// FALL / WINTER / 2013 //

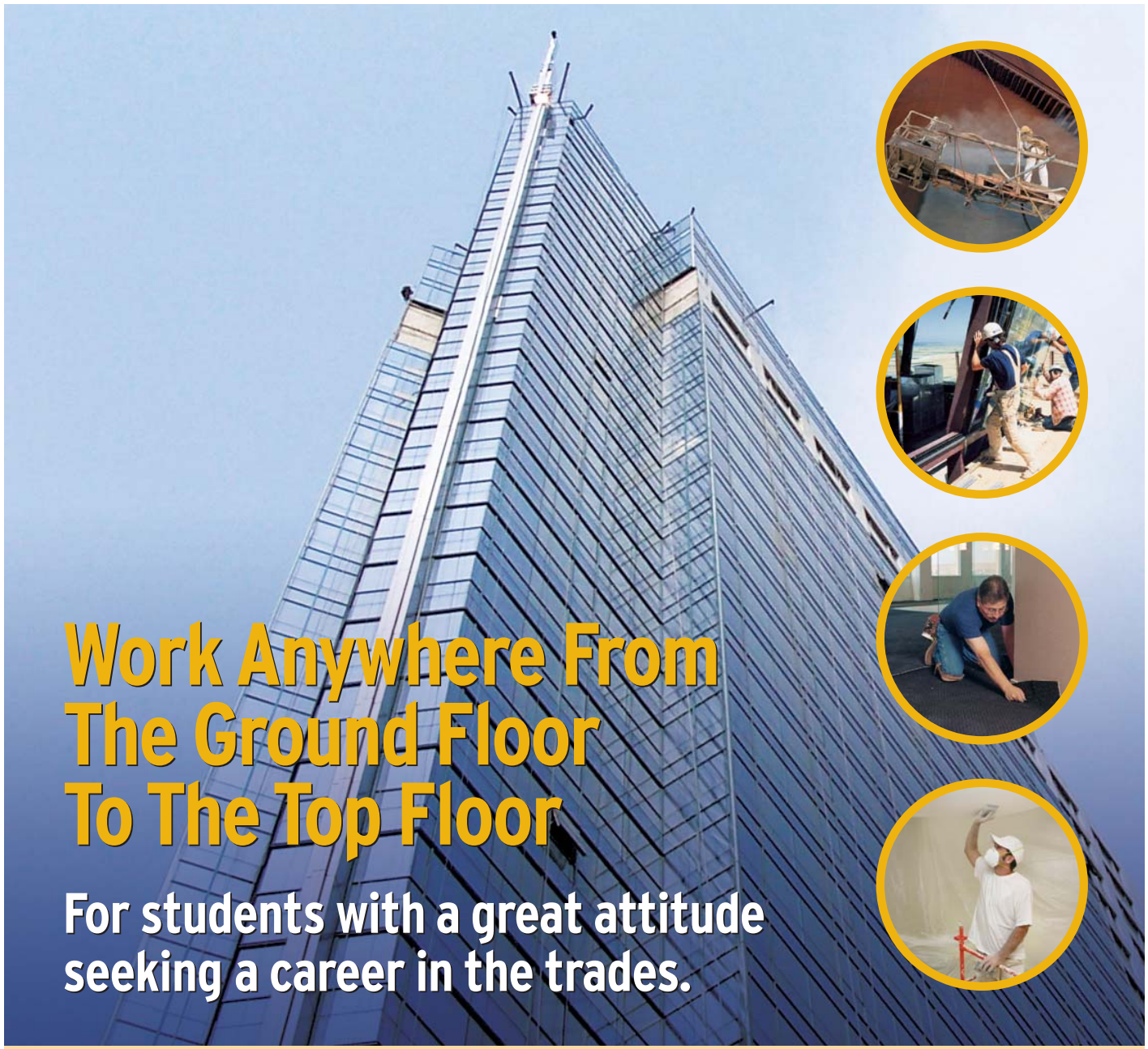
Building Futures®

THE CONSTRUCTION INDUSTRY JOURNAL FOR STUDENTS

a publication of the Oregon Building Congress // $3.95 //

Relevant Education

CTE programs give students opportunity to apply academics to real-world careers



Work Anywhere From The Ground Floor To The Top Floor

For students with a great attitude seeking a career in the trades.

As glaziers, painters, drywall finishers and flooring installers, the Finest in the Finishing Trades puts the "finishing" touches on many well-recognized buildings throughout Oregon and Southwest Washington. And it doesn't require a college diploma to get you there. You just need a great attitude and the right apprenticeship program. The fact you get paid throughout your training comes as an added bonus. After three to four years of apprenticing, you gain your journeyman level status and earn a very competitive wage along with health care and pension benefits.

For information on training and apprenticeship opportunities contact:

Linoleum, Carpet & Soft Tile Applicators Training: John Lawson, 503-481-3420
Painter's, Drywall Finishers Training Center: Bill Regan, 503-287-4856
Glaziers, Architectural Metal & Glassworkers: Alan Brown, 503-491-7359

www.finishingtrades.org | 503-222-1584

The Finest in the Finishing Trades

Paint | Glass | Floors | Drywall

Four Trades. One Mission.
Jobsite Safety, Training and Productivity.

Building Futures®

FALL / WINTER 2013
Vol. 16 Issue 2

Distributed by: Oregon Building Congress
9450 S.W. Commerce Circle, Suite 260
Wilsonville, Oregon 97070
Phone: 503-685-8313 Fax: 503-682-1696
e-mail: tgoodhue@obcweb.com
www.obcweb.com

OBC Executive Director: **Tom Goodhue**
Publisher: **Brian Hunt**
Editor: **Theresa McKinlay**
Design: **Shannon Vincent**
Advertising Sales: **Nick Bjork, Erika Harrison**
Contributing Writers:
Molly Aleshire, Julie Coleman, Michael Collins, Angie Gilbert, Tom Hering, Kyle Laier, Mary Ann Naylor, Suzie Peachin

Published by:
Daily Journal of Commerce
P.O. Box. 10127, Portland, Oregon 97296
Phone: 503-226-1311; Fax: 503-226-1315
e-mail: brian.hunt@djcoregon.com

Index to Advertisers

Building Futures®

FALL/WINTER 2013 // Vol. 16 Issue 2

BUILDING FUTURES EXPANDED ISSUE ONLINE!

Expanded stories and more photos can be found at http://djcoregon.com/building futures/. In this expanded edition, hear more from students and staff involved with Reynolds Learning Academy's Trading Up program, hear more comments on the OTI Women in Trades Fair, and see more photos of students involved in CTE programs and career fairs.

WELCOME **FROM EXECUTIVE DIRECTOR, TOM GOODHUE**

Recognizing CTE works

Tom Goodhue

There is no secret that our public schools and public funding for those schools has long been an issue that the state and its elected officials have debated over several years. The cost of education has risen and state budgets have been challenged. You may ask yourself: If education is a priority then why are graduation rates and test scores across the state in decline? While there are exceptions to that statement, over the past 10 years and maybe longer, it has been the rule rather than the exception.

This year the Legislature approved close to $8 million to fund an education grant for CTE programs in public schools. That number is up from the $2 million funded at the previous session. The Legislature has recognized through documented studies that there is a clear relationship between the decline of CTE programs in schools and the decline in graduation rates.

In this issue of Building Futures you will read about how having relevant programs and classes have affirmatively affected the learning model at high schools that have CTE programs. Read how relevancy helped to set the model for achievement at the Clackamas Academy for Industrial Sciences. See the testimonials of students at Reynolds Learning Academy and how their choice to attend RLA positively influenced their lives.

Oregon Building Congress' mission is: "Partnering with educators and industry to increase the quality and diversity of entrants into the building industry." Along the way we learned that the best way to work toward that mission was to promote learning experiences in the public schools and give students a clear vision about career pathways to enter the workforce. The construction and manufacturing model is the best way we found to help put relevance back in the classroom. Math teachers constantly hear: "Why do I need to learn math? I will never use it after high school." Students that take CTE-based programs don't seem to make those statements, but rather have that "aha moment" when it all comes together.

So, thank you to the Legislature for acknowledging how these programs are important in our schools and thank you to all the contributors to this edition of Building Futures, who do the hard work to deliver on the vision of improving our educational system.

CTE programs, such as those at Reynolds Learning Academy (left, climbing with the Lineman) and CAIS (above), give students the chance to learn valuable skills.

THINK GREEN! You can receive your copy of Building Futures electronically. To join the e-list, send your email address to Tom Goodhue, OBC executive director, at tgoodhue@obcweb.com.

BY TOM HERING

Finishing Touch

Intel, OHSU, The Rose Garden: Finishing Trades' apprentices see their work in well-known structures

Computer science and biology majors aren't the only long-term professionals who have been inside the office buildings of Intel and OHSU. Graduates of the Finest in the Finishing Trades Apprentice Programs applied their trades as well. As glaziers, painters, drywall finishers and flooring installers, these crafts people put the "finishing" touches on many well-recognized buildings throughout Oregon and Southwest Washington.

What makes the apprenticeship programs so appealing to many young people is that they find an exciting path to a successful career that doesn't require a college diploma. The fact that apprentices get paid throughout their training comes as an added bonus. After three to four years of apprenticing, students gain their journey level status and earn a very competitive wage along with health care and pension benefits.

"Sky's the Limit"

When asked what makes a great apprentice and future journey person, the trades training representatives responded in similar fashion. "Have a good attitude, show up for work and stay focused," said Alan Brown, training coordinator for the Glaziers Architectural Metal & Glassworkers JATC (Joint Apprenticeship and Training Committee).

"Maintain a positive attitude, get along with others and have a willingness to learn," echoed Bill Regan, training coordinator for the Painters & Drywall Finishers Apprenticeship Program.

"Have a positive attitude and be cooperative in class," added John Lawson, training coordinator for the Flooring Installers.

Each trade's apprenticeship program follows a similar format and structure. Depending on the trade, applicants must either be 17 or 18 years of age and have earned a high school diploma or equivalent. After filling out an application during annual "open" periods of the year and then going through a committee interview, students may be accepted into the programs.

Moshofsky Center. The work of expert glaziers is seen in prominent buildings throughout our region.

Pass the Hurricane Test

Glaziers do more than just windows. They also must be masters of aluminum, welding and blueprint reading. Naturally, studying and gaining proficiency in all those areas are part of the four-year training program of Local 740 JATC, which celebrated its 100th anniversary in 2011. Many of the trade's apprentices have

Finishing Trades journeymen painters applied their skills and modern touches to the historic St. John's Bridge in Portland.

gone on to become CEOs and currently lead some of the largest glass companies in the region.

High school students who show interest and aptitude in industrial arts, math and physical fitness will find their abilities well matched as a glazier. Requirements to reach journey status include a total of 576 classroom hours and 8,000 on-the-job hours. For each 1,000 on-the-job hours, apprentices receive a wage hike throughout their training. All students get the appropriate gear and tools for the job.

Another critical part of the training for all finishing trades is safety education.

"Safety is absolutely critical to success," said Brown. "Several safety credentials must be earned during the apprenticeship and safety training is continued throughout your career. Injuries on the job can do more than hurt trades people. They can devastate companies in the process."

As part of their training, apprentices create a window to fit within a "hurricane booth." Then, to test their work, the student gets inside the booth as hurricane-type conditions are replicated with rain and wind getting whipped up to 76 mph. If their glasswork holds up, the apprentice moves on to the next training module. If it does not, he or she must go back, make the appropriate fix and re-test until the glasswork passes the test.

Long-term job prospects look good, according to Brown. "The industry is improving. Lots of big projects are scheduled right now in our region. And we have some of the biggest glass projects to hit our area in recent years."

The one caveat he did offer to those who might be considering becoming a glazier should come as no surprise, "If you're afraid of heights, this isn't your trade."

READY TO START YOUR FINISHING TRADES CAREER?

Finishing Trades Apprenticeship and Training contacts:

- Glaziers Architectural Metal & Glass Workers: Alan Brown, 503-491-7359
- Painters, Drywall Finishers and Allied Trades Regional Training Center: Bill Regan, 503-287-4856
- Floor Covering: Linoleum, Carpet & Soft Tile Applicators: John Lawson, 503-481-3420

Work Seen by Millions

When asked what makes a good painter or drywall finisher apprentice, Regan answered in no uncertain terms. "Someone who likes to work with their hands ... can operate machinery ... enjoys seeing new places." Painters and drywall finishers travel to various job sites throughout the region and have their work seen by millions of people. Apprentices have an opportunity to work in various environments, on a range of different types of job sites, and to leave their "autograph" on some of the region's finest and best-known structures.

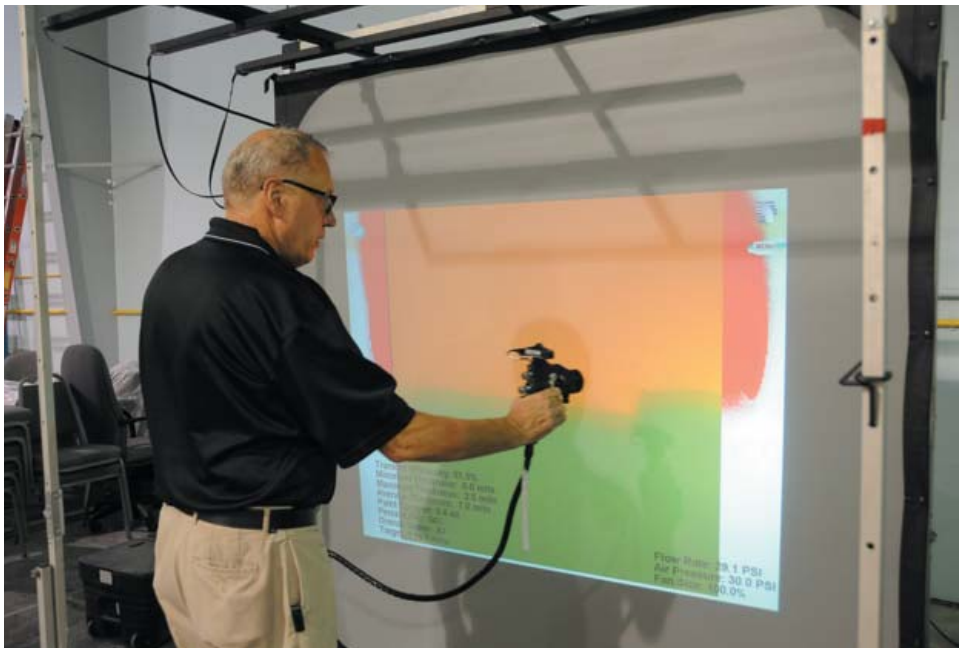
As apprentices in the three- to three-and-a-half-year program, students study key areas critical to their success as a painter or "taper" as drywall-finishing experts are called in the trade. Painters learn surface preparation, coatings applications, wall covering installation and decorative finishes as well as color matching, specialty coating applications and wood finishing. Tapers specialize in sealing the joints between plasterboard or other wallboards, and preparing the surface to create the seamless finish that is the hallmark of an expert job. Just like their fellow apprentices in the glass and floor installation trades, safety training is a key part in their program and deemed absolutely essential to a long and prosperous career.

Apprentices of both painting and drywall finishing work on high profile structures in the Portland metropolitan area. Models of the Oregon Convention Center, Pittock Mansion and the Vista House at Crown Point in the Columbia River Gorge are found at the union's training center and all get used as part of the in-classroom training. But before they get to work on those famed mini-structures, painter and drywall finisher apprentices learn to master the "virtual paint machine." The machine mimics a power sprayer and measures not only a student's accuracy but amount of paint applied as well. Both skills are critical to becoming a journey person.

The application process for the painters and tapers apprenticeship program usually opens up in September of each year. After review, the applicants come to a question-and-answer meeting meant just for them. To continue onward, applicants are then interviewed by a training center panel of the union board.

To reach journey status as a painter or drywall finisher, an apprentice must complete 432 classroom hours and 6,000 on-the-job hours. Cleanliness and safety must be adhered to day-in and day-out. With every 1,000 hours successfully completed on the job, the apprentice gets a raise in his or her hourly wages.

To see the success of the program, you need not look any further than the presi-



Apprentice painters must perfect their trade via a virtual painting machine. Once mastered, they move on in their training.

dents of the area's largest paint contractors, said Regan. "More than half of those presidents have graduated from this program."

Image is Everything

You would have had to be living under a rock the past decade to not know about the importance of green and sustainable practices for companies today. Just like many mainstream American businesses, those practices have been embraced by the flooring business, whether it involves carpet or new hard surfaces for both commercial and residential applications.

"The complexity of both materials and installation has grown tremendously," said Lawson. And that complexity creates new opportunities for people searching for career opportunities.

The flooring apprenticeship program requires 432 classroom hours and 6,500 to 7,000 on-the-job training hours. Unlike the glass and painting unions, flooring apprentices can be 17 but must have a high school diploma or GED.

In talking about the program for young people coming out of high school or community colleges, Lawson described the process. "You learn and build your reputation your first two years of the program. The next two years you build the quality of your skills. And then you have the skill set to go places." Safety and health are of paramount concern. There is zero tolerance for unacceptable behavior and compromised installations.

One thing a bit different about the flooring apprenticeship program is tuition. While the glass and painters programs are quite modest in fees charged, Lawson offers "zero" tuition costs if an apprentice maintains perfect attendance during his or her apprenticeship. He sees that as a powerful incentive for those interested in building a good career with competitive wages and benefits.

Like his two comrades Brown and Regan, Lawson said the flooring market looks very good right now. He said high technology, healthcare and government projects keep floor installation crafts people busy.

If the business world today is described as image driven, Lawson said that flooring installers fit right in. "We're what people remember about the floor covering market. A quality floor covering job creates a quality environment. After the job is finished, the floor covering is a daily reminder of the importance of our work."

Glaziers must also be masters of aluminum, welding and blueprint reading. Earning journeyman status means a wide open door for competitive wages and benefits.

Glazier apprentices must test their skills in the "hurricane" booth. Simulated conditions with rain and wind up to 76 mph test a student's seal against the elements.

Both apprentices and journey people in the finishing trades take immense pride in the work they perform. Unlike some other trades, once a job is completed you cannot hide the glass, paint, drywall finishing or floor covering finishes. The work of these trade experts gets seen daily by millions of people. It leaves no doubt that the training programs focus on bringing skilled and dedicated crafts people into the trades to leave their mark on our cityscape.

Tom Hering is a Portland-based writer who specializes in architecture-, construction- and engineering-related issues.

BY MOLLY ALESHIRE

Competition gives students chance to show off academic, vocational skills

Each year, approximately 1,500 high school students come together for the Clackamas County Regional Skills Competition, testing their academic and vocational skills against their peers. A wide variety of competitions take place, including building construction, accounting, criminal justice, foreign languages, welding and visual arts. High school students from all of the Clackamas County school districts are eligible and can register through their schools to participate in this exciting opportunity. Clackamas Community College has generously provided tuition waivers as prizes for students excelling in each competition. The Clackamas Regional Skills Competition is scheduled to take place again on Feb. 27, 2014.

As part of this event, C-TEC Youth Services is partnering with Clackamas Community College to host the Clackamas Youth Career Expo. C-TEC Youth Services is the youth workforce investment program serving Clackamas County. While the skills competition is specific to students in Clackamas County schools, the Career Expo is open to all youth, ages 14-21, looking to explore education, training and career opportunities. The Youth Career Expo will take place on Thursday, Feb. 27, 2014, from 8:30 a.m. until noon and will be located in the Randall Gymnasium of Clackamas Community College, 19600 Molalla Ave., Oregon City, OR 97045.

Businesses, colleges and universities, the military, and apprenticeship and trade programs will be represented at the event. Youth can talk directly with employers about careers in their industry, while exploring education and training programs to help them prepare and be competitive as they enter the workforce. Additionally,

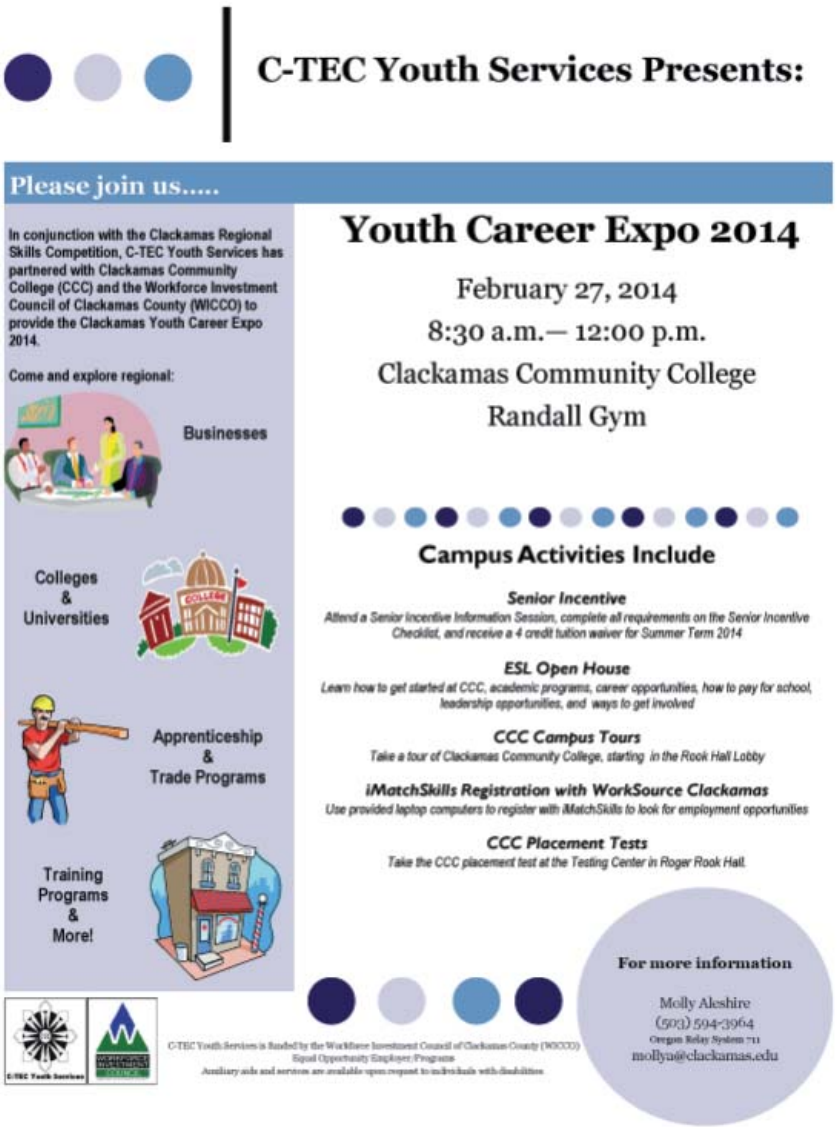
The Youth Career Expo will take place on Thursday, Feb. 27, 2014, from 8:30 a.m.-noon at the Randall Gymnasium of Clackamas Community College, 19600 Molalla Ave., Oregon City.

The Career Expo is open to all youth, ages 14-21, looking to explore education, training and career opportunities.

Clackamas Community College will have several offerings such as campus tours and college placement testing available.

The event aims to promote the transition from secondary to post-secondary education and training, provide youth an opportunity to explore interests and careers, and involves industry and the public with the educational process. Clackamas County students interested in the skills competition should check with their high school counselors for information on how to register or contact Michelle Baker at (503) 594-3040, or email mbaker@clackamas.edu.

Molly Aleshire is program coordinator with C-TEC Youth Services.



BY SUZIE PEACHIN AND JULIE COLEMAN

Sabin-Schellenberg program offers participants valuable skills

Over 300 North Clackamas School District high school students attend the Manufacturing & Engineering program annually at the Sabin-Schellenberg Professional Technical Center (SSC), a unique career and technical center for high school students in the North Clackamas School District in Milwaukie, Ore. SSC manufacturing students strive for technique perfection while taking pride in their work, building a local reputation and leaving a positive legacy among business and community alike.

The Manufacturing & Engineering curriculum at SSC focuses on industrial applications, paralleling industrial standards to prepare students for employment in the manufacturing industry. In the first year of this four-year program, students learn basic skills in welding, fabrication, computer aided drafting, and machining. Students who go beyond Level 1 in the program can choose to focus on drafting and machining, or welding and fabrication. Students who progress to levels 3 and 4 apply their skills with lathe and mill operations, advanced machining, programming of CNC, and advanced welding and fabrication techniques. Students also may apply for internship opportunities or work toward earning their American Welding Society welding certification prior to graduation. Students who complete upper level courses can graduate with up to 17 college credits at Clackamas Community College.

The expansive training gained at SSC manufacturing prepares students for a number of project applications. They gain versatile skills, allowing them to decide which project to undertake. Students review options and choose to accept a commission and participate in a project, giving them ownership throughout every step of the process. This method of choosing adds meaning, value and authenticity; the project becomes a source of pride for the students and community alike. Any funds raised through special projects are channeled back into the Manufacturing program for project materials and student scholarships for SkillsUSA competitions, the leadership component of the Manufacturing & Engineering program.

A major project students recently worked on was the Viking helmet arbor placed at the entrance to View Acres Elementary School garden in the North Clackamas School District.

Student commission work includes many community-oriented projects such as: the View Acres Viking helmet garden arbor, Clackamas High School and Happy Valley Middle School wall of fame powder coated rails, batting cage restoration work at Alder Creek Middle School, bleacher and fencing modification and maintenance for the Clackamas Little League, and mobile hog pens and panels for the Clackamas County Fairgrounds. Students also have created various specialty projects for residents and businesses including custom spider-web window security covers for a local tattoo parlor, the Würth Trophy for Sawstop, a local saw blade manufacturer, lighted platforms for a local nightclub, and residential remodel work involving custom structural sculpture and decorative metalwork stair rails. Students also enjoy working on the modification of old hardware for Hippo Hardware customers, as well as creating yard and garden gates, benches, fire pits and miscellaneous garden art.

A major project students recently worked on was the Viking helmet arbor placed at the entrance to View Acres Elementary School garden in the North Clackamas School District. The Viking helmet pays homage to the school mascot, the View Acres Vikings, while marking the entrance to the student science garden, a school project where students study science while producing food for the Kings Food Pantry.

The project began when students and instructor, Mark Lynch, met with Jane Johnston, the View Acres science teacher who commissioned the work for the school. Johnston shared her 2-D blueprints with design engineer Chris Nelson, a program volunteer who then completed a 3-D concept drawing for the students. From this point, students were able to create a cardboard template. As the project progressed, Johnston came out to review assembly and give her feedback.

"It was totally wonderful working with Mark and his crew of students. It was a long, involved process that required the boys to work many days after school hours on the fabrication," she said.

Students from all three high schools in the district, Clackamas, Milwaukie and Rex Putnam, spent class time cutting the sheet metal out of mild steel. At this point, the real work began as students built the interior frame for the unit, utilizing TIG and wire feed welding techniques. The 12-foot posts supporting the helmet hood were welded vertically with a stick welding process to give the steel a "tree bark" appearance. Students from Level 1 worked on this decorative finish while upper level students cut the school name from stainless steel on the metal shop's CNC plasma cutter. These letters and the stainless steel trim were then TIG welded to the Viking hood's perimeter. Freshmen to seniors all worked on the project in some way; four upper-level students oversaw the project, making sure it met the specs while organizing and directing their underclassmen on decorative techniques

Above: Students work on the Viking arbor installation. The Viking helmet arbor is at the entrance to View Acres Elementary School's garden. Right: Students have created a variety of specialty projects for residents and businesses including custom spider-web window security covers for a tattoo parlor. Far right: A student works on bleacher modifications for the Clackamas Little League.

to patinate the hood with premature rust. Students then applied clear coat for weatherization and longevity. Students spent countless volunteer hours completing the project utilizing various metal forming and welding techniques to finish the design.

Installation was done in two trips, as students had to measure and re-measure, square, level and plumb the enormous posts, which were set into 2 feet of concrete. Twelve students helped with the installation, manually lifting the steel helmet hood onto the posts. When the work was completed, View Acres held an all school assembly, recognizing the students for their dedication and hard work.

Principal Mike Potter stated, "I am so proud of the contribution our Sabin students made to our garden! Their beautiful work shows the power of students of all ages contributing to a project that benefits our community. This addition to our outdoor classroom and garden space is something that EVERY person who visits our garden notices. When we have visitors to our school, we are able to share about both the garden's food contribution to our community as well as the creative and impressive contribution from our very own Sabin students and they get a real sense of the positive, powerful impact on the community that comes from collaboration across all of our district's grade levels."

"Every time I see the arbor that our high school students created I smile. It's beautiful and I can't say enough positive things about what happens at Sabin and how it makes a positive difference in our community."

– Principal Mike Potter

All told, the 1,200-pound project took six months to complete and two days to install. Johnston summed it up: "The Viking arbor turned out better than anyone here at View Acres ever imagined. The students and staff are thrilled with it."

Another recent community project was some restoration work on the Alder Creek Middle School (ACMS) batting cages, which was commissioned and overseen by the vice president of Clackamas Little League. ACMS batting cages had sagged, the footings sunken into the ground, causing the original wooden doors to pull away from the deteriorated building thus creating a security and safety hazard. Upper-level manufacturing classes visited the site for measurements and brainstorming. Three students completed the blueprints and measurements to scale, using algebraic calculations to plumb and square the load accurately to keep the doors' weight spread out appropriately for the hinges. The new doors were built from 2x2 square steel tubing with steel frames. Installation would be within the out-of-square existing openings, which created many challenges throughout the short-term project. The new doors were installed on weld-on hinges using wire feed, and can be locked from inside the building. Other maintenance projects for Clackamas Little League include cutting down and reinforcing existing bleachers to legal height and some athletic field fencing replacement and reinforcement.

Clearly SSC manufacturing program projects benefit students and community alike. Not only do students get to choose their level of participation in these projects, but those that do get their names on the "My Legacy" manufacturing wall, where student photos show what they did to leave their mark on the community while attending the program.

And what do members of the community think?

"Every time I see the arbor that our high school students created I smile. It's beautiful and I can't say enough positive things about what happens at Sabin and how it makes a positive difference in our community," Potter said.

Suzie Peachin is assistant principal and Julie Coleman is secretary at Sabin-Schellenberg Professional Technical Center.

BY TOM GOODHUE

Career Pathways at Canby High School

The day was unseasonably wet last spring as juniors and seniors at Canby High School stood outside to be fed lunch hosted by Oregon Building Congress from a mobile barbecue food cart serving them pulled pork and pulled beef sandwiches. The aroma in the air definitely had the attention of students and teachers who were not aware of the event being held that day.

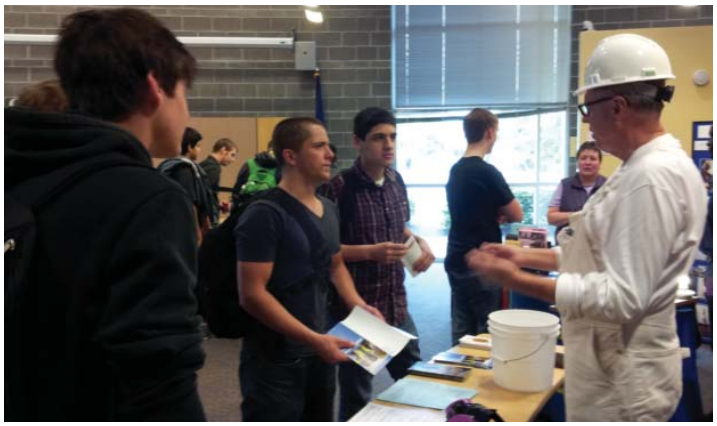
In conjunction with our trades' partners, OBC worked with Canby High School to provide a half day of education, information and food to more than 100 students attending the construction and shop programs at the high school. Break-out sessions were taught by training specialists in carpentry, electrical and sheet metal trades. Those who attended the carpentry session learned how to use math to figure out the layout of building stairs. Electrical students applied trigonometry principles to bend conduit, and sheet metal students learned real life applications of geometry and were challenged to make a cone.

To complete the day, students were afforded time to tour the booths at the Trades' Career Fair. Students had opportunities to talk to career professionals who gave them information and guidance in making choices in their career paths.

Trades represented were: Brick and Tile Masons, Plumbers and Steam Fitters, Carpenters, Cement Masons, Sheet Metal Workers, Electricians, Painters, and the pre-apprenticeship program at Portland Community College. Thanks to our partners at Canby High School for allowing the opportunity to share this experience with their students. The day was such a great success we are planning to host a similar event again this coming spring, this time without the rain.

If you have a CTE program in your high school and want to have us host an event, please call Oregon Building Congress, 503-685-8313.

Tom Goodhue is executive director of the Oregon Building Congress.



More than 100 students toured booths at the career fair and talked to professionals who gave them guidance in making choices in their career paths. Break-out sessions were taught by specialists in carpentry, electrical and sheet metal trades. OBC and its partners hope to host a similar event at the school this coming spring.

BY KYLE LAIER

Keeping curriculum 'relevant' key to success

Rel • e • vant: Closely connected or appropriate to the matter at hand: *the candidate's experience is relevant to the job.*

How often do today's high school students reference the relevance of their daily educational experience to their career aspirations? How many of them will look back at their high school education and reference it as playing a significant role in their career success?

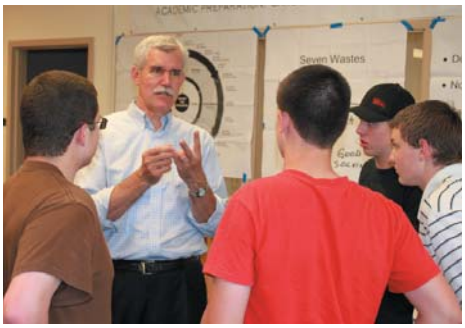
As a high school principal, passionate educator and staunch supporter of public education, I'm saddened to say I don't believe the majority of our students will be referencing their experience in such a virtuous light. The current climate in education is to focus on the Common Core State Standards, best teaching practices, assessment of learning and engagement of students in preparation for high-stakes tests. All of these are an important part of a quality education. Regrettably, when we put these first, we remove the most essential instrument in our toolbox.

Clackamas Academy of Industrial Sciences prepares students for careers in engineering, manufacturing and construction trades. Leaders work closely with the industry-led board of directors and other industry partners to create relevance in courses and curricula.

Consider who has a better chance of mastering sign language? Would it be the lawyer with the silver tongue or the stay-at-home mom with a blind child? The answer is obvious. When we look at our students, do we take into account their dreams and aspirations or do we tell them how important the standard of the day is to their future? When a struggling student finally passes the high-stakes standardized test after semesters of remedial courses in lieu of relevant electives aligned to his or her aspirations, do we stop consider their loss? Does relevance to the student ever take priority or do we only consider relevance after a student is struggling?

What would happen if we designed our schools and learning activities to be relevant to each student? What would happen if we identified their interests and THEN connected the appropriate standards, strategies and assessments to support that which they are motivated to learn? Would an assessment at the end of a relevant learning journey led by the student really be less reliable than a standardized test? What would their future employer rather see? The test score or the project they put down their phones to dedicate their full attention?

Students come to CAIS because they desire preparation toward a specific career and CAIS's board helps bring relevance in the instruction.



A focus on relevance has led to language arts courses focused on Lean Manufacturing Processes and a math course focusing solely on construction problems. Other classes offer designing and building opportunities.

At the Clackamas Academy of Industrial Sciences, we prepare students for careers in engineering, manufacturing and construction trades. We are working closely with our industry-led board of directors and other industry partners to create relevance in our courses and curricula. We currently get regular guidance from a board that includes industry representatives from Boeing, Warn Industries, Miles Fiberglass and Composites, Benchmade Knife Co., Pioneer Pump, Enoch Manufacturing, ESCO Corp. and the Oregon Building Congress to name a few. Our students come to us because they desire preparation toward a specific career and our board helps us bring to them relevance in our instruction.

A focus on relevance has led to language arts courses focused on Lean Manufacturing Processes with industry leaders from ESCO Corp. and A-dec Dental Equipment Solutions providing opportunities for students to learn from the experts. A math course focuses solely on construction problems with structural engineers, union tradesmen and other building professionals leading some of the lessons. In other classes, students are brought design and build opportunities from companies and organizations like the Oregon City Chamber of Commerce. Students in our Engineering Design and Development course recently designed, built, tested and operated a trebuchet to launch pumpkins at the chamber's Biz Fair. All of these examples are opportunities for students to learn relevant skills to the manufacturing and construction sectors.

Whether a traditional high school setting or a more focused high school setting, like CAIS, educators need to put the focus on relevance. All of our initiatives will be significantly more effective if the learning is relevant to the student. This is challenging and can seem at times overwhelming, but it can't be ignored. If it is, won't many of our students just ignore irrelevant instruction? Wouldn't you?

Kyle Laier is principal at Clackamas Academy of Industrial Sciences.

BY ANGIE GILBERT

Trading Up

Reynolds academy gives students hands-on career lessons

When we think about students learning, growing and becoming productive members of society, we often forget how beneficial it is for them to have experiences that extend beyond the reach of the classroom. Reynolds Learning Academy wanted to change that, so seven years ago we piloted a program to take students out of the classroom and place them into the hands of competent and supportive regional apprenticeship programs. We knew – we believed – that this program would change lives, alter perspective about education and most of all build a bridge between the classroom and real world experience. What we did not know was for how long we could sustain it, or how truly successful our students would be upon completion. Seven years later, we have our answer. We would like to share with you some of the statements made by former and current students with regard to their experience while in the trades program and where their lives as apprentices and journeyman in the trades field have taken them today.

We knew – we believed – that this program would change lives, alter perspective about education and most of all build a bridge between the classroom and real world experience.

My crew leader and I have always reminded the kids that this program does not run because of us – it runs because they take it seriously, work hard and make connections with partners who want them to return as employees because they see their drive and ambition to turn their lives around. The trades students have done just that and we are grateful that they have taken a few moments to share with us the impact that Trades has had on

A student learns surveying with the Laborers.

Willamette River Bridge, courtesy of Tyler Street.

their education, their confidence and their futures! We invite you to join us in celebrating their success in their words. But first, we need to provide you with some history and background of how this phenomenal program came to be and why it works so effectively to transform students into skilled professionals.

Through a unique partnership with regional apprenticeship programs, the Reynolds Learning Academy (RLA) was able to create an exceptional and successful trades program, which services students interested in the construction trades. The "Trading Up" program is the first of its kind in the state of Oregon. Students are able to experience first hand the outstanding opportunities available to them in the construction trades by choosing to enter an apprenticeship, thus creating life-long learning, as well as developing the skills crucial to a career in the trades. This program was the first Oregon Department of Education (ODE) state-recognized program, and one of only a handful to be approved as a pre-apprenticeship training program by the Oregon Apprenticeship and Training Council.

The "Trading Up" program is the first of its kind in the state of Oregon. Students are able to experience first hand the outstanding opportunities available to them in the construction trades by choosing to enter an apprenticeship, thus creating life-long learning, as well as developing the skills crucial to a career in the trades.

We operate on the philosophy of strong academics, with an emphasis on the Oregon Essential Skills Standards of personal management, communication, problem solving and teamwork. The Trades program also meets the CTE diploma requirements of Oregon. The requirements to be a "Trading Up" crew member are incredibly stringent. Members sign a year-long, non-negotiable contract requiring them to be drug and alcohol free, maintain attendance at a minimum of 90 percent and academics at a C or better with a preference toward a B or higher. The makeup of students varies dramatically from year to year; typically half of the students are in Special Education on Individual Education Plans (IEP). These students often struggle with learning disabilities and sometimes behavior issues. With the support of their crew leader and the opportunity for hands-on learning, we have seen dramatic improvements in both areas. Students do an incredible job of supporting one another in and out of the classroom, creating a professional environment with a very personal investment.

Here's how it works. Every other day, students are transported to an apprenticeship-training site and put through the paces of that particular trade. They receive math instruction, hands-on training and are able to build relationships with people who may one day be their apprenticeship coordinator or instructor. Students are able to obtain for free their OSHA 10 card through the Laborers, their First Aid and CPR cards through the Reynolds School District, and have access to Wildland Fire Fighter certification through Clackamas Community College. During their non-crew days, students take courses in Trades Math, Technical Writing and Engineering. Each course utilizes curriculum from both the district and local apprenticeship programs, which directly ties to what they will be learning on site that week. We believe that the direct correlation between classroom and hands-on application is valuable to student learning as it answers the question of "when will I ever use this?" Each trade does an excel-

Longshoremen, Port of Vancouver.

Laying tar at the Roofers.

Carpenters' instruction.

Welding at the Ironworkers.

Climbing with the Linemen.

lent job of stressing academics as a necessity to being successful in a work environment. Students also are required to participate in service-learning projects such as Habitat for Humanity. Not only does service-learning provide students with the opportunity to give back to the community, but gives them the chance to hone the skills learned at the training sites. Service-learning also provides students with a great sense of pride and accomplishment, especially when they can say to family and friends, "I did that!"

Students are equipped head to toe in gear from S.D. Deacon and Safety and Supply. This gear is crucial to their safety and ensures a uniform appearance for our program, which is a very impressive component for our partners. They know when students arrive on site, they will be well prepared with their gear and have positive attitudes and come ready, willing and able to work and learn. During their time at each of the sites, students are familiarized with apprenticeship orientation schedules and application deadlines, as well as the requirements necessary to successfully be accepted into an apprenticeship.

After six years of groundwork and with the support and guidance of our regional apprenticeship coordinators, we are proud to say that "Trading Up" is in its seventh year of operation and continues to grow stronger in our mission of teaching students to challenge and prepare themselves for their futures. Graduates are working in the trades, taking classes to improve their status while waiting to apply, or entering the military to gain further training with the hope of returning and entering an apprenticeship upon completion of their military service. We are very excited to be creating opportunities for students while providing training for more qualified applicants to fill spots left by retiring trades people. Our students and partners are extraordinary and we invite you to read their testimonials which speak directly to their success.

If you have further questions or would like more information about the Reynolds program, call 503.667.4673 or email Angie Gilbert at agilbert@rsd7.net. We would love to brag about the success of our students!

Angie Gilbert is school-to-career coordinator with Reynolds Learning Academy.

The testimonials:

Nathan Drorbaugh, Howard S. Wright Journeyman Carpenter, Pilot Trades Student, Two Years:

Hi my name is Nathan, I'm one of the original students who helped start the trades program at Reynolds Learning Academy. I was in the program for two and half years until I had to withdraw to focus on earning my credits to graduate on time. While in the trades program I had the amazing opportunity to participate in a summer internship with Emerick Construction Co. through the summer Construction Camp at the Carpenters. It taught me the critical knowledge I need to have a career in construction.

Upon graduation from high school I immediately enrolled in the Carpenter Apprenticeship Program. It is a four-year program where they teach you the skills of carpentry and construction. I graduated at the top of my class and won the elite title of Carpenter Apprentice of the Year. As of today I'm still a journeyman carpenter enjoying my work and looking forward to what the future has to offer.

Tyler Street, Trades Student, Student Crew Leader, Two Years:

I got in the trades program right when I turned 17. I wasn't doing the best in my classes for school prior to be accepted into the Trades program. Once I got into the Trades program, I saw school in a whole different way. I began getting good grades and could see what we were doing on our "crew" days. After the first year it was apparent that I wanted to have one of those careers in the union. So I applied for a program called "Carpenters Construction Camp," I was accepted and so I went to work for a union company (Skanska) for eight weeks in the summer before my senior year. I loved it, learned a lot, and made some pocket money. So when I went back for my senior year, I did what I could to hurry up and graduate and get back in the field. I did very well my senior year and got straight As. I also managed to graduate a half of a year early. Before I graduated though, I kept in touch with the superintendents I'd worked for. They gave me great references so I could apply for the apprenticeship program at the Carpenters. The day I finished my high school career, I started my new one. I interviewed with the carpenters apprenticeship program and got a score of 100. About a week later, I was working! I've been in for about two years now and am still learning every day! I still have fun on most days I work. As of now I am a fourth-term apprentice working on the new Willamette River transit bridge and loving it!

Evelyn Drorbaugh, General Carpenter, Trades Student, Two Years:

I am a general carpenter in the Portland metro area. I have been a carpenter since April 2013. I love the career that I have chosen and I probably wouldn't have made the same choice if it weren't for the Trading Up program that I had the opportunity to be a part of in high school. The program made me knowledgeable of all the different trades that I didn't know about.

My older brother, Nathan, attended his high school years at Reynolds Learning Academy. While he was in school he was in the Trading Up program. Every day my brother would come home from school with a big smile on his face and he would tell all of these stories about the program and the different things he was able to do while learning about different trades. Therefore, before I was in high school I already had a little knowledge about the program and was very interested in applying for an opportunity to experience them myself.

When I was a freshman in high school I, too, attended Reynolds Learning Academy. However, freshman aren't allowed to be in the two programs held at the school because we are the newbies and we have to take some time to learn about them. At the end of the year was when the kids who were interested in joining the programs were able to apply. Everyone who is interested has to go through a process of filling out an application, an interview and drug screen. Thirteen kids are chosen each year by the coordinator, principal, and trades crew leader. I was one of those lucky kids chosen to be a part of this program.

Every other day of school we would go to a training center of a different trade and learn about how the trade works and experience hands-on learning. The opposite day that the crew wasn't going out to a site, we were in school, learning about academics.

We all had to be very professional in and out of school because we represented the school and the program. Let's just say that we had the best of both worlds.

By the time my sophomore year arrived, I was eager to get started. During the beginning of the year we took a couple of days to go out to a park and do some teamwork practices because we were about to spend the whole year together. After about two days of practicing teamwork, we started heading out to learn about career paths. We went to many places, from the electricians, to the plumbers, the carpenters, sheet metal and the lineman. By the end of the year the crew is like a family. I applied to gain more knowledge my junior year and was again accepted.

It was the best program that I have ever been in. By the time I finished two years in the program, I was interested in three different career choices and I needed to think before I made my decision of a lifetime career. I spent a year after graduating thinking of all of the pros and cons about each job and finally made my decision to be a carpenter because they know a little about other trades.

I am a 19-year-old woman with a career that I love and a good future ahead of me. The Trading Up program and all the people involved are to thank for pointing me in the right direction and showing me that there are many career opportunities in the world. I am very appreciative that I had the chance to have attended a high school where I am taught not only about academics, but teamwork, professionalism and career options as well.

TJ Wolbert: Two-Year Trades Student:

I've been in the trades program since my junior year and by being involved with the program my life has been turned around. I've never been very good at learning in school and without the Trading Up Program, I would have dropped out of school and be bagging groceries for the rest of my life or be stuck in a minimum wage job. Now I have a strong work ethic and know what it takes to be successful at only 18 years old. Thanks to the program I now have a career lined up for me as soon as I graduate that will be able to support my future family someday. This summer I had the golden opportunity to work with the Carpenters for eight weeks. I also got to work with a veteran Trades member, Nate Drorbaugh, who is a journeyman carpenter. It was an experience of a lifetime. I got to learn how to build a deck starting from the ground up to doing remodel work inside of the Portland Community College Sylvania Campus.

Quinten Starr, Two-Year Trades Student:

In the past two years in Trades, I have discovered it is an enjoyable and great learning experience. It is a hands-on learning environment that allows me to explore and see what is out there and gives a variety of careers and professions to learn from. It is made up of up to 13 students and one crew leader. The crew goes out to meet the partners and partake in projects that are given to us. Sometimes we take real classes with apprentices. I've never had so much fun learning new skills as I have from people who have actually been in a trade professionally. This is a program that I strongly recommend. Before I joined this program I felt like I was wasting my time sitting in a classroom, I didn't feel like I was learning anything. Once I joined, I felt like I learned something that I would actually use in the future.

Our Crew Leader Tony Gomez is in his fifth year as our leader and shares his thoughts below along with Shannon McCarl, who is our Technical Writing teacher for the past several years.

Tony Gomez, Crew Leader for Five Years:

It's been great to see students find a trade that interests them to pursue a career. I like to create opportunities for students to think about a career rather than a simple job. I'm proud to be a part of a program that allows me to mentor students and give them the skills they need to be successful in whatever profession they choose.

Shannon McCarl, Language Arts Instructor for Five Years:

I have been the Language Arts teacher for the Trading Up Program, or Trades as we call it, for the past five years. I was really excited to become the teacher for the program, because I come from a very blue-collar background that values labor. I am, however, a passionate reader, and I wanted to work with the question "Why do reading and writing matter in the Trades world?" I wanted to explore the intersection between good communication and positive business outcomes. My Trades classroom has taught me not only why it matters, but how to help my students understand that their education matters no matter what employment they pursue.

For the past five years, I have built a curriculum around communication skills in the workplace that value commitment, respect for self and others, and personal determination. Many of my students have started the program with an uncertain relationship to the school environment. They are frequently disenchanted with "seat work" and are having a difficult time understanding how the sedentary activities of the classroom fit into the puzzle that is the work world they see around them. During the course of the year as they gain new skills in communication, they begin to talk and write about the barriers that they have experienced in education. Later on as they gain some successes in their academic lives, they start to break those barriers down because the classroom is no longer a place of barriers, but becomes a vehicle for them to achieve their goals. Often after they return from the field they share stories of practical application of their skills, these real world lessons have an impact that I can only begin to describe. Because of the guidance and hands-on training they receive from tradespeople all across the state they begin to see themselves as working people with solid abilities and goals. I feel like I am working side by side with some of the best educators around, because many people I have never met impact my classroom in such a clear and positive way.

The kids I teach become young adults right in front of my eyes, not just through natural aging, but rather through mentoring and self respect. Students start the program adrift and uncertain, but leave with goals for work or additional education. Many of my students are struggling with difficult home lives, addiction and depression, and over the course of the program they begin to see themselves and work as a way out of difficult circumstances. They begin to believe they have choices and control over their futures.

This program affects my students beyond the time that they are in my classroom. They become problem solvers, highly sought after employees, and entrepreneurs. They become college students, successful working people and taxpayers.

But the most important thing they become is self-directed learners who have futures they are in control of and that is all thanks to the people in the field who share their talents and insights with them every chance they get. Thanks to all the trades people who affect my students so deeply.

BY MARY ANN NAYLOR PHOTOS COURTESY OTI

OTI introduces next generation of tradeswomen to career possibilities

Have you ever wondered what it would be like to be part of a crew that constructs roads, bridges and buildings? Have you ever wanted to experience the power of running a jackhammer or what it takes to operate heavy equipment? Perhaps you have wondered about solar and wind power and are thinking about a career in the field of sustainable energy? Come to the next Women in Trades Career Fair May 8-10, 2014!

Oregon Tradeswomen Inc. (OTI) started offering the annual Women in Trades Career Fair 22 years ago, with a mission of creating an exciting and interactive event to allow girls and women to explore the many non-traditional career options available to them in the building and construction trades.

"Every year at the fair, I am reminded of how important it is for girls to have the opportunity to meet and talk directly with tradeswomen who are actively working in a variety of trades careers," said Connie Ashbrook, OTI's executive director and one of the four tradeswomen who founded the non-profit organization. "It helps them realize that these rewarding careers are a real possibility for them, too."

The 2013 Women in Trades Career Fair was held May 16-18, and hosted a record number of attendees from all over Oregon, Southwest Washington, and even a few from California and Idaho! In all, 634 middle school girls, 660 high school girls, 129 teachers, and 556 adult women career seekers as well as their families attended the fair during three days to learn more about career options in the trades and the value of an apprenticeship, where they have an opportunity for paid, on-the-job career training.

Workshops

The fair is a labor of love for the apprenticeship programs and employers who present the workshops at the fair, and offers them an unparalleled opportunity to reach out to the women and girls who attend. In fact, it is the interactive,

High school girls fix a water main break in the Portland Water Bureau's workshop. The 2014 Women in Trades Career Fair will be held May 8-10 at the NECA-IBEW Electrical Training Center, 16021 N.E. Airport Way, Portland. For more information about the event or how to register your school, visit www.tradeswomen.net/fair.

hands-on workshops that make the fair such a fun, educational and inspirational event for the young women who attend.

Exhibit Booths

Dozens of companies, apprenticeship training centers, colleges and other organizations exhibit at the fair on Friday and Saturday to reach out to women interested in learning more about their industry and pursuing a career.

Each year, the fair hosts more than 70 exhibitors, which affords an extraordinary opportunity for high school seniors and adult women career seekers to learn more about the variety of careers options available to them in the trades. The representatives at the exhibit tables are excited to talk about how to get started in their industry and everyone offers great information at their table for people to take with them.

Work-Wear Fashion Show

One of the most popular activities at the fair is the work-wear fashion show. One by one, tradeswomen take the stage wearing the clothing and carrying the tools they typically use on the job. There are many surprised faces in the audience when the tradeswomen talk about the apprenticeship process and about how much money they were making when they start as an apprentice and how much they earn when they journey out.

Careers for Women Day

Each year, the first two days of the fair are reserved for school-age girls who attend with their school, but Saturday, Careers for Women Day, is open to everyone and there is no charge to attend. So, if you aren't able to attend the fair with your school, you can come with friends and family on Saturday to attend as many workshops as you would like, and to experience all the fair has to offer.

The next Women in Trades Career Fair takes place May 8, 9 and 10, 2014, at the NECA-IBEW Electrical Training Center located at 16021 N.E. Airport Way, Portland, OR 97230. For more information about the event or how to register your school (registration opens Jan. 15, 2014), please visit www.tradeswomen.net/fair. We hope to see you there!

Mary Ann Naylor is public relations specialist for the Oregon Tradeswomen Inc.

A middle school girl tries installing insulation in a workshop with Balanced Energy Solutions.

Sara Page, OTI pre-apprenticeship program graduate and Plumber Apprentice, teaches a high school student how to solder copper in UA Local 290's Workshop.

A high school girl climbs a beam in a workshop with the Pacific Northwest Ironworkers Local 29.

An attendee learns to bend sheet metal in a workshop with the Sheet Metal Institute.

Comments from attendees on the 2013 Women in Trades Career Fair:

"It was inspiring for my students to see all of the different careers available to them! Cutting iron was exciting!" – *Educator, Tillamook Junior High School*

"My students were inspired to see that women have the right and the ability to have a career in the trades. Money is great. They loved the hands-on activities!" – *School Counselor, Baker Prairie Middle School*

"The girls I brought to the fair loved the hands-on learning experiences! They had a lot of fun, and realized that they can totally do a bunch of different careers that they may not have considered." – *Teacher, HB Lee Middle School*

"It was impressive seeing all these tradeswomen and how confident they are." – *School Administrator, Phoenix Charter School*

"My girls were inspired by seeing real opportunities for themselves and ways out of poverty." – *School Counselor, Pathfinder Academy*

"I liked learning about the careers that most women don't even consider." – *Middle school student, Fowler Middle School*

A middle school girl operates a crane in a workshop with Interstate Crane.

"My favorite part was that I found out what I want to do with my life." – *High school student, Whiteshield*

"I liked listening to what the tradeswomen do on their jobs, how they do it, the money they make, and how much they love their work!" – *High school student, Pendleton High School*

"One thing I learned today is that this work isn't easy but good things come out of hard work." – *High school student, Regional Trades Academy*

"I loved having the chance to try a skill that is used for a specific trade." – *Job seeker on Careers for Women Day*

"I especially enjoyed being able to talk to and ask questions of women who are experienced in their craft. This was a valuable educational experience and my only regret is that my daughter could not be here to share it." – *Job seeker on Careers for Women Day*

"The best part about the Women in Trades Career Fair to me was going around and trying so many things, learning about the many careers, and meeting new people." – *Job seeker on Careers for Women Day*

Above: Irais Gandarilla, sheet metal worker and OTI pre-apprenticeship graduate, shows Careers for Women Day attendees a virtual welding machine in the Sheet Metal Workers Local 16 workshop. Below: A middle school girl learns how to climb a utility pole in a workshop with Bonneville Power Administration.

Above: Cristi Sawtell, Central Work Planner at Bonneville Power Administration (BPA), shows a middle school girl how to generate power by pedaling the electric bike in BPA's Workshop. Right: Careers for Women Day attendees learn how to make concrete stepping stones in a workshop with the Cement Masons Local 555.

BY MICHAEL COLLINS

Future Leaders

OSU program provides students with well-rounded education, learning opportunities outside classroom

Growing up in Medford, Ore., Sara Quitugua always knew she wanted to attend Oregon State University, even if she did not always have an exact idea about what she wanted to pursue. At first, the junior had her sights set on a career in architecture; however, after attending a spring event at OSU during her final year in high school, she found her home with the Beavers in the School of Civil and Construction Engineering where she is majoring in construction engineering management.

"In high school I took a skills test that showed a career in engineering might be right for me," Quitugua said. "I've always wanted to have a hand in creating things; so, after learning what the civil and construction engineering program at OSU had to offer, I realized it would be a great fit for what I wanted to accomplish during my career."

Her decision to pursue a degree in construction engineering management was confirmed following her internship this past summer at Perlo Construction, a construction management firm based out of Portland. During her time at Perlo, Quitugua had the chance to experience all aspects of a construction project.

"It was such a terrific experience," Quitugua said. "I had the opportunity to see everything that went into a construction project and had a chance to apply what I have learned so far at OSU. I was able to interact with everyone involved in the construction process and I really learned a lot about myself as well."

Specifically, the junior now knows she would like to pursue a career in construction as a project manager or estimator. As a project manager, Quitugua would have the responsibility of planning and delivering a construction project in a manner that maximizes value – a quality product at a fair price, safely constructed in a timely fashion. As an estimator, she would quantify what is needed to complete a specific construction project, identifying the projected cost for labor, materials and equipment.

Left to right is Perlo's Tyler Mildren, Sara Quitugua and Perlo's Chris Gregg.

Based on recent job placement statistics from the OSU School of Civil and Construction Engineering, Quitugua should be able to pursue the career of her choice. Data collected from the 2013 graduating class shows more than 90 percent of graduating construction engineering management majors at OSU secured construction engineering positions immediately after graduation. Graduates went on to jobs in a variety of construction areas, with a majority landing positions in commercial building, heavy civil or with specialty contractors (that work in areas such as mechanical and electrical contractors).

"We have been able to solidify job placement numbers because our curriculum continues to have an established technical foundation while incorporating a number of business classes, making our graduates well-rounded," said OSU Associate Professor David Rogge, who oversees the undergraduate construction engineering management program at OSU. "In addition, we provide students with a chance to get involved and learn more about the industry with a number of opportunities outside the classroom."

One of those opportunities is the chance for OSU civil and construction engineering management majors to participate in professional speaker meetings throughout the year. The meetings provide students with the chance to hear directly from professionals in the industry, learning about various career paths, companies, projects and opportunities in civil and construction engineering.

During this year's fall term, OSU civil and construction engineering management students already have seen presentations from some of the top construction companies in the country. With speaker meetings taking place throughout the year, they are the perfect opportunity for students to network while learning about the industry.

"Our long-standing tradition of working closely with industry has provided our stu-

dents with a number of opportunities," said Lauren Farmen-Schnoor, Outreach and Industry Relations Coordinator for the OSU School of Civil and Construction Engineering. "Through our industry partnerships, students have the opportunity to earn scholarships, receive training through professional internships and achieve rewarding careers in the construction industry. The companies we work with provide our students with the ability to experience construction first-hand, learn how to do business, and build upon their college education. They sincerely care about the future of our students and program."

In addition to the construction engineering management major, the OSU School of Civil and Construction Engineering also offers a degree in civil engineering. Students in the program go on to careers in the design, construction, and maintenance of public works, including roads, bridges and harbors as well as a number of related areas and applications.

Undergraduates in the program receive general instruction in all areas of civil engineering, including geomatics, geotechnical engineering, innovative materials, ocean and coastal engineering, structural engineering, transportation engineering, and water resources engineering.

"Civil engineering is for those who want to provide a public service," said Associate Professor Tom Miller, assistant school head in charge of the undergraduate civil engineering program. "We are able to give students some hands-on experience in the program while giving them the opportunity to learn about all areas of civil engineering before they graduate."

Graduates of the program have been involved in some of the world's largest design projects, including the new World Trade Center site in New York City. Many others have gone on to graduate school, focusing on research in specific areas of the industry, before their careers in professional practice.

Regardless of whether students want to pursue a career in civil engineering or construction engineering management, potential employers and graduate schools are looking for those who took advantage of opportunities available to them while in college.

"Although companies are certainly looking for good students, the industry is also focused on hiring people who are active at the undergraduate level," Rogge said. "At OSU, we stress that students take advantage of their opportunities and get involved with relevant student organizations, gain internship experience and take a look at participating in a number of student competitions."

It is a piece of advice Quitugua has taken to heart. She currently serves as the social chair for the Associated General Contractors of America Student Chapter (AGC) and is a student ambassador for the OSU College of Engineering. AGC and the American Society of Civil Engineers (ASCE) form two of the larger student civil and construction engineering groups on the OSU campus and the organizations provide students with opportunities to learn, observe, and interact with industry professionals.

The school also offers students the chance to participate in a number of exciting national engineering student competitions. One contest, called Concrete Canoe, has students build a canoe out of concrete and race it against the other schools in the region. Another involves fabricating, building and testing a steel bridge. Also, the Seismic Design Competition is sponsored by the Earthquake Engineering Research Institute, and has students create a model high-rise building structure that is tested under various earthquake scenarios.

The competitions are just two of the many opportunities civil engineering and construction engineering management students at OSU have to go along with their education in order to help them prepare for their future careers.

"I have really enjoyed my time at OSU so far," Quitugua said. "The opportunities I have had at OSU have allowed me to learn so much about myself and the industry. I am excited about what is ahead and OSU has played a huge role in preparing me for a career in the construction industry."

For more information about the OSU School of Civil and Construction Engineering or to schedule a visit, contact the OSU Office of Admissions at 1-800-291-4192 or oregonstate.edu/admissions.

Michael Collins is marketing and communications director at OSU's School of Civil and Construction Engineering.