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MECHANICAL ENGINEER / SENIOR VEHICLE ENGINEER

Senior Vehicle Engineer with 27 years of experience in the transit industry, focusing on passenger transit rail vehicle design, Transit Authority specifications and industry standards as applied to passenger transit vehicles and procurement support.
Vehicle design experience includes; supervising a mechanical design team and coordinating engineering design, including Design for Excellence (DFx), system integration and electromechanical interfaces.
Vehicle experience includes a wide range of passenger transit rail vehicle types, ranging from light rail, heavy rail/subway, through locomotive hauled push-pull equipment.
Specialty experience with Interior appointments, and Operators Cab, Ergonomic / ADA analysis, Materials & Workmanship, application of industry standards, troubleshooting mechanical design issues, maintaining design quality assurance, and monitoring specification compliance, safety, manufacturability, systems integration, and cost effectiveness.

HIGHLIGHTS

- Registered Professional Engineer in California (M32516), and Hawaii (PE 11531)
- Preparation of technical specifications for new design and overhaul of passenger rail vehicles
- Reviewed designs and design changes to ensure design quality and specification compliance
- Managed and coordinated engineering design efforts, ensured specification compliance, safety, manufacturability, cost-effectiveness, including purchasing considerations and design quality
- Troubleshooting of mechanical design problems, maintenance issues and failure analysis
- Managed test activities for failure analysis, and fire-resistance testing
- Vehicle compliance review for Americans with Disabilities Act (ADA) requirements

PROFESSIONAL EXPERIENCE

CH2M HILL/Jacobs, Los Angeles, CA, July 2013 – Present

- SFMTA, LRV4, New Vehicle Procurement - Provided procurement support from initial proposal evaluation and vendor selection, continuing through design review and delivery for new, state-of-the-art LRV procurement. (2/2014-2017)

- General design review and project support for various passenger rail vehicle projects: (NYCT R179, SFMTA LRV4, LACMTA - Various.) (7/2013-Present)

- Prepared specifications for new vehicle procurement, overhaul of vehicles and vehicle subsystems: (NYCT R211, LACMTA P2000, A650) (7/2013-10/2015)

- Provided procurement support for the SFMTA new LRV4 Light Rail Vehicles (proposal evaluation, design review) (2/2014-4/2014)

Parsons Brinckerhoff, Orange, CA, February 2011 – June 2013

- **Maryland Transit Administration - Baltimore Red/Purple Line LRT Project** – Baltimore, MD: Senior vehicle engineer responsible for rail vehicle design criteria for low floor LRV vehicle characteristics and interface requirements to infrastructure. Also performed potential carbuilder reviews to determine basic

vehicle types and configurations suitable for the project. Currently preparing preliminary specification data and establishing team organization. (3/2010-6/2013)

- **San Diego Transit System Metropolitan (San Diego Trolley)** - Certification testing of Siemens S-70 vehicles for CPUC qualification. (8/2011 & 1/2012)

- **FDOT / SunRail** - Provided procurement support, design review for new bi-level passenger coaches under an engineering support task order contract. (11/2011-6/2013)

- **Massachusetts Bay Transportation Authority (MBTA)** – Multiple projects: Prepared specifications for the mid-life overhaul of 75 bi-level passenger coaches; Railroad Operations engineering support task order contract; Prepared specifications, and performed design review, for new bi-level passenger coach procurement; Prepared procurement specifications for new "Gen-Set" low emission switcher locomotive. (2/2011-6/2013)

STV Incorporated, Boston, MA, September 2006 – September 2010

MBTA New Rapid Transit Vehicle Procurement: MBTA Red and Orange Line subway system. Investigated requirements and prepared recommendations for vehicle configuration. Preparation of weight estimates, ADA compliance requirements and technical specifications. (6/2007-2/2010)

Commuter Rail Transportation Projects: Tasks and responsibilities included vehicle design assessments, cost estimates, defining project scope, preparation of the technical specifications, design review, production meetings, design troubleshooting, and corrective action plans. Detailed analysis of design information included detail design, component interface, evaluating material applications, solving design-related problems, and ensuring good design practice.

- **Massachusetts Bay Transportation Authority (MBTA) –** Multiple projects: Prepared specifications for the mid-life overhaul of 75 bi-level passenger coaches; Railroad Operations engineering support task order contract; Prepared specifications, and performed design review, for new bi-level passenger coach procurement; Prepared procurement specifications for new "Gen-Set" low emission switcher locomotive. (9/2006-9/2010)
- **Amtrak – Acela – Wi-Fi Installation** - Prepared design specifications, drawings, and installation documentation for the integration, and mechanical installation of T-Mobile Wi-Fi equipment on the Amtrak Acela high speed train for the North East Corridor. Supervised the installation of the prototype equipment on one trainset. (10/2006-6/2008)
- **New Jersey Transit (NJT) -** Managed Failure Analysis investigations for NJT Locomotive and Passenger coach failures including gearboxes, wheel bearings and wheel failures. Provided technical support and Contractor submittal document design reviews for new Multi-Level passenger coach procurement. Reviewed Door System (FAI, Qualification, Functional Test), Reliability (LVPS, Brake, Communication), Vehicle Maintainability Analysis. (1/2007-2/2010)

Booz Allen Hamilton, San Francisco, CA April 1999 – April 2006

Passenger Rail Vehicle Projects: Tasks and responsibilities included the base project definition and vehicle selection, cost estimates, refining project scope, preparation of the technical specifications, design review, production meetings, design troubleshooting, and corrective action plans. Detailed analysis of design information included detail design, component interface, evaluating material applications, solving design-related problems, and ensuring good design practice with respect to function, specification compliance, safety, manufacturability, and cost savings. Conducted maintenance practice evaluations including maintenance shop inspections and provided recommendations.

- **Triangle Transit Authority (TTA)/New Jersey Transit (NJT)** – New vehicle specification development for the procurement of Diesel Multiple Unit Vehicles (co-procurement of DMUs between TTA and NJT). (7/2005-3/2006)
- **Niagara Frontier Transit Authority (NFTA)** - Rehabilitation specification development for the NFTA Light Rail Vehicles (LRVs). (10/2004-6/2005)
- **London Underground Limited (LUL)** – Rehabilitation design and manufacturing troubleshooting - Rehabilitation project of LUL subway vehicles, for the London District line ("D-Stock"). (8/2004-10/2004)
- **Southern New Jersey Light Rail Transit System (SNJLRTS)** - New DMU design review and vehicle preparation for service. (11/2003-4/2004)
- **San Francisco Municipal Railway (Muni)** - New vehicle design and manufacturing troubleshooting for the Muni Trolley Bus Project, both for standard trolley bus and the articulated trolley bus designs. (-3/2006)
- **Maryland Rail Commuter (MARC)** - Prepared alternatives analysis and recommendations for auxiliary head-end power supply (HEP), locomotive mid-life rehabilitation (Prime Mover), and layover power. (2/2003-7/2003)
- **Sacramento Regional Transit District (Sac RT)** - Performed vehicle safety certification documentation for Sac RT's new CAF LRVs. .(1/2003-1/2004)
- **Bay Area Rapid Transit District (BART)** - Served as the lead mechanical engineer for the new vehicle specification development and design requirements of the BART expansion and San Jose extension vehicles. Reviewed the maintenance systems, records and shop capabilities to provide recommendation for optimized maintenance activities. Supervised, inspected, and tested the installation of fare collection gates and fare vending machines for BART stations. (7/2001-3/2005)
- **San Francisco Municipal Railway (Muni)** - Served as the project engineer for Muni's procurement of 151 Breda LRVs. Reviewed the design documentation, procedures, and submittals, including the retrofit designs and procedures for the first 77 Breda vehicles. Supported design and delivery issues for the remaining 74 vehicles. (4/1999-3/2006)
- **Santa Clara Valley Transportation Authority (VTA)** - Provided technical support for the alternatives analysis, specification development, and negotiations for new low-floor LRVs that comply with the Americans with Disabilities Act (ADA). Reviewed design documentation to ensure that the final vehicle met specifications, and provided support for the vehicle safety certification efforts. (6/1999-10/2004)

Other Projects:

- **Yucca Mountain Nuclear Waste Repository** - Preparation of the mechanical specifications for the security escort car used in the transport train for spent nuclear fuel from nuclear power stations. (9/2003-7/2004)
- **Tinker Air Force Base -** Prepared the mechanical specifications, and participated in the commissioning of the 6 MW stand-by power generation equipment for the B-1 software support building at Tinker Air Force Base, Oklahoma. (5/2003-12/2005)

Siemens Transportation Systems, Sacramento, CA May 1991- February 1999

Passenger Rail Transportation Projects: Managed the Vehicle Mechanical Engineering Design Team in various capacities. Responsibilities included supervising detail design, evaluating materials; solving design-related problems, and ensuring good design practice with respect to function, as well as specification compliance, manufacturability, and weight and cost savings. Design supervision also included electromechanical interface and integration of vehicle subsystems, carbuilder / sub-system supplier design optimization, design concepts for models and prototypes, and preparation of internal design specifications. Responsibilities also included the

"Americanization" of German design, including modifications of design for U.S. manufacturability including material substitutions and manufacturing processes.

- **Tren Urbano Transit System** (San Juan, Puerto Rico) - *Lead Engineer/Carbody System Engineer* - Managed the Tren Urbano Vehicle Mechanical Engineering Design Team for a 64 vehicle turnkey project (design-build-operate-maintain). Provided vehicle design guidance, design for manufacturability (DFm), maintenance interface with operations management including recommendations for shop maintenance activities and equipment requirements. (10/1996-2/1999)
- **Los Angeles County Metropolitan Transportation Authority (LACMTA)** - *Assistant Manager, Mechanical Engineering* - Managed the Los Angeles Mechanical Engineering Design Team as lead engineer for the design, manufacture, and delivery of 52 LRVs. Implemented a comprehensive weight-reduction program to successfully reduce the vehicle weight. Participated in the Los Angeles Advance Transportation Product Development Program. (10/1995-10/1996)
- **Los Angeles County Metropolitan Transportation Authority (LACMTA)** - *Project Engineer* - Worked with the customer in the initial stages of the project on matters regarding detail interpretation of the specification with respect to design concept, through preliminary design, which included various vendors and applications. (5/1994-10/1995)
- **San Diego Metropolitan Transit Development Board (MTDB)** - *Project Manager* - Managed the manufacture and delivery of 52 LRVs, coordinated customer specification with engineering design, prepared contract submittals for customer approval, procured mechanical components for LRV assembly. Coordinated construction of rail-spur connection with SD&IV Railroad for off-loading of vehicles. (8/1992-4/1994)
- **St. Louis Metro** (formerly Bi-State Development Agency) - *Project Engineer* - For the manufacture and delivery of 31 vehicles, duties included procurement of mechanical components for LRV assembly; interpretation of drawings and parts lists with sub-suppliers, including modifications of German parts, drawings, and material specifications for U.S. manufacturability; and coordination of parts delivery for final assembly. (5/1991-12/1992)

Other Experience:

In addition to my engineering experience, I have 10 years of "hands-on" experience, in various areas including construction, metalworking and fabrication, equipment maintenance, stand-by power generation, and automotive / truck painting.

EDUCATION

- Bachelor of Science, Mechanical Engineering, California State University, Sacramento, CA, 1991
- Fundamentals of Railway Train Control and Signaling Systems, University of Wisconsin, 2005
- Booz Allen Internal Training Courses: Structured Writing, Presentation Skills, Commercial Consulting Skills, Personal Best Management, Personal Best Consulting Skills, Project Financial Management, Project Management, Developing Winning Proposals.
- STV Training Course: Project Management, PA, 2008
- Generators & Emergency Power, American Trainco, MA, 2008