

# Hanging It Out On Campus:

A Guide to Providing Line-Drying Options to College Students and Promoting Other Eco-Friendly Laundry Habits\*

\*Including a Case Study of the Green Laundry Program at Pomona College

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## Introduction

Colleges and universities around the country are moving towards making their campuses more sustainable locations to live and learn. Educational institutions that provide student housing are in the unique position of being able to encourage sustainable behavior on a day-to-day basis. Green laundry habits are a key component of leading an environmentally-conscious life, and are an aspect of green-living that colleges have paid little attention to thus far. This guide explains the nuts and bolts of promoting green laundry habits on college campuses through educational outreach and the implementation of a drying racks program. The guide also contains detailed information on the green laundry program begun at Pomona College in Spring 2008.

## About Pomona College and Project Laundry List

Established in 1887, **Pomona College** is a residential liberal-arts college located in Claremont, California, a suburban town 35 miles east of Los Angeles. Over 95% of the college's 1500 students live in on-campus residence halls. Pomona is the founding member of the Claremont Colleges, a consortium of seven independent institutions blending the intimate atmosphere of small colleges with the academic and social resources of a university. The College is committed to making all aspects of the institution, including campus operations, academic curriculum, extracurricular activities, and community outreach, increasingly sustainable. Recent achievements include the completion of an extensive environmental audit of the campus in Summer 2008, and the hiring of a full-time Sustainability Coordinator in Fall 2008. To find out more about sustainability at Pomona, visit <http://www.pomona.edu/sustainability>.

**Project Laundry List** is a national 501 (c) (3) non-profit organization whose mission is to make air-drying laundry acceptable and desirable as a simple and effective way to save energy. Project Laundry List promotes National Hanging Out Day (April 19) and works on Right to Dry efforts throughout North America because millions of families are not allowed to save the 10-15% of energy used by the average home to dry clothes. More information on Project Laundry List and its current campaigns is available on their website at <http://www.laundrylist.org>.

## About the author

Chelsea Hodge is a member of the Class of 2009 at Pomona and is double-majoring in Environmental Analysis and Economics. A long time advocate of sustainability, she decided to spearhead the drying racks project at Pomona after spending Summer 2007 line-drying her clothes on the roof of the Oscar Wilde student co-op in Berkeley, CA, and the following fall doing her laundry in true Italian style (i.e. hanging it off her host-family's balcony for all the world to see) while studying abroad in Florence. Chelsea has worked closely with both the Sustainability Coordinator at Pomona and Alex Lee, Executive Director of Project Laundry List, in the development of Pomona's program and the production of this guide.

## Summary of projects at Pomona College

In Spring 2008, Pomona College began two projects to give students the opportunity to line dry their clothes. An online survey to gauge student interest in various line drying options and better understand students' general laundry habits was completed by over 20% of the student body and informed both projects. The first project was the installation of eight large, high-quality

drying racks in five campus laundry room that provide a total of 420 feet of clothesline at a cost of \$1500. The second project was the purchase of 25 foldable, personal-sized drying racks and the initiation of a program to loan the racks to students for use in their rooms for the duration of the academic year. Additional racks may be purchased and loaned out if the program proves successful. Details on the racks selected for these projects can be found in Appendix E. Both projects were funded by grants from the President's Sustainability Fund.

The College is also building a LEED Gold-certified residence hall whose laundry room will be outfitted with racks providing 150 feet of drying space.

Both projects include an ongoing education component to explain the benefits of smart laundry practices and answer questions about the drying racks, primarily in the form of posters placed in residence hall laundry rooms.

While these projects will have a negligible impact on Pomona's greenhouse gas (GHG) emissions, they boast impressive payback periods and thus should pay for themselves within a few years. (The laundry room racks have an estimated payback period of 5.3 years). Perhaps more importantly, the drying racks may result in a behavior change—line drying instead of tumble drying—that if maintained could result in meaningful emissions reductions over the lifetime of a student and their future families. By giving students the opportunity to try out and embrace line drying in a supportive, cost-free environment, we believe the project will result in many students leaving Pomona with an enthusiastic attitude toward line drying and other environmentally-friendly laundry habits.



An Austral Unit Line 15 rack installed in the Walker residence hall laundry room at Pomona.



Austral Slenderline 20 rack installed in the Harwood residence hall laundry room at Pomona.

## Why give students the option to line-dry their clothes?

### Establish sustainable behavior patterns:

- Students who line dry their clothes in college will be more likely to purchase and use a drying rack after they graduate. Racks allow students to try out line-drying at no cost (which is important since drying racks are moderately expensive, so students are more likely to purchase a high quality drying rack after leaving if they know that they like them).
- Life-time GHG emission reductions incurred by students who continue to line-dry their clothes after graduating are significant.<sup>1</sup>
- The opportunity to try out line-drying during college is important because one of the chief reasons that so few people line-dry their clothes in the U.S. is that it simply isn't a part of our culture, especially in urban areas. In Europe, most people don't even *own* a dryer despite the fact that they could easily afford one.<sup>2</sup>

### Save Money

- Drying racks are surprisingly lucrative investments for colleges and universities and frequently have payback periods of 5 to 10 years or less. Pomona's first project—the installation of 420 feet of laundry line in laundry rooms at a cost of \$1500—has an estimated payback period of 5.3 years due to reduced natural gas costs.

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<sup>1</sup> About 5.8% of residential electricity is used by electric clothes dryers according to DOE EIA statistics from 2001. Note, however, this figure does not include energy used by gas dryers, laundromats, and commercial dryers used on college campuses and in other institutions, and thus the total energy spent drying clothes is significantly higher than 5.8% of domestic residential energy use.

<sup>2</sup> Whereas 75% of households in the U.S. own a gas or electric dryer, only 53% of UK households, 35% of French households, and 5% of Italian households own a tumble dryer! Source:

<http://www.rotaire.com/environmental-case.htm>

- Line-drying clothes can be a cost-saving measure for students if the cost of drying a load is high enough.

#### **Reduce GHG emissions**

- Simple calculations (see below) led us to conclude that Pomona's laundry-room racks will reduce use of natural gas by about 470 therms a year, which is the equivalent of 2.87 mTCO<sub>2</sub>e (metric tons of CO<sub>2</sub> equivalent). Though this is a reduction, it is insignificant in comparison to the 5427 mTCO<sub>2</sub>e Pomona produced in 2007-2008.

#### **Reduce wear and tear on clothes**

- Gas-electric dryers frequently over-dry clothes, which weakens the fibers and thus causes clothes to degrade more quickly. Line-drying, however, allows fibers to dry naturally.

## **What students are saying**

James A., Pomona College '09

"The drying racks are great! Aside from the decreased energy usage they entail, I feel that they are much easier on my shirts than using the dryer. Also, I've never had any issues with drying my clothes in public. If anything, the fact that I'm not using a dryer to dry my clothes is a badge of pride."

Derek Y., Pomona College '09:

"I used one of the foldable freestanding drying rack as part of a trial and was very impressed. I had never used a drying rack in my dorm room before--I usually just throw wet clothes over my furniture. As such, I can't air-dry many clothes at once. If a drying rack were available for checkout, I would use it all the time and would never use a dryer again!"

Tammy Z., Pomona College '10:

"I usually line dry my clothes when they are nice clothes that the dryer would shrink or destroy. I'm really glad that the racks are there. Also, the fact that I see lots of clothes on the lines make me feel comfortable in using them. The fact that others are trusting enough to put their clothes on the racks creates a trusting atmosphere that conveys to me that it's okay to leave my clothes on these racks for a while and not have to keep an eye on them. That way drying my clothes in public is not a problem--there just seems to be nothing wrong with it (unless maybe lots of people were hanging undergarments around). To encourage others, I sometimes tell my friends about how much I love the drying racks and how convenient they are."

Alex T., Pomona College '09:

"As the leader of Pomona College's Campus Climate Challenge student sustainability group, I was very happy when Chelsea installed drying racks in the laundry rooms. Earlier in the year, we tried to raise awareness about using drying racks with drying rack parties dubbed "Wicker Park" after the flopped Josh Hartnett movie. Chelsea's project took drying racks to its logical conclusion on our campus. I often go into the laundry rooms and am happy to see them used. They fulfill a niche in student's drying needs."

## A step-by-step plan

The following framework summarizes the steps needed to establish a campus green laundry program:

- 1) Brainstorm all the possible places that drying racks could be placed on your campus. Take measurements of possible locations to have handy when comparing various rack options. Evaluate the options using the evaluation criteria found on page 9 and the evaluation we completed for Pomona found in Appendix A.
- 2) Get student feedback about your proposed ideas. If you have a way to distribute it, an online survey with incentives for students to take it (raffled gift cards work well) will likely afford you the greatest spectrum of input. You could also try putting up “we want your feedback” flyers in laundry rooms, tabling at campus dining halls, and talking to the student government.
- 3) If you want to install racks, discuss your options with your Maintenance or Buildings department as well as the Office of Residential Life to make sure that the racks can be installed in the locations you’re proposing. Fire safety laws, the strength of the wall you want to install the racks on, and institutional policies should all be taken into consideration.
- 4) Come up with a budget. If you’re not sure what your budget is (perhaps you’re applying for a grant, and you’re not sure how much you might be able to receive), come up with two or three plans of varying costs. Make sure your budget includes costs for:
  1. drying racks
  2. installation
  3. clothespins (necessary for socks, underwear etc.)
  4. clothespin bags/bins (For storage when not in use; I bought canvas clothes bags made by Whitmor that have held up well. These would also be easy to make yourself.)
  5. shipping
  6. sales tax
- 5) Secure funding. This will probably require writing a grant proposal. You’ll likely be able to adopt much of this from this guide. Sections to include:
  1. introduction, including a summary of your plan
  2. the benefits of a green laundry program
  3. results of your student survey (or other student input) and why they support your plan
  4. in-depth drying rack plan
    - a. placement of racks (include pictures of the racks, and photos of the locations you propose they be installed if necessary)
    - b. budget
    - c. analysis you used to evaluate your options (similar to Appendix A)
  5. in-depth publicity and education plan
  6. timeline
  7. if needed: letters of support from relevant offices or staff members
- 6) Purchase and install or build your racks if needed
- 7) Implement your publicity program to get the word out about your racks (flyers, email announcements, dining hall table tents, setting up racks or laundry lines in public places etc.)
- 8) Implement your education plan to teach students about the benefits of doing their laundry the green way. Components of your plan could include permanently installed signs in the laundry rooms, booths at campus events etc.

# Drying rack options

## ***Types of drying racks***

There are many types of drying racks available. See Appendix E (AASHE 2008 Conference Poster) for pictures of common types. For a near-comprehensive listing, visit the Air Dry Washing page on the Tip the Planet Wiki (a Wikipedia-type site for sustainable-living topics):

[http://www.tiptheplanet.com/index.php?title=Air\\_dry\\_washing](http://www.tiptheplanet.com/index.php?title=Air_dry_washing)

I created this page as a way to share the results of the many hours I spent researching drying racks for Pomona. Another good resource is the Huddler Green Home website:

<http://greenhome.huddler.com/products/category/clotheslines-drying-racks>

The site provides a platform for sharing and viewing reviews of green home products, including drying racks.

## ***Line-drying program options for college campuses***

There are many ways to give college students the option to line-dry their clothes. These include:

### **A) Drying racks permanently installed in laundry rooms**

This is a fairly simple, straightforward option, and one of two that Pomona is using.

### **B) Racks available for semester-long checkout**

This is the second option being used at Pomona. Students are able to check out a small, foldable, personal-sized drying rack for use in their room during the duration of the semester or year. The “racks-for loan” program could be run by the Office of Residential Life or Office of Sustainability. Students desiring to check out a rack would need to leave some sort of collateral (cash, check, student account number) in case they damage the rack or don’t return it. A variation on this scheme is to purchase racks in bulk to sell to students. However, this option seems inferior to the presented one because students would have to store the bulky racks on their own over the summer, and would have to sell or more likely discard their racks upon graduating. Middlebury College tried this for at least a year:

<http://www.middlebury.edu/administration/enviro/initiatives/energy/clothes.htm>

### **C) Include racks as standard-issue “furniture” for suite common rooms**

This is a good option for residence halls that are configured as suites that have several bedrooms clustered around a private, shared common room that comes with a couch, lounge chair, and table etc. A foldable drying rack could be added to this mix and thus would provide suite residents with a convenient, automatic-opt-in drying option. Suite residents would be charged at the end of the year if the rack was damaged or missing (just as they would be for any piece of common room furniture.)

### **D) Drying racks permanently installed in residence hall hallways or “nooks and crannies”**

This option is appropriate for smaller, more intimate residence halls that have wide hallways or nooks in which drying racks could be placed.

**E) Drying racks permanently installed outside**

An accessible building rooftop, large veranda, courtyard, or backyard could all work. Secure areas are of course preferable.

**F) Drying racks permanently installed in designated “air drying rooms”**

I’ve heard that a number of universities in Europe offer such rooms. A well-ventilated room next to the laundry room would be ideal.

**G) Small wall-mounted fold-down or telescoping racks installed in small, private bathrooms**

This is a good option if your institution has any residence halls with semi-spacious private bathrooms used by 1 to 6 students.

**H) Racks permanently installed outside residence hall windows (European style)**

Though this sort of drying arrangement is used by many in Europe, study large-volume racks for installation outside windows are not on the market in the U.S. at the moment. However, they seem quite simple to design and manufacture, and it probably would not be hard to incorporate a custom design in to a building renovation or new construction. This option might also be opposed by Trustees and other image-conscious members of the community. Finally, it is hard to dry a full load of laundry on an out-the-window rack.

**I) Drying racks permanently installed in large communal bathrooms**

**J) Portable racks managed by Office of Sustainability or a student group and available for use outside on select days**

Portable racks managed by the Office of Sustainability or a student group are placed outside in a public area near the residence halls for use on select days (say every Sunday from noon to 5pm).

**K) Racks available on a “borrow and return” honor-system basis from the laundry rooms**

**L) Racks available on a “check-out and return” basis from residence hall or Residential Assistant (RA) desks**

### ***Program option evaluation criteria***

Factors and questions that may be used to evaluate the above program options include:

**i. lifecycle cost**

How much will these racks cost to purchase? To ship? To install? How much do they cost per foot of drying space? How many years can they be expected to last? What is their payback period? Do they come with a warrantee? By how much will they reduce energy costs on a yearly basis?

**ii. feasibility**

How easy are these racks to install? Are these racks a good match for our climate? Do the racks need to be stored when not in use? If so, where can they be stored? Are these racks available for purchase in the US? Can we purchase them locally, or will they need to be shipped? How soon can the vendor ship them to us?

### **iii. safety & privacy**

Is theft a potential problem? If so, will these racks keep clothes safe from thieves? Will the racks expose the clothes to sun and thus potential bleaching? Do the racks allow students to dry their clothes in private, if so desired?

### **iv. ease of use**

Are these racks straightforward and easy to use? Are the racks located along the path between a typical student's dorm room and where they do their laundry?

### **v. availability**

Will these racks make line-drying available to most students, or only select groups of students?

### **vi. need for ongoing support**

Will these racks institutionalize line-drying on campus? Will they need repairs or ongoing adjustments (for example, line-tightening)? If so, who can make these and when will they be made? Do the racks need ongoing management from a campus office or student group?

### **vii. full-load capacity**

At Pomona, our goal has been to send students the message that drying racks are for drying all (or at least most) clothes, not just delicate items like undergarments and sweaters. Thus, we strove to choose racks that were large enough to dry at least one medium to large load of laundry (25 to 30 feet). This is also a reason to install communal racks over personal ones, especially since many college students do their laundry somewhat infrequently and thus do many loads at once, requiring a substantial amount of space to line-dry their clothes.

## **Surveying student habits and preferences**

In order to gauge student interest in the various options presented above, and to gain a better understanding of students' laundry habits in general, Kim Hartung, Pomona '10 and I developed an online SurveyMonkey survey with funding and incentives (Target gift cards) provided by the Environmental Quality Committee, a subcommittee of Pomona's student senate. Although the survey doesn't cover all the options described above (we decided not to bother students with our reject ideas, and hadn't dreamed up some of the options at the time the survey went live), the survey results do provide some useful information. The most relevant findings from the survey are presented below:

- Total respondents: 334 (roughly 22% of the student body)
- Respondents run an average of 2.3 washer loads and 2.1 dryer loads when they do laundry, an average of once every 2.2 weeks.
- 26% of dryer loads run are repeat cycles for the same load because the clothes didn't get dry the first time around
- 61% of respondents pick up their clothes within 10 minutes of the cycle finishing; 26% pick up their clothes within an hour of the cycle finishing
- Nearly 80% of respondents (266 students) report that they have line dried their clothes at least once in their life
- When students who said that they don't line dry the majority of their clothes were asked why (question 11), the top three responses were:
  1. I don't have space for a drying rack or drying line (in my room, etc) (65.7%)

- 2. Line drying takes too much time (52.1%)
- 3. I don't want to deal with a drying rack or drying line (41.8%)
- When students who said that they line-dried the majority of their clothes were asked why, (question 12), the top three responses were:
  - 1. The dryers damage my clothes (shrink them, over dry etc.) (63.9%)
  - 2. The tags on some of my clothes say "line dry only" (51.9%).
  - 3. I want to save energy (44.4%)
- When asked about what line drying options they would prefer:
  - 44.9% (144 respondents) cited "a folding rack I could borrow from the college for the whole year and use in my room" as their first choice. This was the most popular first choice. Another 38% of students said they would use this option even though it was not their first choice.
  - 11.8% (37 students) cited "racks installed in my laundry room" as their first choice. Another 36.7% said they would use this option even though it was not their first choice.

Full survey results are included in Appendix F.

In conclusion, we believe that students' existing line-drying habits indicate that a drying rack option would be used by a sizeable portion of the student body. We also believe that students will appreciate not only the opportunity to save energy and money, but the opportunity to better care for their clothes by line-drying them.

## Calculating a project's GHG emissions reductions, payback period, and rate of return

In the first phase of our project, Pomona installed 420 feet of laundry line by placing large communal drying racks in a third of residence hall laundry rooms. The total cost for purchasing and installing the racks, which were of the highest quality we could find, was roughly \$1500. This section explains how to calculate a project's GHG emissions reduction, payback period, and rate of return.

### Step 1: Calculate the reduction in dryer cycles that will result from the installation of the drying racks

Assume that a medium to large load of laundry needs 30 feet of drying space (according to the author's hands-on research). Dividing 420 by 30, we find that 14 loads of laundry can be dried on the racks at any one time. Let's assume that 5 different sets of clothes will be dried on each rack each week. (The laundry rooms are well ventilated so clothes dry over night). Thus, 70 (= 14 x 5) loads of clothes can be dried a week, or 280 (= 70 x 4) loads a month.

### Step 2: Calculate the energy use per dryer cycle.

Most college campuses, including Pomona, use commercial natural gas dryers. Gas dryers use about .21 therms of natural gas (to create heat) and .22kwh of electricity (to spin the clothes) per 55-minute cycle<sup>3</sup>. To convert from therms to kWh, you multiple by 30<sup>4</sup>, so .21 therms is

<sup>3</sup> Source: <http://forums.treehugger.com/viewtopic.php?t=2255>

<sup>4</sup> Source: <http://www.physics.uci.edu/~silverma/actions/HouseholdEnergy.html>

equivalent to 6.3 Kwh. We'll thus consider the .22kwh used to spin the driers negligible, and focus on the natural gas.

**Step 3: Calculate the total energy saved each year as a result of drying rack use.**

280 loads/month x .21 therms of natural gas/load = 58.8 therms of natural gas/month not used as a result of line drying. Assuming dryers are used on campus roughly 8 months a year, this is 470.4 therms. Disappointingly, this is a very small percent (.05%) of the 927,420 therms of natural gas used by Pomona in 2007-2008.<sup>5</sup>

**Step 4: Calculate GHG emissions reductions.**

One therm of natural gas produces 13.446 lbs of CO<sub>2</sub>.<sup>6</sup> Thus, reducing natural gas use by 470 therms reduces GHG emissions by 6325 lbs CO<sub>2</sub>. However, GHG emissions are usually measured in metric tonnes. There are 2204.6 pounds in a metric tonne, so the racks reduce emissions by 2.87 mTCO<sub>2</sub>e. This is clearly a very small portion of Pomona's scope 1 emissions, which were 5,427 mTCO<sub>2</sub>e in 2007-2008.

**Step 5: Calculate yearly energy savings from the drying racks and their payback period.**

If you found the results of Step 4 to be rather depressing, these calculations will cheer your right up! According to the DOE, the average U.S. residential customer pays roughly \$1.10/therm for natural gas.<sup>7</sup> (You might want to get the actual rates your institution pays if possible). We'll assume that institutions get a bulk rate, and thus only pay about \$1/therm. Thus, the drying racks will save Pomona \$470 every year in natural gas costs. However, students also have to pay to use the dryers, and this generates some income for the College. At Pomona, students pay ¢25 per dryer cycle, 2/3 of which goes to the company that owns the dryers, and 1/3 of which goes to Pomona. Thus, if students dry 280 loads a month on the drying racks 8 months per year, Pomona will not earn  $280 \times 8 \times \$0.25/3 = \$187$  per year. Thus, overall Pomona saves  $\$470 - \$187 = \$283$  per year. A simple payback period calculation, ignoring the time value of money, reveals that Pomona will recoup its initial payment in  $\$1500/\$283 = 5.3$  years. Not bad!

**Step 6: Calculate the internal rate of return.**

Drying racks can be thought of as an investment. You pay some sum upfront to install them, and then every year after that they save you some amount of money. We can think of these savings as money earned, or as interest earned, or in finance speak, as a positive cash flow. In our Pomona example, our initial investment was \$1500, and our cash flow is \$283/year. With this information, it is possible to calculate the *internal rate of return* for our drying rack project. The rate of return can also be thought of as a *return on investment* (ROI). In general, corporations (or universities) like to invest their money (or endowment) in projects that have a high rate of return but that aren't very risky. The internal rate of return for a drying racks project can be easily calculated using Microsoft Excel. For Pomona, my spreadsheet looked like this:

	A	B	C
1	Year	Money paid or earned	

<sup>5</sup> Pomona College Climate Change/ Green House Gas Emissions Audit: <http://www.pomona.edu/sustainability/audit-action-plan/audit/climatechange.shtml>

<sup>6</sup> PG&E Carbon Footprint Calculator Assumptions: <http://www.pge.com/myhome/environment/calculator/assumptions.shtml>

<sup>7</sup> "Residential Natural Gas Prices: What Consumers Should Know." U.S. Energy Information Administration. [http://www.eia.doe.gov/ncic/brochure/oil\\_gas/rngp/index.html](http://www.eia.doe.gov/ncic/brochure/oil_gas/rngp/index.html)

2	1	-1500	
3	2	283	
4	3	283	
5	4	283	
6	5	283	
7	6	283	
8	7	283	
9	8	283	
10	9	283	
11	10	283	
12			
13		=IRR(B2:B11)	Project's internal rate of return after 10 years. (12%)

I choose to calculate the IRR over 10 years because it seems feasible that purchased drying racks will last about that long. You should adjust your calculations accordingly.

In this example, irr(B2:B11) is calculated by Excel to be 12%. Not bad for a low-risk investment!

## Funding a project

Though securing funding for your project will depend on your individual situation, the following points may be helpful.

### Provide a Compelling Rationale

- **The payback period argument** Sustainability projects that are most readily funded on many college campuses are those with short payback periods. In other words, a project is desirable if the college will recoup the initial expenditure through savings in energy or water costs within a period of 5 to 10 years or less. As you've read above, Pomona's laundry room drying racks have an estimated payback period of 5.3 years. This low number will be a strong asset to any grant application, and makes drying racks an ideal project to receive a grant from a revolving-loan fund.
- **The reduced carbon emissions argument** Though drying racks do reduce carbon emissions, these reductions tend to be (at least at Pomona) negligible compared to the institution's total emissions. Nonetheless, reductions are reductions, so you may be able to secure funding from a pot of money designated for this purpose.

**General funding guidance and outside grants** A superb 54-page guide to securing funding for campus sustainability projects is available from the Association for the Advancement of Higher Education here:

[http://www.aashe.org/documents/resources/Raise\\_the\\_Funds\\_Toolkit.pdf](http://www.aashe.org/documents/resources/Raise_the_Funds_Toolkit.pdf) The guide also provides a list of grants offered by outside organizations available for campus sustainability projects.

**Donated racks** The drying rack industry is exploding in the U.S., and many of the larger companies (Hills and others) are eager to get their brand name out there. You may be able to secure a donation of drying racks from one of these companies if you agree to provide them with some publicity.

**Bulk discounts** Many retailers offer bulk discounts if you're ordering a large number of the same product. Always call up a sales rep to ask, as this information is sometimes not posted on websites.

**Ordering direct from the manufacturer** Always try to order direct from the manufacturer if your order is large enough to warrant doing so.

**Don't forget installation costs** Make sure to include the cost of installation, if any, in your budget. At Pomona, our Maintenance department quoted us \$47.50 per rack (an hours work for two staff members). However if you frame your request smartly, you may be able to get your Maintenance department to do the work pro-bono in the name of helping your institution become more sustainable. You may also be able to have student volunteers install the drying racks.

## Green laundry education and outreach

Education and outreach is a key component of any campus green-laundry program. Line-drying is just one of many actions students can take to green their laundry habits. Other actions include:

- washing on cold or warm instead of hot<sup>8</sup>
- using concentrated, liquid, natural laundry detergent
- only washing full loads
- if using a dryer, keeping the lint screen clean
- avoiding fabric softener and drying sheets
- using the correct amount of detergent (many people use more than is needed)

At Pomona, our primary form of outreach was posters placed in the campus laundry rooms used by all students. See Appendix G for copies of these posters. Students who checked out a personal drying rack also received a Q&A sheet that can be found in Appendix H. Information about the program is also be on Pomona's sustainability website ([www.pomona.edu/sustainability](http://www.pomona.edu/sustainability)) and we hope to further publicize green laundry habits through a booth at this year's Earth Day event. We also raised awareness about the racks-for-loan program by setting up the racks in the dining halls during several meals.

## Acknowledgements

This project would not have been possible without the assistance and encouragement of many people. Orlando Gonzalez and the Pomona Maintenance Department not only installed all the racks, but reinstalled a handful of racks when I realized that their original positions were not working. Glenn Gillespie of the Pomona College mailroom kindly agreed to use of the mailroom as the distribution point for the racks-for-loan program. Kyle Edgerton '08 provided funds from the Environmental Quality Committee to run our Spring 2008 survey on student laundry habits. The Spring and Fall 2008 President's Sustainability Fund Administration Committee, including Chuck Taylor and Neil Gerard, read over my lengthily proposals and agreed to fund a project that was new and unprecedented. I extend many thanks to college President David Oxtoby for

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<sup>8</sup> Hot water heating accounts for about **90% of the energy** your machine washes to wash clothes; only 10% goes to electricity used by the washer motor" (EnergyStar.gov)

making this \$15k annual fund for student-driven operational sustainability projects available, with gratitude also sent to the students who lobbied hard for the creation of this fund.

Kim Hartung '10 co-authored the early stages of this project, including the survey on student laundry habits and the proposal for laundry-room drying racks. Bowen Patterson, Pomona's Sustainability Coordinator, provided feedback on proposal drafts, co-authored the educational laundry-room posters, and provided support in organizing my trip to present this project at the Association for the Advancement in Higher Education's 2008 Conference in Raleigh, North Carolina. I would like to thank the organizations and offices that funded my trip to North Carolina and thus allowed me to share my findings with hundreds of other campus-sustainability-minded folks from around the country. These groups are: Campus Climate Challenge, the Environmental Quality Committee, the Dean of Students Office, the Environmental Analysis Program, and the Office of the Sustainability Coordinator.

Alexander Lee, Executive Director of the non-profit Project Laundry List, made himself available as an ideas testing ground and looked into securing bulk prices for us on some of the racks. He also provided feedback on a draft of this guide.

## Appendices

### ***Appendix A – Evaluation of line-drying options for Pomona College***

A slightly modified version of the evaluation we completed for Pomona is as follows:

#### **Option A: Drying racks permanently installed in laundry rooms**

- Overall: excellent option (implemented at Pomona)
- Evaluation:
  - i. *Lifecycle cost*: medium – chosen racks are expensive, but durable and come with 10 year guarantee
  - ii. *Feasibility*: high – high-quality racks are available online, and installing them isn't hard
  - iii. *Safety & privacy*: medium – racks in laundry rooms are fairly secure since an ID is required to enter. However, there is the risk of other students taking clothes. Clothes will be visible to other laundry room users. Racks are indoors and thus there is no risk of sun damage.
  - iv. *Ease of use*: high – racks are located where people are already doing their laundry and don't require any setup
  - v. *Availability*: medium – only some laundry rooms have space for racks
  - vi. *Ongoing support*: low – once installed racks should only need occasional repairs and line-tightening

#### **Option B: Racks available for semester-long checkout**

- Overall: excellent option (implemented at Pomona)
  - Appendix C contains a grant proposal that explains the nuts and bolts of Pomona's Racks-for-Loan program.
- Evaluation
  - i. *Lifecycle cost*: medium-high – Tradeoff between getting more durable racks and cheaper racks. Racks will probably be used less overall than those placed in

common areas and thus used by a larger number of people (and thus incurring greater energy savings)

- ii. *Feasibility*: medium-high – purchasing racks shouldn't be difficult; the biggest issue would be locating space to store the racks at the beginning and end of the school year and over the summer and developing a methodology for checking out and checking in the racks.
- iii. *Safety & privacy*: very high – students would keep and use racks in their rooms
- iv. *Ease of use*: high – students simply bring their clothes up from the laundry room wet instead of dry... no extra schlepping required!
- v. *Availability*: medium-high – any student can check out a rack; only problem is that some rooms are really too small to fit even a small foldable drying rack
- vi. *Ongoing support*: medium-high – Checking out and in racks at the beginning of each semester would be somewhat time consuming. Additionally, if using student accounts as collateral, time would be needed to bill students who don't return their racks

### **Option C: Include racks as standard-issue “furniture” for suite common rooms**

- Overall: pretty good option
- Evaluation
  - i. *Lifecycle cost*: medium-high – Tradeoff between getting more durable racks and cheaper racks. Racks will probably be used less than those placed in laundry rooms, but more than those loaned out to individual students.
  - ii. *Feasibility*: medium-high – purchasing racks shouldn't be difficult.
  - iii. *Safety & privacy*: high – rack will be in secure common room, or suite residents can move the rack to their room when using it
  - iv. *Ease of use*: very high – students simply bring their clothes up from the laundry room wet instead of dry... no extra schlepping required! Students also don't have to take the initiative to check out a rack.
  - v. *Availability*: medium-low – Only a small portion of students live in suites.
  - vi. *Ongoing support*: medium-low – RAs can check rack condition when they do end-of-the-year room condition evaluations. Racks may occasionally need to be repaired or replaced.

### **Option D: Drying racks permanently installed in residence hall hallways or “nooks and crannies”**

- Overall: pretty good option
- Evaluation:
  - i. *Lifecycle cost*: medium
  - ii. *Feasibility*: high – purchasing and installing racks shouldn't be difficult
  - iii. *Safety & privacy*: medium – racks would be in a public area, so theft would be possible. Theft might also be dependent on how highly trafficked the area where the drying rack is placed is. No sun damage since racks are indoors
  - iv. *Ease of use*: medium-high – ease of use would depend on how close a rack was to a student's room or laundry room
  - v. *Availability*: medium – Harwood, Oldenborg, and Mudd-Blaisdell are the only dorms that have available nooks and crannies for rack placement
  - vi. *Ongoing support*: low – racks should only need occasional repairs

### **Option E: Drying racks permanently installed outside**

- Pretty good option
- Analysis

- i. *Lifecycle cost*: medium
- ii. *Feasibility*: medium – purchasing and installing racks shouldn't be difficult. However, trustees and other image-conscious constituents might have to be convinced of the merits of the project if the racks are visible to the public
- iii. *Safety & privacy*: medium – racks would be in a public but not highly trafficked areas. Clothes could get bleached or discolored from exposure to the sun.
- iv. *Ease of use*: medium to low – racks would probably not be along the dorm room-laundry room route
- v. *Availability*: low – Wig and Mudd-Blaisdell are the only dorms with accessible rooms (though perhaps Oldenborg's roof could be made accessible?)
- vi. *Ongoing support*: low - racks should only need occasional repairs

**Option F: Drying racks permanently installed in designated “air drying rooms”**

- Overall: possible option
- Evaluation:
  - i. *Lifecycle cost*: low if space available– Maintenance could simply string several lengths of laundry line in a room and thus racks wouldn't need to be purchased. This would be very cheap. If we decided to purchase racks instead of stringing our own line, it would be especially cost effective because larger racks generally cost less per foot of laundry line than smaller racks.
  - ii. *Feasibility*: medium - rooms (probably in basements) would have to be located and okayed for conversion to drying rooms
  - iii. *Safety & privacy*: medium – Room should be protected by a swipe-only door. Perhaps more privacy than racks in a general laundry room since traffic would be lower. No risk of sun damage.
  - iv. *Ease of use*: medium to high – would depend on the proximity of the rooms to existing laundry rooms
  - v. *Availability*: medium to high – depends on how many rooms can be designated
  - vi. *Ongoing support*: low – racks should only need occasional repairs
- Appropriate models:
  - i. See Option A.

**Option G: Small wall-mounted fold-down or telescoping racks installed in small, private bathrooms (i.e. those used by 1-4 students)**

- Overall: possible option
- Evaluation:
  - i. *Lifecycle cost*: medium-high – would need lots of racks
  - ii. *Feasibility*: medium – installing racks in private bathrooms would be a somewhat substantial task for Maintenance; additionally, some students might object to having the racks in their bathrooms (even though they take up very little space when not extended for use)
  - iii. *Safety & privacy*: high – racks would be in private rooms
  - iv. *Ease of use*: high – students would simply carry wet clothes up from the laundry room instead of dry ones; there are racks on the market that are small enough to fit in most private bathrooms, yet large enough to fit a full load of laundry (for example, the Leifheit Telegant 100 (40" W x 1.75" H (at base) x 21.25 L (fully extended)) which provides 8 meters/ 26 feet of drying space).
  - v. *Availability*: low to medium – the racks could only be used by students who had a private bathroom in which a rack was installed, and less than half of rooms on campus have private bathrooms. If the racks were phased in over time (say through

a lottery system, with twenty new racks installed each year), the initial number of students with access to the racks would be small, but would grow over time.

- vi. *Clothes damage*: low – clothes would be inside
- vii. *Ongoing support*: medium-low – the racks might get more damaged than large public racks since the smaller racks tend to be less durable than the big ones. However, most private bathrooms are on North Campus and juniors and seniors seem to be slightly less raucous than first-years and sophomores when it comes to breaking things.

**Option H: Racks permanently installed outside private windows (European style)**

- Overall: tabled for now
- Evaluation: Pomona dorms not well-suited for out-the-window racks.

**Option I: Drying racks permanently installed in large communal bathrooms**

- Overall: rejected option
- Evaluation: Most bathrooms at Pomona don't have enough space. Also issue of high humidity from frequent showers.

**Option J: Portable racks managed by Office of Sustainability of student group and available for use outside on select days.**

- Overall: rejected option
- Evaluation: This option was tested out by Pomona's Campus Climate Challenge student group during the 2007-2008 school year. Although the program was successful in raising awareness, it required student involvement (and is therefore not institutionalized) and only allows students to line dry their clothing on specific days.

**Option K: Racks available on a "borrow and return" basis from the laundry rooms**

- Overall: rejected option
- Evaluation: Since students wouldn't be held accountable for racks borrowed, there would be a high temptation for students to "borrow" a rack for the whole semester, thus preventing other students from using it. Additionally, there would be no way to account for missing racks

**Option L: Racks available on a "check-out and return" basis from Residential Assistant (RA) desks**

- Overall: rejected option
- Evaluation: Same issues as above since RAs typically do not follow-up on missing checked-out items. Additionally, RA desks are open for very limited hours. However, this option could definitely work at a larger school with larger dorms and residence hall desks open longer hours.

## ***Appendix B – Appropriate drying rack models for different drying rack program options***

### **A) Drying racks permanently installed in laundry rooms**

- i. Homemade installation using 2X4 supports and laundry line
- ii. Large wall-mounted folding frame racks:  
[http://www.tiptheplanet.com/index.php?title=Air\\_dry\\_washing#Large .28Usually Outdoor.29 Wall Mounted Racks](http://www.tiptheplanet.com/index.php?title=Air_dry_washing#Large_.28Usually_Outdoor.29_Wall_Mounted_Racks)
- iii. Ceiling-mounted racks:  
[http://www.tiptheplanet.com/index.php?title=Air\\_dry\\_washing#Ceiling-mounted .28indoor.29 laundry racks](http://www.tiptheplanet.com/index.php?title=Air_dry_washing#Ceiling-mounted_.28indoor.29_laundry_racks)
- iv. Study freestanding racks chained to the wall:  
[http://www.tiptheplanet.com/index.php?title=Air\\_dry\\_washing#Foldable Freestanding racks](http://www.tiptheplanet.com/index.php?title=Air_dry_washing#Foldable_Freestanding_racks)

### **B) Racks available for semester-long checkout**

- ii. Foldable freestanding racks:  
[http://www.tiptheplanet.com/index.php?title=Air\\_dry\\_washing#Foldable Freestanding racks](http://www.tiptheplanet.com/index.php?title=Air_dry_washing#Foldable_Freestanding_racks)
- iii. A-frame over-tub racks:  
[http://www.tiptheplanet.com/index.php?title=Air\\_dry\\_washing#A-Frame Over Bathtub Racks](http://www.tiptheplanet.com/index.php?title=Air_dry_washing#A-Frame_Over_Bathtub_Racks)

### **C) Include racks as standard-issue “furniture” for suite common rooms**

- i. Foldable freestanding racks:  
[http://www.tiptheplanet.com/index.php?title=Air\\_dry\\_washing#Foldable Freestanding racks](http://www.tiptheplanet.com/index.php?title=Air_dry_washing#Foldable_Freestanding_racks)
- ii. A-frame over-tub racks:  
[http://www.tiptheplanet.com/index.php?title=Air\\_dry\\_washing#A-Frame Over Bathtub Racks](http://www.tiptheplanet.com/index.php?title=Air_dry_washing#A-Frame_Over_Bathtub_Racks)

### **D) Drying racks permanently installed in residence hall hallways or “nooks and crannies”**

- i. Large wall-mounted folding frame racks:  
[http://www.tiptheplanet.com/index.php?title=Air\\_dry\\_washing#Large .28Usually Outdoor.29 Wall Mounted Racks](http://www.tiptheplanet.com/index.php?title=Air_dry_washing#Large_.28Usually_Outdoor.29_Wall_Mounted_Racks)
- ii. Sturdy free-standing racks chained to the wall:  
[http://www.tiptheplanet.com/index.php?title=Air\\_dry\\_washing#Foldable Freestanding racks](http://www.tiptheplanet.com/index.php?title=Air_dry_washing#Foldable_Freestanding_racks)

### **E) Racks permanently installed outside**

- i. Freestanding and wall-mounted outdoor racks:  
[http://www.tiptheplanet.com/index.php?title=Air\\_dry\\_washing#Free standing and wall-mounted outdoor racks](http://www.tiptheplanet.com/index.php?title=Air_dry_washing#Free_standing_and_wall-mounted_outdoor_racks)

### **F) Drying racks permanently installed in designated “air drying rooms”**

- i. See Option A

- G) Small wall-mounted fold-down or telescoping racks installed in small, private bathrooms**
- i. Small, indoor wall-mounted racks:  
[http://www.tiptheplanet.com/index.php?title=Air\\_dry\\_washing#Small\\_.28Indoor.29\\_Telelescoping.2C\\_Accordion.2C\\_Fan.2C\\_and\\_Fold\\_Out\\_Wall\\_Mounted\\_Racks](http://www.tiptheplanet.com/index.php?title=Air_dry_washing#Small_.28Indoor.29_Telelescoping.2C_Accordion.2C_Fan.2C_and_Fold_Out_Wall_Mounted_Racks)
- H) Racks permanently installed outside residence hall windows (European style)**
- I) Drying racks permanently installed in large communal bathrooms**
- i. Large wall-mounted folding-frame racks:  
[http://www.tiptheplanet.com/index.php?title=Air\\_dry\\_washing#Large\\_.28Usually\\_Outdoor.29\\_Wall\\_Mounted\\_Racks](http://www.tiptheplanet.com/index.php?title=Air_dry_washing#Large_.28Usually_Outdoor.29_Wall_Mounted_Racks)
  - ii. Ceiling-mounted racks:  
[http://www.tiptheplanet.com/index.php?title=Air\\_dry\\_washing#Ceiling-mounted\\_.28indoor.29\\_laundry\\_racks](http://www.tiptheplanet.com/index.php?title=Air_dry_washing#Ceiling-mounted_.28indoor.29_laundry_racks)
  - iii. Small wall-mounted racks:  
[http://www.tiptheplanet.com/index.php?title=Air\\_dry\\_washing#Small\\_.28Indoor.29\\_Telelescoping.2C\\_Accordion.2C\\_Fan.2C\\_and\\_Fold\\_Out\\_Wall\\_Mounted\\_Racks](http://www.tiptheplanet.com/index.php?title=Air_dry_washing#Small_.28Indoor.29_Telelescoping.2C_Accordion.2C_Fan.2C_and_Fold_Out_Wall_Mounted_Racks)
  - iv. Sturdy free standing racks chained to the wall:  
[http://www.tiptheplanet.com/index.php?title=Air\\_dry\\_washing#Foldable\\_Freestanding\\_racks](http://www.tiptheplanet.com/index.php?title=Air_dry_washing#Foldable_Freestanding_racks)
- J) Portable racks managed by Office of Sustainability of student group and available for use outside on select days**
- i. See Option B
- K) Racks available on a “borrow and return” basis from the laundry rooms**
- i. See Option B
- L) Racks available on a “check-out and return” basis from residence hall or Residential Assistant (RA) desks**
- i. See Option B

## **Appendix C – Grant proposal for Pomona’s Racks-for-Loan program**

**To:** PACS President’s Sustainability Fund Subcommittee

**Subject:** Laundry Drying Racks-for Loan Program

**From:** Chelsea Hodge ‘09 and Kim Hartung ‘10

**Date:** Oct. 30, 2008

### **Introduction**

As you may recall from our earlier laundry proposal, we concluded that two options—*Option A: Drying racks permanently installed in laundry rooms*, and *Option B: Racks available for year-long checkout through the Office of Campus Life or the Sustainability Coordinator* are the most sensible ways to promote line-drying on campus at this time.

### **Proposal**

We propose purchasing 20 to 30 small, foldable, personal-sized drying racks to start the racks-for-loan program.<sup>9</sup> Throughout the fall semester we can evaluate the popularity of the program, and may recommend purchasing more drying racks depending on demand, student satisfaction, and funding availability.

Students would check out the drying racks on a first-come, first-serve basis for the academic year (or semester if going abroad). Students would be completely responsible for returning the racks undamaged at the end of the year, but could otherwise do with the rack what they wish (loan it to friends etc.) Students will be notified that racks may not be placed in hallways or other places where they may cause a fire hazard. Each student will only be allowed to check out one drying rack.

#### *Check-out Process*

Sustainability Coordinator Bowen Patterson has agreed to run the check-out process. After brainstorming several pickup locations, we believe that utilizing the services and central location of the mailroom makes the most sense. Mailroom coordinator Glenn Gillespie has agreed to this.

Students will reserve a drying rack by emailing Bowen or sending her a signed waiver (distributed at publicity events) via campus mail. If a rack is available, Bowen or one of her assistants will inform the student via email that the rack will be available for pick-up at the mailroom that Friday. This way, Bowen or her assistants will only have to make one trip per week to the rack storage location, and students can pick up the rack mailroom instead of at Bowen’s office, which is not in a very central location. The SCC mailroom is already set up to make sure that the right packages get to the right people so that shouldn't be a problem. Since the mailroom is especially busy in the beginning of the year, drying rack distribution could start the 3rd week of school.

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<sup>9</sup> We believe that this is a fairly conservative starting point given that in our Spring 2008 survey 103 students listed “a folding rack I could borrow from the college for the whole year and use in my room” as their first-choice line-drying option, and 42 students listed it as their second choice option.

### *Check-in Process*

The details of the check-in process are still TBD, but will likely require students to bring their racks to Bowen's office at Kenyon House at the end of the semester.

### *Ensuring Accountability*

In order to receive a rack, students will have to sign a waiver allowing the school to charge their student account for the full or partial value of the rack in the event that they do not turn the rack in at the end of the year, or they turn in a damaged rack. Racks will be permanently labeled so that students can only return the same rack that they checked out.

### *Education and Outreach*

An email to all students, and follow-up messages in the Digester, will be used to get the word out to students about the racks-for-loan program. Posters, table tents or flyers in dining halls might be used as well. We also hope that mention of the program will be included in New Student Orientation. All students who check out a rack will receive a hard copy of the "line drying tips" sheet that was included in our last proposal and that will be displayed in all of the laundry rooms with the permanently-installed drying racks. Students will also be given a program information flyer with information about how to care for their racks, how to return their racks at the end of the year, and info about other air-drying products that they may be interesting in purchasing to supplement the racks provided by the program. The tips sheet plus program information sheet should also be available on the Sustainability @ Pomona website.

### *Which rack?*

We have identified three racks as contenders for the racks-for-loan program. The racks chosen are all relatively compact in size, yet provide enough drying space for at least a full load of laundry (about 30 feet). All of the racks shown also fold up for storage behind a bookshelf, desk or door, or under a bed. Sturdiness and durability were the key considerations in selecting these racks; our goal is to purchase racks that will last for at least five to ten years under standard usage. In addition to encouraging students who have never considered line-drying their clothes to try it out, we hope this program will also reduce the number of cheap racks that student purchase, only to throw them out after they break in a year or two.

All involved parties should participate in choosing which rack(s) to use for the program. It would also be possible to select two racks for inclusion in the program so that students could pick the rack that best fit their needs.

### ***Option 1: Polder Argento Deluxe Freestanding Dryer***

**Price each:** \$30.05 (includes shipping, handling, tax; no discount for bulk orders)

**Total cost (incl. shipping + tax) for 10 racks:** \$300.52 (\$30.052/ rack)

**Total cost (incl. shipping + tax) for 15 racks:** \$450.78 (\$30.052/ rack)

**Total cost (incl. shipping + tax) for 20 racks:** \$601.04 (\$30.052/ rack)

**Total cost (incl. shipping + tax) for 30 racks:** \$901.56 (\$30.052/ rack)

**Vendor:** Target (quoted prices are from here)

**Product description:** <http://tinyurl.com/5hx6jr>

**Feet of laundry line:** 29

**Pros:** Compact, lightweight, moderately durable (reviews on Target.com are mixed; a friend of Chelsea's says she and her four suitemates used it for a year no-problem)

**Cons:** Not very sturdy looking; can only be ordered online



**Option 2: Leifheit Pegaus Genius Dryer**

**Price each:** \$62.99 each + no tax + free shipping (cheaper if purchase 20 or more)

**Total cost (incl. shipping + tax) for 10 racks:** \$629.90 (\$62.99 each)

**Total cost (incl. shipping + tax) for 15 racks:** \$944.85 (\$62.99 each)

**Total cost (incl. shipping + tax) for 20 racks:** \$1,232.81 (\$61.6405 each)

**Total cost (incl. shipping + tax) for 30 racks:** \$1,849.215 (\$61.6405 each) (or possibly less, I didn't actually get a quote for this)

**Vendor:** Trash Cans and More

**Product description:** <http://www.trashcansandmore.com/LEIFHEIT-99996-QI1103.html>

**Feet of laundry line:** 33 + little red clips for underwear and socks

**Pros:** Compact, lots of drying space, sturdy, easy to hang things on (especially since you can slide items on from the side) doesn't require clothespins because of red clips for socks and underwear

**Cons:** Expensive, must be shipped, bigger than Polder Argento model



***Option 3: Ikea Frost Drying Rack***

**Price each:** \$ 19.99 + tax (no shipping b/c pick up in store)

**Total cost (incl. tax) for 10 racks:** \$216.40 (\$21.17/ rack)

**Total cost (incl. tax) for 15 racks:** \$324.59 (\$21.17/ rack)

**Total cost (incl. tax) for 20 racks:** \$432.79 (\$21.17/ rack)

**Total cost (incl. tax) for 30 racks:** \$649.18 (\$21.17/ rack)

**Vendor:** Ikea

**Product description:** <http://www.ikea.com/us/en/catalog/products/50095091>

**Feet of laundry line:** 60 (though only short items can be hung in some of these areas)

**Pros:** relatively sturdy and durable, inexpensive, suitable for outdoor use, no need for shipping

**Cons:** large (when set up), bars not arranged to facilitate quick and easy hanging, may require clothespins for socks and underwear



## ***Appendix D – Dimensions and costs of folding frame drying racks***

Folding frame drying racks will be a likely choice for many college campuses. The following is an all-in-once-place rundown of the dimensions and costs of available models as of November 2008.

### **AUSTRAL**

Austral Unitline 15 – 4.2' (W) x 2.82' (D) – 45 feet – \$ 267.00  
Austral Standard 28 – 7.87' (W) x 4.92' (D)– 84 feet – \$ 293.00  
Austral Compact 28 – 7'11" (W) x 3'2" (D) – 84 feet – \$279.00  
Austral Slenderline 15 – 7.87' (W) x 1.64' (D) – \$285.00  
Austral Slenderline 20 – 9.9' (W) x 1.5' (D) – 60 feet – \$ 309.50  
Austral Addaline 35 – 7.87ft (W') x 4.92' (D)– 105 feet – \$399.00

### **HILLS**

Hills Paralane Duo Plus - 7'3" (W) x 5'2" (D) - 70 feet - \$149  
Hills (Paralane) Mono - 7'4" (W) x 5'5" (D) - 70 feet - \$90  
Hills Supa Fold 70 - 4' (W) x 2' 5" (D) - 23 feet - \$108  
Hills Supa Fold 120 - 7'4" (W) x 2' 5" (D) - 39 feet - \$120  
Hills Supa Fold 190 - 11' (W) x 2.6' (D) - 62 feet - \$148  
Hills Supa Fold 210 - 7'4" (W) x 5'6" (D) - 68+ feet - \$144  
Hills Supa Fold 230 Advantage - 7.2' (L) x 5' (W) - 75 feet - \$206

### **CITY LIVING**

City Living Flat Line - 6.9' (W) x 30", 36", 48", 60" (D) (depending on model) – 61, 67.5, 81, 96 feet – (depending on model; all #s assume attachment included) – \$298 w/o extra space attachment, \$248 with

# Providing Pomona College Students with Line Drying Options: Changing Behavior and Reducing Energy Use One Sock at a Time

Chelsea Hodge '09, Kimberly Hartung '10 and Bowen Patterson, Sustainability Coordinator, Pomona College, Claremont, California



## Abstract

In Spring 2008, Pomona College began two projects to give students the opportunity to line dry their clothes. The first project was the installation of eight large, high-quality drying racks in five campus laundry rooms that provide a total of 420 feet of clothesline. The second project is the purchase of 25 foldable, personal-sized drying racks and the initiation of a racks-for-loan program that will allow students to check out the racks for use in their rooms for on a semester basis. Both projects include an ongoing education component to explain the benefits of smart laundry habits and answer questions about the drying rack.

Both projects were informed by an online survey, completed by over 20% of the student body, that asked students about their general laundry habits and interest in various line drying options.

While these projects may have a negligible impact on Pomona's greenhouse gas emissions and overall environmental footprint, they will encourage a change in behavior that could have a lasting, lifetime impact among Pomona's alumni and their families. By giving students the opportunity to try out and embrace line drying in a supportive, cost-free manner, we believe the project will result in many students leaving Pomona with a much more enthusiastic attitude toward line drying and environmentally-friendly laundry habits.

## Why Give Students Line Drying Options?

- Establish sustainable behavior patterns:**
  - racks allow students to try out a new energy-saving behavior at NO COST to them
  - the no-cost aspect is especially important because drying racks are moderately expensive, and so students are more likely to purchase a high quality drying rack after graduating if they've already tried one out
  - Pomona might be the only time a student is exposed to drying racks since line drying isn't a part of mainstream US culture (in Europe, most people don't even own a dryer despite the fact that they could easily afford one. Whereas 75% of households in the U.S. own a gas or electric dryer, only 53% of UK households, 36% of French households, and 5% of Italian households own a tumble dryer)
- Reduce GHG emissions**
  - Back of the envelope calculations led us to conclude that the current programs will reduce use of natural gas by about 638 therms a year. Or about 0.23% of the 277647 therms of natural gas used in the residence halls each year.
  - Potential to increase this reduction to 85% if one half of students could be convinced to line-dry their clothes
  - Real gains from the project stand in the life-time GHG emission reductions incurred by students who leave the Pomona with a vow to line dry their clothes for a lifetime.
- Reduce wear and tear on clothes**

## How much will the programs reduce natural gas use?

Assume that a medium to large load of laundry needs 30 feet of drying space. This means that 14 loads of laundry can be dried on the laundry room racks at any one time. Let's conservatively assume that 5 different sets of clothes will be dried on each rack each week (the laundry rooms are well ventilated so clothes dry over night). Thus, 70 loads of clothes can be dried a week, or 280 loads a month. Let's also assume that each of the 25 personal racks is supplements the use of four dryer loads of laundry a month between the rack's owner and his or her friends. Thus, the personal racks avoid 25 racks x 4 loads/rack/month = 100 loads/month. Assuming students are on campus 8 months a year, we are saving (280 + 100) loads/month x 8 months = 3040 loads per year. Gas dryers use about 21 therms of natural gas and .22kwh of electricity per load. To convert from therms to kWh, you multiply by 30, so .21 therms is equivalent to 6.3 kWh. We'll thus consider the .22kwh used to spin the dryers negligible, and focus on the natural gas. So 3040 loads/year x 21 therms of natural gas/load = 63840 therms of natural gas/year not used as a result of line drying. This is a small amount (0.23%) of the 277647 therms of natural gas used in the residence halls in 2005-2006.

What if we expanded our clothesline capacity to allow 50% of students to line dry their clothes? Assuming each student of these 700 students does 2 dryer loads per month, 8 months per year, we can estimate 11,200 load, or 2352 therms, per year. This would result in a 0.85% reduction in natural gas in the dorms each year. Not hugely significant, but definitely a start!

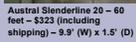
## Program #1: Install five high quality drying racks in residence hall laundry rooms



Austral Unit Line 15 - 45 feet - \$278 (including shipping) - 4.2' (W) x 2.82' (D)



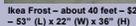
Austral Compact 27 - 80 feet - \$299 (incl. shipping) - 7'11" (W) x 3'2" (D)



Austral Slenderline 20 - 60 feet - \$323 (including shipping) - 9.9' (W) x 1.5' (D)



Austral Unit Line 15 (see above)



Ikea Frost - about 40 feet - \$20 - 53" (L) x 22" (W) x 36" (H)



Leifheit Pegasus Tower 190 - 62 feet - \$75 - base: 1.65' x 2.1'

## Where can drying racks be used or installed on campus?

- Laundry rooms and dedicated drying rooms
- Rooftops
- Enclosed courtyards
- Balconies
- Niches in hallways
- Private rooms
- Suite common rooms
- Private and shared bathrooms

## Program #2: Purchase 25 Foldable, Freestanding Racks and Loan them to Students on a Semester Basis



Leifheit Genius Dryer/EasyDry - 47 feet - \$67 - 46" W x 35.5" H x 26" D



Polder Argento - 29 feet - \$20 - 35" x 20"

## How much do folding frame racks cost?

- Austral Unitline 15 - 4.2' (W) x 2.82' (D) - 45 feet - \$ 267.00
- Austral Standard 28 - 7.87' (W) x 4.92' (D) - 84 feet - \$ 293.00
- Austral Compact 28 - 7'11" (W) x 3'2" (D) - 84 feet - \$ 279.00
- Austral Slenderline 15 - 7.07' (W) x 1.64' (D) - \$ 205.00
- Austral Slenderline 20 - 9.9' (W) x 1.5' (D) - 60 feet - \$ 309.50
- Austral Addaline 35 - 7.87' (W) x 4.92' (D) - 105 feet - \$ 399.00



## Shameful? Or sustainable?

In many communities across the US it is ILLEGAL to line dry your clothes outside. To learn more about the Right to Dry movement, visit the non-profit group Project Laundry List at [www.laundrylist.org](http://www.laundrylist.org)

## The Many, Many Types of Clotheslines and Drying Racks

For information on where to buy these and other racks visit the Air Dry Washing Wiki by searching Google for "air dry washing" and clicking on the first link.



CEILING MOUNTED - IKEA Antonius Height Adjustable Clothes Dryer - 39 feet - \$15



T-POST - LaundryList.org - 105 feet - \$22



FOLDING FRAME - Hills Supa Fold 120 - 39 feet - \$120 - 7.2' x 2.6'



ROTARY - Hills Rotary 400 - 105 feet - \$235 - 6' sq



TELESCOPING - Leifheit Telegant 100 - 26 feet - \$40



TUB-SIZED EAGLE TYPE - Antwerp Top Dry Mini - 34 feet - \$46.00



ORGANIZELL.COM - 36 feet - \$34



DOUBLE and SINGLE ACCORDIAN - Right: GreenStork.com and elsewhere - 50 feet - \$68; Left: Polder B3-100S - 24 feet - \$32



CEILING MOUNTED with pulleys - High Dry - \$59



WALL TO WALL and POST TO POST diagrams



MULTI-LINE EXTENSIBLE - Hills Extendable Quadro 4 - 85 feet - \$98



OUT THE WINDOW - Photo taken in Vernazza, Italy by Flickr user Visebek



FOLDING FRAME - IKEA Tvätta - 37.5 feet - \$40



BUTTERFLY Y-FRAME - JSC-0018 Butterfly Clothes Drying Rack - 17 feet - \$75

## Survey of Student Laundry Habits and Line-Drying Preferences



## Education & Outreach Posters

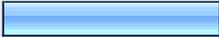
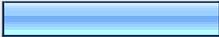
### Doing Your Laundry the Green way

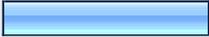
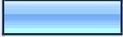
- Wash using cold water!** Hot water heating accounts for about 80% of the energy your machine consumes to wash clothes. Only 10% goes to washing your clothes! (EnergyStar.gov)
- Use an air-dry rack or clothesline to dry your clothes. Don't use a dryer.
- Use an air-dry rack or clothesline to dry your clothes. Don't use a dryer.

### Q & A About Drying Racks

- Why should I line dry my clothes?**
  - It's better for saving money and energy. Line drying your clothes prevents from hot ironing, reduces your water, and makes them last longer. (Wash as you think and come back!) Many people are also surprised to learn that line drying actually results in **less wrinkled clothes** since it does not dry your clothes too fast.
  - It depends on your clothes and the weather, but line dry. Do NOT!
  - Do you need to **stretch** jeans?
  - Do you need to **stretch** shirts?
  - Do you need to **stretch** socks?
  - Do you need to **stretch** underwear?
  - Do you need to **stretch** towels?
  - Do you need to **stretch** bath towels?
  - Do you need to **stretch** bed sheets?
  - Do you need to **stretch** pillowcases?
  - Do you need to **stretch** blankets?
  - Do you need to **stretch** quilts?
  - Do you need to **stretch** duvets?
  - Do you need to **stretch** pillows?
  - Do you need to **stretch** cushions?
  - Do you need to **stretch** curtains?
  - Do you need to **stretch** blinds?
  - Do you need to **stretch** shades?
  - Do you need to **stretch** awnings?
  - Do you need to **stretch** umbrellas?
  - Do you need to **stretch** beach chairs?
  - Do you need to **stretch** beach towels?
  - Do you need to **stretch** beach blankets?
  - Do you need to **stretch** beach umbrellas?
  - Do you need to **stretch** beach chairs?
  - Do you need to **stretch** beach towels?
  - Do you need to **stretch** beach blankets?
  - Do you need to **stretch** beach umbrellas?

# CCC Laundry Survey!

1. What is your class year?			Response Percent	Response Count
2008			23.7%	56
2009			22.0%	52
<b>2010</b>			<b>30.5%</b>	72
2011			23.7%	56
			<b>answered question</b>	<b>236</b>
			<b>skipped question</b>	<b>2</b>

2. What laundry facility do you typically use?			Response Percent	Response Count
Clark I			6.3%	15
Harwood			6.8%	16
Lyon			5.9%	14
<b>Mudd Blaisdell (either one)</b>			<b>22.4%</b>	53
Oldenburg			12.7%	30
Smiley			5.9%	14
Walker			19.8%	47
Walton Commons (by the QRC and Lawry)			10.1%	24
Wig			8.4%	20
Ones in my or a friend's off campus house/apartment			1.7%	4
Local Laundromat			0.0%	0
			<b>answered question</b>	<b>237</b>
			<b>skipped question</b>	<b>1</b>

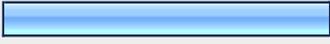
## ***Appendix G – Pomona College laundry room posters***

These include:

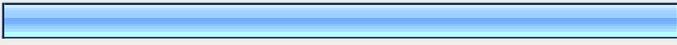
- Doing Laundry the Green Way
- Drying Rack Q&A
- General Laundry Tips

Please note that these posters are specific to Pomona and should serve only as a guide for other institutions. Details such as the amount of time it takes to dry a load of laundry, where green laundry products can be purchased, program specifics, and other details should all be changed to reflect the situation at your institution. Additionally, these posters were authored solely by Pomona College. Project Laundry List has not verified the content of the posters and does not endorse any of the products listed or claims made.

5. When you do laundry, how many “dryer runs” (25¢ each) do you usually buy?

		Response Percent	Response Count
0		0.8%	2
1		35.7%	85
2		35.7%	85
3		15.5%	37
4		8.0%	19
5		1.7%	4
6		1.7%	4
7		0.4%	1
8		0.4%	1
9+		0.0%	0
		<b>answered question</b>	<b>238</b>
		<b>skipped question</b>	<b>0</b>

6. How many of these are repeat (second or third) cycles for the same clothes?

		Response Percent	Response Count
0		74.5%	175
1		18.3%	43
2		6.4%	15
3		0.4%	1
4		0.4%	1
5+		0.0%	0
		<b>answered question</b>	<b>235</b>
		<b>skipped question</b>	<b>3</b>

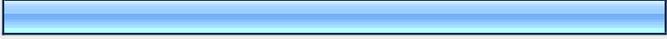
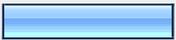
**7. How promptly do you pick up clothes from the laundry room?**

		Response Percent	Response Count
within 10 minutes of the dryer cycle finishing		62.2%	148
within an hour or two of the dryer cycle finishing		26.1%	62
the same day		8.4%	20
the next day		2.1%	5
some time that week...		1.3%	3
		<b>answered question</b>	<b>238</b>
		<b>skipped question</b>	<b>0</b>

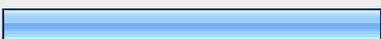
**8. Have you ever (in your entire life) line dried any of your clothes?**

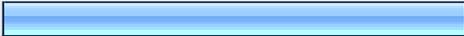
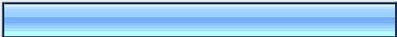
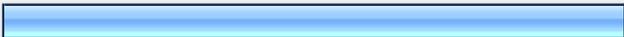
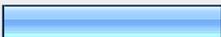
		Response Percent	Response Count
yes		81.9%	195
no		18.1%	43
		<b>answered question</b>	<b>238</b>
		<b>skipped question</b>	<b>0</b>

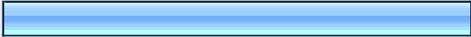
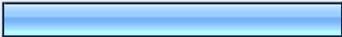
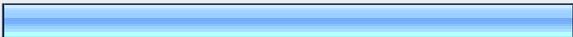
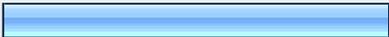
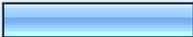
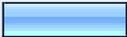
**9. What have you used the drying racks on South Campus (that Campus Climate Challenge purchased last fall and are free for anyone to use) to dry?**

		Response Percent	Response Count
nothing-- I've never seen these racks		73.1%	174
nothing-- I've seen the racks but have never used them		18.5%	44
part of a load of laundry		4.2%	10
one load of laundry		1.3%	3
two or more loads of laundry		2.9%	7
	Comments?		42
	<b>answered question</b>		<b>238</b>
	<b>skipped question</b>		<b>0</b>

**10. Do you usually (now) line dry any of your clothes?**

		Response Percent	Response Count
No		41.6%	99
Yes, but only delicate items and/or those that can't go in the dryer		41.6%	99
Yes, but less than half of them		11.3%	27
Yes, more than half but not all of them		4.2%	10
Yes, all of them		1.3%	3
	<b>answered question</b>		<b>238</b>
	<b>skipped question</b>		<b>0</b>

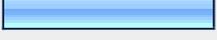
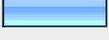
11. Why don't you line dry the majority of your clothes? (check all that apply)			
		Response Percent	Response Count
Line drying takes too much time		50.8%	100
I like the quality of machine dried clothes over line-dried clothes		35.5%	70
I don't want to deal with a drying rack or drying line		43.1%	85
<b>I don't have space for a drying rack or drying line (in my room, etc)</b>		<b>68.5%</b>	135
Other (please specify)		23.9%	47
		<b>answered question</b>	<b>197</b>
		<b>skipped question</b>	<b>41</b>

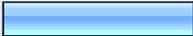
12. Why do you line dry some or all of your clothes? (check all that apply)			
		Response Percent	Response Count
The tags on some of my clothes say "line dry only"		51.5%	50
I'm dissatisfied with the dryers here (take to long, don't dry clothes etc.)		37.1%	36
<b>The dryers damage my clothes (shrink them, over dry etc.)</b>		<b>62.9%</b>	61
I want to save energy		42.3%	41
That's what I've always done		20.6%	20
I'd rather not pay to dry them		13.4%	13
Other (please specify)		13.4%	13
		<b>answered question</b>	<b>97</b>
		<b>skipped question</b>	<b>141</b>

**13. Pomona is considering giving students more ways to line dry their clothes. Please rate how you feel about the prospects of you using these options next year. (Answer hypothetically if you're a senior.)**

	First choice	Second choice	Not first or second choice, but would use	Would never use	N/A	Rating Average	Response Count	
racks installed in my laundry room	12.4% (28)	10.2% (23)	27.6% (62)	<b>49.8% (112)</b>	0.0% (0)	0.85	225	
racks installed in my hall bathroom	14.0% (32)	25.9% (59)	<b>35.5% (81)</b>	22.8% (52)	1.8% (4)	1.32	228	
a folding rack I could borrow from my laundry room and use in my room	16.7% (38)	<b>36.4% (83)</b>	23.2% (53)	23.2% (53)	0.4% (1)	1.47	228	
a folding rack I could borrow from the college for the whole year and use in my room	<b>45.2% (103)</b>	18.4% (42)	20.2% (46)	16.2% (37)	0.0% (0)	1.93	228	
other (please specify)	10.7% (8)	1.3% (1)	2.7% (2)	8.0% (6)	<b>77.3% (58)</b>	1.65	75	
						.	12	
	<b>answered question</b>							<b>230</b>
	<b>skipped question</b>							<b>8</b>

**14. If your first choice drying rack option was available next year, how many of your clothes would you line dry? (Answer hypothetically if you're a senior)**

		Response Percent	Response Count
all of them, all the time		8.8%	20
all of them, when I had time		19.0%	43
<b>some of them, all the time</b>		<b>33.2%</b>	75
some of them, when I had time		23.0%	52
delicate items only		11.1%	25
Other (please specify)		4.9%	11
	<b>answered question</b>		<b>226</b>
	<b>skipped question</b>		<b>12</b>

15. How much you know about how your clothes should be washed and dried ("proper care")?			Response Percent	Response Count
I'm pretty much an expert			20.9%	48
I've got the basics down (separate lights from darks, look at the labels etc.)			64.8%	149
I'm clueless but wish I knew more			7.0%	16
I'm clueless and couldn't care less			9.6%	22
		<b>answered question</b>		<b>230</b>
		<b>skipped question</b>		<b>8</b>

16. Anything else you'd like us to know?			Response Count
			45
		<b>answered question</b>	<b>45</b>
		<b>skipped question</b>	<b>193</b>

17. Your email address:			Response Count
			217
		<b>answered question</b>	<b>217</b>
		<b>skipped question</b>	<b>21</b>

## ***Appendix G – Pomona College laundry room posters***

These include:

- Doing Laundry the Green Way
- Drying Rack Q&A
- General Laundry Tips

Please note that these posters are specific to Pomona and should serve only as a guide for other institutions. Details such as the amount of time it takes to dry a load of laundry, where green laundry products can be purchased, program specifics, and other details should all be changed to reflect the situation at your institution. Additionally, these posters were authored solely by Pomona College. Project Laundry List has not verified the content of the posters and does not endorse any of the products listed or claims made.

# Doing Your Laundry the Green Way

- **Wash using cold water!** “Hot water heating accounts for about **90% of the energy** your machine washes to wash clothes; only 10% goes to electricity used by the washer motor” (EnergyStar.gov). Advances in laundry detergent mean that your clothes will still end up nice and clean! Cold water washing also makes your clothes last longer.

- Purchase **environmentally friendly laundry products** (after using up your current detergent). It's better for you and for the planet. Some more thoughts:

- **Concentrated liquid laundry detergent** provides the most cleaning power per ounce (even more so that powdered!), so this is the eco way to go. And, get this: “On September 26, 2007 WAL-MART president and CEO, Lee Scott, announced a bold initiative to sell only concentrated liquid laundry detergent at U.S. Wal-Mart discount stores, Supercenters, Sam’s Clubs and Neighborhood Markets as part of its commitment to sustainability and helping people to save money and live better.” Source: <http://greenhome.huddler.com/forum/thread/409/concentrated-and-powder-detergents>
- In Claremont, you can purchase TraderJoes’s brand ecofriendly laundry detergent at the store at Foothill and College. Sprouts Farmers Market Grocery Store (down the street from TJs) also has lots of options.
- Curious as to how your current detergent measures up? Check out the chart to the right. Source: <http://www.betterworldshopper.com/r-laundry.html>

LAUNDRY SUPPLIES	
A+	Seventh Generation
A	Ecover
A-	Bi-o-Kleen, ECOS, Earth Friendly, Country Save, Lifestree, Bio Pac, Planet, Oasis, Mountain Green
B+	Natural Value
B-	Shout, Fab, Fresh Start, Dynamo
C+	Biz, Bold, Downy, Tide, Bounce, Ivory, Febreze, Gain, Era, Cheer
C	Wisk, Arm & Hammer, All, Snuggle, Surf
C-	Oxi Clean, Static Guard
D+	Spray n' Wash, Vivid, Cling Free, Woolite
F	Clorox, Borax, Purex

- Only wash and dry **full loads** (pair up with a friend or roommate to make full loads if you need to).
- **Do laundry less often!** Many items such as towels, sheets, sweatshirts, jeans may only need to be washed every few weeks.
- **Line dry** your clothes to protect them and save energy! **Shared drying racks** are located in the Mudd, Blaisdell, Harwood, Walker, Oldenborg North, Oldenborg South, Norton Clark (beginning fall 2009) and the new dorm (upon completion) laundry rooms. You can also **check out a small, foldable drying rack for use in your room** for the duration of the school year. Contact Sustainability Coordinator Bowen Patterson at [Bowen.Patterson@pomona.edu](mailto:Bowen.Patterson@pomona.edu) FMI.
- If you're using a dryer, make sure to **clean out the lint screen** after (and before if needed) you dry a load. A dirty lint screen can cause your dryer to use up to **30 percent more energy**, and it can be a fire hazard. (Source: California Energy Commission: <http://www.consumerenergycenter.org/home/appliances/dryers.html>)
- Look at your detergent bottle or box to find out what the **correct amount of detergent** is. It's probably less than you think! Since we have super efficient, front-loading washers, your clothes will likely still get clean if you use just **1/3** of the recommended quantity! (Source: [http://www.cleanandgreenvision.com/clean\\_and\\_green.html#card\\_vs\\_coin](http://www.cleanandgreenvision.com/clean_and_green.html#card_vs_coin))
- **Nix the fabric softener and drying sheets.** Fewer chemicals mean a healthier you and a healthier environment.
- If you're using bleach, **choose hydrogen peroxide-based bleach** rather than chlorine bleach. (Source: <http://www.seventhgeneration.com/learn/guides/airing-our-dirty-laundry>)
- You can **donate unwanted clothing** to the ReCoop anytime. Contact Sustainability Coordinator Bowen Patterson at [Bowen.Patterson@pomona.edu](mailto:Bowen.Patterson@pomona.edu) for current store hours. You can also **donate left-over laundry products at the end of the year** to the ReCoop simply by leaving them in your laundry room at the end of the school year.

# Q & A About Drying Racks

Q: **Why** should I line-dry my clothes?

A: In addition to saving money and energy, line drying your clothes prevents them from shrinking, reduces dryer static, and makes them last longer. (Where do you think lint comes from?) Many people are also surprised to learn that line drying usually results in **less wrinkled clothes** since it does not over-dry your clothes like tumble dryers do.

Q: **How long will it take** for my clothes to dry?

A: It depends on your clothes and the weather, but likely just one day.

Q: Do I need to use **clothes pins**?

A: Only for small items like socks. Other items will stay put since our racks are indoors, where there's no wind. If you decide to use clothes pins, please place them back in the clothespin bag when you are finished.

Q: **How should I hang my clothes** so that others can use the racks as well?

A: If you're using a wall-mounted rack, hanging your clothes one side of the drying rack (instead of on the front lines or the back lines) will make it easier for others to hang-up or take down their clothes.

Q: Will my clothes get **wrinkled** if I line-dry them?

A: Line drying is actually better than using a tumble dryer for reducing wrinkles! As soon as the wash cycle is done, shake out your clothes and hang them up. Folding and stacking your clothes after they're dry will remove additional wrinkles. You might also consider throwing clothes in the dryer for 5 minutes once they're almost dry to release wrinkles and get the fit you prefer. Keep in mind that knits (sweaters etc.) may do better if dried on a flat surface (like a towel placed on your bed).

Q: My clothes are a bit **stiff** after I line dry them. What can I do about this?

A: Try using less detergent, putting a little vinegar in the rinse water, or throwing your clothes in the dryer for 5 minutes after line-drying them.

Q: **Someone else's dry clothes** are still hanging on the rack. Can I move them?

A: Absolutely! Lay them on one of the tables or place them in one of the communal laundry baskets.

Q: **I don't want to line-dry my clothes in public**. Are there other ways I can line-dry my clothes?

A: Yes! You can check out a high quality drying rack with 30 feet of drying space for use in your room for the entire year! Contact Sustainability Coordinator Bowen Patterson at [Bowen.Patterson@pomona.edu](mailto:Bowen.Patterson@pomona.edu) FMI.

Q: Have you **run the numbers** on how much energy these racks save and what their payback period is?

A: We have! According to our calculations, the drying racks installed in the laundry rooms:

- have a payback period of 5.3 years
- have an internal rate of return of 12% (assuming they last for 10 years; this will be higher if they last longer)
- will annually reduce Pomona's GHG emissions by 6325 lbs (2.87 mTCO<sub>2</sub>e). Pomona's GHG emissions were 5,427 mTCO<sub>2</sub>e in 2007-2008, so line-drying laundry is only one of many changes we'll have to make!

The racks-for-loan program should produce similar savings. Visit Pomona's sustainability website to find out how we arrived at these numbers.

Q: **I love these racks!** What are they called and **where can I get one?**

A: The wall-mounted racks are made by either Austral or Hills (both Australian companies) and the free-standing racks are from Ikea or made by a German company called Leifheit. For product and buying info about these and other high quality drying racks, visit

[http://www.tiptheplanet.com/index.php?title=Air\\_dry\\_washing](http://www.tiptheplanet.com/index.php?title=Air_dry_washing)

# General Laundry Tips\*

\*Everything you forgot to ask before leaving home and are afraid to ask your roommate

- What the pre-set wash cycles really mean:

	Cold Wash	Warm Wash	Hot Wash
Fast Spin Cycle	<b>Bright Colors</b>	<b>Colors, Permanent Press</b>	<b>Whites</b>
Slow Spin Cycle	<b>Woolens</b>	<b>Delicates &amp; Knits</b>	

- Common laundry problems and how to solve them:

Problem	Solution
Clothes are shrinking	Shrinking can be caused by BOTH hot water and a hot dryer cycle. Try washing your clothes on cold and line drying them or using a low-heat drying setting. Also note that only natural fibers (cotton, wool, hemp etc.) will shrink. Synthetic materials will never shrink.
Colors are bleeding or fading	Use a COLD water temperature and sort clothes by color. Try dividing them into whites (don't put beiges in here—you want your whites WHITE, right?), reds/pinks/oranges, and everything else.
Clothes come out damaged (raw fibers etc.)	This is likely the result of over drying. Try hang drying your clothes or putting them in the dryer for less time.

- **Remove your clothes from the dryer as soon as they're mostly dry—20 to 30 minutes may be enough.** Even for a full load of clothes, the 50-minute dryer cycle will likely leave your clothes bone-dry, which damages the fibers and makes your clothes fall apart faster. Ideally you're clothes should be a tad damp when you remove them. Taking out and folding clothes while they're still slightly damp will also prevent wrinkles.
- Before washing, **turn clothes inside out** (to reduce pilling), close zippers or snaps, and unroll cuffs.
- Treat and remove stains before washing them (otherwise, they may set in during the dryer cycle).
- **Remove everything from pockets** before washing and drying, especially colored paper & tissues!
- **Pick up your clothes promptly!** PLEASE don't leave your clothes lying around the laundry room for days at a time. Everyone else needs to do their laundry, too.
- Do not leave wet clothes sitting in a pile—they will start to mildew and smell! Put them in the dryer or hang them up soon after the wash cycle ends.
- Have clothes you don't want? You can donate old clothes to the ReCoop. Email Sustainability Coordinator Bowen Patterson at [Bowen.Patterson@pomona.edu](mailto:Bowen.Patterson@pomona.edu) for current store hours.
- And finally, what all those darn symbols mean (not that we're suggesting you strictly follow these!)

Washing Symbols		Drying Symbols	
	Machine Washable		Okay to Tumble Dry
	(indicates maximum temperature)		Low heat setting only
	Synthetic cycle (or other)		Medium heat setting only
	Delicate wash cycle ("Woolens")		Do NOT tumble dry
	Hand Wash at a warm temperature		Drip dry recommended
	Do NOT wash with water		Line dry or hang only
	Okay to wash with bleach		Lay flat to dry
	Okay to wash with chlorine bleach		Cool Iron (max 110°C) – acrylic, acetate, nylon
	Do NOT use bleach		Warm Iron (max 150°C) – polyester mix, wool
	Okay to Dry-Clean		Hot Iron (max 200°C) – linen, cotton
	Do NOT Dry-Clean		Do NOT Iron

## **Appendix H – Pomona College “Q&A About Personal Drying Racks” Info Sheet**

### **Q & A About Personal Drying Racks**

Q: **What are the benefits of** line-drying my clothes?

A: Line drying clothes

- saves money and energy
- prevents clothes from shrinking
- eliminates dryer static
- makes clothes last longer (where do you think lint comes from?)
- results in less-stubborn wrinkles (since it does not over-dry clothes like tumble dryers do)
- is a schedule-friendly activity (clothes don't need to be picked at a specific time)

Q: **How long will it take** for my clothes to dry?

A: It depends on your clothes and the weather, but likely just one day.

Q: Do I need to use **clothes pins**?

A: Most items will stay put just fine as long as you use your rack indoors (i.e. out of the wind.) Small items like socks may stay put better if clothes pins are used. The Leifheit racks also come with small red hooks that are perfect for drying small items.

Q: **Will my clothes get wrinkled** if I line-dry them?

A: Line drying is actually better than using a tumble dryer for reducing wrinkles! As soon as the wash cycle is done, shake out your clothes and hang them up. Folding and stacking your clothes after they're dry will remove additional wrinkles. You might also consider throwing clothes in the dryer for 5 minutes once they're almost dry to release wrinkles and get the fit you prefer. Keep in mind that knits (sweaters etc.) will look best if dried on a flat surface (like a towel placed on your bed).

Q: **My clothes are a bit stiff** after I line dry them. What can I do about this?

A: Try using less detergent, putting a little vinegar in the rinse water, or throwing your clothes in the dryer for 5 minutes after line-drying them. Or just wear them!

Q: **I love these racks!** What are they called and **where can I get one?**

A: Pomona's racks-for-loan program features three types of racks: Ikea Frost, Polder Argento, and Leifheit Pegasus Genius Dryer. FMI on these and other racks, check out this Wiki page:

[http://www.tiptheplanet.com/index.php?title=Air\\_dry\\_washing](http://www.tiptheplanet.com/index.php?title=Air_dry_washing)