

## BLOOD BANK OF DELMARVA, Newark, Delaware

In December of 2009, the Blood Bank of Delmarva announced they would be doubling the size of their Christiana location, which also serves as the organization's corporate headquarters. Plans called for building a new donor room and expanding every area, including laboratory space and administrative offices. Blood donations have increased over 30% since 1999 and the organization needed to address the increase since this location collects 47% of all the blood donations on Delmarva. With the expansion of the laboratory areas, blood is now tested on-site with the additional equipment that can be accommodated. However, while all of this expansion was taking place, the critical element to this construction project was ensuring the Blood Bank could remain fully operational throughout the construction schedule.

The project was broken in to several phases, and with each phase, new challenges arose. Right from the onset of the project, Nickle's estimator, along with Delmarva Power, determined the electrical service to the building needed to be increased in order to handle the larger building size and additional equipment installed. The original service was to be 1600 amp but was finally changed to a 2500 amp service. Due to the increase in the service, the electric room needed to be relocated in order to accommodate the larger equipment and space was at a premium. In addition, a second generator was added to supplement the existing one, ensuring the building could be powered 100% by generator back-up if the need arose.

Since the Blood Bank is open Monday through Saturday, Nickle changed their work schedule on the project to Sunday through Thursday. This gave the electricians the run of the building on Sundays to complete any work that needed to be done in occupied areas, as well as making switch-overs from existing areas to new areas easier. Late night shifts were also incorporated in to the schedule when the building was closed.

Located on the site planned for the garage addition, the existing cooling tower needed to be removed before construction began. Because the temperature of the building is critical, all areas of the facility are conditioned. Therefore, a new cooling tower needed to be installed and completely functional before the existing one could be demoed. Nickle worked hand in hand with the mechanical contractor to ensure a smooth transition. This included installing temporary power to multiple stand-alone air conditioning units while the switchover was taking place. As a result, no critical fluctuation in temperature was noted during the process.

Preparation for demo of existing areas was key. Nickle traced and marked every circuit prior to any demo to ensure nothing was shut down inadvertently. At the time, the Blood Bank had over a half million dollars worth of inventory in-house. Shutdowns needed to be limited to no more than 45 minutes so that inventory would not perish. When the time came to transfer power to the new distribution equipment, the entire switch was accomplished in about 20 minutes, well below the time constraint set forth by the Blood Bank.

New site lighting needed to be installed in the expanded parking lot. However, since the facility was still in operation and open late in to the evening, the parking lot needed to remain fully lit throughout the installation process. To facilitate this, Nickle installed the new lighting in phases. Once new pole lights were set and operational, existing pole lights were removed. This insured the safety of donors and employees entering and leaving the building at night. Nickle also took advantage of the altered schedule established and performed a good portion of this work on Sundays, when the building was closed.

Throughout the entire design and construction process, Nickle Electrical collaborated with the engineers on the project, providing information and suggestions on adding value for the customer while still providing a cost savings. By being involved with the project from the very beginning, Nickle was able to identify challenges or potential problems and effectively plan to provide the best solution possible for the Blood Bank. The fact that Nickle was able to complete construction on four new additions and remodeling in existing areas without interrupting donations and the distribution of blood to area hospitals shows the commitment the organization had toward the project. Nickle Electrical is proud to add this project to their list of accomplishments.

## J. M. BENNETT HIGH SCHOOL – Salisbury, Maryland

At first glance, the new James M. Bennett High School looks like any other recently constructed high school. However, as you walk through the main entrance, you realize there is more than meets the eye. As described on the Wicomico County School District website, this school is “a high performance facility, which incorporates several energy efficient features.” At over 200,000 square feet, this state-of-the-art high school accommodates almost 1500 students during the school year and includes one of the most sophisticated digital lighting control systems in the country.

Due to the sheer size of the high school, Nickle decided the best way to handle the project effectively was to provide on-site project management. Nickle’s PM set up shop in a construction trailer and was on-site every day during construction. In addition, Nickle staffed the project with an experienced project foreman to oversee all fieldwork as well as several sub-foreman, which would be responsible for overseeing one particular aspect of the project, such as special systems, distribution, and the like. This enabled Nickle to maintain a high level of quality control throughout the construction process.

One of the most critical systems within the facility is the Starfield Digital Lighting Control system. In a nutshell, any authorized user can access the lighting system remotely from any computer and control the lighting throughout the entire building. Each light fixture in the building can be controlled separately if needed, rather than having to control a “zone” of fixtures, such as cafeteria or hallway lighting. This created a challenge for Nickle’s electricians as a separate control circuit needed to be run to each and every fixture. To facilitate this, the low voltage control was run along with the power in the same conduit.

The lighting system also incorporates several energy saving features. Daylight Harvesting is used in any room with windows – a sensor captures the light level in the room and automatically adjusts and maintains it at a certain level. Vacancy sensors were added to classrooms and offices, meaning the fixtures must be turned on manually, but will automatically turn off in 10 minutes if no activity is detected. Occupancy sensors were installed in all corridors, restrooms, and locker rooms. These sensors will automatically turn on lights when motion is detected and will turn off automatically when no motion is detected in the area. Ballasts in fixtures such as cafeteria and gymnasium lights “remember” settings such as minimum and maximum levels of dimming to provide further energy savings. While the installation of such features was nothing new, the challenge for Nickle began after installation. Each light needed to be programmed and set up within the lighting network. Then lighting zones needed to be set up, where appropriate and linked together to provide a cohesive lighting system. Additionally, the fire alarm and security systems needed to be integrated in to the Starfield system, providing appropriate lighting in emergency situations.

Since the new Bennett High was replacing an existing school, construction was started while the old school was still occupied. Nickle needed to ensure no interruption to current school operations. When the time came to shut power off to the existing building and transfer service to the new facility, Nickle took great care to make sure no part of the power network or fire alarm and security systems were shut down. Coordination with other trades on the project facilitated a smooth transition.

With a fast-paced construction schedule, the size of the school itself presented the biggest obstacle for Nickle. While most buildings have one incoming electrical service, the plans for Bennett called for the installation of two main electrical services – a 3,000-amp service and a 4,000-amp service. Each service was connected to separate meters that can be accessed via computer, much like the lighting system. Eighty-five (85) separate electrical panels were installed. Countless disconnect switches were installed in five mechanical mezzanines, making coordination with the HVAC contractor critical. Again, it was not the actual installation of all the electrical devices and equipment that was challenging, but rather the amount of devices and equipment that needed to be installed in such a short time frame. Weekly planning by Nickle's PM and foremen became the norm to make certain that all completion deadlines were met.

This modern education facility includes many state-of-the-art teaching aids that required the involvement of Nickle Electrical, either by providing power for the equipment or the actual installation. In the art room and the wood shop, Nickle electricians installed electric cord reels, complete with GFI receptacles from the ceilings. This enables the teachers to rearrange the classroom and still have access to power at each workstation. Regular blackboards were replaced with Smart Boards – essentially computerized dry erase boards that connect to teaching stations. Teachers have the ability to access the boards directly or from their desks. Desks throughout the library were equipped with power strips and all science labs feature individual receptacles at each workstation. The Home Economics classroom features full functioning microwave and electric ovens at each learning station, as well as a full size washer, dryer and refrigerator in the room. Media and performing arts students will have the use of a fully operational television studio and can take advantage of theatrical lighting and a professional, 200-circuit dimming rack system in the auditorium. Ag students will enjoy the greenhouse, in which a modern control system automatically controls fans, humidity levels, louver and vent operation.

Although this was a huge undertaking, Nickle Electrical Companies was proud to be chosen as the electrical contractor for this project. Combine the size of the building and the volume and complexity of the work with the fact that the building was completed and occupied a year ahead of schedule; one can see why Nickle is pleased to add this project to their portfolio.