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Key members of the project development team for Open Works' makerspace facility in Baltimore.

Photo credit: Karl Connolly Photography

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# CONNECT. CREATE. LEARN. REPEAT.

### Baltimore's state-of-the-art "makerspace" is making a difference

### **Open Works**

by Erica Bender

onnect. Create. Learn. These three words are the driving force behind Open Works, a new state-of-the-art makerspace facility located in Baltimore. This shared innovation and production center operates under the belief that "everyone is a maker." Its purpose is to equip individuals and businesses with the tools, technology and training to create a better world.

In a nutshell, makerspaces are places where people gather to share resources and knowledge, and to work on products and projects in a do-it-yourself setting. The purpose of these shared innovation centers—sometimes also called hackerspaces and fab labs—is to spark creativity and to cultivate connections between individuals.

Open Works, which opened in September 2016, is one of the 10 largest independent makerspaces in the United States. The two-story, 34,000-square-foot warehouse is located in one of Baltimore's original manufacturing districts. It was designed to provide makers, artists and artisans with affordable access to high-tech production facilities, tools and work studios.

# PROPERTY INVESTMENT CHAMPIONS SOCIAL MISSION

The Open Works campus offers access to multi-use facilities, including individual project workspaces and classrooms, and state-of-the-art equipment to support metal and woodworking, painting, textile work, digital



The Coastal Exterior Services Inc. crew applies stucco to repair the facility's east-facing façade.

modeling and fabrication, and more. Day passes are \$25 and monthly memberships range from \$70 to \$125. The venue also hosts educational classes, special events and social gatherings, and serves as a networking hub to increase employment opportunities.

"We believe Open Works is an important incubation facility to grow small companies and allow entrepreneurs to prototype new products. We have a unique opportunity to bring diverse entrepreneurs together to combine design thinking and technology in new ways," says Amy Bonitz, President and CEO of the Baltimore Arts Realty Corporation (BARCO).

BARCO, an independent nonprofit real estate development entity created by The Robert W. Deutsch Foundation, purchased the property in 2013. The foundation invests in people, projects and ideas that promote arts and culture, economic and community development, and social justice for citizens throughout Baltimore and the Mid-Atlantic region.

BARCO'S primary goal is to create safe, affordable, and accessible spaces for Baltimore's citizens. "Creative people

are change agents and unique problem solvers. If we can build dynamic places that bring creative people together, then we can strengthen Baltimore's human, social and economic capital in new ways," says Bonitz.

The shared makerspace will support BARCO's efforts to attract, retain and educate skilled workers. Also, tax breaks are available to those who utilize the space for business purposes.

The facility is positioned at the southeast corner of the Station North Arts and Entertainment District, Maryland's first designated arts district, which is full of artist live-work spaces, galleries, row houses and businesses. According to Bonitz, the area surrounding Open Works has high unemployment rates, partly due to decades of disinvestment.

# FLEXIBLE FACTORIES TRANSFORM DREAMS INTO REALITY

Three years ago, architect and furniture craftsman Will Holman was hired by The Robert W. Deutsch Foundation to determine the best practices for 21st century makerspaces. Now, he serves as the General Manager of Open Works.

"I've always been a maker and a tinkerer. I hadn't thought about makerspaces a whole lot until I got this job, and then I was plunged into researching it full-time," shares Holman. "This kind of flexible factory allows you to make up just about anything you can dream up."

Holman emphasizes that makerspaces are collaborative environments that fuel not just inventiveness and creative thinking, but also generate networking prospects.

"There is this powerful cultural myth of the 'lone genius inventor,' like Steve Jobs or Thomas Edison. But these folks didn't get anywhere without a team of smart people around them," states Holman. "Physical makerspaces aggregate a lot of really smart people under one roof. When you have all of these people just brewing together, it makes everyone more likely to succeed."

There are over 300 confirmed active makerspaces in the country and eight are right in Baltimore, including The Foundery, Station North Tool Library, Baltimore Hackerspace, and Fab Lab Baltimore. Holman predicts that these structures are primed to become a typical building type within a couple of decades.



### A POWERFUL PROJECT BUILT BY DEDICATED PEOPLE

The \$11.5 million Open Works renovation project began in September 2015. The design and construction team consisted of architecture firm Cho Benn Holback + Associates (Cho Benn Holback), and Southway Builders Inc., a construction management firm.

"From the very beginning, both firms were an integral part of our project planning and execution," says Bonitz. "They helped us think through every detail of how each studio within the building should work and helped us develop cost-effective, attractive design solutions for the challenges of adapting an older building for 21st century use."

Project Architect Ethan Marchant, AIA, LEED AP BD+C, has worked at several architecture firms during his career. When asked why he chose to work at Cho Benn Holback, Marchant's answer is simple: "I very quickly developed an affinity for adaptive reuse projects, taking older industrial buildings and redesigning them into contemporary spaces. That's something that Cho Benn Holback has a really good handle on."

Marchant, a father of four who enjoys outdoor activities and participating in community functions, believes that any building that brings in people, activities and events is going to have a positive impact on its surroundings.

"Open Works is located in a part of the city that has the power to create a bridge between a variety of demographics. It's going to change the way that individual artists and makers and thinkers collaborate," Marchant says. Though this was Marchant's first makerspace undertaking, he has previously worked on several higher education projects that had similar components, such as wood shops, metal shops and robotics labs.

John Diehl, Vice President of Southway Builders, is also relatively new to the makerspace scene.

"I'm not sure I understood the words 'maker' or 'makerspace' before Open Works. Makerspaces are bringing back manufacturing, creating job opportunities, and giving small businesses a place to get their feet off the ground," shares Diehl.

A Baltimore native and father to twin teenage girls, Diehl finds beauty in Baltimore's small-town collection of neighborhoods and communities. "I think people who love

Baltimore love it not in spite of—but because of—its eccentricities and quirks," he says.

The veteran builder joined Southway Builders in 2001 and says that it was the best professional decision he ever made. "I started my career with a huge, national contractor. I made a conscious decision to go to a smaller company. I found that I really like the close relationships and the connections in a smaller company culture," Diehl says.

## ADAPTING AN OLD BUILDING FOR A NEW PURPOSE

Built in the 1920s, renovation considerations for the transit-oriented building included its close proximity to an Amtrak train line, which runs within 15 feet of the facility at its closest point. Diehl had never before worked on a project situated so close to a train right-of-way.

"We had to do exterior wall renovation and site work, and lots of trains go past this building each day. Some of the guys working on the building had to be trained by Amtrak to work safely next to the train corridor," says Diehl.

The project team also had to contend with multiple, complicated mechanical, electrical and plumbing infrastructure systems dedicated to a variety of uses. Robust fire separation measures were implemented between the various types of work spaces, including installing concrete walls versus typical drywall panels and also enclosing the central staircase with shatter-resistant glass.

One design hurdle involved leveling the building's upper floor, which sloped from front to back about three feet. The solution involved developing a system of ramps and terraces to create level studio spaces.

Sustainable design measures included insulating the building envelope (walls, roof and insulated glazing), and providing high-efficiency HVAC equipment and LED lighting. Designers also opened up new windows and added a skylight at the central stair to allow natural light to



An artistic rendering of the Open Works' campus. The facility is positioned at the southeast corner of the Station North Arts and Entertainment District, Maryland's first designated arts district, which is full of artist live-work spaces, galleries, row houses and businesses.

permeate throughout both levels of the building.

"From the social aspect of design, we tried to make activity areas highly visible," Marchant explains. "We created views in and through the spaces. Really, nothing is happening behind closed doors. It's all art and making on display."

To play off of the concept of raw design and creation—and to maintain the building's industrial heritage—the architecture team left interior components out in the open.

"There are open ceilings and exposed spiral ductwork. We kept all of the floors raw and used reclaimed floorboards from salvaged Baltimore row homes for accent walls and wood flooring," says Marchant. Pewter grays and bright oranges accent the facility's predominantly white color scheme.

Diehl adds, "What I like about the repurposing of this building is that the design doesn't cover everything up. When you stand on the floor and look up in the air, you see everything because it has an open concept layout. There are very few ceilings, which is a really neat thing."

The site, which is triangular, has a flexible parking lot that can



Key project team members from BARCO, Open Works, Cho Benn Holback + Associates and Southway Builders Inc. meet to discuss the Open Works' project.

transform into an outdoor event space, complete with a large deck and adjacent stairs designed to be a hangout spot, seating area or even a stage.

### OPEN WORKS: OUT-FITTED TO UNLOCK OPPORTUNITIES

The first floor of Open Works contains large shop areas for woodworking and metalwork and a digital fabrication lab specially outfitted for computer-numeric control (CNC) production. A large bay door allows

for convenient street-level access to move products and supplies.

The second floor holds additional workshops, classrooms, a combined lobby and retail area, a library, and a café. Examples of facilities and tools provided on this level include:

- A 16-station computer lab
- A cut-and-sew studio for textile work
- A digital media space containing six Mac computers
- A microelectronics shop equipped with eight soldering workstations and two desoldering pumps
- · A 3D imaging and printing facility

The building also houses 142 individual micro-studios that provide flexible workspaces for designing, assembling and finishing projects and products. The café, along with multi-use outdoor spaces, are open to the general public.

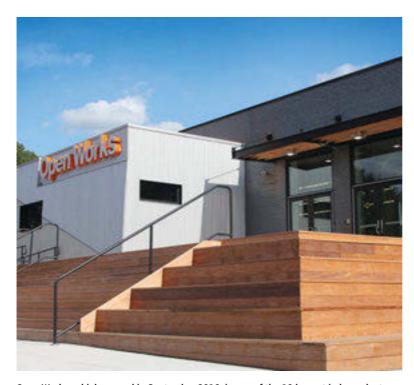
Open Works' crew of full-time managerial staff members, along with

"Physical makerspaces aggregate a lot of really smart people under one roof. When you have all of these people just brewing together, it makes everyone more likely to succeed."

-Will Holman, General Manager, Open Works



Workers from Capstone Contracting Co., a subcontractor on the Open Works' project, cutting corrugated metal panels.



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internal and external contract educators, will support the successes of makers by catering to their varying levels of experience and expertise.

"Baltimore is poised to become a real nationwide leader in this kind of fabrication space," says Holman. "In the past, makerspaces have typically been pitched as start-up incubators. I think there are many other applications for makerspaces, particularly centered on education and incubating businesses with people from nontraditional backgrounds, or those who haven't gone to college, or entrepreneurs who have a skill to share."

Bonitz concurs with Holman and points out a crucial need to boost Baltimore's workforce. "Through partnerships with K-12 schools, higher education institutions and workforce development organizations, we will be developing a pipeline of talent for companies. We hope to help Baltimore retain the more than 900 people a year who graduate from area institutions with degrees in art and engineering."

BARCO's long-term plan is to create a network of art hubs, innovation centers, performance venues and creative co-working spaces throughout Baltimore, adds Bonitz. "Our goal is to make Open Works accessible to all and to create pathways for skill development, employment and a love of making for residents in surrounding communities."

Author Bio: Erica Bender, a Texas-based freelance writer and communications consultant, has worked with clients in the AEC industry for 13 years.