



**engineered
systems**

GENERAL INFORMATION & CAPABILITIES



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HVAC SHEET METAL & PIPING • COMMISSIONING • RETRO-COMMISSIONING
PLUMBING • BUILDING SERVICES • PROCESS PIPING • ENGINEERING
BIM/3-D MODELING • FABRICATION • BUILDING AUTOMATION SYSTEMS
INDUSTRIAL CONSTRUCTION & PIPING • ENERGY SERVICES • RIGGING

WELCOME TO THE WORLD OF ACCO

ACCO Engineered Systems is an employee-owned mechanical contractor with specialties in heating, ventilating, air conditioning, refrigeration, plumbing, process piping, building automation, industrial construction and service. Through an engineering oriented approach, we provide these services to the new construction and existing building markets. ACCO's driving force is to satisfy the complex, engineered systems needs of buildings/facilities. We do this in a valued-added, cost effective one-stop shop manner by:

- Using our best in class know-how to deliver customized, value-added systems at a competitive level
- Structuring exceptional value deals
- Leveraging our project management and delivery capability to take control, deliver with speed, and provide a single point of accountability



About ACCO Engineered Systems

ACCO Engineered Systems was founded in 1934 as Air Conditioning Company (ACCO), a proprietorship, by Ira Prentiss Fulmor at 1005 Santa Fe Street, Los Angeles. The former name of the company was chosen to indicate what the company did because few people knew about air conditioning. In 1949, the business moved from downtown Los Angeles to Glendale, and again in 1959 to Pasadena. In 1950, ACCO transformed from an air conditioning distributor and became an independent corporation. Kenneth D. Simon was President from 1969 to 1980, Theodore M. Seidman was President from 1981 to 1989, followed by John Aversano in 1990, Peter Narbonne in 2014 and Jeff Marrs in 2016.

Over the years, ACCO has grown to become a leader in the design, installation and service of industrial, commercial, high-rise, residential, and institutional air conditioning, heating, ventilation, plumbing, process piping and Direct Digital Control (DDC) systems. ACCO's name was changed in 2002 to ACCO Engineered Systems to better reflect the various aspects of its business. A national trade publication regularly ranks ACCO among the 5 largest heating, ventilating and air conditioning contractors in the nation. ACCO's offices and manufacturing facilities reside on more than 20 acres across the western U.S.

The construction work areas include office buildings, biopharmaceutical, semi-conductor, medical centers and hospitals, micro-electronics, manufacturing plants, entertainment, retail, telecommunications, educational facilities, data centers and high-rise residential. ACCO has completed work in Arizona, California, Florida, Hawaii, Idaho, Illinois, Louisiana, Maryland, Michigan, Nevada, New Jersey, New Mexico, Oregon, Tennessee, Texas, Utah, Virginia, Washington, Washington D.C. and Mexico.

ACCO's headquarters is located in Pasadena, CA, with other principal offices located throughout California, Nevada, Idaho, Oregon and Washington.





ACCO IS A MEMBER OF THE SHEET METAL AND AIR CONDITIONING CONTRACTORS NATIONAL ASSOCIATION, INC. (SMACNA), THE MECHANICAL CONTRACTORS ASSOCIATION OF AMERICA, INC.(MCAA), AND MECHANICAL SERVICE CONTRACTORS OF AMERICA (MSCA).

Project Management

Your Personal Representative

At ACCO, when we accept a job, we accept all the responsibility that goes with it. An ACCO Project Manager supervises the project from the initial contact through conceptual studies, engineering design, energy studies, estimating, sales, construction and commissioning. This responsibility continues through final acceptance, as well as the warranty period.

Your project manager's responsibility is to get your job done — on time and on budget. ACCO pioneered this single source of responsibility to ensure strict adherence to all of the project requirements, quality demands and time schedules.

Keeping Your Project on Schedule

Keeping on schedule requires a large amount of up-to-date information. ACCO maintains a computerized database on all projects to allow project managers to have immediate access to up-to-date labor reports, equipment and materials status and time-and-cost accounting.

Diverse Experience & Flexible Approach

ACCO has successfully completed many different types of projects from simple warehouse installations to complex semiconductor and bio-tech fabrication facilities requiring the most advanced technological skills. We can work with an engineer of your choice to develop and analyze systems for your project, or you can utilize ACCO's in-house engineering resources to design a system for your project that meets your quality and budget requirements. In both cases, we guarantee price, performance and schedule.



Safety

ACCO is a large organization with rapid growth, but safety has remained a core value of our business. We developed a detailed Safety Program to establish compliance with applicable regulations and maintain safety excellence. The result is an industry-leading Experience Modifier Rate (EMR), which reflects workers' compensation loss performance. ACCO's extensive safety training emphasizes the best practices to ensure the health and well-being of our employees. A copy of our Safety Program is available upon request.

ACCO Provides the Following Safety Training to Our Employees to Protect Them and Those Around Them.

- Employee Safety Orientation
- Confined Space Entry
- Asbestos Awareness
- Respirator Training
- Respirator Fit Testing
- CPR/First Aid
- Fall Protection Awareness
- Forklift Certifications
- Scaffold Awareness
- Trench/Excavation Awareness
- Supervisor Safety Training
- Hazard Communication (SDS)

In addition to this training, ACCO conducts weekly safety meetings with field and shop employees to raise safety awareness. General Foremen Safety Meetings are conducted on a quarterly basis to review incidents and update safety training.

Injury Management Program

ACCO is committed to ensuring employees who are injured have access to the best rehabilitation resources. ACCO does its best to provide meaningful, temporary alternative work for injured employees. In addition, we make our best efforts to ensure injured employees receive the best medical care available.



Fabrication & Installation

State-of-the-art fabrication facilities are necessary to control cost and ensure quality in the mechanical contracting industry.

To effectively service our geographical areas of work, ACCO has fully automated, computer-aided fabrication facilities in Commerce (2), Covina, San Leandro, Sacramento, San Diego and Vacaville. These fabrication plants produce in excess of 12 million pounds of fabricated sheet metal per year and more than 270,000 diameter inches of welded and grooved mechanical piping.

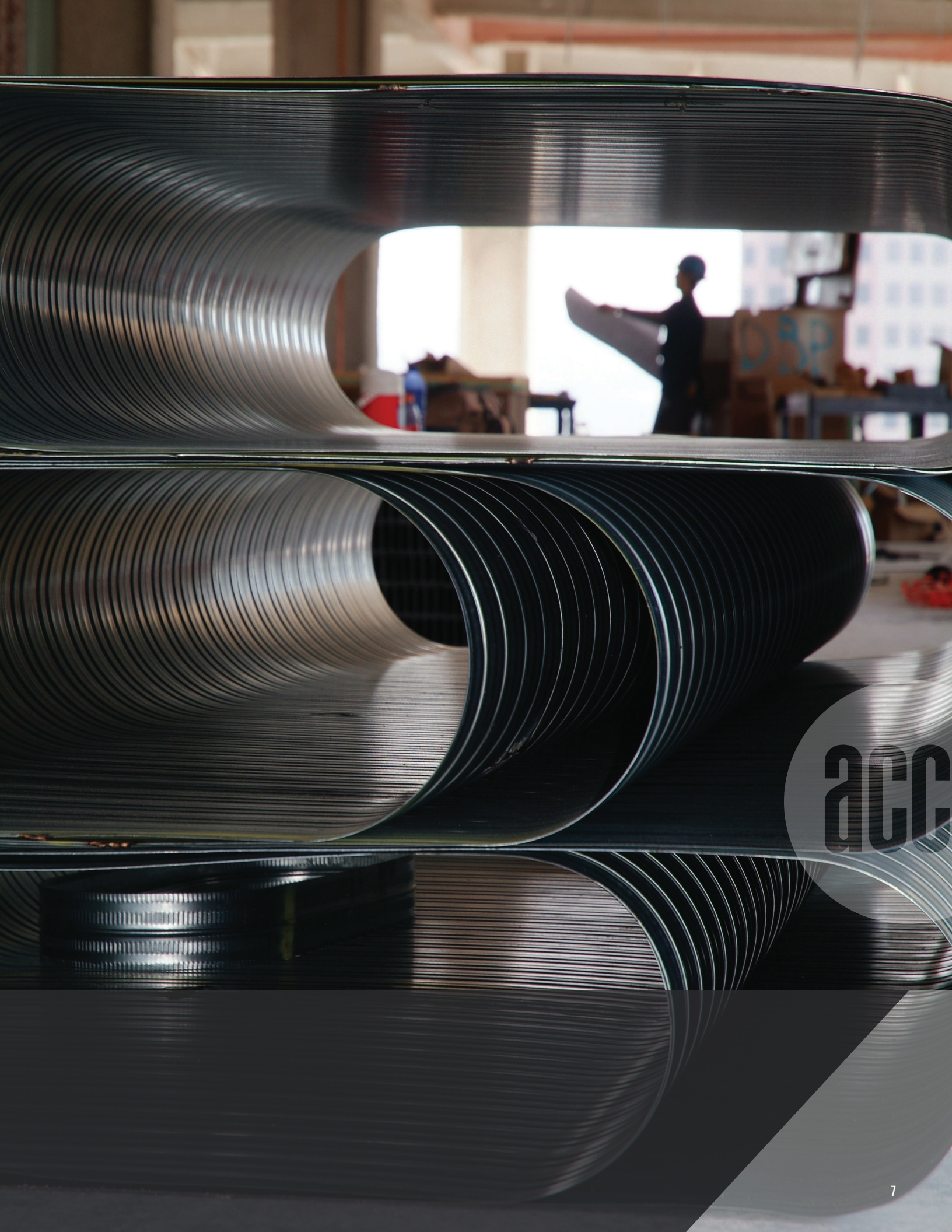
Our Los Angeles facilities include a modern 70,000 square foot sheet metal shop with an 11,000 square foot warehouse and tool crib located in Commerce, CA. We also have a piping and plumbing fabrication shop located in Commerce that includes 200,000 square feet of prefabrication and warehouse space with 12 cranes in four bays on a 10-acre parcel.

In order to fully serve our Northern California operations, ACCO has fabrication facilities in San Leandro, which include a 38,000 square foot sheet metal fabrication shop, an 18,000 square foot warehouse and tool crib, an 11,000 square foot pipe fabrication shop and a separate 30,000 square foot plumbing fabrication shop.

Our Sacramento facilities include 5,000 square feet of plumbing fabrication, 9,000 square feet of piping fabrication and 17,000 square feet of sheet metal fabrication.

To complement our Los Angeles and Bay Area facilities, we also have a validated process piping fabrication facility in Vacaville, CA, and a piping and plumbing fabrication facility in San Diego.





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ACCO's Project Approaches

Design-Build

Design-Build brings together a partnership of the owner, architects, general contractors and trades. As part of the Design-Build team, ACCO engineers analyze the owner's requirements, reviewing concepts and systems on a price/performance basis. Realistic project budgets can be established early in the process. Design-Build speeds up the entire construction process as we proceed seamlessly from design into construction with known project costs. Design-Build is the best way to avoid constant change orders, project escalation and cost overruns.

Integrated Project Delivery

Integrated Project Delivery (IPD) is a concept that has been incorporated into all areas of ACCO's capabilities. As a Design-Assist and Design-Build contractor, we regularly participate in the collaborative design and planning elements IPD is known for, allowing us to determine the best way to accommodate the individual needs of each project. ACCO's Project Managers are unique in that they manage a project's mechanical and/or plumbing scope of work from start to finish, playing an integral role in the design, cost control, construction, commissioning and handover.

Design-Assist

In the Design-Assist method of delivering work, our engineers work closely with your design and construction team to clarify the operational benefits of the project. We will analyze alternates on a price/performance basis. Our engineers' knowledge of installation, maintenance and long-term operating costs will help deliver the maximum value for dollars spent. When appropriate, we'll recommend using alternative designs, different materials and more efficient installation methods.

DESIGN-BUILD IS THE BEST WAY
TO AVOID CONSTANT CHANGE ORDERS,
PROJECT ESCALATION AND COST OVERRUNS.

Plan-Spec

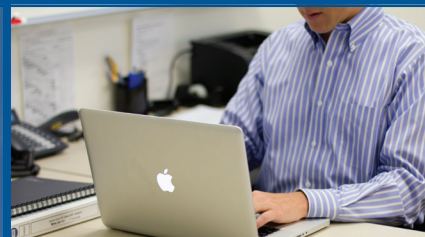
ACCO brings decades of experience to construction projects that mandate a fixed-price bid on a detailed set of construction documents. We examine the plans and specifications, determine the lowest possible cost and then build exactly what was designed. By working closely with the architect and engineering teams, our project managers anticipate issues and work to avoid change orders and cost overruns.

Lean Production & Construction

Internally, ACCO manufactures much of its own materials and has implemented Lean methods in order to reduce costs and inventory in our shops. We rely on pull scheduling, which requires effective project planning and efficiency, to reduce the amount of sheet metal and pipe we keep in inventory. Our shops also provide the opportunity to prefabricate and preassemble much of what is delivered to the field—increasing quality and safety due to the clean, controlled shop environment—and reducing labor and installation time in the field. By leveraging shops throughout the western United States, we are able to make more frequent just-in-time deliveries consisting of the exact amount of materials needed for a specific portion of the job. This reduces the impact on other trades in the field by minimizing the amount of material staged on the floor and around the job site.

Target Value Design

Target Value Design (TVD) is a method closely aligned with Lean production, Lean construction and Integrated Project Delivery. It consists of designing a project to the customer's predetermined budget requirements, rather than establishing cost after the design is completed. TVD builds cost into the design process and minimizes waste in the production and construction process. It is a fundamental change in thinking from "expected costs" to "budgeted costs." The guiding factor for TVD is that the target cost for a project should never be exceeded. Typically, cost follows design. However, on projects where TVD is used, cost dictates what gets designed to ensure that the target cost is not exceeded. One mechanism for providing this rapid cost feedback is extracting quantities from the virtual model and model-based estimates. As a result, rapid cost feedback to the design team is paramount in this process.



Engineering

The Foundation

Engineering is the foundation of outstanding mechanical and plumbing systems. The challenge is to transform innovative ideas into practical and reliable systems.

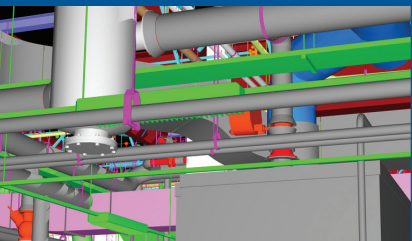
ACCO leads with the right concepts to meet your needs and brings the advantage of system fabrication and installation know-how to capitalize on the best means and methods for cost-effective results.

We focus beyond the initial installation to ensure that your system is designed to last and function reliably for many years under varying conditions and requirements. Our engineers utilize the experience of our commissioning and service professionals to design systems that will be serviceable and perform efficiently for the long term.

Regardless of project scale or complexity, our engineering staff will work with your design team and contractors to guarantee you are provided with the best design to meet your requirements. We will also ensure your project is complete, coordinated and code compliant.

Services

- 3-D Modeling and Design Coordination
- Preconstruction Services and Planning
- Energy Conservation
- Systems Evaluation/Comparison and Economic Analysis
- Code Compliance or Variances
- LEED® Certification
- Retrofits & Upgrades
- Applications Engineering





arcco

OUR ENGINEERS ARE COMMITTED TO PROVIDING
CREATIVE SOLUTIONS, COST-EFFECTIVE DESIGNS
AND RELIABLE PERFORMANCE.



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SINCE 1934, OWNERS AND BUILDERS
HAVE SELECTED ACCO TO DESIGN, INSTALL AND
MAINTAIN MORE THAN 250,000 MECHANICAL PROJECTS.

BIM & 3-D Modeling

ACCO stands at the forefront of Virtual Design and Construction (VDC), using three-dimensional (3-D) BIM visualization software for pre-construction trade coordination and product fabrication for HVAC, process, plumbing and industrial projects. Due to the space impact of these systems, ACCO often leads the coordination process and works with the general contractor and subcontractors to facilitate and manage coordination utilizing BIM software such as Autodesk's Navisworks and BIM 360. ACCO has the capability to facilitate 3-D coordination meetings, including creation and management of Clash Detection reports. Coordination meetings can be held in our ACCO offices, facilitated at a jobsite or hosted electronically utilizing Web Conferencing.

ACCO has more than 20 years of experience utilizing 3-D BIM software to accelerate our sheet metal and piping fabrication. ACCO uses Autodesk's fabrication software, which contains a library of fabrication level parts and objects used in both CAD and Revit environments. Applying Lean construction principles, our 3-D capability permits significant prefabrication of duct and pipe, as well as just-in-time delivery.

Our recent experience with challenging coordination projects includes HVAC, process and plumbing scopes within hospitals, laboratories and CGMP manufacturing facilities. ACCO brings knowledge and depth to any design and construction team, providing a catalyst for successful implementation of VDC.

Heating, Ventilation & Air Conditioning

Mechanical systems are the heart of buildings. They make buildings more marketable, more comfortable and more profitable. A properly designed, installed and maintained mechanical system conserves energy, cuts absenteeism, increases productivity and reduces tenant turnover. It can save a great deal of money.

Since 1934, owners and builders have selected ACCO to design, install and maintain hundreds of thousands of projects. That is because there is more to HVAC at ACCO than heating, ventilation and air conditioning. Where other companies see boilers, pumps, chillers and air handlers, we see entire systems. We see beyond the piping and the sheet metal on the drawings. We look for the best solution to meet your requirements. We evaluate your initial designs to find cost-effective solutions that deliver the same, or superior performance. We recommend smarter alternatives and upgrades to avoid problems and improve efficiency.

Whether we are providing conditioned air for an office building, meeting the acoustical needs of a performing arts theater or designing highly filtered air for bio-pharmaceutical clean rooms, our system-wide approach is unique in the industry. We deliver value, guarantee all your components work together as specified and lower the long-term costs of operation and maintenance.



Plumbing

ACCO's plumbing department is comprised of more than 1,000 engineers, designers, tradespeople, project managers and support staff. The size and scope of our workforce gives us the capacity to perform projects of all types, sizes and levels of complexity. We utilize the latest technology available to take projects from their conceptual stages through completion. ACCO is recognized in the industry for working on many of the most high-profile projects throughout the western United States.

Our clients demand quality, speed and efficiency. In order to accommodate these needs, we have four dedicated fabrication facilities located in San Leandro, Commerce, Covina and San Diego. These spaces enable us to produce pre-built sections of plumbing systems, equipment skids and finish within a controlled environment. We use Lean production principles to maximize effective production levels. This practice, coupled with our large warehouse capacity, helps eliminate delays due to inventory access. Completed prefabricated materials are delivered to jobsites using just-in-time delivery, minimizing the impact to the project and saving time on even the most ambitious construction schedules.

ACCO Engineered Systems has strong alliances with local unions. A long history of successful labor management and coordination means that your project will not suffer due to the inability to effectively staff a project, no matter the crew size, shift type or schedule.

Capabilities Include:

- Design-Build/Assist
- 3-D CAD/BIM Detailing
- Preconstruction/VDC
- In-House Engineering
- In-House Prefabrication
- All Commercial and Industrial Project Types
- Full MEP Construction

Project Types:

- Healthcare/OSHPD
- Mixed-Use Residential
- Hospitality
- Education
- New Construction/Renovations/TI/Retrofits
- Parking Structures
- Core and Shell
- High-Rises
- Laboratories
- Food/Beverage Service and Processing
- Office Buildings
- Themed Entertainment
- Amusement Parks
- Transportation Facilities (Road/Rail/Air)
- Industrial Complexes
- Site Utilities

Building Automation Systems

ACCO has more than 25 years of experience in the Building Automation industry and offers complete Direct Digital Control (DDC) system solutions. We are one of the largest independent DDC system solution providers in the western United States and employ experts on a diverse range of systems.

Our goal is to provide superior design, installation and continuous service support for our customers through our dedicated DDC control branch locations. Each location is staffed with experienced project managers, application engineers and highly skilled technicians that are trained in several lines of control products, including: Automated Logic, Distech Controls, Reliable Controls, Johnson Controls, Siemens, Trane and Tridium-based systems. As system integrators, we provide you with the best solution for your facility that will be cost-effective, provide improved occupant comfort, and most importantly, reduce energy consumption. These solutions include, but are not limited to: mechanical and electrical system optimization, energy reduction strategies and lighting control.

Our DDC Project Managers are your point of contact from concept and design, through the budgeting process, installation, commissioning and warranty, with linkage to aftermarket service. There are no hand-offs in this process.

Industrial Construction

ACCO has a strong commitment to quality, which includes our current ASME/AWS Quality Program and Manual.

- B31.1, 3, 9 & AWS Quality Programs in place
- Site-specific quality plans are authored for each project, ensuring compliance with required specifications
- QA/QC Inspectors are certified in accordance with ASNTTC 1a and/or AWS-QC1 for visual examinations
- ACCO has more than 100 approved welding procedures covering carbon, stainless and chrome steels
- Site-specific safety plans



Process Piping

As a full service mechanical contractor, ACCO is also at the forefront of customer needs in all aspects of process systems. ACCO's process piping department complements our HVAC and plumbing groups to provide complete mechanical design, fabrication, construction and services offerings to the marketplace.

ACCO is a leader in process piping systems, including pharmaceuticals, bio-pharmaceuticals, industrial, medical devices or diagnostics, micro-electronics, bio-fuels and solar cell manufacturing. We are ready to take responsibility for any phase of the project, from design through installation and commissioning. We are your one source of responsibility for a properly functioning process facility.

Our engineers' in-depth knowledge of FDA requirements enable us to comply with all regulations in the pharmaceutical/bio-pharmaceutical sectors. We study and create innovative solutions for compliance with the Code of Federal Regulations (CFRs), Center for Disease Control and National Institute of Health (CDC/NIH), ASME's Bio-Process Engineering Standards and ISPE Baseline guidelines.

ACCO's advanced Engineering Turnover Package and commissioning programs are your quickest solution to a validation-ready facility. We start the process before any procurement to guarantee a consistent product at completion. Across all systems, each document is correctly requested, collated and organized for quick and easy reference for your validation team.

In the high technology sector, whether it be photonics fabrication for fibre optics, micro-machines or integrated circuits, ACCO can quickly and efficiently design, execute and commission your installation. Our engineering will provide cost-effective design of high purity gas and chemical delivery. Our experienced engineers will guide the design from programming to detailed engineering. We create the P&IDs and quickly turn out 3-D AutoCAD models for form and fit. Our prefabrication and field installation methods will execute an efficient construction schedule. Then, our commissioning experts will ensure all systems are performing to expectations.

ACCO's process piping group is skilled in all types of pharmaceutical and high tech work, including both cGMP and GLP establishments, vivariums and high technology process facilities. Systems include: bulk chemical distribution, ultra-high purity water (including water for injection), clean in place and high purity gas distribution.





OUR ENGINEERS' IN-DEPTH KNOWLEDGE OF FDA REQUIREMENTS
ENABLE US TO COMPLY WITH ALL REGULATIONS IN THE
PHARMACEUTICAL/BIO-PHARMACEUTICAL SECTORS.



Building Services

ACCO has one of the largest and most experienced service departments in the nation. We provide service and long-term maintenance agreements in more than 11,600 facilities throughout the western United States. Properly maintained mechanical and control systems conserve energy, increase productivity and satisfy the needs of owners, tenants and production managers.

ACCO field service mechanics are trained signatory apprentices and journeymen dedicated solely to servicing HVAC mechanical and plumbing systems, DDC Controls systems and water treatment applications.

ACCO has one of the most modern fleets in the industry. We have more than 1,400 truck and sprinter van-based mobile field mechanics who can respond on-site in less than four hours, 24 hours a day, seven days a week.

ACCO reduces emergency repair costs by providing comprehensive maintenance solutions. This extends the life of the equipment, prevents catastrophic failures and ensures energy efficiency.

ACCO's service team can handle any size and any type of project, from a small package system to a complex manufacturing facility. We have the experience and know-how to ensure that your system will run efficiently and deliver the best possible results tailored to your needs.

Preventive Maintenance

Protect your investment

Equipment Repairs

Get your system back up and operating, quickly and expertly, minimizing impact on process and building operations

Equipment Modernization

Replace, upgrade, modernize, and retrofit your facility's systems due to age, obsolescence or energy efficiency

Just-In-Time Service Delivery

Guaranteed two-hour emergency response time for our contract customers

Qualified Technicians

The best and most highly trained in the industry

Chiller Service

Our Centrifugal Group specialists are trained and certified to service and repair all types of chillers

Water Treatment

Our qualified technicians can prevent tube fouling, maintaining system capacity and efficiency

Tenant Improvements

Prevent employee discomfort, reduced productivity, loss of revenue and increased vacancies

Direct Digital Controls

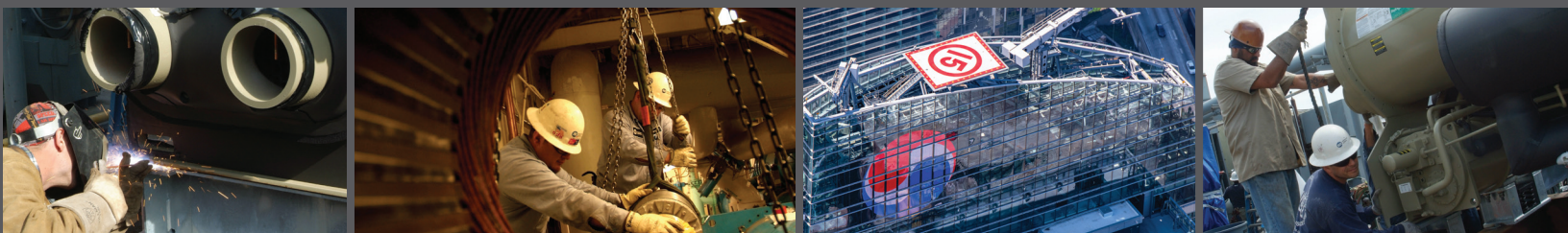
Designed and installed by ACCO, provide operational efficiency in your processes and building

Commissioning Services

Ensures that the performance of installed equipment and its peripheral systems operate at their peak by adhering to the design specifications

Predictive Diagnostic Services

Offers an early warning system, which alerts and minimizes possible equipment failures before they happen



Commissioning

Office buildings must be comfortable for the occupants. Recording studios must be quiet. Fabrication facilities must be clean. Mechanical systems must be properly designed, installed and set up for proper operation. ACCO is NEBB (National Environmental Balancing Bureau) certified in air and water balance, HVAC compliance, field installation, verification and sound and vibration.

ACCO's commissioning technicians provide the final system balancing, verification and documentation, ensuring the systems function as designed.

Retro-Commissioning

Commissioning existing buildings offers substantial energy savings and improved operation. Our group is retro-commissioning certified and can assist in obtaining utility rebates where available.

Energy Services

ACCO is leading the way to a greener tomorrow with our energy services capabilities. Energy service projects are loosely defined as those which incorporate improved levels of energy efficiency and reduced utility costs as a primary project objective and which often incorporate much needed facility infrastructure upgrades as part of the scope of work. By leveraging the resulting energy cost savings, companies are often able to fund replacements and upgrades previously not budgeted.

ESCO Partnerships

Energy Service Companies (ESCOs) perform energy audits, study environmental impacts of site construction, provide financing to customers and guarantee savings that result from the implementation of various energy efficiency measures. ACCO has a long history of working with established and successful ESCO firms under a partnership arrangement. ACCO supports our ESCO partners by providing manpower, tools, technicians, engineering, budgeting and preliminary layout and design drawings during the pre-construction phase of energy-focused projects. During construction, ACCO provides required manpower and supervision for the mechanical and electrical trades. Oftentimes, at the customer's request, ACCO fills the role of overall site superintendent and oversees the hiring and management of all other construction trades.

Services

- Central Plants and Retrofits
- Renewable Energy
- Energy Efficiency and Retro-Commissioning
- Automation and Lighting



Building Confidence in Mechanical Design, Construction & Service

ACCO has gained a wealth of knowledge since its founding and has grown to be the largest and most experienced environmental firm in the western United States, and among the top five nationwide.

ACCO has found success by evaluating overall system performance, ease of installation, reliability and long term energy consumption costs and how these variables relate to an owner's needs. Through innovative engineering, comprehensive design solutions, consistent work quality and qualified maintenance; ACCO confidently delivers the best possible solution.

ACCO offers complete in-house engineering, fabrication, installation, commissioning and service capabilities. This integrated delivery system provides customers with the most practical, cost effective solutions for their particular mechanical, plumbing and control system requirements.

Whether your project is a low or high-rise office or residential building, a shopping mall, hospital, semi-conductor fabrication facility or pharmaceutical/bio-pharmaceutical manufacturing plant, ACCO can design, build, install and maintain a mechanical system to meet your needs.

ACCO LOCATIONS



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