

Building Better with BIM

Intel RA4, Hillsboro, Oregon

RA4 is an innovative base build, design/build process utility building located on Intel's six-campus complex, its largest and most comprehensive semiconductor research and manufacturing site in the world. Harder Mechanical Contractors assembled an outstanding building information modeling (BIM) team to design and coordinate all of the process and wet mechanical piping for this tightly scheduled project. The new seven-story building includes five floors of offices, and two floors of manufacturing with a process utility building (PUB) and an acid waste pit. It is HMC's first large design/build project in the high-tech industry.

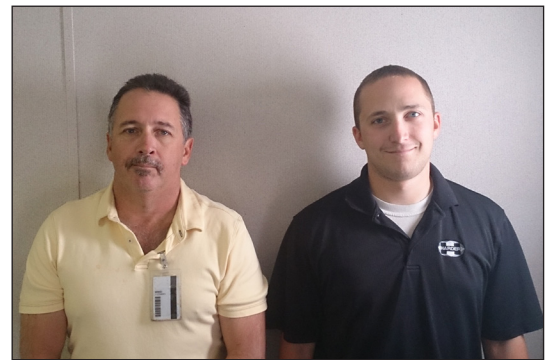
“The door to more design/build and large scale BIM projects has been pushed open even more.”

The BIM detailing team consisted of CAD detailers from HMC offices in Oregon, Arizona and Texas, plus several subcontractors from across the country. The Harder BIM team used CADWorx 3D modeling and Navisworks 3D viewer and clash software to model all of the process piping, wet mechanical piping and equipment installations throughout the building design. Curtis Hawley, Hillsboro BIM manager, coordinated the detailing teams, with general contractor Howard S. Wright and the other trades. “RA4 was a fantastic learning experience for the BIM team,” said Hawley. “Lessons learned from this project are playing a huge role in future standards and procedures development. The door to more design/build and large scale BIM projects has been pushed open even more.”

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The Hillsboro, Oregon CAD BIM detailing team, left to right: Russ Freier, Bill Abel, Curtis Hawley, Bob Lewis, Neil Severn



CAD BIM detailers from Chandler, Arizona office, left to right: Wes Goodwin and Daniel Kreycik

IN THE NEWS, TOP OF “THE LIST”

Harder Mechanical Contractors came out on top of “The List” of Mechanical Contractors published in the Phoenix Business Journal on February 28, 2014. To produce the list, mechanical contractors in Phoenix, Arizona provided data through a survey and then were ranked by 2013 local gross sales. HMC, at \$127 million, was number one on the list of 25 companies. The weekly business newspaper publishes a different list in each issue then compiles them in an annual reference book. “We are thrilled by this recognition of our leadership in the Phoenix area,” said Rob Fleskes, vice president. “It’s a distinction we’ve earned through hard work and a commitment to quality and safety for our clients.”

PROJECT HIGHLIGHTS

Partners in Performance and Profits

Intel, Chandler, Arizona

Harder Mechanical Contractors has established a strong working relationship with Intel at its Ocotillo campus in Chandler for several years. The 1272 IPD Tool Install currently underway introduces a new method of grouping subcontractors to achieve better results for everyone involved. Using an Integrated Form of Agreement (IFOA), the project has been divided into six teams of contractors each signing a joint contract and sharing the profit pool. The goals of the project are to:

1. Cut construction costs by 30 percent.
2. Perform at the same quality and safety levels as previous projects.
3. Enable Intel's 1272 ramp.
4. Increase profits for contractor partners as Intel saves money.

For the joint contract, HMC is teamed up with Harris & Hart and Rosendin Electric to perform the dry etch, planar and global scope, which involves installing around 85 tools. The team is working to-

gether efficiently to trim costs. Using 100 percent 3D modeling and the Last Planner System to coordinate work activities in the field, we have developed several new strategies and tactics for eliminating waste and saving money.

At its peak, the project will have about 200 HMC employees on site, including pipefitters and carpenters. Team leadership includes Benny Chairez, site superintendent; Shannon Jessee and Colt Huso, project superintendents; Chris Masure, project manager; Steve Elser, BIM manager; and George Craig, site safety manager.

"While adjusting to the IFOA contract has been a learning experience, we are very closely integrated with our partner subs," said Brett Hamilton, site manager. "Since our profit is all combined there is a real incentive to make joint decisions and coordinate closely. Intel has been actively involved in the process, which has been instrumental in the success of the IFOA transition and the project overall."

Port Westward

Port Westward Unit 2, Clatskanie, Oregon

Harder Mechanical Contractors and Black & Veatch have formed a 50/50 joint venture partnership, named Columbia River Power Constructors, to install 12 natural gas engines at the Port Westward Unit 2 plant. Owned and operated by Portland General Electric (PGE), the new 220-megawatt natural gas plant is the first of its kind in the U.S. and will be a highly efficient and environmentally responsible facility. It has been designed for maximum flexibility in order to help meet real-time fluctuations in customer demand and to integrate variable renewable resources.

As a 50 percent partner in Columbia River Power Constructors, HMC is the general contractor for the project, along with carrying out the piping and mechanical work. The oversight role includes managing the EPA agreement assigned by PGE, as well as coordinating approximately 25 subcontractors, including electrical installation, concrete, insulation, paint, tank and cooling tower erection, substation installation, PEMB erection and more.

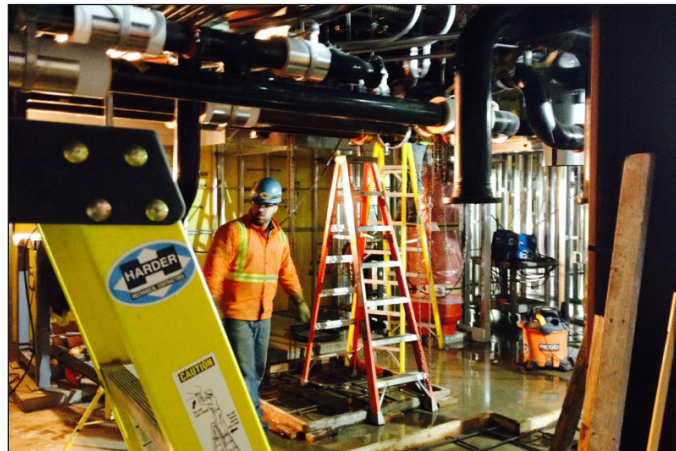
As the first in the U.S. to install Wärtsilä 18V50SG reciprocating engines, Unit 2 will be the country's most efficient and second largest simple cycle natural gas power plant. It will be able to ramp up to full load in less than 10 minutes, compared to about four hours for a traditional gas plant. Unit 2's flexibility will help meet real-time fluctuations in customer demand, integrate additional renewable resources into the system and help maintain system reliability during periods of high demand.

The joint venture team, peaking at approximately 400 employees (200 from HMC) will be installing all associated BOP services and facilities, including 3,000 stone columns under the foundations, 9,000 cubic yards of concrete, 60,000 square feet of PEMB to house engines, 40,000 linear feet of process piping and 500,000 linear feet of cable. The team is on track to complete construction in August and commissioning by the end of the year. HMC managers leading the joint venture staff include: Rodney Rhone, site manager; Jim Prue, site superintendent; and Manny Sandoval, safety manager. They are joined by BV's Steve Fawcett, site engineering manager. Jeff Swartz was the project's lead estimator.



With 12 new natural gas engines (top) at Port Westward in Clatskanie, Oregon (bottom), Unit 2 will be the most efficient simple cycle plant in the U.S.

PROJECT HIGHLIGHTS



The HMC crew at work installing all plumbing, hydronic and steam piping in OSU's new Student Experience Center.

OSU Student Experience Center

Oregon State University, Corvallis, Oregon

The Beavers are adding to their lodge in the form of a new Student Experience Center. Located adjacent to the existing Memorial Union, which was built in the 1930s to serve 3,500 students, the new SEC will better serve the University's current student body of nearly 28,000. Funded with student fees, the building will house offices and meeting rooms for nearly 30 student programs, broadcasting facilities, plus trade and display spaces. It also features a covered plaza that connects the new building with the MU.

OSU has set high design and construction standards for the five-story, 90,000 square foot building. As the prime mechanical contractor for Andersen Construction, HMC is responsible for procuring and installing all plumbing, hydronic and steam piping systems, totaling nearly 36,000 linear feet. HMC has subcontracted General Sheetmetal for the ductwork. Starting in December 2013, the project has employed 10 to 15 pipefitters and plumbers. Despite limited laydown and access, combined with high public visibility, general foremen Cayce Cordle and Steven Hill, supported by foremen Kelly Kisor, Chad Kordon and Travis Brockaway, have kept the project on track for an expected December 2014 completion. Keith Ebmeyer, commercial division manager, also an OSU alumni and fan, has jumped in to assist as project focal point, making sure that everything runs smoothly.

View live SEC construction via webcam at:
<http://webcam.oregonstate.edu/sec/>

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Design that Fits

BIM incorporates all the advantages of CAD design with advanced planning, purchasing and scheduling tools to increase project accuracy, efficiency and profitability. Despite the tight schedule, the HMC team has effectively resolved design and engineering modifications and other scope changes, while concurrently building and installing pipe. "With BIM's enhanced visualization and coordination, our cohesive team improved constructability and efficiency in the field," said Valerie Farlow, BIM manager and VDC director. "Our team has displayed hard work, dedication and professionalism." The team is on schedule to complete the basebuild in November 2014.

The entire team has been essential to the project's success. Craig Carter, HMC project manager for design engineering coordination, and Craig Marquez, HMC project manager for construction coordination, made sure everyone had what they needed, from design approvals to field schedules. In addition to the superior contributions of the entire engineering team, Josh Hale and Betsy McColm, project engineers, coordinated piping system fabrication and installation closely with the BIM detailing and field construction teams. Bob Harvey has been on site from the start coordinating routing, design and construction with the engineering firm, and is currently finalizing coil piping installation. In addition to their oversight roles among multiple BIM resource teams, Valerie Farlow was the overall BIM manager, and Curtis Hawley managed BIM coordination, clash detection and conflict resolution. A big thanks goes out to the entire BIM detailing team, including the lead detailers: Bob Lewis, Hillsboro, Oregon; Wes Goodwin, Chandler, Arizona; and Harvey Holmes, Texas.

SAFETY SPOTLIGHT

Splash Your Summer with Water Safety

Being active on, in or near the water can be the most fun you have all summer. Here are a few reminders about how to keep it safe too:

- **Know what to expect from the water.** Test the temperature and be prepared for it. Wear a wetsuit to prevent hypothermia. Know if there are strong currents or rip tides. How deep is it? Are there hidden hazards like rocks, stumps or coral?
- **Know how to swim, and wear a life jacket.** Even strong swimmers can get knocked out of a boat or off skis. Personal flotation devices (PFDs), also known as life jackets, may not look too fashionable, but they keep people alive. According to the American Canoe Association, almost 70 percent of drownings related to rafts, canoes and kayaks could be prevented by wearing a PFD.
- **Keep your boater card and boat registration current.** All operators of powerboats or personal watercraft need to be certified. Driving while intoxicated and PFD laws apply as well. Learn all about the requirements from the Oregon State Marine Board.
- **Have a plan and share it.** Know where you're going and how long it should take. Don't go alone. Label your gear with contact information.
- **Wear sunscreen, sunglasses and a hat.** Simply put, you don't want skin cancer. Prevent it with clothing and regularly applied sunscreen. Protect your vision and the tender skin around your eyes with sunglasses.
- **Stay hydrated.** Even when you're in the water, you need to drink it too. Like any other activity, water sports deplete your cells—and they don't mix with alcohol.
- **Be aware.** Soak in the sights and sounds. Keep an eye out for other swimmers, boarders, boaters and sea life. Enjoy.



RETIREE PROFILE

Never a Dull Moment for Dan Kaiser

Playing guitar and video games. Scuba diving. Volunteering for Free Geek and Habitat for Humanity. There's nothing sedentary about life for Dan Kaiser of Portland, Oregon. Since retiring in 2011, he's been on the move at home and traveling with his wife Lori. He's also happily spending more time with his children Nicholas and Amy, and grandchildren Matthew, Isabel, Justice, Quinn and Alexis. He does miss the camaraderie at HMC, where he started in November 1987 as a journeyman. Dan's career included promotions to foreman, general foreman and project superintendent. "Retirement is very rewarding in a new way," he says. "My goals are to grow and learn new things, while giving back to the community around me."

Favorite restaurant: A small fish house in the French Quarter, New Orleans, and El Tapatio, the local go-to spot.

Favorite TV show: Breaking Bad.

Guiding principle: Understand your task, then do your best.

Favorite teams: The 70s Pittsburgh Steelers. The New York Yankees.

Greatest passion: Seeing my grandchildren succeed in their goals.

Pet peeve: Unkind people.

Favorite books: "The Century Trilogy" by Ken Follett, the Jack Reacher series by Lee Child.

Last movie seen: 12 Years a Slave.

Favorite quote: "Trust your gut; it's usually right."

Goal yet to achieve: Play in a band.



Dan Kaiser says "Ciao" to everyone from Venice, Italy in late summer 2012.

CURRENT SAFETY COMMITTEE

Jerry Evens, Rob Fleskes, Dustin Harder, Kevin Lucas, Jennifer Massey, Mark McNally, Don Sanders

If you have safety questions or concerns, please contact the committee at: safetyfirst@hardermech.com