Message from Christopher Haslinger, Director of Education and Training

In the July issue of the UA Journal, General President Mark McManus and General Secretary-Treasurer Pat Kellett talk about training and the obligation we have as directors/coordinators and instructors to follow through with the initiatives stemming from the General Office. Many of those UA initiatives have been incorporated into new and/or revised classes, which will be offered during the Instructor Training Program week in Ann Arbor, where we spend an intensive week training the trainers. Those instructors who are teaching a new or revised class have a unique responsibility to convey this new and/or revised information that is coming out of the Education and Training Department. Now, the responsibility lies with our business managers and our training directors/coordinators to ensure that instructors are signing up for these classes.

Growth is the number-one priority for the UA. General President McManus’ July President’s Report is entitled Apprenticeship—Our Future, Always. In that report, he states that the joint board of the National UA/MCAA Strategic Planning Committee unan-

MISSION STATEMENT

The mission of the UA Education and Training Department is to equip United Association locals with educational resources for developing the skills of their apprentices and journeypersons. By thus facilitating the training needs of the membership, we maximize their employability and prepare them for changes in the industry. We are committed to making training opportunities available across North America, allowing members to acquire new skills and remain competitive in the industry regardless of geography. In this way, we are determined to meet the needs of the piping industry and enhance employment opportunities for our members, while remaining fiscally responsible to the beneficiaries of the fund.
imously endorsed a new policy of 25 percent apprentice to active journeyman ratio. We will need young leaders to step up into foremen, general foremen, and superintendent roles, as our current leadership in the field nears retirement. Similarly, we will need professionals to expand their skill sets in virtual design construction (VDC). With more of our members performing work in the VDC area, UA organizers and business development professionals are seeing a lot of interest from detailing firms. This is a growing field and an excellent opportunity for the UA to increase our membership and grow market share.

General Secretary-Treasurer Pat Kellett reinforces our commitment to safety with his editorial entitled, Safety on the Job: Always a Top UA Priority. In it, he mentions our four new safety classes that we have put together, which will be offered during ITP week. When we put together new classes, many of the concepts in those classes have come directly from the field or from revised policies or new equipment. The classes offered go hand-in-hand with our Standard for Safety. Safety training is a priority for our signatory contractors and owners. The safety statistics that our contractors exhibit can make or break a contractor’s ability to win a bid on a job. We do not want to step outside of what we offer and train what is familiar and to think "outside the box." We are creatures of habit. We wake up and have the same routine. We watch the same shows, listen to music and read books in one or two genres. They are familiar. To think "outside the box" is work. This is what happens when we offer new classes or move into forward-thinking concepts, or embrace new technology at the Instructor Training Program. We work—all year long—on suggestions and recommendations from instructors, contractors, and journeymen and women in the field to constantly expand our training into new areas affecting our industry. We are a forward-thinking department that works diligently to monitor trends, technology, policies, and new equipment. Sometimes, it’s easier to offer and train what is familiar and to not want to step outside of what we have been doing for the past five or 10 years on a particular subject. We have to take that step to ensure we are supporting those initiatives coming out of the General Office, and to do that, we have to embrace the new coming out of the Education and Training Department.

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JULY 2018 | UA Education and Training Department

ITF Grants Q&A

by Jocelyn Crowder, Fund Administrator

The International Training Fund (ITF) provides grants to eligible local union education funds to assist with their training program needs. On an annual basis, the ITF processes around 100 to 120 grants, totaling around $8 million. If you’ve submitted a grant in the past, you may be familiar with the process and know it takes some work. However, if it has been a while or you are a new training director/coordinator, here is a list of commonly asked questions regarding the grant process.

Q. How long does it take for my grant to be approved?

A. Plan for your grant to take anywhere from six to nine months from submittal to equipment in hand. This means if you are planning to apply for an ITF grant for your upcoming fall school year, you may already be too late. The ITF Board of Trustees meets four times a year—typically in March, June, September, and December—to review grant applications. Grant applications have to be submitted, reviewed by the ITF office, investigated by a training specialist, and then reviewed by the Director of Education and Training prior to going to the board for review and approval. Missing paperwork from the JATC, such as second quotes, CBAs, or financial statements, can often hold up a grant for weeks or even months. We recommend that when you go to submit your grant, you have all the backup paperwork finalized and labeled appropriately (i.e. quote one, quote two). This will significantly help to expedite your grant.

Q. How long does it take for us to receive equipment once our grant is approved?

A. Plan for your grant to take anywhere from six to nine months from submittal to equipment in hand. This means if you are planning to apply for an ITF grant for your upcoming fall school year, you may already be too late. The ITF Board of Trustees meets four times a year—typically in March, June, September, and December—to review grant applications. Grant applications have to be submitted, reviewed by the ITF office, investigated by a training specialist, and then reviewed by the Director of Education and Training prior to going to the board for review and approval. Missing paperwork from the JATC, such as second quotes, CBAs, or financial statements, can often hold up a grant for weeks or even months. We recommend that when you go to submit your grant, you have all the backup paperwork finalized and labeled appropriately (i.e. quote one, quote two). This will significantly help to expedite your grant.
A. It depends on the items. AV and computer equipment typically takes around four weeks, while items such as plumbing or HVAC modules may take up to 12 weeks since they are custom built. Once you receive the equipment, we ask that you contact the office to verify everything was received and is in good condition.

Q. I am a new training director/coordinator. How can I see my JATC’s previous grant history?

A. When you are logged into the UANet, you will see “ITF Grant Request/Status” under Quick Links. This will show you the status of pending grants, as well as a list of all completed grants. By clicking on the icon in the Details column, you can see detailed information including approved equipment and monetary funds for that grant. We ask that you review past grants to be sure you are not requesting equipment that you have already been granted.

Q. Our JATC purchased equipment because we had an immediate need. Can we submit a grant for reimbursement?

A. No. Unspent money must be returned to the ITF. It cannot be used to purchase items or equipment that was not approved on the grant by the ITF Board of Trustees.

Q. We have leftover money from our monetary grant because the vendor lowered its price. Can we purchase something else for our training program?

A. No. The ITF will not provide grant assistance.

Q. Are iPads or tablets eligible for ITF grant assistance?

A. No. The ITF will not provide grant assistance for iPads or tablets. Laptops will be considered for lead instructors and mobile classroom scenarios. Desktops will be considered for computer labs.

Recently, the ITF partnered with Bradford White to offer six distinctive water heater, boiler, and storage tank packages. Information regarding these training packages can be found under the list of items currently available from the ITF catalog. New catalog items and updates to the grant guidelines are added throughout the year. Each time you go to apply for a grant, we ask that you thoroughly review the grant application instructions on the UANet. The ITF Office is always available to answer any questions regarding grants. Please do not hesitate to call!

The following reprinted article is from the November 2017 issue of the NCPWB Technical Bulletin and was written by Walter J. Sperko, P.E., NCPWB Technical Consultant.

Are you planning to solder in a couple of dozen 1-1/2-inch brass control valves in that heating system you are installing in that high-rise building? Brass valves, of course, are castings and all the castings you buy today are lead-free. Does your journeyman who can solder a wrought 1-1/2-inch copper coupling with ease make the same quality joint when one side is a heavy-wall cast valve body? How about if the castings you bought are alloyed with silicon for machinability improvement rather than with bismuth?

Soldering lead-free valves? Beware!

Last year, an NCPWB contractor in Atlanta and I decided to find out. Since cast brass couplings are not available, the contractor was able to find suppliers who “donated” some 1-1/2-inch brass valves for testing. Some of the valves were alloyed with bismuth and some with silicon.

The shop foreman read NCPWB SPS-107-1 and soldered the first valve to long lengths of copper tube. Both joints were split longitudinally, and the halves were beaten with a hammer until the casting and the copper tube separated, revealing the faying surfaces. See Figure 1. A journeyman also read SPS-1 and soldered the first valve to a valve. The results of testing of those joints are shown in Figure 2. After some coaching on the importance of heating the tube rather than the casting, the journeyman produced the joints in Figure 3, and with more coaching plus the feedback...
he got from seeing how good his earlier joints were, he finally produced the result shown in Figure 4.

We soldered and tested 22 joints using a mix of silicon-alloyed and bismuth-alloyed castings, and we used Oatey #5 and #95 (tinning) flux and Superior Fluxes 141, 142-5 (tinning), 144 and 520B. We observed the following:

1. If the journeyman’s technique was poor, it did not matter if the castings were bismuth nor silicon alloyed; the joint did not fill.

2. Silicon-alloyed brass was more difficult for the solder to wet properly than bismuth-alloyed brass, so proper heating was more important when the castings were silicon-alloyed.

3. The flux did not seem to matter, but a more controlled study is needed to confirm that observation.

4. As our journeyman made more joints and got feedback, the percentage of fill in the joint increased to 100%.

Contractors should test their journeymen first using 1-1/2-inch copper fittings following UA-SS1 or NCPWB SPQT-1. If your journeymen are going to solder cast brass valves, test them following UA-SS2 or NCPWB SPQT-2, which uses 1-1/2-inch B16.18 C87600 (silicon alloyed) cast brass couplings. If you want to test your journeymen find suppliers who will “donate” some valves to destroy, or you can buy the above couplings at www.brazingdimpler.com.

Peel test results for soldered joint between copper tube and a silicon alloyed valve castings are shown in the figures to the right.
Amping Up Training for the Future

by Randall Gandy, UA Training Specialist

With our industry constantly evolving and new technology always on the horizon, the United Association Education and Training Department is committed to training its members in a continuous effort to meet the demands of our contractors. We are always developing innovative training programs that can give our members a competitive advantage—this is why the UA craftsmen and women are second to none in the piping industry. Our working relationship with vendors such as Mathey Dearman, Lincoln Electric, and Miller Welding, along with many others, makes this initiative possible.

This year, we are excited to introduce two new courses that will be offered in August at the 2018 Instructors Training Program (ITP):

Course 5023 Clamping: Reforming & Aligning Pipe

The UA Education and Training Department has worked with Pioneer Pipe and Mathey Dearman on a new training module that is designed to provide members with the necessary skills and knowledge on the various types of clamps used in the fabrication and installation of piping systems. This course will focus on the application and proper selection of clamping equipment in order to perform piping joint assembly and fit-up, and will encompass welding processes and correct purging techniques. This module can be utilized for multiple purposes and will provide numerous training options along with real-life field application. This portable module will aid in maximizing the pipefitting and welding training on thin-wall pipe, including purging techniques. The piping fabrication can be designed for different piping installation such as pump and heat exchangers or simply pipe to flange. It is left up to the discretion of each local union training center on the application that will be most beneficial to their needs.

Here are just a few examples of how this module can be used for training:

1. Teaching of proper fitting tools.
2. Forming weld joint alignments.
3. Welding processes (GTAW, RMD, STT, Orbital).
4. Training welders the proper way to establish a correct purge (which we have found to sometime be problematic on field production welds).
5. Review of piping and component, which can be implemented in using this training module.
6. Material takeoff: Selection of job materials and provide isometric drawings and system specifications.
7. Proper piping practice: Fabrication, assembly, and erection rules for both piping and pipe supports.

Course 8042 Operation of the Destructive Testing Equipment for UA Weld Test

Designed for the UA ATR/CWI to understand the ASME Code requirements for bend test and to operate the destructive testing equipment. This is a “hands-on” course, allowing each instructor the opportunity to try the various methods being discussed. You will cover the technical aspects, as well as the practice of cutting, preparing, and bending with this equipment. Our objective is to standardize the way each local training center trains its members on the proper way of preparing pipe specimens for destructive bend test.

Instructor course curriculum is comprised of cross training on different types of equipment in each course. The instructors attending these courses will become familiar with a variety of equipment in both our regional training programs, as well as during ITP week.

Though welding technology is advancing, there are still contractors using basic welding processes, therefore, it is important to teach the basic fundamentals in the apprenticeship programs. In an era that has seen much advancement in welding technology, we must also remember the core concepts that drive the profession. We need to ensure our students are understanding the theoretical basis of welding, while at the same time incorporating real-life jobsite applications to your program. I urge you to familiarize students with the latest technology used in our industry today and to encourage students to take full advantage of all the training we have to offer. It is up to each of us to set the Standard for Excellence in training at the highest possible level and to lead by example.
The UA Education and Training Department has been working hard with our partners and experts to create new and useful online technologies for your training center. Here are just a few of the things you can use in your training in the upcoming school year:

**Blackboard**

Did you know you can now add the UAOLR to your Blackboard course with only a few clicks? To insert a link, simply go into your course, navigate to where you want the link to be, and click “Tools” on the top menu. Select “More Tools” at the bottom of that menu, and then “UA_OLR” from the right-hand side.

Have you used our Basic Electricity Master Course in your teaching? Then you will be glad to know we have a new version of our Circuit Builder activity in development now. Currently, the program teaches simple, single phase schematic wiring exercises. The new version has many updated and improved features, including an expansion to three phase motors/devices and the ability for a user to save and load previous circuit projects.

Please also keep your eyes open for a new Water Supply Master Course, which will be released in July.

To request a Blackboard course, please go to the UAOLR, log in, and select Blackboard>Request a Course Site, or visit our request form.

An update to account maintenance procedures at WCC has caused us to update our Blackboard retention policies. Going forward, accounts that have not been logged into for the last 18 months will be marked as inactive and you will not be able to log in using your credentials. If you think your account has been made unavailable by mistake, please contact Arista Metler at arista@wccnet.edu or 734-477-8908.

**UAOLR**

The UA Online Learning Resource, UAOLR, is happy to announce several new and upcoming Instructor and Student Resource Libraries (I/SRL). The Technology for the Piping Industry IRL is a one-stop shop for technology information. We have also added new Technology News Segments to help keep you abreast of the latest innovations in learning technology.

Spanish Language Glossary and Flashcards are available for the Plumbing Service Maintenance and Repair, HVAC and Refrigeration Systems, Hydronic Heating and Cooling, and Use and Care of Tools IRL and SRLS. These flashcards include audio pronunciations of English and Spanish terms to promote comprehension and productivity in the field.

Keep your eyes open for our upcoming IRL and SRL releases: Welding for the Piping Industry, Residential Wiring and Smart Home Technology, and Plumbing Fixtures & Appliances, coming before ITP this year!

**Virtual Reality Experiences**

With our partners, the Education and Training Department has been developing a Virtual Reality Library (VRL) on which you will be able to access and get updates to our Virtual Reality offerings. This library will come as a program you install on your computer, allowing you to load it on a classroom workstation at your training center or a laptop you use to teach. Once it is installed, you will receive updates and new VR experiences as they become available.

We are also proud to announce two new VR experiences for your teaching needs. The Safety VR, which is built around OSHA’s Focus Four hazards, allows a user to explore a virtual mechanical room in which they will select personal protective equipment (PPE), encounter hazards in various areas and work through safe solutions.
The Virtual Reality Career Experience is an immersive, interactive 360° video application that allows students to explore the various career paths and training methods offered at hundreds of apprenticeship training facilities in North America. Experience firsthand the sights and sounds involved with being an HVACR service technician, plumber, sprinkler fitter, steamfitter/pipefitter and welder while you are immersed in their environment. As a first-person user, you can control where you will go using gaze detection to literally “open the door” to the opportunities that await you in a pipe trades career. With over 20 interactive 360° video scenes to explore, you can gain insider knowledge into the exciting world of the United Association’s apprenticeship training program. There is more detailed information about this app in the article Digital Passport, which is in the next column. These experiences will be premiering soon!

Other Technology Projects

Recruitment now offers customizable 30- and 60-second infographic recruitment videos. You can check them out on Youtube or request your own at our commercial request form.

The Apprentice Hours Application has been going through some major changes. New reports, importable student rosters, and a more intuitive dashboard are just some of the things we have added to enhance your experience. Don’t have an account on the AHA? You can sign up today and begin using the tool immediately.

For more information on these, or any other technology projects, please contact Lauren Friedman, Online Learning Resource Coordinator, at lfriedman@uanet.org or 410-269-2000.

Digital Passport

by Richard Benkowski, UA Training Specialist

Technology is changing faster than society is. What was once a convenience has become a core element of our classroom and jobsite existence. Digital natives are now at our doorstep waiting to be trained and offered into a technology-driven workforce. Learners must be taught how to acquire theory and competent skillsets in an interactive curriculum environment. Additionally, students must be open to learn anything, anytime, anywhere. Recruiting and training techniques must embrace the same ideology or you will be invisible to students in your classroom and to future candidates for your program. Is your training program ready to evolve to offer each graduate an ever-changing portfolio?

One of the best known futurists of the modern era, Alvin Toffler, is credited with saying, “The illiterate of the 21st century will not be those who cannot read and write, but those who cannot learn, unlearn, and re-learn.” The velocity of technology will push every training director and UA instructor to learn about the next technique, unlearn the comfort of “how we always did things,” and re-learn teaching concepts to motivate the modern apprentice. For example, the thermodynamic science of air conditioning will remain steadfast. Furthermore, compressors, fans, and pumps will keep moving refrigerant, air, and water to keep the occupants comfortable. To determine air conditioning system performance, UA training centers must not rely on mechanical (analog) devices to teach service techs in the classrooms because digital opportunities will report more data in less time. The result? Quicker comprehension of theory accelerates the student into the lab for more hours of hands-on training. On the jobsite, rapid technology deployment puts the UA member at the head of the class.

The good news is that the UA International Training Fund has been preparing resources to enhance the educational experience. Lauren Friedman, Coordinator of Online Learning Resources, is working with our training development partners to keep resources on the Online Learning Resource and Blackboard up to date and accessible to you and your learners. Three examples of opportunities for digital participation are recruiting, webbooks, and jobsite skillsets.

According to Laura Biggie, National Recruitment and Outreach Coordinator, an interactive virtual reality app for recruitment is currently under development. The app will be available for Android, iPhone, and Oculus Go.
Using a virtual reality headset, a prospective apprentice is immersed in the experience of entering a UA training center and choosing the pipe trades career path of his or her choice. Similar to a first-person video game, gaze detection allows the recruit to choose from one of five different doors: HVACR service technician, plumber, pipefitter/steamfitter, sprinkler fitter, and welder. After opening the door of their choice, the user enters a 360° virtual reality experience where they see firsthand the training required. The value of this technology is to present a virtual tour of the UA's training center to career fair attendees. The scheduled release date for the “United Association’s Virtual Reality Career Experience” is August, and will be available for download under the App Store, Google Play and can also be found under the Online Learning Resource at UAOLR.org.

The UA Bookstore, under the direction of Assistant Director of Education and Training Jim Pavesic, is producing UA webbooks to accompany a growing number of the manuals published by the bookstore. While the webbooks are not available for purchase separately for the manuals that feature a webbook, a complimentary copy is included with each hard copy of the manual that is purchased. Offering the webbooks gives users another way to access the manuals’ content as the webbooks are interactive, digital copies of the manuals. When clicked, many illustrations link to short videos or other media that enhances the manual's content. The users can also add their own bookmarks or annotations to the text. Additionally, if a student has an Internet connection and a smart device, they have their whole book bag at their fingertips. The webbooks also have the advantage of being constantly up to date as any changes that might need to be made to the text can be incorporated immediately.

To increase the value of each UA member on the jobsites, Ken Schneider, Training Specialist, has been developing a track to create a Digital Designer by partnering with leading software creators. Autodesk, CADLearning, DeWALT, GTP, and Victaulic are creating a path for our members to become digital detailers and install piping on the digital jobsites.

Here are some irreducible elements to implement at the local level so that both apprentices and journeymen can embark on a digital journey:

1. **Literacy:** Part One – Audit each training facility to make sure that a robust infrastructure is available in the building. Attend ITP Course 3006 to find out more.

2. **Literacy:** Part Two – Ensure that each local instructor has the ability to evaluate, utilize, and share content using information technologies. Attend ITP Course 3007 to learn about UA Online Resources.

3. **Access:** Accommodate all local members with the same opportunities when it comes to technology.

4. **Communication:** Teach ways to communicate and exchange information using technology.

5. **Commerce:** Monitor technology usage at local projects. Several ITP courses (3025, 3026, 3031, 3035, and 3050) will increase every UA member's value on the job.

6. **Research:** Take time to investigate and remove learning obstacles for every student. Adaptive Engagement in which AR/VR users control the data feeds in their virtual environments will be everyone’s next challenge. Explore new ideas and share with all of the local UA instructors.

Every attendee in every classroom utilizes a personal device to communicate with everyone and everything that is important to them. Is local training inside the data stream? If not, why not? Is training not an essential element to the success of every UA member? Start today. Prepare the training facility, educate the instructors, and digitize the next generation of UA journeymen.

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**Apprentice Competitions**

by Ray Lemieux, UA Training Specialist

Over the last few months, many training coordinators, instructors, volunteers, and apprentices have put in a tremendous amount of time and effort in preparing, hosting, participating, and/or competing in various apprentice competitions across North America. We should take a moment to acknowledge and recognize those efforts. At times,
there is a lot of discussion about the importance of these events and if the effort is really worth the reward. To all the training coordinators, instructors, judges, and volunteers—your hard work, dedication, and planning are very much appreciated, and yes, this effort is absolutely worth it! Over the past 10 years in which I have been involved in apprentice competitions, my views have varied, grown, and expanded to a greater appreciation for what these events bring to the table. Not only for the winning apprentices, but for all of the participants and spectators who are involved, and for that, I thank you all. These efforts do not go unnoticed.

What apprentice competitions do is create better dialogue, collaboration, and learning opportunities with all of the other areas across the country. This cannot be substituted by any other event. One of the comments I always find interesting is it “must be built or conform to common industry standards or practices.” As tradesmen, we travel across the country and many times we see that what may be common to you may not be common in other areas of the country or jurisdiction. There are differences with interpreting codes, opinions, terminology, work scope, etc. This must always be taken into consideration when planning apprentice competitions. This, in turn, helps us to deliver more versatile training programs, which only strengthens our knowledge base for our membership and helps us to communicate to apprentices that there is more than one way to do our daily tasks.

The apprentice competitions can be very stressful, as well as rewarding, but we must not lose sight of what they are and the experience that is gained. For an apprentice to qualify for the INAC, they will have to compete at local contests, state/provincial contests, and then at regional events against very stiff competition. To all the apprentices who had this opportunity to showcase their skills and abilities, we salute you. It is never easy to put yourself under the microscope with so many eyes watching and judging your every move with respect to safety, knowledge of craft, quality of workmanship, and productivity. The relationships that are built with your fellow competitors will last you a lifetime, and you never know where this will lead you in your future endeavors. To the winners of the six district regional events, I wish you all the best this coming August, and I hope you take the opportunity to enjoy every moment of this journey, including the challenges you’re going to face as the week progresses.

The level of skills and knowledge that are showcased during ITP week never ceases to amaze me, and if you have the opportunity to attend the ITP week in Ann Arbor, Michigan, stop by the car barn and see what the future leaders of your local unions are accomplishing.