Orange MATTERS | NEWS from the SU COMMUNITY



Building Performance TEST LAB >>

ON A COOL, OVERCAST SUMMER DAY, ENGINEERING PROfessor Jianshun "Jensen" Zhang stands outside a two-story house with brown siding on South Campus and talks about the issues involved in having a properly weatherized home. But this is no ordinary house. It is the Building Envelope Systems Test (BEST) Laboratory, a new research and development facility designed to monitor the performance of air barriers—systems of materials, such as wall assemblies, that control unintended air movement in and out of buildings. Ideally, these barriers provide good thermal insulation. This saves energy through proper heating and cooling, preserves indoor air quality, and prevents air leakage, which can introduce moisture and condensation into the structure, damaging insulation, reducing its efficiency, and creating the potential for mold. "Even the tiniest bit of air leakage can bring moisture and contaminants into the space," says Zhang, an expert on built environmental systems who directs SU's interdisciplinary energy and indoor environmental systems program. "The new thinking, in terms of design and wall assembly, is to make materials that will absorb some moisture and release it, so it's like a 'breathing' wall."

The BEST lab is part of a \$2 million, three-year project being conducted by the Syracuse Center of Excellence in Environmental and Energy Systems (SyracuseCOE) and several partners, including the Air Barrier Association of America and the Oak Ridge National Laboratory (ORNL). Syracuse, one of three ORNL test sites nationwide, was chosen because of its four-season Northeastern climate and the area's expertise in green building technologies. "This collaborative project expands and extends our network of partner firms and institutions that are creating next-generation solutions for high-performance and healthy buildings," says Ed Bogucz, executive director of the SyracuseCOE.

The lab features 34 wall-assembly test panels, which are made of different materials and contain sensors for tracking air pressure and movement, temperature, and moisture in real time. "It's been almost impossible to detect where the air actually goes once it's inside the wall, so that information gathered under field conditions will be new," Zhang says. Inside, the lab maintains standard temperature and humidity settings and is equipped with instrumentation for collecting data from the sensors. Outside, a weather station records wind, solar radiation, and precipitation data. In the project's initial phase, the air barriers are being tested for a year, allowing information to be gathered on their efficiency and durability, including hygrothermal performance—the impact of heat and moisture transport.

Zhang, research professor Mark Bomberg, and doctoral student Thomas Thorsell are also testing the barriers in the simulated climate chambers of the Building Energy and Environmental Systems Laboratory, which Zhang directs at the L.C. Smith College of Engineering and Computer Science. They plan to correlate their lab test results with the field data, which will help them validate the lab testing and develop computer simulation models. The BEST initiative should contribute significant information to sustainable building technologies, giving scientists new insights on indoor air quality, passive energy technologies, such as wind and solar power, and other topics. "We want to know how the materials perform within the entire system in terms of energy efficiency and indoor environmental quality," Zhang says. —Jay Cox



MEDIA >> Exploring Innovative Storytelling

DEEP IN A CAVE IN LOS ALAMOS, NEW MEXICO, A 16-YEAR-OLD TESTS HIS INTERNATIONAL science fair-winning project, a technology that allows cavers and miners to use text messaging underground. For an aspiring journalist, telling the teen scientist's story is an exciting assignment. For 10 Newhouse School students, a national initiative known as News21 has transformed telling stories like this from a dream job to a reality. "News21 gives you the time and money to do creative work you normally wouldn't have the means to do," says Brian Dawson '11, a News21 Fellow and a dual major in illustration photography and information management technology.

Funded by the Carnegie Corporation of New York and the John S. and James L. Knight Foundation, News21 was launched four years ago to train student journalists in new media technology and to advance journalism curricula. Syracuse, in its first of three years in the program, was one of eight universities nationwide selected to participate; four other universities contributed visiting fellows. "News21 is an opportunity for students to expand," says national director Jody Brannon. "Students used to focus on being a magazine journalist or a broadcaster. Then suddenly, the industry changed and now they need to be able to do everything. It's a journalistic decathlon."

During a spring semester course, a mix of undergraduate and graduate students planned multimedia projects with faculty before diving into a 10-week summer internship to create stories about how the United States is changing. This year, student work included projects covering teens experimenting with technology to build solar cars and a congregation in Missouri

Twittering to their pastor. Newhouse professors Steve Davis from the newspaper and online department, Bruce Strong, a multimedia specialist with a photography background, and online expert Ken Harper worked with students on producing stories, blogs, and videos about teens and technology. "I want students to emerge from News21 feeling like they learned new skills, produced strong content, and had a good time," Davis says.

The Newhouse News21 Fellows chose to travel to a total of 11 communities using the Patchwork Nation model, which outlines areas of the country that, when put together, provide an accurate representation of American communities. Pairs visited two or three towns in two-week periods, with a week at SU in between trips to compile data. Once they finished researching, students had two weeks to publish their work on *youngandthewireless.com*. "Our goal was to produce content people remember," says News21 Fellow Melissa Romero '10, a newspaper and online journalism major who produced a story about a young woman using video chat to keep in touch with her husband while he served in the Colombian Navy. "I hope our stories make people see that technology can be used in great ways to change something in the world, or to stay in touch with loved ones thousands of miles away."

In addition to a rare on-the-job multimedia crash course, the use of state-of-the-art technology, paid travel, and a \$7,500 paycheck, fellows received other benefits. "I'd never been to the Southwest before," says Romero, whose assignments took her to New Mexico and Arizona. "I got to see beautiful parts of our country and have great backdrops for my stories. I connected with people and had someone's mom say to me, 'You're part of our family now.' Those experiences are something I'll never forget."

—Courtney Egelston



Newhouse News21 Fellow Melissa Romero '10 produced a story about a young woman (top photo) who used video chat to communicate with her husband serving in the Colombian Navy.

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EXERCISE SCIENCE >>

LAB RAT

Volunteering for an exercise study can be a revealing matter

I WORE A BATHING SUIT TO WORK ONE FEBRUARY MORNING—EVEN THOUGH IT WAS REGulation winter weather in Syracuse, with light flakes of crystalline snow falling and the thermometer hovering around 18 degrees. Swimsuits are not typical attire in the University's Office of Marketing and Communications, where I work, but I had a date with the Bod Pod, an egg-shaped closet that would gauge my percentage of body fat by estimating how much air I displace. For the test to be accurate, I had to be as close to my "natural state" as possible. Hence the bathing suit, although I cheated and wore the one with tummy control.

The Bod Pod test, along with a weigh-in, would determine if I was accepted as a volunteer subject for an exercise science study with the incredibly long name of "Exercise Effects on Intramyocellular Lipid Content in Young and Older Obese Subjects and Older Non-Obese Subjects." According to principal investigator Ruth M. Franklin G'04, a Ph.D. candidate in the School of Education's exercise science program, the study's aim is to understand how the fat in muscle changes in response to a single bout of intense resistance exercise. "This study is based on one that looked at the droplets of fat in the muscles of younger, non-obese men," Franklin says. "And it showed that resistance exercise had an effect on them. We know it works, but we want to see if we get the same results in other populations. In my study, we're looking at the muscle cells in women, typically an underrepresented group, to see if we get the same effect. We also want to know if there are differences between the groups."

My weight and body fat percentage (neither of which will be divulged here)—plus the fact that I don't smoke, don't take antidepressants, birth control or hormone replacement medication, don't have high blood pressure, high blood sugar, or out-of-control cholesterol, and don't exercise all that much—made me a prime candidate for the study. In all, 30 women were recruited for the program in three categories: overweight younger women, overweight older women, and lean older women—my group, in case you're wondering. (The term "older" is open to interpretation, and we'll skip the age range as unnecessary for this story.) Fellow researchers had warned Franklin the lean older group would be the hardest to recruit, but she found that not to be true. "The group I had the most trouble getting was the young obese, because they couldn't be on antidepressants for the study," she says. "In one day, I screened out 10 young women because of the medication. I assume they're depressed about being obese, but one of the side effects of most antidepressants is weight gain. The medications impact fat metabolism, which is why we have to screen out people who are taking them."

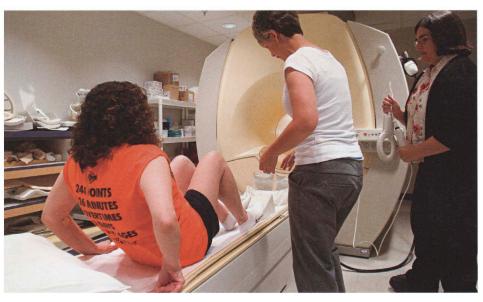
Research study volunteer Paula Meseroll, left, prepares to have her right leg scanned in an MRI machine, assisted by exercise science doctoral student Amy Bidwell G'07, and Gwen Tillapaugh-Fay, an instructional support specialist in the Institute for Human Performance's MRI research core department.

group, in case you're wo range as unnecessary fo would be the hardest to right getting was the young of "In one day, I screened of about being obese, but of the initial interview and the initial i

The initial interview and Bod Pod experience took place in the exercise science department, converging the leasted up at a great place in the Warrante

niently located upstairs from my office in the Women's Building. The rest of the study sessions were held in a big, bright room furnished with every kind of exercise equipment imaginable, including a track, at SUNY Upstate Medical University's Institute for Human Performance. During the second session, Franklin showed me the equipment I'd use for exercising my leg muscles, since those were the ones that would be tested. She was impressed by the range of motion in my ankles and asked if I was a dancer—noting they usually see such good lower leg flexibility only in ballerinas.

At our third meeting, Franklin tested to see how much weight I could lift with my ballerina legs, making the weight stack heavier and heavier until my muscles declined to cooperate. She wasn't kidding about the intensity of the exercise. There were five stations, each with a different exercise, and it was fun to see just how many of those metal weights I could lift. The hardest part was not letting go too soon and clanging the







Amy Bidwell G'07 (above) keeps careful watch for correct form as she puts Paula Meseroll through a set of leg lifts, one of the exercises in the study.

It's an egg! It's a space capsule! No, it's the Bod Pod! Principal investigator Ruth Franklin G'04 (below right) tests Paula Meseroll to see how much air she displaces, gauging her percentage of body fat.

weights on release.

For three days before the last session, I was instructed to make a list of everything I ate (an eye-opener in itself) and to consume at least 200 grams of carbohydrate per day—absolutely not a problem. The night before the test, I ate a dinner that Franklin had formulated specifically for me: chicken breast, white rice, broccoli, and two slices of wheat bread and butter—washed down with one liter of water. The purpose of the precise menu was to control for diet, according to Franklin, so the amount of food consumed wouldn't vary and introduce error into the study.

The next morning, I was more than a little nervous about the challenge ahead, so for inspiration I donned that immortal emblem of Orange stamina, my "Marathon Men" T-shirt. The final session consisted of a fasting blood draw, then into an MRI for scans of the right leg. An intense bout of exercise followed, and then it was back into the MRI for another set of pictures. With Franklin out of town at a conference, her colleague, Amy Bidwell G'07, was in charge of my session.

When all the volunteers have been tested, Franklin will analyze the results to determine if the intense resistance exercise had any effect on cell fat. Her findings may add to the body of knowledge about insulin resistance and diabetes—the rates of both are on the rise in this country. "I'm eager to see what happens," says Franklin, whose post-doctoral goal is to work in the public health sector. "I want to help people live healthier lives. When I developed this study, I tried to be sure to give something back to the subjects; it wasn't all about me and my research. Many women feel too intimidated to go to a gym, but I wanted to show them that it's not as hard as it seems."

Will I go from lab rat to gym rat? Participating in the study was interesting and working out on the machines really was fun, so it's a possibility. Or maybe I'll take a class in ballet.

—Paula Meseroll



orange matters

ENGINEERING >>

Taking Flight in the Classroom

AT FIRST GLANCE, THE FIDELITY MOTUS 622I LOOKS LIKE it might be the world's most elaborate video game—and in some ways it is. But to pilots, aerospace engineers, and scholars, there's no mistaking it for anything other than the world's most advanced full-motion, reconfigurable flight simulation device. Last year, SU became one of the very few educational institutions in the world offering use of such full-motion flight simulators to its students by virtue of a \$602,000 gift from William "Ted" Frantz '80 to the Department of Mechanical and Aerospace Engineering in the L.C. Smith College of Engineering and Computer Science (LCS). Frantz, a licensed pilot and former Boeing engineer, is vice president of Haebler Capital, an investment firm. "Since I would have liked to have a flight simulator when I was at Syracuse, making this gift was a simple decision," he says.

Professor Hiroshi Higuchi believes the flight simulator is a valuable tool in aerospace education because it allows students to familiarize themselves with the nuances of air flow by experiencing physical sensation, such as the feel of wind resistance on the pilot's throttle in response to specific maneuvers and conditions. Higuchi praised Frantz for understanding and supporting this significant educational enhancement. "Our proposal included purchase of the simulator, classroom renovation in Link Hall to house it, and maintenance provisions," Higuchi says. "Mr. Frantz saw the importance of all the factors and funded us in full."

The MOTUS 622i, manufactured in Pittsburgh by Fidelity Flight Simulation, is not the first flight simulator to find a home in Link Hall. Edwin A. Link, whose gift funded the building, invented the first flight simulator in 1929 at his father's pipe organ fac-

tory in Binghamton, New York, and his "Link Trainer" was widely used during World War II. A vintage model was restored for LCS students during the 1980s by former dean Earl Kletsky. "Unfortunately, the Link simulator is not accurate by current standards," Higuchi says. "I looked at several models, but when I saw this one at the Imperial College in London, I knew it was the best choice."

The new flight simulator's software accurately reflects the flight characteristics of different existing or highly modified airplanes with sophisticated navigational equipment. It also depicts topographical features and weather conditions of Central New York and beyond with compelling visual imagery. It made its classroom debut last fall in Higuchi's Aircraft Performance and Dynamics course, and has since been introduced to a variety of undergraduate and graduate offerings. Kristin Busa '09, who used the flight simulator in Aircraft Performance and Dynamics, found it particularly helpful in studying wing aerodynamics and dynamic stability. "We learned the mathematical basis of aircraft performance and then experienced what these equations meant by 'flying' the MOTUS 622i," says Busa, now a graduate student at the University of Virginia. "It was a great way to understand the interface of scientific principles and human control."

An LCS outreach program, now in the planning stages, will open the flight simulator's "cockpit" door to part-time students, and tours and demonstrations for area K-12 students are in the works. Looking further ahead, Higuchi suggests involving students from a variety of SU schools and colleges. "We'd like to bring the excitement of aeronautics to every corner of the University community," he says.

—David Marc



PHILANTHROPIC SUPPORT >>

SU Community Assists Students in Financial Crisis

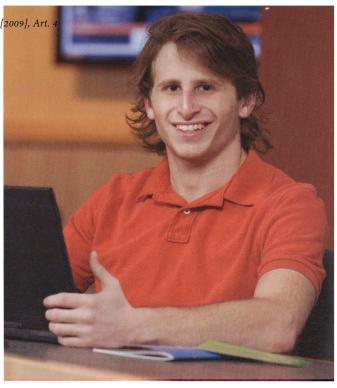
IN FALL 2008, THE GLOBAL ECONOMIC CRISIS WAS HAVING A TREmendous impact on hundreds of SU students and their families. Whether due to job loss, dwindling college funds, or a tightening student loan market, many were finding that without additional aid they might not be able to return to campus for the spring semester. Among them was Jessica Parkhurst '12, a psychology and child and family studies major from Westport, Connecticut. "Syracuse University has been such a wonderful place for me to grow as an individual," says Parkhurst, a Dean's List student who intends to become a child therapist. "There are so many opportunities here, and I know coming out of SU will offer me the best future possible." Near the end of her first semester, however, Parkhurst's parents sat down with her to discuss the sudden financial challenges of continuing at Syracuse. "Since SU has always been my dream, and since I'd been excelling, it was difficult for them to tell me that I may be unable to continue my education here," she says.

Syracuse University took immediate action to help keep Parkhurst and students like her in school, implementing cost-cutting measures and real-locating savings to student aid. The University also appealed to alumni, parents, friends, faculty, and staff to join in the Syracuse Responds Initiative—an intensified effort to raise additional funding for financial aid by January 31, 2009. The results were extraordinary: Gifts totaling \$1,028,160 helped the University provide new financial aid to 426 students, many of whom could not have returned to campus otherwise. "This initiative allowed us to reduce the burden students and their families were facing, and respond to them with grant aid," says Youlonda Copeland-Morgan, associate vice president for enrollment management. "These students have made tremendous sacrifices to be here, and thanks to Syracuse Responds, we were able to say to them, 'Your education matters to us.""

Among those who responded to the initiative was Winston Weber '62 of Tampa, Florida, founder and CEO of Winston Weber and Associates Inc., a management consulting firm. "When the call went out to alumni and others to help fill the gap to provide for students in need, I thought about my own kids, and what a shame it would have been if they were unable to finish their educations," says Weber, who serves on the College of Arts and Sciences Board of Visitors. He was further inspired by the initiative to establish a scholarship fund in his name. "There are times when we all have to think about others and help where we can, whether in a small or large way," he says. "I feel strongly that there are a lot of alumni out there who can help support the University in this way, and support the kids, and I hope this initiative is something Syracuse will continue."

For Parkhurst, that support has made all the difference. "I was overjoyed to find out that SU was giving me more aid to help me stay here," she says. "Thank you to everyone who supported Syracuse Responds for helping to keep me at SU. Your generosity is always on my mind as I walk through the Quad!"

—Amy Speach



The recession hit Matthew Fiore '11 and his family hard. "Extra assistance from the Syracuse Responds campaign has made it possible for me to complete my studies here at SU," says the School of Information Studies student. "When I'm established financially, I hope I might also be able to help a student stay at Syracuse."

RESPONDING TO THE CRISIS

Approximately 80 percent of SU students depend on financial aid to meet the cost of attending the University. Together with Syracuse Responds donors, SU provided, in total, more than \$160 million in financial aid during the 2008-09 academic year. The following statistics provide an overview of donors who gave to the Syracuse Responds campaign.

- 1,829 individuals gave gifts ranging from \$1 to \$180,000.
- The single largest donor group was alumni, at 64.84 percent.
- One-fifth (20.24 percent) of the donors were recent graduates or current students.
- Parents and former parents made up 17.7 percent.
- 13.29 percent of contributors were SU faculty and staff.
- Donors came from 42 states, 1 U.S. territory, and 12 countries.

orange **MATTERS**



RESEARCH**SNAPSHOTS**

A FOCUS ON RESEARCH AT SYRACUSE UNIVERSITY

PROJECT: Life Down Under: The Forgotten Hyporheic Zone in Stream Restoration and Development of a Bioindicator of Subsurface Recovery

INVESTIGATOR: Laura K. Lautz

DEPARTMENT: Earth Sciences

SPONSORS: U.S. Environmental Protection Agency (EPA) through Syracuse Center of Excellence in Environmental and Energy Systems; National Science Foundation

AMOUNTS AWARDED:

\$100,000 (2009-2010, EPA); \$463,056 (2010-2014, NSF)

BACKGROUND: Billions are spent annually on restoration projects aimed at reestablishing the diversity of natural stream systems. Restoration often includes installation of rock structures that mimic natural streambed morphology. These projects typically fail to consider the interaction of stream water with the

subsurface (hyporheic zone) at restoration sites. The hyporheic zone provides refugia for biota, moderates water temperature extremes, and supports a unique invertebrate community that interacts with and contributes to surface ecosystem function. Although stream restoration has been shown

to induce hyporheic exchange, effects on subsurface ecological communities have not been studied. In collaboration with SUNY ESF, Lautz and her colleagues will examine stream restoration structure influences on subsurface biological heterogeneity.

IMPACT: Researchers believe that stream restoration structures produce measurable changes in hydraulic and biological characteristics of the subsurface



Graduate students Tim Daniluk and Ryan Gordon survey the stream around a restoration structure in Ninemile Creek, Marcellus Park, Onondaga County.

environment, which move restored sites along a trajectory toward recovery. Timing of biotic recovery to stream restoration has received relatively little study and hyporheic community recovery is unstudied. Thus, this study's findings will make an important contribution to the understanding of subsurface biotic response to current stream restoration practices.

Photo courtesy of Professor Laura K. Lautz



PROJECT: Generating Political Priority for Newborn Survival Nationally and Globally

INVESTIGATOR: Jeremy Shiffman

DEPARTMENT:

Public Administration/ Alan K. Campbell Institute **SPONSOR:** Gates Foundation-funded Saving Newborn Lives program of Save the Children USA

AMOUNT AWARDED:

\$364,709 (2008-2010)

approximately four million babies die before reaching one month of age, the vast majority in developing countries. Forty percent of deaths to children under age 5 occur in the first 28 days. Cost-effective solutions exist to prevent most of these deaths, but are not implemented. One reason may be a lack of political attention to the problem, both globally and in countries with high newborn mortality. This project investigates the extent to which organizations involved in global health are devoting attention and resources to newborn survival, and the political factors

that shape attention levels. The project is also examining political attention in four countries with high levels of newborn deaths: Bangladesh, Bolivia, Malawi, and Nepal.

IMPACT: It is hoped that findings from these studies will be used to analyze and transcend the political barriers that prevent sufficient attention to the issue of newborn mortality. The project's findings should also contribute to knowledge generation surrounding the question of why some global health issues attract great attention, while others, despite high mortality burden, are neglected.

Hemanti Dangora (left), 18, of Nepal, practices "Kangaroo Care," a technique involving skin-toskin contact between mother and child, with her 28-day-old baby.

Photo courtesy of savethechildren.org

UNIVERSITY TREASURES

Syracuse University Magazine, in collaboration with SU Library's Special Collections Research Center (SCRC), is pleased to offer readers the opportunity to learn about some of the fascinating artifacts held by the University. In the first of this ongoing series, we present "Thunderstorm and Tree, Wyoming," a silver gelatin print by Howard Bond, one of the world's premier large-format photographers. Carl J. and Marcy Armani '60 recently donated 22 limited edition Bond portfolios to SCRC, providing scholars and students a retrospective of Bond's extraordinary images of open landscapes, people, and abstract details. Bond spoke at Bird Library this fall to an overflow audience, an event sponsored by Library Associates and Syracuse Symposium in conjunction with Luminous Construction, a Bond exhibition on display at the library's sixth-floor gallery through January 14.





I searched for three years to find a home for my [Bond] collection. ... In September 2007, my wife, Marcy, and I attended a fraternity reunion. Even though Syracuse was my hometown, this was my first visit to campus since I graduated in 1960. I was so happy to see the beautiful campus and the faces of the young students who were embarking on one of the greatest adventures in their lives. As we left the campus, Marcy looked at me and said, 'This is where your beautiful collection belongs'.

Carl J. Armani, "How the Portfolios of Howard Bond Found a Home at Syracuse University," Luminous Construction: The Photography of Howard Bond (exhibition catalog).



TRIBUTE >>

Honoring an Acclaimed Journalist

ROBIN TONER '76, THE NEW YORK TIMES' FIRST WOMAN national political correspondent, was once described by Senator Edward M. Kennedy as "a reporter's reporter who cared deeply about the people and issues she covered." Toner, who died of cancer last year, was that and so much more, according to friends, family, and colleagues who paid tribute to her at the Robin Toner Symposium, held in Hergenhan Auditorium at the Newhouse School on October 27. The symposium featured a video about her life and work, reminiscences from colleagues, and a panel discussion among some of the nation's top journalists about political and public policy reporting in the digital age. During her nearly 25-year career with The New York Times, Toner covered the most controversial and important domestic issues of the day and regularly hit the presidential campaign trail. Colleagues and competitors alike recognized her for thorough, in-depth reporting, meticulous fact checking, and elegant writing. "She could make policy come alive in a way no one else could," said Dan Balz, national political correspondent for The Washington Post. -From Staff Reports



Gwen Ifil (above left), moderator and managing editor of Washington Week, smiles as Adam Nagourney, chief political correspondent for The New York Times, responds to a question during the symposium's panel discussion. New York Times assistant managing editor Richard L. Berke (right) shares a story about Robin Toner.



GO TO:

sumagazine.syr.edu to view a video about the life and work of Robin Toner '76.



BUILDING UPDATES

ERNIE DAVIS HALL, the first building on campus named for an African American alumnus, opened its doors in August and was officially dedicated by Chancellor Nancy Cantor during October's Orange Central "Homecoming+Reunion" Weekend. The \$50 million, nine-story complex offers 250 student residents academic, dining, and recreational facilities, as well as striking views of campus and the area. It's also equipped with such green features as low water-use fixtures, a storm-water management system, advanced materials requiring less energy to cool, and dining hall efficiencies to reduce food waste and hot-water consumption. Davis '62, the first African American to win college football's coveted Heisman Trophy (1961), was further honored when the Orange's home turf under the Carrier Dome was rededicated as Ernie Davis Legends Field at the October 10 football game with West Virginia.



Carmelo Anthony, who helped make 2003 that championship season for SU basketball, was on campus to slice ribbon for the CARMELO K. ANTHONY BASKETBALL CENTER, a \$19 million practice facility for the men's and women's basketball teams. Adjacent to Manley Field House, "The Melo," as it's already known, features two full practice courts, strength and conditioning facilities, locker rooms deluxe, coaches' offices, and an Orange basketball hall of fame. Anthony, now a star with the NBA's Denver Nuggets, launched the building's construction fund with a gift believed to be the largest to an alma mater by any current pro athlete.



The SU GREEN DATA CENTER, which opened in December on South Campus, is considered the most energy-efficient computer data center in the world. The \$12.4 million, 6,000-square-foot facility was developed through an SU partnership with IBM and the New York State Energy Research and Development Authority. The center features a number of innovative technologies, including an electrical co-generation system that uses natural gasfueled microturbine engines to generate all of the center's electricity and to provide cooling for computer servers.

-From Staff Reports

