Mini Split Air Conditioners

Recently these systems have become popular due to television advertising – the TV ad's claim that no ducts are needed! There are two main types with very different uses – when sized properly these ductless units are a good alternative to the standard split systems we are used to installing. Some confusion about proper sizing and meeting the rooms required air flow exists among the hvac industry.

DUCTLESS **mini split air handlers are room mounted, high wall or ceiling, and can serve just a single room. Because these units use variable refrigerant flow, the cooling capacities will vary too, typically from 50 to 100%. Example is the 1 ton ductless mini split – this unit has a .53 ton capacity variable to 1 ton capacity. The goal of every equipment selection procedure is to select your equipment to very closely match the manual j 8th edition heat load calculation, or demand. MJ8 calculations are a worst case heat load (about 15% of the year) calculation that determines the amount of demand that must be met on an hourly basis, so if you have a .53 to .9 ton MJ8 demand – the one ton unit is the ideal equipment selection to meet the demand. During part load conditions (85% of the year) the equipment can vary the refrigerant capacity to better match the milder outdoor conditions – typically sensible heat part load conditions (like night time, spring, fall) are about ½ the total MJ8 heat load. But remember this equipment can only serve a single room because it's ductless, must be correctly sized for the rooms heat load, and has a limited air flow discharge with respect to air throw. I use a one ton ductless mini split in my single room 16x14 wood shop – works great for both cooling and dehumidification.**

DUCTED **mini split air handlers mount above the ceiling or in a drop ceiling, this type of mini split can be ducted to a few rooms to provide air flow in each area as required by manual J 8th edition – size ducts per manual D duct design. The ducted mini split air handler is very limited when it comes to ductwork, only short duct routes with few fittings will work with its limited TSP of .25 iwg. This type of mini split is used for smaller construction, like a small addition with a bedroom, bath, and closet. I specify this type for projects less than 600 sq. ft. containing more than one room. Be sure to centrally locate this ducted mini split air handler in the space it serves.**

Today our customers expect each room of the home to be conditioned – this includes baths, walk in closets, laundry rooms, etc. Ductless mini split units do not meet a room by room demand as expected – but ducted mini splits can. These units are not geared to replace the forced air ducted systems that have been successful since the 1960's – but rather to fill the equipment selection gap that exists when your MJ8 demand is less than 1 ton. The mini split equipment is a better choice for low demand construction - better than installing a 1.5 ton oversized standard air conditioner as was the norm prior to the introduction of this new equipment type. Be careful that you don't oversize the mini split – and keep your refrigerant line lengths below 50 total equivalent length to meet the manufacturer's limitations.