

2026 ASHRAE Technology Awards

ASHRAE Technology Awards honor outstanding achievements by ASHRAE members who have successfully applied innovative building design. Society judges reviewed nearly 100 entries from ASHRAE'S 16 regions. From those entries, 10 took home first place awards, followed by three second place winners and five honorable mentions. Each will be featured in *ASHRAE Journal* throughout the year. One first place winner, also recipient of the Award of Engineering Excellence, is featured this month.

AWARD OF ENGINEERING EXCELLENCE

•• OKI HONJO PLANT HI FACTORY ••

Saitama, Japan

KUNITA SHINDO P.E., MEMBER ASHRAE; SHUN KAWAKUBO DR.ENG, MEMBER ASHRAE



PHOTO WORK, SHINJI MIYAMOTO

OKI Electric Industry Co., Ltd. built a new factory in Honjo City, Saitama, Japan, which became the first large-scale manufacturing facility in the country to earn net zero energy building (ZEB) certification. The factory integrates advanced energy-saving technologies and a unique evaluation framework called net zero energy factory (ZEF), which includes energy use in production areas—typically excluded from standard ZEB assessments. This project sets a new benchmark for sustainable manufacturing and offers a scalable model for carbon-neutral industrial development.



EXEMPLARY DECARBONIZATION RECOGNITION

•• NEW WESTERN MEMORIAL •• REGIONAL HOSPITAL

St. John's, Newfoundland, Canada

KURT MONTEIRO, P.ENG., HFDP, FELLOW ASHRAE; KEVIN SHARPLES, MEMBER ASHRAE;
PETER KASTELIC, MEMBER ASHRAE



JULIAN PARKINSON

The New Western Memorial Regional Hospital in Newfoundland, Canada, features the largest geothermal system in Canadian health care, serving as a key sustainable solution for heating and cooling. Under the hospital's parking lot is the geothermal system, which includes 375 boreholes and half a million linear ft (152 400 m) of piping. It significantly reduces energy consumption, eliminates the need for fossil fuel and supports the hospital's LEED v4 Silver certification with high-efficiency, low-energy solutions, such as LED lighting and advanced control systems.



FIRST PLACE WINNERS

•• CITYGATE OUTLETS ••

Hong Kong

BARRY LAU, MEMBER ASHRAE

Citygate Outlets TL11 is a shopping mall owned and managed by Swire Properties in Hong Kong. In collaboration with Tsinghua University, a retro-commissioning project was initiated in 2022 to identify operational improvements. Innovative solutions such as IAQ sensors at occupant zones controlling AHUs, acoustic-aided air filtration technology, nano-filter technology and a cloud-based smart energy management platform with AI capability were all used.



JULIAN PARKINSON

•• CENTRE COLLEGE CHAMPIONS HALL ••

Danville, Ky.

NOLAN AMOS, P.E., ASSOCIATE MEMBER ASHRAE;
BILL SHARP, P.E., MEMBER ASHRAE

Centre College Champions Hall in Danville, Ky., uses innovative integration of energy-efficient systems, particularly a geothermal wellfield connection to pool dehumidification units and reuse of solar panels, to reduce waste and emissions. The geothermal HVAC system, with wells strategically placed beneath the adjacent football stadium, provides heating and cooling while significantly reducing energy demands. Meanwhile, the repurposed 248.3 kW solar array, salvaged from a failed installation elsewhere, serves as a shining example of resourcefulness, reducing the building's reliance on grid energy and lowering carbon emissions.



JULIAN PARKINSON

•• BUCKLEY ELEMENTARY SCHOOL ••

Manchester, Conn.

JESS FARBER, P.E., MEMBER ASHRAE;
BEN KLEINE-KRACHT, P.E., ASSOCIATE MEMBER ASHRAE

By using a renovate-as-new strategy, the Buckley Elementary School project in Manchester, Conn., minimizes waste while repurposing existing structures, significantly reducing environmental impact. The reconstructed building envelope, combined with advanced insulation upgrades and all-electric mechanical systems, enhances energy efficiency and cost-effectiveness. The inclusion of a virtual building dashboard further elevates the project's impact, enabling both faculty and students to actively engage with real-time energy data and understand their role in promoting sustainability.



CMTA

•• THE GEAR ••

Singapore

EIKICHI ONO, ASSOCIATE MEMBER ASHRAE;
TOBY CHEUNG, ASSOCIATE MEMBER ASHRAE;
TAKAMASA HASAMA, ASSOCIATE MEMBER ASHRAE;
YUICHI TAKEMASA, PH.D., P.E., MEMBER ASHRAE

The GEAR in Singapore is Kajima's Asian regional headquarters and a living laboratory for sustainable, human-centric design in the tropics. The building combines climate-responsive passive design with advanced HVAC and digital technologies to deliver both exceptional energy performance and high occupant comfort. Implemented innovations enable a 45% whole-building energy reduction and support the WELL v2 Platinum and Singapore's Green Mark Super Low Energy certifications.



MARC TEY

•• BOSTON MEDICAL CENTER •• BROCKTON BEHAVIORAL HEALTH CENTER

Boston, Mass.

JESS FARBER, P.E., MEMBER ASHRAE;
BEN KLEINE-KRACHT, P.E., MEMBER ASHRAE;
THOM ANDERSON, P.E., ASSOCIATE MEMBER ASHRAE;
KYLE SMITH, P.E., MEMBER ASHRAE

The most compelling achievement of the Boston Medical Center Brockton Behavioral Health Center is the integration of a cutting-edge geothermal HVAC system that incorporates 88 geothermal wells drilled 500 ft (152 m) deep to power a highly efficient heat pump system. Despite the tight site constraints, the wells were strategically placed near the facility and beneath outdoor recreational areas, showcasing exceptional planning and resource optimization. The fully electrified system not only minimizes maintenance complexity but also enhances indoor air quality, contributing to the wellness of staff and patients alike.



ISCENIUTY

•• STEAD PARK RECREATION CENTER ••

Washington, D.C.

AUSTIN BOONE, P.E., ASSOCIATE MEMBER ASHRAE;
BRICE WATSON, P.E., ASSOCIATE MEMBER ASHRAE

The Stead Park Recreation Center in Washington, D.C., project uses groundbreaking integration of sustainability within a restricted urban environment. The innovative geothermal wellfield design, featuring 16 wells drilled 400 ft (133 m) deep and installed beneath the facility's splash pad, stands out as a hallmark of engineering precision. The coordination of systems exemplifies how advanced technical solutions can overcome tight spatial constraints to deliver a sustainable, future-ready community asset.



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•• SALT LAKE COUNTY DAYBREAK LIBRARY ••

Salt Lake City, Utah

SPENCER HOWELL, P.E., MEMBER ASHRAE;
SHRUTI BORLE, BEMP, ASSOCIATE MEMBER ASHRAE;
DAVID W. GRIFFIN, II, BEMP, MEMBER ASHRAE

Salt Lake County Daybreak Library, Utah's first certified net zero energy public building, sets a new benchmark for civic architecture by combining a fully electric, closed-loop geothermal system with a 194.6 kWdc rooftop PV canopy that generates 102% of the building's annual energy needs. The LEED v4 Gold-certified library eliminates fossil fuels and backup boilers through optimized loop design and strategic equipment placement in conditioned mechanical closets, reducing structural loading and roof penetrations.



PAUL RICHER IMAGES

1ST

FIRST PLACE WINNERS

•• BENJAMIN BANNEKER •• ACADEMIC HIGH SCHOOL Washington, D.C.

GRAYSON WOODS, MEMBER ASHRAE;
BEN HOBBS, MEMBER ASHRAE;
KYLE SPRAGUE, ASSOCIATE MEMBER ASHRAE

In the heart of one of the larger underserved communities in Washington, D.C., the 178,000 ft² (16 537 m²) newly rebuilt Benjamin Banneker Academic High School embodies new, ambitious energy and sustainability standards to align with D.C.'s recent progressive clean energy laws. Designed to exceed ASHRAE/IES Standard 90.1-2013, it maximizes natural daylighting and integrates a 120-well geothermal HVAC system to provide high indoor air quality and energy efficiency. Due to the building's energy reduction and high-performance design strategies, the facility achieved zero energy and zero carbon, making it the largest operating zero-carbon school in the United States.



JOSEPH ROMEO PHOTOGRAPHY

2ND

SECOND PLACE WINNERS

•• JOHN A. •• PAULSON CENTER 181 Mercer St, New York, N.Y.

ANDREW KOZAK, P.E., MEMBER ASHRAE;
CARMINO DEMERCURIO, ASSOCIATE MEMBER
ASHRAE; JOAQUIN FONT, P.E., HBDP,
ASSOCIATE MEMBER ASHRAE

The John A. Paulson Center in New York City is a mixed-use 735,000 ft² (68 284 m²) new construction building that opened in January 2023 on New York University's (NYU's) main campus. The project has an advanced HVAC system design, featuring dedicated outdoor air system (DOAS) units with energy recovery wheels and active desiccant wheels. This system, in connection with NYU's trigeneration facility (producing hot water, chilled water and electricity), provides highly efficient heating and cooling to the project, while substantially reducing energy consumption, greenhouse gas emissions and pollutants.

•• ELLA B. SCARBOROUGH •• COMMUNITY RESOURCE CENTER Charlotte, North Carolina

JAMES CURRIE, MEMBER ASHRAE

This design of the Ella B. Scarborough Community Resource Center in Charlotte, N.C., uses a fully

electric ground-source heat pump HVAC system, featuring an 84-well geothermal system beneath the parking lot. This innovative design, paired with high-efficiency heat pumps and energy-efficient DOAS units, significantly reduces energy consumption while achieving an impressive building envelope performance of 0.045 cfm/ft² (0.229 L/s·m²)—89% better than the owner's original goal. The success of this sustainable, high-performing system has set new standards for the county and inspired the design of two additional facilities using these advancements.

•• THE GLICK CENTER FOR •• THE METROHEALTH SYSTEM Cleveland, Ohio

JOE WITCHGER, P.E., MEMBER ASHRAE;
JEFF HARRIS, P.E., MEMBER ASHRAE;
PETE BROWN, P.E., HFPD, MEMBER ASHRAE

At the heart of the innovative design of the MetroHealth Glick Center in Cleveland, Ohio, lies a next-generation approach to energy efficiency: full heat recovery engagement (FHRE). This progressive strategy leverages advanced heat recovery chillers, seamlessly integrated with predictive plant optimization and smart air-handling controls to dramatically reduce fossil fuel use, achieving up to 80% less natural gas consumption and slashing carbon emissions by more than half.

•• INTERNATIONAL •• COMMERCE CENTRE

Hong Kong

SHENGWEI WANG, FELLOW ASHRAE;
EDWARD TSUI, MEMBER ASHRAE;
KUI SHAN, FELLOW ASHRAE

Since 2010, a joint team comprising the management team and the maintenance contractor has been developing and implementing more than 20 energy-saving strategies through a life-cycle retro-commissioning (LC-RCx) process to enhance the energy efficiency of the centralized air-conditioning system in the International Commerce Centre in Hong Kong. Based on electricity bills, the building achieved 39% energy saving in 2024 compared to the baseline year of 2012. The building also serves as a research lab for developing new strategies, which have been expanded to other new projects, including the International Gateway Centre.

•• HART COUNTY SCHOOLS •• MEMORIAL ELEMENTARY

Munfordville, Kentucky

JASON POLLAN, P.E., ASSOCIATE MEMBER ASHRAE;
SCOTT BALCH, ASSOCIATE MEMBER ASHRAE;
ANDREW MYERS, P.E., MEMBER ASHRAE

One of the most compelling aspects of this project was the seamless integration of modern geothermal and HVAC technologies while preserving the historic character of Memorial Elementary School in Munfordville, Kentucky. By transitioning the building to 100% electric operation with the addition of a geothermal wellfield beneath the baseball field, the project team achieved exceptional energy efficiency and sustainability. This cutting-edge approach not only enhanced the building's functionality but also set a benchmark for implementing renewable energy upgrades in historic structures.

•• KURITA INNOVATION HUB ••

Tokyo, Japan

TAKESHI AOI, MEMBER ASHRAE;
TOSHIHIRO TARA, ASSOCIATE MEMBER ASHRAE;
HASEGAWA IWAO, MEMBER ASHRAE;
MIYASAKA YUMIKO, MEMBER ASHRAE

The Kurita Innovation Hub in Tokyo achieved net zero water by circulating water within the building and site, realizing self-sufficiency in water resources. The systems adopted can be broadly categorized this way: 1. proactive use of water-saving sanitary fixtures; 2. effective use of water production systems

using well water as the raw source and wastewater treatment systems; 3. groundwater recharge via installation of large-scale rainwater infiltration tanks. By introducing this system, the facility has reduced water consumption by 43 500 m³ (43.5 million ft³) annually compared to standard research facilities, and has replenished 55 250 m³ (2 million ft³) of rainwater into the groundwater. The facility's energy consumption has achieved an actual primary energy consumption of 4160 MJ/m²·yr (366 kBtu/ft²·yr), a reduction of approximately 20% in energy consumption.

•• SUSTIE ••

Kanagawa, Japan

TAIKI KOBAYASHI, ASSOCIATE MEMBER ASHRAE;
SHIN-ICHI TANABE, FELLOW/LIFE MEMBER ASHRAE;
TOSHIKI ISAHAYA, MEMBER ASHRAE;
TAKAYOSHI IIDA, ASSOCIATE MEMBER ASHRAE

SUSTIE in Kanagawa, Japan, is a test facility for net-zero energy-building (ZEB)-related technology that was built to demonstrate "a ZEB that also realizes wellness." It achieved the highest grades of Japan's Zero Energy Building certification system (BELS) and WELL Building Standard Platinum. One innovation of the project is an underground duct in the pit space to precondition the fresh supply air with thermally stable pit air for reducing outdoor air heat load.

•• KAISER PERMANENTE SAN MARCOS ••

Oakland, Calif.

STERLING BUTLER, ASSOCIATE MEMBER ASHRAE;
MURAT KARAKAS, MEMBER ASHRAE

One of the most innovative aspects of the Kaiser Permanente San Marcos project in Oakland, Calif., is its integrated approach to water treatment and reuse. A nanofiltration system was installed to purify incoming city water, removing 80% of total dissolved solids and 90% of hardness while eliminating bacteria and organic compounds. This system enabled the elimination of brine tanks typically used with sterilizers and significantly reduced the formation of disinfection by-products. Rather than discarding the reject stream from the filtration process, the project team developed a strategy to treat and repurpose it as cooling tower makeup water. This closed-loop solution not only minimized potable water demand but also reduced wastewater discharge and the need for chemical treatment—demonstrating a high-performance solution uniquely suited for health-care applications. ●