News of Interest for and from the Connecticut Association of Home Inspectors, Inc.

CAHI MONTHLY NEWS

October 2017 Volume 10, Issue 10

Presidents Corner

This has been a very interesting couple of months.

For those who are not already aware, the leadership here at CAHI is changing. Stan Bajerski and Scott Monforte both stepped down from their current positions. Stan has seen fit to name me as interim President and Woody Dawson as interim Vice President. Stan served us well and has left us in a stronger position in the industry but unfortunately his health and family have forced an end to his tenure with the board. We all wish him only the best in the future.

As far as CAHI is concerned we will be having an open board meeting after our October 25 seminar. At this meeting we will elect officers and hope to welcome a few new directors to the board. Anyone who is interested in serving should contact Woody or myself prior to the meeting.

We are currently in our 25th year as the Connecticut Association of Home Inspectors. In these twenty five years, CAHI has become and remains the largest home inspection organization in the Northeast.

This is quite an achievement and you all deserve a better, stronger organization.

I thank you all for your loyalty and now ask for your participation in guiding this organization into its second quarter century.

Bill Kievit
Interim President

INSIDE THIS ISSUE

Next Meeting!

October 25, 2017

Presenter

TBD

MONTHLY MEETINGS – Details & Info

CAHI's regular monthly meetings are held at the Best Western located at 201 Washington Ave (RT 5), North Haven. Meetings are free to members. Most meetings are on the fourth Wednesday of the month from 7-9pm. Guests are always welcome! Guests may attend 2 free monthly meetings to experience our presentations, meet our members, and receive a CE attendance certificate.

Joining CAHI may be done at anytime of the year through our Membership Page

September Meeting Well Attended

Joe Giaimo was our presenter for the September meeting. The subject was Wood Destroying Insects and Joe did a great job of tailoring his presentation to the home inspection community. He also demonstrated expert knowledge of other pests. Attendance was the best since the start of the new licensing period.

Foundation Waterproofing That Works

An effective system—one that prevents a wet basement—relies on three key components

BY MATT RISINGER

One of the worst phone calls you can get as a builder is the one from a client calling to say he has water in the basement. We do everything we can before backfilling a foundation to avoid getting this call. Of course, an effective foundation waterproofing system costs more up-front. But compared with having to return to the site, excavate the entire foundation, and fix the problem, the up-front cost is a bargain. Add in the loss of reputation and all the hard feelings you're going to have with the client, and the cost of doing it right from the beginning is negligible.

In this article, I will focus on the three components of an effective foundation waterproofing system and discuss some of the products that I rely on for keeping basements dry.

Photos by Matt Risinger

BLACK GOO DOESN'T CUT IT

In the old days, the go-to foundation waterproofing was an asphalt-based, black, nasty goo. That material is a byproduct of oil refining and is actually not considered "waterproofing" but only "dampproofing." Asphalt goo can't block bulk water that builds up against a foundation; it can only prevent the moisture from damp soil from seeping into concrete. As soon as that moisture accumulates and saturates the soil, it builds hydrostatic pressure that can drive the water right through asphalt dampproofing.

Effective foundation waterproofing is more than just one product; it's a system with three critical components: a membrane to protect the concrete; a drainage mat to relieve hydrostatic pressure

and allow water to drain down, instead of in; and a French drain at the footing level to carry water to a daylight drain or to a sump pump.

FIRST LINE OF DEFENSE

In the order of building, the first component in the system is a true waterproofing material applied to the surface of the foundation walls. This can be a liquid-applied coating or a peel-and-stick membrane.

Liquid-applied membrane. Newer-generation liquid-applied materials that use SBR (styrene-butadiene rubber) are specifically designed for waterproofing concrete. They function as true waterproofing because they are completely insoluble in water and can resist hydrostatic pressure (although we do want to limit this pressure, as I'll explain further on). The material is spray-applied as a liquid, so it goes on as a continuous, monolithic membrane. At critical areas—transitions between the footer and the foundation wall, inside corners, or pipe penetrations—a liquid material perfectly conforms to surface variations without a lot of fancy origami.

There are a number of waterproofing products formulated for concrete walls. A builder friend of mine, Brian Long, swears by Poly Wall's Home Stretch Liquid, a synthetic rubber product that has been used in the commercial market for more than two decades but has only recently been introduced to the residential market.

The first step in applying this material is to inspect the surface of the walls and fill any large voids with mortar **(1)**. Smaller voids are OK; the rubber will fill them. But larger imperfections will fill unevenly and create a weak spot in the monolithic surface.

All through-wall penetrations **(2)** and the cold joint between the footing and the wall **(3)** are critical areas that need a heavy bead of sealant, such as Poly Wall's 2200 sealant, first. The sealant should be

tooled to ensure good adhesion and complete coverage **(4)**.

You can roll on a liquid-applied membrane, but Brian Long likes to spray it on the wall **(5)**. Spraying is faster and makes it easier to control the thickness. He has a crew member follow with a roller to even out the laps **(6)**.

The material is sprayed on to a 60-mil thickness **(7)**, which dries to a 30-mil, one-piece, no-seam finish. The crew uses a hydraulic Graco 733 sprayer and periodically checks the thickness as they work. One nice thing with the sprayers: You can leave material in the machine for up to two weeks, which gives you the ability to return to a single job on multiple days without a lot of heavy clean-up.

After the membrane is applied, Long's crew checks the surface of the membrane and deals with any imperfections, using the 2200 sealant to fill in any holes, pock mocks, or places there isn't complete coverage **(8)**. This step may seem incredibly picky. But again, compared with dealing with an unhappy client, it is time well-spent.

Peel-and-stick membranes offer an excellent waterproofing alternative. I have had good experiences with the Cosella-Dorken Delta system. It starts with ColdJoint Barrier—a 40-mil-thick membrane that is applied to the horizontal ledge of the footing and up the wall for about a foot to protect that critical footing joint **(9)**. The vertical leg of the ColdJoint Barrier is overlapped by the Delta-Thene, Cosella-Dorken's foundation wall membrane **(10)**, a 40-mil-thick peel-and-stick product that's about 3 feet wide. We run the membrane vertically. Like almost all membrane products applied over concrete, Delta-Thene and ColdJoint Barrier require that a primer be rolled on first. We then pull the backing off the membrane to apply it, creating an adhesive-to-adhesive bond that holds tenaciously.

Over the waterproofing membrane, we add an insulation layer. Here in Austin, we need only one inch of foam; in northern regions

you'd need more, of course. A nice feature of the Delta system is the plastic stab anchors it provides for installing the insulation. The anchors have a peel-and-stick adhesive that bonds them to the surface of the Delta-Thene **(11)**. With these in place, all we have to do is push the insulation on to hold it in place. We can use the same anchors to install the drainage mat. Most important is that we end up with no penetrations through the waterproofing membrane.

DRAIN DOWN

After applying a waterproofing to the foundation, a lot of builders think the job is done and move directly to backfilling. But by doing so, you are allowing water to back up directly against the membrane, where it might find an imperfection and create a leak.

The ideal way to solve this is to put a drain board over the membrane. The primary purpose of this drain board is to provide an air gap so that water running towards the foundation hits that gap and flows down to the footing drains. Think of the gap as a pressure relief valve. If there is an open gap, water pressure can't easily build up against the foundation.

Secondarily, the drain board protects the waterproofing membrane against rocks or road base or whatever you are using as a backfill material.

I've used Delta-Drain, a dimple mat from Cosella-Dorken. Like most drain boards, it's covered with a filter fabric that keeps soil from clogging the gap. The boards run vertically and are installed over the insulation using the same stab anchors mentioned above **(12)**.

Poly Wall's Arroyo drain board works well, too. It comes with a unique layout of dimples, with larger ones at the bottom of a 2-foot-wide starter course, and smaller dimples at the top of the section that mesh with the dimples of the next, 4-foot-wide course.

Long's crew installs the Arroyo product using a spray contact adhesive that they apply to the board's back **(13)** and to the wall. They

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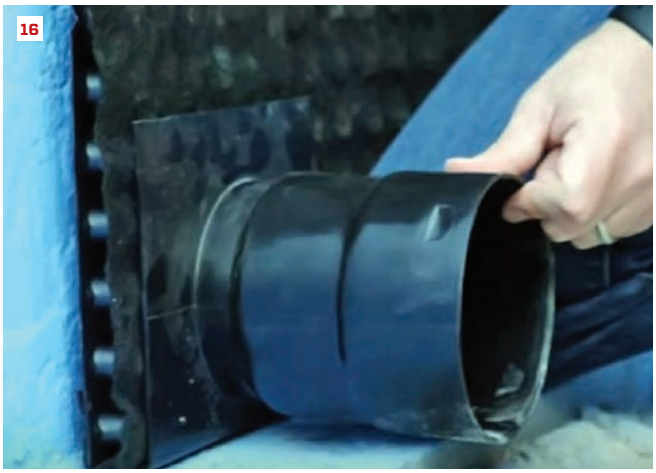

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allow the adhesive to flash off, the way you would with a countertop adhesive, and then apply the board to the wall **(14)**. It sticks tenaciously, and there's no need for fasteners that would make penetrations through the water barrier. At corners, the crew scores the back to break cleanly and fold over the corner **(15)**. You don't want to cut the filter fabric anywhere. The fabric at edges runs long so you can stretch it over the course above or around a corner. You want to maintain an unbroken, uniform fabric surface to keep any sediment from getting in and clogging the spaces created by the dimples.

Arroyo drain boards run horizontally, so you can install them in lifts, backfilling as you go. This makes it easier on the crew, because they do not need to reach up the entire height of a tall wall.

The Arroyo system offers an outlet system **(16)** that works if you are not using a traditional French drain. The outlets tie right into the drain board and allow you to tie in a solid pipe to drain water out directly from the boards.

DRAIN OUT

Any foundation waterproofing system that protects the foundation from water and relieves hydrostatic pressure needs a third critical component: a way to drain out. We always install a traditional French drain system—a standard that Americans have been using for generations on houses. This consists of a drain pipe that is run in a bed of rock. We typically use 4-inch Schedule 40. We have found that Schedule 20 can collapse (and the corrugated black pipe seems essentially worthless), so it's worth going with the thicker-walled PVC pipe. The holes are predrilled and always face downward. The perimeter pipe is covered with a coarse gravel or septic rock that must be separated from the surrounding soil with filter fabric to prevent soil from clogging the rock.

A conventional footing drain uses a single pipe around the perimeter and a filter sock, but the sock limits the volume of stone that you can install to provide drainage.


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Long takes the French drain to whole new level, using two pipes (see photo on page 43), each with a clean out that he installs at every corner **(17)**. If a problem ever occurs with the drain system, it will be easy to run a snake down to free up a clog.

Around the perimeter of the footing, Long pours gravel over the twin drain pipes into what he calls a "drainage burrito," starting with a wide piece of filter fabric running up the wall and onto the bottom of the excavation. He lays in the drain pipes and covers them with a healthy amount of septic rock. He then applies spray adhesive along one edge of the filter fabric **(18)** and pulls the fabric over the rock, adhering the edge to the fabric draped up the wall **(19)**. On top of this, he comes in with another layer of filter fabric and then covers that with another layer of filter fabric **(20)**. This double layer of rock and fabric ensures that he doesn't allow any sediment inside the drain; the house shown in the photos is in a part of Texas that has a fine caliche that is adept at finding its way inside a drain, so Long needed to be meticulous about how he detailed the fabric.

In many of the houses that I build, we run a second French drain around the inside of the footing as well. The inside drainage and the outside drainage are connected by short sections of Schedule 40 every 8 to 10 feet that run crosswise through the footing. This provides a nice failsafe: If one section of the drain fails, water can bypass to the interior or exterior path and still get out.

On a hilly site, it is usually easy to run the perimeter drain to daylight, but in most cases we run it to a sump pump. Sump pumps tend to fail during heavy rains from working overtime, however, or stop when the power goes out. Because that is not when you want to be without a working sump pump, we always include a secondary pump wired into the system with a battery backup.

Matt Risinger owns Risinger & Co., in Austin, Texas.

Frequently Asked Flu Questions 2017-2018 Influenza Season

Note: For the 2017-2018 season, CDC recommends use of the flu shot inactivated influenza vaccine or IIV) or the recombinant influenza vaccine (RIV). The nasal spray flu vaccine, also known as the live attenuated influenza vaccine (LAIV), should not be used again during 2017-2018. The 2017-2018 influenza vaccination recommendations are available.

In This Article:

New Flu Information for 2017-2018

Getting an annual flu vaccine is the first and best way to protect yourself and your family from the flu. Flu vaccination can reduce flu illnesses, doctors' visits, and missed work and school due to flu, as well as prevent flu-related hospitalizations. In 2017, a study in Pediatrics was the first of its kind to show that flu vaccination also significantly reduced a child's risk of dying from influenza. The more people who get vaccinated, the more people will be protected from flu, including older people, very young children, pregnant women, and people with certain long-term health conditions who are more vulnerable to serious flu complications. This page summarizes information for the 2017-2018 flu season.

What's new this flu season?

A few things are new this season:

- The recommendation to **not** use the nasal spray flu vaccine (LAIV) was renewed for the 2017-2018 season. Only injectable flu shots are recommended for use again this season.
- Flu vaccines have been updated to better match circulating viruses (the influenza A(H1N1) component was updated).
- Pregnant women may receive any licensed, recommended, and age-appropriate flu vaccine.
- Two new quadrivalent (four-component) flu vaccines have been licensed: one inactivated influenza vaccine ("Afluria Quadrivalent" IIV) and one recombinant influenza vaccine ("Flublok Qudrivalent" RIV).
- The age recommendation for "Flulaval Quadrivalent" has been changed from 3 years old and older to 6 months and older to be consistent with FDA-approved labeling.
- The trivalent formulation of Afluria is recommended for people 5 years and older (from 9 years and older) in order to match the Food and Drug Administration package insert.

A candidate vaccine virus (CVV) is an influenza (flu) virus that has been prepared by CDC or its public health partners for use by vaccine manufacturers to mass produce a flu vaccine. During the 2017-2018 season, for the first time, a true cell-based CVV has been approved for use in flu vaccine production for the Northern Hemisphere. Traditionally, CVVs have been produced using fertilized chicken eggs. The cell-based CVV has been used to produce the influenza A (H3N2) component of cell-based flu vaccines for the Northern Hemisphere in 2017-2018. Recombinant flu vaccines also are based on genetic sequences of recommended vaccine viruses that have not been propagated in eggs. Cell-based flu vaccines that use cell-based CVVs or genetic sequences have the potential to offer better protection than traditional, egg-based flu vaccines as a result of being more similar to flu viruses in circulation. For more information, see CDC's Cell-Based Flu Vaccines webpage.

What flu vaccines are recommended this season?

This season, only injectable flu vaccines (flu shots) are recommended. Some flu shots protect against three flu viruses and some protect against four flu viruses.

Options this season include:

- Standard dose flu shots. Most are given into the muscle (usually with a needle, but one can be given to some people with a jet injector). One is given into the skin.
- High-dose shots for older people.
- Shots made with adjuvant for older people.
- Shots made with virus grown in cell culture.
- Shots made using a vaccine production technology (recombinant vaccine) that does not require the use of flu virus.

Live attenuated influenza vaccine (LAIV) – or the nasal spray vaccine – is not recommended for use during the 2017-2018 season because of concerns about its effectiveness.

There is a table showing all the flu vaccines that are FDA-approved for use in the United States during the 2017-2018 season.

What viruses will the 2017-2018 flu vaccines protect against?

There are many different flu viruses and they are constantly changing. The composition of U.S. flu vaccines is reviewed annually and updated as needed to match circulating flu viruses. Flu vaccines protect against the three or four viruses (depending on vaccine) that research suggests will be most common. For 2017-2018, three-component vaccines are recommended to contain:

- an A/Michigan/45/2015 (H1N1)pdm09-like virus (updated)
- an A/Hong Kong/4801/2014 (H3N2)-like virus
- a B/Brisbane/60/2008-like (B/Victoria lineage) virus

Quadrivalent (four-component) vaccines, which protect against a second lineage of B viruses, are recommended to be produced using the same viruses recommended for the trivalent vaccines, as well as a B/Phuket/3073/2013-like (B/Yamagata lineage) virus.

When should I get vaccinated?

You should get a flu vaccine before flu begins spreading in your community. It takes about two weeks after vaccination for antibodies to develop in the body that protect against flu, so make plans to get vaccinated early in fall, before flu season begins. CDC recommends that people get a flu vaccine by the end of October, if possible. Getting vaccinated later, however, can still be beneficial and vaccination should continue to be offered throughout the flu season, even into January or later.

Children who need two doses of vaccine to be protected should start the vaccination process sooner, because the two doses must be given at least four weeks apart.

Can I get a flu vaccine if I am allergic to eggs?

The recommendations for people with egg allergies are the same as last season.

- People who have experienced only hives after exposure to egg can get any licensed flu vaccine that is otherwise appropriate for their age and health.
- People who have symptoms other than hives after exposure to eggs, such as angioedema, respiratory distress, lightheadedness, or recurrent emesis; or who have needed epinephrine or another emergency medical intervention, also can get any licensed flu vaccine that is otherwise appropriate for their age and health, but the vaccine should be given in a medical setting and be supervised by a health care provider who is able to recognize and manage severe allergic conditions. (Settings include hospitals, clinics, health departments, and physician offices). People with egg allergies no longer have to wait 30 minutes after receiving their vaccine.

Flu Activity

What sort of flu season is expected this year?

It's not possible to predict what this flu season will be like. While flu spreads every year, the timing, severity, and length of the season varies from one year to another.

Will new flu viruses circulate this season?

Flu viruses are constantly changing so it's not unusual for new flu viruses to appear each year. For more information about how flu viruses change, visit How the Flu Virus Can Change.

Will the United States have a flu epidemic?

The United States experiences epidemics of seasonal flu each year. This time of year is called "flu season." In the United States, flu viruses are most common during the fall and winter months. Influenza activity often begins to increase in October and November. Most of the time flu activity peaks between December and February and can last as late as May. CDC monitors certain key flu indicators (for example, outpatient visits of influenza-like illness (ILI), the results of laboratory testing and reports of flu hospitalizations and deaths). When these indicators rise and remain elevated for a number of consecutive weeks, "flu season" is said to have begun. Usually ILI increases first, followed by an increase in flu-associated hospitalizations, which is then followed by increases in flu-associated deaths.

For the most current influenza surveillance information, please see FluView at Weekly U.S. Influenza Surveillance Report.

When will flu activity begin and when will it peak?

The timing of flu is very unpredictable and can vary in different parts of the country and from season to season. Seasonal flu viruses can be detected year-round; however, seasonal flu activity often begins as early as October and November and can continue to occur as late as May. Flu activity most commonly peaks in the United States between December and February.

How many people get sick with flu every year?

The exact number of flu illnesses that occur each season is not known because flu is not a reportable disease and not everyone who gets sick with the flu seeks medical care or gets tested. CDC conducts surveillance of flu activity year round through several surveillance systems, such as the Outpatient Influenza-like Illness Surveillance Network (ILINet), which collects information on outpatient illness, and FluSurv-Net, which collects information on hospitalizations. For more information, see CDC's Overview of Influenza Surveillance in the United States page. However, to estimate the true burden of flu illness in the United States, including total flu cases, CDC uses mathematical modeling in combination with data from these traditional flu surveillance systems. CDC estimates that flu has resulted in between 9.2 million and 35.6 million illnesses each year in the United States since 2010. For more information on these estimates, see CDC's Disease Burden of Influenza page.

How many people are hospitalized from flu every year?

CDC estimates the total number of flu-associated hospitalizations in the United States. While CDC's flu surveillance systems, such as FluSurv-NET, monitor rates of flu-associated hospitalizations in the United States, flu surveillance has limitations because most surveillance systems only capture portions of the U.S. population and in some cases can under-report severe illness, including flu hospitalizations. That is why CDC also uses mathematical modeling to fill in the picture of the disease burden. Since 2010, CDC estimates that flu has resulted in between 140,000 and 710,000 hospitalizations each year. For more information, see CDC's Disease Burden of Influenza page.

How many people die from flu each year?

While flu deaths in children must be reported to CDC, flu deaths in adults are not nationally notifiable. CDC uses mortality data collected by the National Center for Health Statistics to monitor relative levels of flu-associated deaths. This system tracks the proportion of death certificates processed that list pneumonia or influenza as the underlying or contributing cause of death of the total deaths reported. This system provides an overall indication of whether flu-associated deaths are elevated, but does not provide an exact number of how many people died from flu. For more information, see Overview of Influenza Surveillance in the United States, "Mortality Surveillance."

As it does for the numbers of flu cases, doctor's visits and hospitalizations, CDC also estimates deaths in the United States using mathematical modeling. CDC estimates that from 2010-2011 to 2013-2014, influenza-associated deaths in the United States ranged from a low of 12,000 (during 2011-2012) to a high of 56,000 (during 2012-2013). Death certificate data and weekly influenza virus surveillance information was used to estimate how many flu-related deaths occurred among people

whose underlying cause of death on their death certificate included respiratory or circulatory causes. For more information, see Estimating Seasonal Influenza-Associated Deaths in the United States and CDC's Disease Burden of Influenza page.

Why is it difficult to know exactly how many people die from flu?

There are several factors that make it difficult to determine accurate numbers of deaths caused by flu regardless of reporting. Some of the challenges in counting influenza-associated deaths include the following: the sheer volume of deaths to be counted; the lack of testing (not everyone that dies with an influenza-like illness is tested for influenza); and the different coding of deaths (influenza-associated deaths often are a result of complications secondary to underlying medical problems, and this may be difficult to sort out). For more information, see Estimating Seasonal Influenza-Associated Deaths in the United States: CDC Study Confirms Variability of Flu

Protective Actions

What should I do to protect myself from flu this season?

CDC recommends a yearly flu vaccine for everyone 6 months of age and older as the first and most important step in protecting against this serious disease.

In addition to getting a seasonal flu vaccine, you can take everyday preventive actions like staying away from sick people and washing your hands to reduce the spread of germs. If you are sick with flu, stay home from work or school to prevent spreading flu to others. In addition, there are prescription medications called antiviral drugs that can be used to treat influenza illness. Visit What you Should Know About Flu Antiviral Drugs for more information.

What should I do to protect my loved ones from flu this season?

Encourage your loved ones to get vaccinated. Vaccination is especially important for people at high risk for developing flu complications(http://www.cdc.gov/flu/about/disease/high_risk.htm), and their close contacts. Also, if you have a loved one who is at high risk of flu complications and they develop flu symptoms, encourage them to get a medical evaluation for possible treatment with flu antiviral drugs. These drugs work best if given within 48 hours of when symptoms start. CDC recommends that people who are at high risk for serious flu complications and who get flu symptoms during flu season be treated with flu antiviral drugs as quickly as possible. People who are not at high risk for serious flu complications may also be treated with flu antiviral drugs, especially if treatment can begin within 48 hours.

Do some children require two doses of flu vaccine?

Yes. Some children 6 months through 8 years of age will require two doses of flu vaccine for adequate protection from flu. Children in this age group who are getting vaccinated for the first time will need two doses of flu vaccine, spaced at least 28 days apart. Children who have only received one dose in their lifetime also need two doses. Your child's doctor or other health care professional can tell you if your child needs two doses of flu vaccine. Visit Children, the Flu, and the Flu Vaccine for more information.

What can I do to protect children who are too young to get vaccinated?

Children younger than 6 months old are at high risk of serious flu complications, but are too young to get a flu vaccine. Because of this, safeguarding them from flu is especially important. If you live with or care for an infant younger than 6 months old, you should get a flu vaccine to help protect them from flu. See Advice for Caregivers of Young Children for more information. Everyone else who is around the baby also should be vaccinated. Also, studies have shown that flu vaccination of the mother during pregnancy can protect the baby after birth from flu infection for several months.

In addition to getting vaccinated, you and your loved ones can take everyday preventive actions like staying away from sick people and washing your hands to reduce the spread of germs. If you are sick with flu, stay home from work or school to prevent spreading flu to others.

Vaccine and Vaccination

How much flu vaccine will be available this season?

Flu vaccine is produced by private manufacturers, so supply depends on manufacturers. For the 2017-2018 season, manufacturers projected they would provide between 151 million and 166 million doses of injectable vaccine for the U.S. market. (Projections may change as the season progresses.) Flu vaccine supply updates will be provided as they become available at Seasonal Influenza Vaccine & Total Doses Distributed.

Will live attenuated intranasal influenza vaccine (LAIV) be available this season even though it is not recommended for use?

FluMist® Quadrivalent is still an FDA-licensed product. As such, there may be some supply of FluMist® Quadrivalent on the U.S. market during the 2017-2018 season. It is important for clinicians and the public to be aware that because of concerns about this vaccine's effectiveness, CDC recommends that this vaccine not be used during the 2017-2018 influenza season.

What flu vaccine should I get instead of the nasal spray vaccine?

People who usually get the nasal spray vaccine (trade name FluMist Quadrivalent®) should get a licensed and recommended injectable flu vaccine (a flu shot) during 2017-2018. There are many different formulations of injectable flu vaccines approved for use in different people. There is a table showing all the influenza vaccines that are FDA-approved for use in the United States during the 2017-2018 season.

My child usually gets the nasal spray vaccine. Can I skip getting them vaccinated since nasal spray flu vaccine is not recommended?

It is really important that you still get your child vaccinated against influenza this season. CDC, the American Academy of Pediatrics and other partners support an annual flu vaccine for children, including the use of injectable vaccines during 2017-2018. Influenza can be a serious illness for children and children (especially school-aged children) are more likely to get sick with flu. Millions

of children get sick with flu every season. A typical flu illness can mean missing a week or more of school, and thousands of children are hospitalized due to flu every flu season. Once infected, children then spread flu to others. A flu shot can keep your child from getting sick with flu. Vaccinating your child also protects people around them (like grandparents, babies or anyone with long-term health problems) who are more vulnerable to flu. The nasal spray flu vaccine (trade name FluMist®) is not recommended this season because of concerns that it may not work well. More information about flu vaccination for children this season is available in "Flu Information for Parents with Young Children."

When should I get vaccinated?

Getting vaccinated before flu activity begins helps protect you once the flu season starts in your community. It takes about two weeks after vaccination for the body's immune response to fully respond and for you to be protected so make plans to get vaccinated. CDC recommends that people get a flu vaccine by the end of October, if possible. However, getting vaccinated later can still be beneficial. CDC recommends ongoing flu vaccination as long as influenza viruses are circulating, even into January or later. Children aged 6 months through 8 years old who need two doses of vaccine should get the first dose as soon as possible to allow time to get the second dose before the start of flu season. The two doses should be given at least 28 days apart.

Where can I get a flu vaccine?

Flu vaccines are offered by many doctor's offices, clinics, health departments, pharmacies and college health centers, as well as by many employers, and even by some schools.

Even if you don't have a regular doctor or nurse, you can get a flu vaccine somewhere else, like a health department, pharmacy, urgent care clinic, and often your school, college health center, or work.

Visit the HealthMap Vaccine Finder to locate where you can get a flu vaccine.

What is flu vaccination using a jet injector?

On August 14, 2014, the U.S. Food and Drug Administration (FDA) approved use of one jet injector device (the PharmaJet Stratis 0.5ml Needle-free Jet Injector) for delivery of one particular flu vaccine (AFLURIA® by bioCSL Inc.) in people 18 through 64 years of age. A jet injector is a medical device used for vaccination that uses a high-pressure, narrow stream of fluid to penetrate the skin instead of a hypodermic needle. For more information, see Flu Vaccination by Jet Injector.

What is adjuvanted flu vaccine?

The U.S. Food and Drug Administration (FDA) licensed a new seasonal influenza (flu) vaccine containing adjuvant for adults 65 years of age and older. An adjuvant is an ingredient added to a vaccine to create a stronger immune response to vaccination. FLUAD™[155 KB, 13 pages] was licensed in November 2015 and will be available during the 2017-2018 flu season. It contains the MF59 adjuvant, an oil-in-water emulsion of squalene oil. FLUAD™ is the first adjuvanted seasonal flu vaccine marketed in the United States. For more information visit: FLUAD™ Flu Vaccine With Adjuvant.

How effective will flu vaccines be this season?

Influenza vaccine effectiveness (VE) can vary from year to year among different age and risk groups and even by vaccine type. How well the vaccine works can depend in part on the match between the vaccine virus used to produce the vaccine and the circulating viruses that season. It's not possible to predict what viruses will be most predominant during the upcoming season. CDC monitors circulating viruses throughout the year and provides new and updated information about their similarity to the flu vaccine viruses as it becomes available. Information is published weekly in FluView and summarized at intervals in the Morbidity and Mortality Weekly Report (MMWR). Vaccine effectiveness estimates are also provided when they become available. While vaccine effectiveness can vary, recent studies show vaccine reduces the risk of flu illness by about 40% to 60% among the overall population during seasons when most circulating flu viruses are like the vaccine viruses. Similar reductions against hospitalization have been observed too. For more information about previous vaccine effectiveness, visit How Well Does the Seasonal Flu Vaccine Work?.

Will this season's flu vaccine be a good match for circulating viruses?

It's not possible to predict with certainty if the flu vaccine will be a good match for circulating flu viruses. The flu vaccine is made to protect against the flu viruses that research and surveillance indicate will likely be most common during the season. However, experts must pick which flu viruses to include in the flu vaccine many months in advance in order for flu vaccines to be produced and delivered on time. Also flu viruses change constantly (called drift) – they can change from one season to the next or they can even change within the course of one flu season. Another factor that can impact vaccine effectiveness, especially against influenza A(H3N2) viruses, are changes that can occur in vaccine viruses as they are grown in eggs, which is the production method for most current flu vaccines. Because of these factors, there is always the possibility of a less than optimal match between circulating flu viruses and the viruses in the flu vaccine.

Over the course of the flu season, CDC studies samples of circulating flu viruses to evaluate how close a match there is between viruses used to make the flu vaccine and circulating flu viruses.

One of the ways that helps CDC evaluate the match between flu vaccine viruses and circulating flu viruses is with a lab process called 'genetic and antigenic characterization'. Results of genetic and antigenic characterization testing are published weekly in CDC's FluView.

How long does a flu vaccine protect me from getting the flu?

Multiple studies conducted over different seasons and across flu vaccine types and influenza virus subtypes have shown that the body's immunity to influenza viruses (acquired either through natural infection or vaccination) declines over time. The decline in antibodies is influenced by several factors, including the antigen used in the vaccine, the age of the person being vaccinated, and the person's general health (for example, certain chronic health conditions may have an impact on immunity). When most healthy people with regular immune systems are vaccinated, their bodies produce antibodies and they are protected throughout the flu season, even as antibody levels decline over time. Older people and others with weakened immune systems may not generate the same amount of antibodies after vaccination; further, their antibody levels may drop more quickly when compared to young, healthy people.

Getting vaccinated each year provides the best protection against the flu throughout flu season. It's

important to get a flu vaccine every season, even if you got vaccinated the season before and the viruses in the flu vaccine have not changed for the current season.

Can the flu vaccine provide protection even if the flu vaccine is not a “good” match?

Yes, antibodies made in response to vaccination with one flu virus can sometimes provide protection against different but related flu viruses. A less than ideal match may result in reduced vaccine effectiveness against the flu virus that is different from what is in the flu vaccine, but it can still provide some protection against flu illness.

In addition, it’s important to remember that the flu vaccine contains three or four flu viruses (depending on the type of vaccine you receive) so that even when there is a less than ideal match or lower effectiveness against one virus, the flu vaccine may protect against the other flu viruses.

For these reasons, even during seasons when there is a less than ideal match, CDC continues to recommend flu vaccination for everyone 6 months and older. Vaccination is particularly important for people at high risk for serious flu complications, and their close contacts.

Can I get vaccinated and still get the flu?

Yes. It’s possible to get sick with the flu even if you have been vaccinated (although you won’t know for sure unless you get a flu test). This is possible for the following reasons:

You may be exposed to a flu virus shortly before getting vaccinated or during the period that it takes the body to gain protection after getting vaccinated. This exposure may result in you becoming ill with flu before the vaccine begins to protect you. (About 2 weeks after vaccination antibodies that provide protection develop in the body.)
You may be exposed to a flu virus that is not included in the seasonal flu vaccine. There are many different flu viruses that circulate every year. The flu vaccine is made to protect against the three or four flu viruses that research suggests will be most common.
Unfortunately, some people can become infected with a flu virus the flu vaccine is designed to protect against, despite getting vaccinated. Protection provided by flu vaccination can vary widely, based in part on health and age factors of the person getting vaccinated. In general, the flu vaccine works best among healthy younger adults and older children. Some older people and people with certain chronic illnesses may develop less immunity after vaccination. Flu vaccination is not a perfect tool, but it is the best way to protect against flu infection.

If You Get Sick

What happens in the body when someone has the flu?

Influenza viruses usually infect the respiratory tract (i.e., the airways of the nose, throat and lungs). As the infection increases, the body’s immune system responds to fight the virus infection. This results in inflammation that can trigger respiratory symptoms such as cough and sore throat. The immune system response can also trigger fever and cause muscle or body aches. , When infected persons cough, they can spread influenza viruses in respiratory droplets to someone next to them; persons can also become infected through contact with infectious secretions or contaminated surfaces. Most people who become sick will recover in a few days to less than two weeks but some

people may become more severely ill. Following flu infection, secondary ear and sinus infections can occur. For example, some people may develop pneumonia. This can happen to anyone, but may be more likely to happen to people who have certain chronic medical conditions, or in elderly persons.

What should I do if I get sick with the flu?

Most people with the flu have mild illness and do not need medical care or antiviral drugs. If you get sick with flu symptoms, in most cases, you should stay home and avoid contact with other people except to get medical care.

If, however, you have symptoms of flu and are in a high risk group, or are very sick or worried about your illness, contact your health care provider (doctor, physician assistant, etc.). There are drugs your doctor may prescribe for treating the flu called "antivirals." These drugs can make you better faster and also may prevent serious complications.

Antiviral drugs are prescription drugs that can be used to treat flu illness. People at high risk of serious flu complications (such as children younger than 5 years, adults 65 years of age and older, pregnant women, people with certain long-term medical conditions, and residents of nursing homes and other long-term care facilities) and people who are very sick with flu (such as those hospitalized because of flu) should get antiviral drugs. Other people can be treated with antivirals at their health care professional's discretion. Treating high risk people or people who are very sick with flu with antiviral drugs is very important. Studies show that prompt treatment with antiviral drugs can prevent serious flu complications. Prompt treatment can mean the difference between having a milder illness versus very serious illness that could result in a hospital stay.

Treatment with antivirals works best when begun within 48 hours of getting sick, but can still be beneficial when given later in the course of illness. Antiviral drugs are effective across all age and risk groups. Studies show that antiviral drugs are under-prescribed for people who are at high risk of complications who get flu. Three FDA-approved antiviral medications are recommended for use during the 2017-2018 flu season: oseltamivir (available in generic versions and under the trade name Tamiflu®), zanamivir (Relenza®), and peramivir (Rapivab®). More information about antiviral drugs can be found at Treatment – Antiviral Drugs.

See "The Flu: What To Do If You Get Sick" for more information.

Surveillance

How does CDC track flu activity?

The Epidemiology and Prevention Branch in the Influenza Division at CDC collects, compiles and analyzes information on flu activity year round in the United States and produces FluView, a weekly influenza surveillance report, and FluView Interactive, which allows for more in-depth exploration of influenza surveillance data. The U.S. influenza surveillance system is a collaborative effort between CDC and its many partners in state, local, and territorial health departments, public health and clinical laboratories, vital statistics offices, healthcare providers, clinics, and emergency departments. Information in five categories is collected from eight different data sources that allow CDC to:

- Find out when and where influenza activity is occurring
- Track influenza-related illness
- Determine what influenza viruses are circulating
- Detect changes in influenza viruses
- Measure the impact influenza is having on hospitalizations and deaths in the United States

For more information, visit “Overview of Influenza Surveillance in the United States”.

What will CDC do to monitor flu vaccine effectiveness for the 2017-2018 season?

CDC collaborates with partners each season to assess how well the seasonal flu vaccines are working. During the 2017-2018 season, CDC is planning multiple studies on the effectiveness of flu shots. These studies measure vaccine effectiveness in preventing laboratory-confirmed influenza among persons 6 months of age and older. A summary of CDC’s latest vaccine effectiveness estimates is available at Seasonal Influenza Vaccine Effectiveness, 2005-2016.

What is CDC doing to monitor antiviral resistance in the United States during the 2017-2018 season?

Antiviral resistance means that a virus has changed in such a way that antiviral drugs are less effective or not effective at all in treating or preventing illnesses with that virus. CDC will continue to collect and monitor flu viruses for changes through an established network of domestic and global surveillance systems. CDC also is working with the state public health departments and the World Health Organization to collect additional information on antiviral resistance in the United States and worldwide. The information collected will assist in making informed recommendations regarding use of antiviral drugs to treat influenza.

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METERING TECHNOLOGY DISCOVERS POOL-SIZED WATER LEAK

BY SENSUS, A XYLEM BRAND
AUG 30, 2017

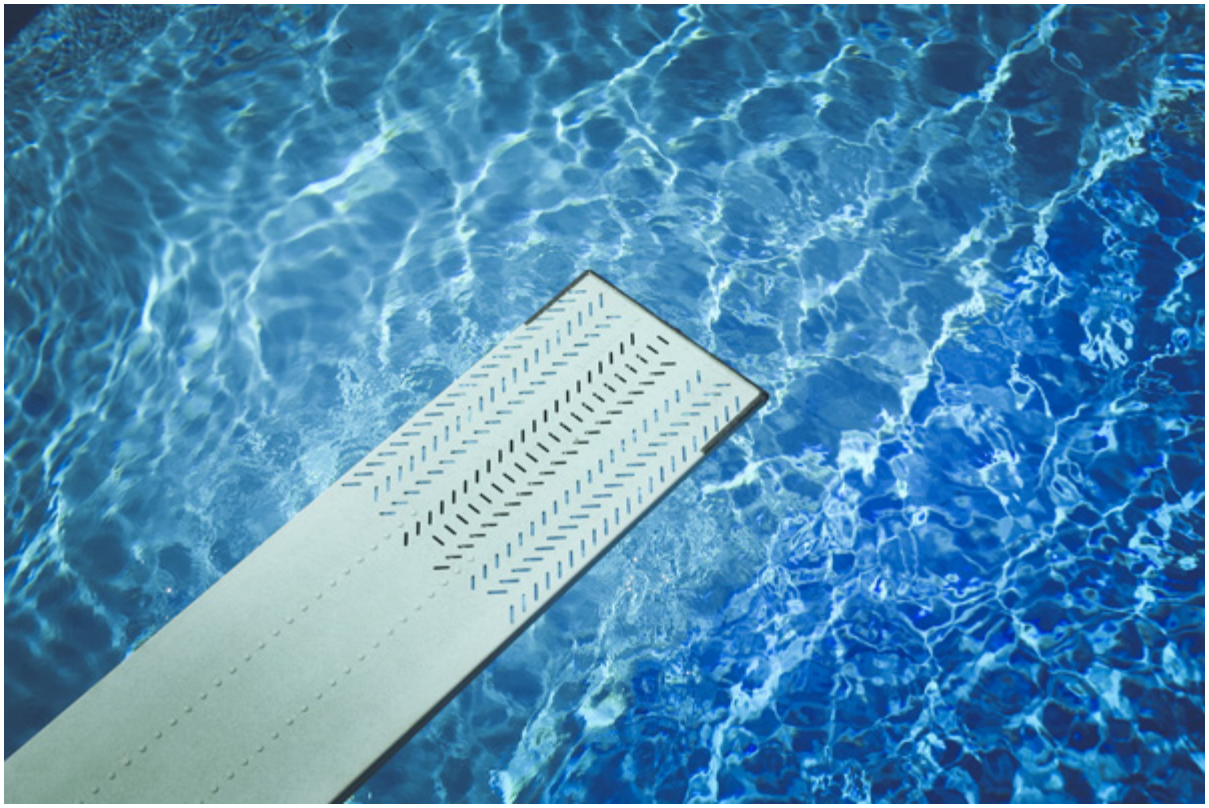
Ithaca, N.Y., water utility goes from estimated billing to detecting leaks overnight

It took only a few days for Bolton Point Water System of Ithaca, N.Y., to see the results of its new Sensus smart water technology. As data started flooding in, it noticed that one home went from using no water to running 100 gal per hour over the course of three days. That is 7,400 gal of lost water, which is enough to fill an average-sized pool. The problem was that the property does not have a pool and the homeowner was out of town.

“When we couldn’t reach the customer by phone, we sent an operator to check on things,” said Steve Riddle, distribution manager for Bolton Point Water System. “Turns out, while the owners were away, a hose was turned on and left running in the yard. Without the new technology to alert us, who knows how much more water would have been wasted or how high their bill would have gone?”

The Problem

Only a few months ago, Bolton Point relied on customers to read their own meters, write down their water usage on postcards and mail them back to the utility. Ten to 15% of customers failed to send in their cards, so bills were estimated based on previous use. That made it difficult to get a full picture of water usage.l



The Solution

“We needed an end-to-end solution and partners we could count on,” Riddle said. “Sensus had the answer, and our other partners at Saks and HD Supply helped us seamlessly deploy a system where we saw results on day one.”

The Bolton Point approach includes OMNI and iPERL meters, the FlexNet communication system and data analytics, all managed by the Sensus Software as a Service (SaaS) solution.

Thanks to Bolton Point’s new technology, its more than 7,000 customers can enjoy abundant water without being flooded by leaks or high water bills.

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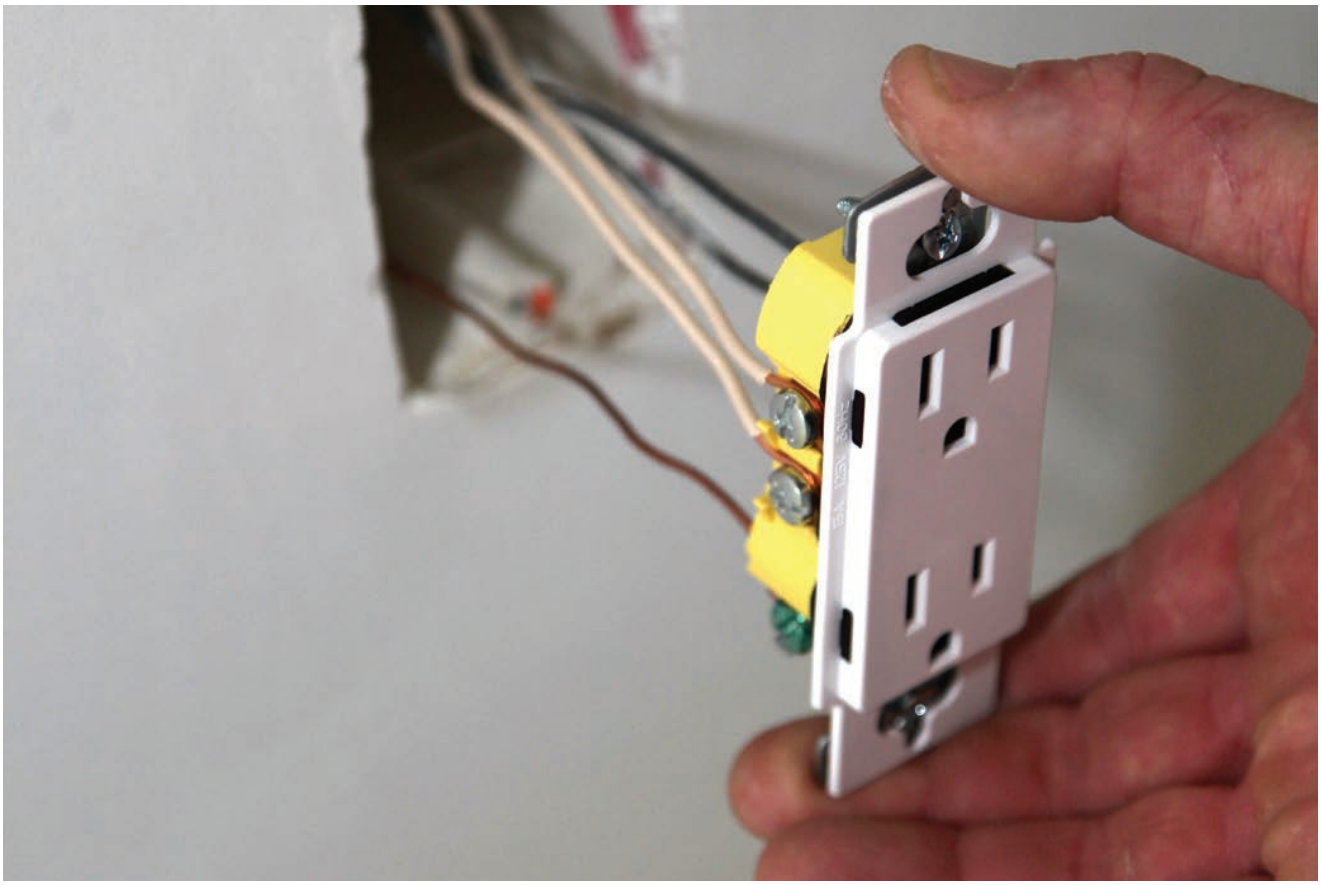


Wiring Receptacles and Switches

Your client's life may depend on the quality of your work

BY BEN GILES

Like every other trade involved with building a home, electricians rely on production methods to deliver dependable, high-quality work. But probably no other trade is as closely linked to the health and safety of the home and its occupants. While most of an electrician's work is concealed behind sleek device covers, one bad connection can threaten the existence of the home, as well as the lives of anyone inside. Because so much depends on electrical work being done properly, I recommend calling a licensed electrician for every electrical task—no matter how small or simple it may seem.

Approaching every phase of a project with the same consistent patterns of work is the key to my crew working quickly and efficiently while producing reliable, safe, and foolproof results. It also allows any member of the crew to jump in at any phase of a project and to know exactly what to expect when he or she reaches into an electrical box. Wiring receptacles and switches are great examples of our approach; let's begin with receptacles.

PREPPING THE CONDUCTORS

We typically do the finish wiring after the drywallers have finished hanging wallboard and, in most cases, after the walls and ceilings have been painted or at least primed. To minimize the possibility of damage to the wires as the board hangers zip cut around the boxes, we leave the wires coiled up and pushed as far

Photos by Roe Osborn

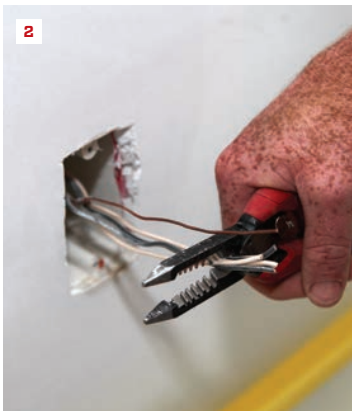
into the box as possible at the rough-in stage **(1)**. In new construction, we always wire the circuit-breaker panel after we've installed all of the devices, so we know the wires in the boxes are not live. If we're installing devices as part of a remodel or repair, we always begin by confirming that the electricity feeding the boxes that we're working on has been shut off.

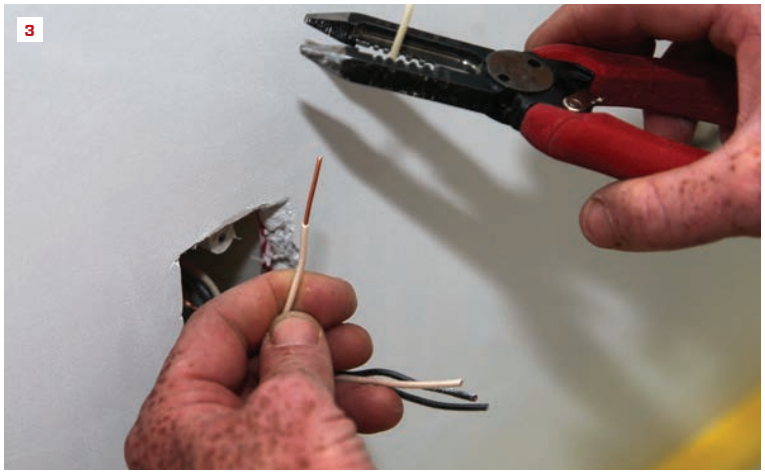
There is always a bit of debris left in the boxes from hanging the wallboard; we simply "finger sweep" the biggest chunks out. Then we reach in and pull out the wires, unrolling them until they extend out straight from the box. Different crew members may leave different amounts of wire at rough-in, but at this point, we cut all the wires to a length of 8 to 10 inches, except for the ground wire (or conductor), which we leave a couple of inches longer than the rest **(2)**.

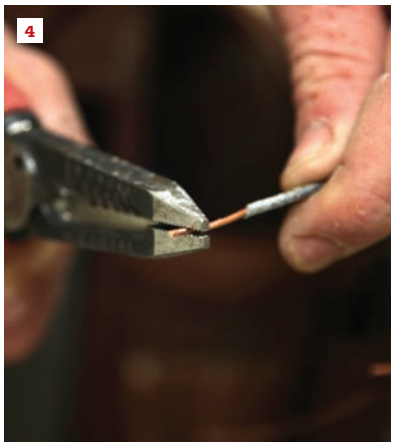
Next, we strip the ends of all the insulated conductors, exposing about 1 inch of bare copper **(3)**. My tool of choice for this task is a combination wire plier tool from Milwaukee that has a stripping feature for different gauges of wire and doubles as a pair of pliers for other tasks. I slip the wire into the appropriate hole for whatever gauge I'm working with, and the tool automatically cuts through the insulation without touching the copper conductor.

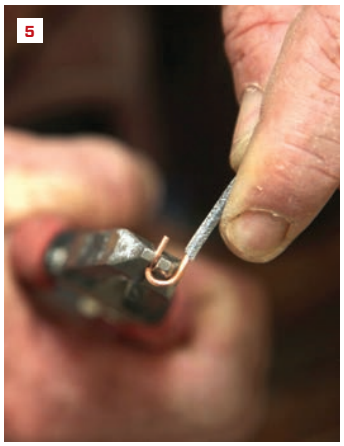
After stripping the ends, I curl, or loop, them. Using the pliers end of the combination tool, I grab the stripped conductor about 1/8 inch from the end **(4)** and rotate the pliers so that the copper curls around the jaws in a U-shape **(5)**. When this is done correctly, the end of the bare wire will be even with the end of the casing.

It is essential to curl the wires properly. Otherwise, if the end of the bare copper is curled beyond the insulation, the insulation can wind up under the terminal screw and interfere with the connection; and if the end of the curl is short of the insulation, too much bare conductor will be left exposed in back of the device, which increases the possibility for a short circuit. I've stripped and curled tens of thousands of conductors, so the process is second nature to me; however, I've seen it done incorrectly many times.

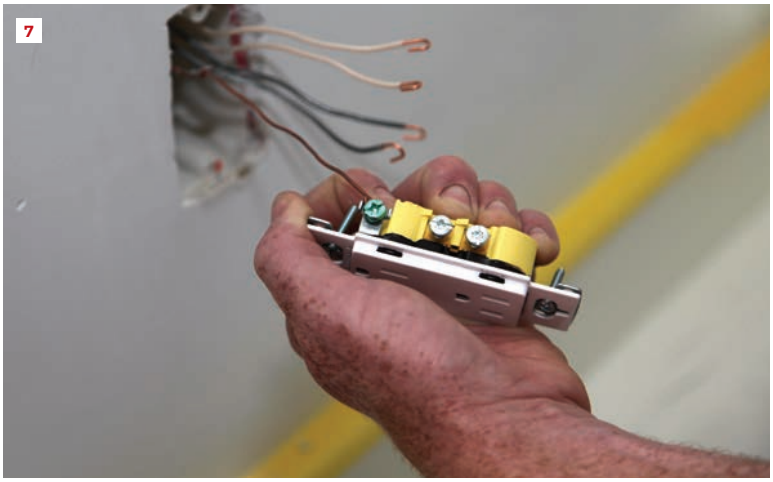


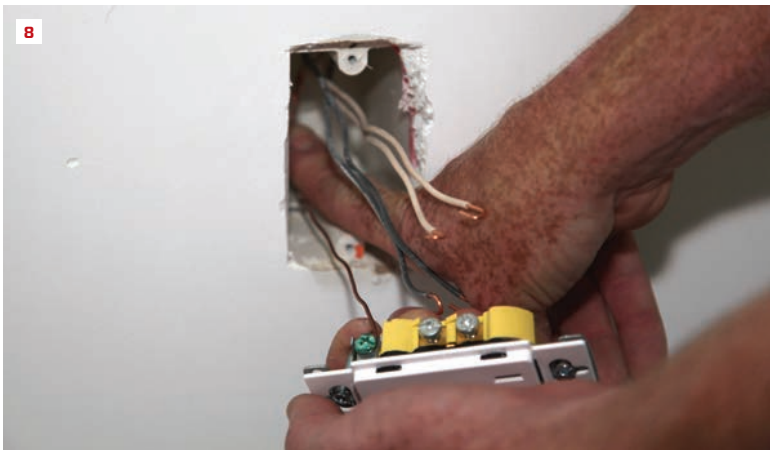






After rough-in, wires, or conductors, sit in the box, ready to be attached **(1)**. The author cuts the conductors, leaving the ground slightly longer **(2)**. Wire strippers remove an inch or so of insulation from each conductor **(3)**. To form a loop, grab the end of a conductor with pliers **(4)** and twist it into a U **(5)**, making sure the bare end is even with the end of the insulation.





The author attaches the ground conductor first. After slipping the loop around the grounding screw **(6)**, he catches the end of the wire on the metal tab next to the screw and rotates the device to close the loop **(7)** for a better connection. He then tucks the ground conductor into one of the back corners of the electrical box **(8)**.

CONNECTING THE CONDUCTORS

With the ends of the conductors curled properly, we're ready to attach them to a receptacle. When connecting conductors, I hold the receptacle across my left palm (I'm right-handed), with my fingers slightly bent in a loose fist and the back of the receptacle facing away from me. Holding the device in this manner keeps the screws accessible and keeps the device secure in my hand while I tighten the screws.

One of the first rules of electrical work is always to feed the conductor loops clockwise around the contact screws, which ensures that the loops close down around the screws as they are tightened. The first conductor I attach is the ground. On most receptacles, the green grounding screw is on a metal tab that branches out from the receptacle, so the ground conductor tends to be the most susceptible to loosening or becoming detached.

To help make sure that doesn't happen, I close the ground-conductor loop before tightening the screw. First, I slip the loop around the grounding screw and catch the free end of the loop on the little metal tab that extends up next to the screw **(6)**. While pulling the receptacle toward me to keep the loop against the shaft of the screw, I twist my wrist slightly to close the loop **(7)**. Then I tighten the screw with a regular screwdriver. I try to avoid using a mechanical driver that can overtorque the screw and weaken the conductor.

Next, I gently push the ground conductor along one side of the box and into a back corner **(8)**, putting the ground in its own area in the box. Pushing it in separately minimizes the chances for unintended contact between it and the other conductors in the box. The extra length that I left on the ground conductor when I cut the conductors makes this step easier.

Without changing the orientation of the receptacle in my hand, I slip the loops of the white neutral conductors around the silver-colored screws. With the regular contact screws, I do not try to close the loop as I did with the ground. I pull the device toward me so that the conductors are properly seated around the screw post, and I firmly but gently tighten the screws,

applying snug pressure with a regular screwdriver **(9)**. Then I turn the receptacle over and repeat the process with the black supply conductors around the brass screws on the other side **(10)**.

ATTACHING THE RECEPTACLE

At this point, I've securely attached the conductors to the receptacle, and I'm holding the device 6 to 8 inches from the box, with all the conductors extended straight out. To put everything neatly into the box while placing the minimum amount of stress on the connections, I push the conductors down into a lower back corner of the box, away from where I had pushed the ground conductor **(11)**. The conductors are now all extending from the lower part of the box. Holding them against the bottom of the box with a finger, I rotate the receptacle into a vertical position with the other hand and lift it, which lets the wires fold gently around my fingers **(12)**.

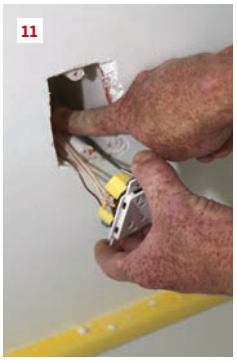
Following this simple procedure ensures that all the conductors are tucked as far back into the outlet box as possible and are not bunched up against the back of the device. This minimizes the chance of a short circuit occurring when a bare conductor touches a screw on a device or another bare conductor in the box.

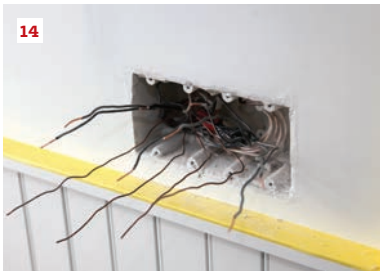
When the conductors are all tucked neatly into the box, I start the top attachment screw and drive it partway into the hole in the box. Then I drive the bottom screw most of the way into its hole **(13)**. As I make the final torque on each screw, I position the device so that the screws are centered on the slot. If the stud that the box is attached to has been installed straight and plumb, the cover plate should look like a properly hung picture. For this part of the process, I typically use a screw gun, taking care not to overtorque and strip out the screws.

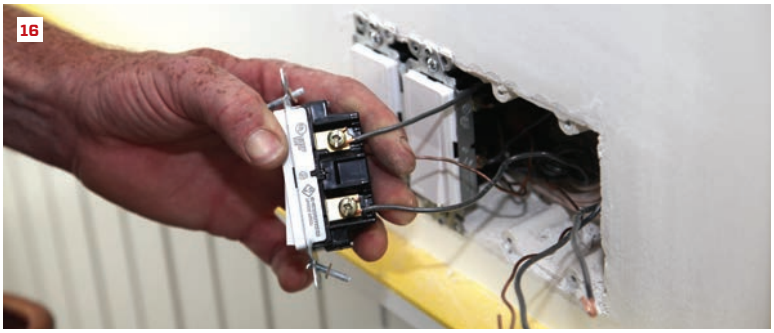
SWITCHING TO SWITCHES

Because this article is focused on basic installation techniques, I will stick to single-pole switches, where just one switch operates the circuit. Three-way and four-way switches are a topic best dealt with

Holding the receptacle firmly in his hand, the author slips the loops for the neutral (white) conductors around the silver-colored screws and snugs the screws by hand **(9)**. After flipping the receptacle over to the opposite side, he slips the hot (black) conductors over the brass screws







The author pushes the conductors into a back corner of the box **(11)**, then folds them around his fingers **(12)** before attaching the receptacle **(13)**. Conductors are grouped in pairs for switches **(14)**. The ground attaches to one side **(15)**, and the load and supply conductors attach to screws on the other side **(16)**. Switches then screw into place in the box **(17)**.

single-pole switches is much the same as for receptacles, with the exception that the neutral conductors do not get attached to the device (they are wire-nutted together in the box at rough-in). Instead, a hot, or supply, conductor is attached along with a load conductor that runs to whatever is being switched.

By code, both of these conductors must be a "hot" color (anything but white), and it can be confusing if all the non-neutral conductors in a box are black—especially when there are multiple switches in the same box. However, we give ourselves a leg up at rough-in by stripping the ends of the hot conductors before curling up the wires and pushing them into the box. When it's time to install the switches, it's just a matter of pulling all of the conductors out of the box and separating the ones with the stripped ends from the rest.

Before I start stripping and curling the ends of the load conductors, I extend one hot conductor out for each switch in the box, keeping the hot conductors to the lower part of the box. Then I extend a ground and a load conductor for each switch, keeping them toward the upper part of the box **(14)**. When the conductors have been sorted, I strip and curl the ends the same as I did for the receptacles.

As with the receptacles, the first conductor I attach is the ground **(15)**. If the device has the ground screw mounted on a separate metal tab, I again close the loop before tightening the screw. With the devices in this project, the ground screws were mounted on the sides, so closing the loop was not necessary. After attaching the ground, I flip the device over and attach a supply conductor and a load conductor to the screws on that side **(16)**.

I attach each switch to the box as I finish attaching the conductors **(17)**. I try to center the attachment screw in the slot on the device. If there are multiple switches, I leave the attachment screws snug but slightly loose so that the devices can be adjusted side-to-side a tiny bit, if necessary, when the covers go on.

Ben Giles owns South Shore Electrical Contractors, in Wakefield, R.I.

EPA sciencematters

September 26, 2017

Click HERE for the online article with working hyperlinks.

EPA's Science Matters newsletter delivers the latest from EPA's Office of Research and Development straight to your inbox. Keep scrolling to read about recent news and upcoming events.

September is National Preparedness Month

EPA scientists and engineers are working to protect human health and the environment in the face of emergencies and natural disasters. Below you can learn more about some of EPA's research to prepare for and respond to these threats.

EPA is currently responding to Hurricanes Harvey, Irma, and Maria. For the latest information, see EPA's Hurricane Response page.

There are over twenty wildfires currently burning in the United States. Each one can have tremendous health and environmental effects. EPA recently updated the 2016 Wildfire Smoke: Guide for Public Health Officials (PDF), an outline of whose health is most affected by wildfire smoke, how to reduce exposure to smoke, what public health actions are recommended, and how to communicate air quality to the public.

Protecting communities from wildfire smoke starts with figuring out who is at risk. EPA scientists created the Community Health Vulnerability Index to identify communities at risk from wildfire smoke. Health officials can use the tool, together with air quality models, to protect the health of people living in areas where air quality is impaired, either by wildfire smoke or other sources of pollution.

You can help EPA prepare for the impacts of wildfire smoke. Download the Smoke Sense mobile app to help EPA researchers learn more about the effects of wildfire smoke and develop communications strategies that protect the public during smoky days. You can also use the app to learn about wildfires and smoke health risks in your area.

Parts of the Northeastern United States are still recovering from Hurricane Sandy. EPA is helping a community in Rhode Island develop strategies to protect them from future extreme weather events. Part of this effort includes working with partners to build a "living shoreline" and improving marsh condition to better withstand flooding.

Our nation's drinking water systems can be vulnerable to industrial accidents, natural disasters, or intentional attacks. To better protect—and if necessary, decontaminate—these systems, EPA researchers have partnered with the Department of Energy's Idaho National Laboratory to build the Water Security Test Bed. It's the nation's first full-scale, above-ground drinking water distribution system.

Disasters can have devastating consequences for human health and the environment. While not all disasters can be prevented, the potential harms and risks they pose can be mitigated with the right tools and actions. EPA scientists put together an inventory of tools that can help communities become more resilient to disasters.

Decontamination doesn't have to be high-tech. EPA researchers found that using off-the-shelf humidifiers with 3% or 8% aqueous hydrogen peroxide vapor solutions for one week are effective for decontaminating most materials contaminated with an anthrax surrogate. Researchers used the method in a test house to determine the most promising solutions for home and business owners.

In large cities, underground transportation systems are a part of everyday life. In the event of a biological incident, a rapid return to service of these critical infrastructure systems is necessary. That's why EPA is collaborating with the Department of Homeland Security to improve the recovery capabilities for a subway system.

Preparing for a widespread biological incident is difficult in a densely populated place like New York City. That's why researchers from EPA and the Sandia National Lab are helping the New York City Department of Health and Mental Hygiene prepare an environmental response and remediation plan for incidents such as the release of anthrax. In addition to improving preparedness, the plan also provides a response and remediation framework for other metropolitan areas across the country.

Meet Our Researchers

EPA engineer Paul Lemieux

Meet EPA Engineer Paul Lemieux, Ph.D.
Paul Lemieux's research focuses on clean up after chemical, biological, and radiological attacks and foreign animal disease outbreaks. He has been with EPA for 30 years studying the formation and control of pollutants from combustion and incineration systems. Learn more about his work.

Questions or comments? Send us an email.

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They have served as our primary leaders and in other capacities since 1992.

Please thank them for their service when you have a chance.

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The Licensing Board meetings are held at 9:30 am
Dept of Consumer Protection
165 Capitol Avenue. Hartford

The public is always welcome.

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