



## Curriculum Vitae

**Tina Meadows PE EE**

Senior Controls Engineer

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(206) 331-2857

### EDUCATION

Washington State University –  
Bachelor of Science, Electrical  
Engineering –1986

University of Washington –  
Digital Design and Fabrication  
for Architecture and Design –  
Certificate Course 2013

### LICENSE

Washington State –  
Professional Engineer,  
Electrical Engineering # 30283

### BOARD SERVICE

Center on Contemporary Art –  
Board of Directors, 1993-2005

### VOLUNTEER SERVICE

Associate Producer for 2013  
Ronald McDonald House  
Promotional Video

Henry Art Gallery – Since 2008

KEXP 90.3 – Community Radio  
– Since 2006

Seattle Animal Shelter – Since  
2011

For the past 25 years Tina has designed, reviewed, and repaired every type of motor control system from yesterday's wound rotor to today's most advanced AC and DC controls. Her experience extends from material selection, estimating, design, to testing and installation. Her list of qualifications include but are not limited to:

- Design and development of control systems
- Modification of existing control systems
- Peer review of control systems
- Writing computer software for HMIs, PLCs, SCADAs, and other programmable equipment
- Writing maintenance plans
- Troubleshooting

Tina spent the bulk of her career at Ederer LLC. During her time at Ederer she was assigned design responsibility for the most complex projects. Projects include the 325 TON cranes located at the Vehicle Assembly Building (VAB) at Kennedy Space Center (KSC), the roof travel assembly at Safeco field, and a series of 5 cranes for the River Protection Project at Hanford Nuclear Reservation. In addition to her engineering talent, she has proven project management skills.

Prior to her Ederer tenure, Tina spent 2.5 years with Technology Development Corporation designing automation hardware and software to test printed circuit boards.

### Representative project experience

**325 Ton Capacity, 465 Foot Lift Bridge Cranes for NASA, KSC,** Handling the Space Shuttle requires load control at all times. The main hoists DC control system for these cranes are designed to be single failure proof. Monitoring programs check all systems to verify operation prior to motion. If one of the two hoists drives malfunctions the other drive will carry the load without change in speed or direction. The speed range is from 27ft/min lightly loaded to 9ft/min fully loaded and 0.040in/min slowest speed. This provides for a speed range of 8100:1 over the 400ft of lift. In order to always maintain control of the load, upon release of the brakes, even fully loaded, load drop is limited to less than 0.005 inches.

**The Retractable Roof at Safeco Field** has six individually controlled sections. Each section, moving independently, over such a long span requires skew controls to prevent binding. The sections are controlled by eight DC drives controlling multiple parallel DC motors, all constantly correcting to prevent roof skew.

**The Hanford River Protection Project** is a series of five cranes. The hoists are AC flux vector controlled while the travel drives are AC variable frequency. Each crane has an error checking system, completely separate from the control system, which is both redundant and diverse. The cranes are located in a high radiation environment requiring special attention to on-crane material selection to prevent rapid degradation due to gamma radiation. The majority of the controls are located off crane, in a shielded area, designed with consideration for the distance between motors and controls.