11/14/2014

4th Annual Waste Audit Report

Conducted by WPI Staff, Faculty, and the Green Team

What is the Waste Audit?

On November 14, 2014, students in the Green Team, staff, and faculty volunteered to sort through the waste of four buildings on the WPI campus. These buildings were: The Rubin Campus Center, the Gordon Library, Daniels Hall, and Morgan Hall. Everybody who participated went through safety training beforehand. They wore Tyvek suits, rubber gloves, and safety glasses while completing the audit. The bags of waste were initially weighed and recorded then the contents were sorted into four categories: waste, recyclables, water bottles, and food waste. As these four specific bags were filled up, their weights were recorded, and the cycle continued until each building was finished. The results and analysis can be found in the following report.

Recycling Rates:

In order to calculate the recycling rates for these buildings, the first formula below was used. These "actual" Recycling Rates are compared to the Potential Recycling Rate which can be derived from the second formula. The Potential Recycling Rate is necessary to show what the actual Recycling Rate could have been, if all of the waste was correctly disposed. In the table that follows, the rates are presented. Clearly, the actual Recycling Rate is much lower than the Potential Recycling Rate and will hopefully improve in future years. Additionally, it is important to note that the waste that was audited was collected from only one day. This data could vary greatly, but it can still be compared to the data from the years before (which were gathered on only one day as well).

$$\frac{Total\ Weight\ of\ Correcly\ Recycled\ Items}{Total\ Weight\ of\ Waste\ In+Recycling\ In} * 100 = Recycling\ Rate\ of\ Building$$

$$\frac{Total\ Weight\ of\ All\ Recycling\ (in\ both\ Waste\ In\ and\ Recycling\ In)}{Total\ Weight\ of\ All\ Waste\ In+Recycling\ In} *100 = Potential\ \ Recycling\ Rate\ of\ Building$$

Building			Recycling Rate	Potential Recycling Rate
Rubin Campus Center			20%	35%
Gordon Library			4%	40.2%
Daniels Hall			23.6%	50.1%
Morgan Hall	23.4%	39.3%		

Comparison to 2013 Waste Audit Data:

There were high expectations at this Waste Audit considering that all of the WPI campus switched to single-stream recycling earlier in 2014. This led the volunteers to believe that the recycling rates would be higher than last year. Also, since many water-refill stations are present throughout the WPI campus, it was expected that less water bottles would be found in either the Recycling In or the Waste In. Unfortunately, these assumptions about the recycling rates were wrong, but there were less water bottles this year than last. The following chart compares the recycling rates of the buildings this year and last.

Building	2013	2014
Rubin Campus Center	-not conducted-	20%
Gordon Library	-not conducted-	4%
Daniels Hall	30.62%	23.4%
Morgan Hall	25.93%	23.6%
Water Bottles	20.4 lbs	14.4 lbs

What can be done to improve?

The Problems:

- The Recycling Rates for Morgan Hall and Daniels Hall have decreased over the past year.
- The Potential Recycling Rates are incredibly higher than the Actual Recycling Rates.

Recommendations for the future: These are suggestions from the Green Team when the problems were presented to them at a General Body Meeting.

- The main solution is to educate the campus of both single stream recycling and the bottle-refill stations.
    - Clearly single-stream recycling had no impact on the recycling rates this year, and if more people understand what it means and that it is in effect in all WPI buildings, the recycling rates may improve
    - Even though there are many filtered bottle-refill stations positioned around the campus, the number of water bottles found in both Recycling In and Waste In was higher than expected.
- Clearly label all recycling bins to specify single-stream recycling. This way, students who were informed about single-stream recycling would not get confused when they only see specified bins.
- Have only one cover for recycle bins: one that makes it obvious that bottles, paper, and all other recyclable materials can be placed in there.
- Make all the recycling bins the same color to make them uniform and convey the message about single-stream recycling.
- Have as many recycling bins as trash bins in order to make it easier for people to find and not search for it.
- New posters describing single-stream recycling. The ones that are currently up are not particularly eye-catching.
- Have an initiative specific to the Gordon Library to increase that recycling rate and get it closer to the potential.