



PARK B. AND LINDA
SMITH LABORATORIES

Beautifully Smart:

College of the Holy Cross
Integrated Science Complex

EYP/

Architecture & Engineering

From winning a Nobel Prize to directing the NIH to performing the world's first kidney transplant —

Holy Cross alumni have made extraordinary contributions to science by advancing knowledge through inquiry and action.

These are just three examples of the passion for discovery that Holy Cross has fostered in its students for more than 100 years.

As the nation's standard-bearer for excellence in undergraduate science education, Holy Cross has championed the centrality of science to the liberal arts tradition, pioneering pedagogical innovations that have helped launch a revolution in the way U.S. college students learn science: through hands-on, collaborative problem-solving.

While Holy Cross had tremendous success with its discovery-based curriculum, faculty and administrators knew the college's science facilities were far from ideal. Discovery-based learning requires a strong connection between laboratory and lecture work, which can be challenging in older buildings where labs are tucked far away from classrooms or spaces conducive to team work.

“ We were trying to secure a grant from Research Corporation to help our faculty in both their teaching and research, but the organization was critical of our facilities, ”

notes Frank Vellaccio, Senior Vice President of the College.

“ It made us take a harder look at our buildings. ”

With demand for science courses continuing to grow, the limitations of outdated facilities made the replacement or renovation of Haberland Hall a priority.

Project Details

- 47,000 GSF New Construction
- 90,000 GSF Renovation
- Instructional and research laboratories, support spaces, offices, and classrooms for the departments of Chemistry and Physics
- Atrium connecting the departments of Biology, Psychology, Anthropology, Mathematics, Computer Science, Chemistry, and Physics, and the O'Callahan Science Library

/ science on display:

“One of the great goals of this building was to attract people. We wanted the building to say, ‘Come inside and stay inside,’ and that’s something that’s really happened. From the moment you see it from the outside, Smith Labs (the first part of the project that was completed) is a little different from the rest of the campus. It’s glass with verdigris copper and it captures your attention, because it is surrounded by brick. From the outside, you can see right into the two main

chemistry classrooms, the teaching labs where chemistry’s happening. I think that’s a great way for people to be drawn into the action. Instead of having science hidden behind concrete walls and wooden doors, we wanted it to be open, so that no matter who was here they could see science taking place, get excited by science, and maybe want to take courses in science. I think we’ve really accomplished our goal.”

Charles Weiss



Placement of opaque and transparent fenestration design promotes views into new laboratories allowing science to be visible to the campus community.

The Trustees identified the renewal and expansion of science spaces as the most urgent of the college’s strategic goals, because Holy Cross is committed to attracting and retaining the best and brightest students and faculty. In addition, the college sought to increase the visibility of the sciences on campus, underscoring their essential role in a liberal arts education and communicating the excitement of scientific discovery in ways that non-scientists understand. **“We didn’t want to become a college that isolated the arts on the one side and the sciences on the other, but a place with a single educational purpose: the expansion of student minds,”** explains Timothy Austin, Vice President for Academic Affairs and Dean of the College. Holy Cross wanted its new science spaces to serve science while advancing a more holistic intellectual life and encouraging community connections.



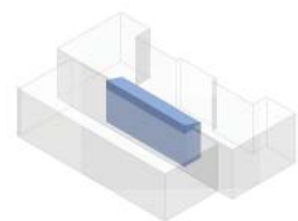
beautifully smart: college of the holy cross, integrated science complex

“The architects were almost adamant that we needed to plan for the future. That required developing a much more open lab plan and a building design that would make it easier for faculty from different disciplines to work together. We absolutely wanted to bring the buildings together to establish physical connections among departments. Since our psychology department had

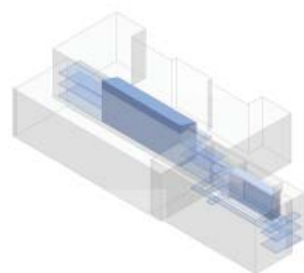
always been in a separate building, EYP suggested early on that we somehow connect Beaven to Haberlin and Smith so that the psychology faculty could more easily work with biologists and chemists. The points EYP raised made us think about the long-term changes that are on the scientific horizon and their implications for future building use.”

Bill Morse

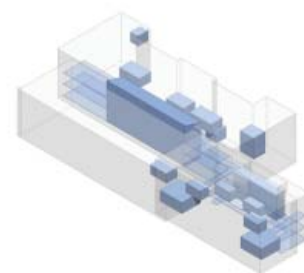




Existing building condition



Connected atria



Network of public spaces

/ come inside, stay inside

A multistory atrium serves as a connecting spine between existing buildings and new construction and casts a welcoming light onto the new entry plaza.

Inviting spaces for group study and faculty/student interaction encourage students to extend learning beyond the more formal classroom and laboratory environments.



Daylighting and open sight lines contribute to safe and comfortable laboratory environments. Low-flow fume hoods save energy.

Interior glass walls reveal the excitement of scientific discovery and blur the boundaries between formal and informal learning spaces.



While the extensive use of glass opens laboratories to passers-by, revealing the excitement of scientific discovery, expansive windows also allow faculty and students working within to enjoy daylight and the surrounding landscape.

“I think the building is a lot more aesthetically pleasing now. That may sound like a minor detail, but it makes a huge difference when you’re here many hours a day, every day,” notes student Neha Patel.

In addition, open floor plans and transparent walls establish teaching and research neighborhoods and enhance laboratory safety and efficiency.

“The way the lab is structured in the new organic chemistry lab creates a wide open environment, so that the faculty and staff can see the students at work and vice versa. And because the students are working with chemicals around the perimeter of the lab, we’re able to have the instrumentation safely in the middle where everyone can access it,” explains Ronald Jarret, Professor of Chemistry and Class Dean.

“What’s amazing to me is how wonderfully functional the building is and how much of the science you can see being done. There’s a synergy among the classrooms, the laboratories, and the offices. Where they are located in relation to each other and how they fit together is critical,” remarks Vellaccio. VP Austin adds: “I was here a couple of weeks ago, and I walked past one faculty member’s office and I swear there were probably seven or eight people in there! The blackboard was covered with scribbling. In a sense, you had an informal class happening right there.”

“We had planning meetings for probably two or three years,” recalls Rick Herrick, Professor and Chair of Chemistry. “There was a lot of give and take about what we needed.” Administrators, faculty, and students engaged with architects from EYP to explore alternatives for creating a research-based science environment that would also inspire the kinds of informal interactions—like studying or continuing a class discussion over lunch—that spark collaborative thinking. Building in flexibility for the future was critical, especially given the speed of scientific discovery and innovation. “The architects challenged the faculty to think about science 20, 30, 40 years from now,” says Bill Morse, Special Assistant to the Dean. “They were constantly challenging the faculty to think about where science is going in the next 40 years.”



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|--------------------------------|----------------------------|
| <div></div> renovation | <div></div> 1 Entry |
| <div></div> existing | <div></div> 2 Atrium |
| <div></div> new construction | <div></div> 3 Cafe |
| <div></div> new landscape | <div></div> 4 Classroom |
| <div></div> atrium circulation | <div></div> 5 Office |
| <div></div> atrium open space | <div></div> 6 Dry Lab |
| | <div></div> 7 Wet Lab |
| | <div></div> 8 Support |
| | <div></div> 9 Write-Up |
| | <div></div> 10 Group Study |

Third floor plan

“The building is incredibly functional while incredibly beautiful,” says Charles Weiss, Associate Professor and Director of Grants, Corporate, and Foundation Giving. “One of the things we all wanted from the beginning was a building that has a soul, that is alive.” Austin agrees: “The sense of community here is enhanced by the fact that there are different kinds of spaces that allow students to interact with faculty on different levels. There are a lot of different ways to be a community here.” According to student Owen Fenton, “The building opens up this new intellectual environment...it’s a great metaphor for everyone coming together and learning from

different disciplines and approaches.” And it’s not just current students who are excited. “People are kind of blown away when they come and visit this facility. I think students are excited about it being a place where they and their friends could be,” concludes Vellaccio. Busy labs, busy write-up rooms, lively café—the building is alive with people from every department. “The campus has embraced it as a meeting place,” notes Jarret. “And once you bring people together, collaborations start to form and things really take off.”



New atrium plan



Existing atrium



Rendering of proposed atrium

New atrium

/ repurposing spaces

From Stairwell to Destination

The original atrium (far left) is reinvented to become a hub of intellectual activity. The new light-filled atrium (above and right) with a variety of spaces for study and interaction visually unites three levels of entryways to create a feeling of community and to become a campus destination.

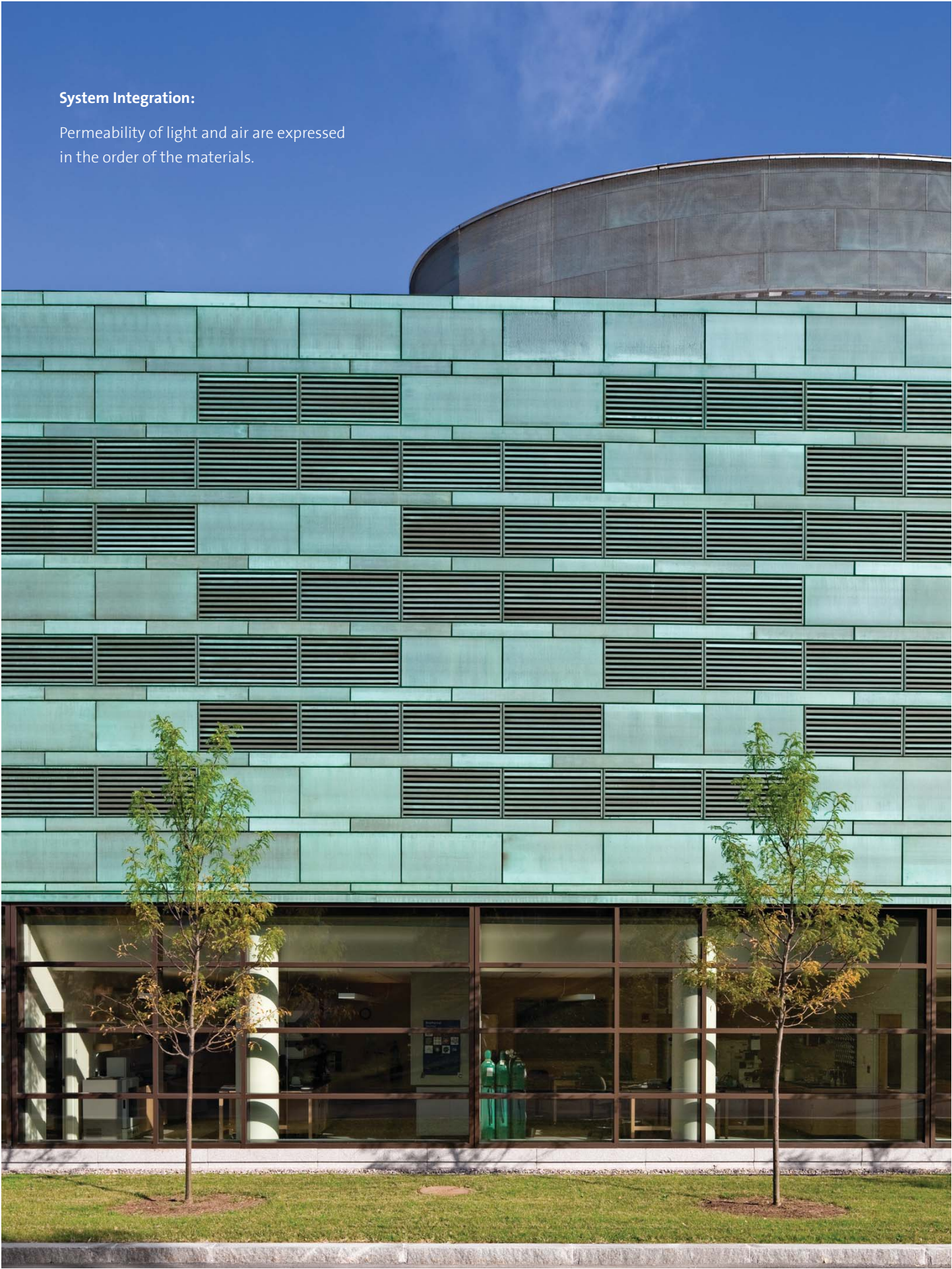
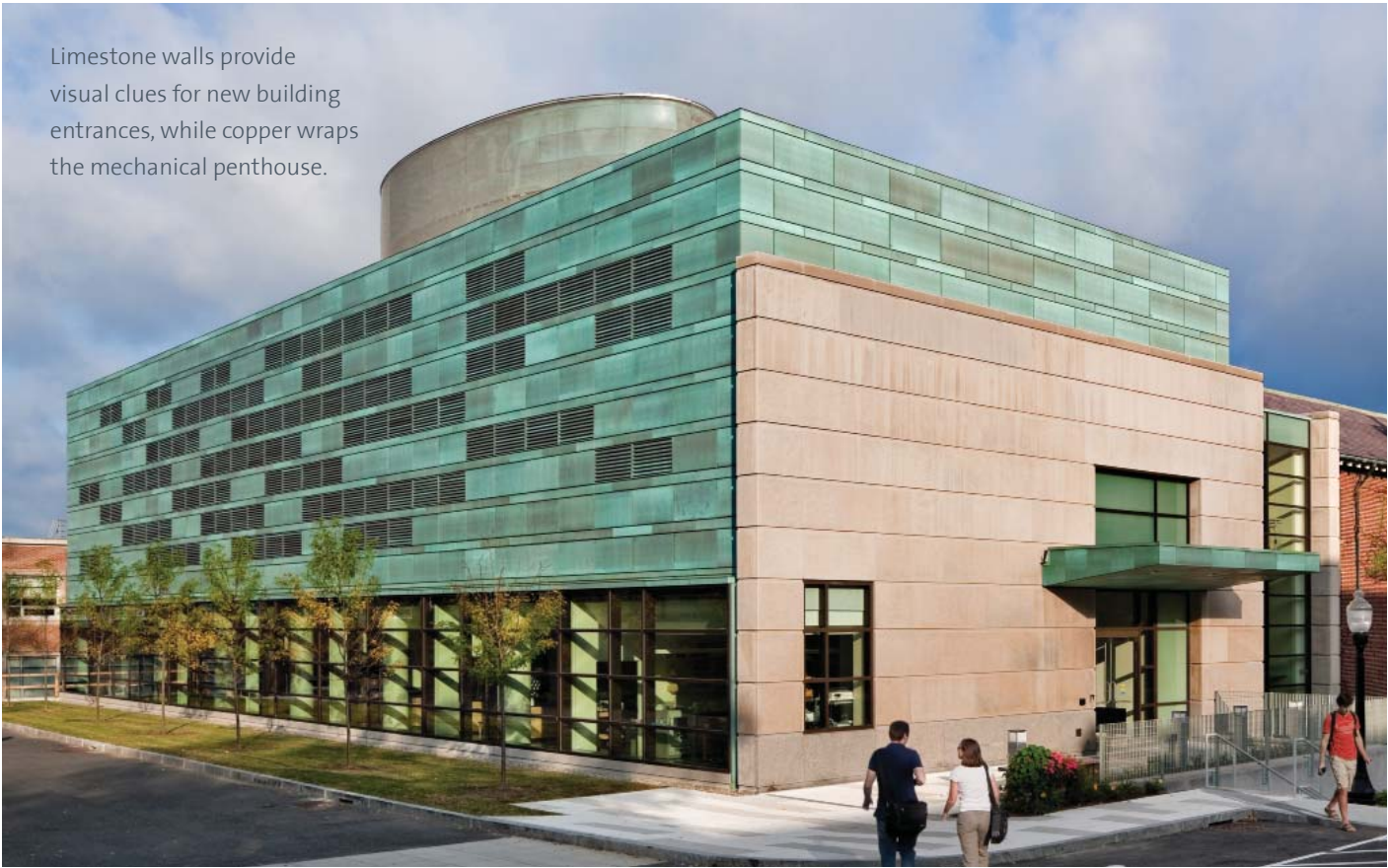
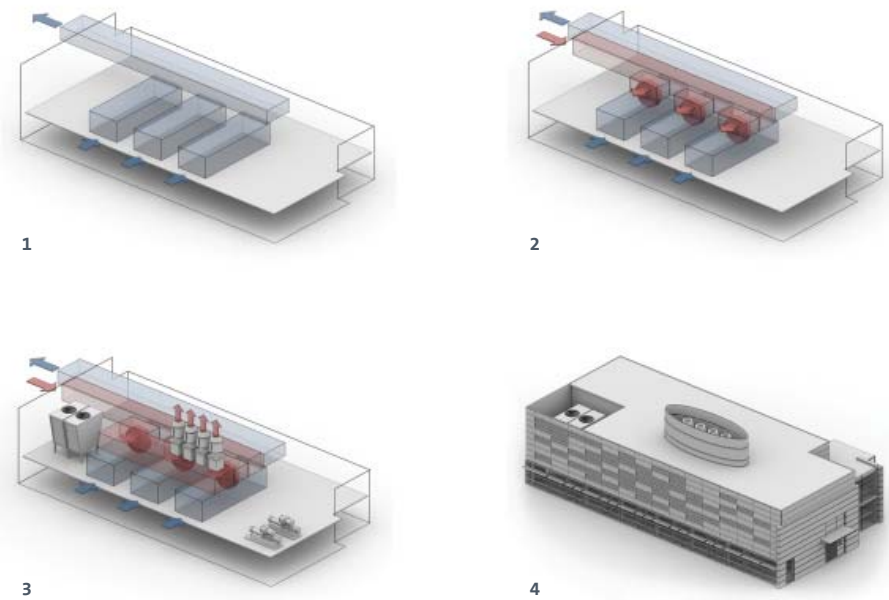


/ energy efficiency and cost savings

Energy Star Target Finder Results
The EPA Energy Star Target Finder performance results are shown below. The medical office space type classification had to be used in lieu of a laboratory facility as it is not a currently available space type classification option.

- Energy Performance Rating: 89
- Energy Reduction %: 60
- Site Energy Use Intensity (kBtu/sqft/yr): 88
- Total Annual Site Energy (kBtu/sqft/yr):15,422,282

- 1 Intake air
- 2 Exhaust air and heat recovery wheels
- 3 Strobic exhaust fans and penthouse equipment
- 4 Penthouse enclosure





Architecture in Context

The exterior palette of materials responds to the campus's blend of classical and modern architecture. Rusticated limestone cladding recalls the great Beaux Arts buildings of the College's past.



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