

## Primary Data Center UPS Room and MDF Room Air Conditioning for Metro Nashville Public Schools

Nashville, TN

Puckett Engineering designed expanded air conditioning capacity for the UPS and MDF rooms at the Primary Data Center for Metro Nashville's school system. At Metro's request, Puckett Engineering compared precision computer room A/C versus comfort-type A/C systems. The comfort-type A/C systems were then adapted for critical operations to N+1 redundancy. The design, utilizing Mitsubishi split systems, specified the low-temperature option for the condensing unit, which lowered the ambient rating to 0 degree F. A custom touchscreen controller was implemented that also monitored and reported alarm conditions.



Mitsubishi exterior units

Project included:

- Designed A/C systems using Mitsubishi ductless split systems.
- Designed for N+1 redundancy in each room.
- Specified low temperature option (wind baffle) for condensing units, which lowered the ambient rating to 0 degree F.
- Since Mitsubishi's lead/lag controller can only accommodate two A/C units, a custom controller with a touch screen for each room was specified.
- Due to limitations on the Mitsubishi alarm monitoring, the custom A/C controller was also used for monitoring alarm conditions and providing local alarms plus interfacing with a network alarm monitor for distributing alarms via the network to the owner's Network Management System.
- A/C equipment supplied from the emergency power system.
- Identification of all electrical and mechanical equipment in order to readily identify equipment and know where they feed from and associated thermostats and touch screen displays.
- Structural design was provided for concrete pads for the A/C condensing units and steel bollards for equipment protection.
- Special considerations were incorporated into the design for minimizing any negative impacts on the facility's aesthetics.
- The design made allowances for maintaining operations and minimizing interruptions during construction.
- Construction administration services were also provided, including commissioning and closeout documentation. Currently in the final stages of commissioning and closeout documents.

### PROBLEM OR NEED

Expanded air conditioning capacity for UPS room and MDF room. Owner wanted to study feasibility of using comfort A/C in place of precision CRACs.

### PUCKETT SOLUTIONS

Comprehensive study comparing comfort A/C systems to CRACs

Design of Mitsubishi ductless split systems

Specified low-temp option to lower ambient rating to 0 degree F

Specified custom touchscreen controller

Controller used to monitor and report alarm conditions

Identification of all electrical and mechanical equipment and their configurations

Structural design for condensing units and protective bollards

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Year Completed: 2011

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