May 8, 2014

President Barack Obama
The White House
1600 Pennsylvania Avenue NW
Washington, DC 20500

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Ten months after Joey Hudy’s air cannon sent a marshmallow soaring through the State Dining Room, Case Western Reserve University opened a space that embodies the Arizona teen’s Maker spirit: Think[box] 1.0, a 4,500 square-foot realm where students have created everything from fuel-cell powered bicycles to wireless water meters, test planes and even a laser-etched marriage proposal.

Open to the public as well, Think[box] 1.0 includes 3D printers and printed circuit board routers, laser cutters and a 32-square foot ShopBot – a computer-controlled device that cuts, drills, carves and more. Launched in part as a proof-of-concept for a much larger effort to encourage hands-on invention and business incubation, it has so wildly exceeded expectations that construction starts this fall on the first phase of the full project: a 50,000 square-foot, seven-story building brimming with ideas and inspiration, initial prototypes and final products, budding entrepreneurs and seasoned executives eager to advise them.

This is an architects’ rendering of the exterior:
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We are, after all, the university whose graduates include the inventor of the Nike Air Sole and the intermittent windshield wiper, the designer of Gmail and the Nobel Prize-winning creator of the “bubble chamber” – a development essential for a series of subsequent discoveries in subatomic physics. Little wonder, then, that one of the leading advocates for this venture is alumnus and self-proclaimed lifelong tinkerer Larry Sears, founder of Hexagram, a Northeast Ohio company that developed wireless meter-reading systems for utility companies.

Larry attributed his own success to experiences assisting faculty with real-world projects as a student. Once he sold the venture, Larry and his wife, Sally (also a graduate) decided to invest in the students who had followed them. They began with a $5.9 million commitment to create an undergraduate design lab for electrical engineering students; inspired by its popularity, they seeded Think[box] as a second space to engage students. Larry and Sally committed $5 million to help launch the fundraising effort, followed by friend and alumnus Barry Romich ($1 million). Another alumnus, J.B. Richey – creator of the first full-body CAT scan – and his close friend and colleague, Mal Mixon - Chairman of greater Cleveland home medical product company - added a $5 million commitment.

“We want to be a part of helping the next generation of young people with vision take some risks and generate some companies,” Mixon said, “and a new birth for Cleveland.”

Even in its initial incarnation, Think[box] already has helped stir a start-up spirit on campus. There’s EcoSpinners, a company founded by a junior chemical engineering major developing an emission-free electrical bike. Along with them is Sprav Water, maker of a device that attaches to showers to allow users to track water and energy use; led by two senior engineering majors, the company took top honors in this year’s Ohio Clean Energy Challenge – and a $10,000 prize. And, finally, Carbon Origins, designers of reusable rockets that carry science and engineering payloads to the upper atmosphere for research, whose ultimate goal is “to make space commonplace.” The firm is one of just 16 start-up companies selected to appear at next week’s Bay Area Maker Faire.

Just as important as the future firms that may emerge from the ingenuity expressed within Think[box] are the lessons taught by the pure process of iteration and experimentation. It’s one thing to imagine an idea or even plot its form on a computer – quite another to build its yourself, test, tweak designs and then try again. With all of the tools at hand, students no longer need to wait weeks while outside vendors turn drawings into models and then ships to back; here the only limiting factor in rapid cycling is how quickly students can apply their modifications. In the first year of Think[box] one of our seniors used the printed circuit board router to create his capstone project. He took the device with him to employer interviews on the West Coast - and came back with a job at Apple.

These days Think[box] logs 3,000 visits a month. About 20 percent of those visits come from the public. As we prepare for the opening of Phase 1 in 2015, we’re also exploring opportunities to create programs for area middle and high school students. At the same time, we are looking at ways to revamp our introductory offerings for
students interested in STEM majors so that they experience the excitement of their own innovations early in their education—rather than enduring only foundation courses first. As faculty director Malcom Cooke explains: “Think[box] is more than a space. It’s a culture.”

And when a culture takes hold in a place, it touches more than academic life. It infuses how we think, what we imagine, and yes, even how we express undying love. Such was the case for a dental student Kyle Krause, who engaged Think[box] to help him prepare the perfect proposal. He wanted his words etched in a log that his dog, Maci, would present to his hoped-for bride-to-be. He created an image, imported it with the help of Think[box] staff and—voila:

Sure enough, she said yes:

These are just some of the stories that have emerged from the makers on our campus and in our community. Case Western Reserve would be honored to tell more of them at your Maker Faire next month. We know firsthand how strong the thirst for these opportunities is: , as Think[box] Operations Manager Ian Charnas shares a full third of the engineering students who enrolled last year told us they chose our university over other top programs because we had a place where they could make things, not just draw them on the screen but actually make them.”

We have seen what is possible in a small space populated by state-of-the-art tools and technology, passionate teachers and inspired students. As we expand our size we also will grow our ambitions. The Maker Movement is snowballing across our country, and our campus is proud to be part of it.

We commend your emphasis on this essential part of education and the economy, and welcome any opportunity to share more about our efforts. Please let me know if I can provide any additional information as you prepare for next month’s event.

Sincerely,

Barbara R. Snyder
President