Ohlone College Newark Center for Health Sciences and Technology, the first community college in the United States designed to achieve the Platinum-level certification for Leadership in Energy and Environmental Design, officially opened its doors to 3,000 students on Jan. 28.

The Platinum-level LEED rating is a national standard for developing high-performance, sustainable buildings that are economically profitable, environmentally friendly, healthy and productive places to work. LEED standards were developed by members of the U.S. Green Building Council, made up of building owners, real estate developers, facility managers, architects, designers, engineers, general contractors, subcontractors, product and building system manufacturers and government agencies.
Computer energy modeling programs compare entire HVAC systems or a single piece of equipment to another, so that users can select the most energy-efficient alternative and demonstrate system compliance with energy efficiency performance standards.

Sometimes the selection of such systems as natural ventilation, ground-coupled heat pumps, evaporative condensers, enthalpy recovery wheels, run around loops etc, can economically contribute to space conditioning, even if they do not serve all of the required load. Additionally they can also reduce the size and energy intensity of the overall HVAC system’s capacity.

But climate control strategies need not be based entirely upon passive approaches to be sustainable. There remains a role for active methods; they should be as environmentally friendly. Mechanical & Electrical system design is a key feature of sustainable buildings. The equipment associated with climate control fans, pumps, motors, ducts, pipes, etc. significantly affect capital and operating costs, energy use, indoor air quality, and environmental impact.

Finally, At Alfa Tech Cambridge Group we believe it is important for engineers to follow up with commissioning, to verify that the building performs as designed and to work with building owners to operate and maintain them in order to assure that they continue performing at their highest possible level.
The heating and air conditioning needs of the entire campus are provided by an innovative underground geothermal ground loop system. Unlike many conventional passive geothermal systems that provide only geothermal heat, the system developed for implementation at the Newark Center makes use of the naturally cool temperatures below ground to effectively cool warm air on hot days and warm cold air on cold days.

The physics and operation of the system are based upon the constant temperature of the earth. Miles of underground pipes filled with untreated tap water, either reject heat to the earth, or extract heat from the earth. Since the earth’s mass is so large, there is relatively no change in its temperature, and it remains constant at around 58 to 62 degrees depending on its geographic location.
Underground pipes filled with untreated tap water, either reject heat too, or extract heat, from the earth. Since the earth’s mass is almost infinite, there is no change in its temperature, and it remains relatively constant at around 58 to 62 degrees depending on its geographic location.

Water in the underground pipes at this temperature is ideal for heat transfer, since it is so close to the indoor room temperature. Conventional air-to-air systems consume significantly more energy than geothermal systems because they are rejecting heat and absorbing heat from the outside air. The outside air temperatures are much hotter in the summer and much colder in the winter than the earth’s temperature.

Not only do the geothermal systems use less energy, but since the heating and air conditioning equipment has much less work to do, it can also increase the life of the HVAC equipment.
A horizontal ground loop system was utilized on this particular site because of the accessibility to acres of open space. This eliminated the need to dig deep bore holes into the earth as required in a vertical loop system.

The entire campus heating and air conditioning needs are provided by this underground geothermal ground loop system. The physics and operation of the system are based on the constant temperature of the earth.
The underground water in enters the building's small mechanical room via a simple piping system and is pumped through the building to the ground coupled heat pumps distributed throughout the building. The water supplied from the ground is at a fairly consistent temperature, 58 to 62 degrees. The water returning from the building is typically 69 to 71 degrees.
Supply & Return Water Temperature

**Supply Temp**
- **61°**

**Return Temp**
- **69.5°**

**Air to air system**
- **Summer**
  - Room temp. 71 deg
  - Outside Air temp. 98 deg
  - Temp differential = **27 deg**

**Geothermal Ground Loop system**
- **Summer**
  - Room temp. 71 deg
  - Underground water temp. 64 deg
  - Temp differential = **7 deg**

**Air to air system**
- **Winter**
  - Room temp. 69 deg
  - Outside Air temp. 34 deg
  - Temp differential = **35 deg**

**Geothermal Ground Loop system**
- **Winter**
  - Room temp. 69 deg
  - Outside Air temp. 60 deg
  - Temp differential = **9 deg**
Horizontal Closed-Loop System
Geothermal systems have been consistently promoted by the US department of Energy as one of the most energy efficient, environmentally friendly systems available today. Typical paybacks over conventional systems are in the 1 to 5 year range.
Like human beings, buildings must exhaust air and take in fresh air in order to sustain life. The exhausted air represents a significant energy loss both in winter and in summer. Energy losses are even more pronounced in buildings that accommodate large numbers of people such as those within the community college environment.

When large groups of people exhale CO2 more of this air must be exhausted to make room for the fresh air required to meet indoor air quality requirements and thus large amounts of energy are rejected from the building.

There are several technologies that can recover parts of this lost energy, but most recover just sensible heat, which is a fairly small portion of the total energy lost. The latent energy is the significant piece of the puzzle and the one that the following device utilizes quiet efficiently.
Enthalpy Wheel Energy Recovery devices are unique in that they recover both **sensible and latent** energy. Efficiencies with this technology can be as high as 95%, although typically the average recovery efficiencies are around 85%. An added benefit with this system is the increase in airflow.

**More Fresh Air** —Outside air has always been a significant part of any building's energy budget. However, since there is virtually no energy premium when using the Enthalpy Wheel Energy Recovery System, we are able to **almost triple the amount of fresh air** we bring into the building. This naturally has a dramatic impact on indoor air quality, which usually can only be achieved with operable window systems.
Fresh air introduced via an open window does, at first glance, appear to be the obvious answer to efficiently introducing fresh air into a building environment, but it does have its challenges. An open window can introduce noise, pollen, grit, dust, wind gusts, and of course there are “significant” energy losses when trying to heat and cool both the inside and the outside of the building and these factors motivated the design team to find an alternative that would satisfy the building’s fresh air requirements without the loss of energy due to an operable window.

The Enthalpy Wheel Energy Recovery System was the solution to this challenge. The system introduces substantially more fresh air into the building and the quality of the human experience in a building with almost triple the code amounts of fresh air cannot be over stated. It improves almost every level of the teaching and learning experience and significantly reduces energy consumption thus allowing the typical enthalpy recovery system payback in the range of 1 to 3 years.
**Summer: w/o Enthalpy Wheel**
Exhaust air temp. 71 degrees
Outside intake air temp. 98 degrees
Temp Differential = **27 degrees**

**Winter: w/o Enthalpy Wheel**
Room Temp. = 69 degrees
Outside Air Temp. = 34 degrees
Temp Differential = **35 degrees**

**Summer: w/Enthalpy Wheel**
Exhaust air temp. 71 degrees
Outside intake air temp. 98 degrees
Temp Differential = **4 degrees** at 85% efficiency

**Winter: w/Enthalpy Wheel**
Room Temp. = 69 degrees
Outside Air Temp. = 34 degrees
Temp Differential = **5.25 degrees** at 85% efficiency
Enthalpy Wheel
Solar energy is energy harvested from sunlight and converted into electrical power through the installation and application of photovoltaic arrays. ATCG designed the 38,000 square foot, rooftop-mounted photovoltaic solar array at the Ohlone College Newark Center.
The photovoltaic system generates over 450kW of peak AC power and is the largest array in Silicon Valley. The annual kW hrs of energy produced by the photovoltaic system equates to more than 30% of the projected campus annual electrical energy requirements.
During peak summer operating times, the system will produce over 100% of the facility power demand delivering excess power to the utility grid. Very often, systems such as these can be cost prohibitive for many public entities, but the design team was able to work with the district to secure funding for this solar array through private donations and California’s solar rebate program.
Solar Energy System
Plumbing Fixtures
Platinum is the highest of the four LEED levels. LEED certification requires 26 points, 52 points for Platinum. To give some idea of the additional effort necessary to achieve Platinum, consider the following. Twenty six of the necessary 52 points to meet the LEED Platinum threshold resulted from the design of the mechanical & electrical systems. In other words, the MEP design alone could have qualified for the basic LEED certification with just the points from the Mechanical & Electrical systems alone.

Engineering technology is unquestionably one of the single most important ingredients in any LEED project, but to achieve Platinum, it takes a truly committed design team, and a dedicated client. We were very fortunate to have both at the Ohlone College.

Ohlone College is one of only 50 LEED Platinum projects, and the only LEED Platinum Community College in the world.
## Annual Source Energy Use Summary (kBtu/sqft-yr)

<table>
<thead>
<tr>
<th>ENERGY COMPONENT</th>
<th>Standard Design</th>
<th>Proposed Design</th>
<th>Compliance Margin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Space Heating</td>
<td>9.14</td>
<td>5.86</td>
<td>3.29</td>
</tr>
<tr>
<td>Space Cooling</td>
<td>25.68</td>
<td>8.55</td>
<td>18.13</td>
</tr>
<tr>
<td>Indoor Fans</td>
<td>31.55</td>
<td>29.06</td>
<td>2.48</td>
</tr>
<tr>
<td>Heat Rejection</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Pumps &amp; Misc.</td>
<td>0.00</td>
<td>8.96</td>
<td>-8.96</td>
</tr>
<tr>
<td>Domestic Hot Water</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Lighting</td>
<td>41.23</td>
<td>31.84</td>
<td>9.40</td>
</tr>
<tr>
<td>Receptacle</td>
<td>16.94</td>
<td>16.94</td>
<td>0.00</td>
</tr>
<tr>
<td>Process</td>
<td>11.51</td>
<td>11.51</td>
<td>0.00</td>
</tr>
<tr>
<td><strong>TOTALS:</strong></td>
<td><strong>137.05</strong></td>
<td><strong>112.70</strong></td>
<td><strong>24.34</strong></td>
</tr>
</tbody>
</table>

Percent better than Standard: 17.8% (19.4% excluding process)
<table>
<thead>
<tr>
<th>Energy Component</th>
<th>Electric (kWh)</th>
<th>Gas (Therm)</th>
<th>Cost</th>
<th>Electric (kWh)</th>
<th>Gas (Therm)</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Area Lights</td>
<td>455311</td>
<td>81,985.98</td>
<td>$83,280.44</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Misc Equip (Exempt Receptacle)</td>
<td>187064</td>
<td>33,671.52</td>
<td>$33,671.52</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Space Heat (Electric)</td>
<td>109961</td>
<td>18,172.98</td>
<td>$11,029.98</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Source Uses (Process)</td>
<td>127066</td>
<td>22,871.88</td>
<td>$22,871.88</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Space Cool</td>
<td>294592</td>
<td>53,026.56</td>
<td>$16,988.24</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pumps &amp; Misc</td>
<td>0</td>
<td>94398</td>
<td>$17,512.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vent Fans</td>
<td>348355</td>
<td>11034</td>
<td>$57,765.42</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DHW (Gas)</td>
<td>320519</td>
<td>9514</td>
<td>$7,091.76</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>1513783</td>
<td>11034</td>
<td>$232,009.32</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Proposed Design Electricity Cost (no PV):** 1244542 $224,017.56

**Proposed Design Gas Cost:** 9514 $7,991.76

**Photovoltaic Production:** 712920 $98,456.69

**Proposed Design Energy Cost (with PV):** 133,552.63

**% Savings Vs. Title-24 ECB Approach:** 52.6%

**LEED Points for EA Cr1:** 10

*PV production estimates provided by PV designer used in this study.*
### Photovoltaic Energy Production

<table>
<thead>
<tr>
<th>Month</th>
<th>Predicted kWh</th>
<th>Virtual Rate $/kWh (DOE2)*</th>
<th>Monthly Savings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan</td>
<td>26869</td>
<td>0.1179 $</td>
<td>3,167.88</td>
</tr>
<tr>
<td>Feb</td>
<td>34187</td>
<td>0.1189 $</td>
<td>4,064.85</td>
</tr>
<tr>
<td>March</td>
<td>55435</td>
<td>0.1200 $</td>
<td>6,652.18</td>
</tr>
<tr>
<td>April</td>
<td>71705</td>
<td>0.1202 $</td>
<td>8,618.97</td>
</tr>
<tr>
<td>May</td>
<td>87086</td>
<td>0.1445 $</td>
<td>12,583.91</td>
</tr>
<tr>
<td>June</td>
<td>89252</td>
<td>0.1511 $</td>
<td>13,485.90</td>
</tr>
<tr>
<td>July</td>
<td>94880</td>
<td>0.1461 $</td>
<td>13,861.94</td>
</tr>
<tr>
<td>August</td>
<td>83858</td>
<td>0.1498 $</td>
<td>12,561.93</td>
</tr>
<tr>
<td>Sept</td>
<td>66417</td>
<td>0.1493 $</td>
<td>9,916.06</td>
</tr>
<tr>
<td>Oct</td>
<td>49226</td>
<td>0.1447 $</td>
<td>7,122.99</td>
</tr>
<tr>
<td>Nov</td>
<td>29984</td>
<td>0.1187 $</td>
<td>3,559.08</td>
</tr>
<tr>
<td>Dec</td>
<td>24022</td>
<td>0.1191 $</td>
<td>2,861.02</td>
</tr>
<tr>
<td><strong>Total/Year</strong></td>
<td><strong>712920.2</strong></td>
<td><strong>$</strong></td>
<td><strong>98,456.69</strong></td>
</tr>
</tbody>
</table>

*The Virtual rate is derived from the time of use rate structure and represents the average monthly rate for the building derived from DOE2.1E*
OVERVIEW

Since its founding in 1987, Alfa Tech Cambridge Group has built a reputation for continually raising the bar when meeting the needs of clients.

Today’s continually changing marketplace creates constant evolution in facility requirements. Our philosophy is to provide clients with the most forward-thinking solutions to create facilities that operate with the highest efficiency, in the most cost effective way, and while providing the utmost flexibility for the future.

To meet this goal, we have broadened our service offerings and expertise, maintain the highest level of up-to-date technical knowledge among our staff, and operate from multiple strategic locations. From our West Coast offices in San Jose, San Francisco, Palo Alto and Los Angeles, as well as international locations in Singapore and Australia we provide the following services:

• Mechanical
• Electrical
• Technology
• Commissioning

With over 145 US employees, and over 250 worldwide, the firm’s current contracts encompass full design, design assist, and design/build project delivery methods. The firm provides services for a multitude of clients across the State of California, the East Coast, throughout the United States, and in over twenty countries including Australia, Thailand, Taiwan, Singapore, Germany, France, England, Amsterdam, Switzerland, Spain India, Canada, and the Philippines.

Our portfolio includes the following project and facility types:

<table>
<thead>
<tr>
<th>Education College/University</th>
<th>Pharmaceutical / Biotech</th>
</tr>
</thead>
<tbody>
<tr>
<td>Education K - 12</td>
<td>Healthcare</td>
</tr>
<tr>
<td>Campuses</td>
<td>Advanced Technology</td>
</tr>
<tr>
<td>Data Centers</td>
<td>Tenant Improvements</td>
</tr>
</tbody>
</table>

ATCG has the project experience and resources to successfully complete core and shell facilities, remodels, upgrades, or restacks that involve any design / engineering challenge. We have USGBC LEED-accredited professionals on staff to provide innovation in the design process for energy and environmental conservation, and as a matter of course, our staff offers alternatives and solutions that accommodate our client’s budgets, schedules, intended uses, and value engineering criteria, providing facilities that are cost-effective and operationally efficient.

"Alfa Tech demonstrated considerable engineering talents...while supporting and working very closely with the entire Stanford University Design Team..."

-- Jack Cleary, AIA
Stanford University
Alfa Tech Cambridge Group (ATCG) provides clients with professional engineering and IT services which make facilities cost effective and operationally efficient. Our design and IT professionals perform master planning; programming; construction documentation including drawings and specifications; schedule and budget control.

**MECHANICAL**
- HVAC
- Medical Gas
- Heating Systems Water and Gas
- Cooling Systems/ Chilled Water
- Dehumidification Systems
- Contamination Sensitive Areas
- Industrial Hygiene Systems
- Low Tolerance Temp Control
- Title 24 Analysis and Design
- Heat Recovery Systems
- Central Utility Plants
- Air Handlers HVAC System Controls
- PLC Programming
- Fire Protection and Plumbing

**ELECTRICAL**
- Power Systems
- Emergency & Standby Power Systems
- Lighting and Lighting Controls
- Security Systems
- 24 / 7 Power Systems (UPS)
- Toxic Gas Monitoring
- Graphic Control and Alarm Panels
- Grounding and Bonding
- Energy Management
- Energy Conservation
- Fire Alarm Systems
- Public Address Systems

**TECHNOLOGY**
- New Technology
- Feasibility Assessment
- Technology Standards Design
- Telecommunications
- Cable Plant (OSP/ Premise)
- Network Hardware Design
- Computer Room & Data Center Design
- Network Equipment Rooms
- IT Strategic & Tactical Planning
- Facilities Analysis & Assessments
- Local & Wide Area Networks
- Relocation Services (IT)
Community Colleges:

**OHLONE COMMUNITY COLLEGE**
Newark, CA

Type: Master Planning and Campus MEP Design
Size: 81-acre campus

The campus program included a *LEED Platinum Health Science and Technology Center* with Learning Resource Center, Student Support Services, Administration, Information Services, Cafeteria & Food Services, Student Dining, Language Labs, Classrooms, Lecture Hall, Video Conference, Computer labs, Aerobics room, fitness center, Bookstore, Health Services, Nursing Labs, Science and Environmental Labs, Cadaver Storage, Biology Life Sciences, and Business & Technology Labs. LEED Platinum certification is pending. Once certified it will be the first LEED Platinum Campus in the United States.

Alfa Tech Cambridge Group provided mechanical and electrical engineering services for the new 81-acre campus in Newark. MEP systems include a large geothermal system, a 450kV photovoltaic system, enthalpy wheel heat recovery system, and high efficiency plumbing fixtures.

**SKYLINE COMMUNITY COLLEGE**
San Bruno, CA

Type: New Construction, Additions and Modernizations
Size: 155,000+ SF

Projects:
- New Science Annex - 30,000 SF
- New Student Union Building – 40,000 SF
- New Facility Maintenance Building – 15,000 SF
- Building 7 Modernization – 35,000 SF
- Building 8 Modernization – 35,000 SF
- Bridging Documents – New Cosmetology/Wellness/Athletics Building, New Administration/Instructional Building, New Automotive Technology Automatic Transmission Building, Building 8 Gateway Portal, North/East/West Campus Gateways, Demo of Northern Buildings, Parking Lot and Roadway Modifications

Alfa Tech Cambridge Group provided mechanical and electrical engineering services for new construction and renovation projects on the Skyline Campus for both the traditional ‘design-bid-build’ and for ‘design-build’ project delivery method. We also provided the bridging documents for the above “Design Build” projects on the campus.
COLLEGE OF MARIN
Kentfield and Indian Valley, CA

Type: New Construction, Additions and Modernizations
Size: 170,000+ SF

Projects:
- Campus Master Planning for Kentfield and Indian Valley Campuses
- Physical Education Building Remodel (Kentfield) – 44,000 SF
- Science/Math/Central Plant Complex (Kentfield) - 60,000 SF
- Main Building Complex (IVC) – 36,000 SF
- Transportation Technology Complex (IVC) – 10,000 SF
- Geo-thermal & Photovoltaic Systems
- Gas Main Replacement
- Electrical Services Upgrade

Alfa Tech Cambridge Group was selected to provide all up-front engineering services relating to all planned bond projects including the master planning, district-wide energy modeling, district-wide mechanical, electrical and plumbing facility assessments and design standards for the District.

In addition, the firm is working with the Kentfield campus on the Larkspur Annex to upgrade the electrical services and distribution to create a staging area for future campus construction. All projects include sustainable design and a LEED Silver certification goal.

LAS POSITAS COMMUNITY COLLEGE
Various Projects
Livermore, CA

Type: Administrative, Classroom, Daycare
Size: 85,000+ SF

Projects:
- Multi-Disciplinary Education Building
- Learning Resource Center
- Chabot-Las Positas Daycare Modular Building

The firm provided engineering design services for the new 40,000 SF Learning Resource Center contains classrooms, meeting rooms, media center and a library. The firm provided mechanical and electrical design services. The campus power distribution study included system planning, communication system planning and routing, indoor and outdoor lighting systems, grounding, and fire detection and alarm systems. The firm also performed programming services for a single story multi-disciplinary educational building of 42,000 SF.
SANTA ROSA JUNIOR COLLEGE
Santa Rosa CA
Type: New Student Services Building
Size: 80,000 SF
Construction budget: $35M - $42M

Alfa Tech Cambridge Group provided mechanical and electrical engineering design for this project which is slated for USGBC LEED certification, including a geothermal underground / renewable energy HVAC system. The building incorporates sustainable design elements, and the program includes offices, food service, kitchen, student dining, information services, and a bookshop.

CHABOT COMMUNITY COLLEGE
Hayward, CA
Type: Campus Master Planning, Central Plant with Geo Thermal System
Size: Various
Past Projects:
• Physical Science/Mathematics/Science Learning Center
• Chabot-Las Positas Daycare Modular Building
• Ceramics Building
• Cafeteria/Student Dining
• Studies for Engineering Building, Library, Science Building, & Student & Alumni Activities Center

Alfa Tech Cambridge Group has provided mechanical and electrical engineering services for numerous projects at Chabot including the master plan of a new central plant with thermal storage to support the entire campus consisting of 40 buildings totaling 750,000 SF. Prior work on the campus included the ceramics building, where the firm provided an electrical power distribution system; and programming services for the science and mathematic learning center.

MISSION COLLEGE
San Jose, CA
Type: Remodel

Alfa Tech Cambridge Group is providing engineering design services and design and construction administration for the remodel of approximately 11,500 SF of the existing building. The project includes assessment of existing MEP & Technology systems from available record documents and from field investigation work. Modifications and upgrades to existing systems will then be designed to support the proposed space layout revisions.
CONTRA COSTA COLLEGE
San Pablo, CA
Type: Campus Master Planning
Size: 83 Acres

Alfa Tech Cambridge Group (ATCG) provided mechanical and electrical engineering master planning services and full design for all new and renovated buildings for Contra Costa College in San Pablo, California. ATCG worked very close with the campus facilities staff and project team members to assess and document physical condition, expected lifetime, and recommended repairs, upgrades or replacement of building systems. In addition, ATCG advised on feasibility and prioritization of renovating existing and adding new buildings for planning and costing purposes, and provided MEP design criteria, materials standards, sustainable and LEED criteria, and phasing information for mechanical, electrical, plumbing, fire/life safety, telecommunications, and building controls systems.

DE ANZA COMMUNITY COLLEGE
Faculty Building Renovation
San Jose, CA
Type: Administrative, Multipurpose Buildings
Size: 12,000 SF
Projects:
  • Faculty Buildings
  • Classrooms
  • Administrative Offices
  • Multipurpose Buildings

The firm provided engineering design services for the modernization and engineering systems for eight existing faculty buildings, six existing quad classroom buildings, administration, multipurpose buildings and restrooms upgrade. This included mechanical, plumbing, electrical and telecommunications services.

SOLANO COMMUNITY COLLEGE
Vallejo and Vacaville, CA

Alfa Tech Cambridge Group is providing mechanical and electrical engineering design services for a new community college campus in each city on newly acquired sites.

Each campus houses classrooms, science labs, offices, lecture halls, and multipurpose rooms.
MONTEREY PENINSULA COLLEGE
Monterey, CA
Type: Existing Campus
Provide design for new site utilities upgrades including new 21KV distribution system, new communications and power distribution to building, gas, water, storm drain, and grey water systems coordination.

EVERGREEN VALLEY COMMUNITY COLLEGE
San Jose, CA
Type: Learning Resource Center, Chemical Laboratory, Administration, and New Fine Arts Center
Size: Over 100,000 SF
The firm was contracted to perform various on-campus additions and renovations for campus. The first project consisted of a new two-story Learning Resource Center containing open lab, distance learning, circulation and supporting area totaling 70,000 SF; basement containing Tech Support, Cable Studio of 7,500 SF and mechanical space of 3,000 SF. Our experience at this campus also includes design of MEP/Technology for a new 2,200 SF Fine Arts Center design
The firm also performed the remodel of the 2nd Floor (approximately 20,000 SF) which houses the campuses laboratory. In addition, a due diligence evaluation was conducted to document current and past operational problems, and will be used to determine potential system deficiencies based on the current building use and systems installed.

EVERGREEN STUDENT UNION DUE DILIGENCE
San Jose, CA
Type: Student Union Due Diligence
Alfa Tech Cambridge Group worked with facilities personnel to evaluate and document potential system deficiencies based on current building use and systems installed. This included a site visit, report, and recommendations for HVAC equipments.

HARNELL COLLEGE STUDENT CENTER MODERNIZATION
Salinas, CA
Type: Student Center
Size: 34,000 SF
Alfa Tech Cambridge Group is in the process of design for the modernization of an existing one-story, 34,000 SF building. The project consists of the Book Store, Steinbeck Room, Conference Rooms, Common Areas, Game Room, Offices and Restrooms.
Universities:

SAN FRANCISCO STATE UNIVERSITY
San Francisco, CA

Type: Design Review and Existing Conditions Study, Remodel
Size: Various
Projects:
  • Mary Ward Hall
  • Franciscan Building, 14,000 SF
  • Administration Building

The firm completed the design of mechanical and electrical systems for several projects for San Francisco State University. For Mary Ward Hall, The firm was engaged to do the peer review of the design-build contractor’s mechanical and electrical construction drawings, specifications and product submittals for compliance with the stated scope of work outlined by the University.

The firm provided engineering design services for the complete mechanical and electrical plan-and-specification design of interior remodel/improvements of the first and second floor office area, approximately 7,500 SF, located in the Administration Building of the SFSU campus.

SAN JOSE STATE UNIVERSITY
Various Projects
San Jose, CA

Type: New Student Union
Size: Various
Projects:
  • Art and Industrial Art Building
  • Duncan Hall
  • Engineering Building
  • Student Union Building

Alfa Tech Cambridge Group provided engineering design services for a new Student Union building which consisted of 129,000 SF recreation & events center containing a 5,500-seat arena and an outdoor pool. The firm also provided engineering design services for renovations to over 300,000 SF of renovations to the Engineering Building, and a system upgrade for Duncan Hall and the Art and Industrial Art Building.
CALIFORNIA STATE UNIVERSITY, BAKERSFIELD
New Stern Library
Bakersfield, CA
Type: Academic
Size: Over 153,000 SF

The firm provided full engineering design. This library features a workshop space with a clean booth, a television studio, and a sound recording booth. All new engineering systems were connected to central campus facilities, which included mechanical, electrical and plumbing systems.

UNIVERSITY OF CALIFORNIA, SAN FRANCISCO
San Francisco, CA
Type: Medical & Health Sciences Buildings, Cafeterias, Classrooms
Size: Various
Projects:
• Lecture Halls
• Teaching Rooms
• Computer Lab
• Biomedical Research
• Café and Food Lounges

Alfa Tech Cambridge Group provided two separate concurrent projects for value engineering of library release space improvements. The project realized two new lecture halls, 18 teaching rooms, a computer lab, biomedical research facilities, relocation of café and expansion of student lounges.
UNIVERSITY & COLLEGE  Projects

UNIVERSITY OF CALIFORNIA, BERKELEY
Various Projects
Berkeley, CA

Type: Academic, Student Center and Classrooms
Size: Over 124,000 SF
Projects:
• Buildings 6 and 80
• Computer Room Remodel
• Cory Hall
• McCone Hall

The firm provided engineering services for numerous projects at UC-Berkeley which include full systems renovation to Advanced Light Source structural biology support encompassing 16,000 SF to buildings 6 and 90, Cory Hall which was a new 28,000 SF fifth floor built on top of existing electrical engineering building and MEP and fire protection renovation to McCone Hall which was an 80,000 SF classroom building.

UNIVERSITY OF CALIFORNIA, IRVINE
Residence Hall, Unit 5
Irvine, CA

Size: 226,000 SF

Alfa Tech Cambridge group provided comprehensive design of mechanical and electrical systems for six new residence halls, accommodating 120 students each and one new dining hall with upper level seating for conferences, lectures and performing arts.
Private Universities:

**STANFORD UNIVERSITY CLARK CENTER**  
Stanford, CA  
Type: R&D, Biotech Facility, Office and Administrative Space  
Size: 200,000 SF  

This award-winning project is a multi-story building on the Stanford University campus dedicated to biotechnology research and development. It is a state-of-the-art facility designed to bring together researchers of different disciplines in order to foster new ideas as opposed to the process of traditional research facilities.

The firm is responsible for the design of the mechanical systems, and pier review of the plumbing/process piping systems.

**STANFORD UNIVERSITY CAMPUS**  
Various Projects  
Stanford, CA  
Type: Laboratory, Academic Buildings, Medical Facility, Cafeteria  
Size: Various  

Projects:  
- Law School/ Cowell Area Utilities  
- Mechanical Engineering Department Building  
- Environmental Safety Facility  
- Graduate School of Business  
- Keck Laboratory  
- Medical Center Teaching Hospital  
- South Hall Cafeteria  

The firm provided engineering services for a multitude of buildings on the Stanford University Campus. For the Mechanical Engineering Building, The firm provided new systems for existing 46,000 sf two story building. For the Law School Building, The firm provided a feasibility study of campus steam/chilled water to a new Student Health Center, new Student Services Building, and Proposed Law School Student Center.

The firm provided a new 50,000 SF, 3-story building to house the Graduate School of Business. The Keck Laboratory was a new 72,000 SF, three-story lab. The firm provided additions & renovations to the Medical Center Teaching Hospital. The firm also provided design services for a new Environmental Safety: 30,000 SF hazardous waste monitoring & storage facility, and systems renovation to the South Hall Cafeteria.
STANFORD AUXILIARY LIBRARY
Livermore, CA
Type: High Security Storage Library
Size: 38,000 SF
The firm was a key part of the mechanical, electrical, telecommunications, and security design team for this state-of-the-art, 38,000 square foot building which is the most secure facility of its kind in the West. Designed to protect over a $1 billion worth of books and journals, the building will maintain archival conditions of temperature and humidity to preserve the books for a minimum of 200 years. Exact temperature and humidity control and attention to detail are keys to preserving this treasure trove of academic knowledge.

SANTA CLARA UNIVERSITY
McLaughlin Hall Renovation
Santa Clara, CA
Type: Student Housing Renovation, Change-use Conversion
Size: Various
Projects:
- McLaughlin Hall
- Site Lighting
- Student Dormitory Conversion

The firm provided engineering design services for the renovation of mechanical, electrical and plumbing systems at McLaughlin Hall, replace site lighting fixtures on campus and a dormitory conversion. The firm also provided full design services for Telecomm/ Voice-Data improvements to existing 22,050 SF motel which was converted to a dormitory. This also included adding in-room overhead lighting.

JFK UNIVERSITY
Pleasant Hill, CA
Type: Renovation/Upgrade
Size: 107,000+ sf
The firm provided full engineering services for this new law school facility including classrooms, libraries, building services, faculty + staff admin areas, storage, and break rooms.
MILLS COLLEGE
Oakland, CA

Type: Classroom, Administration, Housing, Student Union
Size: 120,000+ SF

Projects:
• Aron Art Center Heating System
• Campus Heating System Master Plan
• Carnegie Building Renovation
• Carnegie/Sage Boiler Plan
• Central Heating/Cooling Plant Study
• Mills Hall Renovation
• Olin Library
• Olney Hall Renovation

The firm provided engineering services for numerous projects at Mills College. Key projects include a Boiler Plant, new plant which supplies steam to Carnegie & Sage Halls, conversion of old library to office space in the Carnegie Building, renovation of the historic Mills Hall, a New Olin Library featuring a rare book area that requires 24-hour precision temperature and humidity control, and the renovation of a historic student residence hall.

UNIVERSITY OF SAN FRANCISCO
Building Survey
San Francisco, CA

Size: 1,115,000 SF

Survey and evaluation of mechanical and electrical systems in 18 academic buildings for condition and code compliance. A report made recommendations for upgrades and remedial actions.

NAVAL POSTGRADUATE SCHOOL
Library Addition and Academic Instruction Building
Monterey, CA

Type: Instruction Building, Library
Size: 120,000+ SF

Alfa Tech provided mechanical and electrical engineering for a library addition that included a special vault for important documents. The new Academic Instruction Building houses the departments of oceanography, meteorology, and mathematics, as well as a secure computer area. The facility features classrooms, teaching labs, lecture halls and an auditorium.