

## Architects of RIT's Global Cybersecurity Institute embrace intrigue



**RIT's new 51,000-square-foot Global Cybersecurity Institute, a design-build partnership between LaBella and LeChase Construction Services LLC that opened in September, was designed to allow for immersive and collaborative learning experiences that go beyond classroom walls. (Photo provided).**

Mention cybersecurity and there's instantly a mental image of mystery and intrigue.

There's just a certain stealth aura to the dark web, cyber threat intelligence mining, behavior monitoring and asymmetric encryption.

Which is why it's so fitting that members of the architectural team at LaBella Associates, led by higher education studio manager Jerry DeRomanis, included a little design encryption of their own when creating the three-story Global Cybersecurity Institute at Rochester Institute of Technology.

The exterior windows include perfectly symmetrical collections of 0's and 1's, the two elements of the binary code. Somewhere within each collection, the code spells out RIT. The numbers aren't just for

decoration, however. The 0's and 1's also serve a practical purpose, providing window frosting to shield building occupants from the sun.

The interior glass contains the same collections of binary code, combining artistic appeal with subtle cloaking. Even the hallway lighting fixtures on each floor were invited to the binary-code party; the circular and rectangular fixtures spelling out R-I-T, with one letter per floor. The first floor has the "R," the second floor has the "I" and the third floor has the "T."

Those arrangements are so subliminal that even the director of the center's cyber range and training center, Justin Pelletier, was oblivious to their existence.

"If you boiled computer code down, everything is a zero or a one," DeRomanis

said. "We use it on the exterior for sun shading and frosting and we use it inside for aesthetics.

"But we also wanted to educate the lay person or any visitor. It starts with the basic, they start to ask questions and then the building starts to unveil itself."

That includes a much more complex three-story hidden message to students on the wall near the main entrance: "At RIT, success is not binary. You choose how to succeed and your choices are infinite."

The functions and services within the Global Cybersecurity Institute (GCI) seem endless, as well. From classroom learning to simulation projects; from retraining members of the current workforce to cyber attack and defense competitions; from analyzing a company's security vulnerability to determining whether a voting machine used in November was indeed hack-proof, it's all within the 51,000 square feet of the building.

"Providing immersive learning and collaborative learning allows instructors to go beyond the walls of the classroom," DeRomanis said.

Plus, with funding from the Department of Defense and National Security Agency, plus private firms such as IBM, "it's a great feeder if they want to enter the national security field," said Pelletier, a major in the U.S. Army Reserve who specializes in counterintelligence.

The GCI opened in September, a design-built partnership between LaBella and LeChase Construction Service, LLC. By implementing design-build, construction was able to start even as other parts of the design were still being completed, meaning the entire building process took just 18 months to complete.

One unique element to the building:



**RIT's Global Cybersecurity Institute's exterior windows and interior glass consist of symmetrical collections of 0's and 1's, the two elements of the binary code. The 0's and 1's provide window frosting and sun shading. (Photo provided)**

Unlike the rest of the RIT campus, there is no brick, other than the benches outside the main entry, an oddity for a school whose annual alumni celebration is called Brick City Homecoming.

The fascination with cyber plots and machinations grows only stronger within the GCI in the first-floor Cyber Range, where a real-time grid shows dozens, if not hundreds, of attack threats across the globe, from point of origin to target location.

The Cyber Range is part classroom, part laboratory, part eSports arena, part competition headquarters and part testing facility. Schools from across three continents compete in elaborate cybersecurity games.

RIT, in fact, won the 2021 Collegiate Penetration Testing Competition. Faculty and students can run attack simulations for companies to determine vulnerability.

There even is the ability to turn up the heat, literally, with rising temperatures within the room helping to simulate the pressure-cooker feel on IT professionals during a real-life cyber attack.

“To use an Army analogy, the more you sweat in training, the less you bleed in battle,” Pelletier said. “It allows you to build up that muscle memory so when you are actually in the situation you can handle it.”

After all, attacks are the specialty of the cyber criminal. They're well-versed in

causing havoc and capitalizing on vulnerabilities of systems and administrators. Few firms have IT pros that have actually experienced an attack.

“If the people get to experience the battle, they at least have a fighting chance,” said Chad Weeden, director of eSports and the cyber range.

The GCI also is helping to train members of the workforce, or retrain those who may have been left unemployed during the COVID-19 pandemic. The first RIT Cybersecurity Bootcamp is underway. It's a 15-week program intent on providing attendees with the basic knowledge for entry level cybersecurity positions.

The building's architectural elements are just as sophisticated as the programs being conducted inside. The air gap lab doesn't connect to any outside networks, meaning it could be used for national defense initiatives. The terra cotta panels on the outside building walls along the courtyard muffle sound and allow for a much more pleasant outdoor experience. The building is complete net zero in terms of water usage and its impact on the watershed, DeRomanis said.

But perhaps the most appealing feature is the sense of intrigue the GCI provides.

“We embrace the stereotype with the dark, mysterious building,” Pelletier said.

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**The Cyber Range inside RIT's Global Cybersecurity Institute serves as a classroom, laboratory, eSports arena, competition headquarters and testing facility all in one. The grids show attack threats happening across the globe, from point of origin to target location in real time. (Photo provided)**

