In order to cool your building efficiently in the Delaware and New Jersey area's hot and humid summers, your air conditioner must be the correct size. Calculating the optimal commercial A/C size takes some time, but it will pay off in terms of greater comfort and [lower building operating costs](http://www.sobieskiinc.com/commercial/blog/energy-saving-projects).

**The Basics of Air Conditioner Sizing**

[Air conditioner size](http://www.sobieskiinc.com/commercial/blog/important-cooling-season-hvac-terms-you-should-know) is rated in tons and the sizes available increase in 1/2-ton increments. The average commercial A/C size ranges from 2 tons for small buildings to as much as 30 tons for very large buildings.

A 1-ton air conditioner can remove around 12,000 Btu, or British Thermal Units, of heat per hour. To know what size air conditioner your building requires, you'll need to calculate the building's [cooling load](http://www.sobieskiinc.com/commercial/blog/commercial-load-calculation) in Btu. The cooling load is the amount of heat the cooling system must remove from a building to maintain a comfortable temperature.

Many factors affect a building's cooling load, including the building's design, its weatherization, and the amount of sunlight it receives.

**Estimating Your Ideal A/C Size**

If you're planning to install a [new air conditioner](http://www.sobieskiinc.com/commercial/blog/buying-a-new-air-conditioner-for-your-commercial-building), you can calculate the approximate size you'll need.

Step 1. Calculate the square footage of the space (building or group of rooms) you want to cool. Note that the following calculation assumes 8-foot ceilings and a space with higher ceilings will require a larger system.

Step 2. Divide the space's square footage by 500.

Step 3. Multiply the number from Step 2 and by 12,000. This is the number of Btu your system will need to remove to cool the space.

Step 4. Add 380 Btu for each person who works in the space all day. If the number varies, take an average.

Step 5. For each window in the space, add 1,000 Btu. For each kitchen, add 1,200 Btu.

The result of this calculation gives you a rough idea of the minimum Btu of cooling capacity your air conditioner must have.

If you have a 5,000-square-foot space, divide that number by 500 to get 10. 10 times 12,000 is 120,000 Btu. If four people work there, add 1,520 (380 Btu x 4). If the space has three windows, add 3,000 (1,000 Btu x 3). This space will need a commercial A/C size with 124,520 Btu of cooling.

Remember, however, that air conditioners are rated in tons. To determine the size of system you'll need, divide the amount of Btu you need by 12,000. For example:

* 100,025 to 125,000 Btu is 8 to 10 tons
* 125,025 to 150,000 Btu is 10 to 12 tons
* 150,025 to 175,000 Btu is 12 to 13 tons

**How Professional Sizing Helps**

Your air conditioner must be precisely sized in order to reach its optimal energy efficiency and performance level. An undersized system won't cool sufficiently and will work overtime in attempt to compensate, causing early wear. An oversized system will cycle on and off frequently, causing temperature swings and hot and cold spots, leaving behind [excess humidity](http://www.sobieskiinc.com/commercial/blog/how-to-lower-humidity-and-keep-employees-comfortable-in-your-office), and wasting energy.

By following industry-accepted procedures for cooling load calculation, a heating and cooling technician can accurately determine your optimal commercial A/C size. One such procedure is outlined in [Manual N](http://www.sobieskiinc.com/commercial/blog/the-peak-load-analysis) from the Air Conditioning Contractors of America (ACCA). This procedure factors in not just floor space and other basic data, but also window size and type, ventilation, the building's physical orientation, and many other aspects of the building for precise sizing.

**Our goal is to help educate our customers about Plumbing, HVACR, Fire Protection, and Alarm Systems in Mechanical, Commercial, and Residential settings. For more information on choosing the optimal commercial A/C size and to view projects we've worked on, visit** [**our website**](http://www.sobieskiinc.com/)**!**

**For easier calculations… simply refer to one ton or 12000 btu equal to approx. 1200 watts. Or 1.2 kw.. then refer to the going rate of power during prime time ( when it’s the hottest) would be roughly 13.2 cents per kwh.. meaning that it will cost 13.2 cents to run that one ton unit ( while running) for one hour so 1.2 times 13.2= 15.84 cents..**

**Id your AC is on for 6 hours during the day, it will cost you 95.04 cents close enough to one dollar, run that for 30 days is roughly 30 dollars.**

**The higher the BTU the higher the cost , this cost does not reflect the delivery charge which in general is roughly 60% ( depending), there for we are looking at 48 dollars per month to run a one ton unit. If you have a two ton unit, simply double that so roughly 100 dollars per month.**