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## The Impact of our Research Goes Far and Wide

One fascinating aspect of working in an innovative building science division is the everlasting impact of the research we do. As many of you know, the windows research by Berkeley Lab has saved billions of dollars in reduced energy costs over the past 30 years. Windows research is highlighted in two articles in this month's newsletter – a breakthrough technology that will make windows even better, and awards we won for contributing to monumental savings with improved daylight and lighting for a private company that can easily be repeated elsewhere.

It gives me great pleasure to lead more than 100 dynamic researchers in the Building Technology & Urban Science Division at Berkeley Lab, where we are continuing to explore traditional research areas, like windows, and new and exciting work, like grid interactive building technologies.

Sincerely, Mary Ann Piette, Division Director, Building Technology & Urban Systems (BTUS)

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## 'Super Window' Could Save $10 Billion Annually in Energy Costs

About $20 billion worth of energy leaks out of windows in the United States each winter – and that's with double-paned insulating windows installed on a majority of buildings.

Berkeley Lab researchers are now working with manufacturers to bring to market a "super window" that is at least twice as insulating as 99 percent of the windows for sale today and will be ready to achieve mass-market status.

Read the full story here: https://newscenter.lbl.gov/2018/06/06/super-window-could-save-billions-in-energy-costs/

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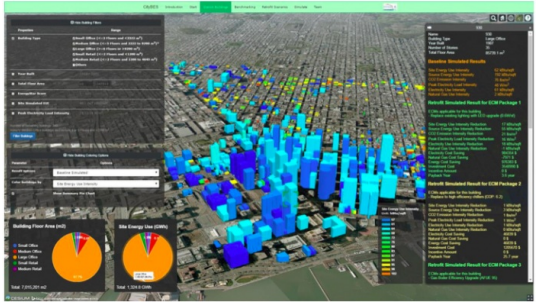
## Modeling Energy Efficiency Block-by-Block in Cities

Evaluating buildings as a group, rather than individually, can help optimize energy savings in



cities. In a new article in *Science Trends*, researcher Tianzhen Hong introduces CityBES, a data and computing platform that can assess energy efficiency retrofits for sets of properties and visualize their performance. He also shares findings from a CityBES analysis of 940 buildings in San Francisco.

Read the story at *Science Trends*: https://sciencetrends.com/urban-modeling-for-large-scale-assessment-of-building-energy-efficiency-improvements/

## Leading a Dialogue with Commercial Owners on Implementing Smart Technologies

Earlier this year, Berkeley Lab hosted an invite-only roundtable with a diverse group of commercial building operators working to support smart building technology implementation. The objective was to spark a dialogue and gather insights that can inform smart buildings research that fully accounts for the goals, needs, and challenges of commercial building owners.

"It's a literal sea of information out there these days," said one attendee, "and we are on the cusp of some exciting developments. [LBNL's campaigns and research] help make us feel like we have a solid sense of the market and the state of technology."

Read more:
https://www.energy.gov/eere/buildings/articles/lbnl-leads-dialogue-commercial-owners-implementing-smart-technologies

## In Today's 'Throw-Away' Society, Howdy Goudey Helps Create a Culture of Repair

Howdy Goudey, a Scientific Engineering Associate in BTUS' Windows & Daylighting group, has always enjoyed "tinkering," so he was intrigued when he first heard about "fixit clinics" – community events where people bring small broken items to get free repair help from fixit "coaches." Goudey now volunteers as a coach with the nonprofit Fixit Clinic organization at numerous Bay Area events.

"The Fixit Clinic philosophy is basically about empowering people to fix their own broken items and reuse them, in an effort to reduce waste and build a 'culture of repair,'" says Goudey.

Read more:
https://today.lbl.gov/in-todays-throw-away-society-howdy-goudey-works-to-create-a-culture-of-repair/

## Conclusion of Annex 66

International Energy Agency (IEA), EBC Annex 66 (Definition and Simulation of Occupant Behavior in Buildings) recently concluded. Significant achievements include more than 100 researchers from 22 countries worked together for 4.5 years, published 100+ journal

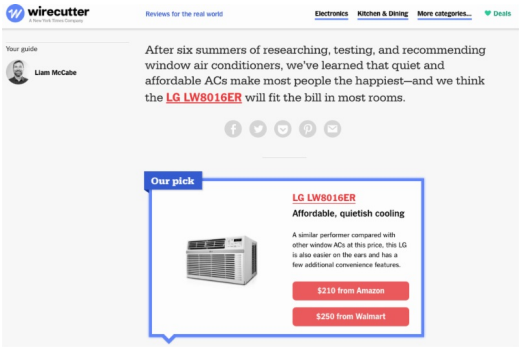
articles, a book, a final report and five technical reports. In addition, several occupant behavior modeling and simulation tools were developed, and 27 symposia/seminars/workshops conducted. Research will continued at ASHRAE MTG.OBB and the new IEA EBC Annex 79 (Occupant behavior-centric building design and operation).

EBC

Energy in Buildings and Communities Programme

Read more:
https://annex66.org

## Which Window Air Conditioner Is Best?




When the product recommendation site *Wirecutter* sought to pick out the best air conditioning window units, it turned to Berkeley Lab's Max Sherman for help. Sherman is quoted in their resulting roundup, which includes tips on finding the right size unit for a given space.

Read more:
https://thewirecutter.com/reviews/best-air-conditioner/

# Awards

## 2018 Technology Transfer, LBNL Director's Award and Climate Leadership Award

Our researchers recently were recognized by the Berkeley Lab Director in the category of Technology Transfer, and by the Center for Climate and Energy Solutions. The research focused on a Living Lab evaluation of advanced daylighting and lighting systems led by Eleanor Lee, Staff Scientist.

A Living Lab partnership with Goldman Sachs (GS) leveraged LBNL's world-class science to obtain an objective assessment of innovative daylighting and lighting energy efficiency technologies and promote lessons learned strategies throughout the worldwide GS organization and the broader buildings industry.

LBNL Awardees: Darryl Dickerhoff, Luis Fernandes, Daniel Fuller, Christoph Gehbauer, Eleanor Lee, Stephen Selkowitz, Jordan Shackelford, Anothai Thanachareonkit and Taoning Wang.

Read more:
facades.lbl.gov
recognition.lbl.gov/laureates/
www.climateleadershipconference.org/pdfs/2018_CLA_Winners_Press_Release.pdf

## BTUS in the News...

- Grist quoted Mary Ann Piette on the future of Utility Demand response. (Aug 13)
- Greentech Media wrote about the Lab's "super window," quoting Steve Selkowitz and Charlie Curcija. (July 2)
- Physics World and The American Ceramic Society wrote about the Lab's "super window," quoting Steve Selkowitz. (June 27)

- Durability + Design and Green Building Advisor covered the “super windows,” quoting Steve Selkowitz and Charlie Curcija (ETA). (June 12)
- A Washington Post column on how to stop the sun from bleaching out your home cites a website on window coverings developed by the Lab. (May 29)

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See also: Department of Energy Building Technologies Office

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Lawrence Berkeley National Lab (Berkeley Lab) is located in the Berkeley Hills near UC Berkeley and conducts scientific research on behalf of the United States Department of Energy (DOE). It is managed and operated by the University of California (UC). The Laboratory overlooks the University of California, Berkeley.
Berkeley Lab addresses the world’s most urgent scientific challenges by advancing sustainable energy, protecting human health, creating new materials, and revealing the origin and fate of the universe. Founded in 1931, Berkeley Lab’s scientific expertise has been recognized with 13 Nobel prizes. The University of California manages Berkeley Lab for the U.S. Department of Energy’s Office of Science. For more information, visit www.lbl.gov.
DOE’s Office of Science is the single largest supporter of basic research in the physical sciences in the United States, and is working to address some of the most pressing challenges of our time. For more information, see science.energy.gov.