

SUMMER PURCHASING INTERNSHIP REPORT

PEI
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Introduction

The goals of my eight week internship were two-fold: to develop spreadsheets of environmentally friendlier products for the Purchasing Department and at the same time, to examine what other universities are doing to become greener institutions. In this report, I will discuss the products which I have submitted to the Purchasing Department's upcoming green PeopleSoft catalog, and I will also describe other policies that universities have developed in environmental sustainability that I think may be beneficial for our institution to follow as well. I hope that Princeton will consider my recommendations when implementing new environmental strategies and when developing projects that may potentially affect the environment. Ideally, in order to ensure a thorough examination of all aspects of university purchasing and sustainability protocols, a significant amount of time and effort could be devoted this kind of research. However, since I had a limited eight weeks, I only hope that my work can serve as a beginning step for what will hopefully become a long road of active participation in sustainability from students and faculty alike.

Why the Purchasing Department and Why Universities?

Before detailing the findings of my products, I thought that perhaps I should share a bit of what I had learned in the process of my research.

Plastics, paper, and aluminum of which we dispose after usage *never* fully decompose. They are often released back into the atmosphere in the form of methane, contributing to the greenhouse effect. Trees are the major source of absorbing carbon dioxide and of releasing oxygen, but they are also the source for the constant production of virgin paper (more about paper in the next section). The following is a rough look at today's waste production and management¹:

- 1) On average, US residents, businesses, institutions accumulate a total of 230 million tons of waste before any recycling is done (1999 data).
- 2) Of the waste we generate, approximately 62.5% constitutes paper, plastics, glass, and metals.
- 3) In general, the United States recycles about 28% of its waste, and burns 15% at combustion facilities; the remaining 57% is disposed of in landfills.
- 4) While the number of landfills is steadily decreasing since 1988, the capacity has yet to change. Now, we simply have fewer, but much larger landfills.

¹ http://www.plasticsresource.com/plastics_101/basics.html and <http://www.epa.gov/epaoswer/non-hw/muncpl/facts.htm>

Certainly, an institution such as ours cannot be expected to extend all of its resources into campaigning for the environment, which may lie outside of our realm of operation and function. However, what we can (and ought to) do is work within our university by greening daily university practices. One such practical and *effective* way is working with the purchasing department to help identify alternative, recycled products to be placed into vendor contracts. Waste is generated from constant demand of new products made from virgin materials. However, if this demand can slowly redirect itself towards recycled products, then waste production will be minimized, and materials that are discarded can enter a cycle of re-use.

Of course, the question remains: how does purchasing accomplish this, and more importantly, why are universities such important targets? Purchasing departments can potentially shape the availability and popularity of future green products. The process of producing recycled products is not the problem; the lack of demand for such recycled products is. If no requisitions are made on these products, manufacturers have no economic incentive to begin mass-producing.² However, when large institutions like Princeton begin to demand recycled products, the movement towards green purchasing will become more evident and manufacturers, in turn, will respond. This is no small matter; collectively, colleges and universities alone spend more than \$146 billion for goods and services annually³. Such purchasing power can mean the difference between an environmentally healthier planet and one, which is inundated in waste and toxins. In addition, a greener university purchasing policy along with green university practices set a great example for others to follow, and, “with more than 14 million young people enrolled each year, the values instilled there set the course for succeeding generations.” In short, “colleges and universities are microcosms of society; campuses can innovate and apply new practices and technologies that prevent pollution and waste, serving as model of a green future for other institutions.”⁴

As simple and perhaps, as obvious as the aforementioned solution may sound, the process can be a long and arduous one. First, there are a few myths and preconceptions that need to be disproved. The term “recycled” has a great and inspiring connotation when spoken in terms of the environment but immediately carries on a rather distasteful meaning when spoken in terms of a product, especially to a customer. For many (including myself, at one point), “recycled” products immediately denote a lower, less durable quality. However, that is far from the truth. Often, recycled products are just as durable and as reliable. A 1996 survey by the Buy Recycled Business Alliance asked hundreds of corporate purchasing agents about their satisfaction with

²Kinsella, Susan; Gleason, Gerard; Mills, Victoria. *Resource Recycling* “Recycled Paper, plenty available, now let’s all use it!”.

³ Education for Sustainability Profiles http://secondnature.org/efs/profiles/profile_rutgers.html

⁴ <http://www.nwf.org/campusecology/stateofthecampusreport.cfm>

recycled content products. The survey results showed that 97% of respondents were pleased with the performance of recycled content products.⁵ Since then, great improvements have been made on recycled products, and they no longer even “look” recycled. Through my own research this summer, I found that a lot of highly recycled paper had brightness levels comparable to that of virgin paper, another indication that recycled papers are just as good.

Another overpowering myth about recycled products is that they are overpriced. As a matter of fact, recycled products can be priced very competitively, if not even more cheaply, than that of their than virgin components. Moreover, the main reason that some recycled products are significantly more expensive than their virgin forms is because there is no demand for them; again, if large institutions can utilize their purchasing power towards a greater demand of these products, the cost issue would also be solved.

Of course, much convincing will be needed, but the recycled alternatives are out there for us to try. If we are truly dissatisfied with a recycled product, we can always try another recycled product. If pricing is an issue, the size of our university and its subsequent high demand in quantity for products should enable it to successfully negotiate prices. As I have learned through my time spent in the purchasing department, vendors with whom we have contracts can always offer special pricing and if not, can possibly find a comparable item to the one suggested and give a special pricing on that item. Not every option is a possibility, but there are innumerable alternatives that we can explore.

Finally, no matter how many recycled products the purchasing department may add to their contracts, the entire process of green purchasing will not be complete until each university department is aware of these newly offered products and actually *order them*. Thus, these products should be made known to departments, and if need be, even advertised throughout the university. The Purchasing Department has already taken a step towards this by creating a “green” PeopleSoft catalog specifically for recycled products; in this section, any department can find all the recycled products the university has to offer. Part of my summer internship was to submit spreadsheets for recycled products so that Purchasing can begin negotiating prices and eventually place these products into their green catalog. This catalog will hopefully continue to expand as more recycled products are being found. Most importantly, it lessens the burden of having to look for recycled products; the only job departments must do is to enter the green catalog and place their order.

The commitment to sustainability should also be publicized so that the entire campus can put in a collaborative effort in greening Princeton (I will discuss this further in the last section of

⁵ Calaveras County, CA. Solid Waste Department. http://www.ccsolidwaste.org/Buy_recycled.htm

my report which details university greening policies). Thus, in this report, I will dedicate a great deal to discussing the products I have found. I have also listed every single one of them by name in hopes that if a faculty member is reading this and finds something he/she likes, he/she can immediately locate it on green PeopleSoft and be able to order it.

PAPER

Paper is a dominant part of in every aspect of life, especially for a university. Brochures and pamphlets from departments, academic handouts, books published by professors, student term papers and theses, and the very process of running the university demands a tremendous amount of paper. Not surprisingly, paper ranks as the number one source of waste by far cry at 38.1% (the second greatest generator of waste, yard trimmings, was only at 12.1%)⁶. On the other hand, paper has now gained the top spot for the most recycled item, and this recycled percentage has been steadily increasing. In 1994, paper was only recycled at an overall rate of about 35.3%⁷ by May of 2001, the American Forest and Paper Association proudly reported that the recycling content of paper and paperboard increased to a 45% level, close to the original US goal of recycling 50% of its paper products⁸. These seemingly small steps of improvement disguise the fact that every piece of paper recycled can go a long way. Here are a few facts⁹:

- 1) One tree can filter up to 60 pounds of pollutants *each* year.
- 2) Americans buy 62 million newspapers each day, and throw out 44 million. That is equivalent to dumping out approximately 500,000 trees every week.
- 3) Americans throw away enough office and writing paper per year to build a wall 12 feet high stretching from Los Angeles to New York City.
- 4) However, if we can find ways to recover this waste amount, 25 million trees can be saved per year by just having each American recycle 1/10 of their newsprint.
- 5) Utilizing a ton of recycled paper instead of virgin paper saves 3,700 pounds of lumber, and 24,000 gallons of water. It also uses 64% less energy, 74% less air pollution, and most of all, also saves 17 trees from being cut down.

While the efforts toward paper recycling are commendable, there is still much to accomplish. Of all the paper used, over 70% can be potentially recovered. This extra step can

⁶ <http://www.epa.gov/epaoswer/non-hw/muncpl/facts.htm>

⁷ <http://www.epa.gov/grtlakes/seahome/housewaste/src/paper.htm> (1999 report)

⁸ http://www.afandpa.org/recycling/Prog_rep_72001.pdf

⁹ <http://www.recyclingit.com/recyfact2.htm>

very well come from the cooperation of universities in purchasing as much recycled paper as possible. After all, universities each year spend hundreds of thousands of dollars on office paper, and the average office worker uses 12,000 sheets per year, not to mention how much the students use¹⁰.

There are a few things to look for when buying recycled paper. Believe it or not, a “recycled” label on a paper can be misleading. When choosing a recycled paper, look for its specified *post-consumer waste* content. Post-consumer waste is the actual paper, paperboard, and fibrous wastes that have been generated by individuals in retail stores, office buildings, and homes. In other words, post-consumer waste is the waste that has been recovered, waste that would otherwise occupy the landfill. On the other hand, “recycled” can also mean *pre-consumer waste* content. Pre-consumer waste is simply waste (ie, scraps, pieces of wood, steel, etc) generated by the manufacturing mill itself during production, waste which it has used to make other products. While knowing that our paper has pre-consumer content is good, it is not nearly as important as looking at the post-consumer content. Post-consumer content is the only true indication how much of our waste is really being put back into reuse.

Other terms to watch for when buying paper are: 1) Processed Chlorine Free (PCF), 2) Elemental Chlorine Free (ECF), 3) Totally Chlorine Free (TCF), 4) Tree-Free and/or Alternative Fibers. PCF refers to the recycled paper that is bleached without chlorine or chlorine derivatives. Chlorine, with lignin, forms toxic compounds such as dioxins and furans which are known to cause health problems to both animals and humans. ECF is labeled when the recycled paper product is bleached with a chlorine derivative, chlorine dioxide. While ECF creates less detectable chlorine, it is still, nevertheless, detectable. TCF describes the totally chlorine free process that is used with virgin (non-recycled) fiber papers¹¹. Of course, TCF is the best alternative of the three, however, keep in mind that with TCF paper, you are also most likely buying virgin paper. Ultimately, completely unbleached recycled paper will avoid the chlorine issue altogether, and thus, is the most environmentally friendly choice. Do not be misled into thinking that an unbleached paper is a less bright one. According to Conservatree, “chlorine free papers have brightness levels consistent with the virgin versions of the grade of paper. In fact, the brightest paper on the market is a TCF

¹⁰email attachment from Don Wheeler, by Dan Ruben of Recycled Products Purchasing cooperative, <http://www.recycledproducts.org>

¹¹ <http://www.greenpressinitiative.org/program/gloss.htm>

paper”¹². As mentioned before, I have found recycled papers with comparable brightness levels to that of their virgin constituents.

Finally, the terms “alternative/tree-free papers” refer to papers that are made with cotton, kenaf (an annual fiber crop), and agricultural byproducts such as cereal straws and corn stalks. Essentially, these alternative fibers replace trees in producing paper. This is a great alternative, but again, we should probably maximize green purchasing as much as possible. Thus, I recommend that we always try to find a combination of post-consumer recycled content in conjunction with alternative fiber papers. This way, not only are we guaranteed the tree-free content, but also the recycled content within these non-tree fibers.

For my research for environmentally friendlier products, I used the recommended minimum recycled content requirements as described on the Environmental Protection Agency (EPA)’s website. EPA posts a series of post-consumer content guidelines for a variety of products (<http://www.epa.gov/cpg/products.htm>). These guidelines are a useful reference because they are generally accepted as de facto national standards, and for companies and organizations who are not required to buy recycled, the standards can give a pretty accurate estimate of the recycled content they should seek when purchasing.

In the case of paper, EPA states that most paper, with the exceptions of unbleached or manila papers, should have a minimum of 30% post-consumer waste content (for a full length listing of recommended pcw content for paper, go to: <http://www.epa.gov/cpg/products/printing.htm>).

The following are brief descriptions of the types of paper and their respective recycled post-consumer content. All of these papers are available from the distributors with which the Princeton University Purchasing Department has contracts. They have been created into spreadsheets and have been submitted for bidding of prices.

Aspen100 offered by Boise Cascade is already available. This was introduced by the Purchasing Department even before my internship. It is a 100% post-consumer waste (pcw) content office paper and is also PCF. To my knowledge, Aspen 100 is currently being distributed to departments for a trial run; the EEB department currently reports that their use of Aspen100 has been successful.

¹² <http://www.conservatree.com/paper/GuideExplain.shtml>

Boise Cascade also offers *Aspen50* , a 50% pcw office paper, and *Aspen30*, a 30% pcw paper. I have personally seen *Aspen 30* in use in some dormitories (ie, Scully Hall) and in the Frist Campus Center.

Badger Envirographic 100 is another office paper with 100% pcw and PCF. This paper works well with both high and low speed copiers, laser printers, fax machines and offset presses. It is also good for two-sided copying. Badger also offers office paper in 50% recycled and 30% pcw:

Copyrite All-Purpose Colors 50/30
Envirographic 50/30

Great White offers a great deal of office papers in 30% pcw. Each type is geared towards a certain purpose such as papers for letters, reports, and those for presentations, graphics printing, proposals, laser and/or inkjet printing. The following are those that I have found to serve these purposes and are 30% pcw in content:

Inkjet 24
Premium Inkjet 24
Inkjet Presentation Paper
Laser 24
MultiUse 20
MultiUse 24

Neenah Papers offers its own subsection called “Neenah Environment” where all its papers are 100% recycled with minimum 30% pcw content. These papers range from writing to text to cover papers. Many colors, textures, and finishes can be specified for each type of paper; also, matching envelopes (equal in recycled content) are available. Recently, Neenah Environment Papers began a line of *PC100* papers in White and Natural White colors; these office papers are 100% pcw in content and are laser and inkjet compatible.

Domtar Papers specialize in professional cover, text, printing and publishing papers. The *Domtar Sandpiper* is a text and cover paper made from 100% pcw materials that is chlorine-free, acid-free, and processed with environmental dyes. It also comes in a variety of finishes as well. *Nekoosa 25% cotton* is a printing and publishing paper with 25% cotton content and 30% pcw. The following Domtar Papers are all at least 30% pcw. Their uses range from letterheads, resumes, business contracts, legal documents, diplomas, and certificates:

Domtar Recycled Copy
Feltweave
Nekoosa Bond-Imaging

Nekoosa Bond-Printing
Nekoosa Linen-Imaging
Nekoosa Linen-Printing
Proterra
Skytone
Solutions
Solutions Super Smooth
Valorem Recycled Offset Colors

Fox River Paper Company offers papers that are mostly used for announcements, fliers, business cards, and brochures. Some writing papers are also available. For instance, *Quest* comes in many different weights and is 100% pcw that is laser and ink-jet compatible. The following are all papers that are at least 30% pcw, with the Studio papers providing premium quality grades and the House papers providing the most economical value of recycled paper:

Confetti (studio paper) 100% recycled, 50% pcw
Crushed Leaf (house paper) 30% pcw
Capitol Bond (house paper) 30% pcw, 25% cotton

Fraser Papers are good for diplomas, certificates, flyers, booklets, and other text, cover and commercial uses. They come in weights ranging from 24lb Writing to 80lb Text to 110lb Covers with different finishes (vellum, smooth, felt, laid, cockle, linen, and/or satin). *Genesis* is a 100% deinked pcw paper ideal for letterheads and is laser-guaranteed. The following papers are all 30% pcw:

Halopaque
Magna Carta
Mosaic
Outback
Passport
Fraser Writing Sheets Collection

Gilbert Papers offer papers that serve the same purposes as that of Fraser Papers. All of them are laser and ink-jet compatible, and contain at least 30% pcw, with either 60, 86, or 100% recycled fibers. Also, you may customize the paper by specifying the paper grade, texture, color and/or weight. The following are these recycled papers:

Esse
Oxford
Gilcrest
Voice
Gilbert Covers
Neutech Cotton (25% cotton)
Chadwick (with a 93 Brightness level)

Correspond

Finally, *New Leaf Paper* is a company that does not hold a contract with the Princeton Purchasing Department, but it is a paper manufacturer dedicated strictly to making the highest quality recycled paper at the highest pcw content with the most competitive price. For small orders of paper, purchasing allows a “direct order”, in which the department may place an order to the manufacturer whether or not that manufacturer holds a contract with the purchasing department. If only a small order is required for any type of paper, *New Leaf Paper* is an ideal source. It provides a variety of paper types, from office paper to cover and text paper. The following is a brief description of each type of paper that *New Leaf* offers:

Coated Grades include *Reincarnation Matte* which is 100% recycled, 50% pcw—and—*New Leaf Symphony Gloss*, which is 50% recycled, 30% pcw. Both are ideal papers for catalogs, magazines, annual reports.

Stationery Papers consist of *New Leaf Everest Writing, Text, and Cover* which is 100% pcw with a brightness level of 90 for all basis weights. This paper is offered from 24# writing to 100# cover.

Opaque papers consist of *New Leaf Opaque Smooth Text and Cover*, which is 80% recycled, and 60% pcw at a brightness level of 89.

Uncoated Publication Papers include *New Leaf EcoOffset 100* which is a 100% pcw paper that is ideal for newsletters, directories, and other large volume paper usage.

Copy Papers are also available in *New Leaf Encore* which is 100% pcw (New Leaf Encore 100) and 50% pcw (New Leaf Encore 50). It is available in whites and colors, and good for low and high speed copy, laser, and plain paper fax machines.

Book Publication Papers are offered through *New Leaf EcoBook 100* which is 100% pcw (EcoBook 100) and 50% pcw (EcoBook 50). It is available in white and natural white.

All of the above papers, with the exception of New Leaf Paper products, have been created into spreadsheets and submitted to the Purchasing Department for bidding, which means they will be available to university purchasers. Many of the products introduced above essentially serve the same purpose but are from different manufacturers. I submitted them all so that the Purchasing Department could have their pick of recycled products and be able to negotiate the best prices. Thus, if a product listed above is not found in the PeopleSoft catalog, there is probably a comparable recycled alternative in the catalog.

Nonpaper Office Products

After researching papers, I proceeded to make spreadsheets for recycled nonpaper office products. These products ranged from file folders, storage files and boxes, to recycled and remanufactured toner cartridges. Most of these products were obtained from the Boise Cascade Office Products website. Boise supplies Princeton with almost all of its office supplies, and because of the huge number of orders we place to Boise, purchasing is able to negotiate great prices for any purchases. The following products all have manufacturers with which Boise is a supplier.

EPA recommends the pcw content for **filing folders** to be the same as paper. *Esselte/Pendaflex* offers a section called *Earthwise*, where all of its office products (folders, index cards, report covers) are at its highest pcw content. For file folders, *Earthwise* offers a variety of folders (pressboard, partition, hanging, interior folders, and ones with business card pockets) all of which are at least 30% pcw (many 50%). *Earthwise* also offers expanding wallets and files both of which contain a minimum of 30% pcw. However, if there is a specific type of file folder that one is looking for (ie, with clasps, fasteners, tab guides), then *Oxford by Esselte* offers an enormous variety, but keep in mind that these file folders are only a minimum of 10% pcw. The following are the products that I found for both *Earthwise* and *Oxford by Esselte* filing folders:

- Earthwise by Esselte Box Bottom Folders
- Oxford by Esselte Colored Hanging Box Bottom Folders
- Oxford By Esselte Recycled Hanging Box Bottom Folders (uncolored, just Green)
- Oxford by Esselte Colored Letter-Size Folders with Single-Ply Tabs
- Earthwise by Esselte Recycled File Folders
- Earthwise by Esselte Recycled Pressboard Folders. Pressboard can expand to 1".
- Pendaflex by Esselte File Folders with InfoPocket. Interior pockets to store small related items
- Pendaflex by Esselte File Folder with Write and Erase Tabs
- Oxford by Esselte Colored Folders, Reinforced Tabs. Inside Grids to write notes on.
- Oxford by Esselte Earthwise Manila File Folders

- Earthwise Interior Folders. For subdividing files within a hanging folder
- Oxford by Esselte Recycled End Tab Blank Guides. Metal framed tabs, pressboard material
- Oxford by Esselte Recycled Manila End Tab Out Guides. Grid lines for entering data.
- Oxford by Esselte 5-Piece Construction End Tab File Pockets. Pockets expand for filing.
- Earthwise by Esselte Recycled Expanding File Pockets
- Oxford by Esselte Recycled End Tab Extra Reinforced File Pockets
- Oxford by Esselte Recycled End Tab Manila Expanding File Pockets. With Tyvek Gusset
- Oxford b Earthwise by Esselte Recycled Twin Pocket Portfolios. Also with a cut for business card on inside pocket
- Esselte Recycled End Tab Manila Pocket Folder
- Oxford by Esselte Recycled End Tab Pressboard Classification Folders. Includes Fasteners
- Oxford by Esselte Recycled End tab Pressboard Classification Folders with Pocket Dividers. With 2" expandable Tyvek gusset, and 1" capacity fasteners
- Oxford by Esselte Recycled End Tab Pressboard Folders (w/out fasteners)
- Earthwise by Esselte Recycled Partition Folders. Built-in partitions, with fasteners.
- Oxford by Esselte Recycled File Backs with Fasteners.
- Earthwise Hanging File Folders
- Oxford by Esselte Recycled Hanging Folders. Includes interior pockets for notes, disks, etc
- Earthwise by Esselte Recycled Slash Pockets. 3-hole drilled, diagonal cutaway front pockets, and die cut pocket for holding business cards, diskettes, etc
- Oxford by Esselte Recycled Colored Classification Folders. 2 dividers, 6 fasteners, top tab classification folder.
- Oxford by Esselte Recycled Pressguard Classification Folders with Pocket Dividers. W/ 2" expandable Tyvek gusset and fasteners
- Earthwise by Esselte Recycled Expanding Files. Dividers to separate papers, available in alphabetical, daily, or monthly printed headings.
- Oxford by Esselte Recycled Expanding Files with Flap Closure. Elastic cord closure.
- Earthwise by Esselte Recycled Expanding Wallets. Closure flap and elastic cord.

Recycled Report Covers (in pressboard and pressguard materials) offered by Boise Cascade are mostly 30% pcw. They come in different capacities (1", 2", 3") and different styles such as side hinged, top hinged, embossed, with business card pockets, hanging report covers:

- Oxford By Esselte Pressboard Report Covers. Side Hinged, 3" Capacity Fasteners
- Oxford by Esselte Economical Pressboard Report Covers. 3" side hinge
- Oxford by Esselte Pressguard Report Covers. Embossed title panel, side hinge, 3" capacity

- Oxford by Esselte Top Hinge Pressboard/Pressguard Report Covers. Embossed leather texture, 2"/3" capacity
- Wilson Jones Presstex Hanging Report Cover. For convenient file drawer storage, or any use. 2" capacity
- Oxford by Esselte Embossed Panel and Border Report Covers.
- Oxford by Esselte Twin Pocket Portfolios. Twin Pockets, with business card holder inside front pocket.
- Oxford by Esselte Twin Pocket Portfolios with Fasteners

Archive Storage Files for storing file folders and documents are available in high pcw contents ranging from 35%, 59%, and 78%. They also come in different sizes that can hold anything from files and forms, to checks and deposits. Highly recommended is the *Wilson Jones PermaFile* which is 100% pcw, and can come with an open lid or a string fastener. It is available in legal and letter sizes. The others are listed in the following:

- Fellowes Econo/Stor Check Storage File
- Fellowes Fastfold Econo/Stor. For letter and legal size records
- Fellowes Fastfold Storage Files. For Legal/Letter, large handles, labeling area, test weight: 200lb
- Fellowes Fastfold R-Kive Storage Files. Heavy Duty, double wall, double bottom boxes
- Fellowes Hang 'N' Store Letter/Legal. Stores hanging files.
- Fellowes Liberty Plus. Provides an assortment of storage options from check sizes to letter and legal sizes
- Fellowes Liberty Storage Boxes. Good for assortment of files, esp. dead/inactive records
- Fellowes Quick Stor Storage Box. Test weight: 200lbs
- HighMark Storage Boxes with String and Button Closures
- Fellowes Storage File with Flip-Top Lid. Medium strength, 200lbs
- Stor-A-File Storage Files; flip-top lid
- HighMark Storage Files with Lift-off Lids
- Fellowes String and Button Storage Files
- Banker's Box Systematic Files with Flip-Top Lid
- Wilson Jones Permafile Budgetmaster.

Transparency films also come in their recycled counterparts. Most are manufactured by 3M Company, and these transparencies are mostly 50% recycled (some are 25% pcw) and are inkjet, color copy compatible. These transparencies are compatible with HP, Apple, Canon, and Lexmark printers (these are most of the printers that Princeton uses). The *Vu Color EnviroColor* transparency is 50% pcw. The following is a list of these products:

- EnviroClear Color Copier/ creates transparencies directly on color laser printers and copiers, clear background

- Recycled Inkjet Transparency Film/ for color image presentations on ink jet printer, clear film
- 3M Transparency Film For Color Inkjet Printers/ color image on clear background
- 3M Transparency Film for Color Laser Copiers
- Vu Color EnviroClear Transparency Film for Inkjet Printers/ produces black and colored images on a clear background
- 3M Transparency Film for Laser Printers and Copiers/ creates transparencies directly on laser printers and copiers
- 3M Transparency Film for Plain Paper Copiers/ black image on clear background
- Vu Color EnviroClear Transparency Film For Monochrome Laser Printers
- Vu Color Transparency Film for Plain Paper Copiers

The Audio Visual Carts recommended here are made of steel. Currently, steel is currently the number one recycled item in North America¹³. The following statistics about steel have been taken from the Steel Framing Alliance website¹⁴ as well as from the EPA website:

- 1) The steel industry's overall recycling rate in 2000 was at 64.13%
- 2) Steel recycling reduces solid waste stream and thus, help stagnate the increasing landfill space.
- 3) Each year, steel recycling programs reuse enough steel that they save enough energy to electrically power about 18 million US homes¹⁴.
- 4) Every ton of steel recycled saves 2,500 pounds of iron ore, 1,400 pounds of coal and 120 pounds of limestone.
- 5) EPA recommends the steel recycling content to be anywhere from 35% pcw to 100% pcw.

The recommended Audio Visual Carts are all at least 30% pcw recycled steel and with different heights and sizes to support different monitor sizes.

- Adjustable Height Steel AV Cart with Locking Cabinet. Adjustable top shelf, 4 wheels, supports up to 20" W, cabinet included.
- Adjustable Height Steel AV Carts, two different models, adjustable shelf height adjustments, supports monitor up to 20" W,
- Overhead Projector Stands, four height adjustments
- Wide Body Large Monitor Cart, holds for monitors up 35"W

¹³ <http://www.recycle-steel.org/fact/main.html>

¹⁴ <http://www.steelframingalliance.com/facts/recycle.html>

There are also **steel index cardholders** made by *Buddy Products* and they are also 30% pcw recycled steel.

Other office products made from steel are the *Buddy Products* used for **bookracks, desk bookracks, bookends, file organizers (on the desk)**. They are also 30% pcw steel. The following is a list of those items:

- Buddy Products Adjustable Bookracks
- Buddy Products Desktop Bookracks
- Buddy Products Mirage Style Bookends
- Buddy Products Two Tier Bookracks
- Buddy Products Classic Design Horizontal Desktop Organizers
- Buddy Products Classic Design Slant Files. Organizes 8.5" x 11" size papers, files, and folders
- Buddy Products Classic Design Vertical Separators.
- Buddy Products Unifiles. Combination of vertical and horizontal files, 7 compartments
- Buddy Products Recycled Horizontal/Vertical Files. Curved sunset design, 2" capacity
- Buddy Products Wire Organizers. 8 movable wires.

Calendars and Organizers generally follow the EPA paper guidelines of minimum 30% pcw. The products listed below are mostly taken from *MeadWestvaco* Corporation which manufactures the well-known brands of *DayMinder* and *At-A-Glance* calendars. These calendars come in a variety of styles from desk to wall, to daily, monthly, and to weekly. They are all 30% pcw.

- DayMinder Daily Desk Appointment Book
- MeadWestvaco G-200 DayMinder Brand Weekly Desk Appointment Book
- MeadWestvaco G-210 DayMinder Brand Weekly Appointment Book, Tabbed Telephone/Address Section
- MeadWestvaco G-400 DayMinder Brand Monthly Planner
- MeadWestvaco G-480 DayMinder Brand Weekly/Monthly Duo Planner
- MeadWestvaco AY-24 At-A-Glance Monthly Desk Pad
- MeadWestvaco SK-25 At-A-Glance Fashion Monthly Desk Pad
- MeadWestvaco SW-230 At-A-Glance Monthly Desk Pad
- MeadWestvaco E-1017 At-A-Glance Daily Motivational Desk Calendar (flip style calendar)
- MeadWestvaco E-717R At-A-Glance Daily Desk Calendar Refill
- MeadWestvaco E-403 At-A-Glance QuickNotes Brand to do Today Planning Pad
- MeadWestvaco AY-44 At-A-Glance Daily Appointment Book (student planners)
- MeadWestvaco PM-3 At-A-Glance Monthly Wall Calendar

- MeadWestvaco PM-4 At-A-Glance Monthly Wall Calendar
- MeadWestvaco PM-12 At-A-Glance Yearly Wall Calendar

Floppy Disks can be bought recycled with *GreenDisk*. They make quality floppy disks from 100% unsold or reclaimed materials. In PC format, they have a capacity of 1.4MB.

Index Cards in pressboard materials are sold by *Oxford by Esselte* with 30% pcw, and the manila materials are in 10% pcw. *Earthwise by Esselte* offers colored index cards with minimum of 50% pcw. Also, *HighMark* also manufactures index cards with min. of 10% pcw.

- Earthwise by Esselte Recycled Index Cards. Assorted colors
- HighMark Index Cards.

Binders are another essential staple for a university. Usually, as EPA guidelines indicate, binders that are paperboard covered should be 75-100% pcw while pressboard binders should have around 20% pcw (see <http://www.epa.gov/cpg/products/binders.htm> for full listing of recommended pcw). Most of the recycled binders offered are pressboard material manufactured by *Wilson Jones and Acco*. They come in different capacity ring sizes and some are hanging binders. A few notably high pcw binders are the Tuff Stuff from *Wilson Jones* (75% pcw) and the binders from *Samsill Corporations* (75% pcw); *Earthwise by Esselte* offers 93% pcw binders: (pcw content in parenthesis)

- Wilson Jones Expandable Pressboard Letter Size Hanging Data Binders. (30%)
- Acco Flexible Accohide Unburst Form Hanging Data Binders. (25%)
- Acco Presstex Hanging Data Binders. (30%)
- Accohide NonHanging Square 4-Ring Data Binders. (30%)
- Wilson Jones Pressboard Acrylic -Coated Non-Hanging Binders. (25%)
- Acco Presstex Hanging Data Binders. (30%)
- Wilson Jones Presstex Reference and Storage Binders. (30%)
- Wilson Jones Tuff Stuff Recycled Binders. (75%)
- Acco Presstex Hanging Data Binders. (30%)
- Samsill Corporation Recycled Round Ring Vinyl Binder. (75%)
- Samsill Recycled Insertable Round Ring Binder. (75%)
- Acco Presstex Hanging Data Binders. (30%)
- Samsill Pressboard 3- Ring Binders. (30%)
- Samsill Recycled D-Ring Insertable Binders. (75%)
- Samsill 1991 Binder Sheet Lifter. (100%)
- Acco Presstex Hanging Data Binders. (30%)
- Earthwise by Esselte 3-Ring Binders. (93%)

Remanufactured toner cartridges are important to purchase because tons of hard, nonbiodegradable plastic and powder toner occupy landfills each year¹⁵. Plastic decomposes but never fully. Besides, recycled plastics can be blended with virgin plastic without sacrificing properties in many applications. One such example is in the reuse of toner cartridges. According to the 2000 Environmental Audit, it seems that Princeton has been effectively using remanufactured cartridges and cartridges that print double sided. The following are some of these remanufactured cartridges (both work for a number of HP and Canon Series):

- Unicorn Remanufactured Laser Toner Cartridges
- Guy Brown Remanufactured Laser Toner Cartridges
- Eco-Prism, through Boise Office Solutions, offers compatible remanufactured laser toner cartridges; however, it did not specify the exact products.

Finally, **plastic desk organizers** are also found recycled. They are manufactured either by Eldon or 3M, and are either 50% pcw or 25% pcw:

- 3M Desktop Organizer C-61 Black. Holds pens, pencils, paper clips, tape, and note pads.(50% pcw)
- 3M Rotary Organizer C-91 Black. Holds pens, scissors, post-it notes, flags. (50% pcw)
- Post-It by 3M Note Holder C-4235 Black, for 3x5 in Notes. (50% pcw)
- Eldon Regeneration Desk Directors. (25% pcw)
- Eldon Regeneration New Dimension Letter Trays. (25% pcw)
- Eldon Regeneration Pencil Cups. (25% pcw)
- Eldon Regeneration Pencil Cups. (25% pcw)

Where to Find this Information and Where to Purchase these Products

The Purchasing Department has kindly offered to create a Green PeopleSoft Catalog into which they will place the products I have described above. In general, the PeopleSoft Catalog is the catalog in which departments place their orders. With this new Green catalog, it saves departments from searching everywhere for recycled items. Don Weston, Director of Purchasing, plans to install green Peoplesoft into the DataMall which will make it easily accessible. Brian Rounsavill, Associate Director, has offered to create some graphics to help users navigate and utilize the green PeopleSoft. This way, it is easier to encourage departments to purchase recycled. Many departments may simply not have time to search for the recycled

¹⁵ R&R Supplies Ltd. <http://www.rrsupplies.com/why.htm>

counterparts, and simply just click on the first item they need. With a special green Peoplesoft Catalog, it makes their lives easier and achieves the purpose of a greener university.

Other University Policies

The final aspect of my project was to examine greening policies at other universities, which can serve as models for possible implementation at Princeton.

The National Wildlife Federation (NWF)¹⁶ sponsors a program called campus ecology which enlists enrolled colleges across the nation and details their current greening programs (see link below). During the 2001-2002 school year, 44 colleges documented their greening projects on Campus Ecology. The following is only one example of what these NWF colleges are doing:

In spring 2002, Emory University implemented the Carbon Dioxide Project, which attempted to assess a baseline for the amount of carbon dioxide released by the university as a result of burning fossil fuels in the production of electricity. Another aim of the plan was to measure the amount of carbon dioxide that could be sequestered by the forests near the university. Finally, after developing these numbers, Emory hopes to put this in a Powerpoint presentation to better educate all members of the university. More importantly, this project led to a lot of cooperation within the university departments. The Carbon Dioxide Project was a joint effort between the Environmental Studies Department and the Facilities Management. Serving as the liaison between these two units, Dr. John Wegner, faculty member of the Environmental Studies Program, helped Facilities Management to develop environmentally sound policies for Emory University. Much like Princeton, the university only recently began an Environmental Studies Program (1999).

Another project detailed in Campus Ecology by Emory is the “Emory Recycles” Program. Because of the immense traffic backup caused by visitors and students coming in and out of the university, Emory is renovating its entire campus to accommodate a walking plan with its “Emory Recycles” program. Emory will replace all roads of concrete and cars into green walking patches.

Most of Emory’s projects on campus are regulated by an environmental task force, led by President Bill Chace, who plans to create a university-wide environmental mission statement. Already, some of Emory’s actions have been applauded. Volunteer groups are working to rebuild

¹⁶ <http://www.nwf.org/campusecology/>

the campus' tree canopy while the school is taking an ambitious step to ask for LEED certification for their medical, research, and academic buildings that have been recently opened. LEED (Leadership in Energy and Environmental Design) is a set of environmentally sound standards (and also a rating system) for any new projects, and only a handful of buildings in the US have been LEED certified.

Rutgers University is always cited as being one of the exemplary universities committed to greening the campus. In 1988, Rutgers began its Environmental Procurement Program and by May 1992, it passed the Recycling and Source Reduction Policy and the Recycled Products Procurement and Use policy¹⁷. These policies urged the university to review and recommend practical recycling measures and to encourage cooperation between diverse members of the university. Kevin Lyons, author of Buying for the Future, was appointed as a purchasing agent and developed supporting purchasing policies. Letters were sent out throughout the universities asking for support. Students have worked with Lyons to develop environmentally friendly projects and to assist in spreading Rutgers' new environmental concerns. For example, students developed a procurement survey for departments. Now, each year, Rutgers is required to submit a report to state and local governments on the materials they recycled the previous year. Rutgers asks each and every one of its departments to submit data on the recycling materials that they have used via a website form (<http://facilities.rutgers.edu/fmo/recycle/form1.htm>).

Rutgers recycled about 68.8% of its solid waste in 2000¹⁸. Environmental initiatives have reduced many costs across the Rutgers campus. As Rutgers noted, it costs approximately \$48 to dispose a ton of waste, and \$30 to recycle¹⁷. Replacement of inefficient lighting saves about \$869,000 annually. "By purchasing natural gas at the wholesale price at the wellhead, and then having it piped instead of buying at a retail price which induces delivery, the university saved \$692,000 in 1994"¹⁷. Indeed, recycling, contrary to popular belief, has its own economic incentives.

Brown University is following suit. Energy-efficient lighting is specified in all new buildings by Brown's Planning and Construction Department and Brown's Department of Plant Operations. High efficiency motors are installed in 265 locations. While the initial costs of these

¹⁷ http://secondnature.org/efs/profiles/profile_rutgers.html

¹⁸ <http://facilities.rutgers.edu/fmo/recycle/recycles.htm>

renovations may exceed previous expenditures, it is predicted that these energy consumption reductions will pay back on the net cost of the projects in approximately 3 years¹⁹.

Getting the word out about environmental concerns is an important way to get the entire community involved. Johns Hopkins University has an elaborate website where they advocate their greening initiatives (<http://gigue.peabody.jhu.edu/~schugam/green/>). On this site, there are links to every aspect of the university from transportation to energy use to water to recycling management. The web also contains recent updates of greening initiatives at Johns Hopkins. For instance, in the arena of green building and design, a green consulting company has been hired to design several construction projects. In addition, a new building being constructed at the School of Medicine is being built with green principles (these include water saving and efficient energy standards). A Carnegie Institute building, the Space Telescope Science Institute facility, and a new Chemistry Building are planned to qualify for LEED certification.²⁰

Finally, a website, The Center for Environmental Citizenship, has a section called the Campus Green Vote (CGV) which is dedicated to training students on campuses across the nation to learn how to keep the media aware of current environmental issues. A section called "Blueprint for a Green Campus" (<http://www.envirocitizen.org/cgv/blueprint/index.html>) analyzes in explicit detail almost every aspect of university life and how a university can make its campus environmentally friendlier. The *Blueprint* is a collaborative effort from students, faculty, environmental experts, corporate partners, and philanthropists. It is a long, but worthwhile article. The following is a summary of the points that they address (these are taken from the website itself—under Summary of Recommendations). Some of these recommendations have already been undertaken by Princeton, which demonstrates that we are on the right track to becoming a greener institution:

- 1) Incorporate environmental concerns into course disciplines as much as possible.
- 2) Include a section in the academic mission statement, such as, "all students, upon graduating, will possess the knowledge, skills, and values to work toward an environmentally sustainable future."
- 3) Provide resources for faculty to teach environmental issues in their existing courses or develop faculty training programs, or hold seminars.

¹⁹ http://www.brown.edu/Departments/Brown_Is_Green/big/BrnIsGrn.html

²⁰ <http://www.jhu.edu/~recycle/>

- 4) Sign the Talloires Declaration, an international declaration of principles signed by over 150 institutions worldwide dedicated to fostering environmental literacy (this will be mentioned more in the next section).
- 5) Hold classes in which students can obtain academic credit for research on campus and local environmental issues. This way, interested and environmentally passionate students can exert their efforts for greening Princeton and receive credit at the same time. Too often, time constraints are a factor for students at Princeton, but by handing out credits for environmental work, interested students will be able to accomplish both and other students may be exposed and find interest in environmental studies.
- 6) Conduct an annual or biannual environmental audit (which Princeton is currently doing).
- 3) Distribute this audit to all members of the campus community, including trustees, high-level campus officials, staff, faculty, students, alumni, foundation donors, corporate donors, government officials, environmental leaders, community leaders and the public at large.
- 4) Include environmentally- sensitive specifications in all university goods and services contracts. As Princeton is doing now, the *Blueprint* recommends that the purchasing department negotiate with vendors the most suitable price for the highest post-consumer recycled content materials, and also, to expect every department and program to meet these environmental purchasing standards. In other aspects, it is recommended that the university invest in energy efficient technologies for heating, cooling, lighting and water systems. In order to measure these uses and savings, universities should install meters and take note of these readings on a consistent basis. Universities are also encouraged to incorporate sustainable design principles in all their projects. For instance, in land-use plans, universities should include guidelines to promote compact development to protect the forests, wetlands, wildlife habitats, and agricultural land that may be affected and to prevent the traffic congestion and air pollution that may be added.

- 5) As the *Blueprint* suggests, the ultimate, bottom line for a successful green campus is to forge a joint effort and commitment to sustainability by all members of the university. Students should be encouraged to participate in campus-wide greening events and to establish their own environmental centers and networks (ie, Princeton Environmental Action, Greening Princeton, Princeton Conservation Society). Moreover, there should be high funding and ample space for a student environmental center, which would sponsor events and conferences dealing with current environmental issues. If possible and if funds permit, it would even be advisable to hire an administrator who specializes in centralizing these environmental issues for both students and faculty.

Finally, I would like to introduce a doctrine called the Talloires Declaration. First composed in 1990 in Talloires, France, it is a ten-point document committing universities to environmental sustainability²¹. Since then, over 275 universities worldwide have signed this declaration. The ten points address major aspects of university activities and encourage cooperation within. Also, by signing, the declaration links your university with the hundreds of other universities dedicated to sustainability. This inter-university link can generate a great influx of greening information and support.

Signing the Talloires Declaration is a multi-step process and probably should not be done until the environmental committee has specified its green goals and has shown a serious commitment to sustainability. Committees and faculty and students must write to support this step. Finally, committee members must write a proposal to the President of the university stating why and how the university would benefit in signing this declaration. The detailed description of the declaration and the process of signing can be found in the following PDF file: http://www.ulsf.org/pdf/TD_resourcekit.pdf. Personally, I believe signing the Talloires Declaration really shows our commitment to an environmentally friendlier university. Moreover, it will give us initiative and the resources we need (ie, input from other universities) to realize our goals. Of course, a lot needs to be organized before the signing can be accomplished, but again, that may give us some incentive to take part in a campus-wide effort to green Princeton. The following is a list of Talloires Signatory Institutions in the US:

²¹ http://www.ulsf.org/programs_talloires.html

1. Alaska Pacific University, Alaska
2. American Re-Insurance Company, New Jersey*
3. Antioch College, Yellow Springs, Ohio
4. Appalachian State University, North Carolina
5. Ball State University, Indiana
6. Blue Ridge Community College, Virginia
7. Bowling Green State University, Ohio
8. Brown University, Rhode Island
9. Cape Cod Community College, Massachusetts
10. Christopher Newport Community College, Virginia
11. Clark University, Massachusetts
12. Clemson University, South Carolina
13. Clinch Valley College, Virginia
14. College of the Atlantic, Maine
15. College of William & Mary, Virginia
16. Colorado State University, Colorado
17. Connecticut College, Connecticut
18. George Mason University, Virginia
19. George Washington University, Washington, D.C.
20. Guilford College, North Carolina
21. Hampden-Sydney College, Virginia
22. James Madison University, Virginia
23. Longwood College, Virginia
24. Macalester College, Minnesota
25. Mary Washington College, Virginia
26. Merrimack College, Massachusetts
27. Middlebury College, Vermont
28. Monterey Institute of International Studies, California
29. Mount Holyoke College, Massachusetts
30. Muhlenburg College, Pennsylvania
31. Norfolk State University, Virginia
32. Northern Arizona University, Arizona
33. Northern Virginia Community College, Virginia
34. Northland College, Wisconsin
35. Occidental College, California
36. Old Dominion University, Virginia
37. Patrick Henry Community College, Virginia
38. Philadelphia University, Pennsylvania
39. Piedmont Virginia Community College, Virginia
40. Radford University, Virginia
41. Ramapo College, New Jersey
42. Randolph Macon Woman's College, Virginia
43. Rice University, Texas
44. Richard Bland College, Virginia
45. Rutgers University, New Jersey
46. Saint Thomas University, Florida
47. Southern Illinois University Carbondale, Illinois
48. Southern University and A&M College, Louisiana

49. State University of New York at Buffalo (SUNY), New York
50. Sterling College, Vermont
51. Stetson University, Florida
52. Tri-County Technical College, South Carolina
53. Tufts University, Massachusetts
54. University of Arizona, Arizona
55. University of California-Santa Barbara, California
56. University of Colorado at Boulder, Colorado
57. University of Florida, Florida
58. University of Georgia, Georgia
59. University of Hawaii, Hawaii
60. University of Massachusetts at Boston, Massachusetts
61. University of Montana, Montana
62. University of Nevada, Nevada
63. University of New Hampshire, New Hampshire
64. University of North Carolina at Chapel Hill, North Carolina
65. University of Northern Iowa, Iowa
66. University of Pittsburgh, Pennsylvania
67. University of Rhode Island, Rhode Island
68. University of Southern Maine, Maine
69. University of Virginia, Virginia
70. University of Wisconsin-Madison, Wisconsin
71. Utah State University, Utah
72. Virginia Commonwealth University, Virginia
73. Virginia Community College System, Virginia
74. Virginia Military Institute, Virginia
75. Virginia State University, Virginia
76. Virginia Western Community College, Virginia
77. Xavier University of Louisiana, Louisiana

Informative Links

The following is simply a list of websites that I used during the course of my internship which I found to be invaluable. They range from simple facts about recycling to a website full of links to other websites dedicated to greening activities. They are also some product websites from which you can make a direct order. Also, my footnotes in this report are all websites worth visiting as they provided me with the information for my research. Finally, the first few lists are websites to the paper manufacturers that I had spoken of previously. This way, interested departments can browse for the papers I had mentioned:

- 1) <http://www.neenahpaper.com>
- 2) <http://www.fraserpapers.com>
- 3) <http://www.foxriverpaper.com>
- 4) <http://www.domtar.com/home.asp>
- 5) <http://www.greatwhitepaper.com>
- 6) <http://www.newleafpaper.com>
- 7) <http://www.gilbertpaper.com>
- 8) <http://www.badgerpaper.com>
- 9) <http://www.greenculture.com>
- 10) <http://www.ecomall.com>
- 11) <http://www.conservatree.com> (an extremely informative site about paper)
- 12) <http://www.nwf.org/campusecology/stateofthecampusreport.cfm> (a good breakdown of daily campus activities and their impacts on environment)
- 13) <http://www.cnr.umn.edu/sci/Resources.html> (links, links, links to sustainability)
- 14) <http://www.state.nj.us/dep/dshw/recyclenj/index.htm> (NJ's own recycling site)
- 15) <http://www.webdirectory.com> (possibly the biggest environmental web directory)
- 16) <http://www.anjr.com> (New Jersey recycling)

Conclusion

Perhaps the harder process lies in how this information can be disseminated. After all, there is no effective result until the entire university is well aware of Princeton's commitment to green practices and is willing to participate. A few options can be entertained:

- 1) Greening Princeton has decided to send out fliers to departments detailing the new products and where to find them.
- 2) PEI, Princeton Env. Oversight Committee, and Greening Princeton as well as the student-organizations, Princeton Environmental Action and Princeton Conservation Society should correspond and produce a collaborative effort in spreading the word. This is probably the most efficient way and also it demonstrates Princeton's commitment to environmentally sound purchases
- 3) Perhaps even a presentation open to the whole school or to departments will be helpful. During this presentation, one can detail the goals of the university, provide some facts of recycling, dispel some misconceptions, and advertise the new recycled products. Moreover, it is also a good time for faculty to express their concerns with

recycled counterparts so that they too can feel that they are being represented in this decision.

- 4) The Purchasing Department's newsletters about recycled products is a good way to inform departments and also remind them that there are such options out there. Believe it or not, many departments are concerned with recycling. However, with the lack of information, there is little they can do.
- 5) Rallying students behind this cause should be the ultimate goal. Meetings should be made more known to the public.

Finally, I would like to thank everyone at the Purchasing Department for their time and support in helping me better understand the ins and outs of purchasing. I would also like to thank Janet Gruschow for guiding me throughout the internship and giving me a good direction in my research.

My research has been very rewarding. I have been inspired to pursue a certificate in Environmental Studies. I hope to stay an integral part of this process of greening Princeton, and would be honored to continue this line of work for our community.

