

BENDER ❖ DEAN ENGINEERING

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COMMITMENT

We will always provide an unmatched level of commitment to you and your project. This level of commitment has enabled us to generate many long term relationships over the years. Our relationships are forged by providing you with innovative, energy efficient designs that are delivered to you on time and within the project budget. We are committed to be responsive to your changing needs and will strive to exceed your expectations.

QUALITY

Producing a quality set of construction documents for your project involves identifying comprehensive and cost effective solutions that are tailored to your individual needs and specific conditions of the facility. Our close attention to detail and coordination among the design team leads to the quality we provide on every project. To promote quality on our projects we implement a quality control check by a principal engineer at each step of the design process.

INNOVATION

We bring you an in-depth understanding of what it takes to evaluate innovative concepts and perform detailed engineering for your projects. Our innovative designs focus on exceptional energy savings, occupant comfort and high performance sustainable engineering. We recognize the need to engineer "beyond the box," yet maintain practical concepts and provide customized design approaches to meet your architectural needs.

SUSTAINABLE DESIGN

We are committed to sustainable design that meets or exceeds your objectives. High performance "green" design simultaneously maximizes many objectives of comfort and productivity of building occupants, efficient use of energy and water to minimize detrimental environmental impacts, and economic performance with low life cycle operation and maintenance cost.



KNOWLEDGE

All of our engineers have a minimum of fifteen years of experience engineering HVAC and plumbing systems. The complex projects we have engineered provide opportunities to become knowledgeable about a vast spectrum of topics in the HVAC industry and help sharpen problem solving skills.

Our services include Heating, Ventilating, and Air Conditioning Design, Plumbing and Fire Protection Design, Energy Conservation Analysis, Studies, System Troubleshooting, Construction Observation and Management, Fuel Tank Design and Replacement, and Forensic Engineering.

EXPERIENCE

The engineers of Bender ❖ Dean Engineering have completed numerous projects over the years. Many of the projects have been engineered working directly for facility owners, while others were designed as part of an architectural team. A stable list of clientele is the strongest testament of our quality of work. Our list of clients includes City of San Diego, San Diego Community College District, SBC, Hewlett Packard and numerous architectural firms in the Southern California area.

Bender ❖ Dean Engineering has had a substantial amount of experience working for public and private entities throughout Southern California. We understand each facility is unique and apply the proper systems that work best in the Southern California area. We have a substantial amount of experience with the seismic requirements of facilities and the coordination effort required by the design team to produce the documents that are required by the state. We also understand the sensitive indoor air quality issues and design our systems to provide healthy, comfortable buildings.

Our personnel have experience in making field inspections and evaluations, and translating the field data into realistic project documentation to meet the challenges at hand. We have found in the past that a little extra effort in the field to confirm existing conditions can save considerable effort and cost during construction. Our engineers are responsible for construction administration on all of their projects, and are able to translate their experience into better designs.

PRODUCTION

Our staff consists of three licensed mechanical engineers, designers, CAD operators, and administrative personnel. Our office works as a team to develop a high quality product using the latest software products for calculations and drawing production.



CAPABILITIES

HVAC Design

- Air Conditioning System Design
- Heating and Ventilation System Design
- Central Plant Design/Renovation
- Split Systems and Roof Top Package Units
- Piping Design
- Energy Conservation
- Utility Rebate Coordination
- Under Floor Air Distribution
- Displacement Ventilation Systems
- Process and Comfort Cooling
- LEED Certification

Plumbing Design

- Plumbing System Design
- Fire Protection Specifications
- Fuel Storage Tank Design
- Site Gas Design

Controls

- EMCS Systems
- Direct Digital Control Systems
- Pneumatic Control Systems
- LAN and BACNET Systems

Studies and Miscellaneous

- System Trouble Shooting Analysis
- Codes and Standards Research Reports
- Energy Engineering and Analysis
- Feasibility Studies
- California Title 24 Energy Analysis
- Value Engineering
- Construction Cost Estimating
- Construction Administration
- Forensic Investigation
- System Commissioning
- Life Cycle Cost Analysis
- Demand Shedding and Load Shifting
- Energy Rebates



Resume In Brief

Mark Bender, P.E.

Mark Bender is a graduate of California Polytechnic University, San Luis Obispo with a Bachelors of Science degree in Environmental Engineering. Licensed Mechanical Engineer in the State of California. Registration #M-24209.

Mr. Bender has twenty-two years of experience in the consulting mechanical engineering field specializing in remodeling and new construction projects. He has been the Project Manager for museums, libraries, schools, park and recreational facilities, central plant design, controls design, computer simulations and energy analysis.

His experience includes multi-million dollar mechanical projects to one sheet remodel projects. His varied experience and ingenuity for creative solutions gives him the ability to work with difficult existing conditions and challenging building configurations.

Mr. Bender is the current Treasurer of the local chapter of the American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE). He is a Member of American Society of Plumbing Engineers (ASPE) and is past President of the San Diego Chapter of ASPE.

Recipient of ASPE San Diego Chapter Certificate of Appreciation.



Resume In Brief

Curt Dean, P.E.

Curt Dean has been a mechanical engineering consultant for the past sixteen years. He is a licensed Mechanical Engineer in the State of California. Registration #M-29297

Mr. Dean has achieved a diverse background in the mechanical engineering and plumbing field through his work on various facilities and systems. His experience includes public municipal facilities, educational facilities, telecommunication facilities, retail and office buildings, biotechnology laboratories, research centers, and central plant design.

He possesses the experience to grasp the scope and complexity of any project, and he knows what it takes to develop effective solutions necessary to complete an energy efficient, cost effective system on time. He enjoys the "team" atmosphere when working with fellow engineers, architects and facility owners, and takes pride in his attention to detail when coordinating between disciplines.

Mr. Dean is a member of the national and local chapter of the American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE), the National Society of Professional Engineers (NSPE) and a member of the Alpine Design Review Board.



Resume In Brief

Mike Cianciolo, P.E.

Mike Cianciolo is a graduate of Marquette University with a Bachelors of Science degree in Mechanical Engineering. He has been a mechanical engineering consultant for the past twenty years. He is a licensed Mechanical Engineer in the State of California. Registration #M-31609.

Mr. Cianciolo has extensive design experience in many types of complex technical new and remodel projects including: hotels, retail and office buildings, health care facilities, laboratories, schools, manufacturing and outpatient facilities.

He has a keen ability for troubleshooting systems and possesses unique problem solving techniques. His experience includes mechanical engineering responsibilities from the conceptual phase through construction administration. His expertise is in the preparation of studies and reports.

Mr. Cianciolo is a member of the national and local chapter of the American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE).



Cardiff-by-the-Sea Branch Library

Encinitas, CA

The Cardiff Library is a new six thousand three hundred square foot library facility situated in the sleepy beach community in northern San Diego County. The new facility is one of the first Sustainable Design buildings in San Diego County. The architecture, using unique locations and orientations of the windows and clerestory spaces, provides natural lighting to the building while maintaining an energy efficient building envelope.

The mechanical system is a state of the art displacement ventilation design popular in Europe and new to North America. This is a novel approach to ventilation – thermal displacement instead of mixing – for cooling and heating. Slightly cooled supply air enters near the floor level at a low velocity through various customized diffusers, gently flooding the occupied space so that the warmer room air – plus any dust, pollen, germs or other impurities in it – rises to the upper unoccupied level and is returned and filtered or exhausted through the economizer system. In comparison, the supply air for a standard air-conditioning system is cooled considerably more before entering the room at the ceiling, supplied at a relatively high velocity to mix with the room air, which re-circulates contaminants before the stale air is returned.

The library's 18-ton, variable-air-volume cooling unit has an enthalpy-integrated economizer that measures the temperature and humidity of both the outside air and the return air to determine which source will save the most energy. The economizer can be used more often since the supply air only needs to be cooled to 65°F, not 55°F as with a standard air-conditioning system. Complementary measures include high-performance glazing and roof overhangs. The library, which opened on March 22, 2003, is 12.5% more energy efficient than required under California's Title 24 standards.





Thurgood Marshall Elementary School

Oxnard, CA

This project is a new 55,000 square foot elementary school located in the Oxnard School District. The school consist of various buildings, including classrooms, administration, library, cafeteria and multipurpose room.

As part of the scope of work, a study was performed to evaluate two options for the HVAC system. The option chosen was a packaged rooftop VAV system.

This system utilizes package rooftop gas electric air conditioners. The air conditioners are designed to serve multiple zones by utilizing a simplified variable volume, variable temperature (VVT) system. The engineering application for this type of system is small to medium buildings. It allows for the economy of larger central systems, while utilizing off the shelf commercial package units.

The plumbing systems provided for two central toilet facilities, classroom sinks and a cafeteria as part of a multipurpose building. All of the fixtures were selected for the use of an elementary school, with maintenance and vandal resistance a top priority. The plumbing system included a site natural gas system to each of the buildings.

The design team worked together to provide a 18% savings over the California Energy Standards. The savings included efficient lighting, high efficiency HVAC systems and efficient windows and insulation.





North Park Theatre

San Diego CA

This majestic theatre was built in the early 1930's as one of San Diego's original theatres. This now historic building was designed in the art deco style that was so prevalent of its time. The majestic high vaulted ceilings and ornate details of the stage area make this building one of the real gems of San Diego History. The theatre was originally designed as a dual purpose facility, with a stage and projection booth. The original theatre hosted black and white silent films with an original pipe organ playing background music. Over the years the theatre was relegated to the showing of movies only and has undergone a facelift to modernize the entrance and marquee.

After years of neglect and vacancies, the building was purchased by the city of San Diego for possible re-development. After fifteen years of searching for the right developer, the city finally found the right combination of developer and tenant.

The scope of this project consisted of the renovation of the existing approximately 30,000 square foot theatre complex. The renovated theatre complex includes an enlarged stage and orchestra pit, new lobby, office areas, support areas and shell space for restaurant.

The engineering effort for the mechanical system was very complex. The original building did not include air conditioning and was heated by an old gas fired furnace located in the basement. The original system used under floor air distribution and registers below the seats. To minimize the impact on the historic interiors, the existing under floor air distribution system was maintained and redesigned to function as a displacement ventilation system. A new air handler replaced the existing fan and gas furnace and new ductwork was installed in the existing under floor space. New displacement ventilation diffusers were installed in the existing diffuser locations. A new chiller/boiler plant was designed to be installed on the existing roof.





PARTIAL LIST OF PROJECTS

<u>Project</u>	<u>Client</u>	<u>Type of Facility</u>
Natural History Museum Addition	Bundy & Thompson	Museum
Air Conditioning of Balboa Park Museums	City of San Diego	Museum
Cardiff by the Sea Branch Library	Manuel Oncina	Library
Lemon Grove Library	Platt/Whitelaw	Library
Skyline Hills Library	Manuel Oncina	Library
SBC Poway Addition	SBC	Telecommunications
SBC Oceanside Addition	SBC	Telecommunications
SBC Coronado Addition	SBC	Telecommunications
SBC Regents Road Addition	SBC	Telecommunications
Sharp Hospital Chula Vista Expansion	Sharp Hospital	Health Care
Mercy San Juan Hospital Expansion and Remodel	Tucker Sadler	Health Care
UCSD Medical Center Burn Center Addition	Mark Paone	Health Care
Isla Vista Elementary School	RNT	School
Patrick Henry High School	Platt/Whitelaw	School
Torrey Pines High School Modernization	RNT	School
SDCCD City College Chiller Addition	SDCCD	School
SDCCD City College Bldg. A & T AC Replacement	SDCCD	School
SDG&E Telecommunications	IR2 Interior Resource	Utility
SDG&E Miramar Office Buildout	Conwell Shonkwiler	Utility
Camp Pendleton Hangar 2396 Renovation	RNT	Military
MCAS Miramar Bldg. 8402 AC Renovation	Brown & Root	Military
Camp Pendleton Electronics Bldg. 22220	RNP	Military
HP Falcon MFG Pilot Line, Building 61	Hewlett Packard	Manufacturing
HP LEP/Indigo Lab, Building 65	Hewlett Packard	Manufacturing
HP Chiller Plant Upgrade	Hewlett Packard	Manufacturing
Fox Building Lofts	Bundy & Thompson	Housing
Villas Del Mar, San Jose Del Cabo	Villas Del Mar	Housing
Broadway Square Apartments	Bundy & Thompson	Housing
Mission Bay San Diego Hilton Expansion	Tucker Sadler	Housing
Palm Restaurant	Bundy & Thompson	Restaurant
Buster's Beach House Restaurant	Wheeler Wimer Blackman	Restaurant
Niban Restaurant	RNT	Restaurant
Hourglass Community Park Aquatic Facility	Bundy & Thompson	Parks/Multi-purpose
Scripps Ranch Recreation Center	RNT	Parks/Multi-purpose
Bolsa Chica State Park	RNT	Parks/Multi-purpose
Santee Town Center Recreation Center	Platt/Whitelaw	Parks/Multi-purpose
Ripley's Sea Aquarium, Myrtle Beach, SC	Enartech	Parks/Entertainment
Vical Vivarium Expansion	Pacific Rim Mechanical	Laboratory
Hybritech Laboratory Expansion	Hybritech	Laboratory
HP Coatings and Synthesis Lab	Hewlett Packard	Laboratory

**PROFESSIONAL REFERENCES**

<u>FIRM</u>	<u>TELEPHONE #</u>	<u>CONTACT</u>
BSE	(858) 279-2000	Allan Brown
Architects Richard Bundy & David Thompson	(619) 231-4929	Dick Bundy, David Thompson
Pacific Rim Mechanical	(858) 974-6500	Ted Keenan
Manuel Oncina Architects, Inc.	(858) 459-1221	Manuel Oncina
SBC	(858) 492-5538	Rafael Garcia
Platt/Whitelaw Architects	(619) 546-4326	Alison Whitelaw
RNP	(619) 233-1023	Ralph Roesling
San Diego Community College District	(619) 584-6548	Bryan Adams
Hewlett Packard	(858) 655-4561	Denny Martin
Stedman & Dyson	(619) 297-2223	Bob Dyson, P.E.
Turpin & Rattan	(619) 466-6224	Bill Rattan
Joseph Wong Design Associates	(619) 233-6777	Bert Shear
Zagrodnik + Thomas Architects	(619) 528-1199	Jeanne Zagrodnik