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IESSAGE FROM THE CHAIRMAN R. LELAND DAVIS



I would like to thank all MembersoftheSyracuse Center of Excellence, eachofwhichhasproven critical to the success of this unique universityindustry collaboration. This year has seen great progress road-mapping anddevelopingourthree

trustareas: clean and renewable energy, indoor environmental quality, and water resources.

Our Members have also excelled in community engagementstonotonlydemonstrateemerging green technologies but also to educate and inspirefuturegenerationsabouttheimportance of creating sustainable environments.

This past year has proven that Syracuse CoE's model that fosters intellectual collisions

between our university and industry partners is working. At the heart of this model is a grant cyclethatenablesresearchersandtechnologists to respond to pressing global needs through a portfolio of more than 58 research, demonstration, and commercialization projects funded and supported by Syracuse CoE.

Examples of successful Syracuse CoE projects found in this report include research into urban air quality that could lead to "smart buildings," a novel air conditioner that can use groundwater as a coolant, the commercial harvesting of shrub willow for biofuel, and the ongoing recovery of Onondaga Lake.

Of course, transferring green technologies "from the lab to the living room" can only be done with the consent and cooperation of those for whom they are intended. This will require working with neighborhoods,

community leaders, and students to ensure all stakeholders are engaged in the shift toward a sustainable economy. It will also require workforce development programs to train Central Upstate New York workers for jobs in green industries.

Fortunately, Syracuse CoE is in an exceptional position to deliver these programs. Over time, its capabilities will grow. By building on its successes, and maintaining a commitment to the development and evolution of its mission, Syracuse CoE will continue to play a vital role transforming the region into a model of sustainability and economic vitality.

Finally, I thank our capable staff for managing Syracuse CoE's operation and our local, state, and federal elected officials. Without their commitment and dedication, the successes profiled in this report would not be possible.

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Syracuse CoE is a collaboration of independent firms and institutions, administered jointly by Syracuse University and the Syracuse CoE Office for Industry Collaboration, an independent nonprofit corporation. Board members serve as advisors to Syracuse CoE and as directors of the Syracuse CoE Office for Industry Collaboration.

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MESSAGE FROM THE CHAIRMAN
SYRACUSE COE HQ UPDATE
RESEARCH
INDUSTRY COLLABORATION
COMMUNITY ENGAGEMENT
OUTREACH
CREATIVE CORE

ON THE COVER

> CLOCKWISE FROM TOP: Construction workers from LeChase Construction Services set in place the final steel beam of the Syracuse CoE headquarters building in downtown Syracuse (see story page 6). R. Leland Davis, Executive Vice President of O'Brien & Gere, speaks in front of 100 employees hired for a project funded through Syracuse CoE (see story page 16). Students from Syracuse University's School of Visual and Performing Arts sit in a sustainable exhibit they created for the Greenbuild 2007 conference in Chicago, IL (see story page 39). Orrin MacMurray, President and CEO of The C&S Companies and a Syracuse CoE Board Member, signs the Syracuse CoE HQ's final steel beam. Link+, an addition to Syracuse University's LC Smith College of Engineering and Computer Science, was dedicated in April (see story page 15).



	Spring/Summer 2009	+ EXPECTED COMPLETION	+ COST	
	Platinum	+ EXPECTED LEED RATING	♣ SIZE	
The three-acre c designated "bro	onstruction site on the corner of A wnfield," the former site of the LC S	+ SITE		
Unique research partners in the a resources. Also,	and demonstration laboratories f areas of clean and renewable energ offices for Syracuse CoE staff, class			
Carrier Total Inde conduct control the New York Sta	oor Environmental Quality Lab (Ca led experiments on the human res ate Office of Science, Technology, a			
The 150-foot "Urban Ecosystem Observatory" will take measurements of outdoor air quality to help research into urban air pollution and the impact of buildings on urban ecosystems.			+ METEOROLOGICAL TOWER	
		Toshiko Mori	+ DESIGN ARCHITECT	
		Ashley McGraw Architects	➡ EXECUTIVE ARCHITECT	
		LeChase Construction Services	+ GENERAL CONTRACTOR	
Over Arup & Partners (structural engineering), Hargreaves Associates (landscape architects), Burt Hill (lab planner), Transsolar (climate concepts), Stearns & Wheler (civil engineering), O'Brien & Gere (environmental engineer), John P. Stopen Engineering (geotechnical engineering), Peterson Engineering (elevators), C&S Companies (commissioning agent), 7 Group (LEED consultant)				
SYRACUSE COE HQ				



\$35.6 million

55,000 square feet

FACTS

SYRACUSE COE HQ: EXCELLENCE TAKES SHAPE

➡ Local dignitaries and Syracuse CoE Members who have helped make Syracuse CoE's headquarters a reality wrote messages of support and luck on the last beam required to complete the building's frame during a July ceremony.

The HQ will be a showcase of green building and design and an incubator for innovations in clean and renewable energy, indoor environmental quality, and water resources. It will also boost the region's economy, attracting scientists and others from around the world looking to conduct research and demonstration experiments in the building's unique laboratories. Standing to the left of Syracuse Mayor Matthew Driscoll (white jacket) are New York Assemblywoman Joan Christensen (D-119) and New York Senator John DeFrancisco (R-50).

The Toshiko Mori-designed building is on course for completion in late spring/early summer 2009. For more information on the Syracuse CoE HQ and its unique research and demonstration laboratory spaces, contact info@ syracusecoe.org.

Also signing the Syracuse CoE's final beam in July were (inset) State Sen. David J. Valesky (D-49) and (main picture) Onondaga County Executive Joanne M. Mahoney (middle) and New York Assemblyman Al Stirpe (D-121, right). Syracuse CoE Executive Director Ed Bogucz is standing at left.





SELECTED SUSTAINABILITY FEATURES OF THE SYRACUSE COE HQ

- 1 GROUND-SOURCE HEATING AND COOLING—Heat exchanged with the ground, via water circulated through tubing installed in 300-foot-deep wells, will be used for heating and cooling systems.
- 2 DAYLIGHTING—Extensive windows provide natural light to occupants of most indoor spaces, reducing electricity required for artificial lighting.
- **3** FORM—The building is relatively narrow, which provides a high level of occupant comfort with ample daylight and opportunities for views and natural ventilation.
- A RAINWATER COLLECTION—Rain and melting snow is collected from the roof, stored in a 5,000-gallon tank, and used to flush toilets, reducing consumption of potable water and the amount of water discharged to the sewer.
- **5** GREEN ROOF—Plantings on the laboratory roof provide thermal insulation and rainwater retention.
- 6 DEMAND-CONTROLLED VENTILATION—The amount of fresh air delivered to a room varies depending on the number of people who are present, saving energy when rooms are partially occupied.
 - **PHOTOVOLTAIC PANELS**—Panels of photovoltaic cells generate electricity from sunlight, supporting part of the electricity needs of the building.
 - ABORATORY EXHAUST Air from laboratories is exhausted at low speed via a tall stack, which saves energy compared to conventional high speed designs.

- 9 INSULATION—Solid façades include superior insulation to reduce heating and cooling loads. Soy-based insulation used in key locations.
- LANDSCAPING—Shade trees and reflective paving reduce summertime urban heat-island effects.
- RADIANT CEILINGS—Most of the heating and cooling in rooms is provided via ceiling panels that are embedded with tubes to carry warm or cool water.
- 2 BROWNFIELD REDEVELOPMENT— Environmental contamination associated with previous site uses has been remediated, restoring it for sustained use by future generations.
- 13 VAPOR INTRUSION SYSTEM—Ventilation below the foundation prevents underground vapors from entering the building, eliminating a potential source of indoor air contamination.
 - 4 WINDOWS—The south façade features highly insulated glass with integrated electronically controlled blinds that provide solar and glare control.
 - 5 ORIENTATION—The largest faces of the building look to the north and south for good relationship to the sun.

SCHUMER TOURS SUNY-ESF ENERGY RESEARCH FACILITIES



➡ Senator Charles E. Schumer (D-NY, below left with Syracuse CoE Platinum Partner SUNY-ESF President Cornelius B. Murphy Jr.) visited the SUNY-ESF campus in July. Schumer toured the college's energy research facilities and voiced support for tax incentives that would encourage development of alternative energy. "SUNY-ESF is one of the very bright spots in what seems like a pretty bleak energy future these days," Schumer said. "It's time to get serious about a longterm solution to our energy dependency." Schumer's tour included stops at the college's fuel cell, green roof, and laboratories in Walters Hall.He also spoke with college faculty members and visiting business leaders about advancements in areas such as bioplastics and cellulosic ethanol.





SAVE THE DATE FOR HEALTHY BUILDINGS 2009

The Healthy Buildings 2009 Conference and Exhibition will take place in Syracuse September 13 to 17, 2009. This international meeting—hosted by Syracuse University and Syracuse CoE—will provide a great forum for exchange of leading research and technology developments, a unique opportunity to share information on your organization's innovative products and services, and an extraordinary venue to network with national and global leaders and professionals in our field. Visit hb2009.org for more details and a call for abstracts.

PLATINUM PARTNER

SUNY-ESF ESF A SUSTAINABLE YEAR IN REVIEW

The SUNY College of Environmental Science and Forestry—a Syracuse CoE Platinum Partner—is dedicated to the study of the environment, developing renewable technologies, and building a sustainable future. Located in Syracuse, it has a student population of 2,100. Learn more at www.esf.edu.

OCTOBER 2007—SUNY-ESF holds its Forest Biorefinery conference, focusing on strategies to implement existing renewable energy technology and know-how.

NOVEMBER 2007—SUNY-ESF hosts the Sustainable Use of Renewable Energy (SURE) conference in Syracuse, with the theme of "Growing Renewable Energy in New York: Discussions and Demonstrations on Our Sustainable Future."

JANUARY 2008—The Department of Environmental Studies and the Randolph G. Pack Environmental Institute begins its series "Lunchtime Talks on Climate Action: Sociological Perspectives on the Challenges of Environmental Governance."

FEBRUARY 2008—Delivery is taken of two 3,000-gallon storage tanks to supply SUNY-ESF's growing fleet of alternative fuel vehicles. More than 34% of SUNY-ESF vehicles run on some form of alternative fuel.

MARCH 2008—The US Green Building Council New York Upstate Chapter and SUNY-ESF host the Sixth Annual Green Building Conference—combined with the Best Practices in Environmental and Green Building Strategies and Techniques program—in Syracuse.

MAY 2008— SUNY-ESF offers a unique summer course to students—"Introduction to Green Entrepreneurship"—taught by Gary Lim, Kaufmann Foundation Entrepreneurship Professor, along with a distinguished team of instructors and speakers.

JULY 2008— SUNY-ESF takes delivery of two pilot gasifiers (one 20 kW and one 200 kW) to be integrated into the research being conducted by the SUNY Center for Sustainable and Renewable Energy.

JULY 2008— Syracuse CoE Member Honeywell and SUNY-ESF finish planting 60,000 shrub willows in Solvay, near Syracuse. The shrub willows are a source of biofuels and a "bio-cap" for polluted land once owned by chemical manufacturer Solvay Process.



TOWER TO SURVEY CITY'S AIR

➡ In February, a 150-foot Air Pollutant Monitoring tower was raised on the site of the Syracuse CoE headquarters. The tower will be used for a long-term, one-of-a-kind study that will assess Syracuse's urban air quality, air flow, and how outside air affects air quality inside a building.

Eventually, this air quality data could lead to intelligentbuilding management systems that will tell occupants when it is a good time to open a window and when they should close up because of air pollution.

Both the tower installation and the research are collaborative efforts involving scientists from

TAITEM DEMONSTRATES SPLIT AIRSTREAM DESICCANT AC

➡ Historically, the only way to condition air was to draw it over a cold surface, around 45 degrees Fahrenheit, but Ithaca-based Taitem Engineering, PC has found a way to do it with much warmer surfaces, around 60 degrees Fahrenheit.

In August, a team from Taitem—led by Ian Shapiro—successfully tested the concept of a SplitAirstreamDesiccantCoolingsystematthe Building Energy and Environmental Systems (BEES) Laboratory at Syracuse University. The team met its system efficiency goal of a several Members of Syracuse CoE, including Syracuse University, Clarkson University, Cornell University, and SUNY-ESF.

Prof. Myron Mitchell of SUNY-ESF, leads the team that installed the tower and fitted instruments, a project funded with part of a \$380,000 New York State Foundation for Science, Technology, and Innovation (NYSTAR) grant administered through Syracuse CoE.

Leading the data monitoring team is Prof. Philip Hopke of Clarkson University. Hopke's project, funded with a \$600,000 Syracuse CoE research grant, is titled, "Characterization of the Ambient Air Quality in Syracuse and Identification of Its Origins."

1.2 coefficient of performance. Syracuse CoE funded the testing with a grant from the US Environmental Protection Agency.

The system splits an air stream in two and uses a desiccant wheel to transfer moisture to one stream, increasing relative humidity so that warmer water can condition the air. Thus, it could use cool water from geothermal wells or lakes. It does not use a compressor or refrigerants, uses little electricity, and runs quietly.

Itdoesrequireheat, but using geothermal wells and solar energy could provide air conditioning virtually for free. Even if the system used gas, the operating cost could be as much as half that of conventional air conditioning. For more information, visit www.taitem.com.



On a snowy day in February experts from Mohawk Tower raised a 150-foot Air Pollutant Monitoring tower at the Syracuse CoE HQ site in downtown Syracuse.

SYRACUSE COE AWARDS \$600,000 FOR COLLABORATIVE RESEARCH PROJECTS TO IMPROVE AIR AND WATER QUALITY

Congressman James T. Walsh (R-NY, second from right) stands with recipients of 2007 CARTI III grants. Six hundred thousand dollars in federal funds was secured by Walsh for this latest round of innovative research being conducted at Syracuse CoE member facilities. (L to R) Dr. Charles Driscoll of Syracuse University, Dr. Igor Sokolov of Clarkson University, Dr. Don Siegel of SU, Walsh, and Dr. Mike Sponsler of SU.



➡ Researchers at four Syracuse CoE member institutions have begun innovative projects that will help improve the air quality of built environments and protect water resources, thanks to \$600,000 in federally funded grants secured by Congressman James T. Walsh (R-NY).

The Collaborative Activities for Research and Technology Innovation (CARTI) grants were awarded in June to six projects aimed at investigating urban air pollution, understanding mercury pollution in Lake Ontario, researching salt contamination of streams and groundwater, quickly detecting water-borne toxins, modeling how urban water runoff affects natural water sources, and developing an "artificial dust" to help indoor air quality research.

This third round of CARTI awards is made possible through funding from the US Environmental Protection Agency (US EPA) with the help of Walsh, who has secured more than \$30 million in federal funding for research and development for the Syracuse CoE. The funded projects are listed below. Full project descriptions can be found at syracusecoe.org/CARTI.

SURESH DHANIYALA (CLARKSON UNIVERSITY)—\$100,000 to investigate the distribution of ultrafine particles that pollute urban neighborhoods and how this pollution is affected by traffic patterns and urban terrain.

CHARLES T. DRISCOLL (SYRACUSE UNIVERSITY)—\$100,000 to analyze mercury pollution in Lake Ontario and how the amount and distribution of mercury is affected by surrounding watersheds.

STUART FINDLAY (CARY INSTITUTE OF ECOSYSTEMS STUDIES) AND DON SIEGEL (SYRACUSE UNIVERSITY)—\$100,000 to research the causes of increased salt concentrations in surface and groundwater throughout New York State.

YAN-YEUNG LUK, MICHAEL B. SPONSLER, AND REN DACHENG (SYRACUSE UNIVERSITY)—\$100,000 to develop a highly sensitive hydrogel material that can quickly detect the presence of water-borne toxins.

GIORGOS MOUNTRAKIS, KARIN LIMBURG, MYRNA HALL, AND BONGGI HONG (SUNY-ESF)—\$100,000 to create a more accurate and useful model of how run-off from sidewalks, parking lots, rooftops, and roads affects natural water sources.

IGOR SOKOLOV AND DOUGLAS BOHL (CLARKSON UNIVERSITY)—\$100,000 to develop a novel ultrafine material—photoluminescent silica—that will simulate dust, allowing researchers to better model air flow in indoor environments.



CLINTON REVIEWS SYRACUSE COE PROJECTS



➡ Anthony Collins, President of Syracuse CoE Platinum Partner Clarkson University (third from right), explains to Sen. Hillary Rodham Clinton (D-NY) some of the research and demonstration projects underway at his university and other Syracuse CoE institutions. Also speaking to Clinton at a downtown Syracuse event in July were Syracuse CoE Executive Director Ed Bogucz (second from right); Peter King, Managing Partner of Syracuse CoE Gold Partner King & King Architects (far left); and Cheryl Gressani, Director of Syracuse CoE Silver Partner Air Innovations (not pictured). Clinton was in Syracuse to review Central Upstate's clean and green technology sector and to lend her support to policy measures that will boost the industry.

STARTUP PARTNER

AERFIL: Air Quality Expertise at Home and in Space

Syracuse CoE StartUp Partner AERFIL, founded by Dr. R. Vijayakumar, is a consulting firm with expertise in aerosols, air filtration, and contamination control. With clients worldwide, this Liverpool, NY-based firm is built upon decades of experience in filter media, filter design and construction, filter testing, as well as in research into aerosols, technology, and measurements.



Services AERFIL provides include filter selection and evaluation for commercial and industrial application, filter media selection, custom filter designs, contamination control strategies, aerosol and particle measurements and research, test procedure development and compliance testing, product and process troubleshooting, and technology and market assessment. Aerfil also offers clients in-house training and workshops, as well as mentoring of young professionals.

In addition, Vijayakumar recently consulted on a project for NASA to design and build a test system to evaluate the performance of filters for lunar dust, and he is presently working with a partner in Holland on devices for indoor climate and air flow measurements using acoustics.

For more information, visit www.aerfil.com.

GREAT LAKES SUSTAINABLE ENERGY CONSORTIUM MEETS IN SYRACUSE

➡ In February a bi-national meeting of the Great Lakes Sustainable Energy Consortium (GLSEC) was held in Syracuse. The consortium representingresearchers,governmentofficials,and industry leaders from New York and Ontario addressed energy issues affecting communities and commerce in both Canada and the US.

GLSEC was formed to capitalize on research and technology development related to sustainable energy and to bring commercialization and economic growth to communities in New York and the Province of Ontario. Members from the Consulate General of Canada in Buffalo, Syracuse CoE, and the Sustainable Bioeconomy Centre at Queen's University spearheaded GLSEC's formation in 2007.

Since then its Steering Group has grown to include C&S Companies; Clarkson University; Constellation Energy; Cornell University; Eastern Lake Ontario Regional Innovation Network (ELORIN) of Kingston, ON; O'Brien & Gere; Performance Plants, Inc. (Kingston, ON); SUNY-ESF; Syracuse University; and the University of Guelph (Ontario).

PLATINUM PARTNER

Clarkson University: A YEAR IN REVIEW



Clarkson University—a Syracuse CoE Platinum Partner—is located in the town of Potsdam, NY. It is a private, nationally ranked research institution with a student population of 3,045. Learn more at www. clarkson.edu.

DECEMBER 2007—CU joins The Solar Energy Consortium (TSEC), a research partnership between New York research institutions and solar energy companies to advance the state's solar industry.

JANUARY 2008—CU discontinues the purchase and use of polystyrene products, commonly known as Styrofoam. Clarkson's Campus Dining completed its elimination of polystyrene from all food service use in November, and will now use biodegradable alternatives.

MARCH 2008—CU indoor environmental quality experts Prof. Andrea Ferro and assistant Jing Qian receive funding as winners of the Wallace H. Coulter School of Engineering Seed Grant Competition. They will identify the scientific mechanisms responsible for the formation of dust clouds that occur with everyday activities, such as walking across carpet.

APRIL 2008—CU joins the US Green Building Council. The announcement comes before final consideration by the Empire State Development Corporation of the university's plan to design, build, and operate an energy-efficient 195 kW microturbine system to provide combined cooling, heat, and power for a new Technology Advancement Center, part of CU's new Energy to Education Park.

MAY 2008—Philip K. Hopke, Bayard D. Clarkson Distinguished Professor and Director of the Center for Air Resources Engineering & Science (CARES) is elected to the first class of fellows in the American Association for Aerosol Research (AAAR).

MAY 2008—The Beacon Institute for Rivers and Estuaries names Prof. James S. Bonner as REON Director of Research. An expert in real-time water monitoring, Bonner will lead the River and Estuary Observatory Network (REON) to create the first technology based monitoring and forecasting network for rivers and estuaries.



GREAT LAKES SUSTAINABLE ENERGY CONSORTIUM Technology Development , Commercialization , Economic Growth



SCIENTIFIC FORUM ASSESSES THE STATE OF THE LAKE

➡ In November, Syracuse CoE Charter Member Upstate Freshwater Institute (UFI) hosted the Ninth Annual Onondaga Lake Scientific Forum, presentingrecentresearchonOnondagaLakeand Seneca River. The forum was sponsored by UFI, SUNY-ESF, and Syracuse University.

Among the topics and presenters were:

"Long-Term Trends in Accumulated Mercury in Biota from a Recovering Eutrophic Lake" by Svetoslava Todorova and Charles Driscoll (Syracuse University) and Steven W. Effler, David Matthews, and Michael Spada (UFI)

"Changes in Water Clarity in Onondaga Lake: Analysis of a 40-Year Record" by Steven W. Effler, Rakesh Gelda, Amy Kolb, MaryGail Perkins, and Feng Peng (UFI) and Nelson Hairston and Colleen Kearns (Cornell University)

"A Retrospective Analysis of Solids Deposition in Onondaga Lake: 1980-2007" by Craig Hurteau, David Matthews, and Steven W. Effler (UFI)



STARTUP PARTNER

Isolation Systems: An IAQ Fan-Coil Split System HVAC with Air Purification

Isolation Systems, Inc.

The threat of toxic vapors and biological airborne pollution being used in warfare or in a terrorist attack is motivating the air purification industry. Syracuse CoE StartUp Partner Isolation Systems of Tonawanda, NY is one company addressing modern air purification needs, by building a unit that uses innovative technology to remove potentially harmful airborne chemicals, including toxic volatile organic compounds (VOCs) and bio-aerosols that have adverse health effects on room occupants.

The proposed system uses current room heat pump and air conditioning technology and modifies it with specialized air purification filters. Intake air is filtered through High Efficiency Particulate Air (HEPA) filters under constant ultraviolet radiation to kill germs and disinfect the air, and is filtered through VOC impregnated activated charcoal filters to eliminate odors and toxic VOCs.

Individual units are connected to a building's centrally controlled system, and the heat pump technology does not require the ductwork of traditional systems. The IAQ Fan-Coil purifies the room air of harmful VOCs and biological airborne contamination, heats and cools the room for human thermal comfort, and provides the room positive pressure to prevent airborne pollutants from infiltrating.

This "split system"—its monitoring and control functions are split between individual areas and a central management unit—IAQ fancoil is being developed with the help of Air ISO, R.P. Fedder, and Graver Technologies. Extensive testing—made possible with a Syracuse CoE Technology Application and Demonstration grant—was conducted at the Building Energy and Environmental Systems (BEES) Laboratory at Syracuse University.

Isolation Systems plans to make this product available to hospitals, clinics, hotels, and convention centers. In environments such as these, individual room heating and cooling systems—that are integrated with ductless recirculating air purification units tied into a central monitoring and room air pressure management system—will offer better control of air quality.

For more information, contact Dr. Charles K. Akers at cakers@ isolationsciences.com.

At left, Prof. Charles Driscoll, an expert in water quality from Syracuse University and member of the National Academy of Engineering, presented at the Ninth Annual Onondaga Lake Scientific Forum in November.

LINK+: SYRACUSE COE ADDS SYRACUSE UNIVERSITY LCS INTERDISCIPLINARY WING TO ITS RESEARCH ASSETS

➡ In April, Syracuse University dedicated "Link+," a five-story, interdisciplinary wing built onto the north side of Link Hall. The new addition houses state-of-the art research laboratories for the L.C. Smith College of Engineering and Computer Science (LCS) and Syracuse CoE.

The cost of the Toshiko Mori-designed 10,164-square-foot facility and associated investments in equipment for laboratories is \$10.1 million, of which \$6 million was provided by a grant from New York State for investments in Syracuse CoE facilities.

Syracuse CoE Link+ laboratories will serve as a collaborative environment where Syracuse University students and faculty will worktogether with researchers from firms and other institutions to advance the understanding of intelligent work places and how they can satisfy the needs of an innovation-based work environment.

ENTER THE ICUBE

Other studies planned for the ICUBE include the automatic tracking of individuals and their thermal environments; tests on the performance of an organic filter; tests of a wireless sensor network; and tests of a prototype personal environmental control system.

The initial configuration of the ICUBE will consist of two identical office chambers of 1,000 square feet that can accommodate 16 office workers. The two chambers—to be operated as "experiment" and "control" office spaces—include dedicated HVAC systems and under floor ventilation. Workers in the experimental chamber will be able to set up their own comfort conditions using individual HVAC units dedicated to each office cubicle. A dedicated sensor lab is also housed on the third floor to monitor and measure energy consumption under different variables.

COLLABORATING FOR THE "TRIPLE BOTTOM LINE"

➡ Today more than ever, businesses of all sizes are looking to adapt new practices and ideasthathelpreduce—eveneliminate—their environmental impact. Today's business executives—and students preparing to be future corporate leaders—seek to understand how innovation in business practices can benefit people, the planet, and their profit: the so-called "Triple Bottom Line."

To help address both the economic and practical challenges of incorporating green business strategies, SUNY-ESF, Syracuse CoE, and Syracuse University's Whitman School of ManagementlaunchedtheSustainableBusiness Collaboration (SBC) in April.

The SBC is a transdisciplinary, collaborative effort involving faculty, researchers, and students. It provides insight into the best practices and policies for various sizes of businesses; metrics for sustainable efforts; implementation strategies; and associated long-term benefits to an organization and the community.

The collaboration included among its first initiatives: three mini-grants of \$5,000 each to promoteresearchinbusinessandsustainability; a pilot graduate class called "Business and Sustainability;" the Business and Sustainability Seminar Series, which held its first seminar in April in New York City; and a plan to create a "Business and Sustainability" certificate program open to Syracuse University and SUNY-ESF graduate students.

PLATINUM PARTNER

Commercialization Award Helps O'Brien & Gere Invest and Grow

In January O'Brien & Gere hosted the Commercialization Assistance Program (CAP) awards at its headquarters in East Syracuse. In CAP IV, four Central Upstate New York businesses received \$50,000, but before the innovative companies received their checks, R. Leland Davis, O'Brien & Gere's Executive Vice President and Syracuse CoE Board Chair, presented some of the more than 100 employees the firm has hired as a direct result of its 2002 CAP award.

O'Brien & Gere Executive Vice President Lee Davis with some of the more than 100 new workers his firm was able to hire as a result of a competitive Commercialization Assistance Program awarded by Syracuse CoE.

O'Brien & Gere received \$125,000 in 2002 for a project to develop "an integrated environmental control system." Today, 102 new workers at the environmental engineering firm work on developing equipment that helps capture pollutants produced at power plants.

"Leveraging the unique capabilities and facilities of Syracuse CoE partners is one of the growth strategies that enables O'Brien & Gere to provide its customers with advanced environmental, engineering, and renewable energy solutions," explains Davis.

In another sign of growth, O'Brien & Gere announced in July it will relocate its corporate headquarters to downtown Syracuse. The \$25 million building— which will apply for LEED certification—will anchor a major revitalization of the city's downtown.

STUDENT: Robyn Andrusyszyn, Clarkson University

SCOPE OF WORK: Assist with a water and wastewater infrastructure improvement project for a Native American community.

COMPANY: C&S Companies

STUDENT: Sean McMahon, Clarkson University

SCOPE OF WORK: Assist industrial hygienists with environmental sampling, industrial hygiene surveys, and IEQ investigations.

COMPANY: Colden Corporation

STUDENT: Thomas Thorsell, Syracuse University

SCOPE OF WORK: Help with development of a Geothermal Desiccant Cooling System.

COMPANY: Taitem Engineering

STUDENT: Kristen Knodel, Cornell University

SCOPE OF WORK: Create operation and maintenance manual for Ortho-Clinical Diagnostic Blood Analyzer and update Users Manual for HepAir filter/air conditioner.

COMPANY: Air Innovations

STUDENT: Jeffrey Pawlowski, Syracuse University

SCOPE OF WORK: Planning and programming of healthcare facilities.

COMPANY: King & King Architects

STUDENT: Benjamin Watkins, Binghamton University

SCOPE OF WORK: Assist project engineers with design and procurement projects and perform design calculations and data evaluation.

COMPANY: O'Brien & Gere

Syracuse CoE intern Jeff Pawlowski (left) learns his trade at Syracuse CoE Gold Partner King & King Architects.

INTERNSHIP PROGRAM CONNECTS THE BRIGHTEST WITH THE BEST

➡ The Syracuse CoE Industry Collaboration Internship Program provides support for qualified college students hosted by Central Upstate New York companies working in the environmental quality and indoor air quality fields, including water resources and high performance/green building design.

The goal is to increase post-graduation student retention in Central Upstate by establishing valuable relationships between college students and Central Upstate companies doing work in the environmental field.

To date, 40 interns have gone through the program. The list of summer 2008 interns is at left. To find out more about this program, contact Tim Benson at tbenson@syracusecoe.org or 315-443-8756.

UPSTATE COMPANIES RECEIVE COMMERCIALIZATION AWARDS

➡ New York Assemblyman William Magnarelli (D-120), the Syracuse CoE Office for Industry Collaboration, and the Metropolitan Development Foundation (MDF), announced in January that four upstate companies were the recipients of Commercialization Assistance Program (CAP) awards. Combined, these innovative projects hold the potential for creating 94 new high-value jobs and \$109 million in new revenue over the next five years. The awards total \$199,875 and leverage \$623,709 in private sector and university matching support. The four CAP award-winning companies are:

DOUBLE A WILLOW—Based in Fredonia, NY, this company is working with SUNY-ESF to produce shrub willow as a source biomass fuel for renewable energy production.

ISOLATION SCIENCES—Based in Williamsville, NY, this firm is working with Clarkson University to produce fumehoods that will create more energy-efficient laboratory environments.

VENTO TEK—Based in Potsdam, NY, and working with Clarkson University, this company intends to bring to market a revolutionary Smart Wind Turbine Blade incorporating active control capabilities for more efficient power generation.

WIDETRONIX SEMICONDUCTORS—Based in Ithaca, NY and working with Cornell University, Widetronix will use its grant proceeds to bring a patent-pending silicon carbide expatial wafers manufacturing process online.

Four Upstate companies were awarded \$50,000 each in the fourth round of Commercialization Assistance Program awards. The program is funded through a grant secured by New York Assemblyman William Magnarelli (D-120, standing fourth from right). (L to R) Sandra Downey, Previous Executive Vice President, Syracuse CoE Office for Industry Collaboration (Syracuse CoE OIC); Ed Bogucz, Executive Director, Syracuse CoE; Dennis Rak and Rich Alexander of Double A Willow; Magnarelli; Dr. Pier Marzocca of Vento Tek; Dr. Charles Akers of Isolation Sciences; and Dr. Jonathan Greene of Widetronix. The Commercialization Assistance Program is made possible by a grant administered through the Syracuse CoE OIC and the Metropolitan Development Foundation to promote commercialization of green technologies.

MAPPING THE STATE OF THE ART: SYRACUSE COE R&T COMMITTEE

➡ The Syracuse CoE Research and Technology Committee (R&T Committee) is charged with advancing the state of the art in clean and renewable energy, indoor environmental quality, and water resources. It does this through technology transfer, by expanding educational and professional development with industry-academic collaborations, and by seeking signature projects through which these efforts can be demonstrated.

Each speciality area sub-committee is made up of experts drawn from Syracuse CoE Members. The overall R&T Committee is chaired by Bob DelZoppo, Corporate Technology Director for Syracuse CoE Gold Partner Syracuse Research Corporation, and Dr. Tom Young, Provost of Syracuse CoE Platinum Partner Clarkson University.

In June 2008, the R&T Committee finished and reported on the first phase of its Technology Roadmapping initiative, a structured and comprehensive approach to technology based strategic planning for Syracuse CoE and its member organizations. The Roadmap will:

- Provideamethodologyforassessingtechnicalassets, identifyingneeds, and establishing direction.
- Provideabasisforproductpositioning, marketalignment, and selection.
- Helpshapetheresearchagendaforprograms, thrustareas, or product/ service lines.
- Help identify new and needed products and services.
- Allow organizations to make better technology investment decisions.
- Provide timely input to operating plans and budget process.

STARTUP PARTNER

Bluepoint Environmental: A Full-Service IEQ Consultant

Syracuse CoE StartUp Partner Bluepoint Environmental is a full-service indoor environmental quality consulting firm that offers a multidisciplinary approach to diagnosing and solving air quality problems in residential and commercial properties.

The company is one of only four in New York State to maintain accreditation through the American Industrial Hygiene Association (AIHA) Environmental Microbiology Laboratory Accreditation Program (EMLAP). Thanks to a Technology Application and Development grant from Syracuse CoE, Bluepoint Environmental, together with researchers from SUNY-ESF, are working to improve the ability to detect and characterize fungal bioaerosols in indoor environments.

But research is only part of what Bluepoint Environmental does. The majority of the company's work involves testing, consulting, and preparing indoor environmental quality problem mitigation plans. Working throughout the Northeast—from Maine to Virginia—Bluepoint offers a wide variety of services available to commercial and industrial clients. These include microbial contamination assessments, remediation project design and management, worker and supervisor training, clean room testing, pre-demolition asbestos surveys, various analytical services, digital photomicroscopy, product testing, and information seminars. For more information, visit www. bpe-llc.com.

PLATINUM PARTNER

Boylan Marble & Terrazzo Restoration: A Polished Approach

Started in 1995 as a janitorial service specializing in floor care, Syracuse CoE Platinum Partner Boylan Marble and Terrazzo Restoration incorporated marble floor refinishing into its service portfolio in 1998, and in 2002 marble repair was added to the company's unique package of services.

Today, Boylan uses a chemical-free process for its marble restoration, and is focusing on water recycling in order to reduce its water consumption. Boylan's first chemical-free job was in the Seneca Dining Hall at Syracuse CoE Collaborator SUNY-Morrisville in Morrisville, NY. Other Boylan projects include terrazzo, marble, and granite restoration projects at historic buildings in Central Upstate New York and marble and granite restoration projects at casinos and banking institutions throughout the Northeast.

In fact, Boylan's unique services have brought them clients from across the country, and the company—the only stone restoration business in Central Upstate—is enjoying a steady stream of work. Owner Thomas Boylan says that its partnership with Syracuse CoE has been an "awakening."

Boylan's experts can repair stone damage ranging from small chips and cracks to large holes, and they can restore natural stone and terrazzo in commercial, historic, residential, and government buildings, schools, and universities. Their process eliminates dangerous floor strippers, waxes, and cleaners that pose hazardous chemical risks and that emit Volatile Organic Compounds (VOCs) that pollute indoor air. Boylan's unique restoration process leaves behind a beautiful polished terrazzo or natural stone floor—and nothing else.

To learn more, visit www.boylanstonerestoration.com.

THE CNY SUSTAINABLE SPEAKER SERIES

➡ In 2008 the Syracuse CoE Research & Technology Forums collaborated with the US Green Building Council (USGBC) New York Upstate Chapter to produce the Sustainable Speaker Series. The talks, in which experts in clean and renewable energy, environmental quality and water resources present to a general audience, were held at the Rosamond Gifford Zoo in Syracuse.

IN NOVEMBER 2007, Dr. Shobha K. Bhatia, Professor of Civil and Environmental Engineering in Syracuse University's LC Smith College of Engineering and Computer Science, spoke on "Geotextile Tube Dewatering," a technique for safely separating solids from liquids in cases in which contaminated lake and river environments must be remediated.

IN FEBRUARY 2008, Dr. Paul F. Mutolo, Associate Director of the Cornell Fuel Cell Institute (CFCI), spoke on "The Real Cost of Gas and How Fuel Cells Can Help." "The fuel cell has energy conversion efficiencies of 50% to 60% with existing technology. Using bettermaterials, like those under development at the CFCI, fuel cells operating at 90% efficiency are very real possibilities," says Mutolo.

IN MARCH 2008, Janet Allen, Co-Founder and President of Habitat Gardening in Central New York, spoke on "Building Buzz: Creating Habitat for Wildlife with Native Plants and NaturalLandscapes." Allen discussed landscaping's vital new role in the green building movement: to preserve biodiversity.

IN APRIL 2008, Bill Chadwick of Carrier Corporation's newly formed Indoor Air Quality Key Competency Group, spoke on "Particle Air Filtration: Picking the Type that Meets Your Needs." Chadwick discussed various ratings for particle filters, their wide performance range, and how to satisfy filtration needs.

IN JUNE 2008, Keith Bargaheiser, fly ash product representative from Headwaters, Inc., talked about "Fly Ash: Making Concrete Sustainable." Bargaheiser cut through the myths about using fly ash in concrete and how it can reduce the amount of Portland cement required for concrete.

IN AUGUST 2008, Tracie Hall, Executive Director of the USGBC New York Upstate Chapter, discussed "LEED: What It Takes and Why It Matters." Hall talked about the process and lessons learned certifying Syracuse's first Leadership in Energy and Environmental Design (LEED) building.

➡ Building on its \$30-million investment in a partnership with Syracuse University, JPMorgan Chase announced in December the site for a new technology center.

The JPMorgan Chase Technology Center will be built on the western end of the Syracuse University campus, across from the Carrier Dome stadium and near the SUNY-ESF campus. JPMorgan Chase will aim for US Green Building Council LEED-Platinum certification for the building.

The new center will feature the latest technology in water and energy efficiency to reduce energy consumption and utilize natural light. Recycled and sustainable materials will also be used in the building construction. Syracuse University will collaborate in designing the green facility, drawing on research being conducted at Syracuse CoE and its partner organizations.

Future Site: JPMorgan Chase Technology Center, Syracuse, New York

STARTUP PARTNER

Munly

FOR INFORMATION ON BECOMING A SYRACUSE COE PARTNER, VISIT SYRACUSECOE.ORG/PARTNERS, CALL (315) 443-8211 OR WRITE INFO@ SYRACUSECOE.ORG Brown Studio: munty brown studio Collaboration in Action

AST REARING & ANTENNES

NG AVEDUDE

TAD AWARD RECIPIENTS AND COLLABORATORS:

+ COLLABWORX, INC.

Project Title: Open Web Services-Based Indoor Climate Control System, Phase II

Collaborator: SenSyr, LLC. Funding Amount: \$149,900

+ ENVIRONMENTAL LABORATORY SERVICES

Project Title: Application and Demonstration of Macroarray Analytical Techniques for the Detection of Fungal Bioaerosols in Buildings

Collaborator: SUNY-ESF Funding Amount: \$149,141

+ WIDETRONIX, INC.

Project Title: Silicon Carbide Avalanche Photodiode for Photomultiplier Tube Replacement in Airborne Biological Contaminant Identification Sensors

Collaborator: Cornell University Funding Amount: \$150,000

+ PROPULSIVE WING, LLC

Project Title: Commercial Development of a Multi-Use Personal Ventilation/Filtration System

Collaborator: Syracuse University, Allred & Associates, Inc. Funding Amount: \$150,000

+ TAITEM ENGINEERING

Project Title: Geothermal Desiccant Cooling: A New Approach to Air Conditioning

Collaborator: Syracuse University Funding Amount: \$111,944

FIVE UPSTATE COMPANIES RECEIVE TAD FUNDING

➡ In September, the Syracuse CoE Office for Industry Collaboration announcedthatfiveUpstateNewYorkcompaniesreceivedatotalof\$710,985 in merit-based Technology Application and Demonstration (TAD) awards for projects designed to improve air quality.

The awards are made possible through funding to the Syracuse CoE from the US Environmental Protection Agency, secured by US Rep. James T. Walsh (R-NY, pictured above left with J.B. Allred III of Propulsive Wing collaborator Allred & Associates). The announcement was made at the company headquarters of Propulsive Wing, which is housed in the Allred & Associates facility in Elbridge, NY.

The five companies were competitively selected based on their proposals for year-long projects that demonstrate the "first proof of principle" or "reduction to practice" phase of a new product or service associated with air and/or water quality. Projects began January 1, 2008, and most will run through December 31, 2008.

Syracuse CoE StartUp Partner Munly Brown Studio, located in Hanover Square in downtown Syracuse, engages in a range of projects from material research to master planning, with a commitment to environmental, social, and economic sustainability.

Current projects include master planning and architectural design for mixed-use developments in Syracuse and Albany, NY; consulting on an analysis of the Onondaga Creek Corridor with CLEAR, an architectural and landscape practice; and consulting on school expansions to address environmental performance in contemporary design, in collaboration with Syracuse CoE Member Ashley McGraw Architects. The studio also leads, under a NYSERDA and Syracuse School of Architecture grant, a research consortium designing prototypical low-cost, energy efficient high performance homes.

Munly Brown's material research includes Computer Numerical Control (CNC) milling of plywood and production of resin composites and translucent concrete with recycled aggregate, the latter project funded by a Syracuse CoE fellowship. Funded urban research includes analysis of Boston as an aggregate of distinct neighborhoods and an interdisciplinary study of Rome, NY utilizing GIS modeling and citizens' cognitive mappings. Working together for more than 20 years, principals Anne Munly and Ted Brown formalized their practice in 2007. The design activity of Munly and Brown has been recognized through exhibitions and publication of their work in the US and in Italy. Their research has been supported by the American Academy in Rome, Italy; the Boston Foundation for Architecture; the New York State Energy Research and Development Authority; the National Endowment for the Arts; the New York Council for the Humanities; and Syracuse CoE.

To learn more, visit www.munlybrownstudio. com.

COMMUNITY ENGAGEMENT

The SALT District of the Near West Side, where Syracuse Art, Life, and Technology meet, is an 11-block area near downtown Syracuse slated for economic revitalization through the efforts of the Near West Side Initiative. Key components of the effort include resident engagement, an artists' relocation program, and green technology applications to existing and new homes in the area.

NEAR WEST SIDE INITIATIVE: A YEAR IN REVIEW

+ The mission of the Near West Side Initiative (NWSI) is to combine the power of art, technology, and innovation with neighborhood values and culture to revitalize Syracuse's Near West Side neighborhood. "NWSI is a comprehensive neighborhood revitalization plan for an area that hasn't seen any adjustments made in the last 50 years, and it is programmatic in organizing the residents to get involved as well," explains Marilyn Higgins, Vice President for Community Engagement and Economic Impact at Syracuse University and Chair of the NWSI Board.

November 2007

 Syracuse University architecture professors
 Timothy Stenson and
 Scott Ruff announce they are working with Home
 HeadQuarters to transform
 223 Marcellus Street into a neighborhood revitalization information center.

December 2007

King & King Architects close on the purchase of a new 51,000-square-foot headquarters on West Street. King & King aim to apply for LEED-Platinum certification for the renovated building.

IMPROVING ENERGY EFFICIENCY IN NEAR WEST SIDE HOMES

✤ An integrated project to help homeowners in the Skiddy Park area of Syracuse's NearWest Sideneighborhood assess and improve energy use and indoor environmental quality began in January with the first of as many as 50 families receiving free home energy assessments. Home HeadQuarters is leading the project, with assistance from Syracuse CoE.

The Home Performance Study energy assessments will evaluate energy use along with health and safety issues in participating homes and will help identify needed improvements to reduce energy use that may result in lower utility bills.

Home HeadQuarters is providing Energy Upgrade Mini-Grants of up to \$2,500 to help with home improvements identified through the home energy assessments. The mini-grants, available at Home HeadQuarters through the city of Syracuse, are made possible with Syracuse Neighborhood Initiative funding secured by Rep. James T. Walsh (R-NY).

Syracuse CoE staff is offering advice and guidance to homeowners on recommended energy improvement options. Together, Home HeadQuarters and Syracuse CoE are helping homeowners research and apply for additional funding opportunities. Homeowners may alsobeeligibletotrynewenergy-savingappliancesand/orequipment in their homes, which would be made possible through Syracuse CoE.

At the end of 2007, Syracuse University, at the request of Syracuse CoE, solicited bids for home assessments from local Building Performance Institute (BPI) certified firms. Three Syracuse firms— TAG Mechanical, Zero Draft, and Comfort Home Improvements were hired to conduct the assessments.

January 2008

Home HeadQuarters announces \$2,500 Neighborhood Initiative grants for NWS owneroccupants to make energy improvements suggested by audits conducted by Syracuse CoE-hired contractors.

 Home HeadQuarters offers \$5,000 Neighborhood Initiative grants to NWS homeowners to make exterior home improvements.

The Joint Schools
 Construction Board—
 headed by the city
 of Syracuse and the
 Syracuse City School
 District—receive approval
 from the Office of the
 State Comptroller to move
 forward with bonding for
 \$180 million to renovate
 seven schools in Phase 1 of
 reconstruction, including
 Blodgett Elementary
 School.

February 2008

The New York State Energy Research and Development Authority gives \$550,000 and Syracuse CoE \$200,000 to help design, renovate and/ or construct green houses in the NWS, a project led by CDH Energy Corp. of Cazenovia, NY.

These twin houses on Tully Street in Syracuse's Near West Side received free energy audits in January as part of the Home Performance Study.

At left, students Jariel Ortiz (15, left) and Jamika McAlpine (17, right) interview Near West Side resident Mary Misita as part of a Syracuse CoE-coordinated oral history of the neighborhood. At right, Syracuse CoE NWSI Project Manager Ana Fernandez with Josuel Pizarro (16).

March 2008

Rep. James Walsh (R-NY) and Syracuse Mayor Matt Driscoll announce that \$250,000 of \$1.2 million in federal funds to improve neighborhoods will support the NWSI.

April 2008

The Central New York Community Foundation awards Sofia Rodriguez, of the Youth Philanthropy Project and a 10th-grader from Nottingham High School, \$15,000 to help clean up the NWS.

May 2008

 SU architecture students finish redesign projects for NWS houses, guided by professors Kevin Lair, Albert Marichal, and Katrina Stroll.
 SU architecture students complete a Design Studio focusing on the renovation into lofts/studios of the 240,000-square-foot Case Supply warehouse.

Onondaga County Executive Joanne Mahoney scraps plans for a \$128 million sewage treatment facility in Armory Square, next to the NWS, calling instead for a green infrastructure solution. The Environmental Finance Center at Syracuse University and Syracuse CoE are taking lead roles with this project.

 Rep. Walsh honored by Home HeadQuarters for his work helping to revitalize the Near West Side and other Syracuse neighborhoods.

By May, Home
 HeadQuarters had bought
 or planned to buy 64 of 217
 parcels in the "horseshoe"
 around Skiddy Park.

Syracuse CoE plans
 with Home HeadQuarters
 the deconstruction of a
 NWS house, including the
 workforce development,
 market development, and
 policy initiatives needed to
 support the process.

June 2008

More than 100 volunteers, including Syracuse CoE staff, help spruce up homes and yards around Skiddy Park and Blodgett School during a Home HeadQuarters-organized "Block Blitz."

July 2008

 Local high school students, under the supervision of Syracuse CoE, begin a six-week project to collect thoughts, memories, ideas, and visions from NWS residents regarding changes in their neighborhood.

SYRACUSE COE TEAM TO DESIGN HIGH-PERFORMANCE HOMES

➡ Thanksto \$550,000 from the New York State Energy Research and Development Authority (NYSERDA) awarded in February, a collaborative Syracuse CoE team will design and build up to six new energy-efficient "green" homes in Syracuse. CDH Energy leads the Home Performance Improvement Challenge (HomePIC). Additional members include the Building Performance Contractors Association, Camroden Associates, Northeast Green Building Consulting, and Syracuse University.

The HomePIC project team completed a similar NYSERDAsponsored project in 2007. The High Environmental Performance (HEP) house project developed a design for a new energy-efficient home built in Fayetteville, NY. The HomePIC project will extend the skills and experience deployed in the HEP house into the mainstream housing market. The goal of the HomePIC project is to work with builders that construct affordable homes of between 1,500 and 2,500 square feet and thatare interested in achieving better energy performance from existing designs.

The NYSERDA grant will pay builders a \$10,000 incentive to construct the first demonstration home of each design developed by the HomePIC team. In addition, Syracuse CoE has committed to provide up to \$100,000 in incentives to build up to 10 new design homes in the Near West Side neighborhood. Design, construction, and performance data of completed homes will be available to builders and home buyers on the NYSERDA website (www.nyserda.org).

EFC HOSTS TECHNICAL ASSISTANCE PARTNERSHIP FORUMS

In March, Matthew J. Millea, Acting President of the New York State Environmental Facilities Corporation presented municipal financing options for sustainable projects, and Dr. Sharon Moran of SUNY-ESF spoke on "New Currents in Environmental Governance."

In June, Michelle De Sam, a graduate student in the Maxwell School of Syracuse University, gave a presentation on the issue of drug/personal care products found in the water supply. Also speaking on local efforts to prevent pharmaceutical products from entering the water systems was George C. Thomas, Executive Director of the Center for Environmental Information in Rochester, NY.

Environmental Finance Center Syracuse University

Matthew J. Millea, Acting President of the New York State Environmental Facilities Corporation, spoke at a one-day EFC Technical Assistance Partnership Forum held in March.

STARTUP PARTNER

Summerhill Biomass Systems: A Local Solution

SUMMERHILL BIOMASS SYSTEMS

Syracuse CoE StartUp Partner Summerhill Biomass Systems focuses on Micro-Powdered Biomass Fuel Technology. Using biomass fuel produced from renewable non-food crops (willow, switchgrass) and agricultural wastes (corn stalks, forest products), Summerhill's system allows for the creation of business opportunities from "feedstock to flame" (that is, from forest or farm to end user).

Raw biomass's consumption as fuel is often inefficient and highly polluting. Summerhill's James McKnight believes clean micro-powder fuel production, consumption, and energy cost savings can drive local economies that have the potential for small-scale power units based on locally available biomass.

Awarded a NYSERDA grant to pursue research and development, Summerhill has recently introduced its concept to the US Department of Energy, gained interest from the Brazilian ethanol and biomass industry, and has been invited to present its ideas to the World Bank. Furthermore, it has scheduled a greenhouse heating prototype demonstration at SUNY-ESF and grain dryer prototype demonstrations are scheduled for the agriculture industry.

Summerhill is working with investors on US commercialization and in developing countries with biomass resources, energy needs, and pollution issues that can be addressed by its proprietary technology. For more information, contact James McKnight at (518) 944-2370.

STARTUP PARTNER

ARE Technologies Treads an Innovative Road

Marty Dimond of Syracuse CoE StartUp Partner ARE Technologies has found an incredible niche market: transforming old tires into railroad ties. Soon, he hopes to build a house out of them too.

Recycling every part of a tire—from the steel belts to sidewalls and tread—ARE Technologies has developed a product that is stronger and more resilient than conventional materials. ARE Technologies ties are now in place on a few sections of railroad in Central Upstate New York. They serve as a demonstration project and will hopefully encourage railroad companies to install more of them. Doing so would be cost-effective, Dimond explains.

The average wooden railroad tie has a life expectancy of roughly five years. According to Dimond, the ARE rubber alternative can last as long as 35 years with the added benefits of reduced noise and increased strength because rubber ties do not shift, split, or loosen around the spikes that hold them in place. With 20 million railroad ties used in the US, recycled rubber would be a beneficial alternative to wood or concrete, for locomotives, railroad companies, and the environment.

ARE Technologies is also working on constructing a demonstration house made of recycled rubber. Dimond asserts this house can be trimmed on the inside and out like a conventional home. He points out that the rubber building material should make the house easy to heat and cool, bugfree, and watertight. Diamond feels that the material also should make the house extremely energy efficient and, like its railroad tie counterpart, the building material should be quieter and stronger than materials used in convention homes. For more information, call Marty Dimond at (315) 391-5973.

PMFP HELPS COMMUNITIES PLAN FOR THE LONG TERM

➡ In April 2008 the Environmental Finance Center at Syracuse University (EFC) hosted a three-day Public Management and Finance Program (PMFP) conference—titled "Planning for the Long-Term Viability of Our Community Systems"—in Blue Mountain Lake, NY.

The PMFP provides hands-on technical assistance and training to communities that need help with environmental projects by connecting them with key technical assistance providers. The Aprilconferencewelcomed representatives from communities throughout Central Upstate New York.

The invited speaker was Matt Millea, Acting President of the New York State Environmental Facilities Corporation, who spoke on "Financing for a Sustainable Future." Other topics and presenters at the PMFP conference included:

- "AgingInfrastructure:GettingPreparedforthePerfectStorm" by Teresa Boepple of the New York State Department of Health.
- "Shared Services and Intermunicipal Collaboration" by Joann Ryan and Christopher Grant of the New York Department of State.
- "Financial Planning for Sustainable Infrastructure" by Amy Santos of Red Oak Consulting.
- "Sustainable Economic Development" by Keith Wells of the Saranac Lake Area Chamber of Commerce.

Below, representatives from a wide variety of Central Upstate New York communities gathered in Blue Mountain Lake, NY to learn about environmental planning and share ideas at an EFC Public Management and Finance Program conference in April.

BREAKING IT DOWN AND BUILDING IT UP IN NEW ORLEANS

Members of the Environmental Finance Center (EFC) at Syracuse University learned there's more than one way to use a hammer when they helped with reconstruction—and deconstruction—of the Holy Cross neighborhood of New Orleans' Lower 9th Ward.

The EFC was invited in March to observeandevaluatetheHistoricGreen project. Specifically, the team analyzed thecomponents—thepeople, resources, and plans—involved in this unique recovery project in a neighborhood devastated by Hurricane Katrina in 2005.

The EFC team met with organizers and project stakeholders, interviewed

participants, attended community meetings, and toured project sites. The teammembersalsogottheirhandsdirty working side-by-side with community members and volunteers from all over the nation.

HistoricGreenisacollaborationbetween Holy Cross community members, local organizations, and non-profit groups, aswellasanational network of students and others involved in green building.

Historic Green is innovative because it focuses on what the community wants to do. For instance, Holy Cross residents wish to preserve the historic look and feel of their community, so community members, the Preservation Resource Center, and Emerging Green Builders areworkingtogethertodeconstructand reconstruct these historic homes.

The majority of the green building is being done to homes that survived the storm. The reconstructed homes will be more environmentally friendly and will likely save homeowners thousands of dollars in energy costs over the lifetime of the house.

BRINGING HISTORIC LESSONS HOME

Syracuse CoE and the EFC are applying the lessons learned about sustainable disaster recovery and urban redevelopment to Central Upstate New York:

DECONSTRUCTION— With leadership assistance from Northeast Green Building Consulting and Naef Recycling, Syracuse CoE and Home HeadQuarters are working together on the planned deconstruction of a house in Syracuse's Near West Side Neighborhood, including workforce development, market development, and policy initiatives needed to support the process. The project expects to provide a framework that engages the community in sustainable urban redevelopment.

DISASTER RECOVERY—The EFC is considering creating a framework that can be applied to other communities affected by disasters—in Central Upstate New York, those can include ice storms and floods that takes the Historic Green recovery as a model of sustainable rebuilding.

COMMUNITY ENGAGEMENT—The Historic Green project is a model of community engagement in planning, development, and even construction. Lessons in how to involve community members are being applied to the Near West Side Initiaitive, for example (see pages 22 and 23).

New Orleans' Holy Cross neighborhood resident Mack McClendon speaks to a group of Historic Green volunteers in the Lower 9th Ward village. Historic Green is a collaboration between Holy Cross community members and local organizations and non-profit groups, as well as a national network of students and others involved in green building.

WORKFORCE TRAINING EXPANDS

➡ Opportunities to engage in a discussion with staff of the New York State Senate Finance Committee and participate on a panel hosted by the NYS Assembly Task Force on Skills Development and Career Education—Chaired by Assemblywoman Joan Christensen (D-119)—illustrate Syracuse CoE's expanded emphasis on workforce development efforts in support of business and economic development. During the past year Syracuse CoE staff has been engaged inidentifying green economy jobs and determining skillsets required for success. Syracuse CoE also is developing education and training programs to ensure the availability of a skilled workforce for existing and emerging green jobs in Central Upstate New York. Some initiatives and collaborations are listed below.

WORKFORCE DEVELOPMENT COLLABORATIONS

AFL-CIO Workforce Development Institute, Emerging Green Builders, Greater Syracuse Chamber of Commerce, Jefferson Community College, Madison County, Manufacturers Association of Central New York, Metropolitan Development Association, New York State Department of Labor, New York State Empire State Development Corporation, North Country Community College, Onondaga Community College, Oswego County, SUNY-Oswego, SUNY-ESF, Syracuse Alliance for a New Economy, University College at Syracuse University, US Green Building Council, and Workforce Investment Boards of Cayuga-Cortland.

WORKFORCE DEVELOPMENT PROJECTS

CNY Minority Contractors green training development; Deconstruction Training: Lessons from New Orleans (see story at left); Environmental Finance Center training events (see stories on pages 24 and 25); Green Building Training for Building Trades (in collaboration with building trades unions and other skilled workers from Central Upstate New York); Regional Economic Transformation Strategies Through the Energy & Environmental Systems Cluster: A Journey 2 Jobs Initiative; Sustainable Business Collaboration (see story on page16); Sustainable Infrastructure Management academic program and national center; and US Green Building Council national training coordination and assistance.

Historic Green volunteer John Hanson of Philadelphia (left) tears down a wall as part of a deconstruction project with (right) Mark Lichtenstein, Director, Environmental Finance Center at Syracuse University.

STARTUP PARTNER

e2e Materials Makes "History"

July was a busy month for Syracuse CoE StartUp Partner e2e Materials and its subsidiary company Comet Skateboards.

Patrick Govang, Co-Founder & President of e2e Materials, and Jason Salfi, Co-Founder & President of Comet Skateboards, met with Sen. Hillary Rodham Clinton (D-NY) at a green and clean technology showcase in Syracuse to explain how e2e's platform biocomposite technology is revolutionizing furniture, cabinetry, green building, and action sports industries while creating new jobs in Central Upstate New York.

The team also highlighted how e2e's technology brings enhanced performance and green attributes to Comet's high-performance sustainable skateboards, which relocated from Oakland, CA, to Ithaca, NY, in October of 2007.

Later in the month, e2e was featured in The History Channel series premiere of *The Works!*, a show which uncovers the unimaginable intricacies of things we take for granted. The first show looked at garbage and the latest applications of recycling. e2e was featured as a company delivering a high-performance technology solution designed with end-of-life re-applications and environmental impact as a top priority.

e2e Materials is a green and clean technology company based in Ithaca, NY that produces petroleum-free, biodegradable composites that are stronger, lighter, and cheaper than composites filling landfills today.

Its composite material platform can be tuned to a range of strength properties reaching into midrange steels delivering tremendous strength to weight ratios. These fully biodegradable materials are made from annually renewable resources including soy proteins and natural fibers such as bamboo, jute, flax, and kenaf.

MAXWELL SCHOOL STUDENTS HELP CITY OF OSWEGO, US VIRGIN ISLANDS

➡ The EFC and Syracuse CoE continue their important partnership with the Maxwell School of Syracuse University throughthegraduatecapstoneproject, a four-week intensive research and developmentprojectthatcapstheoneyear Masters of Public Administration program.

Supporting Syracuse CoE's clean and renewable energy focus area, Syracuse CoE and EFC engaged a Maxwell capstone student team that collaborated with the school's Center of Environmental Policy and

Administrationtodevelopasustainable energy plan for city of Oswego in Central Upstate New York.

A second capstone project looked at the development of wind power on the US Virgin Islands, which is part of the EFC's US Environmental Protection Agency Region 2 catchment. For this project, students researched and developed wind power policy directives that the US Virgin Islands' government can use regarding the siting of wind energy facilities.

Syracuse CoE and the EFC continue working on projects in the Virgin Islands, providing opportunities for Partners such as Clarkson University and Syracuse University's College of Engineering and Computer Science.

OF BIOSWALES AND ECO-ROOFS: EFC'S GREEN INFRASTRUCTURE GUIDE NAVIGATES SUSTAINABLE INFRASTRUCTURE

 The mission of the EFC is to provide assistance to municipalities and communities so that decision-makers can manage local resources in a way that effectively responds to the needs of community members in the present and future.

One way municipal and community leaders are responsibly managing resources is through sustainable planning. But understanding best practices in the field of sustainable infrastructure, urban planning, and landscaping can be bewildering to some on twersed in the technical terms, so to provide a navigation tool, the EFC has created its Guide to Green Infrastructure. This guide will also help assist Syracuse CoE with its Green Infrastructure initiatives in Onondaga County

This guide provides examples of green infrastructure from around the US—such as bioretention basins, bioswales, ecoroofs, and urban forestry—as well as a glossary of commonly usedterms, from "Better Site Design" to "Sustainable Resource Management." To find out more, contact efc@syracusecoe. org or visit efc.syracusecoe.org.

EFC CREATES GUIDE FOR GREEN CAPITAL PROJECTS

➡ In conjunction with Syracuse CoE Charter Member, the US Green Building Council (USGBC) New York Upstate Chapter, the EFC has published a practical and easy-to-use tool for New York State local governments and schools that are looking to fund sustainable and environmentally friendly capital projects.

Thisguideisparticularly useful for those applying for Leadership in Energy and Environmental Design (LEED) certification. The "Field Guide of Financial Support for Sustainable Capital Projects" presents a list of financial and technical assistance resources that governments can use to implement and finance green building projects.

The Field Guide presents resources in a user-friendly fashion, using icons to represent the LEED principals each assistance program references, the type of assistance offered (grant, matching grant, or loan/loan subsidy), and the anticipated time commitment involved for applying for each funding source.

The guide was prepared by Syracuse University Maxwell School MPAStudents aspart of their master's graduate capstone project, under the direction of Prof. David Popp and the sponsorship of the USGBC New York Upstate Chapter, the EFC, and the Maxwell School of Syracuse University. To request a copy, write efc@syracusecoe.org or visit efc.syracusecoe.org.

FOCUSING ON CLIMATE CHANGE

➡In January, Central Upstate New York colleges and universities took part in Focus the Nation, a day-long, national teach-in looking at solutions and responses to global warming. At Syracuse University, Oren Lyons (pictured above), Turtle Clanfaithkeeper, Onondaga Nation member, and distinguished professor at Syracuse CoE Charter Member SUNY-Buffalo, gave a spiritual invocation. At Syracuse University and SUNY-ESF, Focus the Nationactivities were presented by the University Sustainability Action Coalition, a group co-founded by Syracuse CoE and the EFC.

C&S JOINS EXTREME MAKEOVER PROJECT

➡ In August, C&S Companies joined Canastota, NY firm Mahoney Design and Buildinan Extreme Makeover: Home Edition project in Central Upstate New York. The one-week project took place in Geneva, NY, where the 1835 farmhouse of the Hill family was torn down and replaced, enabling the family to keep and improve a boxing gym for underprivileged teens. C&S provided labor and equipment, as well as assistance with the aggressive construction scheduling, public relations, an on-site operated crane, and materials transportation.

C&S also guided—along with Syracuse CoE Member Northeast Green Building Consulting—the work needed to make the Extreme Makeover house a US Green Building Council LEED for Homes certified project, including diligence on the LEED Materials and Resources Prerequisite regarding waste management on the site. Contractors on the project attended atraining session on green construction sponsored by Syracuse CoE Member Onondaga Community College and presented by C&S and Northeast Green Building Consulting.

PLATINUM PARTNER

Alliance Energy: A New Vision

Syracuse CoE Platinum Partner Alliance Energy visualizes energy in the context of responsibility and opportunity to create a sustainable infrastructure that is environmentally responsible yet economically affordable. Founded in 1994, Alliance has evolved from its roots in natural gas exploration, production, and transportation to electric power generation and, most recently, research into renewable fuels. The company strives to provide a safe, clean, and reliable supply of energy to meet society's demands, while remaining attentive to its environmental responsibilities.

Alliance continues to evaluate operational and environmental performance of biofuels to reduce emissions in its traditional fuel-fired power generators. The company has increased the efficiency and capacity of its hydro-electric generating units and has obtained a preliminary license for a new hydrokinetic facility in the St. Lawrence River. Alliance is conserving its water resources from the largest privately owned lakes in the northeast through better management and modern upgrades and controls, protecting water resources for New York City and the entire Delaware River Basin.

Alliance Energy's belief in the potential for sustainable energy is expressed in continuing studies to optimize and improve energy production through the vertical integration of resources and energy generation. Alliance also is exploring the use of low impact wind generation, high efficiency photovoltaic cells, concentrated solar panels, and biooils from high-yield crops and algae extrusion. Alliance is participating in joint studies with Syracuse University, providing funding and work opportunities for students to become viable energy scientists.

In each of its communities, Alliance is an integral part of the economy through local employment, procurement of local goods and services, and in making a cleaner environment. For more information, visit www.allianceenergy.us.

SPREADING THE SUSTAINABLE WORD

From October 2007 to September 2008, the Syracuse CoE hosted, exhibited/presented at, and co-sponsored the following sustainability themed events:

OCTOBER 2007

At left, in April, the Environmental Finance Center at Syracuse University, the University Sustainability Action Coalition, and textile students in Syracuse University's College of Visual and Performing Arts collaborated on an Earth Day celebration exhibit at SU's Carrier Dome. The exhibit's frame visually represents one ton of carbon dioxide. It is hung with clothes made from environmentally friendly fabric.

Below, a chief attraction at the Syracuse CoE Symposium, held in October, were the research posters, highlighting research in clean and renewable energy, indoor environmental quality, and water resources conducted at the Syracuse CoE's member institutions. Here, students discuss a project led by Dr, Philip Hopke of Clarkson University, funded by a CARTI grant, titled "Characterization of the Ambient Air Quality in Syracuse, NY and Identification of its Origins."

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NEW IDEAS FOR BUSINESS AND TECHNOLOGY

The Accelerate 2008 conference held in Syracuse in April engaged students, teachers, business leaders, and community members in a wide range of topics and education tracks, including Technology and Innovation in Business, Environmental Stewardship, and Sustainable Business Growth.

More than 200 students from area schools joined more than 1,000 participants at the conference, expo, and workshops. Attendees heard from two keynote speakers: Jeremy Gutsche, founder of the website Trendhunter.com, and Charles Fishman, author of The Wal-Mart Effect.

Student-centeredattractionsincludedaforumon"GoingGreenTogether in CNY" and a display of student-built electric cars from the Central New York Electrathon. Students also shadowed exhibition companies, and learned about the green movement and green jobs in Central Upstate at the Sustainability Learning Center.

Top right, electric cars from the Central New York Electrathon were a popular attraction at Accelerate 2008, highlighting how the conference encourages active participation by local students and provides them a primer on the sustainability movement and its business applications.

Right, after the Accelerate 2008, Syracuse CoE dropped off some of its modular exhibition cards at HW Smith Elementary School in Syracuse, much to the delight of kindergartners, who were encouraged to build their own structures with them and taught valuable lessons about recycling.

PLATINUM PARTNER

Carrier Demonstrates Energy Efficient Chiller Plant

In August, Syracuse CoE Platinum Member Carrier Corp. demonstrated it has improved chiller plant efficiency by more than 10% with its Evergreen 23XRV model. The Evergreen—with Foxfire compression technology and HFC 134a non-ozone depleting refrigerant in series counter flow—provides the highest efficiency as measured by Air-Conditioning and Refrigeration Institute (ARI) test standards.

Carrier demonstrated the efficiency breakthrough in its Charlotte, NC, manufacturing facility at a laboratory demonstration event. The theories presented were modeled with Carrier's Hourly Analysis Program (HAP) energy simulation tool and put to the test in Carrier's ARI-certified test laboratory. The full-load and part-load efficiencies recorded were 22% and 47% better than current ASHRAE 90.1 efficiency standards.

Buildings utilizing the variable speed screw chillers in series counter flow could qualify for two LEED points in the Energy and Atmosphere section. For more information, visit www.carrier.com.

GOING GREEN AND MAKING GREEN

➡ Above, Amory Lovins, Co-Founder, Chair, and Chief Scientist of the Rocky Mountain Institute, spoke at Syracuse University in November. "Profitable Solutions to Climate, Oil and Proliferation Problems" examined energy efficiency and competitive alternatives that exist and cost less than obsolete energy technologies that cause environmental problems.Lovins'visit underlined Syracuse University's expanding effort to measure and reduce its carbon footprint as part of its partnership with the President's Commitment on Climate, a national project to thrust colleges and universities into leadership roles inbuilding awareness of and promoting activities to enhance sustainability. Syracuse CoE presented Lovins in collaboration with the Geoffrey O. Seltzer Lecture Series and Syracuse Symposium.

STARTUP PARTNER

Natural Systems Engineering: Modeling Sustainability

"Our mission is to support environmental sustainability through modeling and other engineering and scientific analysis. Because this mission truly supersedes the profit motive, we market our services to governments, nongovernmental organizations, environmental advocacy groups, and other not-for-profit watershed stakeholders," explains Kyle Thomas, Principal of Syracuse CoE StartUp Partner Natural Systems Engineering (NSE), a specialty consulting environmental engineering company founded in 2007 and headquartered in Syracuse, NY.

NSE firmly believes in the principles of green design, particularly where these principles dovetail with desirable societal outcomes such as the revitalization of urban centers, the promotion of public health, and the conservation of open spaces. "We subscribe to the principles of sustainability both on behalf of our clients and for ourselves as a company and as individuals," says Thomas. "In short we practice what we preach."

NSE specializes in watershed modeling, hydrologic studies, Total Maximum Daily Load (TMDL) analyses, and other engineering studies to support water quality protection and sustainability. NSE also administers Leadership in Energy and Environmental Design (LEED) construction projects, provides technical consultation on the Water Efficiency (WE) and Sustainable Sites (SS) credits on LEED projects, and characterizes and remediates brownfield sites.

Recent work includes serving as the project administrator for design and construction of an office building in Syracuse's Inner Harbor seeking LEED certification and a feasibility study of small wind generation projects for the city of Syracuse. To learn more, visit naturalsystemsengineering.com.

STARTUP PARTNER

Widetronix Wins \$250,000 Venture Challenge

In May, leading early-stage venture firms DFJ Gotham Ventures and Draper Fisher Jurvetson (DFJ) announced that Syracuse CoE StartUp Partner Widetronix from Cornell University secured first place at the second annual DFJ East Coast Venture Challenge at Columbia Business School. Widetronix's plan to market a pacemaker power supply with a 25-year life span won the competition's prize of \$250,000 in seed funding, the largest purse of any student business plan competition in the country.

Teams participating in the challenge came from Columbia, Cornell, New York University, Yale, the University of Pennsylvania, Princeton, Brown, Carnegie Mellon, and Harvard. The project finalists were culled from the ranks of the best submissions to their schools' respective business plan competitions.

Widetronix consists of Dr. Michael G. Spencer, Dr. MVS Chandrashekhar, Dr. Jonathan Greene, and Christopher I. Thomas. "Winning the DFJ East Coast Venture Challenge is extremely gratifying," says Greene, Widetronix CEO and President. "The \$250,000 in financing is obviously important, but we're also very excited to join the portfolios of DFJ Gotham and DFJ and enjoy all the advantages that entails."

STARTUP PARTNER

Open Atelier: Architecture + Design

Syracuse CoE StartUp Partner Open Atelier (OA) is a full service architecture, planning, and design firm focused on urban design, commercial, retail, highend custom residential, and various other building types.

The Cazenovia, NY, firm was founded by Anthony Catsimatides in 2002 on the principle that architecture is an expression of the arts as well as a significant contributor to and augmentation of the environment. It is within this belief that OA addresses the needs and concerns of the client, the environment, and the public.

OA emphasizes creativity and innovation while researching critical issues in building design with inventiveness, originality, and vision. "Good design starts with good listening", says Catsimatides. "Clients have needs, but so too does the environment. By listening to both, OA hopes to develop solutions that address all aspects of the built environment."

Each project is approached as an exploration or research endeavor. This allows OA to uncover unique and optimal solutions. The primary focus is on environmentally responsive buildings that react and are affected by environmental conditions as well as healthy lifestyles. The building industry and the architecture profession calls this focus "sustainable," but OA likes to think of it as just good architecture.

OA places significant value on quality workplace design and its effects on an individual's performance. Issues such as healthy material selection and good quality lighting are important factors

in fostering creativity, productivity, and resourcefulness.

ridetr

The word "atelier" means "artist's workspace", and in adding the word "open" Catsimatides has enshrined in his company's name both the collaborative work philosophy of his company and of the projects it takes on. "We emphasize the importance of sharing ideas. The relationships we build with our clients are often the most rewarding part of the process," says Catsimatides. "Plus, at OA's office we cultivate ideas and nurture creativity by allowing team members to speak out on matters concerning all aspects of a project."

For more information, visit www. openatelier.com.

SEVENTH ANNUAL SYRACUSE COE SYMPOSIUM: BUILDING INNOVATIONS FOR CLIMATE CHANGE

✤ World-renowned architect Toshiko Mori (below) was a keynote speaker at the 2007 Syracuse CoE Symposium— "Building Innovations for Climate Change"—in October. Mori—speaking in front of more than 300 attendees discussed the sustainability aspects of the Syracuse CoE headquarters, which will apply for Leadership in Energy and Environmental Design Platinum certification.

Mori is the design architect for the building. Other Syracuse CoE Symposium speakers included Volker Hartkopf, Professor of Architecture, Carnegie Mellon University, Pittsburgh, PA; Hon. Susan Roaf, Oxford City Council, Oxford, England and Heriot-Watt University, Scotland; and Paul D. Tonko, President and CEO, New York State Energy Research and Development Authority.

After the symposium, the Syracuse CoEOffice for Industry Collaboration held a half-day workshop on "Developing Sustainable Practices as Applied to Strategic Planning, Operations, and Management."The workshop included a panel discussion on practical aspects of sustainability and four break-out discussions on practical issues in Water/ Wastewater, Building Systems, Greenhouse Gas/Carbon Footprint, and Planning/Policy/Transportation.

PLATINUM PARTNER

Syracuse University: A SUSTAINABLE YEAR IN REVIEW

Syracuse University—a Syracuse CoE Platinum Partner—is a private research institution with an enrollment of 13,203 undergraduate students and 5,811 graduate and law students. Learn more at www.syr.edu.

OCTOBER 2007—SU's Lubin House in New York City hosts a panel discussion on "Sustainable Architecture on the NYC Scene," hosted by Syracuse CoE and SU's School of Architecture.

OCTOBER 2007—Colleen and Thomas Wilmot donate \$6 million to the L.C. Smith College of Engineering and Computer Science to endow a chair, advance programming and a scholarship fund, and focus efforts by Syracuse CoE and the Entrepreneurship Initiative.

NOVEMBER 2007—Syracuse Builds, a review of architectural and landscape projects slated for the Syracuse University campus, the Connective Corridor, and Syracuse's Near Westside Initiative, is hosted by SU's School of Architecture.

DECEMBER 2007—JPMorgan Chase announces a new 200,000 square-foot technology center will be built on the SU campus. Syracuse CoE will help the building apply for LEED certification.

DECEMBER 2007—Dr. Patrick T. Mather joins the faculty of SU's L.C. Smith College of Engineering and Computer Science as the inaugural Milton and Ann Stevenson Professor of Biomedical and Chemical Engineering.

DECEMBER 2007—SU becomes a pilot institution for the Association for the Advancement of Sustainability in Higher Education Sustainability Tracking, Assessment, and Rating System program, used to assess an institution's sustainability.

JANUARY 2008—Dr. Charles T. Driscoll, University Professor of Environmental Systems Engineering in the L.C. Smith College of Engineering and Computer Science, co-authors *Acid Rain in the Adirondacks: An Environmental History* (Cornell University Press) that looks at acid rain's impact on the environment and public policy since the 1970s.

FEBRUARY 2008—SU launches Green UniverCity (greenunivercity.syr. edu) as a forum for its American College and University President's Climate Commitment efforts.

FEBRUARY 2008—Prof. Charles T. Driscoll is elected to the National Academy of Engineering.

MAY 2008—The US Environmental Protection Agency names SU the Individual Conference Champion among Big East schools in its College & University Green Power Challenge, for purchasing green power for 22% of its annual purchased electricity use.

MAY 2008—Dr. Laura J. Steinberg is named dean of the L.C. Smith College of Engineering and Computer Science. At Tulane University, Steinberg was co-founder of Tulane's Earth & Ecosystem Sciences Ph.D. program.

BITZER SCROLL SELECTS NY'S CREATIVE CORE

 In February, BITZER Scroll, Inc. a German manufacturer of compressors for air conditioning and refrigeration systems, announced it will construct a new manufacturing plant in the Syracuse area. The facility is expected to create close to 300 jobs.

The firm conducted a worldwide search of possible sites for the new plant. A combination of factors—including business development incentives, local workforce expertise in compressor design, and regional strengths in energy and environmental systems research and development—led the firm to locate its new plant in the heart of New York's Creative Core.

The effort to recruit BITZER Scroll to New York's Creative Core was led by the Central New York office of Empire State Development. The effort included key contributions by the Syracuse CoE Office for Industry Collaboration, Syracuse CoE, and several partners including National Grid and Syracuse University, along with New York State Energy Research and Development Authority, New York State Foundation for Science, Technology and Innovation, Onondaga County Industrial Development Agency, and the Central New York Technology Development Organization.

PLATINUM PARTNER

destiny usa: a sustainable year in review

destiny usa

Destiny USA—a Syracuse CoE Platinum Partner—is creating a consumer and visitor experience on a brownfield site next to Onondaga Lake in Syracuse. Since 2002, it has committed to operate 100% free of fossil fuels and to showcase green and clean technology innovations in a practical, entertaining, and educational setting. Learn more at www. destinyusa.com.

OCTOBER 2007—Destiny USA announces a partnership with Hereford Capital Advisors to develop and build up to 3.2 megawatts of solar generating capacity on its site. Destiny USA will also install 16 wind turbines on parking lot light poles.

FEBRUARY 2008—Melissa Perry, Director of Sustainability for Destiny USA, speaks at the annual National Biodiesel Board conference in Orlando, Florida about new markets and developing technologies in the biodiesel industry.

MARCH 2008—Destiny USA announces it will use 30% coal fly ash in the second major concrete application on its site. Fly ash, a byproduct of coal-fired power plants, is used as a more sustainable alternative to Portland cement.

APRIL 2008— Greening USA awards Destiny USA a 2008 Advocacy Award for its excellence in leadership in promoting and facilitating green construction practices in the first phase of its construction project.

MAY 2008—The Southern Research Institute releases a report prepared for Destiny USA and the New York State Energy Research and Development Authority on the in-use evaluations of emissions from nonroad diesel equipment using biodiesel.

JUNE 2008—Destiny USA joins the Energy Star Low Carbon IT Campaign and will implement power consumption guidelines on its computers as recommended by the US Environmental Protection Agency (US EPA).

JUNE 2008—Destiny USA joins The SmartWay Community Program, a voluntary partnership between various freight industry sectors and the US EPA that establishes incentives for fuel efficiency improvements and greenhouse gas emissions reductions.

CENTRAL UPSTATE: A CLEAN AND GREEN GLOBAL LEADER

← Central Upstate New York is well-positioned to be a globalleaderinthefourkeysectorsofgreentechnology according to results of a study conducted by the Battelle Memorial Institute. The report issued by Battelle and released in June identifies four core sectors in which the Creative Core region is a leader or has a high potential for growth.

The sectors include: indoor environmental quality, renewable energy, green buildings and sustainable designs, and water quality/water resources. The report shows that these high-growth industry sectors align with the region's existing strengths and assets.

Beyondanassessment of the region's assets, the Battelle report—titled "Central Upstate New York's Green Industry Sector: Opportunities and Prospects"—includes a green technology market analysis, an assessment of state and local policy initiatives, recommendations for developing and growing new and existing businesses in these sectors, and a prospect list of 330 leading firms that would be strong candidates for relocation to Central Upstate.

With the Syracuse CoE HQ work site as a back drop, New York Assemblyman William Magnarelli (D-120) speaks at the release of the Battelle Study in June.

A student learns about the ecosystem of the Adirondack Mountains at The W!Id Center in Tupper Lake, NY. In June, The W!Id Center hosted an international conference on climate change with assistance from Syracuse CoE.

SUSTAINING THE NORTH COUNTRY

✤ After being approached by the Adirondack North Country Association, Syracuse CoE began a new initiative to support green and clean technology based economic development in the Adirondack North Country region of New York. The Adirondack North Country Initiative includes the following components:

• The Adirondack North Country Association, a regional economic development organization, is collaborating with the New York Creative Core GreenTeam to develop economic plans and marketing initiatives based on green technologies and businesses.

• With the help of Syracuse CoE, **The W!ld Center** in Tupper Lake, NY, hosted the "American Response to Climate Change" Conference in June that developed actionable recommendations for market incentives and regulatory changes to reduce emissions from leading sources.

• Syracuse CoE is assisting the **Biomass Workforce Development Group** and North Country Community College to develop curriculum and training on the subject of biomass.

• Franklin County Industrial Development Association has joined forces with the Syracuse CoE to promote and market Franklin County as a green industrial development destination.

• The Energy Smart Park Initiative (E\$PI) pools the resources of more than 20 Syracuse CoE member organizations to work toward making the Adirondack Park a model of sustainable energy production and use. A long-term goal is to reduce the carbon footprint of the region to zero.

NEW YORK LOVES CLEAN TECH!

➡ For the second year, members of the Creative Core GreenTeam—led by Syracuse CoE and National Grid among the universities, companies, and economic development agencies that make up the GreenTeam—joined the Center for Economic Growth and the Empire State Development Corporationattwocleanandrenewableenergysummits:the PowerGen Renewable Energy & Fuels conference, held in Las Vegas in February, and the Washington, DC, International Renewable Energy Conference (WIREC) in March.

New York is home to a wealth of alternative energy companies, researchinstitutions, and economic development organizations committed to clean energy. The NYL oves Clean Techinitiative is an integral component of the secollaborators' efforts to support alternative energy economic development throughout the state.

Other organizations exhibiting under the NY Loves Green Tech banner were: Adirondack North Country Association, Arsenal Business & Technology Partnership, BBL Development Group, Clarkson University, Cornell Fuel Cell Institute, Warren County EDC, Harriman Campus, Mohawk Valley EDGE, New York State Energy Research and Development Authority, County of Onondaga, Rensselaer Polytechnic Institute, Rensselaer County Economic Development & Planning, Saratoga Technology + Energy Park, SUNY-Cobleskill, SUNY-ESF, SUNY-Morrisville, SUNY-Stony Brook, Metropolitan Development Association of Syracuse and Central New York, The Solar Energy Consortium, and The United Group of Companies.

CREATIVE CORE HOSTS GERMAN-AMERICAN BIOMASS CONFERENCE

✤ The 4th German-American Renewable Energy ConferencewasheldinSyracuseinJuneattheheadquarters

of National Grid. Six leading German companies and 10 research organizationsgavepresentationsonthelatestbiomasstechnologies and developments to an audience of more than 250. The aim of the conferencewastoinitiateatransatlanticdialoguebetweenGerman and US companies in regard to biomass. "The Central New York governmentandbusinesssectorsreadilyrecognizedtheimportance of biomass and these sectors are already coordinating with the German companies in setting up actual development projects," explains Sebastian Göres, Manager of Consulting Services for the German-American Chambers of Commerce in New York City.

It is through National Grid's support that the Creative Core GreenTeam flourishes. The energy firm was instrumental in bringing the German-American Chambers of Commerce to the region and in supporting the Sustainably Energizing New York's Creative Core conference (see story below).

nationalgrid

SUSTAINABLY ENERGIZING THE CREATIVE CORE

✤ In July, SUNY-ESF hosted the Sustainably Energizing New York's Creative Core conference at the Oncenter in Syracuse. The question "How do we energize New York's creative core?" was posed to more than 300 attendees.

To provide an answer, key leaders in the fields of energy and sustainability were invited to talk about what is happening not just in this region, but globally. Keynote speakers included Tom King, President of National Grid; Patrick H. Brennan, New York State Director, US Department of Agriculture Rural Development; Robert Callender, Vice President for Programs, New York State Energy Research and Development Authority; and Raymond Orbach, Director, Office of Science, US Department of Energy. The conference program also brought to light essential leadership opportunities for Central Upstate New York businesses, academic institutions, government, and industry ingreen and clean technology. Attendees interacted with two panels, on Sustainable Research

(moderated by Darlene Kerr, President of the Syracuse Chamber of Commerce) and Green Technology (moderated by Paul Mutolo of the Cornell Fuel Cell Institute).

There were also six breakout sessions on a wide range of subjects: High Performance Buildings, Corporate Drivers, Renewable Supply, Growing New York, New York Business, and Structuring Green Projects.

Fourth-year industrial and interaction design students in Syracuse University's College of Visual and Performing Arts designed the Syracuse CoE Greenbuild 2007 booth. (L to R) Dana Beierle, Jason Bonaventura, Marguerite Schumm, Sarina Fiero, Shayna Bentkover, and RJ Wattles.

BUILD IT GREEN, AND THEY WILL COME

• Education is a key component of sustainability, so when Syracuse CoE planned its exhibit for Greenbuild 2007—the international exposition of the US Green Building Council—it got students involved, collaborating with six fourth-year industrial and interactiondesignstudentsinSyracuse University's College of Visual and Performing Arts: Dana Beierle, Shayna Bentkover, Jason Bonaventura, Sarina Fiero, Marguerite Schumm, and RJ Wattles.

Syracuse CoE asked the students to design a 20-by-20-foot"green" exhibit that reduced, reused, and recycled materials, created traffic, and put the Syracuse CoE's best foot forward as a representative of more than 200 academic institutions, organizations,

and businesses under the "New York's Creative Core" banner.

The students' innovative design certainly caused a stir at Chicago's McCormick Place. The main structure—made from 16-by-9-inch information cards die-cut so they can be slotted together and built attracted hundreds of attendees and encouraged them to ask questions about the exhibit, the Syracuse CoE, SU, and the Creative Core.

Visitors were encouraged to take cards away, with the idea that the exhibit wouldbedeconstructed over the expo's two days, substantially reducing return shipping and the exhibit's carbon footprint. The "take away" cards weren't the only green innovation the students created for the November exposition. The exhibit was made with no materials containing formaldehyde or polyvinyl chloride.

Furniture was constructed using non-formaldehyde bamboo plywood, with soy-based adhesive, from Syracuse CoE Partner e2e Materials. The furniture was upholstered with reused T-shirts purchased from the Salvation Army.

Flooring was purchased from FLOR, a company that sells eco-friendly, modular carpet tile. It was donated to the South Chicago Chamber of Commerce after Greenbuild for use in its community room, thereby reducing the need to expend carbon shipping the flooring back to Syracuse.

The exhibit used no external electricity. Instead, students built a bicycle generator to power compact fluorescent and LED light bulbs.

Other structures were built with sustainable and/or recyclable materials: bamboo plywood, balsa wood, and cardboard.

Syracuse CoE Gold Partner C&S Companies sponsored the student's sustainable travel (the train between Chicago and Syracuse). Syracuse CoE and SU staff who flew had air travel emissions off-set with carbon credits.

SYRACUSE CENTER OF EXCELLENCE MEMBERS

PARTNERS

Platinum: Alliance Energy Boylan Marble & Terrazzo Restoration Carrier Clarkson University Corning Destiny USA National Grid O'Brien & Gere Syracuse University SUNY College of Environmental Science and Forestry

Gold:

Bitzer Scroll Technologies C&S Companies Constellation Energy King & King Architects Syracuse Research Corporation

Silver:

Air Innovations Sensis

Patron:

Brown & Brown Empire State CDH Energy Firley, Moran, Freer & Eassa GreenHomes America Palmerton Group SUNY Oswego SUNY Upstate Medical University Taitem Engineering

StartUp:

Aerfil ARE Technologies Bluepoint Environmental Centek Laboratories e2e Materials Isolation Sciences Munly Brown Studio Natural Systems Engineering Summerhill Biomass Systems The Open Atelier Widetronix

COLLABORATORS

Adirondack North Country Association Adirondack Park Agency Air Iso Alfred University American Hazard Control Group Arup Ashley McGraw Architects **Atlantic States Legal Foundation** Baker Engineering **BASF** Corporation Bernier Carr & Associates Blasland, Bouck & Lee Bond, Schoeneck & King Business and Institutional Furniture Manufacturer's Association Camroden Associates Cayuga County Department of Planning and Economic Development Cazenovia College CDM Centria Corporation **Changing World Technologies**

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