



New York Water Environment Association, Inc.
525 Plum Street, Suite 102
Syracuse, NY 13204
315.422.7811 phone
315.422.3851 fax
www.nywea.org

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Upcoming Events - Mark your Calendar!

NYWEA Spring Technical Conference & Exhibition

June 7-9, 2010

at the Radisson Hotel,
Rochester, NY

World Environment Day

June 5, 2010

World Water Monitoring Day

September 18, 2010

For more information on World Water
Monitoring Day, go to wwmd@wef.org.

Leading the Way in Water Quality Management

AWARDS & CONTESTS

NASA "No Boundaries" Project – Entry deadline April 15

The "No Boundaries" Project, developed by NASA and USA Today Education, helps students explore careers in science, technology, engineering and math(STEM), while learning about NASA. Teachers will assign student groups to research a NASA career in each of the four STEM fields. Groups will then develop and present a project that markets their career to teens. Winners will be recognized on the No Boundaries Web site and will be eligible for a VIP experience at a NASA center and may be asked to present their work to NASA.

Gloria Barron Prize for Young Heroes –nomination deadline April 30

This award honors 25 outstanding young leaders nationwide who have made a significant positive difference to people and our planet. Nominees range in ages 8-18. They must have been a prime mover of a service activity and demonstrated positive spirit and high moral purpose in accomplishing their goals. Nominees must be nominated by adults who have solid knowledge of the young person's heroic activities and who are not related to the nominee. Winners receive \$2,500 toward higher education or their service project, a recognition plaque, a certificate of recognition and other materials including books and curricula, as well as numerous media opportunities.

Brower Youth Awards—Application deadline May 15

The Brower Youth Awards recognize people ages 12 to 22 living in North America who have shown outstanding leadership on a project or campaign with positive environmental and social impact. Each of the six Brower Youth Award recipients for 2010 will receive a \$3,000 cash prize and an all-expenses paid trip to the San Francisco Bay Area to attend the Awards ceremony on October 19, 2010. The recipients will also participate

in a week of speaking engagements, trainings and environmental conferences leading up to the ceremony.

DEC

Applications are now being accepted for the [seventh annual NYS Environmental Excellence Awards program](#). The awards program recognizes businesses, governments, not-for-profit organizations, educational institutions and individuals in New York State that are achieving environmental excellence through innovative and environmentally sustainable practices or partnerships. **Completed applications must be post marked no later than Friday, May 21, 2010.**

DEC is especially interested in applications for projects that have achieved significant environmental benefits through: innovative and cutting-edge pollution prevention technologies; manufacturing process improvements; initiatives to reduce greenhouse gas emissions; programs that make schools and businesses more "green;" energy conservation and green energy production efforts; waste reduction and recycling efforts; stormwater management and watershed planning; environmental protection and restoration efforts; and land conservation.

To download the application materials and for more information about the award program, please go to DEC's website at <http://www.dec.ny.gov/public/945.html>. If you are unable to access the internet and would like the application or more information, please contact the DEC's Pollution Prevention Unit at (518) 402-9469 or send an email to eeawards@gw.dec.state.ny.us.



EnviroEd

Spring 2010

PUBLISHED BY THE NEW YORK WATER ENVIRONMENT ASSOCIATION -PUBLIC OUTREACH COMMITTEE
www.nywea.org



Message From the Chair

Welcome to the spring 2010 edition of the NYWEA Public Outreach Committee EnviroEd Newsletter. My name is Joe Corrado and I'm the Chair of the Public Outreach Committee formerly known as the Public Education Committee. The NYWEA Public Outreach Committee publishes the EnviroEd Newsletter twice a year. Our goal is to engage teachers, guidance counselors and help enlighten young people about the interesting and rewarding careers in the environmental/water quality field. Each issue will highlight a new career opportunity. In this edition, our staff of writers have highlighted electricians as our featured career, provided fun classroom activities and also listed many links to interesting educational websites.

Our committee values your opinion and ideas! If you have any suggestions for future newsletters or are interested in helping out, please e-mail either myself at Joseph.corrado@arcadis-us.com or Ms. Beth Petrillo at bpetrillo@dep.nyc.gov. Once again, we hope you enjoy our newsletter. In the near future, we hope to have both NYWEA and the Public Outreach Committee on Facebook and Twitter so keep an eye out for us on these social media sites.

According to the Bureau of Labor Statistics as reported by Careerbuilder.com, construction and extraction jobs are expected to grow 12% by 2014, adding 931,000 jobs to the field. Installation, maintenance and repair jobs have a predicted expansion of 11.4% with 657,000 additional jobs over the same time period. The transportation and material moving industry is another growing blue collar niche, increasing by 11.1% and adding 1.1 million jobs by 2014.

The top 10 blue collar jobs based on current salary medians and expected growth by 2014 are:

- 1. Construction and Building Inspectors**
It pays \$43,670 per year
Employment projected increase: 18-26%
- 2. Waste and Wastewater Treatment Plant and System Operators**
It pays \$34,900 per year
Employment projected to increase 9-17%
- 3. Elevator Installers and Repairers**
It pays \$28.23 per hour
Employment projected increase: 9-17%
- 4. Subway and Streetcar Operations**
It pays \$23.70 per hour
Employment projected increase: 9-17%
- 5. Iron and Metal Workers**
It pays \$20.40 per hour
Employment projected increase: 9-17%
- 6. Electricians**
It pays \$20.33 per hour
Employment projected increase: 9-17%
- 7. Brickmasons, Blockmasons and Stonemasons**
It pays \$20.07 per hour
Employment projected increase: 9-17%
- 8. Plumbers, Pipelayers, Pipefitters and Steamfitters**
It pays \$20.07 per hour
Employment projected increase: 9-17%
- 9. Heating, Air-Conditioning, Refrigeration Mechanics and Installers**
It pays \$17.43 per hour
Employment projected increase: 18-26%
- 10. Carpenters**
It pays \$16.78 per hour
Employment projected increase: 9-17%

Based on the above list we have chosen electricians as our featured career for this issue.

Spotlight on Electricians

Electricians

Significant Points:

- Job opportunities should be good, especially for those with the broadest range of skills.
- Most electricians acquire their skills by completing an apprenticeship program usually lasting 4 years.
- About 79 percent of electricians work in the construction industry or are self-employed, but there also will be opportunities for electricians in other industries.

Nature of the Work



Electricians install and maintain all of the electrical and power systems for our homes, businesses, and factories. They install and maintain the wiring and control equipment through which electricity flows. They also install

and maintain electrical equipment and machines in factories and a wide range of other businesses.

Electricians generally focus on either construction or maintenance, although many do both. Electricians specializing in construction primarily install wiring systems into factories, businesses, and new homes. Electricians specializing in maintenance fix and upgrade existing electrical systems and repair electrical equipment. All electricians must follow State and local building codes and the National Electrical Code when performing their work.

Electricians usually start their work by reading blueprints— technical diagrams that show the locations of circuits, outlets, load centers, panel boards, and other equipment. After determining where all the wires and components will go, electricians install and connect the wires to circuit breakers, transformers, outlets, or other components and systems.

Maintenance electricians repair or replace electric and electronic equipment when it breaks. They make needed repairs as quickly as possible in

(cont'd on next page)

Featured Career (cont'd from cover page)

order to minimize inconvenience. They may replace items such as circuit breakers, fuses, switches, electrical and electronic components, or wire.

Electricians also periodically inspect all equipment to ensure that it is operating properly and to correct problems before breakdowns occur.

Electricians in large factories usually do maintenance work that is more complex. These kinds of electricians may repair motors, transformers, generators, and electronic controllers on machine tools and industrial robots. They also advise management as to whether the continued operation of certain equipment could be hazardous. When working with complex electronic devices, they may consult with engineers, engineering technicians, line installers and repairers, or industrial machinery mechanics and maintenance workers.

Data from the U.S. Bureau of Labor Statistics show that full-time electricians experienced a work-related injury and illness rate that was higher than the national average. When working outdoors, they may be subject to inclement weather. Some electricians may have to travel long distances to jobsites.

Most electricians work a standard 40-hour week, although overtime may be required. Those who do maintenance work may work nights or weekends and be on call to go to the worksite when needed. Electricians in industrial settings may have periodic extended overtime during scheduled maintenance or retooling periods. Companies that operate 24 hours a day may employ three shifts of electricians.

Training, Other Qualifications, and Advancement

Most electricians learn their trade through apprenticeship programs that combine on-the-job training with related classroom instruction.

Because of the comprehensive training received, those who complete apprenticeship programs qualify to do both maintenance and construction work. Apprenticeship programs usually last 4 years. Each year includes at least 144 hours of classroom instruction and 2,000 hours of on-the-job training. In the classroom, apprentices learn electrical theory, blueprint reading, mathematics, electrical code requirements, and safety and first aid practices. They also may

receive specialized training in soldering, communications, fire alarm systems, and cranes and elevators.

On the job, apprentices work under the supervision of experienced electricians. At first, they drill holes, set anchors and attach conduit. Later, they measure, fabricate, and install conduit and install, connect, and test wiring, outlets, and switches. They also learn to set up and draw diagrams for entire electrical systems. Eventually, they practice and master all of an electrician's main tasks.

Some people start their classroom training before seeking an apprenticeship. Employers often hire students who complete these programs and usually start them at a more advanced level than those without this training. All apprentices need a high school diploma or a General Equivalency Diploma (G.E.D.). Electricians also may need additional classes in mathematics because they solve mathematical problems on the job.

Most States and localities require electricians to be licensed. Although licensing requirements vary

from State to State, electricians usually must pass an examination that tests their knowledge of electrical theory, the National Electrical Code, and local and State electric and building codes.

Electrical contractors who do electrical work for the public, as opposed to electricians who work for electrical contractors, often need a special license. In some States, electrical contractors need certification as master electricians. Most States require master electricians to have at least 7 years of experience as an electrician or a bachelor's degree in electrical engineering or a related field.

Other skills needed to become an electrician include manual dexterity, eye-hand coordination, physical fitness, and a good sense of balance. Electricians also need good color vision because workers frequently must identify electrical wires by color. In addition, apprenticeship committees and employers view a good work history or military service favorably.

For those who seek to advance, it is increasingly important to be able to communicate in both English and Spanish in order to relay instructions and safety

precautions to workers with limited understanding of English; Spanish-speaking workers make up a large part of the construction workforce in many areas. Spanish-speaking workers who want to advance in this occupation need very good English skills to understand electrician classes and installation instructions, which are usually written in English and are highly technical.

Employment

Electricians held about 694,900 jobs in 2008. About 65 percent of wage and salary workers were employed by electrical contracting firms, and the remainder worked as electricians in a variety of other industries. In addition, about 9 percent of electricians were self-employed.

Job Outlook

Average employment growth is expected. Job prospects should be good, particularly for workers with the widest range of skills, including voice, data, and video wiring.

New technologies also are expected to continue to spur demand for these workers.

Robots and other automated manufacturing systems in factories will require the installation and maintenance of more complex wiring systems. In addition, efforts to boost conservation of energy in public buildings and in new construction will boost demand for electricians because electricians are key to installing some of the latest energy savers, such as solar panels and motion sensors for turning on lights.

Earnings

In May 2008, median hourly wages of wage and salary electricians were \$22.32. The middle 50 percent earned between \$17.00 and \$29.88. The lowest 10 percent earned less than \$13.54, and the highest 10 percent earned more than \$38.18. Median hourly wages in the industries employing the largest numbers of electricians were as follows:

Electric power generation, transmission and distribution	\$28.15
Local government	\$25.66
Nonresidential building construction	\$22.21
Building equipment contractors	\$21.72
Employment services	\$18.32



Featured Career (cont'd)

Apprentices usually start at between 30 and 50 percent of the rate paid to fully trained electricians, depending on experience. As apprentices become more skilled, they receive periodic pay increases throughout their training.

About 32 percent of all electricians are members of a union, especially the International Brotherhood of Electrical Workers. Among unions representing maintenance electricians are the International Brotherhood of Electrical Workers; the International Union of Electronic, Electrical, Salaried, Machine, and Furniture Workers; the International Association of Machinists and Aerospace Workers; the International Union, United Automobile, Aircraft and Agricultural Implement Workers of America; and the United Steelworkers of America.

(Data taken from the Bureau of Labor Statistics website)

Innovative Ways to Teach Children

New Jersey

The Glen Rock Gazette reports. "Thanks to a new and innovative pre-engineering enrichment program, students in the Glen Rock school are being introduced to engineering while still in kindergarten." The enrichment program is 15 hours of pre-engineering instruction per year to all students in the district's schools.

New York

National Grid (utility company) has launched "Engineering Our Future" to help fill an expected void in the engineering ranks. The centerpiece of Engineering Our Future is a new program called the Engineering Pipeline, a six year development program that creates a recruitment pathway for high school students who want to become engineers. The summer program will offer students development programs, job shadow and mentoring opportunities and social networking activities.

Maryland

The Holton-Arms School in Bethesda has a program to build girls interest in engineering. The aim of the course is to get girls minds working on physical problem-solving and to build up their confidence.

Websites of Interest

www.nyweametro.org— This is the Metropolitan chapter website of the New York Water Environment Federation.

www.dec.ny.gov— The New York State Department of Environmental Conservation has launched a new electronic newsletter for families. It is called DEC Outdoor Discovery. Each issue introduces subscribers to a seasonal environmental or nature topic, suggests a related activity, and lists family-friendly events at DEC's environmental education center. To subscribe, go to the website above and click on DEC Outdoor Discovery.

www.epa.gov/teachers — This is EPA's newly revised and improved environmental education website for teachers. One new feature is the addition of grade levels for the cited classroom materials.

<http://www.epa.gov/fishadvisories/kids> — EPA website for kids.

www.teachengineering.com — Teach Engineering is a multi-university partnership that has developed K-12 engineering education curriculum modules that are standards-based, free and available over the internet. It aims to equip teachers with lessons in science, math and engineering that are creative and exciting.

<http://science.nsta.org> — National Science Teachers Association newsletter. Each issue is filled with informative articles.

<http://www.wef.org/LearnAboutWater/ForEducators/CurriculumMaterials/> — The Water Environment Federation has many children's publications including Water the Amazing Journey "Go With The Flow, and World-wide Waste, It's not a Load of Rubbish.

www.engineeringk12.org — Go Engineering's e-newsletter is for K-12 educators. Its purpose is to promote the importance of engineering and technology education and explore the many ways that engineering and technology can help teachers meet the challenge of making mathematics and science come alive for students.

www.pbs.org/journeytoplanetearth — Funded by the National Science Foundation, Journey To Planet Earth is a video series that helps students and adults understand the most critical and timely issues facing the natural sciences.

<http://pbskids.org/curiousgeorge> — Explore sand, water, and wind with Curious George. Use the Curiosity Center Activities to host a hand-on Earth Science event for the children and in your classroom. Children will be eager to visit the hands-on Curiosity Centers, exploring and making their own discoveries.

www.epa.gov/watersense/water/drop.htm — The WaterSense program announces an exciting new set of educational materials for kids and teachers "A Day in the Life of a Drop teaches students about the connections between the sources of the water they use and how that use affects human health and the environment. These fun leaning materials include a teachers guide, two student worksheets, a spreadsheet to track water use at home, and a pledge for students and their families to filter out bad water habits.

My Gift to the World—



By Jackson Crawford
11/12/09
(wisdom from
a 10 year old)

"If I could give
anything to anyone in
the world, I would give

water filters for everybody to use. I would give that because not as many people have good water to drink. Many people are dying because they don't have purified water to drink. People will live longer if they have purified water. Lot's of people have clean water but other people have contaminated water and die from dehydration. Factories pollute water and make it undrinkable for any living

creature. Filters are used to purify water and make it safe to drink. Without filters we would be in danger whenever we drank a glass of water."

"I believe that if we can clean the Earth's water source it would save everyone on Earth. If more of the water was purified on the planet, more things would be able to survive. If it wasn't for water purifiers most of the clean water on Earth would be gone. Not one person or animal can live without clean water. In the future there might not be any clean water for us to drink. That's why if I could give anything I would give clean water as my gift to the world."

