



# Acutherm

Therma-Fuser™ Systems Applied





This book is for...

...our representatives who continue to learn about and relay the benefits of our product to the HVAC community.

...the engineers and architects who have taken the time to understand the advantages of the Therma-Fuser™ System approach for new and old buildings around the world.

...our employees who show up everyday at Acutherm and focus on designing and building impeccable Therma-Fuser™ Diffusers, one by one.

This book is dedicated to you. These are the fruits of your labor. Thank you and enjoy.

Kurt Herzog  
Acutherm

# Acutherm

Therma-Fuser™ Systems Applied

Building environment studies, for over 50 years, show that the top two occupant complaints are uncomfortable temperature; too hot or too cold.

The major challenge that stands in the way of addressing this complaint is the expense of engineering a building environment that is comfortable, while also sustainable and energy efficient.

Highlighted throughout this book are instances where comfort, sustainability and energy savings have been successfully achieved, economically, using Therma-Fuser™ VAV system.

Acuterm has over two million installations throughout the world.











## Commercial Office Buildings

## R&D Headquarters

Set to become the hub for the client's design and software research programs, these new R&D centers expand the company's foundation for the development of future growth engines. Due to its strategic location in a dense urban capital city, the new center will be able to recruit and retain top talent in the fields of research and development. The company aims to employ 10,000 researchers in the areas of design and software at this complex.

The \$822 million R&D center, a complex composed of six 10-story buildings with a total floor area of 330,000 m<sup>2</sup> (3.5 million sq.ft.), is equipped solely with Therma-Fuser™ VAV diffusers (4,573 units). Of key importance to the client was seamless integration of the VAV diffusers into the architecture; this was accomplished with T-Series, square and Continuous Look Linear diffusers, as picture below.









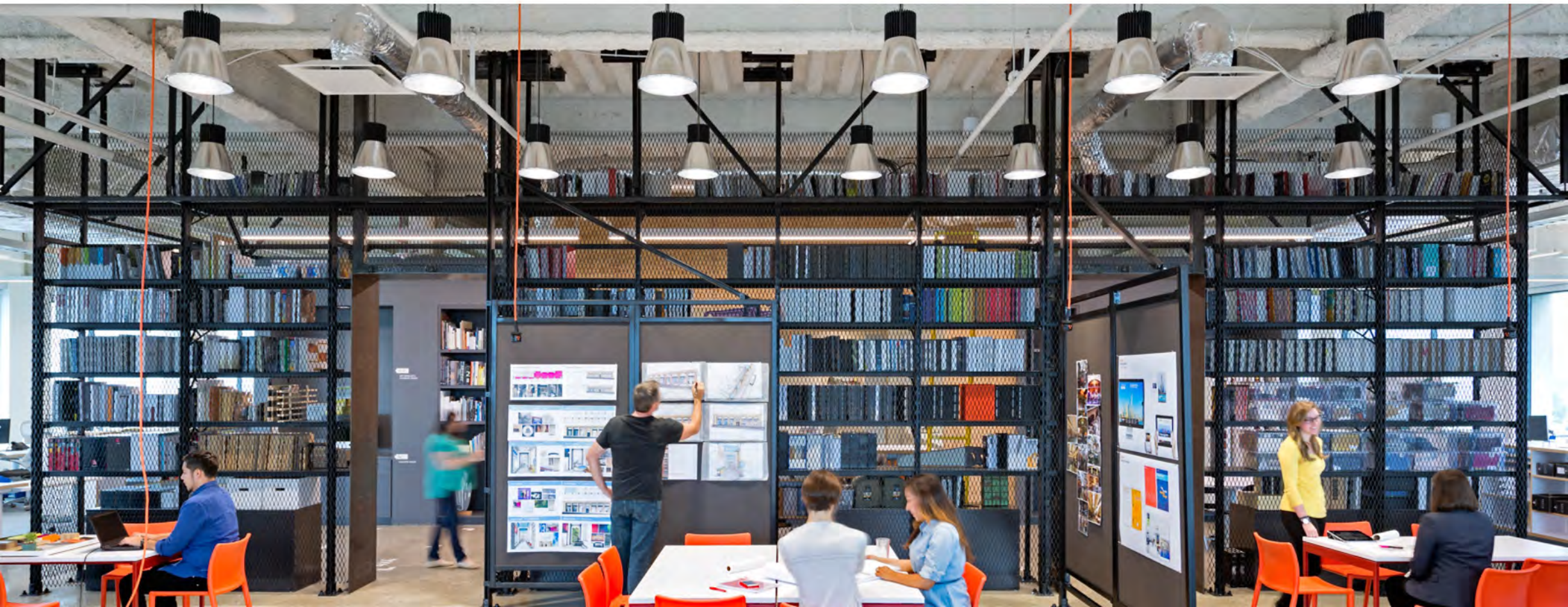




# Gensler

Gensler, the largest architecture firm in the United States, selected this 25,500 sq.ft. space to house their Oakland operations. It was essential that the renovation of this space reflect their workplace research, which supports the notion that good office design helps boost creativity, innovation and productivity. Gensler, along with the design team, sought technologies to integrate their workplace research within their office. Acutherm's Therma-Fuser™ VAV diffusers were seamlessly implemented within this living lab to achieve the desired conditions for their occupants.

This integrated design collaboration has positioned this space as the economic spark plug for the transformation of the neighborhood into a tech hub, repositioning this region as a center for design and technology. The office is targeting LEED Platinum certification.







Dow Business Services Center - New Construction, Office Building - Midland, Michigan



# Dow Business Services Center

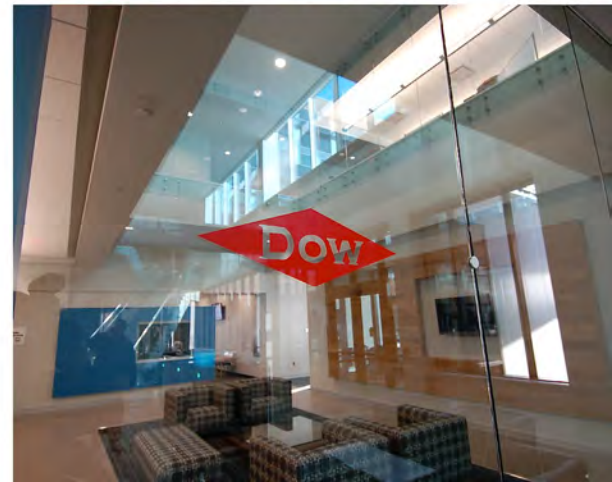
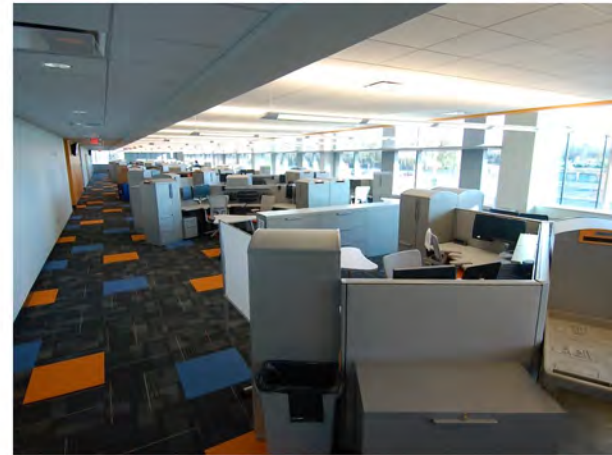
Dow (NYSE: DOW) combines the power of science and technology to passionately innovate what is essential to human progress. The Company connects chemistry and innovation with the principles of sustainability to help address many of the world's most challenging problems such as the need for clean water, renewable energy generation and conservation, and increasing agricultural productivity.

As Dow creates ways for the world to conserve and generate energy, they're simultaneously reducing their own impact as evident by their pledge to "grow the Company and not the carbon". They're following through on that pledge with new construction projects like The Dow Business Services Center recently completed in Midland, Michigan.

One of the many strategic energy-saving elements that went into the building was the full installation of a Therma-Fuser™ VAV system. Nearly 1,000 individual temperature control units were installed. With each Therma-Fuser™ diffuser acting as an individual VAV zone, every area of the building has separate, optimized temperature settings. This allows for ultimate comfort while eliminating the wasted energy of over heating and over cooling. Therma-Fuser™ diffusers also provide a constant discharge velocity with comfort benefits of higher throws, no dumping, better room air movement and uniform temperature distribution.

Dow's commitment to sustainability never wavered on this project. Supporting this accomplishment was the synergistic team approach of design, development and construction partners URS Corporation, SSP Associates (developer) and Spence Brothers. The desire to have the building represent a world-class, sustainable icon for Dow's 2015 Sustainable Goals was paramount. The Business Services Center was built with sustainability at its core. From top to bottom, inside and out, the center uses multiple Dow materials and technologies to create a sustainable facility that uses fewer natural resources, reduces energy consumption and lowers greenhouse gas emissions.

This project received the Build Michigan Award, Environmental/Sustainable/LEED Category, 2011.



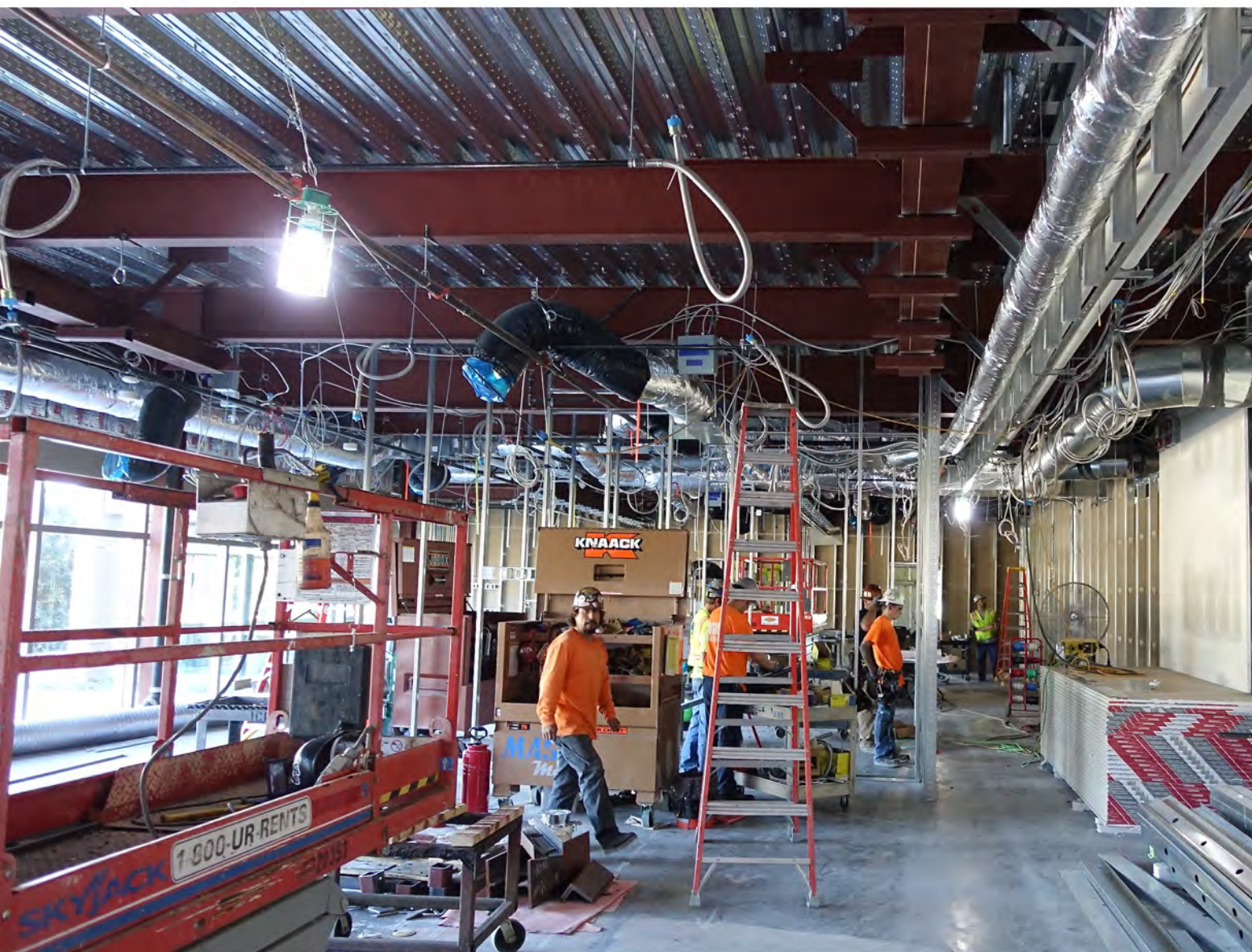


## 1400 Page Mill (Net Zero, Developer-led)

Located in one of the greatest entrepreneurial centers in the world, Stanford Research Park, it was essential for the building design to elevate the bar: sustainably, innovatively and technologically. Hanover Page Mill Associates selected a team of the world's most innovative thought leaders to deliver an unparalleled, sustainable environment for the tenant, Morgan, Lewis & Bockius LLP, one which embodies the values and spirit of this technology hub. To achieve net zero electric energy on a developer-driven market rate project, the design team focused on a high performance building envelope, an optimized low-turndown HVAC system, and an aggressively sized photovoltaic system. Taken together, these strategies flipped the paradigm of PV on developer-led projects, allowing the building owner to realize an exceptional return on investment.







“1400 Page Mill is at the forefront of innovative and sustainable building styles, re-setting expectations for dramatic improvements in tenant comfort and productivity.” ~ Jim Gaither Jr., Principal, Hanover Page Mill Associates

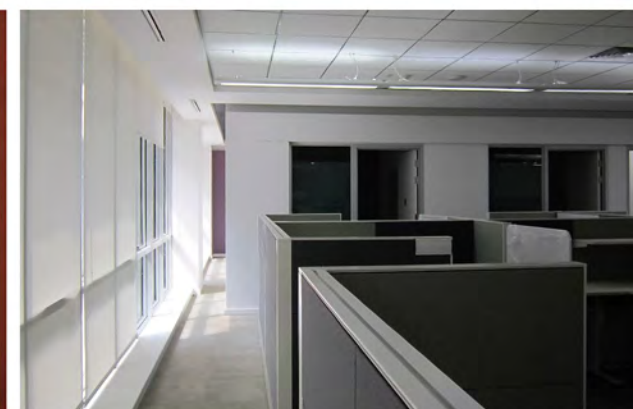
Awards: Structures Awards, Green Project, 2016; Gold Nugget Awards of Merit, Zero Net Energy Design, PCBC, 2016.





Cisco Systems - Bangalore, India





Cisco's Bangalore campus is a 2.1 million sq.ft. campus on the Outer Ring Road in Bangalore, India. The B-16 building has over 1500 E-Series Therma-Fuser™ VAV units installed utilizing square, round and linear models.





Texas Instruments RF Administration Building - Richardson, Texas



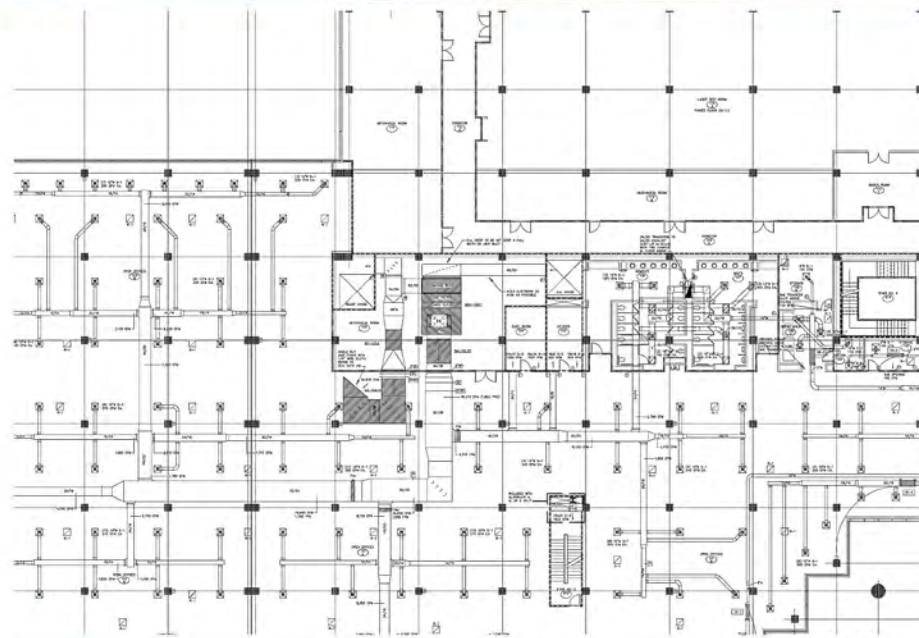
# Texas Instruments RFAB

Texas Instruments RFAB is the world's first LEED Gold certified fab and is among the most advanced semiconductor manufacturing facilities in the world. Its been lauded as a landmark example of how advanced technology can allow a U.S.-based semiconductor producer to stay competitive with manufacturers in lower-cost locations such as Asia.

When Texas Instruments began planning to build a new 1.1 million sq.ft. wafer fab complex in Richardson, TX it had to be competitive with manufacturers in lower-cost locations around the world. Wafer fabs, which produce semiconductors used in a myriad of electronic devices, are enormous factories and therefore consume a large amount of resources. Costing \$3 billion dollars to fully build and equip each one, they are also quite a large investment. In order to keep this fab in the US, the TI design team was challenged with a 30% capital cost reduction goal.

The TI team chose data and analysis over rules of thumb and standard designs. By continuing to drill down into issues and understand the root of problems they were able to make a number of fundamental changes to how fabs are designed. The desire to score another LEED point kept everyone energized to continue digging for a solution.

The energy saving and sustainable design, that ultimately achieved LEED Gold, utilized a Therma-Fuser™ VAV System throughout the three-story 220,000 sq.ft. administration building.







## NCSoft Seoul, South Korea

NCSoft, the world's premier publisher and developer of massively multiplayer online (MMO) games, built a stunning mega office complex to house the company headquarters and over 2,500 employees.

The new complex is built based on green technologies. Various environmentally friendly features were integrated, including a water-recycling system to recycle rainwater and an optimized temperature control system with the integration of a full Therma-Fuser™ VAV system.









Adobe Systems - Silicon Valley - San Jose, California

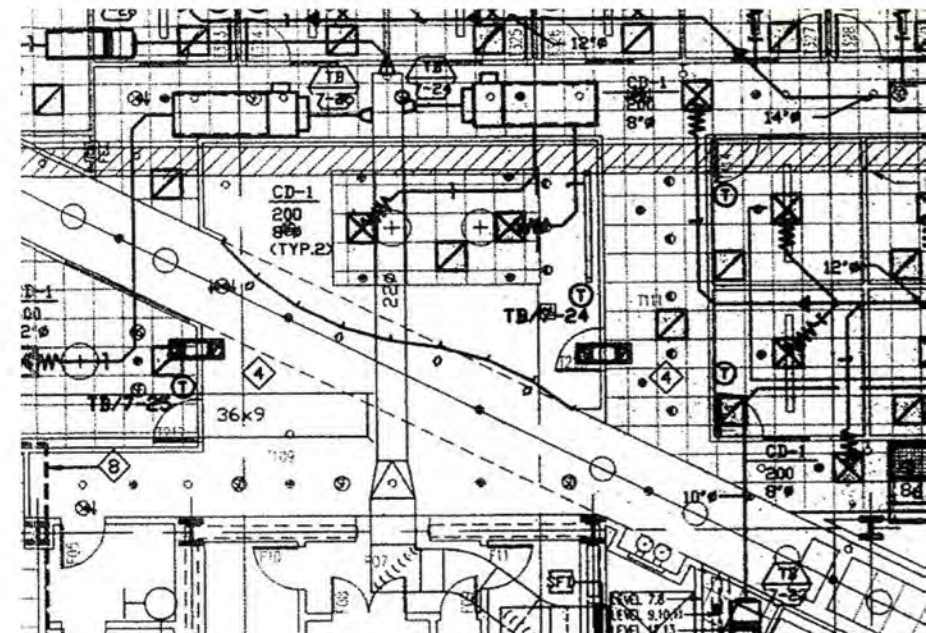


# Adobe Systems

When the 16-story, 260,000 sq.ft. East Tower was built, Adobe sought materials to meet their corporate sustainability goals. Therma-Fuser™ Systems were specified throughout, which helped the building achieve LEED Platinum certification, distinguishing Adobe as the world's first commercial enterprise to achieve a total of three Platinum certifications under the LEED program.

Adobe Systems Incorporated, located in the heart of Silicon Valley, offers business, creative, and mobile software solutions that revolutionize how the world engages with ideas and information.

The project was awarded Green Building of the Year for Corporate Headquarters and International Earth Awards, BOMA Silicon Valley Chapter.





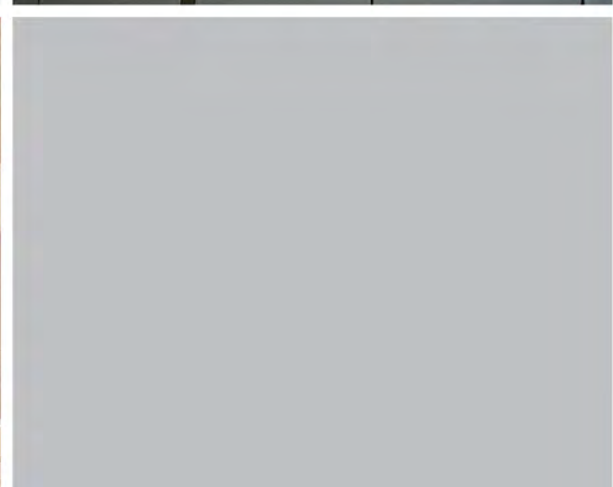
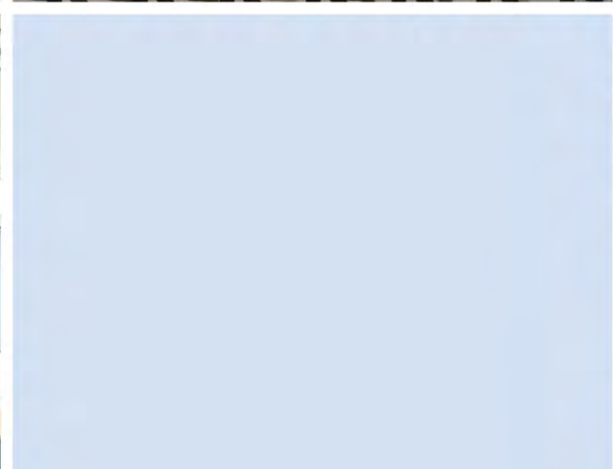
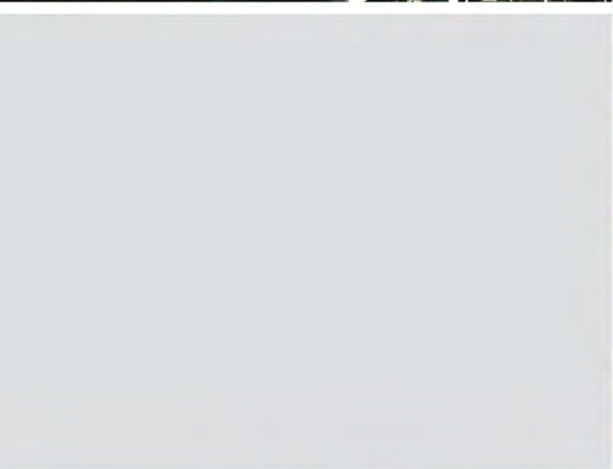


## SK Telecom Seoul, South Korea

SK Telecom is a global company specializing in wireless telecommunication services and focusing on the commercial development and provision of high-speed wireless data and internet services.

Located in the center of old town Seoul this modern building is 33 stories tall with all glass cladding and Therma-Fuser™ systems utilized throughout.









## Alfred E. Smith Building Albany, New York

As a primary focus of the New York State Facilities Modernization Program, the Alfred E. Smith building is a historic State of New York building that went through major renovations to meet tenant requirements; as well as, current building codes and 21st Century technology needs.

HVAC modernizations within this historic structure provided the tenants, diverse state agencies, with a modern, technologically current, flexible, and energy conscious office environment.

The restoration of this 34-story, 500,000 sq.ft. building resulted in the prestigious Excellence in Historic Preservation Award from The Preservation League of New York State.









“The HVAC system is less expensive yet much more efficient than a conventional system. Examples like this make it much easier to promote green building.” ~ Stuart Rickard, Placeworks LLC



# StopWaste Oakland, California

StopWaste, a public agency responsible for reducing the waste stream in Alameda County, California, has been helping residents and businesses adopt sustainable consumption and disposal habits. They are governed jointly by three Boards, the Alameda County Waste Management Authority, the Alameda County Source Reduction and Recycling Board, and the Energy Council. Therefore, there was no question that the 14,000 sq.ft. two-story building that it purchased and renovated for its offices had to be green.

Using the USGBC LEED Green Building Rating System, StopWaste aimed for LEED Silver certification and quickly surpassed their initial goal, becoming the first building renovation project in the nation to receive Platinum certification. An important part of reaching this goal was earning all of the possible LEED credits for optimizing energy performance. Energy modeling software shows that the building outperforms Title 24-2005, stringent California energy code, by 47%.

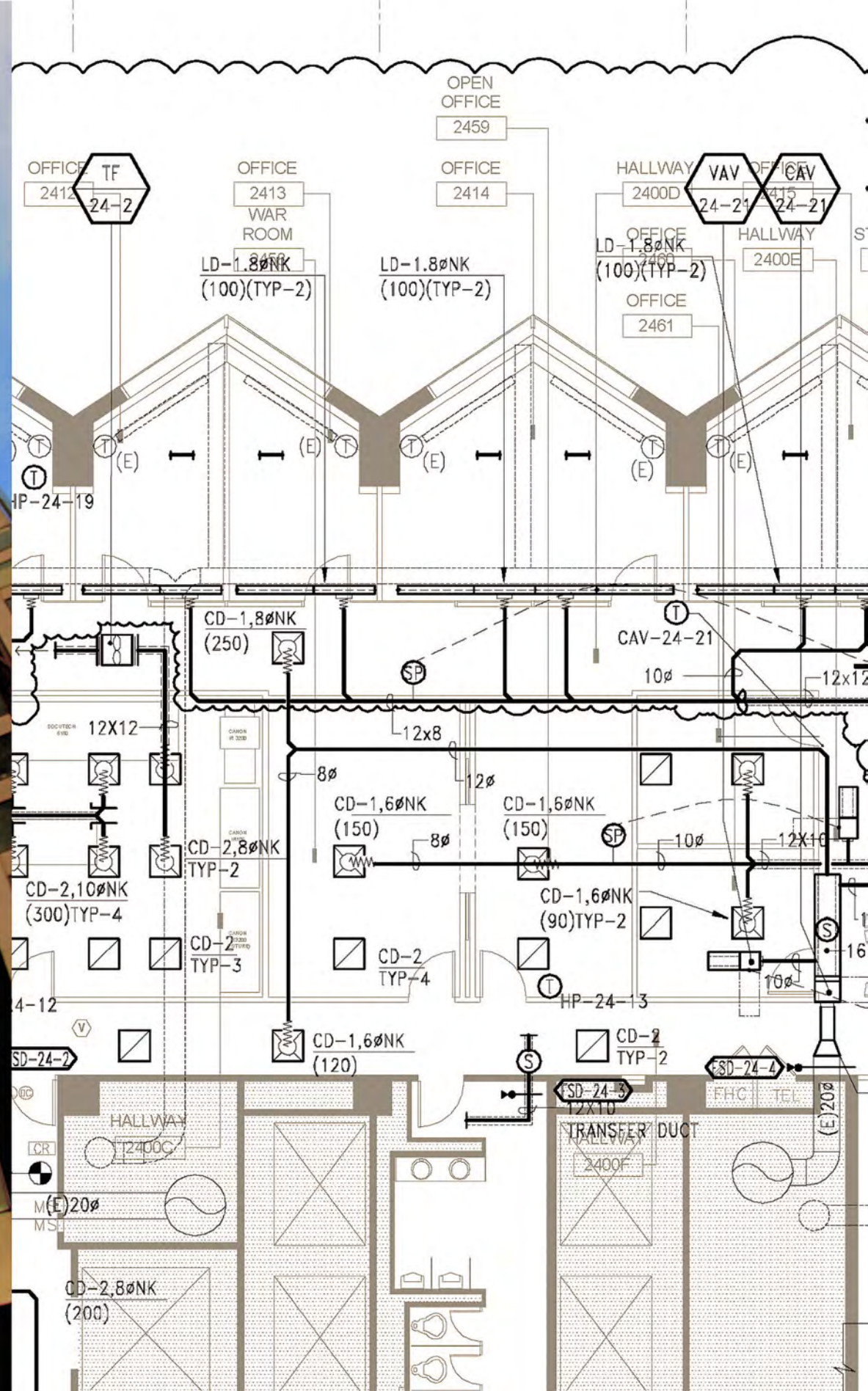
To achieve the 10 energy performance points, StopWaste hired Integral Group, an Oakland-based firm with extensive experience designing low energy building systems, to make the building and HVAC systems far more efficient than a standard building.

Therma-Fuser™ diffusers were selected in order to gain energy savings and meet budget concerns. The use of Therma-Fuser™ diffusers, combined with the elimination of reheat, through the use of high-efficiency windows, met the demands for tight, zoned control and resulted in significant budget savings and USGBC LEED Platinum certification.

StopWaste went through recertification and became the first project in the world to receive LEED v4 Platinum certification.











## 555 California Street San Francisco, California

555 California Street includes the 52-story Bank of America Building and a 16-story annex totaling almost 2 million sq.ft. of Class A office space located in the heart of the Financial District in San Francisco.

Completed in 1969, its unique "bay window" architectural style was designed by renowned architects Skidmore, Owings & Merrill and Wurster, Bernardi & Emmons.



Acutherm has provided Therma-Fuser™ diffusers for many tenants in the building, including legal and capital management firms.

555 California Street, San Francisco, California Building HVAC system:

- Large central AHU providing cool air to building up four risers, each floor in 4 quadrants
- Large reheat on takeoff to each floor (4 per floor)
- Perimeter induction units, 2-pipe, provide ventilation and supplemental cooling and heating (manual control by occupant)

Retrofit Floors:

- Heat pumps added in perimeter areas to supplement building cooling and heating
- PIM used to reduce medium pressure to low pressure and to control pressure







Standard Refrigeration Company - San Juan, Puerto Rico



# Standard Refrigeration Company

Standard Refrigeration Company's former facility was becoming out-dated. Real estate costs were skyrocketing. The shared office and manufacturing space just wasn't cutting it any more. The mechanical/electrical contracting firm, founded 60 years ago, had to move. Firm officials didn't want to just build a new facility—they wanted a unique, sustainable building and that is exactly what they did.

The building achieved a platinum rating under USGBC LEED for new construction — the first building in Puerto Rico, and the first in the Caribbean, to attain this highest LEED certification level.

The building was able to achieve greater than 60% reduction in energy performance when compared to the base-line established by ASHRAE 90.1-1997 in part by using a highly efficient Therma-Fuser™ diffuser HVAC system.

The energy savings provided by the Therma-Fuser™ VAV diffusers is complimented by an innovative AHU design that both captures waste heat from the condensers and uses solar heat to assist hot water supply to the re-heat the coils when required.

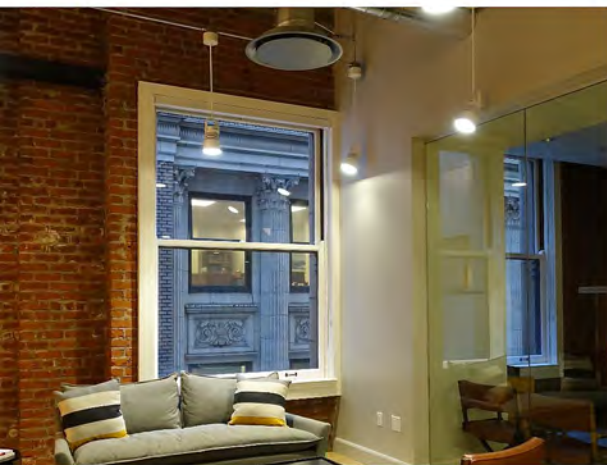






The Swig Company Headquarters, The Mills Building - San Francisco, California  
The Mills Building, managed by The Swig Company, is a designated landmark of the City of San Francisco and is included on the National Register of Historic Places. The Swig Company headquarters are located on the 9th floor of this building.





## The Swig Company Headquarters

Renovations of The Swig Company's headquarters consisted of energy efficiency and occupant comfort upgrades. Heating and cooling is provided via two water source heat pumps connected to the building's existing condenser water loop. These high efficiency, variable speed units respond to the operation of the Therma-Fuser™ System to deliver the right amount of cooling or heating without wasting energy. The duct distribution followed low pressure drop principles, allowing for optimal Therma-Fuser™ operation and minimal fan energy. This new system will maintain excellent thermal comfort and high indoor air quality, while approximately using 20% less energy than a system built to minimally comply with the California Energy Code.

Most significantly, this dramatically upgraded and improved building system was achieved on a tight budget.







### Ferrum Tower - Seoul, South Korea

Located flush up against shopping and tourist hot spots, this 28-story skyscraper has attracted rave reviews because of its stunning architectural prowess. The goal of installing a Therma-Fuser™ VAV System throughout this building was to reduce energy consumption. The owner estimates a savings of up to 80% on fan energy vs. VAV box system.





### E-Mart Headquarters - Seoul, South Korea

Established in 1993, emart is the oldest and largest discount store in South Korea with 178 stores across the country. Their headquarter building, shown here, utilized the Acutherm Therma-Fuser™ VAV System.



## Time Square Seoul, South Korea

Seoul's Youngdeungpo neighborhood has been revitalized by the new Times Square Mixed-Use (hybrid) Shopping Center. Times Square is 370,000 m<sup>2</sup> making it more than twice the size of Seoul's COEX underground shopping center. The building is made up of an inner and outer mall as well as two high-rise office buildings plus several large outdoor spaces - perfect for relaxation and enjoying nature inside. In the office spaces, Therma-Fuser diffusers have been installed to help meet tenant comfort requirements.



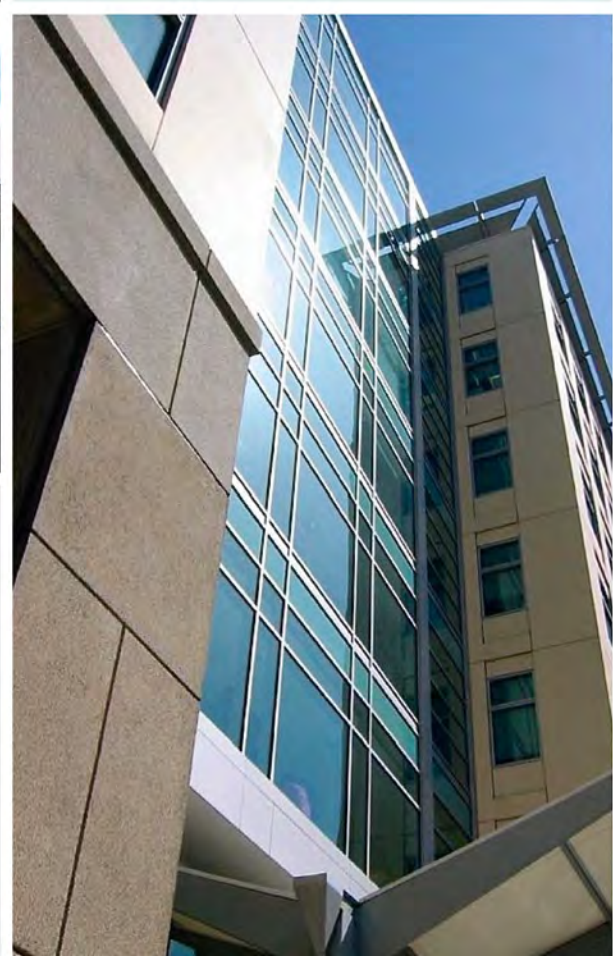
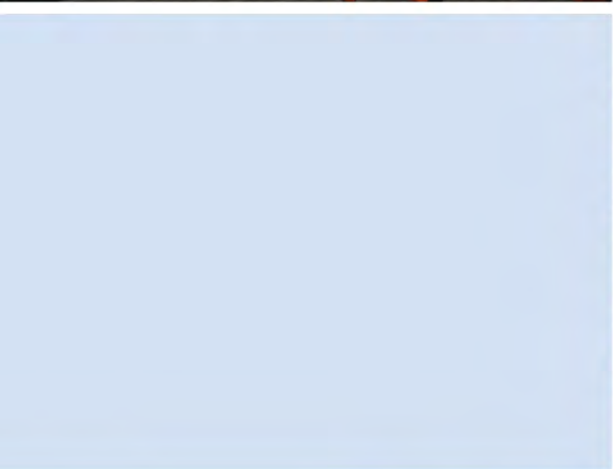




## Architectural Nexus Design Center - Salt Lake City, Utah

When adding on a 4,000 sq.ft. lobby and remodeling another 22,000 sq.ft. this leader in sustainable green architecture did a complete mechanical system upgrade among other things. A Therma-Fuser™ VAV System was applied for HVAC energy efficiency and building sustainability. The Design Center has earned a LEED Platinum certification rating and an almost perfect 97 Energy Star rating.







## Medical Buildings





## Kaiser Permanente - San Francisco, California

The Kaiser Geary Medical Office, a 160,000 sq.ft, 8-story high rise, was built using thermally-powered VAV diffusers as the basis of design. This project, with a variety of spaces from wide open areas to fully enclosed offices alike, demonstrates how medical office buildings in particular can benefit from the Therma-Fuser™ VAV System.



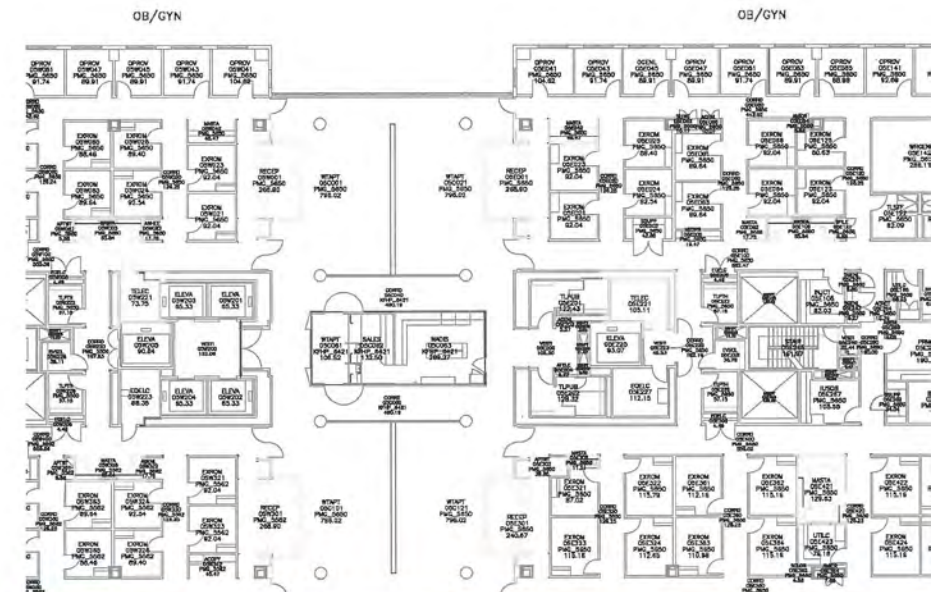
# Kaiser Permanente

Founded in 1945, Kaiser Permanente is one of the nation's largest not-for-profit health plans, serving more than 8.6 million members, with headquarters in Oakland, CA.

Therma-Fuser™ Systems have been applied to various Kaiser renovations of existing buildings, as well as new construction projects, including:

969 Folsom Street, San Francisco  
1600 Owens, San Francisco  
1750 2nd Street, Berkeley  
1800 Harrison Street, Oakland  
1950 Franklin Street, Oakland  
2000 Broadway, Oakland  
2238 Geary Street, San Francisco (ASHRAE Technology Award, 2005)  
Bishop Ranch, San Ramon  
Human Resources Services Center, Alameda  
Kona Medical Office Building, Kailua-Kona  
Manteca Medical Center, Manteca

Acutherm has delivered the desired individualized temperature control, while meeting Kaiser's Total Health Environment Guidelines, Green Guidelines for Healthcare, and Kaiser Planning Concepts.









## Kaiser Bishop Ranch San Ramon, California

This multi-specialty medical office building is the first LEED Gold Certified project in Northern California for Kaiser.

Negotiated procurement methods and early stakeholder involvement supported USGBC LEED Certification efforts, allowing for charrettes to validate design decisions and identify cost-effective, sustainable design solutions. Pre-construction and construction services for this 75,000 sq.ft., three-story office building included cost comparisons of specified HVAC systems. Acutherm's Therma-Fuser system was determined to be the most cost effective and efficient solution for the project.

This \$17 million facility houses Family Health Services, Dermatology, Obstetrics/Gynecology, Sports Medicine and Physical Therapy, Pharmacy, lab/blood draw and imaging suites.

Recipient of the ASHRAE Golden Gate Chapter Technology Award, 2016.







Kaiser 1600 Owens - Mission Bay Medical Office Building - San Francisco, California



## Kaiser 1600 Owens Mission Bay

Serving as a beacon for Mission Bay, this new 10-story, 264,000 sq.ft. office and laboratory facility, located adjacent to UCSF's 43-acre campus is developed by Alexandria Real Estate Equities. To meet the client's budget and sustainability goals, LEED 2009 NC Platinum certification,

Acutherm delivered a mixture of products, E-Series and T-Series, which included BACnet Interoperable diffusers in private offices and exam rooms, to allow for remote access and monitoring; in conjunction with, standalone thermally powered VAV diffusers in open areas and corridors, totaling more than 1,000 diffusers.







John Muir Health Outpatient Center, 1450 Treat Boulevard - Walnut Creek, California  
In preparation for health reform and the national push for more integrated care, this facility is designed to fit the new models of care and best practices by consolidating several smaller physician practices into one larger center.





John Muir, a not-for-profit organization, realized the economic benefits of driving down operating costs by aggregating practices and implementing energy efficient systems, such as the thermally powered, standalone Therma-Fuser™ Systems, which provided the lowest installed cost per zone of control, while also reducing overall energy utilization.





Greenslopes Private Hospital - Queensland, Australia



# Greenslopes Hospital

Greenslopes Private Hospital is the flagship hospital for the Ramsay Health Care group, the largest private hospital operator in Australia.

A total of 570 beds facilitate a comprehensive range of inpatient and day services across all major adult specialties.

Acutherm was designed into the latest extension and total construction time was just 12 months with minimal disruption to existing hospital services.

The new extension comprised of ninety (90) private patient rooms – each with one or two Acutherm TF-HC Therma-Fuser™ units providing individual temperature control.

Thirty two (32) on-site medical consulting suites also have the benefit of the superior air distribution of the Therma-Fuser™ System with TF-HC units installed.







Stanford Medicine, Medical Office Building (MOB) - Palo Alto, California



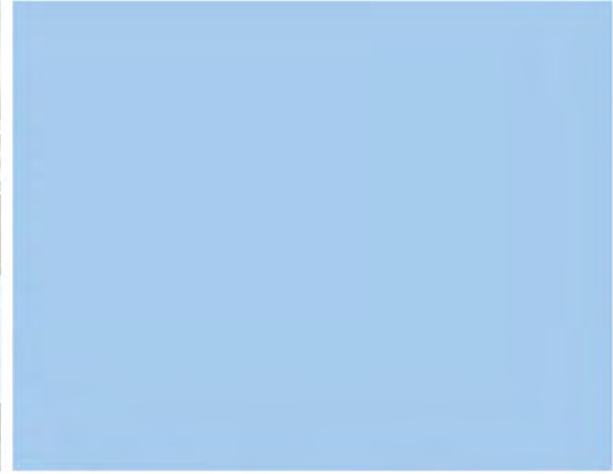
## Stanford Medicine Medical Office Building (MOB)

Stanford Hospital & Clinics are known worldwide for advanced patient care provided by its physicians and staff. Every year, U.S. News & World Report identifies the top hospitals in 16 specialties in the United States. Stanford Hospital & Clinics are recognized as one of "America's Best Hospitals" and currently ranked #15 in the U.S.

Therma-Fuser™ Systems were an excellent HVAC solution for Stanford's new medical office building with its ability to accommodate many small spaces and a high need for individual comfort.









## Educational Buildings





University of California, Merced Science and Engineering Building II - Merced, California



# UC Merced Science and Engineering Building II

The three-story 102,000 sq.ft. building includes open class laboratories, research laboratories, laboratory support, study facilities, and academic and administrative office support spaces. The building's HVAC system was designed to eliminate reheat through the use of variable air volume (VAV) terminal heating and cooling laboratory areas, economizer-based air handling units with intelligent VAV Therma-Fuser™ diffusers, and full switchover for heating and cooling. Heat recovery runaround loops temper 100% outside supply air. In addition, the building utilizes the campus thermal storage chilled water system, which saves energy by producing chilled water at night when the chillers can be more efficiently operated. Energy modeling accounted for the performance of all building systems, including laboratory process loads resulting in 44.5% better than required by Title 24.

LEED v2009 Platinum Certified







Designed to serve as a physical representation of the strength and innovation of the University of Oregon football program, the 145,000 sq.ft. complex is a leading-edge football performance center, where technology and architecture have been brought together seamlessly to create an environment that is unique in the ways it acknowledges the multitude of preferences of players, coaches and staff.



## Hatfield-Downlin Complex Eugene, Oregon

Constructed to engage athletes and coaches, while attracting top talent, the design team underwent an extensive investigate process: visited facilities of top university programs across the country, as well as professional sports teams, and asked, “how can we make it better?” This relentless pursuit of innovation became the driving force behind all design and construction decisions.

Designed to exceed Oregon State Energy Efficiency Design (SEED) guidelines for energy efficiency, the predicted energy use intensity is 46.6 kBtu/SF year, which is 26% more efficient than a baseline code building. Energy efficient heating and cooling strategies include radiant heating and cooling, night flushing of building mass, and the use of Therma-Fuser™ Systems, rather than traditional VAV boxes, minimizing reheat and eliminating overcooling.







Rose Garden Library - San Jose, California



## Rose Garden Library

Adjacent to San Jose's historic Municipal Rose Garden, the impressive new Rose Garden Library replaced, on the same site, the original library that had served the area since 1960.

The design of the new building features many energy saving elements that function ever so subtly among the warm and inviting environment.

One of the notable energy efficient design features incorporated into the library is the Therma-Fuser™ VAV System that offers individual temperature control while optimizing indoor air quality and saving energy.



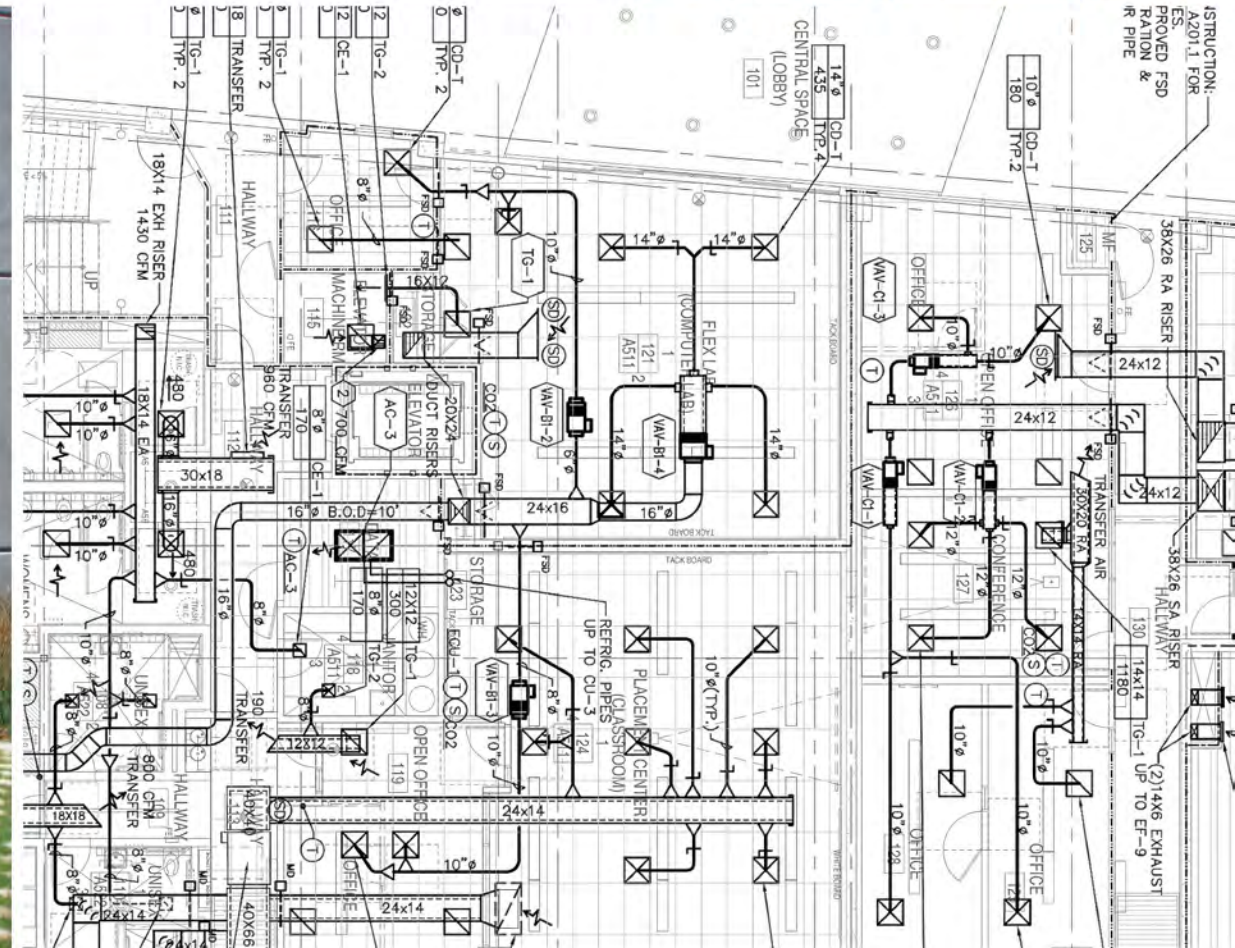




Chabot Community College, Instructional Office Building (IOB) - Hayward, California



A photograph of Chabot College's modern campus building with large glass windows and a sign in the foreground that reads "CHABOT COLLEGE" and "Parking Lots A &amp; B".







Anne Darling Elementary School - San Jose, California

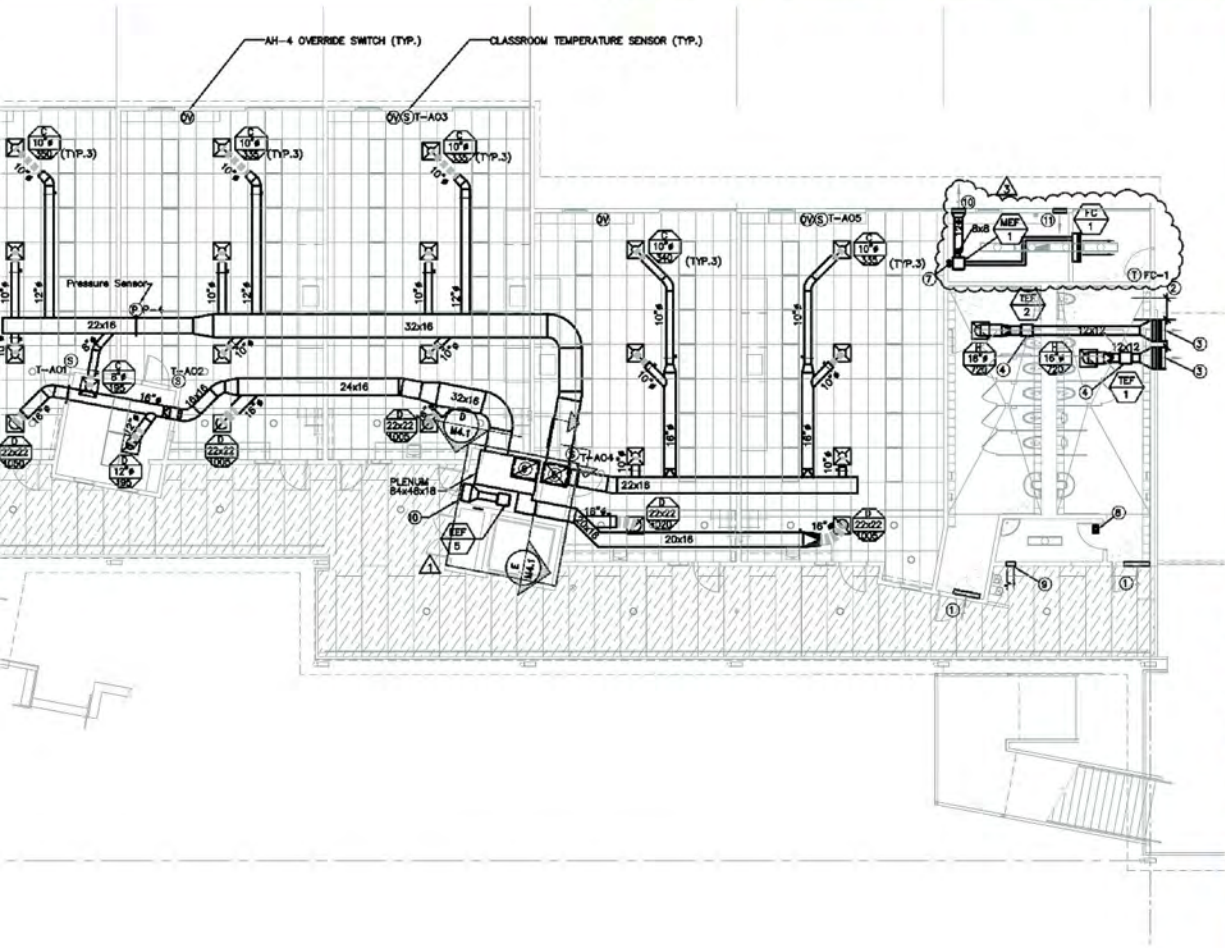




# Anne Darling Elementary School

Established in 1930, Anne Darling Elementary, a public school serving 510 students in grades Kindergarten through Grade 5, underwent extensive modernizations to address a common concern of such facilities: the negative impacts on comfort and energy efficiency due to large shifts in occupancy throughout the day.

Therma-Fuser™ Systems were applied to stabilize and maintain the desired temperature of the various spaces throughout the school.







## School of Architecture Ithaca, New York

This historical renovation of Cornell University's Sibley Hall serves as a "model in the campus for an academic space that is connective, collaborative and vital with a strong material and design culture." (LEVENBETTS)

The space houses faculty offices, collaborative space and studio space for architecture students. To create a seamless integration of the mechanical systems into the wide-open, flexible floor plan, which features floor-length stretch of skylights, Acutherm's EF model of Thermo-Fuser diffusers were woven in, preserving the historic elements, while bringing the focal point to the contemporary architectural details. A combination of ceiling mounted and sidewall linear models were incorporated to accomplish this aesthetic, while bringing full-scale building automation functionality to the space.







## Pennington Student Achievement Center

The William N. Pennington Student Achievement Center (SAC) at University of Nevada, Reno consolidates vital student centers, which were previously scattered across the campus.

The new 78,000 sq.ft. campus community gathering space encourages interaction among students, staff and faculty. The Writing Center, Math Center, Tutoring Center, Career Services, Advising Center, Student Veterans Affairs, Disabilities Resource Center, Counseling Services, Trio & McNair Scholars, and Student Faith Based Group are housed here along with several shared collaborative workspaces, computer workstations and food service.







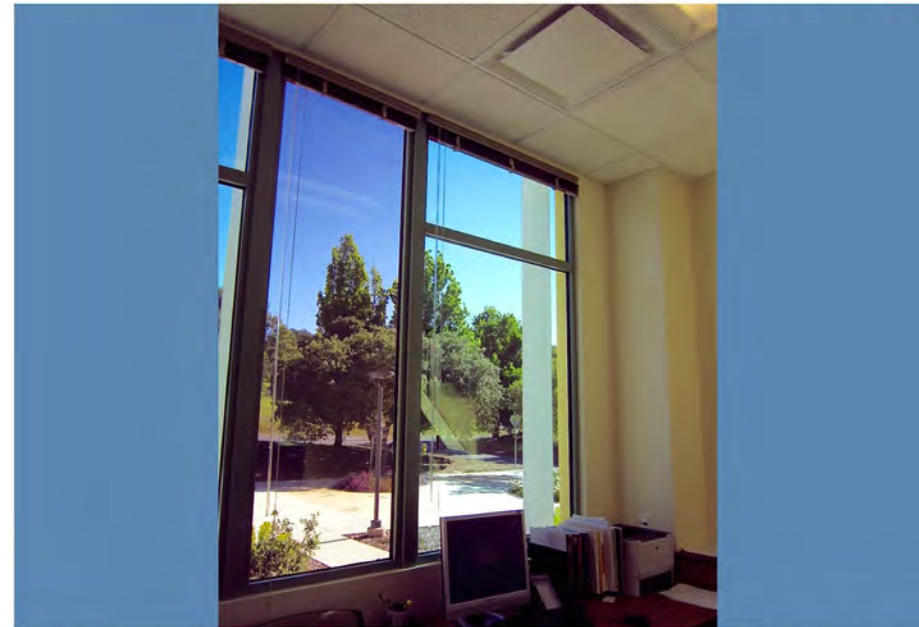
College of Marin, Indian Valley Campus - Novato, California



# College of Marin

For over 80 years, College of Marin has provided students with resources for continuing education, skills advancement, career path alignment, and the opportunity to simply enjoy the benefits of lifelong learning.

The 32,264 sq.ft. Main Building Complex of the Indian Valley Campus was completed in Spring 2011 and used sustainable building practices, which resulted in LEED Gold Certification. The new building utilizes Acutherm's energy saving Therma-Fuser™ VAV Systems in areas where occupant comfort is most critical. The building houses faculty offices and a variety of workforce development programs, including Dental Assisting, Medical Assisting, Multimedia Studies, Emergency Medical Technician, Court Reporting; as well as an Internet Cafe and Media Resource Center.







Plymouth State University - Plymouth, New Hampshire



## Langdon Woods Residence Hall - Plymouth State

Landon Woods at Plymouth State University is the first Residence Hall in New Hampshire to receive LEED Certification at the Gold Level. The building emphasizes state of the art strategies for sustainable site development, water savings, energy efficiency, materials selection and indoor environmental quality.\*

Many energy efficient elements were incorporated into the design including automatic light sensors, strategic use of natural lighting, and a thermally-powered VAV system provided by Acutherm.

The Therma-Fuser™ VAV diffusers meet the set comfort requirement of each space automatically and eliminate over heating and over cooling.







Cleveland State University - Rhodes Tower Library & Student Center - Cleveland, Ohio



# Cleveland State University

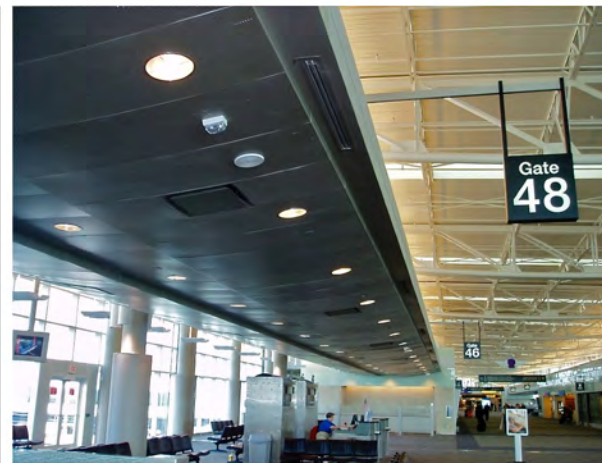
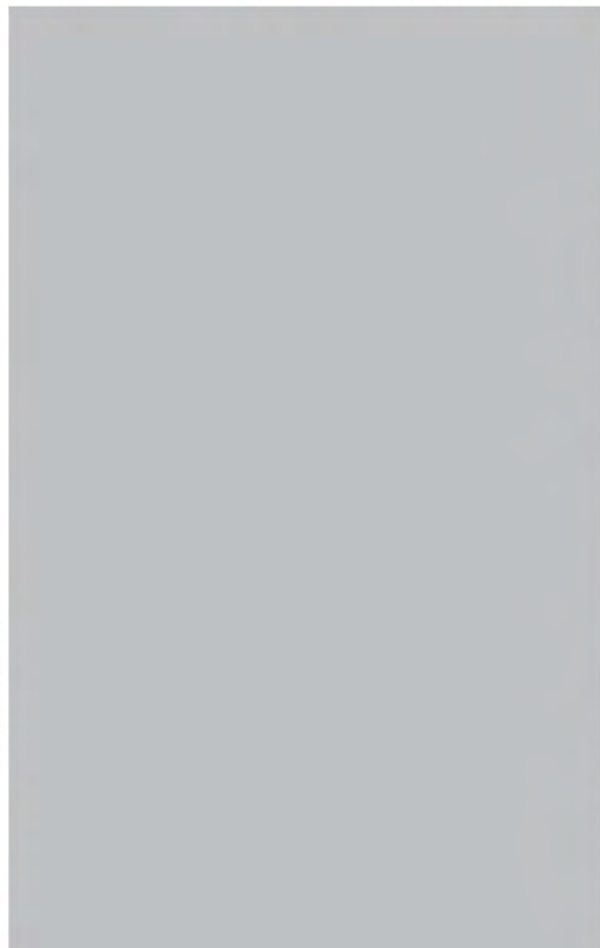
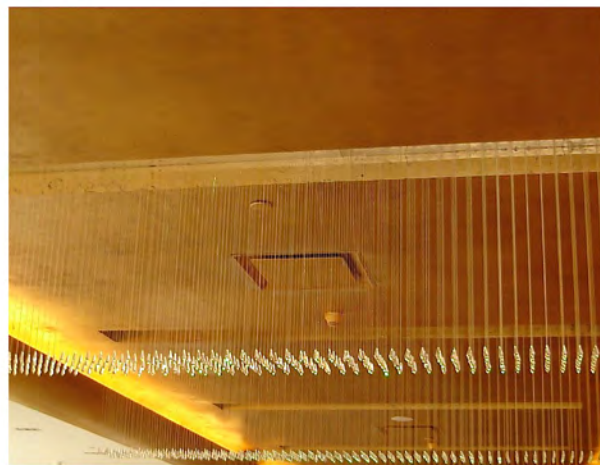
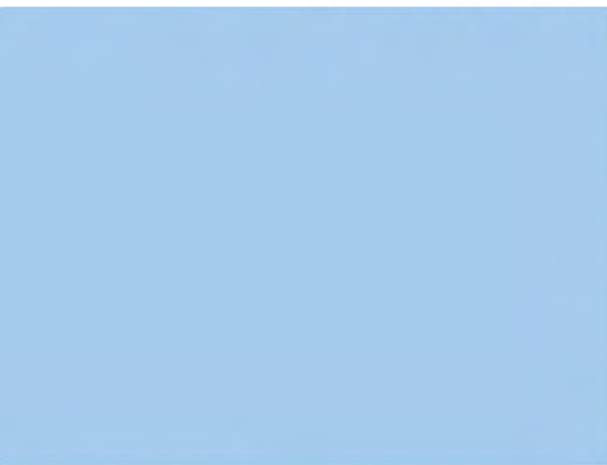
Founded in 1964, Cleveland State University is a public research institution that provides a dynamic setting for engaged learning with an enrollment of more than 16,000 students.

Acutherm provided a unique and energy saving upgrade to the HVAC system of their Student Center and Tower Library.

As a retrofit project, the Therma-Fuser™ System was able to support a unique and creative solution for a building in which duct work was not an option.









## Airport Buildings





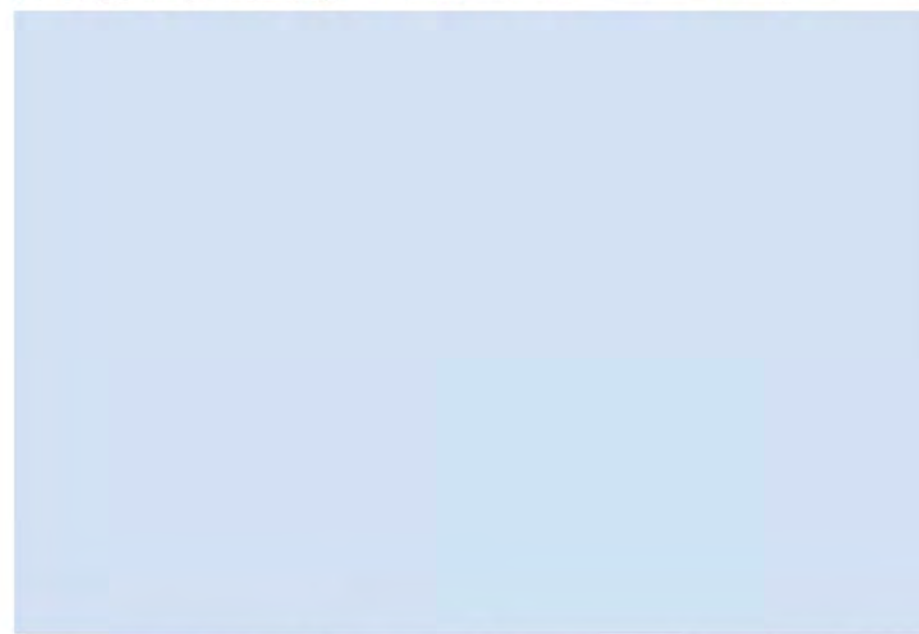
Houston Hobby Airport - Houston, Texas



# Houston Hobby Airport

In 1937, as Houston began its ascent to become the energy capital of the world, the city acquired the site of its first major airport, William P. Hobby Airport. Since then Houston Hobby (HOU) has distinguished itself as one of the select airports in the world and has been recognized with two awards for being one of the top five performing airports.

There are over a thousand Therma-Fuser™ TF and TL units working to ensure occupant comfort at Houston Hobby Airport.







Sydney International Airport - Sydney, Australia



# Sydney International Airport

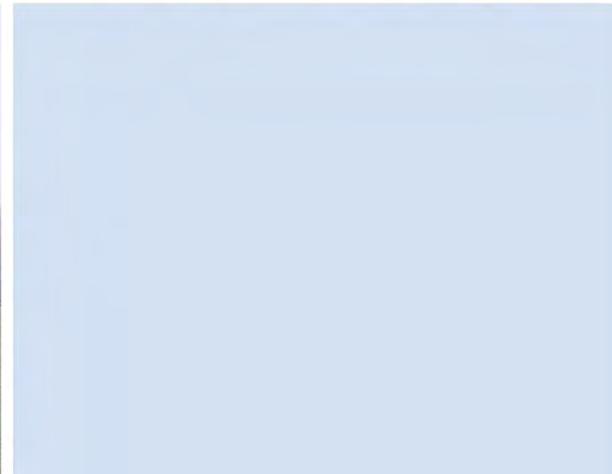
Acutherm has enjoyed a long and successful relationship with the largest airport facility in Australia, supplying Therma-Fuser™ VAV modules throughout the facility's ongoing growth and refurbishment phases.

The latest stage incorporated special mounting frames and a satin black color scheme to compliment the vision and design of the architect.

Therma-Fuser™ diffusers are located throughout the secure air-side terminal zones as well as the many individual retail outlets.















## Retail Applications









## About Acutherm

Founded in 1978, Acutherm designs, manufactures, and distributes VAV diffusers and accessories for use in HVAC systems. Since the beginning Acutherm has been exceeding individual comfort requirements while manufacturing a sustainable product that is proven to save significant amounts of energy.

### Comfort

With each Therma-Fuser™ diffuser acting as an individual VAV zone of control, every area of a building can have separate, optimized temperature settings. No over cooling or over heating of the occupied space will occur. Therma-Fuser™ diffusers also provide a constant discharge velocity with comfort benefits of higher throws, no dumping, better room air movement and uniform temperature distribution.

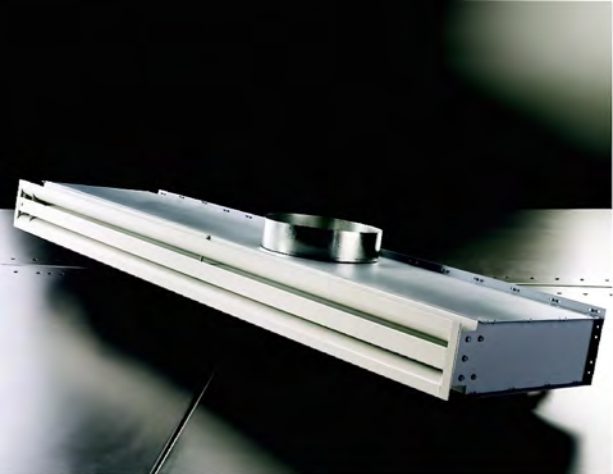
### Sustainability

Unlike conventional building controls, Therma-Fuser™ thermally-powered diffusers have no complicated electronics or pneumatics, and as a result require no maintenance. We are so confident of their reliability that we warrant them for up to 10 years.

### Energy Savings

Therma-Fuser™ diffusers allow for all low-pressure system designs. No energy is required to operate the controls of the diffuser. Acutherm produces energy efficient VAV systems that prevent over cooling and over heating and saving 15% to 47% more energy when compared to traditional VAV Systems.













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