**Cassell and Jamerson part of university’s energy conservation initiative**

By Jimmy Robertson

Two years ago, the Virginia Tech athletics department built a new football locker room with the idea that it would be energy efficient, and its efforts resulted in the building being just the second on Tech’s campus awarded LEED (Leadership in Energy and Environmental Design) certification (an environmental standard) by the U.S. Green Building Council, receiving silver status.

Now, the athletics department is taking additional steps to reduce energy consumption.

Cassell Coliseum and Jamerson Athletics Center are two of six buildings on campus that will be participating in a university initiative designed to reduce the school’s carbon footprint while saving more than $8 million in utility costs over an 11-year period. Starting in April, all these buildings will begin receiving a combination of upgrades such as new lighting, HVAC (heating, ventilation and air) control upgrades, water conservation measures, cooling tower retrofits, building envelope sealing and steam system repairs.

The project fits in with the university’s Climate Action Commitment Resolution and Sustainability Plan, a 14-point comprehensive strategy aimed at reducing the university’s carbon footprint.

“We were looking at certain types of buildings for this project,” said Fred Selby, Tech’s energy and sustainability manager. “There are two buildings in athletics, two in academics (Hahn-Hall South and McBryde Hall), a dining hall (Dietrick) and the steam plant. These present the main classes [types] of buildings on our campus, and they were good opportunities to become more energy efficient, reduce our carbon footprint and help meet the goals of our plan.”

The athletics department is a big user of energy simply because of the demand on its facilities. For example, Cassell gets used extensively by the men’s and women’s basketball programs, the volleyball program and the wrestling program for practices and for games from August to March. The building gets used for camps in the summer, and it also gets outside use, with the university holding graduation ceremonies in the building, Special Olympics holding events in the building, etc. So making Cassell, and by extension, Jamerson, more energy efficient makes good sense.

The university selected Pepco Energy Services, an Arlington, Va.,-based company designed to help customers reduce energy consumption and minimize the environmental impact of their operations, to perform the work on all six buildings and expect the $5.3 million project to be completed by early 2013.

The athletics department’s portion of the project runs around $600,000 spread out over two years.

“We’re fortunate in a way in regards to the cost,” said Tom Gabbard, Tech’s associate athletics director for internal affairs. “We’ve already been doing a lot of building and renovating here. For example, we’ve built or renovated all the locker rooms on the bottom floor of Cassell, so in doing that, we had already upgraded some things in those areas and made them energy efficient.

“But obviously, there is more we can do. We have some steps to take, and we want to do our part to meet the university’s commitment to energy conservation.”

The bigger plans for Cassell and Jamerson include the following: new lighting, new HVAC controls, new variable frequency drives for specific air handling units, destratification fans for Cassell, new building envelope sealing and new vending misers for the 15 vending machines within the two buildings.

Obviously, these things resemble a foreign language to the average human being. But don’t be fooled about their impact.

“These aren’t what you would call ‘sexy’ things,” said Neil Covington, a regional construction manager for Pepco and the person coordinating the project. “They’re actually simple things, but they do save energy and reduce your carbon footprint – and that also adds up to savings.”

The biggest expense for the department will be for new HVAC controls for Cassell and Jamerson – a cost of approximately $200,000. Without getting too technical, these controls basically regulate the temperature and humidity throughout the buildings, and the new controls will improve the overall efficiency of the system.

Also, new lights will run more than $180,000. That cost not only includes the lamps themselves, but also new ballasts. The old lamps and ballasts for each light in the buildings will be removed, replaced and re-wired.

“The ballast controls the voltage that drives up the temperature inside the tube to light the lamp,” Covington said. “So we’re going to be putting in a smaller, more efficient lamp and a high-efficiency ballast. You’ll probably use half the power that you were using before, and the lights will actually be brighter.”

As for the other plans, a variable frequency computer-controlled drive will be installed on an air handling unit on the fourth floor of Jamerson to allow for speed variation of the fans instead of the fans running 100 percent the whole time. The vending misers cut the lights off the vending machines when no one is around, and they also control how often the compressor runs. The new building envelope sealing simply means installing new weather stripping on all the exterior doors, while also sealing the edges of the roof of Jamerson – there currently is a quarter-inch gap between the roof and the walls.

The interesting part may be the installation of the destratification fans in Cassell.

“The problem with Cassell is there is a big difference between the temperature on the floor and the top level of the building,” Covington said. “Hot air rises, making the top part of the building very warm. But the air-handling units are constantly running to heat the floor area. So we want to hang these destratification fans at the top of Cassell to suck in that hot air and blow it back down toward the floor. That will raise the temperature of the floor, and you won’t have to heat as much. That should make it more comfortable for fans during games, too.

“We normally bring in a lift to hang those fans, but we can’t do that because the playing floor is spring-loaded. Fortunately, our engineers came up with a way to position the fans at the ends of the catwalk, so we won’t have to be on the floor.”

Despite the upfront costs, the athletics department expects to save money in the long haul. The athletics department anticipates recouping the $200,000 for the HVAC controls within 12 years and the $183,000 for lighting within 6.5 years. And all the new equipment will last for at least 15 years, if not 20.

In fact, Pepco guarantees the savings, or else, they pay the difference.

“We’re guaranteeing savings of around $62,000 per year for the next 12-15 years,” Covington said. “We’re on what’s called a performance contract, so it’s important for us to do the job right. We don’t want to have to pay because we’ve mis-engineered a project. We’re only writing checks to one customer and we’ve had more than 600, so we like to think that our engineers are pretty good at figuring out savings.”

“There’s certainly plenty of incentive on everyone’s part,” Gabbard said. “The cause is good because we all want to be good stewards of the environment, and we all look for cost savings these days. So this type of project is a win-win for everyone.”

And it may not be the last project for the athletics department. Lane Stadium, another big user of energy, figures to be on a future list.

“I’ve already been working with Casey [Underwood, the athletics department’s director of outside facilities] on a few things, such as shutting down the air handlers and chillers when they’re not in use,” Selby said. “But the university’s plan is to do this group of six buildings first, and then move on to the next six and keep going. It’s a five-phase step that will get most of the buildings on campus.

“It’s all a part of our climate action commitment. We’re committed to getting down to 38,000 tons of carbon by 2050 and we’re now in the 350,000 range. We’re chipping away at it and making progress, but we’ve got more work to do.”