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| 1348 Copperstone Lane • Knoxville, TN 37922 |
| Phone: (865) 385-6978 • E-mail: BRETTAB991@GMAIL.COM |

Brett A. Blanchard, P.E.

Sr. Mechanical/Lead Project Engineer

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| eXPERIENCE OVERVIEW |
| I am a licensed professional engineer with over 22 years of mechanical experience designing, fabricating, and testing experimental, prototype, and production equipment in the nuclear field. My responsibilities have included directing engineering design groups, working individually as a principal design engineer, as well as performing subcontract technical representative roles for external design-build and build-to-print contracts.I have effective resource management practices including, recruitment of specialized personnel, pairing of groups and individuals in positions to succeed, awareness of employee concerns, and a steady demeanor to disposition infringement of the principles, values, and ethics defined by a professional code of conduct. My project management experience includes large scale engineering man-hour estimates, detailed work breakdown structures, Gantt chart schedules with dependencies, and earned value reporting of cost and schedule performance.My experience is based on the following equipment/technologies:

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| * Machine Design
* Neutron Choppers/Beamlines/Filters
* Ultra-High Vacuum Systems
 | * Centrifuge Enrichment Machines
* Laser Enrichment Separators
* Fluorine Compatible Systems
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| * Cryogenics
* Pressure Vessels
* Process Piping
 | * Gloveboxes with Machine Tool, Furnace, Press, and Inspection Equipment Integration
* Automation and Control
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| Professional experience |
| **March 2019 – Present Boston Government Services Oak Ridge, TN** Design Engineering Manager, Nuclear Solutions Business Unit* Direct internal design projects utilizing a team of multi-disciplinary engineers and designers, delivering nuclear facility/equipment design project scopes ranging from pre-conceptual design/trade studies through detail design including build-to-print fabrication drawings.
* Act as Account Manager for multiple BOA/IDIQ technical support contracts. These include the Material Plasma Exposure eXperiment (MPEX) project at Oak Ridge National Laboratory, the Highly-Enriched Uranium (HEU) Metal project at Nuclear Fuel Services, and X-Energy technical resource support for the TRISO-X fuel fabrication facility.
* Manage staff-augmentation contract personnel for external technical resources.
* Support business development activities by building client relationships, preparing technical proposals, recruiting, and expanding the design engineering department.

Oak Ridge National Laboratory – Centrifuge Projects, Design Engineer/Control Account Manager* Lead an engineering team consisting of mechanical engineers, designers, CAD administrator, document/records control officer, and engineering quality representative to execute planned design scope and maintain configuration control.
* Prepare centrifuge machine drawings and design outputs, ensuring design consistency across multiple machine configurations.
* Provide technical direction and leadership when challenges are discovered during R&D activities.
* Work with project management and group leaders to generate NQA-1-based R&D design procedures for multiple design groups.
* Aid in the centrifuge machine maturation plan, including advancement through documented technology readiness levels.
* Support machine prototype activities during component fabrication, assembly, and testing.
* Communicate project execution, status, and vision to our sponsor through monthly reporting, technical oversight group reviews, and video teleconferences.
* Generate and maintain resource-loaded and logic-driven schedule activities in conjunction with Project Controls staff.

**Aug. 2014 – March 2019 Merrick & Company, Nuclear Services & Technology Oak Ridge, TN** Uranium Production Facility – Mechanical Discipline Lead* Recruited, hired, and managed 75 Mechanical Engineers and Designers.
* Negotiated employee salaries, on-boarded and trained new staff, conducted performance reviews, resolved personnel issues, coordinated project dismissals.
* Estimated, scheduled, and tracked resources to accomplish over 250,000 man-hours of mechanical design.
* Provided technical direction and leadership for the generation of drawings and specifications to be used during the fabrication, assembly, testing, and installation of gloveboxes, hoods, and process enclosures.
* Ensured design consistency and efficiently managed the design evolution of 30 mechanical systems.
* Reviewed and approved more than 4,500 detail fabrication drawings establishing the basis for future build-to-print procurement contracts estimating over $200 million.

**Sept. 2009 – Aug. 2014 Global Laser Enrichment, GE Hitachi Nuclear Energy Oak Ridge, TN** SILEX Technology – Prototype Project Manager* Directed design, procurement, assembly, and installation of prototype nuclear equipment.
* Obtained experimental data and process specific parameters for a commercially viable product.
* Handled client-generated scopes of work ranging from $75,000 to $1,800,000.
* Managed internal manufacturing to assemble, install, and commission final product.
* Generated controls such as Gantt charts, man-hour estimates, project costs, quality plans, procurement plans, and configuration control of design record files.

SILEX Technology – Senior Mechanical Engineer* Provided engineering design and testing to support prototype nuclear equipment designs.
* Proofed theories, justifying cost benefits, and quantifying process-specific parameters.
* Generated 3-D models, FEA calculations, and drawings with Pro/Engineer and Siemens NX.
* Led design reviews at conceptual, detailed, and final levels for customer's system requirements.
* Operated to NQA-1 based procedural compliance as well as rapid prototype processes.
* Fabricated, assembled, and installed R&D equipment/experimental systems.
* Applied expertise in vacuum systems, cryogenics, motor control, heaters, optical alignment, process piping, pressure vessels, and material specifications for fluorine compatible systems.

**Feb. 2007 – Sept. 2009 United States Enrichment Corporation Oak Ridge, TN** Centrifuge Technology Center – Machine Design Engineer* Led centrifuge machine design integrated product team.
* Investigated technical machine issues and proposed resolution plans.
* Designed centrifuge machine components using Pro/Engineer & PDMLink.
* Managed configuration of prototype hardware and test machines for final product integration.
* Worked with the Manufacturing and Inspection organizations to produce quality design drawings.
* Enforced adherence to conditions adverse to quality as Responsible Dispositioning Authority.
* Coordinated engineering requirements for strategic suppliers and production facility.

**March 2005 – Feb. 2007 Oak Ridge National Laboratory Oak Ridge, TN** Spallation Neutron Source – Engineering/Instrument Development* Created engineering designs for Fermi, disk, and t0 choppers rotating at 60-600 Hz with rotors/disks weighing 4-370 lbs
* Provided working knowledge of rotating equipment using mechanical and magnetic bearings
* Ensured safety by analyzing centrifugal forces on rotor assemblies and containment of housings
* Designed neutron chopper support structures using modal and dynamic frequency calculations
* Conceived Chopper Lab's remote utility connectors, tools, repair carts, and containment hardware
* Supported scientists by designing shielding, remote handling tools, and beam line layouts
* Utilized local machine shops to procure designed equipment and beam line hardware

**March 2006 – June 2006 Oak Ridge Tool & Engineering Oak Ridge, TN**Engineering Consulting Services* Designed window gage for Lockheed Martin's Joint Strike Fighter weapons guidance system
* Presented conceptual and final designs to management for concurrence with client requirements

**Feb. 2001 – March 2005 BWXT Y-12 National Security Complex Oak Ridge, TN**Mechanical, Manufacturing, and Specialty Engineering - Production Systems/Containment Technology* Engineered and maintained equipment for nuclear weapons component manufacturing
* Designed gloveboxes with integrated machine tools and inspection equipment
* Integrated material transfer equipment design with glovebox operations
* Produced parametric 3D models, design drawings, and FEA using Pro/Engineer
* Performed design verification of ASME Boiler & Pressure Vessel Code and seismic calculations
* Wrote equipment specifications and statements of work for subcontracted design/fabrication
* Managed design/build and build-to-print contracts as a Subcontract Technical Representative
* Generated test plans and procedures for factory acceptance and commissioning of equipment
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| PROFESSIONAL TRAINING* SolidWorks & SolidWorks PDM: Essentials and Assembly Modeling training modules
* PTC software suite: Pro/Engineer, Creo, Pro/Mechanica, Pro/Mechanism, Pro/Piping, and PDMLink
* Siemens Product Lifecycle Management Software: NX (3D CAD) and TeamCenter
* ASME Test Engineer, previously certified in Systems Acceptance and Qualification Testing
* ASME Y14.5, Geometric Dimensioning and Tolerancing

Education & licensure* Bachelor of Science in Mechanical Engineering, University of Tennessee, 2000
* Professional Engineer: State of Tennessee, License No. 118309
* NCEES Record for multi-state PE licensure

Security Clearance* US Department of Energy, Q - Clearance (Active)
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