Virginia Pollution Prevention Case Study
John Paul Jones Arena

Facility Information

John Paul Jones Arena, the largest arena in Virginia, was opened to the public in 2006 and is located at the University of Virginia (UVA) in Charlottesville. The arena is 365,000 square feet and seats 14,500 for most events, including 19 suites. The Arena hosts UVA Men's and Women's basketball games along with many other events such as concerts and family shows. Hundreds of thousands of people, from UVA students and athletes to local families and out of town visitors, come through the Arena each year. The UVA community has a strong commitment to sustainability practices that extends to the arena. John Paul Jones Arena is working to be among the leaders in sustainable, yet financially sound, practices at public assembly facilities. The Arena has taken their commitment to sustainability to the next level by becoming a certified Virginia Green Attraction. Virginia Green is run through a partnership among the Virginia Department of Environmental Quality, the Virginia Tourism Corporation, and the Virginia Hospitality and Travel Association. It is a network of tourism-related organizations and programs that are committed to protecting the environment while promoting responsible tourism.

Environmental Challenges and Opportunities

Arena staff started implementing these environmental initiatives not long after construction of the facility was completed. The original driver was energy conservation so that the Arena could reduce energy consumption. They started with what produced the biggest bang for the buck, initiatives that would have a payback of less than a year, and then looked at what could make the largest environmental impact. After the initial energy efficiency practices were in place, the Arena staff moved their focus to increased recycling due to the amount of waste that is created during large events. Arena staff work closely with the UVA Office of Sustainability.

Implementation of the Program

John Paul Jones Arena staff understand the value of energy conservation, both environmentally and financially. Arena staff have installed compact fluorescent and LED lamps in place of incandescent lamps that were located throughout the facility. They are now looking at where it makes sense to replace the HID (high-intensity discharge) lighting with LED, which has already been done for the two practice gyms. Upgrades to lighting have cut energy use by 50% and increased light levels by 100% in the areas where LEDs have been installed. Arena staff have also taken steps to promote the efficient use of lighting by scheduling the lighting in all public areas and installing motion sensors or timers in all private work areas and restrooms. Arena employees are encouraged to power down all possible equipment at night as another way to conserve energy.

In addition to lighting, managing the HVAC system has been a top priority for Arena staff. HVAC programming controls have been installed to set the speed of the motors to the minimum required settings to supply air to all spaces and control existing air temperature to reduce over-cooling and reheating spaces. The use of the Arena's Building Automation System (BAS) to schedule heating and cooling has helped increase efficiency and monitor the system regularly.

The BAS was in place when the Arena was built, but it was not until the Arena staff researched the programming abilities that the BAS was used to make the HVAC system run more efficiently. The BAS allows the Arena staff to supply air temperature resets, supply air pressure resets, implement building pressurization control improvements, and conduct system scheduling. Additional CO_2 sensors for outside air supply control were also added to the system.

In addition to energy conservation, Arena staff have made progress on reducing water usage throughout the facility. Low-flow aerators have been installed on all restroom sinks and low-flow shower heads have been installed in all locker rooms. The water usage went down when the Arena first installed the new aerators and shower heads and has remained fairly consistent since.

Large amounts of waste tend to go hand-in-hand with large arenas, but John Paul Jones Arena staff have indentified ways to divert as much as possible from the landfill. Recycling bins are located throughout the facility next to every trash can. Highly visible signage is used in order to encourage recycling and reduce contamination. Post-event recycling sweeps are conducted through all of the seating sections so that any recyclables that are left behind with the trash can be properly sorted. In addition to what visitors to the Arena can recycle, there are more recycling programs for the Arena staff. Paper recycling containers are in all offices for the 200 Arena staff members and the trash cans were removed from individual offices and placed in central locations, which significantly increased office paper recycling. There are programs in place at the Arena to recycle cardboard, batteries, used lamps, plastics, and metals. In another effort to divert waste from the landfill, the food service staff from Aramark are composting food waste from the Athletics dining room and kitchen. The Arena's newest initiative is recycling cigarette butts from the collection cans located outside the building. Once a large garbage bag of them is collected, the cigarette butts are sent to Terracycle for recycling. Because Terracycle pays for the shipping, the program costs nothing for the Arena and allows them to reduce cigarette butts from ending up as litter or in a landfill.

The housekeeping division at the Arena has been making strides towards sustainability as well. The soap and hand sanitizer products as well as the cleaning products that are used are environmentally friendly. In addition to buying "green" cleaning products, the Arena has a new chemical dilution system to reduce the overuse of cleaning chemicals. This also saves money by saving on the amount of cleaning products that are used for each application. The cleaning staff have been trained to use the least amount of floor wax and stripper possible. In addition, the treatment of some areas has been changed from wax to a superior product that never needs to be stripped and requires less maintenance. The Arena has also installed hands-free paper towel, soap and hand sanitizer dispensers to reduce product use and promote a healthier environment for visitors and employees.

John Paul Jones Arena is accessible via UTC buses and public transportation is encouraged throughout Charlottesville and UVA. Also, the on-campus, urban location of the facility allows for many guests to walk or ride-share. Being centrally located with numerous transportation options is important for reducing the environmental impact of transportation to and from the Arena's events.

John Paul Jones Arena sits over the low water point of the UVA campus, making the area behind the Arena critical to the health of the local waterways leading to the Rivanna River. The protection of these waterways was a high priority during the design and building of the Arena. The designers developed a plan for addressing stormwater in advance so that the construction of the stormwater management system could be done concurrent with the construction of the Arena. Arenas usually have large parking lots to accommodate the crowds of people that attend events, but asphalt can be the downfall of a healthy stream because it is an impenetrable surface that allows rainwater to pick up chemicals and dirt as it flows. Architects addressed this problem by designing medians to carry water through sections of grass and stone that will filter the water before it gets to the drain. Any water that does not go through the medians runs into bioretention areas that have stone barriers and a grass and wildflower mix. On the South side of the Arena, there is another retention area to slow the water released from the drainage area above. Water from the around the Arena is channeled into a deep tunnel filled with stones that continue to filter the water before the water gets to a vegetated area that was graded and planted with indigenous plants. The innovative integration of stormwater management into the design phase of the building has made this project an excellent example for other facilities.

Evaluation of the Process

Partnering with UVA student groups and offices has given the Arena staff opportunities to grow their sustainability programs. UVA held its first Zero Waste Event at John Paul Jones Arena in 2014 during a Harlem Globetrotters game. Approximately 65 students worked the event and collected roughly 3.38 cubic yards of compost, 1.63 cubic yards of non-cardboard recycling, and 12 cubic yards of cardboard. The estimated landfill diversion rate was 70%. This event was successful because of the student volunteers that manned 25 "waste stations" that featured recycling and composting bins. These volunteers assisted event attendees in disposing of their waste in the proper containers. Since then the Arena has hosted "Zero Waste" events for two regular season UVA men's basketball games as well as multiple meetings and banquets that are held at the facility. The daily student athlete dinners in the dining hall are also zero waste, since it is easier to eliminate contamination in these smaller controlled settings.

Through implementation of these programs the Arena staff have learned that many of these projects are not as difficult or expensive to implement as they had previously thought. Some of the improvements that were made were as easy as purchasing a different product that performs the same function for a similar cost. Many employees are interested in participating and they just need the opportunity to get involved. Even those who had initially resisted changes, saw that it did not impact their work and became excited about participating.

Continual Improvement of the Program

The composting program will likely be expanded in the future as the Arena gains more experience with reducing and eliminating contamination. More and more event organizers that use John Paul Jones Arena have been requesting these services, which are made known through the Arena's status as a Virginia Green member. The only limiting factor for moving forward with broader composting implementation is the lack of facilities that can handle this waste in large quantities. As the demand for widespread composting in the state increases, so should the opportunities. It is also more expensive than general waste disposal, so as the cost comes down the participation will go up. The Arena also hopes to continue the LED lamp program wherever

it is financially feasible. They are getting ready to replace all the of the F32T8 lamps in the building with new F25T8 lamps as part of an ongoing improvement effort across campus.

When promoting a program to employees and the public, education is a key factor for success. The more people know and understand the better the programs work. It is also important to have "buy in" from everyone and letting employees and the visitors to the Arena know what they can do to help. This is an ongoing effort because simply educating people on what should and should not go in the recycle bin can be a challenge, which is why signage is very important for success.

John Paul Jones Arena staff regularly share and receive information and processes via an exchange with other large event facilities. Each facility team wants to learn from others successes while acknowledging what is right for one building may not be right for another. Since every facility has a different budget, managers need to take the information and determine what works for their building and start with the "low hanging fruit". Once these easier projects have been completed and show the value of environmental stewardship, it is easier to get support for the larger projects that may have a longer return on investment.