

Not Your Parents'

Steelcase



There's a lot of noise on

campuses

across the country this fall, and a fair amount of it is coming from construction crews.

Consider these facts:

- Education is the number one non-residential buildings market for both new and renovation projects.
- \$13.9 billion in construction will be completed at colleges and universities in 2005; another \$14.5 billion will be started before January.¹

Twice as many students are attending colleges compared to 20 years ago, and today's "Millennium Generation" has brought unique expectations and behaviors to campus. Competition is tough, just as in business, as institutions vie more than ever for students, professors and funding.

These trends are driving changes that are reflected in the facilities being built and renovated on campuses. Two categories of campus environments in particular are undergoing dramatic transformations: research labs and residence halls.

Here's what's changing, how and why.

Alan R. Saltiel wants scientists to loosen up.

At least when it comes to sharing their laboratory space and interacting with other scientists. As director of the Life Sciences Institute at the University of Michigan at Ann Arbor, Saltiel and his colleagues are in the forefront of a small but growing movement to open up research laboratories in the same way that open-plan opened up office environments decades ago.

It's a radical change from the traditional image of the lone scientist working in isolation.

U of M's \$100 million, 230,000-square-foot building is dedicated to biological science research. It opened in



These new labs favor large open spaces, equipment and furniture that move when necessary, and space designed to support interdisciplinary research, interaction and collaboration. They are following precedents established by private-sector facilities such as the Van Andel Research Institute in Grand Rapids, Michigan. Furnished with Steelcase's modular lab benches, this 14,000-square-foot laboratory can be reconfigured over a weekend without tearing down walls, changing furniture or removing items from drawers. This degree of flexibility means the lab can be changed quickly to accommodate different types of work and projects, supporting easier and more rapid collaboration among various researchers.

September, 2003. Shared lab spaces and collaborative meeting spaces are integral to the building's design.

"Normally, people are very concerned about their space," says Saltiel. Now, he says, "there's not this concept of territory anymore. People forget about it and go on to the next thing, which is doing research."²

Open
plan
labs

Research by the Numbers

Accelerating toward a tipping point, there's a growing conviction within science that sharing information and ideas across disciplines will encourage innovation and discovery.

It had better. The stakes are huge:

- Federal funds for academic research rose by 13.1 percent in 2003, the second straight year of double-digit increases³
- Lab space at U.S. universities has risen by 21%, measured in square footage, during 1998-2003
- National Institutes of Health budget rose 98% between 1998 and 2003, much of which goes to fund university research⁴

The federal government is increasingly funding interdisciplinary research. Twenty years ago individual researchers snagged more than 85% of the research funds offered by the National Science Foundation. By 2001, that proportion had dropped to about half, and NSF has recently created a new definition for the research centers it supports. It stipulates that research centers must study large, complex, interdisciplinary topics that cannot be resolved by individual investigators alone. The National Institutes of Health also has made interdisciplinary research a priority and awards grants to support it.

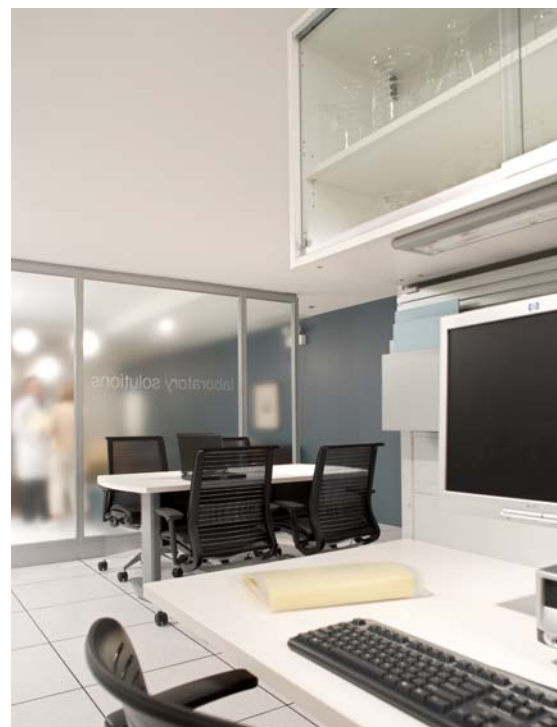
The pay-off can be big for colleges and universities. During 1993-2003, the number of U.S. patents issued to academic institutions rose 157%. As a result, American universities earn more than \$1 billion a year in royalties and license fees.⁵

Competition for funding and faculty researchers who are attracted to well-funded, well-equipped universities adds to the need to transform research facilities. Younger researchers fresh out of graduate programs are "far more predisposed to reaching beyond the limits of their own academic work and their own scientific fields in terms of both the individuals with whom they collaborate and to whom they communicate in the course of

their research," according to researcher Diane Rhoten, principal investigator for a National Science Foundation study on graduate education and career pathways of young scientists.⁶

Architects say more clients at research universities want larger, more open labs.

"Scientists are asking for this all over," says Rayford W. Law, a principal at Kallman McKinnell and Wood Architects, in Boston.⁷



In some ways, the nature of science itself drives this change. Scientists say the problems they face are often too big and too complex to tackle alone. Life scientists in particular are increasingly interested in collaborative workspaces.

Teaching a Lab New Tricks

Interdisciplinary research means labs must be multipurpose facilities that can change easily to accommodate different types of work.

At U of M's institute, 64 scientists share a huge lab on each side of the building, with 32 in each 4,400-foot quadrant. Offices are clustered at either end of the lab spaces. At Vanderbilt University's Center for Structural Biology, another big open-space lab supports 35 researchers. While these numbers of workers sharing the same space are common in open-plan offices, this is new ground for research labs.

To make the open lab spaces work, noisier machines such as autoclaves are housed in enclosed rooms. Many scientists listen to music with headphones to block out distractions. Some offices are set apart so academics have private space to concentrate.

Interaction is the Midwife of Innovation

Just as labs are opening up as workspaces, more interdisciplinary science buildings are going up on campuses.

At the University of Georgia near Atlanta, the 156,000-square-foot Complex Carbohydrate Research Center opened in 2003. Designed by O'Neal Inc., the building was planned expressly to increase interaction and collaboration among the 19 research groups it houses. CCRC scientists study the structures and functions of the complex carbohydrates of plants, microbes and animals to determine their role in growth and development and diseases, including cancer.

Bringing diverse specializations together in one facility and encouraging interaction through features such as open stairwells and informal conversation areas increases the chances for significant discovery within the labs — and can accelerate the pace, according to Carl Bergmann, associate research biochemist and facilities director for the CCRC.

Collaboration has also been a means to increased funding for CCRC. As a growing number of grants today are tipped in favor of collaborative projects, the amount of funding CCRC has received has increased more than tenfold since 1985 and today includes private as well as government support.

In Mount Pleasant, Central Michigan University's new College of Health Professions building opened in 2004 and has since been recognized nationally for setting a new benchmark for modern science teaching — no small achievement and cachet for a mid-sized institution surrounded by rural central Michigan. Designed by SmithGroup, the building brings together CMU's health professions, neuroscience and clinical psychology programs and its many associated research initiatives and community services into one building.

A key feature is a large central atrium that connects various wings and was designed as a "communication corridor." It's furnished end-to-end with movable seating and whiteboards, providing comfortable and adaptable touch-down places. Faculty offices are located in connecting areas between wings, versus being segregated into separate departmental wings. "We see each other, get to know each other, interact more and can support each other's research and teaching," says Linda Seestedt-Stanford, assistant dean.

In well-designed interdisciplinary environments such as these, opportunities for interaction can become opportunities for innovation.

New Norms

Over 3 million students at colleges across the country moved into residential housing this fall.

Today's "Millennium Generation" has a distinct profile. Learning for its own sake isn't a solid value proposition when the cost of their educations can rival their parents' mortgages. They're sophisticated consumers who spent more time shopping for a college than any previous generation. And they're multi-taskers, simultaneously

To attract the best and brightest of this generation, colleges and universities are building and remodeling at a brisk pace to keep up with demands.

- Approximately 65% of colleges are planning more dorm construction⁹
- 78% are planning to replace dorm furniture and furnishings⁹
- 79% of colleges now offer wireless networks for students¹⁰

Old boundaries between the classroom and outside the classroom are blurring. Study areas can be practically everywhere: libraries, dorms, student unions, coffee shops and the always popular shady spot under a tree. Laptops,



emailing/IMing/studying/hanging-out - and expecting ever-present computer and internet access to support them.

(The average time college students spend on the internet has nearly quadrupled in the past eight years.⁸)

wireless access and cell phones extend the boundaries of learning spaces. Classroom buildings get lounges and coffee shops, while dorms get classrooms and computer labs. Multifunction residence halls are on the rise — nearly 50% of new ones include classrooms, 54% have computer centers, 20% have faculty offices.¹¹

And everywhere there are more amenities.

SUMMER DORMS FOR F

The Building Boom Generation

Northeastern University in Boston felt these changes coming on in the 1990s. A drop in enrollment, a crowded marketplace and a gritty, urban campus combined to force the 100-year old private college to renew itself. Its leadership team developed a long-range plan to upgrade the quality of its education, become more selective in admissions and improve retention and graduation rates.

But first: better facilities. “You can build a building in two years,” says Laurence F. Mucciolo, vice president for administration and finance, “but you can’t boost up faculty and programming that quickly. New buildings get immediate results.”¹²

The University Center of Chicago (UCC) could be a model for student housing in the future. A multiple-college residence opened in 2004 for 1,700 students from DePaul University, Columbia College and Roosevelt University. UCC features private, quiet studios and apartments, as well as traditional residence-style units. All have dining and living rooms, kitchens, and bathrooms shared by no more than four people. Also on site: a fitness center, game room, laundry room, art studios, and a great room with a stone fireplace that opens to a 20,000-square-foot terrace overlooking the Windy City.

Not all amenities have an architectural scale. With college students spending more time than ever studying in their rooms by using their computers to access library holdings, providing an ergonomic office chair — instead of the typical dorm-room desk chair — is an easy and high-impact upgrade.

Sustainability is another way to get students’ attention and approval. Students raised on environmental awareness are increasingly building environmental issues into their criteria for selecting a college.¹³ GREENGUARD-certified furnishings designed for sustainability can provide a competitive advantage.



Enriching the College Experience

Quality residential housing attracts new students and it keeps students on campus longer. Older students mentor younger students, the social fabric on campus is strengthened, everyone's college experience is enriched. "When you have a neighbor on one side who has just come back from junior year in Nepal," says Janice Armo Kassman, dean of students at Colby College in Maine, "and one on the other side who is working on his senior scholar's project in physics, you figure out quickly what college is all about."¹⁴

Combining living and learning spaces leverages valuable real estate. It also can reduce dropout rates by increasing a student's academic and social integration - factors which studies have shown significantly reduce dropout rates.¹⁵

No wonder so many colleges and universities today are spending big bucks to make sure their residence halls make the grade.



Footnotes

1. College Planning & Management, Education Marketplace 2005
2. Lila Guterman "Space Odyssey" The Chronicles of Higher Education, December 10, 2004
3. National Science Foundation "Survey of Research and Development Expenditures at Universities and Colleges"
4. Clifton Leaf, "The Law of Unintended Consequences" September 19, 2005, Fortune
5. Adrian Wooldridge "Secrets of Success" The Economist, September 10, 2005
6. Diana Rhoten "Mind the Gap" Inside Higher Ed.com, April 4, 2005
7. Ibid, Guterman
8. EDUCAUSE Pocket Guide to U.S. Higher Education 2005
9. College Planning & Management 2004 Annual Residence Life Survey
10. Society for College and University Planning "Trends to Watch in Higher Education" March, 2005
11. College Planning & Management 2004 Annual Residence Life Survey
12. Audrey Williams June "No Longer A Safety School" The Chronicle of Higher Education, April 23, 2004
13. College Planning & Management, Education Marketplace 2005
14. Jean Marie Angelo and Nicole Rivard "If You Build It, They Will Come" University Business, Mary, 2003
15. David Glenn "Sociologists Debate Degrees, Dropouts and Faculty Beliefs" The Chronicle of Higher Education, September 2, 2005