


I'm not robot  reCAPTCHA

[Continue](#)

Heating and cooling curve worksheet

Heating and cooling ultimately determine the comfort of a home. Learn how to troubleshoot heating and cooling problems and repair and maintain HVAC systems. By Chron Contributor updated on August 28, 2020 heating and cooling technicians, also called heating, ventilation and air conditioning technicians, HVAC or HVACR technicians, installing and repairing heating, air conditioning and cooling units in companies and residences. They connect these units to power, fuel and supply lines and air ducts, install wiring, and ensure that all systems operate effectively. It can take half a decade or more to become a heating and cooling technician, including technical instruction and training. In return, these technicians earn salaries with an average of more than \$45,000 annually. The average annual income for a heating and cooling technician was \$48,730 as of May 2019, according to the Bureau of Labor Statistics, or \$22.03 per hour. The top 10 percent made more than \$77,920 a year, while the bottom 10 percent made less than \$30,610. Payscale.com puts the slightly higher average salary at \$50,776, in a range ranging from \$28,141 to \$62,662. Payscale data is based on employee-reported salaries and salaries shown in recent job ads, and is updated daily. As such, it can be more current than BLS data. A heating and cooling technician can earn more in certain industries. These technicians earned the hardest-working job in wholesale trade by \$52,430, according to blS 2019 data. Those in educational services did a similar amount – \$52,260 per year. Heating and cooling technicians employed by retail, and those working as plumbing, heating and air conditioning contractors, made at least \$48,620 and \$47,380, respectively. Heating and cooling technicians earned the highest wages of \$71,940 in Washington, D.C., according to the BLS. Those in Alaska and Connecticut also earned relatively high wages of \$68,340 and \$64,900 annually. In New York, these technicians earned \$59,660 a year, and their salaries were closer to the industry average in Missouri at \$49,960. They earned a little less in Alabama and Tennessee: \$43,170 and \$42,510 per year, respectively. Most heating and cooling technicians train in technical schools or community colleges for six months to two years, obtaining an associated certificate or degree in heating, air conditioning and cooling. While some can still train at work, more are learning this trade through learning programs, which they can take from five years, according to the BLS. With one year of installation and two years of experience in repair and maintenance, these technicians can obtain certification in certain specialties: residential heating and air conditioning or light commercial heating and cooling, for example. Other essential requirements include physical strength and agility, attention to detail, dexterity and customer service time management and problem solving skills. The BLS classifies heating and cooling technicians as heating and air conditioning technicians or mechanical and cooling installers. It projects a 13 percent increase for these technicians until 2028, much faster than the growth rate of all occupations. Increases in residential and commercial construction should increase jobs for heating and cooling technicians, if the economy continues to improve. Increasing demand for energy efficiency and pollution reduction will also require the services of heating and cooling technicians. Jump to content basement heating and cooling options. Information for home design and remodeling. Basements are usually cool all year round, so in summer, a little cold in winter. Basements are often partially insulated by the surrounding floor, so your existing heating system should provide the moderate amount of heat needed for comfortable temperatures. It is always a good idea, however, to make your basement even more energy efficient by wrapping insulated walls with R-10 to R-19 values. Its current cooling system probably does enough work to keep the basement comfortable on the hottest summer days. If you're having trouble keeping a basement cool in summer, check with a heating and cooling contractor to determine if you need a more powerful cooling system. You might also consider supplementing the current system with window air conditioning. Many basements in refrigerated and forced air-heated homes already have the ducts needed to distribute hot or cooled air. Other words, a technician can install ducts relatively easily and economically because an oven is usually at the lower level. Still, your basement may need an additional heat source. If you have a basement with large, unshaded, south-facing windows, you may also need additional cooling. If modifying or extending the main heating and cooling system in your home is not practical, you still have options. In fact, some of the products listed may be more efficient, especially if you are not constantly using your new space. Electric heaters of all types are often the easiest and least expensive to install, but they are the most expensive to operate. Electric heat can still be an efficient and comfortable solution, however, especially if you live in a mild climate, heat only sporadically, or heat only a small area. The motherboard heaters my place 4 or 6 feet long and work with normal domestic electricity; connect them to a power outlet or wire them to an electrical circuit. Motherboard heaters are quiet and easy to hide, but again, they are expensive and ineffective in larger areas. Electric wall heaters feature built-in fans to distribute heat and are small enough to fit in confined spaces, such as bathrooms. Due to fans, wall heaters distribute distributed faster, but make some noise. They must also be connected to the circuits in your home. Consider placing furniture when you locate a wall heater to avoid locking the fan. Portable heaters come in several varieties: radiant heaters, which produce instant heat; oil-filled radiators, producing a calm and uniform heat; and ceramic heaters, which are powerful but compact. These heaters allow you to heat only the area you are using and are an efficient way to stay comfortable if you don't use your new space for long periods of time. Newer ceramic heaters use electronic temperature control to gently vary the output of both the heating element and a very quiet fan. Its small size and ability to maintain a constant temperature without cycling on and off make these units popular. Be sure to buy only a new heater and look for one that has an oxygen depletion sensor, which will automatically turn off the unit before building a hazardous atmosphere. Direct ventilation gas heaters are efficient, quiet and thermostatically controlled units that provide a lot of clean heat. They are designed to heat the air in a room and then distribute the hot air with a fan. A tube exits the back of the appliance and penetrates an outer wall to ventilate exhaust gases and attract combustion air into the appliance. Beyond traditional heating systems, you can consider other options, such as fireplaces, to make your basement a warm, dry and more welcoming place. A fireplace not only makes a room more welcoming, but when you choose wisely, it can make it warmer during cold seasons. Wood burning fireplaces Most wood burning fireplaces suck more hot air out of a room than they produce, so these fireplaces are more valued for their atmosphere. Wood-tight stoves, some that allow you to see the fire, can be a great way to heat your space, especially if you have a good source of wood to burn. However, they require lighting, stoking, ash cleaning and the entry and exit of messy fuel, so they are not for everyone. Direct-Vent gas fireplaces These allow you to see the flames and be heated by their radiant heat. Some include a fan to distribute hot air, making them efficient as well as decorative. No less than the style you choose, you'll find these fireplaces in a variety of looks, sizes, heat production levels, and prices. Plan to connect a direct ventilation gas fireplace to existing gas lines; There are also available LP propulsion. These units offer a combination of aesthetics, efficiency, safety and ease of installation. They are ventilated outdoors with a two-in-one short-length pipe that performs combustion by-products and attracts fresh air for combustion. The pipe can make two right-angle turns without losing efficiency. You can choose a separate fireplace or ready to frame; its function can be decorative or provide heat. A big advantage of having a gas gas at home is that if your power fails, it can provide some heat (and some provide plenty—check the BTU output ratings of the units you're considering). Gas leaking by-products directly into the room. They are a little more efficient than direct ventilation units and are even easier to install, but deplete the room's oxygen supply, produce fumes that can be a health hazard and are more risky to basement spaces. Some states have banned its use. Most of today's un vented gas chimneys are required to include an oxygen depletion sensor (ODS), a safety feature that warns if oxygen levels in the room are getting lower. For health reasons, you're much better off with a direct ventilation device. If you plan to finish your basement with stone or tile, consider installing a underfloor heating system first. These systems not only heat the floor, but increase the overall temperature of the room, often eliminating the need for additional heaters. You can install a underfloor heating system yourself (they are available in most home centers) or you can hire a flooring professional to install the system for you. For rooms where you plan to use other finishing materials, such as carpets, consider installing a wooden subfloor with sleepers (floor beams that rest directly on the concrete slab). Use sleepers to protect a floor from condensation or as an alternative to a liquid leveler if you do not want to correct cracks, inclinations, or imperfections. You can also install sleepers if you want to insulate the floor. You must install a wooden subfloor if your finished floor has to be nailed. © Copyright . All rights reserved. Printed this link is to an external site that may or may not comply with accessibility guidelines. Guidelines.

