the low price they saw advertised was not the amount they were charged. Look for an ACCA Manual J, S & D provider who gives up-front, easy to understand pricing.

And if you've hired an inexperienced or discount HVAC designer, you too may have been the victim of false or misleading advertising. You probably learned the hard way that some HVAC design companies offer a cheap price -- and then charge extra for a 2nd level or a 2nd HVAC system or zoning.

As in all businesses and professions, the Heating and Air Conditioning Design industry has its share of bad apples. I take no pleasure in telling you this, but some are unethical -- and sadly, a few are dishonest. By their misleading advertising and false promises, they cast a dark shadow on our entire industry.

Then you'll find other companies -- professionals like us who work hard to earn your trust and respect. As a way of improving our profession, we've dedicated our business to educating the public. The only way you can make an intelligent decision is to have all the facts you need.

"The 10 Things You Need to Know When Selecting YOUR Residential ACCA Manual J, S & D Designer."

OK, now what? Most people go to Google or Bing and type in "ACCA Manual J providers" or something similar. How do you choose an HVAC Design company? Whether you choose Savoy Engineering Group or another company, there are several things to look at to help you with your selections:

1) What training does the HVAC Designer have? Have they only gone to the 2-Day class put on by the software company? Or perhaps a 1-Day seminar that covers Manual J, S & D in 8 hours? True quality heating and cooling designers have studied the Manual J, S & D theory in depth. Designers really passionate about their chosen professional will be ACCA Certified in Manual J, S & D design practices. The course is 26 classes and has a 250+ question final exam. The Residential HVAC Design for Quality Installation Certification has only been available since fall of 2012 and the ACCA certification is good for 5 years.
2) What Manual J software do they use? ACCA approves only 5 residential load calculation programs. The 2 most common are WrightSoft Right-J8 and Elite RHVAC. These software programs are very complex – you can't just load the software to your computer and start designing. This is where people who do not understand Manual J theory get into trouble because they do not recognize when a calculation does not seem "right."
3) How long has the company been in business? Did the website just pop up last year? Or has the designer been doing designs for enough time to establish a proven track record of hundreds of installed HVAC systems without any heating or cooling issues? Do they have a proven social media presence such as LinkedIn or google+?
4) What is the HVAC designers PASS rate with permit offices, Energy Star, LEED and other green programs? Again you are looking for a residential load calculation provider with a proven track record of getting you through permit quickly the 1st time
5) Can you get hold of a real human being who will take the time to answer your Manual J questions? Or does the website just provide "fill out our form and someone may get hold of you sometime"?
6) Pricing – Many Manual J residential HVAC designers do not provide pricing on their websites. You get to fill out a nifty "quote form". Some do display their pricing but it's confusing - $0.12 per sq. ft. + $49 for 2nd level + $129 for 2nd HVAC system. Companies that give easy to understand upfront pricing make it easy to review and you don't have to take an extra step of filling out an online form and waiting.
7) What is the HVAC designers' turnaround time? Be wary of anyone who can do an 8,000 sq. ft. home overnight. This usually means they are new designers with no clients. A quality HVAC designer will offer several turnaround times depending on whether you are at a work-stoppage and need the design very quickly, or have more time and can select a slower turnaround time.
8) What other services do they offer? Does the company also do energy audits, cost analysis and other services beyond ACCA Manual J, S & D? Often these companies have a 2 month backlog and concentrate on their bigger clients – not the homeowner who will only use their service once.

9) Does the HVAC designer keep their Manual J8 software up to date? Or are they using a version that hasn't been supported by the software developer for a while? For example, WrightSoft Right-J8 is currently version 15. If the designer is using version 12 or 13, they are not current. Be wary of HVAC designers who aren't willing to pay the fee to upgrade their software.
10) Can the Quality HVAC Provider also perform ACCA Manual S equipment sizing to ensure your heating and cooling equipment is properly sized and follows Energy Star & ACCA Manual S sizing rules? Can they also perform ACCA Manual D duct design services following ACCA Manual T air distribution rules?

We hope this list helps you navigate your way through the ACCA Manual J load calculation process with more confidence. Knowing key items and skills to look for will make all the difference in the Manual J8 process. ACCA Manual J is a very complex theory-based procedure. Knowing how to select the best qualified Manual J provider will make your experience easier and ensure your HVAC system is properly sized so your family will have optimum comfort for years to come.

"3 Simple Ways to Save Money on Your Next HVAC Design & Installation"

Recommendation #1: Make a commitment to yourself to get your new HVAC equipment serviced. The longer you wait, the sooner it'll wear out. Seriously consider a service contract. Regular service will extend the life of your HVAC equipment and help maintain its efficiency.

Recommendation #2: Do something about indoor air pollution. Maintain good quality air in your home. This begins by regularly changing you filter. Next, consider an electronic air cleaner, having your ducts cleaned and sanitized, and installing a heat recovery ventilator. The latter will allow you to bring fresh air into your house without wasting the energy you use to heat and cool your air.

Recommendation #3: Ask questions. The way you learn about a company is to ask specific questions and listen carefully to the answers. Here are the questions I suggest you ask your HVAC Design candidates:

1. Are you certified by ACCA to perform ACCA Manual J, S & D designs?
2. What is your project turnaround time?
3. What other services do you offer? Are you HVAC design experts or just one of many services you offer?
4. What are your prices and where are they published?
5. Do you use the most up to date ACCA certified software (vs an expired version) and how long have you been using?
6. Can you be reached via telephone with any questions?

"How to Avoid the 6 Most Common HVAC Contracting Rip-Offs"

Ask your HVAC contractor about these items:

1. A gas safety shut-off.
2. Not putting a new flue pipe in at all to bring the furnace up to code.
3. Not using proper angles, sizes and clearances when putting the flue pipe in.
4. A level foundation or slab for your air conditioner to sit on.
5. Ask for experienced and trained technicians.
6. Ask your contractor about the requirements for clearances, refrigerant lines, combustion air for your furnace and accessibility.

These are all items often ignored.

If you need a Quality ACCA Manual J, S & D design by a well-qualified HVAC Design Company, then we invite you to contact us today.

We will be happy to answer your questions and provide you a cost estimate over the telephone without obligation of any kind. We provide you upfront, easy to understand pricing and tell you exactly what you can expect from our service for you. NO SURPRISES!

So call our office right now at **801-949-5337**.

Sincerely,

Savoy Engineering Group

SAVOY ENGINEERING GROUP
Quality ACCA Manual J load calculations &
Manual D duct designs since 2005

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