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### Did you know?

- o Enough aluminum is thrown away to rebuild our commercial air fleet four times every year.
- o If we recycled every plastic bottle we used, we would keep two billion tons of plastic out of landfills.
- o Recycled glass generates 20 percent less air pollution and 50 percent less water pollution.
- o Every year enough paper is thrown away to make a 12-foot wall from New York to California.



Metal scraps bin in Pre Fab

## Climate Change and You

*Written By Mike Jurewicz*

Climate change is a big political issue. There are plenty of conflicting claims regarding causes and solutions. The fact is, while Antarctica is actually cooling, global warming is real in the Northern Hemisphere. Whether or not carbon dioxide is the cause of global warming; whether or not the current climate change is a natural phenomenon that has been cycling for the last two million years; whether or not controls on human activity are beneficial and helpful or fruitless and economically destructive; one thing is true: American prosperity was built on affordable, reliable energy, especially electricity.

Natural resources like coal and oil produced 68.7% of our electricity used in the US in 2009\*. 20.2%\* was generated by nuclear power plants in 2009 (compared to 8% in 2003\*\*), and 11.1%\* of

electricity in 2009 was generated by hydro, geothermal, wind, solar and biomass sources (compared to 9.1% in 2003\*\*). We live in a finite world with finite resources. Why waste them when we have other options?

Whether your political beliefs are center, left or right; whether you believe global warming is real or not; whether you believe it is of natural or man causes; why not act in a way that conserves as much as possible for future generations? They deserve to enjoy life as much as we have. Let's make this place at least as good, if not better, for them as it has been for us. That's what leaving a legacy is all about.

\* <http://tiny.cc/vpxq3> \*\* <http://tiny.cc/R6g0s>

## Waste Diversion Through Prefabrication

*Written By Bruce Bowman*

California generates 78 million tons of waste each year. On average, 22% of the state's waste stream comes from construction and demolition materials<sup>1</sup>. Imagine the amount of materials used and demolished from construction sites nationally. How much is trash compared to waste? Is trash waste?

Jobsites may tend to order more material than necessary. For example, pipe, wire and fittings come in standard lengths and quantities. Therefore, unneeded cut pieces and tailings are usually treated as waste and thrown away.

Prefabrication is considered to be one of the most effective ways to minimize waste on construction

projects. Products and assemblies built in Pre-Fab arrive at the jobsite on carts or in reusable bins ready to install with no extra packaging. When materials are shipped to Pre Fab for assembly, all packaging materials are recycled. Any unused materials are reused or recycled.

Sprig's Pre Fab Shop setting makes it simple to collect and segregate materials for recycling. Common by-products recycled daily include all plastics, paper, cardboard, steel, aluminum and copper, thereby keeping the waste out of the trash.

\* [calrecycle.ca.gov](http://calrecycle.ca.gov)

## Did you know?

- o Glass can be reused an infinite number of times. Over 41 billion glass containers are made each year.
- o Recycled aluminum saves 95 percent energy versus virgin aluminum. Recycling one aluminum can saves enough energy to run a TV for three hour.
- o We use enough plastic wrap to wrap all of Texas every year.



## Green Committee Members:

Stephanie Abbott  
Jennifer Akamine  
Brad Foster  
Kara Hermann  
Mike Jurewicz  
Shannon Jurewicz  
Mike Mainieri

Thoughts or comments for the Green Committee? Email [greencommittee@sprigelectric.com](mailto:greencommittee@sprigelectric.com)

# BIM and Green Construction

Written By Kara Hermann and Douglas Chin

BIM, or Building Information Modeling, is the buzz word in the building industry. 3-D modeling is becoming standard practice for large scale projects. Sprig has been working on BIM projects for years. So, what does BIM have to do with Green Construction?

### **BIM reduces energy consumption.**

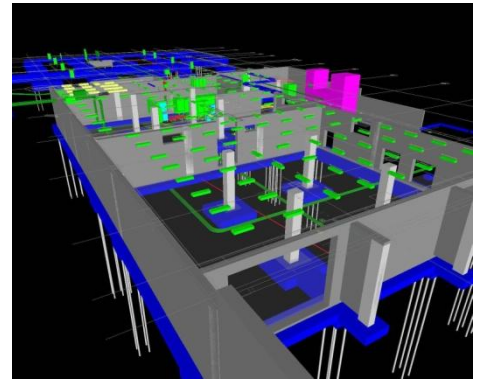
Through modeling, energy consumption is analyzed as one system instead of several independent systems. Different systems and scenarios can be analyzed quickly. BIM shows the whole picture. For example, it shows how the windows and lights impact the mechanical to maximize energy efficiency of the building.

### **BIM reduces waste.**

BIM allows for full coordination of all the MEP and Architectural systems. Pre-fab is utilized efficiently by reducing transportation impacts and scrap waste. Equipment is installed as designed which reduces wasted material.

### **BIM tracks valuable information.**

By providing visual information of an entire project in a single 3D environment, a better



analysis of the project allows for important green building design decisions, such as material selection, carbon foot print calculations, life cycle costs, project schedule, etc. As the model progresses through construction, an "as-built" document is created that provides accurate information for maintenance manuals.

### **BIM saves paper.**

Instead of passing drawings back and forth between the teams and printing check sets, each trade is able to resolve the issue electronically. Many reams of paper are saved.

# LED's – Are We There Yet?

Written by Kara Hermann

For several years, LED's have been "almost there" when it comes to being a viable source for sustainable lighting. So the question is, "Are we there yet?"

There is no question that LED's have their place in the future, as best I can see it. Both fluorescent bulbs and LED's average around 30 lumens/watt light output. However, the efficiency of LED's is rapidly increasing with the potential of up to 200 lumens/watt, and the efficiency of fluorescent bulbs is essentially remaining steady. The life expectancy of LED lights are 3.5 times that of fluorescent bulbs. In addition, LED's are not made with harmful mercury. Fluorescent lamps are made with trace amounts of mercury and have to be carefully disposed to not harm the environment.

The biggest drawback of LED's? Cost. Even with a life cycle analysis, economically, it doesn't make sense in most cases. PG&E and other utilities are now offering incentives for retrofitting existing lamps making LED retrofits for street lighting and parking garages more common.

While waiting for LED's to perform to their potential, Sprig Electric is seeing new technologies in lamps that are more economical and efficient than traditional fluorescents. Cold cathode fluorescents have a longer life than compact fluorescents. Also, a few manufactures are making a CFL-type screw in bulb to replace 250W and 400W metal halide lamps. Maybe they'll give LED's a run for the money.

For more information, please see <http://tiny.cc/1TjTL> and [Wikipedia/LED](http://Wikipedia/LED)



## Sprig Electric LEED Certified Employees:

- Earl Finlay
- Mike Glogovac
- Kara Hermann
- Scott Moreau
- Ty Smith
- John Stice
- Mike Trout

For a list of other sustainable projects, please see our website at:  
[www.sprigelectric.com](http://www.sprigelectric.com)

## Green Office

*Written by Stephanie Abbott*



Have you noticed the forks, knives and spoons in the kitchen seem just a bit different, and can't figure out why? It is because they are made from corn starch!

These biodegradable utensils are suitable for foods heated to temperatures up to 200 degrees Fahrenheit. Unlike petroleum-based plastics, these utensils are made from annually renewable resources. Their content includes 80 percent non-GMO corn starch resin and 20 percent other biodegradable fillers. Packs come in biocompostable corn starch packaging.

The biodegradable utensils will completely compost in a commercial composting facility in 180-360 days. Just another way Sprig is doing their part daily.

## Warehouse Lighting Retrofit

*Written by Kara Hermann and Mike Mainieri*

One of the most simple, efficient ways to save energy is through lighting retrofits. Sprig's commitment to energy efficiency led us to look throughout the office for opportunities to cut energy usage.

After evaluating several options, and figuring out what the payback would be, we selected the option of using 200-watt self-ballasted fluorescent lamps. The result is more uniform light and no ballast noise.

Sprig's office space already uses efficient T8 fluorescent lamps with motion sensors. However, the Warehouse and Pre-Fab Shop used 400 watt metal halide lamps. More energy efficient solutions are available.

After retrofitting 68 light fixtures in the Warehouse and Pre-Fab Shop, we estimate a savings of 35,000 kWh/year. The estimated payback for the retrofit is expected to be 1.5 years.

## Sprig's Green Project Highlight: Watsonville Water

*Written by Kara Hermann*



This city building, rated LEED Gold, serves as the operational facility for the water treatment plant. The plant recycles water to be reused for irrigation and toilet flushing.

for lighting, HVAC, and power consumption. System monitoring allows for usage trends to be tracked, making adjustments to the systems accordingly, and ultimately result in energy savings.

Sustainability features for this building include an automatic daylight dimming system and spare conduits for a future photovoltaic system. The electrical systems are monitored separately

Sprig was also the design/build contractor for fire alarm, security, intrusion, CCTV, AV, and card access.



6 more weeks of winter?!

The celebration of Groundhog's Day began as a Pennsylvania German custom in the 18<sup>th</sup> century. In ancient European lore, the weather "prognosticator" was a badger or a sacred bear, rather than a groundhog.

## Cold Hands?

Written by Jennifer Akamine

On February 2, 2010, famous ground hog Punxsutawney Phil came out of his burrow, saw his shadow and predicted six more weeks of winter. We thought it might be a good time to give some tips on staying warm in the office!

1. Keep a warm sweater or blanket (or both) at your desk to ward off the chill. Other good options are a scarf, silk long johns, wool socks, and fingerless gloves. Keeping your pulse points covered with the gloves can help keep your body temperature warm.
2. Microwaveable bean bags: Just set in the microwave for a minute or two and keep your hands, neck or shoulders toasty!
3. Reusable hand/foot warmers were originally for campers or snow sports. They can provide hours of warmth and can be held in your hands or inserted into your shoes to keep toes warm.
4. Hot coffee, tea, soup or water will warm you from the inside out and the mug will act as a hand warmer.
5. Wash your hands with warm water. You'll warm your hands and help beat the season's flu germs! Just make sure to dry thoroughly or hands will get chilled.
6. Walk it off. Get up and walk around to get circulation going and warm your extremities.

If you have any helpful hints on keeping warm in the office, please let us know! Send an email to: [greenteam@sprigelectric.com](mailto:greenteam@sprigelectric.com)



## Green Tax Credit\$

Tax season is upon us and if you're looking for some credits, here are a few you might not be aware of. (Tax credits are generally more valuable than an equivalent tax deduction since credits reduce tax dollar for dollar while the deduction only removes a percentage of tax owed.)

- You can get up to 30% off the total cost of buying and installing these items in your home: insulation, skylights and roofing.
- Replacing exterior doors with an eco-friendly version can get you 10% or \$500 back.
- An oil, gas, propane furnace or hot water boiler installed in your home can make you eligible for a \$150 tax credit.
- Biomass stoves (also known as pellet stoves) use "organic matter generated on a reoccurring basis that can be used for fuel." Biomass fuel sources include; wood pellets, dried cherry pits, soybeans, corn and nutshells. You can get up to 30% off of your expenses to purchase a biomass stove. The cleaner emissions, renewable nature of the fuels and added efficiency make it worth investigating to see if this is one way you could "Green" your home and earn tax credits in the process.

Go to [www.energytaxincentives.org](http://www.energytaxincentives.org) for details and to see if your home improvement project qualifies you for tax credits.

Other good sites to check are: [www.energystar.gov](http://www.energystar.gov) and [www.dsireusa.org](http://www.dsireusa.org)

