

Jeff Fulcher, P.E.

Mechanical Engineer & Principal



Jeff is a Professional Engineer with considerable design and construction experience who approaches each project with breadth of knowledge, and flexibility, resulting in both project and client satisfaction. His experience has supported many schools, colleges, universities, hospitals, municipalities, and commercial customers by providing energy efficient designs and management of complex central plant systems for both facility upgrades and new construction projects. Jeff also has a construction cost estimation background and can provide very detailed and accurate construction cost estimates to support budgeting requirements.

Key Experience and Training

Education

University of Idaho
B.S. in Mechanical Engineering

Accreditations

Professional Engineer -
Mechanical 2004
Idaho No. 11361
ASHRAE – Member &
Past President
International Code Council -
Member
IAPMO - Member

- Engineer of Record on some of the most technical mechanical projects throughout the State
- University Student Union Design
- Central Plant Systems
- Energy & Resource Conservation
- University Sciences Design
- Chilled Water Systems Design
- Fan Systems
- Human Factors in HVAC
- Correctional Facilities
- Design and Troubleshooting of Advanced Hydronic Systems
- Direct Digital Controls
- Seismic Design and Restraint
- Engineering Studies
- Water Treatment
- Fluid Handling Design
- Commercial Kitchen Ventilation
- Data Center/Computer Systems
- Construction Cost Estimates
- Project Development

Sample Projects

Boise Heights Apartment Complex, Boise, ID – HVAC and Plumbing design for 4 story 130 unit complex 176,000 SF, \$19 million total project size.

Winchester Court Apartment Complex – Mechanical HVAC and Plumbing design and Construction Administration for a new apartment complex located in Elko, NV approximately 50,000 sf in size. The design consists of multiple apartment layouts, office, lobby, common areas, and service areas.

Confidential Banking Client, Multiple Branch Locations – Engineering design services to retrofit the client's Idaho main office as well as several branch office remodels. Systems included an energy efficient VAV system and DDC controls. The existing system was utilized as much as possible and improved to be more energy efficient and code compliant.

Idaho Department of Corrections Heating Equipment Replacement – Replace the campus steam plant with decentralized steam boilers and related equipment in



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order to take all campus buildings off of the central steam plant that is failing and wasting steam underground. This project will decrease utility consumption, and make maintaining the equipment much easier. The new mechanical equipment requires a complex design with a focus on security concerns.

Idaho Supreme Court AHU - The project included completing an investigative report to replace the existing primary air handling unit at the Idaho Supreme Court Building. The current Air Handling Unit is no longer capable of providing adequate heat due to a recent conversion of the building from steam to geothermal heating. The unit also experienced past issues resulting in the casing being damaged. Since the unit is at the end of its useful life, a replacement is currently being designed.

Confidential Data Center, Boise, ID – HVAC systems for a high density Tier 3 data center, involving innovative energy systems and complex design criteria.

Boise State University, Morrison Center – New central plant including a magnetic bearing chiller, fluid cooler, pumps and control systems. Design also included the conversion of the building heating and domestic water heating to geothermal. Attention to noise and system reliability was of extreme importance in a performing arts facility.

Idaho Department of Corrections Gym –The previous HVAC system for the Idaho State Correctional Institution was an old campus steam system that was failing and required a complete redesign. Fulcher Engineering was hired to design and manage the construction process for a new updated system. Careful attention was given to occupant safety, building security, correctional officer comfort, and energy efficiency. The construction process went smoothly and an aggressive project schedule was met.

Boise State University, Student Union Building –This 70,000 SF expansion and 160,000 SF renovation included a state of the art commercial kitchen, new high efficient central plant heating and cooling systems, large noise sensitive ballroom, an energy efficient VAV system with central air handling units, and geothermal retrofits added.

Boise State University, Liberal Arts Cooling Tower - Retrofit a new evaporative cooling tower for the existing 130 ton chiller in the Liberal Arts Building previously utilizing well water for chiller heat rejection. Including condenser water pumps, piping and control system modifications.

Boise State University, Bronco Gym – The project provided for two new packaged roof top units with DX cooling and gas heating on the roof. Mechanical, structural, electrical and architectural analysis was required and new ductwork and diffusers were designed to run between the existing joists.

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Boise State University, Kinesiology HVAC & Plumbing System – This project involved a complete renovation of the existing mechanical systems at the Kinesiology building, including the renovation of deteriorated galvanized piping to upgraded materials.

Boise City Library – This project involved replacing aging HVAC equipment including failing multi-zone units and steam radiators.

Boise State University, Environmental Research Building – Engineering consulting and commissioning of a state of the art 70,000 SF Environmental Research Building. Facility includes clean rooms, Phoenix control laboratory systems, teaching and research spaces, geothermal retrofitting, and cold room laboratory specimen holding rooms.

Boise State University, MPB Laboratory – This conversion project included a new Phoenix control system, new laboratory fume hood exhaust system, several new fume hoods, and new central station air handling units to support the ventilation requirements.

USGS, Bureau of Reclamation – New office facility for the USGS/BOR. Plumbing and HVAC design of a water loop heat pump system. HVAC design included energy recovery for the building exhaust and fresh air system.

Boise State University, TEM Laboratory – This multimillion-dollar project included the most advanced TEM microscope in the State. The project also included a perchloric acid fume hood system and tight HVAC requirements for proper microscope function. A Phoenix control systems was installed as part of this project.

Idaho Department of Fish and Game – This project consisted of three new facilities in Salmon, Jerome, and Lewiston each approximately 25,000sf. The facilities included training rooms, office/conference space, and an indoor shooting range. These buildings utilized advanced skin technology and innovative indoor air quality HVAC.

City of Nampa, Idaho, Civic and Recreation Centers – These projects began with an audit of mechanical systems. Follow-up work after the audit included a major retrofit (\$700k) of the complex air handling and dehumidification systems at the recreation center.