Introduction:
Drying racks were introduced into all laundry rooms in Harnwell College House and were available for private rental in Rodin College House beginning January 2017. The benefits of drying racks include monetary savings, energy reduction, and improved residential living. There are, however, concerns of theft. Data collected on drying rack usage proved promising, with the potential to save $62.72 and 520Wh of energy per month based on usage rates recorded by the end of the data collection period. Although attempts were made to introduce drying racks to Harrison College House, implementation was unsuccessful due to communication issues.

Project Goals:
(1) To introduce drying racks into Harnwell, Rodin, and Harrison College Houses (high-rises).
(2) To encourage the use of drying racks to conserve energy and foster long-term sustainability habits.

Research Findings:
In the preliminary research, a cost benefit analysis was conducted to determine the practicality of introducing drying racks to the high-rise buildings. Costs were primarily limited to financial expenses and the management of the drying racks. In terms of financial expenses, each drying rack cost $36.99 and each lock cost $7. Two drying racks and two locks were to be placed in each of the 12 laundry rooms. As most high-rises would be unable to allocate such funds for the drying racks, the plan was to fund the project through a Penn Green Campus Partnership Green Grant.

The management of drying racks proved to be a greater obstacle, as various factors had to be taken into consideration. For one, the space that the drying racks would occupy had to be accounted for, both within the laundry rooms and in storage rooms should they need to be taken down. Whether the drying racks would stay up year-round or be taken down during the summer or spring/winter break also had to be considered. Should high-rise faculty wish to store drying racks during certain periods, staff, whether they be future RA’s or Residential Service workers, would need to set up and put away the racks. Lastly, the possibility of clothing theft had to be addressed.

The benefits of drying racks were determined to be numerous and encouraging, centering primarily on the monetary savings, environmental sustainability, and improved quality of residential living. According to energy.gov, the average 50-minute dryer load costs $0.28. Since each high-rise houses approximately 800 students, there was the potential for drying racks to pay for themselves over time and accrue additional savings.

Additionally, the drying racks may make a positive impact on the environment. The average 50-minute dryer load uses 2.32kWh, so replacing them with drying racks can lead to a significant reduction of energy consumption. The use of drying racks also reduces the usage of chemical dryer sheets and may help foster future sustainability habits.
Finally, introducing drying racks improves residential living by provide students the option to practice sustainability and prolong the life of their clothes. Higher quality clothes can be damaged by the heat from drying machines, and the racks provide a feasible solution.

**Key Stakeholders Involved:**
High-rise Residents  
Dean of Harnwell – Courtney Dombroski  
Dean of Rodin – Kathryn McDonald  
Residential Services Administrator – Joel Mintzer

**Methodology:**

The first step was to receive approval for the drying racks in Harnwell, which was accomplished by meeting directly with the House Dean, Courtney Dombroski. After obtaining consent, a Green Grant application was drafted for approximately $1500, allowing for the purchase of 29 drying racks and 24 locks. 2 drying racks and 2 locks were then placed into each of the 12 laundry rooms, along with flyers advertising describing their purpose and general terms of use.

To measure the usage of drying racks, the total number of racks in use at a given point in time each day was tracked over a 6-week period. This required visiting all laundry rooms once per day at a random time.

In addition to placing drying racks in the laundry room, 5 drying racks were stored in the Harnwell Café where residents could freely rent out the racks for private use. These racks were managed by Café staff, and a sign-out sheet was created to track usage.

After collecting promising data for the racks in Harnwell, an attempt was made to introduce drying racks into Rodin and Harrison College Houses. A meeting was held with Rodin’s Dean, Kathryn McDonald and a formal proposal was drafted. Rodin was able to purchase 4 racks using their own funds to test out a rental rack pilot program. If the racks seemed popular, Rodin would consider purchasing addition racks for the laundry rooms. Harrison’s Dean, Frank Pellicone, was also contacted about the possibility of introducing drying racks. Dean Pellicone agreed to the placing drying racks in the laundry rooms as long as full approval and consent were obtained by Building Administrator Joel Mintzer (Residential Services).

**Results and Evaluation:**

Data on drying rack usage collected from Harnwell proved promising. Although usage started out slow, number of drying racks used continued to increase with each subsequent week. By week 6, nearly 8 drying racks were being used per day.
Figure 1. Drying rack usage in Harnwell over a 6-week period. Red cells indicate days when the number of racks in use were not measured.

Assuming an average of 8 drying racks continued to be used per day, there is the potential to save $15.68 per week and $62.72 per month. In terms of energy, 130kWh would be saved per week, resulting in 520Wh per month.

Although the public racks seemed to be used frequently, the same case was not found with the rental drying racks. Since rentals were offered in November 2016, rental racks were rented out 13 times within Harnwell and 6 times within Rodin. This is likely because fewer residents know about the racks and there is the additional hassle of checking out the rack.

**Recommendations for Future Projects:**

The project can be expanded by introducing public drying racks in the laundry rooms of Rodin and Harrison College Houses. To do so in Rodin, a meeting could be held with Dean Kathryn McDonald, who seemed very open to the possible expansion. Another Green Grant could be applied for in case funding is needed.

Introducing drying racks within Harrison has been somewhat more difficult. The quickest way may be to arrange an in-person meeting with Building Administrator Joel Mintzer, as communication by email has been somewhat slow. Communication has also been slow with Harrison staff.

Since the rental system did not seem very popular, it may be more effective to move all existing rental racks into the laundry rooms.