

Clean Cut Quarterly

NJARNG Sustainability Newsletter

In collaboration with Rowan University



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Everyone wants to eat food that's good for them and good for the environment, it may even be a New Year's resolution! But all those "organic" and "all natural" labels can be really confusing. Read about one of them on page 3.



In this issue....

7 Most Energy Efficient MLB Stadiums



Find out which ones rank in the top on **page 4**.

Brewing Beer and Saving Water



Like beer? Learn more about how much energy and water goes into a pint on **page 5**.

Sustainability Shopping



Do you want to be more 'green' when you shop? Find out how on **page 6**.

NJARNG Energy Reduction Competition

In the last issue of Clean Cut Quarterly, we ranked each facility by its percent reduction in energy use intensity, or **EUI** for the first half of FY17 compared to FY16. In this issue we ranked the percent reduction for the whole year. The NJARNG goal for annual energy reduction is 2.5%, and every facility is needed to help reach that goal. Look below to see where your facility stacks up and to see which facility is leading the way in percent reduction.

RANK	FACILITY NAME	% Change
1	Atlantic City Armory	-45%
2	Cape May Armory	-45%
3	Bordentown Armory	-23%
4	Woodstown Armory	-21%
5	Mt. Holly Armory	-19%
6	Lawrenceville, USPF&O	-15%
7	Lawrenceville Armory	-15%
8	Somerset Drive Thru Maintenance Bay	-11%
9	Westfield Armory	-9%
10	Westfield OMS	-8%
11	Lakehurst	-8%
12	Fort Dix - T3BL	-7%
13	West Orange CSMS B	-6%
14	Freehold Armory	-4%
15	Vineland Armory	-4%
16	Hackettstown Armory	-1%
17	Flemington Armory	-1%
18	Fort Dix - FMS # 9	-1%
19	Washington Armory	1%
21	Newark Armory	2%
22	Morristown Armory	3%
23	Woodbridge Armory	4%
24	West Orange Armory	4%
25	Lawrenceville DMAVA	4%
26	Toms River Armory	7%
27	Fort Dix - Headquarters	9%
28	Trenton Mercer Aviation/Armory/State Police	9%
29	Dover Armory	14%
30	Sea Girt Training Center	15%
31	Teaneck Armory	16%
32	Jersey City Armory	18%
33	Riverdale Armory	20%
34	Somerset Armory	23%
35	Woodbury Armory	26%
36	Cherry Hill Armory	30%
37	Hammonton Armory	39%
38	Fort Dix - UTES	54%

The winner for the FY17 NJARNG Energy Reduction Competition is the...
Atlantic City Armory!

Keep up the great work everyone! Check out the next issue to see the beginning of next year's competition. Will your facility be the leading the way in energy reduction?

For tips on how to reduce your energy use and carbon footprint, please take a look at the Green Building Handbook:

www.nj.gov/military/installations/docs/CLEAN-CUT-Green-Management-Handbook.pdf

Green Labels: USDA Organic

You may see the USDA Organic label while out grocery shopping, along with a ton of other “organic” labels. But what does it really mean?

The US Department of Agriculture, or USDA, is the department in charge of providing leadership on issues such as food, agriculture, rural development, nutrition, and natural resources based on public policy, the best science available, and effective management. Therefore the USDA is responsible for certifying foods as organic. That is, meeting certain federal requirements.



USDA Organic vs. Natural		
	Organic	Natural
Toxic persistent pesticides	Not allowed	Allowed
GMOs	Not allowed	Allowed
Antibiotics	Not allowed	Allowed
Growth hormones	Not allowed	Allowed
Sludge & irradiation	Not allowed	Allowed
Animal welfare requirements	Yes	No
Cows required to be on pasture for pasture season	Yes	No
Lower levels of environmental pollution	Yes	Not Necessarily
Audit trail from farm to table	Yes	No
Certification required, including inspections	Yes	No
Legal restrictions on allowable materials	Yes	No

- Some hallmarks of the USDA Organic are:
- Produced without excluded methods, like genetic engineering or sewage
 - Produced using only allowed substances.
 - Overseen by a USDA National Organic Program-authorized certifying agent, following all USDA organic regulations.

USDA certified organic foods are grown and processed according to federal guidelines. Organic certification requires that farmers and handlers document all processes used. It also requires that they get inspected every year. These inspections look into every component of the farm operation, including seed sources, water systems and soil conditions. The USDA Organic label comes with the promise that all products are traced from beginning to the end consumer.

Source: <https://www.usda.gov/media/blog/2012/03/22/organic-101-what-usda-organic-label-means>
<https://www.usda.gov/our-agency/about-usda>

7 Most Energy Efficient MLB Stadiums

By Paul Kowaleski



As one of America's most beloved sports, fans of all ages flock to baseball stadiums to watch the game. These large complexes with bright lights can use a lot of energy, but MLB is making an effort to cut down on their consumption and cut costs. Here are the top 7 most energy efficient baseball stadiums and what they are doing to be energy efficient.

1. Marlins Park (Miami Marlins)
 - Includes 250 waterless urinals
 - Uses 52% less energy than similar stadiums.
2. Target Field (Minnesota Twins)
 - High efficiency field lights, saves nearly \$6,000 per year.
3. Nationals Park (Washington Nationals)
 - Highly reflective cool roof, reducing air conditioning use
4. AT&T Park (San Francisco Giants)
 - Upgraded HD scoreboard, 80% more efficient than previous scoreboard
5. Safeco Park (Seattle Mariners)
 - Recommissioning all HVAC system
6. Miller Park (Milwaukee Brewers)
 - Improvements to plumbing, lighting, and power systems
7. Busch Stadium (St. Louis Cardinals)
 - Install heat exchanger to recover heat waste, reducing the amount of heat that needs to be produced.



If you'd like to learn more about the Marlins' commitment to the environment, visit:

http://miami.marlins.mlb.com/mia/ballpark/environmental_commitment.jsp

<http://www.ase.org/resources/americas-top-7-energy-efficient-baseball-stadiums>

Brew Beer, Save Energy

By: Matthew Carvin

Advancements in technologies such as the plow and the wheel were a product of the agricultural revolution in 9000 BC. The unexpected cause of these advancements was.....beer. The modern revolution going on now is the energy revolution. The American brewing industry has been taking steps in the past decade to adapt energy saving practices to the brewing production.



The U.S. spends about \$200 million dollars in energy expenses per year. This has led the top industries in the beer industry to employ new methods to reduce water consumption, monitor electrical usage, and employ environmentally friendly alternatives to produce the products they make.

Basic ways of promoting energy efficiency in a brewery are conducting an overall energy audit. An energy audit is the perfect way for a brewery to find how much energy they are using, how much they are wasting, and what certain measures to implement to increase overall operating efficiency in the future. Maintenance and optimal performance are the ways to increase the longevity of a brewery. Another step in further efficiency in a brewery is to review boiler and steam requirements. Boiling the wort accounts for about 25 to 35% of the total energy usage in breweries. Leaks are the big cause of steam loss and equipment should be inspected to find and repair leaks on a frequent basis. Refergiating, which is approximately 35% of the total energy bill, can be made more efficient by optimizing the temperature. Simplifying adjusting the temperature by 1 degree Fahrenheit can cause a 1 to 2 percent reduction in energy usage.



Water is also a major part of expenses in a brewery. It typically takes 4 to 10 pints of water to produce 1 pint of beer. Companies like Anheuser-Busch has reduced its ratio of water used to beer produced 3.5 to 1. Full Sail Brewing company has added a Meura mesh filter to improve the efficiency of its water usage even more. New Belgium, in light of recent demand for hoppier beers and bottles over kegs, have added sub-meters in their breweries to monitor any water efficiency opportunities.

Producing good tasting beer involves a lot of water and energy consumption. This has spurred companies like Anheuser and others to innovate and find ways to take advantage of any opportunity to save water and energy usage. Think about that the next time you order a pint either at the local bar or T.G.I Friday's during the late night happy hour special.

Check out this link for more on how various brewing companies are adapting energy efficient practices to their factories: <https://www.greenbiz.com/blog/2014/07/16/how-brew-beer-better-less-water-less-energy-more-innovation>

Sustainability Shopping

By: John Barker

Despite the economic situation that the millennial generation has found themselves to be in, the concept of sustainability shopping has become much more popular within the community of the younger generation. A recent Nielsen study found that most members of the millennial generation are willing to pay extra for energy efficient and sustainable products. This willingness to pay more, combined with a growing interest in companies around the world who have made an active commitment to a positive environmental impact make this generation the leading force in sustainability efforts around the world.



Sustainability shopping, otherwise known as green shopping, is considered the way of the future in terms of social and economic consumerism. This type of consumerism consists of consciously searching out environmentally friendly products created by companies with a background of positively environmental influences. Some examples of green shopping are buying items in bulk in order to avoid excess packaging and buying reusable and long lasting items.

One attribute of the millennial generation that stands out from the older generations is that they consider personal values as more important than personal benefits when shopping for sustainability. Benefits such as cost and convenience take a backseat to the positive environmental impact of sustainability shopping, making the future seem bright for generations to come. Companies that are known for their environmental impact and products being made from fresh and organic ingredients have become much more popular to the millennial generation.

The Nielsen survey regarding the topic of sustainability shopping was conducted between the months of February and March, 2015 and consisted of the results of more than 30,000 online consumers in 60 different countries throughout the world. The consumers come from a wide range of social and economic backgrounds in order to gain a broader perspective on the opinion of sustainability shopping.

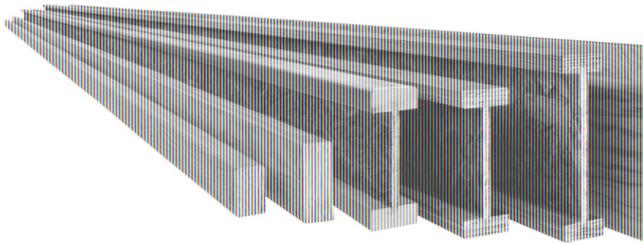
Source: <http://www.nielsen.com/us/en/insights/news/2015/green-generation-millennials-say-sustainability-is-a-shopping-priority.html>

The Benefits of Using Engineered Lumber over Dimensional Lumber

By Nicholas Forrester

In the residential housing industry there have been many changes made over the past 30 years that make homes more energy efficient. Valued engineering is using materials that have been man made while saving cost and having a sustainable building. Using materials that are green can make your home energy efficient, and help protect the environment. The use of reusable materials is needed more than ever due to our overuse of our planet's natural resources

Sustainable housing has become a concern to every homebuyer when selecting a place to live. The consumer wants a home that is energy efficient, and friendly to the environment. This can help them save money on energy costs, while reducing their carbon footprint. In the planning phase of designing a home contractors are working in reusable material to help reduce their use of natural resources and save money. The use of regular dimensional lumber to build homes cuts down forest and destroys wildlife. The rate at which we use these materials, it's hard for forest to grow back quick enough to keep up with the supply and demand. Using recycled engineered lumber is a great alternative to regular dimensional lumber.



On an average day a carpenter waists a lot of material by cutting boards to length. The cut offs are tossed in a dumpster and are taken away just to sit in a landfill. The construction industry in general wastes a lot of material for each project. I can speak from personal experience as a carpenter: it's easier to just toss material away. This can add a cost to your project too, because the dumpster is filled up with wasted material. With engineered lumber it is a great substitute to dimensional lumber. It uses recycled material that is held together by glues and resins. Engineered products can be ordered to any size and length. This prevents any wasted cut offs and time cutting regular dimensional lumber to length. Engineered lumber is even stronger and more durable than most dimensional lumber. They can be used to replace dimensional lumber for studs, beams, columns, and joist. Engineered products make for straighter walls and floors because they don't expand and contract like dimensional lumber does.

*Check out this link to find out more about the benefits of engineered lumber

<https://www.probuilder.com/wood-vs-engineered-lumber>

Meet The Energy Interns



Paul Kowaleski

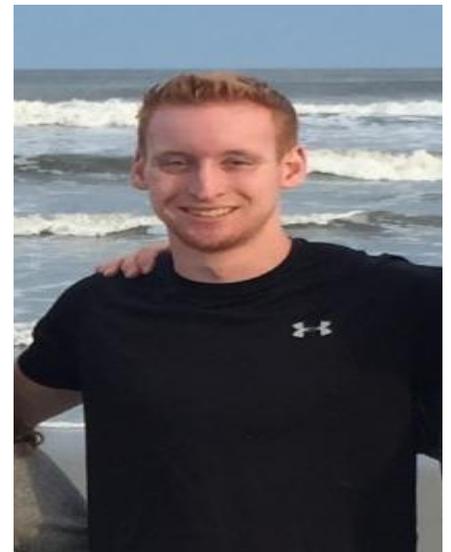
Civil & Environmental Engineer, Junior

Sports fan of New York teams and an aspiring structural engineer. Likes to go hiking in the summer and snowboarding in the winters. My goal in life is to travel to every state in the United States of America.

Matthew Carvin

Electrical & Computer Engineer, Senior

Self proclaimed movie critic and Jedi-in-training. Fan of Philadelphia sports. Currently accepting bets on a Super Bowl title for the Eagles. Hoping to become a power systems engineer.



John Barker

Civil & Environmental Engineer, Senior

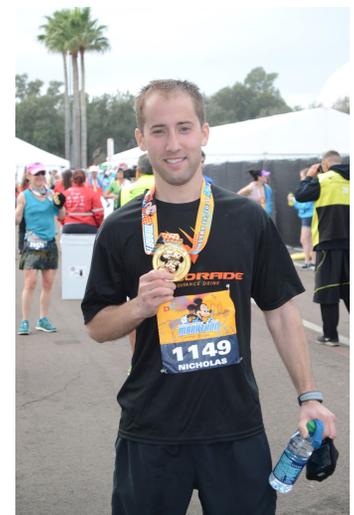
Avid exercise enthusiast, Philadelphia sports fan and future travel master aficionado. My goal is to one day travel to a place where green energy is the only energy being utilized.



Nick Forrester

Civil & Environmental Engineer, Senior

Aspiring structural engineer. Like to watch Penn State football and Philadelphia sports. I'm an avid runner, and beach goer. I have many leather-bound books and my apartment smells of rich mahogany.



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