WILLIAM R. TURK IV

MECHANICAL ENGINEER

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CERTIFIED SOLIDWORKS ASSOCIATE
18+ years of experience in SolidWorks, including top-down design, smart parts & features, training program development, and implementation.

INDUSTRIAL MACHINE DESIGN
Design equipment to operate up to 70MPa [10ksi] and 315°C [600°F].

HYDRAULIC AND PNEUMATIC DESIGN
Design actuation systems for industrial equipment, including power units and safety circuits.

PROJECT MANAGEMENT
Manage all aspects of a project, including design, testing, costing, vendor certification, and launch.

FINITE ELEMENT ANALYSIS
Use FEA to identify weaknesses in a design and to ensure the design is cost efficient.

Motion Simulation

Prototype Design and Testing

Vacuum Chamber Design

Electrical Circuitry Design

Sheet Metal Design

Technical Writer

ISO Implementation

Injection Molded Part Design

Cast and Extruded Aluminum Part Design

PROFESSIONAL EXPERIENCE

Contract Engineer   **Charlotte, NC**   **Jun 2014 – Present**

R&D Engineer

Have worked continuously for a manufacturer in the plastics extrusion industry. Primary function is to design new product lines and develop all related literature. Developed custom spreadsheets to predict stresses in key components and verified the results with Finite Element Analysis. Secondary functions include sales order engineering, representing the company at trade shows and customer support.

Successes
- Developed a new product with several advantages over a competitor's similar product.
- Lowered costs through design efficiency

Alemite LLC   **Ft. Mill, SC**   **Feb 2013 – Nov 2014**

R&D Engineer

Worked for a manufacturer of lubrication distribution, testing and reclaim systems. Primary function is to design new and optimize existing lubrication using SolidWorks, PDM Works, and Routing. Use Solver to perform Finite Element Analysis on molded parts to allow me to make parts with as little material as possible while maintaining the products integrity.

Successes
- Analyzed a seal on a vacuum system and corrected the design to improve its efficiency and rigidity.
- Helped develop a lubrication delivery system compliant with IP67.

Assa Abloy   **Monroe, NC**   **May 2012 – Dec 2012**

R&D Engineer

Worked for the world's leading manufacturer of automatic doors. Primary function was to improve existing product lines and expand our product offering to capture a greater market share. Analyzed current design to reduce production costs. Analyzed automatic door components using Finite Element Analysis to ensure they meet safety standards while making them as cost efficient as possible. Performed motion analysis on door assemblies to generate torque and acceleration curves to help determine the most efficient design. Designed a sliding glass door to comply with LEED initiative while minimizing thermal transmission and airflow. Tested prototypes in conditions far exceeding industry standards.

Successes
- Part of cost reduction exercise that will save an estimated $270,000 annually.
- Created sealing system for glass doors that will reduce airflow by 50%.

General Dynamics   **Newton, NC**   **Oct 2010 – May 2012**

Design Engineer

Designed dish-style microwave antennae and their supports. Analyzed antennae using Finite Element Analysis to ensure they met our customers' strength and deflection criteria. Designed aluminum structural components and plastic satellite dishes in SolidWorks to be molded at low cost for mass production.

Successes
- Created a support system for a 3.8m [12.5ft] tall dish to survive in the harsh conditions of the Aleutian Islands.
- Reduced the production costs of radio feeds by converting them from machined parts to cast parts.

Contractor   **Charlotte, NC**   **Dec 2008 – Oct 2010**

Engineer

Design equipment and provide drawings for a variety of clients, primarily in the plastics extrusion industry.

Xaloy Extrusion LLC   **Hickory, NC**   **Apr 1998 – Dec 2008**

PRODUCT DEVELOPMENT ENGINEER

Was the primary Product Development Engineer for a major manufacturer of plastics extrusion equipment. Brought new products to market and improved existing products. Worked with customers to solve problems with existing equipment. Educated potential customers by demonstrating products at international trade shows. Reduced costs while maintaining product integrity using Finite Element Analysis and other engineering methods. Improved Xaloy's market share by designing new equipment for the plastics extrusion industry, including molded, sheet metal, and precision-machined parts. Proved the validity of my designs by building and testing prototypes in the company lab, coordinating beta tests, and writing reports on the results of my tests. Improved engineering efficiency by implementing SolidWorks and training coworkers in its use. Wrote and created graphics for operation and instruction manuals.

Successes
- Brought several new products to market.
- Implemented SolidWorks and trained engineers to use it, thus cutting design time as much as 83%.
- Analyzed a competitor's product after a merger. Where our products overlapped, a new product was created that kept the best features of both companies while reducing cost.

Design Services   **Wendell, NC**   **Feb 1997 – Apr 1998**

Engineer

Was responsible for designing conveyor systems for rock quarries. Created elevation drawings depicting the conveyor and its supports. Created detailed drawings of individual conveyor sections and support columns.

Successes
- Converted a series of hand-drawn templates to AutoCAD, thus reducing drafting time by 50%.

| **Functional Rehab** | **Charlotte, NC** | **May 1996 – Nov 1996** |

Application Engineer

Was responsible for helping people by providing them with wheelchairs that best suited their particular needs. Configured wheelchairs for disabled people. Taught customers how to use their equipment properly.

| **Ilco Unican** | **Rocky Mt., NC** | **Oct 1994 – May 1996** |

Drafter/ Engineer

Designed machines for the nation's leading producer of locksmith equipment. Was responsible for testing my designs to confirm their functionality and customer safety. Programmed CNC Machines to create coining dies. Helped implement ISO 9000. Created detail and isometric assembly drawings in AutoCAD.

Successes

◆ Developed a machine that can cut keys either by duplicating an existing key, or by a code. Previous machines could only do one or the other.

EDUCATION

| **NC State** | **Raleigh, NC** | **Aug 1988 – Dec 1993** |

BS Mechanical Engineering

Coursework included static, dynamic, and stress analysis including FEA, thermodynamics, FORTRAN, design.

ACCOLADES

Eagle Scout
EIT (FE) certified

COMMUNITY ACTIVITIES

Church Elder and Chair of the Worship Committee
Member of my Church's Handbell, Brass and Chancel Choirs
Member of community band
Have acted in several community theater productions
Filmed lectures for local Job Hunters support group

REFERENCES

Available upon request.