

Bradley W. Hodges, PE

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A Licensed Professional Mechanical Engineer with 13 years of experience with machine and thermal design systems, project management, operations and manufacturing. Hands-on experience in factory and customer's sites. Experience in managing program financials, including capital expenditures, and running project teams of 5-10 people, along with the technical oversight of engineering professionals.

Education

Professional Engineer, State of Tennessee (2011)

UNIVERSITY OF TENNESSEE — KNOXVILLE, TN

Master of Science – Engineering Management, 2013 – 4.0 GPA

TENNESSEE TECHNOLOGICAL UNIVERSITY — COOKEVILLE, TN

Bachelor of Science – Mechanical Engineering, 2005 — 3.7 GPA

Work Experience

CATERPILLAR — MOSSVILLE, IL

LPSD L3 AIR SYSTEM DESIGN ENGINEER, February 2015 to Current

- Major Projects/Responsibilities:
 - Oversee the design, development, and validation on New Product Introduction (NPI) programs for gas 3600, 3500, and medium vee marine engines for dry exhaust manifolds, water cooled manifolds, and heat shields. Efforts include working with and coordinating the work for designers, analysis engineers, testing engineers, quality engineers, and working with program managers, marketing, engine platform engineers to launch a product.
 - Due to 100% failure rate in the field, successfully designed and validated gas 3600 heat shields in 3.5 months to meet production start online date.
 - L3 lead for gas 3500 double air-shielded water-cooled exhaust manifolds and water-cooled flowerpots. Successfully closed an A level high risk issue to launch exhaust manifold into production in Jan 2017.
 - Delivered \$391k in cost savings in 2017 and on track to deliver \$741k cost savings in 2018.
- Onsite field experience with Caterpillar customers
- Responsible for presenting multiple stakeholder updates, design and deep dive reviews.
- Collaborative product and process development with suppliers, and internal and external customers
- Extensive training with Ansys and Pro Mechanica analysis software
- Experience with multiple casting methods for design, FMEA, shake table testing, fatigue testing, and resolving new product and current product issues
- Collaboration across multiple engineering disciplines
- Supported purchasing in enabling the first heat shield supplier to become Cat certified
- Successfully mentored Cat summer interns

Y-12 NATIONAL SECURITY COMPLEX — OAK RIDGE, TN

Development – Senior R&D Engineer, 2012 to 2015

- Responsible for the initiation, design, and implementation of scientific research projects for R&D and prototyping laboratory experiments for innovative production processes.
- Experience with designing & fabricating equipment using standard and exotic materials. Ex – Titanium, Inconel, Hastelloy, Haynes, Stainless Steels, Lithium based salts, Ceramics, etc.
- Conceptualized, designed, prototyped, and built, a variety of test equipment for R&D projects.
- Real experience managing budget, schedule, cost estimating, quality control, cross organizational resources, manufacturing shops and supply vendors, and writing equipment specifications.
- Developed research proposals in-line with the Company's technical roadmap and production deliverables.
- Project engineer and mechanical design lead on several projects. Reported to upper management on project status, earned value management status, and technical readiness level status.
- Participated in the technology development roadmap for integrating innovative technology in the future lithium processing facility.

- Successful delivery of process requirements achieved through supplier collaboration integration of subject matter expertise.
- Set up collaborations with outside vendors on joint research and development projects.
- Performed a value stream map analysis of current operation that resulted in a ROI in 4.5 months at \$300k savings.
- Developed a Safety Transportation Seminar for Y-12 employees and vendors.
- Mentored new hire out of college in the Career One Program. Oversaw task assignments and assisted him in meeting end goals of assigned projects

Mechanical Equipment Design Engineer, 2007 to 2012

- Lead Mechanical Engineer for the dismantlement processing section of the multi-billion dollar Uranium Processing Facility. Participant on multi-discipline teams as the mechanical subject matter expert to determine design requirements, develop schedules and cost estimates.
- Reviewed and signed-off on the work of other engineers such as drawings, process flow diagrams, piping and instrumentation diagrams, equipment specifications and other engineering related documents.
- Provided technical guidance to contract engineers in the development of designs.
- Led comment and review sessions for 20-40 organizational engineer leads, coordinating the design and review issues between outside organizations.
- Coordinated the development of the weapons tooling database for the 10 production units that the Uranium Processing Facility is slated to build.
- Assisted in the conceptual development of DOE 441.1-1 compliant primary fissile material storage containers. Efforts included software modeling, rapid prototyping, design, mock-up, and testing of the container.

Process Engineer for Machine Shop and Facility, 2005 to 2007 (Co-op 2003-2004)

- Made independent decisions in conjunction with the Engineering Design Authority, and coordinated complex mechanical and chemical engineering processes for current and future weapons production programs.
- Provided engineering support and managed the commissioning and start-up of new equipment including CMMs, X-Ray Machines, and lathes in an enclosed glovebox environment isolator.

Teaching Experience

Tutoring, (2002 to 2011)

- Under the Umbrella (2009-2011), Math, SAT and ACT prep classes
- Private Tutoring to high school and University of Tennessee college students (2006-2011) in Math, SAT and ACT prep classes
- University of Tennessee Technological University (2002-2005), Math, Chemistry, and Engineering classes

Children Ministry Teacher, ages 5-7 (2011-2015)

American Glovebox Society (2012-2015), Moderator at various sessions at the annual conference

Awards/Recognition

- US Patent 9354218 - Apparatus and method for the characterization of respirable aerosols
- 2013 NNSA Defense Programs Award of Excellence
- Recipient of 2012, 2011 & 2008 Science Technology & Partnership Technology Transfer Awards for developing equipment to streamline production processes and submitting new technology for potential patents.

Professional Development

CATERPILLAR WELDING FOR MANAGEMENT TRAINING,
 ANSYS ANALYSIS SOFTWARE, PRO MECHANICA, FAREVO
 HANDS-ON-EXPERIENCE WITH A CNC, LATHE, & MILL 3 MONTHS TRAINING CLASS (2013)
 PROJECT MANAGEMENT TRAINING (2012)
 ASME Y14.5-2009 GD&T TRAINING (2011)
 SOLIDWORKS AND PRO ENGINEER (8 YRS EXPERIENCE)
 CAD/CAM DESIGN SOFTWARE (1 YR EXPERIENCE)

Professional Affiliations

AMERICAN GLOVEBOX SOCIETY — **Board of Director's Member 2012-2015**
 SKI PATROL — 2007 – PRESENT