



# Murray Company

MECHANICAL CONTRACTORS

ENGINEERING  
PRE-CONSTRUCTION  
FABRICATION  
INSTALLATION



DESIGN BUILD  
BIOPHARMACEUTICAL  
SEMICONDUCTOR  
SITE UTILITIES  
INDUSTRIAL  
PLUMBING  
HVAC  
HEALTHCARE

[www.murraycompany.com](http://www.murraycompany.com)

# ABOUT



Proven experience in conjunction with fully-equipped fabrication facilities and extensive engineering expertise, Murray Company is the Southwest's leading full service Mechanical Contractor.

## MISSION

Murray Company is committed to being the most respected, sought after mechanical contractor and engineers, providing value added services while creating successful partnerships with each of our clients. We want our clients to feel the need to share with others the great experience they have had with Murray Company. We provide a strong family atmosphere that is based on hard work, safety, honesty and pride of ownership.

## ESOP

Murray Company is 100% Employee Owned through our Employee Stock Ownership Program (ESOP).

- We encourage an innovative and entrepreneurial spirit.
- In 2002 Murray Company became 100% employee owned. All stock is owned by our active employees through their ESOP Retirement Plan.
- In a recent professional survey, 91% of our employees stated they were highly satisfied or satisfied with their employment.
- Personal motivation to ensure that each and every project succeeds.

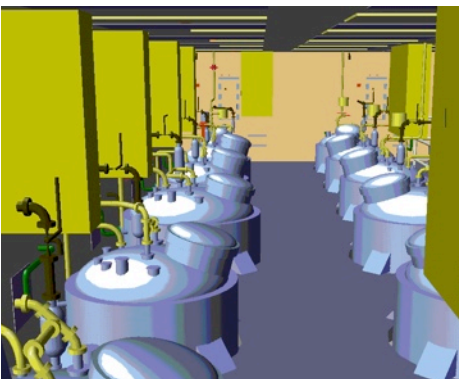
## SAFETY

At Murray Company our commitment to safety is above and beyond compliance.

- ✓ We have an effective safety culture that uses empowerment as its core.
- ✓ Everyone who works for us has the right and obligation to take the appropriate action if an unsafe condition is discovered.
- ✓ Our training program is continuous.
- ✓ Daily pre-task planning beginning at the start of the shift giving every crew-member the opportunity to express any safety concerns associated with the day's scope.
- ✓ In-house certified trainers for CPR, First Aid, forklift certification, scissor lift certification, competent person certification.
- ✓ Bi-yearly Supervisor's Safety Meetings.
- ✓ Over 150 Foremen and Supervisors with OSHA 30 hour certification.



# DESIGN & COORDINATION



*We create 3D models not only to coordinate our own piping fabrication, we also conduct walkthrough model reviews with our customer's operations personnel for accessibility and maintenance to instruments and valves.*

Our modeling capabilities coupled with our unparalleled level of experience increases fabrication, accuracy, reduces over-all time and most importantly cost with the latest industry software and state of the art hardware.

- CAD detailing for 18 years, 3D Modeling for 16 of those years.
- Currently 95% of all of our projects are detailed using our 3D coordinated BIM process.
- Over 50 detailers with an unparalleled level of experience.
- Over 40 licensed modeling stations complete with collision software.
- More than half of our detailers have been with us well over 10 years, and more than a dozen for as long as 15 to 20 years.
- Murray Company maintains licenses for:

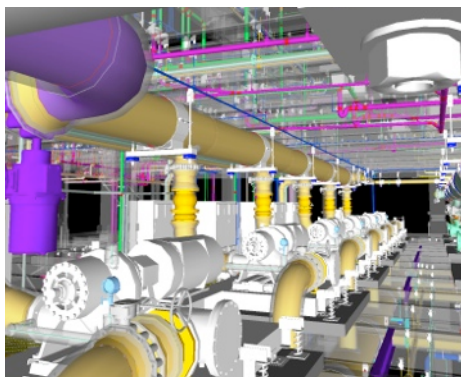
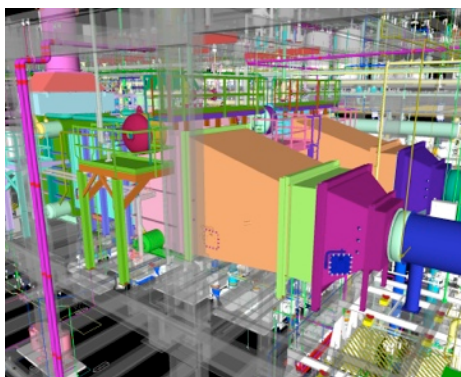
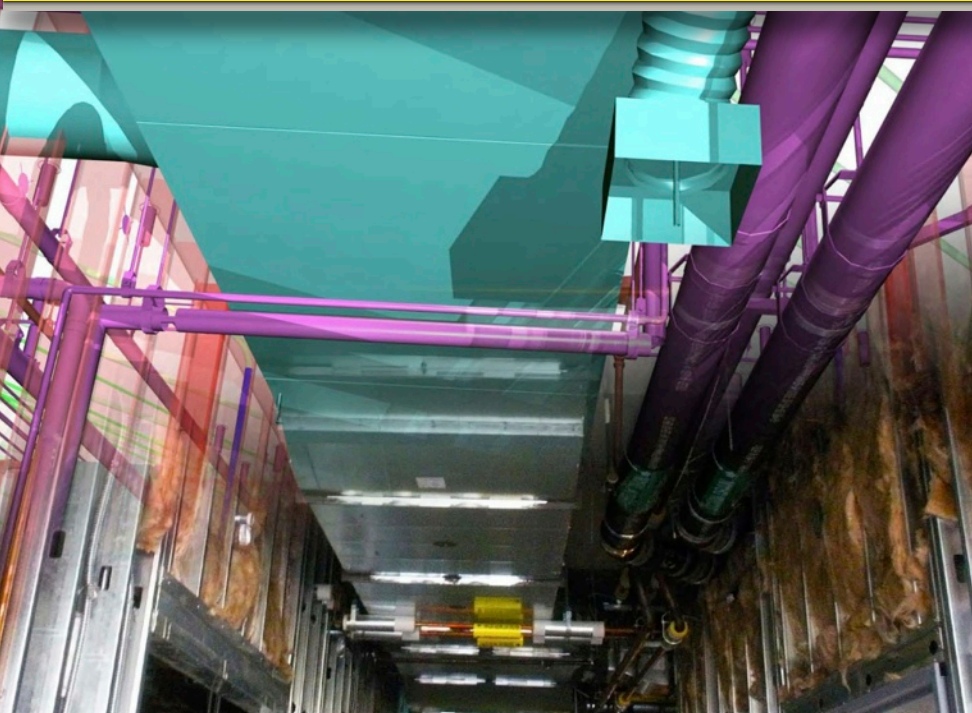
#### Autodesk®

- |                         |                        |
|-------------------------|------------------------|
| ✓ AutoCAD® Architecture | ✓ Inventor®            |
| ✓ AutoCAD® Mechanical   | ✓ Revit® Structural    |
| ✓ AutoCAD® Structural   | ✓ Revit® Architectural |
| ✓ AutoCAD® Detailing    | ✓ 3ds Max® Design      |
| ✓ AutoCAD® MEP          | ✓ CADmep™ Fabrication  |
| ✓ AutoCAD® Civil 3D®    |                        |
| ✓ Navisworks® Simulate  | QuickPen®              |
| ✓ Navisworks® Manage    | ✓ PipeDesigner 3D®     |

- We are engineers first with in-house designers that work hand in hand with our detailers.
- Creating design build solutions from the ground up with our In-house design engineering.

# DESIGN BUILD

SEMICONDUCTOR • BIOPHARMACEUTICAL • HOTEL • RESIDENTIAL • LEED • HEALTHCARE • COMMERCIAL



Murray Company was founded on engineering. It is a large part of our success and a much larger part of our future. Today more than 40% of our work is Design Build and another 30% of our work is Design Assist. We have designed every type of project from commercial, residential, hospitals, micro-electronics, pharmaceutical, and many more.

The ever-growing market has motivated Murray Company to invest heavily in our in-house design capabilities.

- Professional engineers, engineers in training, designers, CAD operators, and detailers, capable of designing virtually any hydraulic system required for our industries.
- The design department has the benefit of both engineering knowledge and construction expertise to produce documents of the highest caliber that are both efficient and pragmatic.
- The CAD department utilizes state-of-the-art 3D software and BIM systems for coordination, fabrication, and virtual facility management.
- Our LEED Accredited Professionals (Aps) have the knowledge to add value to the LEED certification process that is part of nearly every design build project today. Water conservation is a major priority, not only for LEED certification, but for overall sustainability in general. Our LEED APs have the ability to perform water calculations and make fixture selections that will maximize the water savings on any project.
- Proud Member of:



Design Build  
Institute of  
America



U.S. Green  
Building Council  
Member

Photos and renderings from project LAX Central Utility Replacement Plant. Design began January 2011 and completed by summer 2014.

# FABRICATION

STAINLESS STEEL • CARBON STEEL • CAST IRON • COPPER • PLASTIC • FIXTURES



We have proven that pre-fabricating material in our shop versus in the field provides the following advantages:

- ✓ 20% Cost Savings.
- ✓ 30% Increased Productivity.
- ✓ 30% Faster, which improves the schedule.
- ✓ Immeasurable Quality.

Providing a unique, competitive edge enables us to control the quality and schedule on even the most complex and fast-track projects. Our fabrication facilities combined house well over 70,000 square feet of fabrication and production space, including dedicated space to ultra high purity and high purity piping, large diameter piping and plumbing fabrication, which allows us to fabricate virtually any component necessary with excess capacity.

- Welding to ASME Standards B31.1, B3.3, and AWS D.1.1
- Welding procedures for virtually all sizes, types of material and process including orbital welding, automatic welding, flux core, mig, tig and submerged arc and brazing
- UL Label
- CAD pipe for spooling and traceability
- Weld mapping
- QA and NITC certified medical gas inspectors, ASME/SNT-TC-1A Level II

With the advances in 3D CAD, we are now able to download to our shop every dimension of a drawing and a cut list to fabricate for all of our projects.

- ✓ Medical Gas Cleaning & fabricating.
- ✓ Roll grooving Copper Pipe.
- ✓ Cut grooving Galvanized pipe.
- ✓ Roll Grooving Stainless Steel.
- ✓ Tee drilling.
- ✓ Auto Snap cutting for Cast Iron.
- ✓ Press Fit Copper systems.
- ✓ Seismic Restraint.
- ✓ Pre-assembled, pre-cut hangers & Supports.
- ✓ Sleeves and inserts.
- ✓ Bathroom Batteries and assemblies.
- ✓ Complete PRV assemblies.SYSTEMS

# BIOPHARMACEUTICAL

FOOD & BEVERAGE • BIOTECHNOLOGY • LIFE SCIENCE • BIOFUELS



Murray Company's superior reputation in the pharmaceutical and biotech industry was built on professionalism, hard work, integrity, and innovation.

Whether it be fast track Design Build, Design Assist, or Plans and Specifications, our Engineering and quality teams will customize a plan to execute a project.

Our Advanced Technology team has a proven track record in process system fabrication and installations for well over 20 years. Our Quality Assurance Program insures that we have the necessary controls in place to meet or exceed compliance requirements of our FDA regulated clients.

With proven Standard Operating Procedures (SOPs) tailored for FDA compliance or cGMP facilities, we take pride in offering an electronic turnover package (eTOP)\* that has been repeatedly praised by our clients for the ability to help expedite system validation and Establishment Licensure.

## SYSTEMS

- |                |                          |                   |
|----------------|--------------------------|-------------------|
| ✓ CIP/COP      | ✓ Clean Compressed Air   | ✓ Product/Process |
| ✓ USP WFI      | ✓ Bio Waste Inactivation | ✓ Process Waste   |
| ✓ USP Purified | ✓ Pure Steam/SIP         | ✓ Process Gases   |

## EVIDENCE OF OUR SUCCESS

- |                        |                        |
|------------------------|------------------------|
| • Amgen                | • B. Braun Medical     |
| • Genentech            | • Baxter International |
| • Edwards Lifesciences | • Bristol-Myers Squibb |

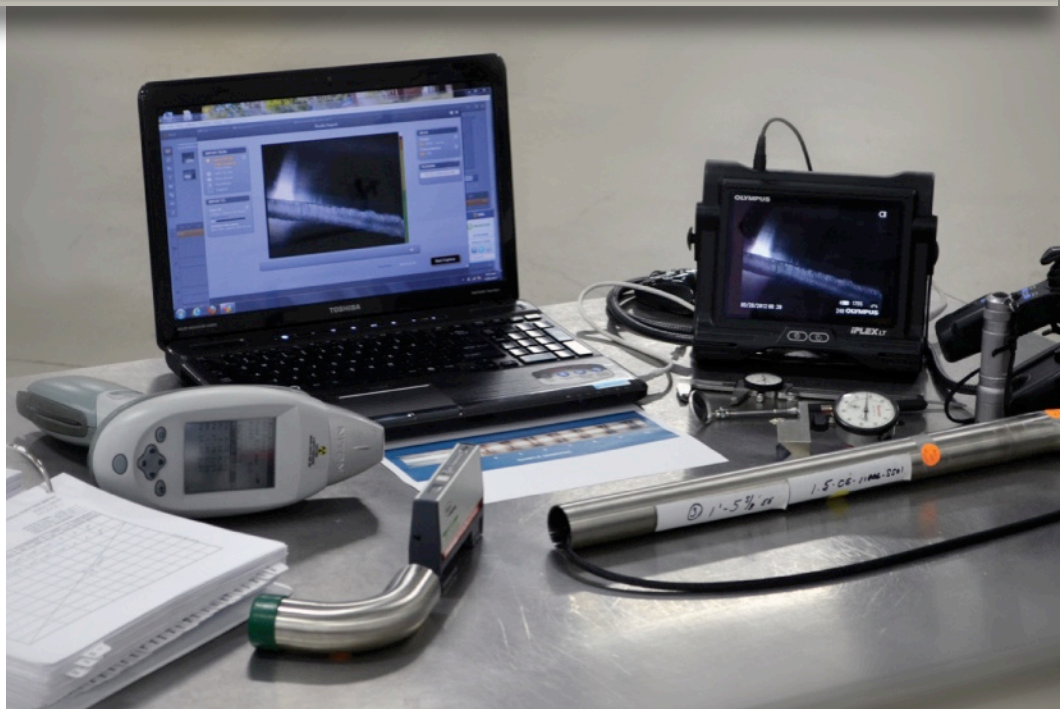
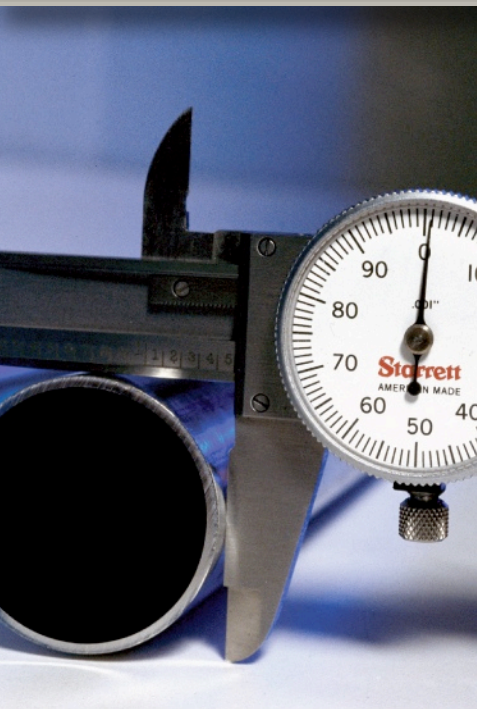


Our user-friendly, paperless \*Electronic Turnover Package (e-TOP) enables

any user the ability to quickly navigate through system documents with the use of searchable indexes and hyperlinks. Our value-added e-TOP will expedite and streamline the validation and qualification process duration by delivering accurate, high-quality documents with just a easy click of a mouse.

# QA/QC

STANDARD OPERATING PROCEDURES • CERTIFIED INSPECTION • COMPLIANCE • PARTICLE CONTROL



Our Quality Assurance and Quality Control team have developed Standard Operating Procedures (SOPs) for process and process utilities to ensure compliance with the following:

- ✓ ANSI/AWS
- ✓ AWWA
- ✓ UPC
- ✓ NFPH 99, 99c and 13
- ✓ USP
- ✓ OSHPD
- ✓ UMC
- ✓ ASME (including BPE)
- ✓ CFR
- ✓ SEMI
- ✓ CDC/NIH
- ✓ FDA
- ✓ UBC
- ✓ ISPE Baseline

#### In-House Inspection Equipment:

- ✓ Digital Borescopes
- ✓ Profilers
- ✓ Dial Calipers
- ✓ Dial Indicators
- ✓ Particle Counters
- ✓ Trace Oxygen Analyzers
- ✓ Trace Moisture Analyzers
- ✓ Helium Leak Detectors
- ✓ X-Ray Fluorescents (Niton Gun)

#### Trained in and Certified as:

- ✓ ASME Level II Visual Testing (VT) Training and Certification SNT-TC-1A
- ✓ Radiographic Testing (RT)
- ✓ Ultrasonic Testing (UT)
- ✓ Liquid Penetrant Testing (PT)
- ✓ Magnetic Particle Testing (MT)
- ✓ Leak Testing (LT)

#### Certifiers in:

- ✓ ASME BPVC Welding and Brazing Qualifications Section IX
- ✓ PVDF Socket Fusion Welders
- ✓ PVDF Butt Fusion Welders
- ✓ PVDF Butt (BCF) Fusion Welders
- ✓ PP Socket Fusion Welders
- ✓ PP Butt Fusion Welders
- ✓ PVC Socket Fusion Welders



#### Material Control:

- ✓ Separate material receiving and inspection area.
- ✓ Separate material release area.
- ✓ Material purchasing, tracking, and expediting system.
- ✓ Substantial material inventory



# SEMICONDUCTOR

MISSION CRITICAL • DATA CENTERS • MICRO-ELECTRONICS • SOLAR THIN FILM PV • LED • NANOTECHNOLOGY



Whether it's providing tool hookup services for semiconductor manufacturing, installing base build infrastructure for a new electronics facility or expansion of an existing facility our experienced team can add value in completing your project on time while being mindful of budget.

### SYSTEMS

- ✓ Ultra Pure Water Systems
- ✓ Slurry and Bulk Chemical Distribution
- ✓ Bulk, House, and Specialty Gases
- ✓ Solvent and Specialty Waste Systems
- ✓ Vacuum Systems
- ✓ Process Utilities
- ✓ Process Cooling Water Systems
- ✓ Chilled and Hot Water Systems

### EVIDENCE OF OUR SUCCESS

- Western Digital Corporation
- Motorola
- Applied Materials
- Tower Semiconductor (TowerJazz)
- Spectra Laboratories
- USC Photonics Department
- Skyworks Solutions
- JPL (Jet Propulsion Laboratory)
- Northrop Grumman
- World's Leading Microprocessor  
*(name must remain confidential)*





# CLEAN FABRICATION

HIGH PURITY PIPING • ULTRA HIGH PURITY PIPING • BIOPHARMACEUTICAL • SEMICONDUCTOR



Our state-of-the-art 20,000 square foot high purity fabrication facility is dedicated to both our biopharmaceutical and semiconductor sectors. With the advances in 3D CAD, we are now able to download to our shop every dimension of a drawing and a cut list to fabricate for all of our projects.

- ✓ ISO Class 4 (Class 10) certified cleanroom for ultra high purity fabrication with raised floor and laminar air flow.
- ✓ ISO Class 5 (Class 100) certified cleanroom gowning room.
- ✓ ISO Class 6 (Class 1000) certified cleanroom prep room.
- ✓ Certified PVDF RO/DI Generation System producing 2,000 liters of 18.2 mega ohm, 80 degree celsius high purity hot de-ionized water which supplies two part cleaning stations both equipped with hot nitrogen for blow down, cleaning, and packaging in accordance with NFPA 99C and CGA-4.1 "Cleaned for Oxygen Service" requirements.
- ✓ Certified High Purity Fixed Tank Bulk Gas Argon and Nitrogen systems. Purified and filtered to .003 micron less 0.7 PPB.
- ✓ Certified High Purity Fixed Tank Bulk Gas Nitrogen System Purified and Filtered to 0.003 Micron.
- ✓ Twelve Orbital Welding Stations.
- ✓ Twelve TIG Welding Stations.
- ✓ Four PVDF and PP Welding Stations.
- ✓ Over 30 Orbital welding machines ranging in sizes capable of welding as small as 1/8" OD tubing to an unlimited diameter pipe size.
- ✓ State-of-the-art tube/pipe cutting and facing equipment tailored to high purity process piping.
- ✓ Autodesk AutoCad® Viewing and Navigation Station to view 3D Modeling and Fabrication Drawings.



# PLUMBING

COLD / HOT WATER • WASTE SYSTEM • CONDENSATE



Our expansive project portfolios along with name recognition and sustained growth give our company a distinct advantage over others, particularly when it comes to quality and consistency.

It is with great pride that for over 100 years, Murray Company has designed and installed state-of-the-art plumbing systems which have and will continue to save lives and promote health and wellbeing with sophisticated medical gas systems in our hospitals; process piping for biopharmaceutical installations to advance health; and help further the technological developments of the names in the semiconductor manufacturing sector.

The workforce at our company is comprised of some of the best and brightest in the industry. Collectively, they bring years of training along with experience and a commitment to your project that you will find both focused and enthusiastic. We consistently rank highest in the annual summary of total man hours worked in the prior year by the CPMCA. For year ending 2007 our total hours worked was in excess of 850,000 for plumbers and pipe-fitters.



As seen in the National Geographic documentary "LA Hard Hats." Episode Pipe Pullers

*"No innovation in the past 200 years has done more to save lives and improve health than the sanitation revolution triggered by invention of the toilet."*

— Sylvia Mathews Burwell

President, Bill and Melinda Gates Foundation's Global Development Program

## EVIDENCE OF OUR SUCCESS

- LA LIVE Hotel & Residence
- EVO Condominiums
- Concerto Condominiums
- Grand Avenue Los Angeles
- Los Angeles City Hall Renovation
- American Airlines
- Bacara Resort & Spa
- Cal State University Long Beach
- Emerson College

# HVAC

HEATING • VENTILATION • AIR-CONDITIONING • DUCTWORK



Murray Company can provide full service mechanical design and installation for large and small projects alike. From office buildings and resorts to hospitals and airport terminals, Murray Company can provide turnkey design and installation, often functioning as the prime contractor where the mechanical systems comprise the bulk of the contract.

For over a century now, we have established a superior record for providing our customers with first-class HVAC. Our installations represent a wide array of projects. Our size has certainly enhanced our capacity to perform everything from the largest multi-million dollar fast-track project to a simple repair. We have succeeded by remaining nimble and well diversified, unmatched among our peers. We are equally at home providing this service on all size projects.



## EVIDENCE OF OUR SUCCESS

- LAX Airport Central Utility Plant
- Cottage Hospital
- Equinox
- Huntington Memorial Hospital
- LAC+USC Replacement Hospital
- Miller Children's Hospital
- Children's Hospital of LA
- Torrance Memorial Hospital
- Kaiser Permanente South Bay
- Children's Hospital Orange County
- Hyundai Headquarters
- City of Hope Central Utilities

# HEALTHCARE

RENOVATIONS • INFECTION CONTROLS • SYSTEM INSTALLATION CLEANLINESS • BRACING INSTALLATIONS



Murray Company has the most healthcare experience of any mechanical and plumbing contractor in the state of California. We balance the quality, speed, safety and precision required to meet the technical needs of the healthcare industry while specializing in constant evolving OSHPD requirements such as specific permitting processes and notifications, deferred approval and post-approval change order documentation, occupancy criteria, equipment special seismic certification and structural implications to mechanical and plumbing distribution.

The secret to our achievements is our expert installers, engineers, 3D designers, managers and specialized support professionals sustained by superior fabrication and training facilities, extensive equipment fleet and tool inventory and backbone offices.

Our healthcare division excels at pre-construction services, the critical application of 3D modeling and coordination with all trades, the transformation of the model used to maximize fabrication, system integration and phasing of area occupation for upgrades and renovations, infection controls processes, system installation cleanliness and bracing installations.



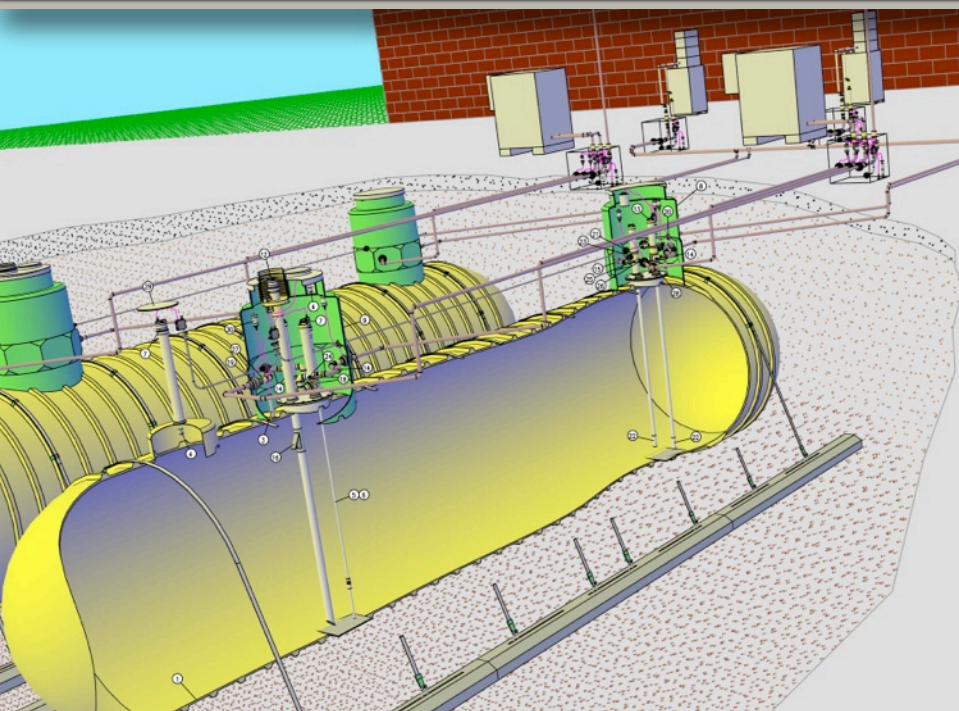
## EVIDENCE OF OUR SUCCESS

- Children's Hospital of Orange County
- Miller Children's Hospital
- Torrance Memorial Hospital
- Camp Pendleton Veterans Hospital
- Martin Luther King, Jr. Medical Campus
- UC Irvine Medical Center
- Arcadia Methodist Hospital
- LAC+USC Medical Center
- Huntington Hospital
- Kaiser Permanente Vermont Pavilion
- Kaiser Permanente Baldwin Park
- Kaiser Permanente Panorama City
- Kaiser Permanente Downey
- UCLA Westwood Hospital



# FUEL OIL SYSTEMS

ABOVE OR BELOW GRADE TANK SYSTEMS • SALINE LIQUID LEVEL MONITORING • VACUUM SYSTEM TANK MANAGEMENT



For 95 years Murray Company has designed and installed fuel oil systems for their commercial, institutional, and industrial clients.

Expert in accommodating your fuel oil needs from the simplest to most complex systems.

From single above ground tanks to multiple below grade tank systems, saline liquid level monitoring or vacuum system tank management, they will design the system that suits your needs without taxing your budget.

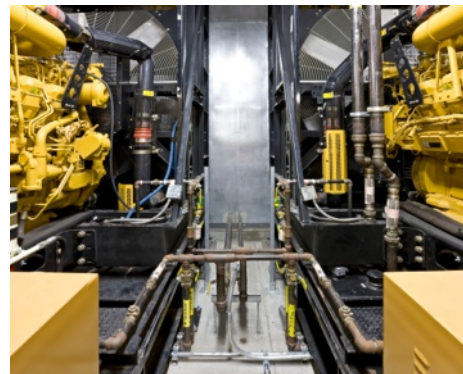
Protecting your operations while monitoring your fuel oil supply and safeguarding the environment has always been the primary purpose of Murray Company fuel oil systems.

Hospitals, data centers, semi-conductor manufacturers, and pharmaceutical makers have all put their faith in Murray Company for their fuel oil needs.

Murray Company's complete scope of services include tank sizing, system design, fire department approval, detailing, coordination, equipment selection, pipe fabrication, panel configuration and fabrication, final installation and commissioning.

## EVIDENCE OF OUR SUCCESS

- Camp Pendleton Hospital
- Children's Hospital Los Angeles
- Miller Children's Hospital



# UNDERGROUND UTILITIES

PIPELINE RELOCATIONS • STORM DRAIN & SANITARY SEWERAGE • EXISTING SYSTEM TIE-INS • MUNICIPAL WATER SYSTEMS



We are at home in congested metropolitan areas; performing complex utility tie-ins utilizing engineered solid shoring systems. In concert with our Plumbing and Industrial Piping Divisions we can fulfill all of your wet utility requirements from point-of-connection to point-of-use.

Our large investment in capital equipment ensures we have the right equipment, and it is immediately available. This stable of equipment, when employed by our highly skilled operators, ensures your project will be completed on time. Murray Company demonstrates the ability to mobilize the necessary personnel and equipment; coordinate multiple installation crews; and safely delivers the wet utility systems in the completion of the four largest combined retail/residential projects performed over a ten year span in the Metropolitan Los Angeles area; The Shops at Mission Viejo Mall, Victoria Gardens Shopping Center, The Shops at Dos Lagos and Simi Valley Town Center.

Few other General Engineering Contractors can claim over a ninety year history without default; nor do they possess the bonding capabilities; safety record and strong financial position as Murray Company.

We'll gladly provide design assist and construct-ability reviews for your complex projects.



## EVIDENCE OF OUR SUCCESS

- Kaiser Permanente Offsite in Downey
- UCI East Campus Apartments
- Fox Studios Parking Structure
- American Honda
- Lockheed Soil Vapor Extraction
- St. Joseph Cancer Center
- West Basin Reclamation Plant
- CalState University of Long Beach
- Delhi Channel
- Jensen Filtration Plant
- Century Freeway of Los Angeles
- Cannon Lake Water Treatment

# INDUSTRIAL

CONSUMER PROCESSING • WATER TREATMENT • RENEWABLE ENERGY • PETROCHEMICAL • POWER GENERATION



Murray Company has over 99 years of experience installing and designing Industrial piping systems throughout Southern California.

Utilizing our well-equipped fabrication shop further assures that the required piping spools are thoroughly tested, inspected, and stamped prior to shipping and installation. Our welders are qualified for any application, including all ASME code sections, and every weld is fully tested. Our rigorous quality control program also guarantees that only the finest fabrication leaves the shop. These factors, combined with an inherent culture of Safety 24/7, making our company uniquely qualified to build your next project.

## SYSTEMS

- |                             |                          |                         |
|-----------------------------|--------------------------|-------------------------|
| ✓ Process Piping            | ✓ Digested Sludge Piping | ✓ Chilled Water         |
| ✓ Compressed Air Piping     | ✓ HPE Secondary Water    | ✓ Refrigeration Piping  |
| ✓ Fuel Oil Piping           | ✓ TWAS Piping            | ✓ Condenser Water       |
| ✓ Steam Process Piping      | ✓ Polymer Piping         | ✓ Boiler Systems        |
| ✓ Hydraulic Piping          | ✓ Odor Control Piping    | ✓ Pharmaceutical Piping |
| ✓ Brewery & Beverage Piping | ✓ Cooling Water Piping   | ✓ Natural Gas           |
| ✓ Food Process Piping       | ✓ Bio Trickle Filters    | ✓ RO/DI Water           |
| ✓ Conveyor Piping           | ✓ Heating Systems        | ✓ Chemical Piping       |
| ✓ Waste/Water Treatment     | ✓ Plumbing Systems       |                         |

## EVIDENCE OF OUR SUCCESS

- Mohave Solar Plant Beta Plan
- West Basin Reclamation Plant
- Hyperion Cisco
- Prado Dam
- Lockheed Martin
- Toyota Technical Center
- Rockwell Palmdale Fueling Station
- Mojave Water Treatment Foundation





# Murray Company

MECHANICAL CONTRACTORS

Proven experience in conjunction with fully-equipped fabrication facilities and extensive engineering expertise, Murray Company is the Southwest's leading full service Mechanical Contractor.

**Main Office**

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**Bay Area Branch**

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Visit [www.murraycompany.com](http://www.murraycompany.com) to learn more about our core competencies.