

“You don’t know what you’ve got, ‘til it’s gone.”

DOE Rulemaking Removes Most T12 Fluorescent Lamps from the Market

A popular song lyric from the 1960’s reminds us that, “You don’t know what you’ve got, ‘til it’s gone.” This situation could indeed be the case for many owners of obsolete, but still widely used T12 fluorescent lighting systems. As part of its ongoing quest to increase overall energy efficiency, the federal Department of Energy’s 2009 rulemaking will eliminate the manufacture and importation of most of the remaining commonly used types of T12 linear fluorescent lamps by July 14, 2012. The reason is the inefficiency of those T12 fluorescent lamps, in comparison to their more energy-efficient alternatives. Recognize that the magnetic ballasts that are required to operate those T12 lamps were already phased-out in October 2010. This significant change will directly affect many commercial, retail, and institutional businesses; in addition, it will even affect some residences, those

with existing T12 fluorescent lighting. This means that you have a relatively short time window to take action to become prepared for the multiple real consequences of this change, that could affect you, and that could provide opportunities for improving your business.

Additional information about what a T12 fluorescent lamp [or light bulb] is, should prove helpful. Straight (linear) fluorescent lamps are partially described by the outside diameter of their tubular glass envelope, measured in eighths of an inch. Hence, a T12 lamp is 12/8ths of an inch, or one and one half inches (1.5”) in its diameter. The specific lengths of T12 lamps affected by this “game-changer” begin with four-foot (48”) rapid-start lamps with a bi-pin base [or end cap] at each end. Also affected are two-foot (24”) U-shaped T12 lamps with twin bi-pin bases, one at each end of the legs of the ‘horseshoe’. Affect-

ed in addition, are eight-foot (96”) T12 lamps with either a single (fat) pin base at each end [which is also known as a ‘slim line’ or an ‘instant-start’ lamp] or a recessed double contact (RDC) base at each end [which is also known as a ‘high output’ or an HO rapid-start lamp]. Besides the fluorescent lamp holders, there are two key electrical components in every light fixture [which is more properly called a ‘luminaire’]. First, are the one or more lamps that actually produce the light. Second, are the one or two ballasts that are required to start and to regulate the operation of the lamp(s), and in some cases to heat the electrodes inside the ends of the lamp.

To put this in perspective, you need to understand that over a period of more than twenty years, these DOE rulemakings have resulted in the continuing phase-out of the availability of the most inefficient lighting system components (mostly lamps and ballasts). While there are numerous examples of the impact of these regulations, one example that many

(Continued on page 4)

And the Winners Are . . .

See page 5

Marketing & Social Media:

“Your Online Marketing Toolbox: How to Put it to Work”

Everybody tells small business owners that they need to utilize social media, but no one shows you what to do to get new clients and new media opportunities from sites like Facebook. But that’s part of this marketing seminar we will focus on.

Presentators: Suzi Schatz & Bob DeStephano, SVM E-Marketing Solutions

When: Tuesday, January 31, 2012

Time: 2:00 P.M. – 4:00 P.M.

Where: EAP Offices

Cost: \$25.00



<http://www.facebook.com/theelectricalassociationofphiladelphia>

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“Electrical Trends and Forecasts - Philadelphia Region”

On Tuesday, December 6th the EAP held its 7th Annual Economic Symposium and Holiday Party. Michael Eby, Editor-in-Chief of Electrical Construction & Maintenance Magazine (EC&M) made an excellent presentation highlighting “Electrical Trends and Forecasts.”

Highlighted below are a few points Mr. Eby made specifically about the Philadelphia Region:

Industrial Trends Report – Philadelphia

- ❖ Market still up on year, but demand stalls
- ❖ Speculative construction remains nearly non-existent
- ❖ Manufacturing losses should slow in coming quarters
- ❖ Rents should hold steady
- ❖ Stable consumer spending should translate into more warehouse/distribution demand over the next few months



Michael Eby

Office Trends Report – Philadelphia

- ❖ Little to no growth the norm
- ❖ Look for more of the same in the coming quarters as the regional labor market struggles to rebound
- ❖ Consolidations and downsizings in the pharmaceutical sector will continue to drag on the market’s prospects for real growth

Note: Please join us next December 2012 for our 8th Annual Symposium and Holiday Party.



Q: How Have EAP Members Collected Over \$50,000?

A: EAP Debt Collection Program

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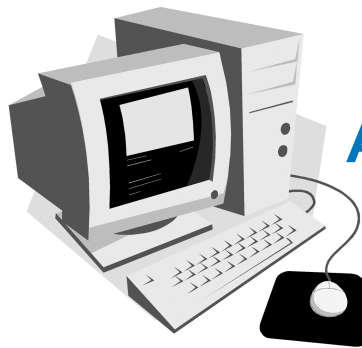
Spring 2012 Rebate

Look out for the Spring 2012 Rebate Program. Heating and Air Conditioning information will be in the mail. The program will run from February through May. It offers customers rebates of up to \$800 for installing energy efficient central air conditioning or heat pumps. The rebate amounts vary depending upon the energy efficiency of the unit installed, and are only valid for new or replacement units. New construction is not eligible.

For information on either the Heat Pump Rebate program, please contact Lisa at (610) 825-1600, extension 14, or via email at lisa@eap.org.

“PA One Call” Invoices - \$100 Member Value

Don’t forget to fax Mair (610) 825-1603 your \$100 PA One call invoice - she will pay the invoice for you! ALL 2012 Dues must be paid in full!



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– PLEASE POST –

CONTRACTOR NEWS . . .



An Exelon Company

PECO has updated its website. Old links to the Blue Book and Generation Interconnection requirements have been changed and do not forward to the new pages. Here are the links that you need to get to these documents.

Blue Book –

<https://www.peco.com/partnersinbusiness/buildersandcontractors/pages/guidelines.aspx>

Gray Book –

<https://www.peco.com/customerservice/ratesandpricing/pages/self-generatedpower.aspx>

Please NOTE the following changes to PECO's Electric Service Requirements handbook, or **Blue Book**.

A summary of the changes are also listed below, as published in section B of the ESR.

SECTION B - Significant Changes to PECO's Electric Service Requirements Handbook - 10 / 2011

Changes to Chapter 1 - Introduction

Editorial Changes

Changes to Chapter 6 - Secondary Services (<600 Volts)

Revise 6.4.1, requiring that ALL PECO padmount transformers be installed on pre-cast transformer foundations (or Transformer Vault) with lid.

Changes to Chapter 7 - Services Over 600 Volts

Appendix "A" section 3.1.9.1.2 revised to show new PECO safety ground apparatus required in >600 Volt service cable compartment

Changes to Chapter 8 - Metering

Revised Figures 8.17, 8.19, 8.20, 8.22, 8.28, 8.30, 8.33 to show PECO padmount transformers installed on pre-cast transformer foundations

Deleted Figures 8.44, 8.45, and 8.46 as redundant

Changes to Chapter 9 - Inspection Agencies

Added new inspection agencies.

Changes to Chapter 12 - Illustrations

Revised Figures 12.12, 12.13 and 12.14 to show PECO padmount transformers installed on pre-cast transformer foundations

Fluorescent Lamps

(Continued from page 1)

ordinary consumers have become aware of is the elimination of the manufacture and importation of the familiar 100-Watt incandescent lamp, in January 2012. This will be followed by the phase-out of the 75-Watt incandescent lamp in January 2013, and the 60-Watt and 40-Watt lamps in January 2014. In the case of the common 100-Watt incandescent lamp, there are three alternatives. First, is the 72-Watt Halogen lamp, which has a similar shape and light output, is about thirty percent (30%) more efficient, and works with many types of dimmers. Second, is the spiral-shaped 23- to 26-Watt Compact Fluorescent lamp (CFL) that comes in a variety of envelope shapes, is about four times as efficient as an incandescent, and does not always work well with some dimmers. Finally, is the 'next-generation' Light Emitting Diode (LED) lamp, which should become available in early 2012. While it is long-lived, it is not yet highly energy-efficient, and it is sometimes dimmable. It is also not yet cost-effective for many applications, such as those that do not require extremely long lamp life or have very difficult access.

There are several alternative paths to address the issue of the pending unavailability of T12 fluorescent lamps. In the short term, having a sufficient supply of new spare lamps on hand provides the ability to "keep the lights on," until a longer-term approach can be selected. Here, you need to be mindful that this is, at best, only a temporary measure; since when the existing magnetic T12 ballast expires, it is essentially "game over". Be aware that ballast failure can be accelerated by not replacing spent or worn-out fluorescent lamps promptly (usually in pairs), when they go out or fail to relight. While electronic T12 ballasts will still be available until 2014, installing them would be like putting new alloy wheels on an old car, for which you will soon be unable to get tires. Note that some T12 lamps with a Color Rendering Index (CRI) of 87 or greater, which offer less than the full measure of light output, will continue to exist. In addition, a few T12 lamps containing only pure "rare-earth" phosphors (solely) will be able meet these new efficiency standards, albeit at a substantial price premium. This latter situation is exacerbated by recent scarcity of rare-earth minerals.

For the longer term, there are multiple approaches. One is to retrofit each existing light fixture, with an electronic T8 bal-

last and T8 lamps [which are 1.0" in diameter]. This could also necessitate the replacement (or the rewiring) of the fluorescent lamp holders within the luminaire. A second approach is to replace each existing light fixture with a new luminaire containing these more energy efficient components [a T8 ballast and T8 lamps]. A third approach is to redesign the lighting system(s) in each space to perform the required lighting tasks more effectively, and more efficiently. While this latter alternative might appear to be somewhat more complicated, it provides the opportunity for a more tailored lighting solution, which when done well, can produce an advantageous and beneficial outcome, as well as reduce operating expenses.

With any of these three alternatives, one should expect to obtain the economic benefit of an improvement of between twenty-five and forty percent in the energy efficiency of the portion of the electricity cost which can be attributed to the fluorescent lighting system. Understand that in commercial retail applications the energy cost for lighting can typically vary between thirty and forty-five percent of the total electricity expense. This wide range of potential savings is determined by a number of variables, including the hours of operation and the light intensity necessary for that particular type of business. In selecting a plan of action, in order to obtain the most favorable result, it is essential to evaluate systematically each of the key variables associated with the existing lighting equipment and the application. How quickly the new lighting will pay for itself will be determined by your individual situation. One thing that is certain, by utilizing these much more energy-efficient lighting technologies, it can do so, usually within two to five years.

In selecting among these alternatives, there are a number of decisions to be made. These decisions can include: budget and time schedule, quantity and quality of light needed for the unique type of business and merchandise (the light source's color appearance [the warmth or coolness of the light] and its ability to render colors accurately), distribution of light (in order to maximize sales), ability to have multiple levels of light (for operation prior to when the space is open to the public), nighttime security lighting (if needed), code required life-safety lighting (exit signs and emergency lights), and State Energy Code compliance review by the local municipality's building department. This latter item is now required for newly constructed, and for renovated or remodeled facilities, as one part of Pennsylvania's re-

cently adopted, statewide Uniform Construction Code (UCC) legislation, which became effective in PA during 2004.

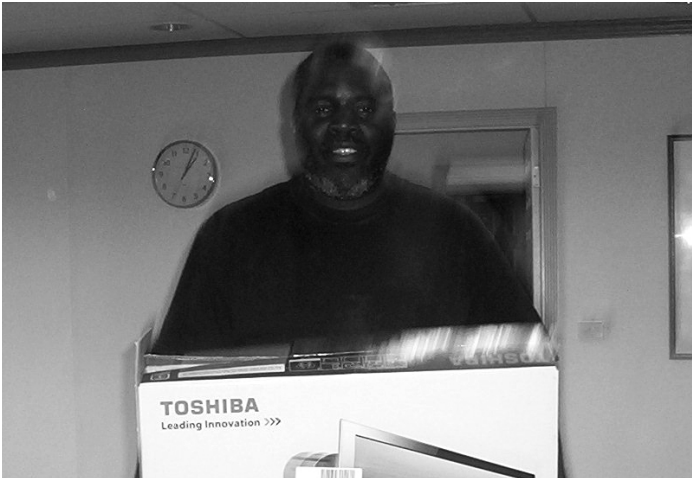
In the swiftly changing waters of this new world environment, each of us will have to navigate the opportunities and challenges ahead, as we traverse the river of our businesses. However, if running these particular white-water rapids alone seems too challenging or too time-consuming, perhaps you might want to be guided by enlisting the services of a skilled lighting design professional. Your 'guide' for this transformational journey could be a lighting designer, an electrical engineer, or other design professional that specializes in lighting. Look for an individual who has a professional license or registration, or who has at least one certification involving lighting. That person will work with you to develop a lighting design solution that is appropriate for your needs and will prepare written specifications. Using these, you can then solicit competitive bids from local electrical contractors. They will obtain the lighting equipment from a local electrical distributor and perform the installation of the new lighting system(s). Be aware that as part of selecting an electrical contractor, there are additional considerations that need to be addressed including obtaining an electrical permit from the local municipal Authority Having Jurisdiction (the AHJ), having an electrical inspection (conducted by an independent third-party inspection agency), and ensuring proper disposal of the old lighting equipment (both lamp and ballast recycling).

This latter item, full compliance with all toxic and/or hazardous material regulations, is the responsibility of the Property Owner. In addition, and perhaps most important, is qualifying for and obtaining any available funding grants and/or utility rebates.

In summary, the bad news is, based on this change you might have to do something rather soon. The good news is there are multiple ways to achieve a positive, sustainable ('green') outcome, which can reduce your energy costs, enhance the appearance of your business and its merchandise, and potentially enhance your productivity, or that of your customers. The net result is an improved bottom line. Finally, with sensible and prudent advice available from an experienced design professional, you do not have to go it alone.

Respectfully submitted by Carl M. Watson, PE, MBA, LC. Contact Carl through his company, Applied Energy Solutions, at 610-642-7911.

Congratulations to our Electric Expo 2011 Winners



Television - Our lucky new member - Jonathan Waring of Waring Electric



\$1,000 Winner - Robert Palin of R.J. Electric LLC

2012 Contractor' Section Calendar of Events

Bucks-Montgomery Contractors Section

February

Date: Thursday, February 9, 2012
Time: 6:00 p.m.
Location: Sandy Run Country Club
 200 E. Valley Green Road
 Oreland, PA 19075
 (215) 233-0666
Sponsor: *Pollart Electrical Sales*

March

Date: Thursday, March 8, 2012
Time: 6:00 p.m.
Location: Sandy Run Country Club
 200 E. Valley Green Road
 Oreland, PA 19075
 (215) 233-0666
Sponsor: *Franklin Electric*

April

Date: Thursday, April 12, 2012
Time: 6:00 p.m.
Location: Sandy Run Country Club
 200 E. Valley Green Road
 Oreland, PA 19075
 (215) 233-0666
Sponsor: *Certified Electrical Sales LLC*

Delaware County Contractors Section

February

Date: Thursday, February 2, 2012
Time: 6:00 p.m.
Location: *TBA*
Sponsor: *Illuminations*

March

Date: Thursday, March 1, 2012
Time: 6:00 p.m.
Location: Pica's Restaurant
 7803 West Chester Pike
 Upper Darby, PA 19082
 (610) 789-7770
Sponsor: *PECO*

April

Date: Thursday, April 5, 2012
Time: 6:00 p.m.
Location: Pica's Restaurant
 7803 West Chester Pike
 Upper Darby, PA 19082
 (610) 789-7770
Sponsor: *Pollart Electrical Sales*

Grounding Services with Multiple Disconnects NEC Article 250

By: Michal Hofkin,
 Middle Department Inspection Agency, Inc.
 IECA, IAEL, EAP, NFPA, UL STP 719

Fall is upon us after a summer of wild weather! Welcome back to the Code Corner. I hope you all came through the nasty summer unscathed. This month we will explore grounding of services with multiple disconnects. As an example, we will use a 400-ampere single-phase service with four 100-ampere disconnects installed in a wood-framed structure.

Article 250.66 directs us to use Table 250.66 when sizing the grounding electrode conductor (GEC) for a service. In our example, if we use 500 kcmil copper conductors to supply the 400-ampere service, we must use a 1/0 AWG copper or a 3/0 AWG aluminum GEC for the metal underground water pipe grounding electrode. Often, the first five feet of water piping is located a great distance from the electrical service. At other times, the multiple disconnects used as service gear are small and therefore difficult to attach to with such a large conductor. The NEC does give us some options.

In Article 250.64 we are given the option of running multiple smaller GECs. In our example, we could run 4 lengths of 8 AWG copper, suitably protected from damage, one from each of the disconnects, to the first five feet of water. If damage is not likely, we could run 4 lengths of 6 AWG copper without the need for physical protection of the conductors. See Article 250.64(B).

Another option is to run a 1/0 AWG copper GEC from the water pipe to a busbar. As per Article 250.64(D)(1)(3), the busbar must be 1/4" thick, 2" wide, and as long as is needed for the five lugs we would install. The first lug would accept the 1/0 AWG from the water pipe, and the remaining 4 lugs would ac-

cept the 8 AWG or 6 AWG conductors that would run to each disconnect. This bar can be located anywhere between the water piping and the disconnects, though it is most often mounted near the service gear. If the building has additional available electrodes, the bar can be longer with more lugs installed in order to run additional GECs to these electrodes.

Our third option is run a 1/0 AWG copper from the water piping to the area of the service, and then tap this conductor with 8 AWG or 6 AWG conductors that would run to each disconnect. See Article 250.64(D)(1). These taps can be made with split-bolts listed as grounding and bonding equipment, or one of the other methods listed in the Article. As long as the method used to tap the 1/0 AWG does interrupt its continuity, it is a code compliant installation.

Take the time to assess the structure that you are working in and determine which of these methods best serve the installation. You can save yourself time and money by being familiar with these rules and how to properly apply them. A careful reading of Articles 250.64 and 250.66 is in order. Additionally, you must understand the difference between a grounding electrode conductor and grounding electrode conductor tap. They share some rules, but not all rules. Contact the AHJ and ask him/her for advice. Usually, a quick phone call to your inspector will result in savings of time and dollars.

The above is not a formal interpretation of the National Electrical Code. All references, duplicated code language, and paraphrasing is from the National Electrical Code (NFPA-70) 2011 edition.

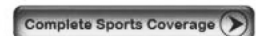
About the author: Michal Hofkin is a Senior Electrical Inspector for Middle Department Inspection Agency, Inc.

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Scholarships, Scholarships, Scholarships . . . Apply Now!!!!

2012 Educational Foundation Scholarships Available!

The Electrical Association of Philadelphia Educational Foundation is awarding THREE \$3,000 undergraduate scholarships for students enrolled OR planning to enroll in a full-time accredited undergraduate college or university program (at least 12 credits per semester) for the Fall 2012 semester.

Technical School Scholarship

The Electrical Association of Philadelphia Educational Foundation is awarding ONE \$3,000 scholarship to a deserving student attending OR planning to attend a technical school for the Fall 2012 semester. (Electrical or H&AC; at least 2 courses per semester)

Applications are read and judged by a non-biased, outside scholarship program management company. The scholarship will be awarded based upon the applicant's academic performance, extracurricular activities, volunteer/community activities and work experience.

Thank you to the 2011 Education Foundation contributors.

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Applications will be made available online beginning January 1, 2012. All applications must be completed (post-marked if mailing) by March 31, 2012.

Applications are available online at aim.applyists.net/EAP

All employees of member companies and their children are eligible to apply if the parent has been employed with the company for at least one year as of January 1, 2012, and is still employed with the company when the scholarships are announced.

For questions, please contact Lisa Cacia at (610) 825-1600, ext. 14, or via email at lisa@eap.org.

Students who have previously been awarded Electrical Association of Philadelphia Educational Foundation scholarships are NOT eligible for a Year 2012 scholarship.

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2012 Spring Educational Courses

Presented by

The Electrical Association of Philadelphia

2011 NEC Code Update

CEUs: 8 hours for Phila., NJ & DE
Date: Thursday, January 26, 2012
Time: 7:00 a.m. – 4:00 p.m.
Cost: \$195 per EAP member
\$250 per non-member
***(include a one year membership for new member only)**

Location: EAP Offices, Plymouth Meeting
Instructor: Mike Hofkin

Residential Electric

CEUs: 8 hours for Phila., NJ & DE
Date: Friday, February 10, 2012
Time: 7:00 a.m. – 4:00 p.m.
Cost: \$195 per EAP member
\$250 per non-member
***(include a one year membership for new member only)**

Location: EAP Offices, Plymouth Meeting
Instructor: Rich Van Wert

Commercial Electric

CEUs: 8 hours for Phila., NJ & DE
Date: Friday, March 9, 2012
Time: 7:00 a.m. – 4:00 p.m.
Cost: \$195 per EAP member
\$250 per non-member
***(include a one year membership for new member only)**

Location: EAP Offices, Plymouth Meeting
Instructor: Rich Van Wert

HVAC Installation & NEC Rules

Date: Tuesday, April 24, 2012
Time: 7:00 a.m. – 4:00 p.m.
Cost: \$195 per EAP member
\$250 per non-member
***(include a one year membership for new member only)**

Location: EAP Offices, Plymouth Meeting
Instructor: Rich Van Wert

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