// FALL / WINTER / 2012 //

Building Futures®

THE CONSTRUCTION INDUSTRY JOURNAL FOR STUDENTS

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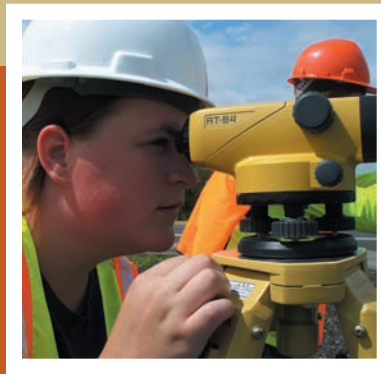
Street Appeal

Students showcase talents at Street of Affordable Homes



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Phone: 503-685-8313 Fax: 503-682-1696
e-mail: tgoodhue@obcweb.com
www.obcweb.com

OBC Executive Director: **Tom Goodhue**
Publisher: **Rynni Henderson**
Editor: **Theresa McKinlay**
Design: **Shannon Vincent**
Advertising Sales: **Ben Bracelin, Rob Hennis**
Contributing Writers:
Ryan Blogett, Bob Calwhite, Lynn Wilson Dean, Dan Graham, Chris Higginbotham, Kyle Laier, Mary Ann Naylor, Karen Phillips

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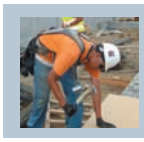
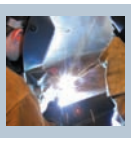
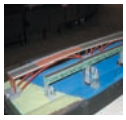






INDEX TO ADVERTISERS

OBC promotes education with new Teacher Peer Group

Tom Goodhue

Welcome to the Fall edition of Building Futures Magazine. It marks the start of the school year and much of the activities of OBC and its partnering organizations. By the printing of this publication OBC will have participated with more than 10 other organizations to provide a one-day teacher workshop. The workshop is specifically designed to show educators the practical applications of math in the workplace and to give knowledge about what it takes to successfully enter an apprenticeship for a skilled trade's profession. These sessions are always well attended and feedback extremely positive. For those educators in attendance, OBC will be offering registration to our new educator peer group community, where teachers can share information on lesson plans and "best practices." To join, create a LINKEDIN online profile and go to the Oregon Building Congress company profile for directions on how to join the OBC Teacher Peer Group.

This issue of Building Futures focuses on the vast accomplishments of partnering organizations and schools during the past six months. The feature article is about Forest Grove High School and the Viking House built by students in their advanced construction class. I had the opportunity to tour the house and was blown away with the quality of craftsmanship. Other articles highlight a broad scope of technical education in our schools and training centers.

OBC is actively working to create new partnerships with educators and industry. In the coming months you will be hearing more about those new partnerships and opportunities for your school or company. If you want to learn more about how OBC can work with your school or collaborate with employers to connect with these talented students, email me at tgoodhue@obcweb.com or call the OBC office at 503-685-8313!

THINK GREEN AND STAY ON TOP OF THE NEWS!

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.

Building Futures is also online! Go to djcoregon.com/buildingfutures to see the fall/winter issue.

Hands-On Learning

Carpenters, contractors team to offer Construction Camp

By Bob Calwhite

The Pacific Northwest Regional Council of Carpenters, the General Concrete Contractors Association, and the Pacific Northwest Carpenters Institute have completed another successful year of Construction Camp.

Partnering with public schools from the Portland/Metro area, applications were provided to interested students. Those students who completed the application and met the criteria were scheduled for an interview. The interviews were conducted by participating contractors and Carpenters Training Center staff. The focus was on attracting students with good grades, attendance and the willingness to work a summer job in construction.

The Construction Camp is an intense eight-week program that pays students for both work on the job and classroom training at the Portland facility of the Pacific Northwest Carpenters Institute.

Students started the program on June 25 with the first three days at PNCI and the remaining two days of the week on the jobsite. Students then attended PNCI every other Monday. All additional time was spent on the jobsite. The purpose of this program is to expose student interns to a variety of subjects and topics relating to the craft of carpentry, and the construction industry in general.

Through the past years this program has exposed 91 students to the field of carpentry with seven currently attending a carpenter apprenticeship. More importantly the program has provided students with a better understanding of the entire construction industry. They walk away knowing the importance of being on time, good attendance, and putting in a hard day's work in all conditions. Students were able to take the math skills they learn in high school and apply them to the construction industry.

Students' instruction covered workplace safety, occupational safety and health, proper material handling for construction, and the safe and correct use of common hand tools used in the trade.

The students received instruction in basic first aid and CPR, workplace safety, occupational safety and health, ergonomics, proper material handling for construction, and the safe and correct use of common hand tools used in the trade.

Additional subjects of study were: the fundamentals of blueprint reading, applied mathematics for carpentry and the importance of safety in construction, along with the importance of good communication skills and a proper work ethic.

Students were supplied with tool bags, basic hand tools, boots, hard hats and safety glasses.

There are a lot of smart, dependable and conscientious youth looking for an opportunity to establish a career in construction. This program allows some of them the chance to take that ride.

What this program means to our industry is students walk away with the knowledge that the field of carpentry offers a career opportunity that provides a family wage job with health insurance and pension benefits.

With the success of this program during the past seven years we feel it is important to keep providing students with the means to "Test Drive a Career" in the construction industry.

Bob Calwhite is assistant director at the Pacific Northwest Carpenters Institute.

Eyes on the Future

Apprenticeship tours give youth peek at careers

By Ryan Blogett

This summer marked the 12th year the Educational Service District 112 (ESD 112) has partnered with the Oregon Building Congress (OBC) to deliver apprenticeship tours. The group visited the NECA-IBEW Electrical Training Center, Pacific Northwest Carpenters Institute, and the Oregon & Southern Idaho Laborers Training Center. Each of the centers provided a wealth of knowledge for the youth to help them make informed decisions about their future. The youth enjoyed the opportunity to be exposed to all three and each one came away with an idea of what they would like to pursue.

The first visit was led by Bridget Quinn at the NECA-IBEW Electrical Training Center. Bridget did an awesome job of showing the youth the diversity of work they could do as an apprentice. It opened the eyes of the youth to the scope of work an electrician must do. The complexity of electrical systems intimidated some of the youth who felt they were not strong in technical applications. Bridget led the group through an exercise where she demonstrated how to wire a simple circuit. The math component became apparent when Bridgett showed the youth the conduit classroom. It was fascinating to see how pleasing to the eye some of the more intricately bent conduit could be. Bridget told them how to qualify and make application to the apprenticeship program and how to make themselves a more competitive candidate. One of the youth already has applied to the apprenticeship as he met or exceeded all of the minimum requirements.

The second training center tour was with Doug McCarver of the Pacific Northwest Carpenters Institute. They started off with some classroom time talking about math in the trades and learning to do some basic calculations. The youth were excited for the training center tour as they had the opportunity to see apprentices and journeymen in action. From the welding lab to the class learning about clean room construction it was very interesting seeing the wide variety of skills taught at the center. They finished up the tour with a surveying activity where the youth used transits to shoot elevation from a known benchmark on a bridge near the campus back to the training center's floor. Only one of the youth was within an inch of the actual elevation.

Students took part in a surveying activity during the Pacific Northwest Carpenters Institute tour.

The group finished up their apprenticeship tours with a trip to Oregon & Southern Idaho Laborers Training Center. Aida Aranda provided the tour on a warm July day. The youth were treated to a taste of what potential Construction Craft Laborers' apprentices go through as part of the final stage of selection, the pre-construction training class. The first activity received mixed reviews from the youth. Some thought the physicality of the work was right up their alley while others were less enthusiastic. After lunch the group moved to an activity that was more challenging for the youth, running a 90-pound pavement breaker and 30-pound rivet buster (commonly called jackhammers). The opportunity inspired the youth to think about everything that is possible if they give it a try.

ESD 112 would like to thank the three training centers and the Oregon Building Congress for putting together another fantastic summer schedule for us. The youth had a great time learning about the specifics of a few trades, but more importantly the expectations. At each of the site visits the instructors echoed the same sentiments of what it takes to be successful as an apprentice: Show up on time and ready to work, maintain a positive attitude about the work, and live a drug-free healthy life.

Ryan Blogett is with the Youth Workforce Program at ESD 112.

NWCOC summer construction camp a hit

By Dan Graham

Summer 2012 finally got us warmed up and dried out after the usual winter-spring rainy season. By July the sun was out and times were good, especially for the participants (ages 16-20) in the first annual Summer Construction Camp at Northwest College of Construction located in Northeast Portland. Thanks to financial support from Hamilton Construction, The Epping Family Foundation and Associated General Contractors (AGC), the cost per student to enroll in the three-week camp was only $50 – not bad for the chance to try one's hand at operating a backhoe, setting tile, welding, getting high in a boom-lift, learning to tie rebar, build an edible bridge, finish concrete, operate a forklift, and a lot more.

Field trips to a bridge construction job where I-84 crosses the Sandy River sponsored by Hamilton Construction, a utility construction job in Oregon City sponsored by Nutter Corp., an asphalt plant, compliments of Knife River Corp., and a trip to the "Street of Dreams" compliments of the Portland Metro Home Builders Association (HBA) were all part of the deal.

Call NWCOC now to get on the Summer Construction Camp 2013 waiting list (503-256-7300).

Students experienced a variety of activities thanks to field trips sponsored by Hamilton Construction, Nutter Corp., Knife River Corp. and the Portland Metro Home Builders Association.

Dan Graham is president of the Northwest College of Construction.

SUMMER OF LEARNING

by Mary Ann Naylor Photos by Dawn Jones

Career Fair

Annual event focuses on education, inspiration, opportunity for the next generation of tradeswomen

Oregon Tradeswomen Inc. (OTI) produced the first Women in Trades Career Fair in 1993. It was a one-day event held in Newport, Ore., and was attended by about 100 people. Since then, the Women in Trades Career Fair has grown into the largest non-traditional career fair of its kind!

In May of 2012, 576 middle school girls, 585 high school girls, and 600 adult women career seekers from all over Oregon and Southwest Washington attended OTI's interactive, three-day 20th Annual Women in Trades Career Fair to learn more about career options in the trades and as blue-collar professionals. Many students coming to the fair don't exactly know what an apprenticeship is, but after attending the fair, many talk about the excitement of apprenticeship opportunities and the chance for paid, on-the-job career training.

The fair offers a wide variety of engaging, hands-on workshops designed to introduce middle and high school girls and adult women to the range of career possibilities available in the trades. In fact, OTI produces the Women in Trades Career Fair each year to not only help fill the imminent gap in the labor force that will be created with record-levels of upcoming retirements of skilled trades people, but to also increase diversity and the overall number of women working in trades careers.

Students and career seekers alike participate in a wide variety of hands-on workshops at the fair and are able to meet and talk with dozens of tradeswomen who are happy and satisfied in their careers. Workshop topics include learning about wind power, solar electricity and green building techniques, to climbing a utility pole, wiring a light and switch, welding, making concrete stepping stones, operating heavy equipment, and so much more.

Anitra Reed, OTI student and trades career seeker, works the cutting torch in a workshop with the Ironworkers Local 29.

In 2013, OTI's Women in Trades Career Fair will be held May 16, 17 and 18, 2013, at the NECA-IBEW Electrical Training Center located at 16021 N.E. Airport Way, Portland, OR 97230. For more information about next year's event or how to register your school (registration opens in January), please visit www.tradeswomen.net. We hope to see you there!

Mary Ann Naylor is public relations specialist with Oregon Tradeswomen Inc.

Far left: A middle school girl learns to solder copper from Sheena Piltz, Steamfitter apprentice, in a workshop with Local 290 Plumbers and Steamfitters. Center: Cristi Sawtell, Bonneville Power Administration central work planner, shows a high school girl the power she is generating on one of the gauges of BPA's electric bike. Left: Middle school girls have a blast as they try to stop the break and shut off the flow of water in the Portland Water Bureau's "Fix a Water Main" workshop.

A high school girl has fun operating the excavator in a heavy equipment workshop with Goodfellow Bros.

What the participants said about their experience at the Women in Trades Career Fair:

"I liked learning about all the different career options I didn't know about before."

– Middle school student

"My favorite part of the fair was seeing that women can work in the field where men are the majority and knowing that there are women who ARE strong enough!"

– High school student

"There are so many opportunities presented at this career fair! I could see the wheels turning when my students learned about the on-the-job training and wages."

– Teacher, Pathfinder Academy

"I really appreciated seeing that there are other options for high-paying careers other than going to college."

– Teacher, Madras High School

"I liked that the fair was fun and informative. I learned about things and jobs I never even thought about before."

– Job seeker on Careers for Women Day

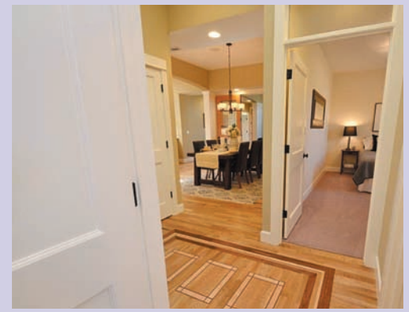
"It was extremely fun operating the heavy equipment. I really loved the jackhammer."

– High school student

Kat Lakey, Journey-level ironworker with Pacific Northwest Ironworkers Local 29 and OTI pre-apprenticeship program graduate, instructs a middle school girl in proper climbing technique.

Irais Gandarilla, apprentice with the Sheet Metal Institute, teaches a group of middle school girls in the workshop "Make a sheet metal flower pot."

A middle school girl learns to climb a utility pole from Jenna Smith, Journeyman line worker and training coordinator for NW Line JATC.



On The Cover

Street Appeal

High school students showcase their talents at Street of Affordable Homes

By Chris Higginbotham

Forest Grove High School's Viking House Program has been in existence since 1974. That year, construction teacher Birt Hansen convinced the school board to support his goal of building a single-family home with his Advanced Construction class. During the 1973-74 school year they built an accurate scale model to prove that the idea could work, and the next year they built the first Viking House.

Thirty-eight years later the program is still in existence, having completed 36 homes and two school facilities. Since then the program has been successful enough to become completely self-funded, enabling it to survive the 2008 economic crisis. Through the years the skilled students of the Viking House program have built a reputation for producing high-quality, mostly one-level homes, with an ever-increasing emphasis on energy efficiency and sustainability.

It was this reputation for excellence that led to an unprecedented opportunity, an invitation to build in the 2012 Street of Affordable Homes. This home show is presented as a more affordable alternative to the Street of Dreams. While still packed with many upgrades and great design ideas, the homes in the show are geared toward greater relative affordability. Having been a fan of the show since the '80s, I was personally very excited to design and build an entry. It was an opportunity to show a wider audience what motivated teens with strong work ethic and abilities were capable of.

We typically build one-level homes, due to both safety concerns and in response to our niche market of providing fine homes for empty-nesters. The 2012 design took advantage of its tapered lot, gaining as much square footage as possible for what would still be the smallest home in the show at 2,230 square feet. We started in August of 2011, needing much more time to build as the students learned while they worked. Most of the other builders would not start until January, and it was eye-opening to my crew to witness the speed and efficiency of the pros as the June home show approached.

Our role in building our homes is as carpenter, designer, and general contractor. This allows us to build a home in one school year while exposing the students to the numerous trades and professions associated with the building of a home. For most of the first semester we frame the structure, with the goal being to have a roof on by Thanksgiving. Then we turn our attention to the inside and the pick-up framing that includes soffits for our conditioned space heating system, dropped ceilings, archways, skylight wells, sheer walls, and numerous other framing tasks. The framing of this home included special 2x8 exterior walls with staggered 2x4 studs, which greatly reduced thermal bridging and allowed for R-30 insulation. These efficiency-oriented techniques paid off with a "Platinum" rating from Earth Advantage.

The second semester includes the setting of the windows and doors, installation of the siding, interior doors and trim work, hardwood floors and cabinet components. The class meets for three hours every other school day, and worked as a class for 234 hours on the jobsite. But another 369 individual hours were volunteered by students outside of the school day in order to complete our most ambitious project to date. And it paid off. The response from the community was overwhelmingly positive, and the house sold for its full asking price of $349,000 and swept all the awards in the show. By all measures, it was a successful year for the Viking House program.

Chris Higginbotham started in building at Aloha High in 1982, first with woodshop, then on two homebuilding crews in 1983 and 1984. He was hooked! After completing Portland Community College's BCT program, he landed a job with local homebuilder Ken Coe, eventually becoming his "do it all" superintendent and helping to complete more than 100 homes during his tenure there. Higginbotham said Coe taught him much of what he knows, but more importantly gave him the opportunity to learn it. Higginbotham later worked a short time for a luxury home builder before he received a call asking if he would be interested in becoming a shop teacher. He wasn't, but after considering it an interesting new twist on his career, he decided to give it a try for a year. This will be his 18th year at Forest Grove High School.

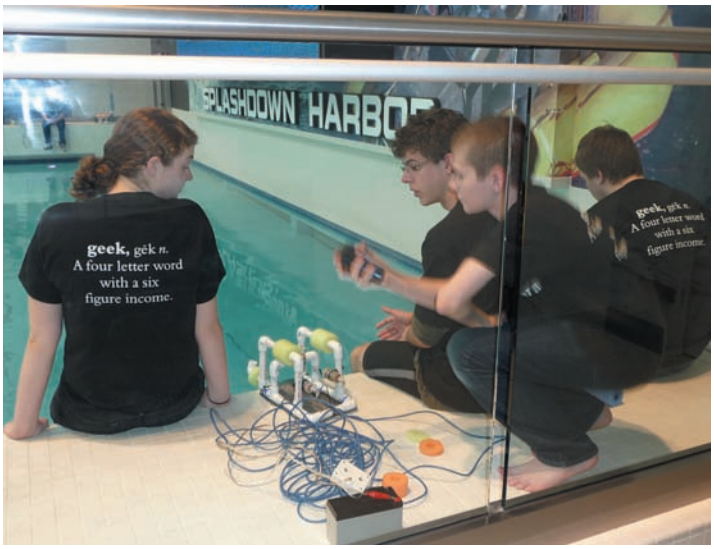
BY LYNN WILSON DEAN

Introducing PACTEC

Partnership gives students shot at high-wage, high-skill jobs

In with the NEW, out with the OLD … Portland Area Career Technical Education Consortium, formerly known with a "V" for vocational, is an 11 school district region that concentrates on providing students with the opportunity for high-wage, high-skills jobs through being career and college ready. Yes, career comes first at PACTEC. A small staff of enthusiastic go-getters work hard for their career technical education (CTE) and dual credit teachers and students. They are about making those transitions from high school to next steps happen for high school students.

Partnering with all the school districts in Washington County, Scappoose and St. Helens in East Columbia County, and Portland Public Schools in Multnomah County, PACTEC is housed at Portland Community College on the Rock Creek campus. PACTEC works with more



There are nearly 90 CTE programs ranging from houses being built at Portland Public, Forest Grove and Sherwood, to students working in hospitals, care facilities and clinics at Hillsboro, Beaverton and Portland Public. Hillsboro, Scappoose, St. Helens and Tigard-Tualatin have Early Childhood Education programs where students run quality daycare programs while learning and teaching preschoolers. Computer Science programs have students getting industry certifications, while one of the PACTEC automotive programs is NAFTA certified.

than 100 high school teachers. They have close to 90 Career Technical Education programs ranging from houses being built at Portland Public, Forest Grove and Sherwood, to students working in hospitals, care facilities and clinics at Hillsboro, Beaverton and Portland Public. Hillsboro, Scappoose, St. Helens and Tigard-Tualatin have Early Childhood Education programs where students run quality daycare programs while learning and teaching preschoolers. Computer Science programs have students getting industry certifications, while one of the PACTEC automotive programs is NAFTA certified. Other automotive programs have participated and won national competitions and their students work on cars as well as any mechanic service you pay for.

PACTEC is proud of its programs, which stand on the shoulders of its outstanding CTE teachers. Did you know that Forest Grove High School had the stellar house on the Affordable Street of Dreams this year? Did you know that Glencoe Manufacturing is researching, designing and building a utility vehicle that when finished will be donated to a third world country for use in a village? Did you know Scappoose Early Childhood Education students got so inspired when a preschool student who attended their preschool was diagnosed with Duchene's Muscular Dystrophy, they formed Team JoJo and the first year raised $8,000 and are still going strong? Did you know the automotive students at St. Helens High School heard that one of the automotive programs was in trouble in Hillsboro and restored a classic car and donated it to that program for auction to help them fundraise for an instructor?

This is what PACTEC works for – those teachers and students who not only learn but apply their learning. Beyond that, many of them learn those employable and compassionate skills that make their community a place we all want to live. CTE teachers also offer their students college credits. For the 2011-12 school year Portland Community College awarded 10,946 credits to high school CTE students, giving those students yet another leg up on their next steps after high school.

There are many more stories and projects that PACTEC's fantastic CTE teachers facilitate, mentor and inspire. If you are a business who would like to know more about PACTEC, you can contact Lynn Wilson Dean at Portland Community College Rock Creek Campus, (971) 722-7735.

Lynn Wilson Dean is the PACTEC/PCC Dual Credit Program Manager at Portland Community College Rock Creek Campus.

BY KAREN PHILLIPS

Skill-full Program

Sabin-Schellenberg prepares tomorrow's workforce

For over 40 years, the Sabin-Schellenberg Professional Technical Center has offered the students of North Clackamas School District the chance to explore elective career options. All 15 career and technical programs at the center meet state Department of Education requirements, ensuring that each program provides relevant, rigorous technical content aligned with Oregon Skill Sets developed by Oregon employers in high-demand, high-wage occupations. This careful crafting of career and technical content ensures that students make the connection between educational preparation and entry into a 21st century career.

Sabin-Schellenberg currently provides more than 3,400 9th-12th grade students training in 15 hands-on professional career programs on three campuses: North Campus, South Campus and Land Lab. Students are bussed from three North Clackamas high schools to the center for one- to two-hour career and technical courses throughout each day. Students attending Sabin-Schellenberg pursue "Excellence through Application" gaining industry-level skills as they practice real-world learning through activities that mirror those in the world of work.

Like many schools in Oregon, the North Clackamas School District's Sabin-Schellenberg Professional Technical Center participates in a number of career and technical student organizations such as FFA, DECA and SkillsUSA. But unlike many of those other schools, the Sabin-Schellenberg Center provides a very unique approach to education: it is the only high school professional-technical center in Oregon.

SkillsUSA is a national nonprofit organization that serves as the leadership component for many Sabin-Schellenberg programs. Participating in SkillsUSA is an afterschool activity in which many SSC students elect to hone their skills and participate in skills competitions in their chosen field of study. Contests begin locally and continue through state and national levels.

Of the 90 students registered from SSC, 61 earned first-, second- or third-place awards, including 24 first-place awards making students eligible for nationals. Two SSC students placed in the top 10 in their area in the nation!

Every April, Oregon high school students come together to participate in the annual State SkillsUSA Oregon Leadership Conference and Skills Championships. The 2012 competitive event was hosted at Sabin-Schellenberg Professional Technical Center for the second year in a row, enabling students to network with prospective employers and gain insight into the field of their choice. Students from schools throughout the state gathered for this two-day event, competing for the opportunity to represent their school at the national level. Nearly 100 Sabin-Schellenberg students participated in the competitions along with 520 students from 29 other secondary and four post-secondary schools around the state.

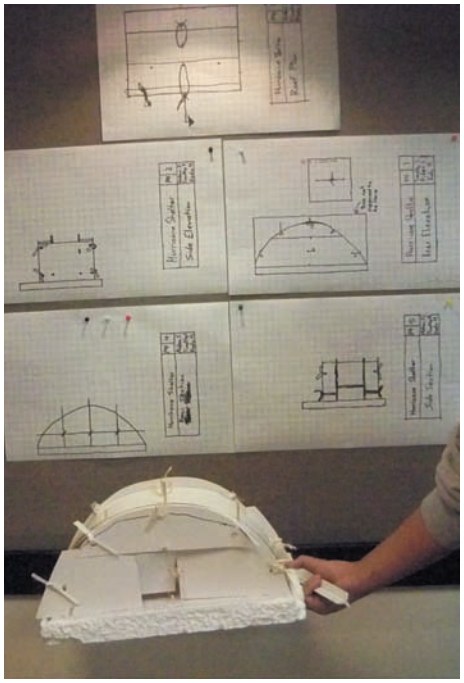
Fifty-seven competitions were available ranging from automotive repair, welding and carpentry to law enforcement, early childhood education, broadcasting and culinary arts. Students

Fifty-seven competitions were available ranging from automotive repair, welding and carpentry to law enforcement, early childhood education, broadcasting and culinary arts.

were required to bring a resume in order to compete and took a general knowledge test about SkillsUSA. The conference hosted dynamic competitions where students spent several hours showing off their specialized technical knowledge in front of industry experts and judges. Some students competed in multiple events. Of the 90 students registered from SSC, 61 earned first-, second- or third-place awards, including 24 first-place awards making students eligible for nationals. Two SSC students placed in the top 10 in their area in the nation!

Though an excellent training model, SkillsUSA is by no means the only professional exposure SSC students have. The Manufacturing and Engineering program, similar to all SSC programs, focuses on preparation for the workforce. Students study core curriculum requirements, such as machine shop practices and procedures as well as Solid Modeling. Solid Modeling involves using SolidWorks and MasterCam software to generate G&M code used to run automated machine shop tools.

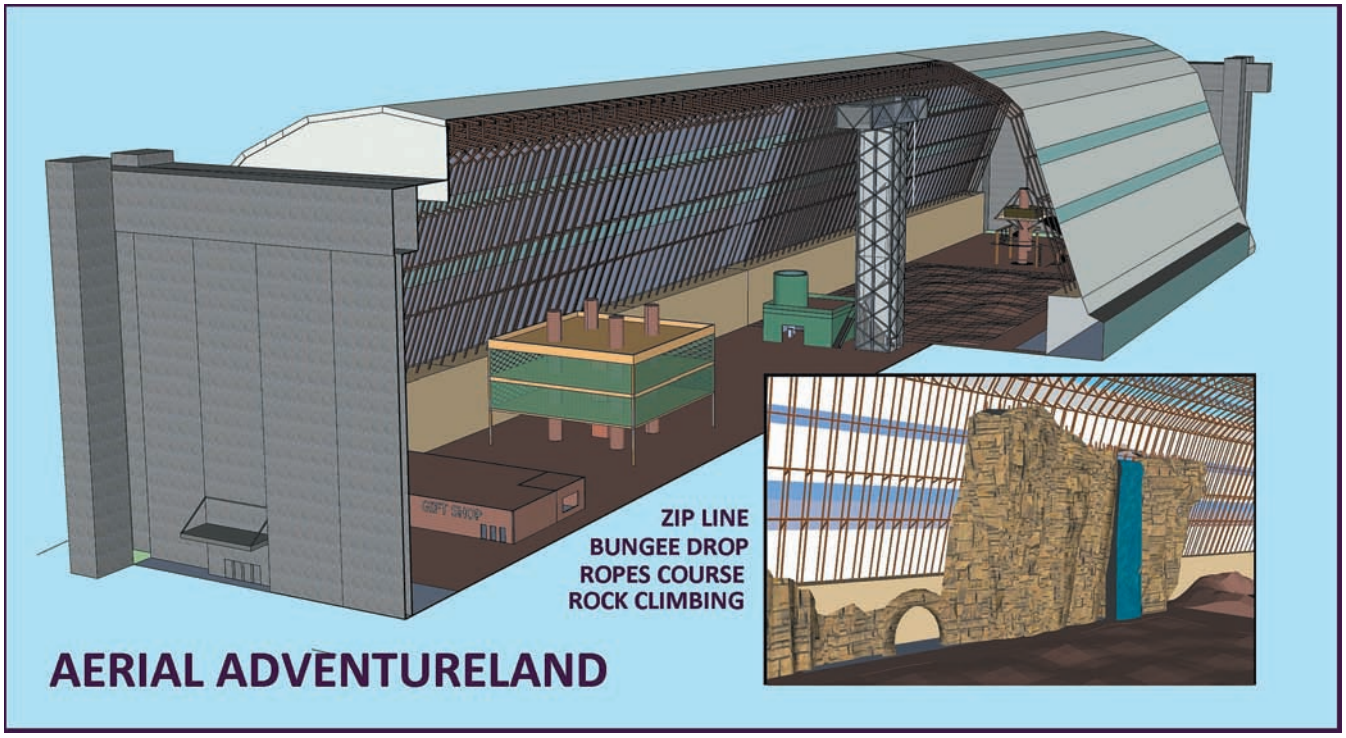
On the North Campus advanced-level students in the Manufacturing and Engineering program have spent the past two years perfecting their Solid Modeling techniques, and in the process drew the attention of some local manufacturing companies. Warn Industries and Precision Castparts have both offered students a chance to work on some real life industrial projects. The companies supply rough sketches and written instructions from engineers or lead foremen, along with the materials required for



Nearly 100 Sabin-Schellenberg students participated in the competitions along with 520 students from 29 other secondary and four post-secondary schools around the state.

the various projects. These are then turned over to students who decide on the proper processes for production. Students solid model the components prior to machining them or putting them into the automated machining system. In the end the students complete the parts, inspect them and deliver the finished products. This has proven to be a valuable process for our industrial partners, but even more so for our students as they learn how everyday curriculum can come alive and turn into real life projects, useful in life and industry.

On the South SSC campus Hurricane Karen, a simulated CAT4 storm with 140mph winds, took a turn into the Computer Aided Design classroom twice this year. Fortunately, students in the Spaces & Places classes had figured out enough about architecture and structural engineering to design and build shelters that, for the most part, withstood its forces. The plans students drew up will be tested for accuracy



Students attending Sabin-Schellenberg pursue "Excellence through Application" gaining industry-level skills as they practice real-world learning through activities that mirror those in the world of work.

when CAD2 students use them to construct more shelters, just in case Hurricane Karen decides to blow this way again.

CAD3 students survived their own hurricane in the form of a new software program called Revit, used by architects and engineers to create 3D Building Information Modeling models. This powerful and complicated program has a "steep learning curve," according to professionals who use it. CAD3 students showed such perseverance and excellent problem solving skills in completing their first project in Revit that they were then offered yet another challenge: How do you "re-use" a blimp hangar?

CAD3 students studied sustainability as it relates to buildings, by participating in Architecture for Humanity's Open Architecture Challenge last spring, an international design competition for architects, design professionals and students. Their challenge: Design a "reuse" for a WWII blimp hangar at the decommissioned military base in Tustin, Calif. This gigantic historical structure is identical to the one found in Tillamook, Ore.

Craig Davis, director of Portland-based GBD Architects, arranged a tour of the repurposed Gerding Theater in Portland, to demonstrate an example of a "re-use" design. The theater is within the structure of an Armory, and has LEED Platinum certification for its sustainable features. With the support of mentor architects at GBD and Dull Olson Weekes, students hoped to bring their creative ideas to life and show them to the world via their CAD drawings, 3D models and renderings. Can't you just imagine Aerial Adventureland where a zipline drops you from a height of 175 feet?

CAD1 students worked in teams as they identified problems and invented products to solve those problems. Industrial designers from Ziba, an international product-design firm based in Portland, met with each team to listen to their concepts, review their research and help them understand how to "meld art and science" in the definition of a product. Other team members designed trade show exhibits to showcase each specific product. The student teams spent time visiting Ziba in their downtown offices to observe professionals who were doing the same type of work the students were.

As one can see, local industries and the design community have been very supportive of the Sabin-Schellenberg programs. Together we help students explore their options, learn from industry experts, take on leadership roles, and find their niche. Sabin-Schellenberg Center is where students become tomorrow's workforce.

Karen Phillips is principal at Sabin-Schellenberg Professional Technical Center.

BY KYLE LAIER

Thoughts from CAIS's principal

This past school year, I experienced the gut-wrenching process of researching, recommending, planning and then executing an elementary school closure. I was devastated to know that I was closing what many could argue was one of the best elementary schools in the state. Many times during the process, I questioned whether I would ever be able to continue to have the passion I had for education. The global economic crisis and a local disdain for taxes had created a situation where an exceptional school could no longer keep its doors open.

During this time I was also named the new principal at Clackamas Academy of Industrial Sciences. The school was finishing up its second year and had yet to have a building it called its own. I was emotionally drained and like others, questioned whether a small district-sponsored charter school focused on manufacturing technologies had a future. In the months that have followed, it became apparent to me that this little school needs to last. Our state needs this school to play a positive role in Oregon's economic turnaround and it has the potential to become a model for schools in the future.

Clackamas Academy of Industrial Sciences (CAIS) in Oregon City is an innovative charter high school dedicated to providing students with a contextual learning experience focused on manufacturing technologies. To enhance my knowledge of manufacturing, I quickly began to meet with business leaders who were behind the creation and early formation of the school. I also knew with growing enrollment and the need for our businesses to fill positions, I was going to have to get new businesses on board. In meeting with these leaders in Oregon's manufacturing sector, I learned several important things that every Oregonian should know. Manufacturing is no longer a "dumb and dirty" job. The current manufacturing industry is far removed from needing workers to create and recreate the same item over and over again. They need a highly skilled and diversified workforce that can create the unique demands of custom orders and products that solve problems for their customers. I also learned that many of these companies have equipment in their plants that go unused at times, but could be used around the clock to meet the current demand. The missing link is a skilled workforce. I realized quickly that our current education system is not preparing our students for these highly skilled and compensated jobs in manufacturing. During a time when political talk of job creation is common, I was having discussions with businesses more worried about filling the jobs they already have. I realized that this school could play an integral role in supporting manufacturing growth in Oregon, but more importantly it could put many of my current students into highly rewarding careers.

This past month, our school began its third academic year on a new campus with our first senior class. The energy in the building is contagious and our students are working hard to meet the mission of our school and their own personal goals. We have a talented and diverse staff dedicated to creating an innovative school that provides students with a contextual learning experience focused on manufacturing technologies. We offer a rigorous and relevant curriculum. This includes the Project Lead the Way pre-engineering curriculum and relevant coursework at Clackamas Community College. Both offer students the opportunity to earn college credit while also earning credit toward their high school diploma. Most students will leave our school with a high school diploma and one-year certificate or associates degree. Most importantly, they will leave ready to successfully join the workforce or go straight into college.

Seniors visited GK Machine. Many were interested because of their desire to go into welding. Many others connected with their engineers.

Our students look forward to gaining invaluable experience and forging important relationships at internships during their junior and/or senior year. Students are encouraged to show career readiness and professional responsibility early, as underclassmen working toward earning an internship opportunity. Many local companies have participated in supporting CAIS students by providing internships. These companies include Pioneer Pump, Miles Fiberglass Composites, Benchmade and Precision Castparts. We continue to build strong relationships with local companies to provide internships and field trip opportunities. Most importantly, the staff is eager to learn from them in order to better prepare our students for a future in manufacturing technologies.

If you know of a student who would be interested in attending our school, please contact us immediately. We will schedule a time with them to see whether CAIS is a good fit. We are also always looking for increased support from businesses. Businesses can support our school through participating and serving on our board, providing field trips and internship opportunities or supporting us through equipment donations or financial support. Our school is a great opportunity for educators and businesses to work together to improve our school system, economy and state.

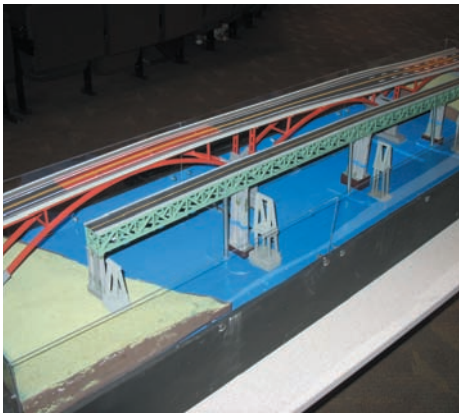
Kyle Laier is principal at Clackamas Academy of Industrial Sciences. For more information on CAIS, write Kyle.laier@orecity.k12.or.us.

BY ACE ACADEMY

Capstone experiences leave lasting impressions

ACE Academy has been making many strides with our Senior Capstone experiences. Since I started at ACE, a dream of mine has been that every senior capstone experience should lead to a productive path for the student's post secondary life. Graduates of 2012 gave us a hint into the possibilities of such an undertaking.

The small steps taken so far in elevating the capstone quality have opened up a connection to industry which is yielding great rewards for our students. These rewards will not only benefit students after they leave ACE Academy, but is also leaving lasting impressions on our industry supporters as they reach out to the next generation of students through summer internships. These opportunities will expose our students further into the industry in their areas of interest, setting up an even more fulfilling capstone experience once they become seniors.



ACE students presented their Sellwood Bridge model to Multnomah County Commissioners. They then went on to present that model to the team engineers who are building the bridge.

For the architecture pathway, a new piece of equipment, acquired through the support of the NECA-IBEW and the Associated General Contractor Columbia Chapter Foundation, is our new laser cutter. Using this addition to our arsenal, students have been able to produce models of projects which include great detail. Some of the projects that have been developed are being placed in museums and going on tours.

Engineering has taken steps to take charge in robotics, advancing its territory into this arena. The eChamp grant, received through the Oregon University System, has given ACE the opportunity to not only continue having robotics be a part of the current curriculum, but has allowed us to add a more advanced piece into an after school team. The robotics interest began with students exploring the opportunity through their capstone project.

Through the construction pathway, students are delving more deeply into the trades. Drywall and electrical has become a larger part of the curriculum and has provided a stronger

Far left: ACE students tackle heights as they assemble a prefabricated one-car garage designed and constructed at ACE Academy. Left: ACE Academy students dominate as a rookie team at First Robotics Championships.

connection to the Pacific NW Carpenters Institute, Labors, and NECA-IBEW Electrical Training Center. Student Capstone interest in the area of construction is following suit, and the training coordinators have begun to encourage students to take on projects that will prepare them for their area of interest, which in turn is giving them an advantage over other applicants for apprenticeship openings and opportunities in the field of construction.

This year will be a groundbreaking year for construction. We plan to have a construction crew operating for the first time, during the summer. The vision of a construction crew will be completed through arrangements of paid jobs provided through the school districts, city, state, and parks. Our goal is to solve the sustainability issues connected with many summer programs, by making it self-sufficient, while strengthening the program through the students' work ethic and their prior knowledge acquired when coming to ACE Academy as a junior. Construction Crew will be open to sophomores and include ACE seniors acting as crew managers to simulate the work environment. Each job will be unique and require specific training. Each crew will be assigned a job and receive training from professionals in the field before the start of each project. This will be an exciting opportunity for all the students involved.

For more information on ACE Academy, go to www.acecharterschool.org.