# Sparky's Current Events

# Looking Ahead to 2022

Happy New Year everyone! We hope that your holidays were nice, and you got to spend time with family and friends. The last couple of years have certainly been challenging with the pandemic turning things upside down, but we will persevere and move forward!

Looking ahead at VTA, we have lots of exciting things in the works.

In the month of January, our president and administrator will be visiting a couple of high schools in York County to talk to students about careers in construction trades. We will be pushing hard throughout this year to get to other middle and high school students and counselors to let them know there is an alternative to college for students! We will work hard to break down mental barriers that hold trades as "blue collar" jobs.

Over the years, public schools have taken vocational training and shop classes out of their curriculum and left many students with no exposure to hand crafts and working with tools. VTA wants to re-introduce students to these craft vocations and will be working on a summer camp program so that high school students can explore this type of work.

At the end of February, we will have our very first Major Appliance Course start up. This course is the longest one at VTA, clocking in at 630 hours over 16 weeks! It is one that our president, Mr. Gillespie, has put together himself and the Virginia Department of Labor and Industry has accepted into their apprenticeship program. Our instructors for this course will be Marcus Cordle and David Gillespie.

Another new course coming in 2022 at VTA is building automation! Look for details in the coming months! And currently, VTA is exploring the renewable energy sectors and how to train our future tradespeople for rewarding careers in these fields. Curriculum is in development!

In the coming weeks, VTA will be finalizing the application to be able to accept military students and veterans with the G. I. Bill.

We will also be working with the governor's office to try to get tuition assistance and funding for accredited construction trade schools. More on this as we make progress with the new administration. So, stay tuned for an exciting 2022!





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#### **Smart Meters**

If you live in one of the more populous areas of Hampton Roads, you've probably already noticed a swanky new digital smart meter on the side of your house or apartment. If not, sit tight – Dominion Energy plans to upgrade all the meters in the 757 within the next few years. But why are they upgrading in the first place, and what does it mean for you as an electricity customer?

First off, let's go over how meters work. The old-style meter is simple. Each dial is a digit, and it reads like a clock. If a dial is between two digits, read the lower digit. For example, if your dials read 90210, your total energy consumption to date is 90,210 kilowatt-hours. This is how the utility company bills you - a kilowatt-hour of energy is the equivalent of drawing 1,000 watts of power for one hour. To determine how much power you're using per month, jot down the number at the beginning and end of the month, then subtract one from the other. This should be the same as the quote on your power bill.

Smart meters work a bit differently. Instead of having to be read by eyeball, the meter itself transmits energy consumption data via RF - that's radiofrequency - to a passing Dominion truck or, in some cases, directly to their regional office. The kilowatt-hours are still visible on the meter, but as a digital readout. This readout also shows kilowatts (the amount of power you're pulling at that specific moment) and voltage (which should be close to 240v). Another note - smart meters are much more accurate than the old analogs. You may notice that once you have a smart meter installed, your power bill increases or decreases noticeably. This means that the old meter was probably over- or under-reading your consumption. However, if the change in consumption is extreme, contact the power company - you may be able to request a test to ensure the meter is recording properly.

Efficient and convenient as they may be, smart meters have not been received without some criticism. As is the case with any emerging technology, some people have raised concerns about safety, privacy and costs associated with them. We'll go over these – and hopefully dispel some common myths – in next month's column!

~ by Nick Mobley

# House Resolution No. 839 Commending the Virginia Technical Academy



This past August, Delegate Shelly Simonds, representing the 94th District in the Virginia House of Delegates, introduced a resolution commending Virginia Technical Academy. Pictured above is Delegate Simonds presenting the Commendation to VTA President, David Gillespie, and VTA Vice President for Special Projects, Ping Yip.

For the full text of the Resolution, please go to: https://lis.virginia.gov/cgi-bin/legp604.exe?213+sum+HR839

### **The Physical Realities of Trades Education**

Why industry and tradespeople benefit from practical application in trades education.

For as long as humans have performed tasks, we've learned. We learn so that we may "do". In trades, we send aspiring tradespeople to training to learn the basics of "doing". Often, the learning involves doing things in a logical sequence to achieve a desired result. This holds true regardless of whether we endeavor to build a rocket or do something as routine as walking. In the end we see knowledge as a path to capability and employers and customers alike depend on the capabilities, not the memories of tradespeople.

Let us briefly discuss how this learning happens through the simple example of walking. Walking is a capability that we embrace at a very young age. At first, it seems extremely difficult, but we are determined creatures. We put one foot in front of the other to traverse the ground beneath us. Traditionally, we are taught this as toddlers by our parents. We see their example, they talk us through the steps (pun intended), and we process that information in hopes of successfully attempting the seemingly difficult: to walk.

We were all there once! We were provided data (give me the steps!), we processed that data into information (when I take one step, I need to balance, then take another step), gained understanding (okay, it's making sense now), and were motivated to convert that information to action (let's give this walking thing a try!).

When we obtain and store information in our brains beyond the intuitive examples in our daily lives, we capture what is referred to as explicit knowledge. Explicit knowledge is often what people expect to gain from a training experience. Students anticipate a simple transfer of knowledge from instructor to student to get "smarter" about something. In some training applications, the transfer of explicit knowledge is all that is required. Reading a great book and discussing the implications of its contents is a great example of explicit knowledge gain. We can learn a lot about the world this way. We can demonstrate our ability to capture, recall, and even think critically about explicit knowledge through written or verbal quizzes or tests.

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Trade schools normally take learning beyond explicit knowledge. Trades require the physical performance of skills to complete a job requirement. This requires the repetitive physical application of knowledge to complete an action or task. We need more than the basic "know how" to become proficient: we need experience. In very generic terms, experience leads to what is commonly referred to as explicit knowledge. You experienced and learned and now you do things differently than you did prior to the experience. The difference here is huge when it comes to trades.

In order for a tradesperson to deliver sufficient value they must perform physical tasks on time and of sufficient quality. How do we best develop physical performance? Through knowledge and repetition. Just like in exercise, the more repetitions you perform correctly, the better your brain and body adapt to the stimuli. When repeating physical tasks, neurological pathways are developed, visual learning occurs, and perspective is gained in the mind and the hands (you can *feel* that torque wrench is close to the set specification). If you stop working out, your body atrophies. If you don't perform technical tasks frequently, your ability to perform that task in a quality and timely manner atrophies.

If you manage a team of tradespeople or are at the mercy of a tradesperson's work, you want them to perform well. You understand that a person maintaining the brakes on your vehicle cannot possibly learn all that they need to know just by reading a book. They should be a trained and certified mechanic who demonstrated sufficient skill with basic and special tools to perform the task correctly. The more experienced the mechanic, the more naturally this process should occur under normal circumstances.

While we may not need historians to replicate the actions of the world's best and worst actors, we must insist that entry-level tradespeople possess the requisite skill to perform the entry-level tasks required of them. A balance must be struck to avoid overtraining a person, not by eliminating the physical performance of tasks but by ensuring the correct level of task is identified and practiced. In other words, you don't need that mechanic working on your brakes to be an expert in hydraulic system design, but they must successfully demonstrate the completion of basic maintenance tasks as identified by a certifying body or community of practice. Changing the brake pads, performing a basic inspection of system components, replacing a brake hose, and adjusting fluid levels may suffice. Manually turning rotors, overhauling master cylinders, and machining components would surpass these requirements.

If you are an employer of tradespeople, you don't expect a newly trained worker to show up as an expert on day one. You also don't expect them to show up with no hands-on experience! Denying the opportunity to obtain that practice while in training simply transfers the burden of educating the tradesperson to the employer and customer. This elevates the risk to employers and customers in many ways and is less-than desirable. I'm not proposing that the newly minted technician should require no supervision, but I am proposing that they should be focused on system specifics when they arrive and not performing the basic physical tasks of their trade for the first time. Talk about a confidence killer and a significant liability. When the new technician is staring at the tools of the trade like they've never used them, the learning has failed. With the advancements in today's technology, many of our trades are more advanced than the general public assumes.

In closing, we must serve the learner and do the recipient of their future services justice in the training environment. Spend a few minutes training a new tradesperson and see the skills develop before your eyes as they apply with their hands what they absorbed with their eyes and ears. Don't lose sight of what that experience was like for each of us when we first learned how much different driving felt than it looked in the movies or how learning to swim differs dramatically from reading a book about swimming. Each learning environment must clearly deliver desired outcomes of performance and we *need* our tradespeople to be better, smarter, and faster on their first day on the job in order to keep up with advanced technology and the high-volume of work they will experience in their promising careers.

This article was contributed by Dr. Lucas Marino, the CEO of EAST Partnership and a life cycle engineer at Amentum. Dr. Marino is an engineering manager and educator who specializes in asset management, engineering logistics, project management, and training development. Once upon a time, he was a diesel mechanic, a trade school instructor, and a manager of shipboard propulsion systems maintenance. He served 21-years in the US Coast Guard and served his last active-duty assignment as a Branch Chief of the service's Engineering and Weapons School.

#### **Rebuilding Greener**

In recent months, we have seen devastating effects of tornadoes, floods, and forest fires. These horrific events will happen again, causing more property loss and unfortunately more deaths. We can never bring back those lives that were lost, but we can build back our communities in a more thoughtful, more planet-friendly way.

What does it mean to be planetfriendly, to be greener? Everything we make and use and cultivate must be done in a way that can sustain us now and for future generations. In 1987, the United Nations Brundtland Commission, formerly known as the World Commission on Environment and Development, defined sustainability as "meeting the needs of the present without compromising the ability of future generations to meet their own needs." It means we cannot pollute our water so that future generations will have access to clean, drinkable water. It means reducing our waste stream by minimalizing packaging and being able to recycle old materials to make into new materials (cradle-to-cradle). It means getting away from burning fossil fuels that causes negative environmental impact to obtain it and in using it. It means making and using materials that do not cause environmental harm to our air and water.

Sustainability recognizes the interdependence of the environment (planet), society (people), and the economy (profit). Think of these as the legs of a threelegged stool, they must work together to support our world. You destroy one, the stool will collapse.

What does this mean in the construction trades? We know lumber materials are made to standard dimensions, but do we ever build to these standard dimensions? Instead, we cut up 2-by-4s and 4-by-8s to build our homes, creating massive tons of construction waste every year. What if we were to design our homes around these standard dimensions to reduce waste?

How much of this waste is recycled? Do we plant enough trees to replace the trees we cut down for this lumber? Or do we look at

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#### Did You Know...

...the hypocaust is one of the most ancient forms of central heating? It is both a primary system and a secondary system because it creates heat and distributes it too.

The Romans used hypocausts to heat their large bath houses and public buildings. They built raised floors to create space underneath where heated air would flow through, heating the floor slabs. Walls also had flues where the heated air would travel up to outlets in the roof. Must have been toasty in those baths!

...natural gas was first transported by bamboo pipelines around 500 BC by the Chinese? They found flammable gas trapped under the earth in areas where they were extracting brine. They tapped into these deposits through boreholes and routed the gas through a network of bamboo pipelines that stretched as far as a day's travel away!

# **Upcoming Events**

January 12: EPA-608 one-day course with exam, 8am-4pm

January 14: Open House

- January 31: Building/Property Maintenance starts. Level 4 Day Time Electrical and HVAC starts.
- February 9: EPA-608 one-day course with exam, 8am-4pm



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other species of wood, like bamboo, that are more sustainable than pine? Bamboo has been known to grow 15 times faster than other traditional lumber species such as pine.

Can we design homes to produce some of its own energy with solar panels or vertical wind turbines? Capture rain water for flushing toilets and irrigation? We have done all these things but it has not been incorporated into the mainstream, standard operating procedures of construction. The time has never been more urgent than now to take these technologies and put them into action!

Change might start with one small idea, but it takes everyone working together to make it a significant change.

> "It ain't about how hard you hit. It's about how hard you can get hit and keep moving forward." ~Rocky Balboa

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Virginia Technical Academy was founded on the principle that every community needs a skilled and well-educated workforce. Our goal is to provide an environment that will exceed the educational requirements and needs of both future tradespeople and their employers.

#### MISSION STATEMENT

Virginia Technical Academy is dedicated to keeping our trades strong through education, validation, and professional





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