

9/17/2025

## **Visit to Powerhouse Data Center, Ashburn, VA**

A data center is defined as a place to store, manage, and process data and to provide an on-ramp to the world wide web.

Powerhouse gets permits, builds, and maintains the building and grounds for a data center. The leasee will own and operate the data systems inside the building and determine the type of cooling system and electrical demands needed to support their operation. So, each data center is unique to the needs of the leasee.

Powerhouse will not build a data center until they have a user contracted to lease it. They currently are in negotiations with several users for the Middlesex site.

Data centers are surrounded by a strong fence to deter vandalism. This fence is usually about 100 feet or so from the building. An additional fence will be built around the entire property. The buildings will also be protected with camera systems.

The buildings have no windows except for the office area. Architectural features are usually on the outside to improve appearances and to hide any equipment located on the roof. Located outside, but connected to the data center, are generators enclosed in sound boxes, and cooling towers, used for back-up water storage which are enclosed in an architectural structure.

Internally the buildings look somewhat like the shelf area of Home Depot or Lowes. The racks have shelves that are a little deeper and the aisles a bit narrower. In the center of the racks there are data and electric lines along with cooling capabilities. A small area of the building (estimated 5%) is set aside for offices.

Equipment cooling can be: 1) A/C using units on the roof which is the loudest and uses the most electricity; 2) once through water coolers which have higher water consumption but less electrical usage; 3) closed-loop cooling system that recirculates a fixed volume of water which is constantly being refreshed with new water. This method uses less water and electricity, but may not handle very high heat loads; 4) evaporative cooling which is the evaporation of water to absorb heat; 5) a combination of the above methods. During cold days little or no external cooling may be required. They may also store water in tanks for peak cooling on hot days.

Powerhouse will get an allocation of water from MTMA and electricity from PPL before they build. If they need more in the future, they will have to provide it themselves through reduced consumption, new wells, new power lines, etc.

There are two backup power systems for the data center. If the PPL power goes down the load will be picked up immediately by batteries until diesel driven generators start automatically and come up to speed. The batteries can carry the load for about 2 minutes, but the diesel generators only take about 15 seconds to come on line.

Noise is influenced by the type of cooling, but we did not determine what type of cooling was used in that building. Noise will be loudest when the emergency generators are running. None were running during our visit. They run when the power goes down or during their periodic test. The periodic test frequency varies from area to area, usually once per month, quarter or annually. The maximum allowable noise level at any time, even when the generators are running, will be controlled by the Middlesex Township Zoning Ordinance. I believe in the Middlesex site no building will be closer than 1,000 feet from the fence line. i

In the site we visited there were apparent high end apartment complexes within an estimated 1,000 feet of the data centers.

Trees along the streets shielded some of the view of the data centers from the streets.

There were few cars (a dozen or so) at each operating data center. More cars were parked at data centers under construction.



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24 HOUR SURVEILLANCE  
TRESPASSERS WILL  
BE PROSECUTED



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