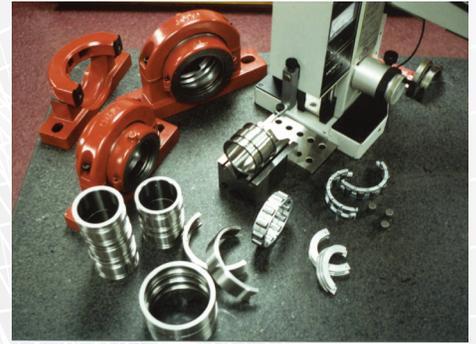




Engineering Associates, Inc.



From Problem to Prototype

From Idea to Installation

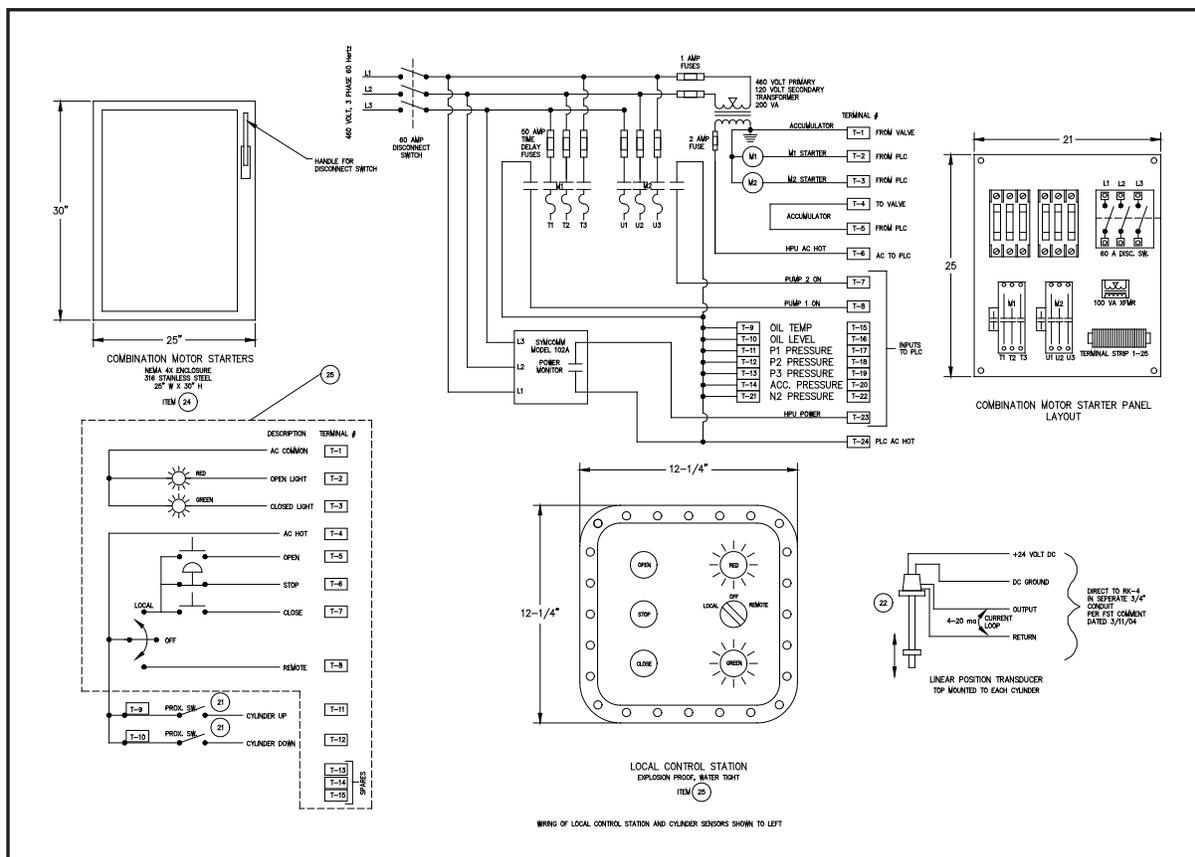
From Concept to Completion

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The Company

Craft Engineering Associates, Inc., with its affiliates, provides turnkey design, fabrication and installation services to a wide range of customers. Craft maintains a small staff of registered professional engineers and systems analysts to provide mechanical, electrical, structural and hydraulic engineering services to the U.S. Government and private industry. Craft Engineering Associates, Inc. is a Virginia Corporation that has been serving a select clientele for over 20 years. Craft's specialty is the practical implementation of theory and advanced technology for operational systems applications.



Electrical Details of Sluice Gate Controllers for Waste Water Treatment Facility, Boston, MA



Crane and Ramp Testing for Vehicle Transfer at Sea, Virginia Coast

Craft takes on a broad range of projects, in both magnitude and technical diversity. The following pages describe some of our recent projects. Let us know what we can do for you.



Installation of Hydraulic Servo Railcar Positioner to Test Vehicle Response to Sliding Ramp Foot Motions, Aberdeen Test Center, MD

Coal Conveyor Car Positioning System

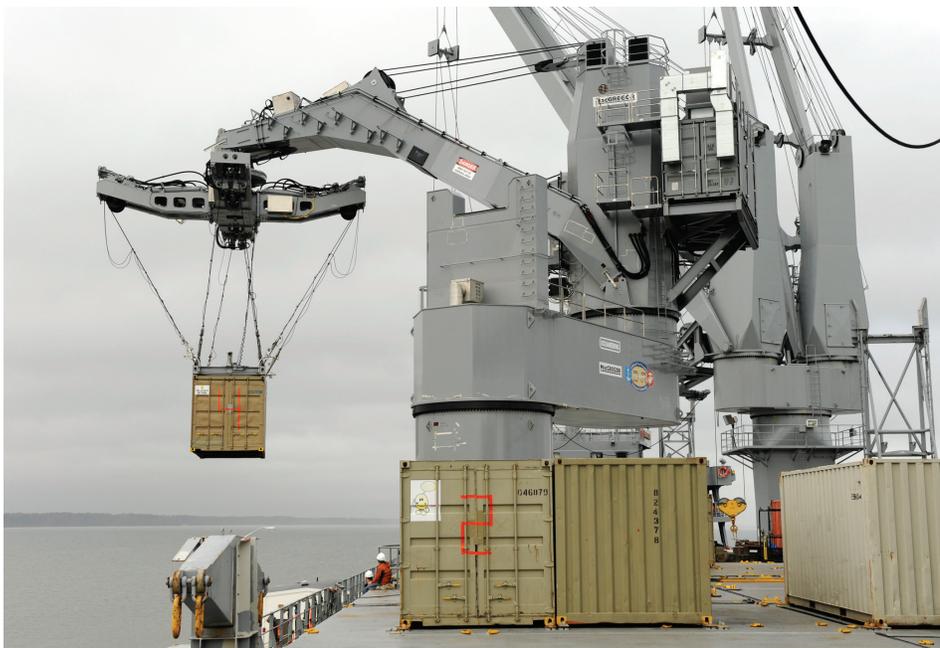


The Kinder Morgan, Pier IX Terminal Facility in Newport News, VA unloads coal from rail cars, stores it and re-loads it onto ships. They handle 12 million tons of coal per year. The heart of the unloading system is a 2,000 foot long elevated belt conveyor.

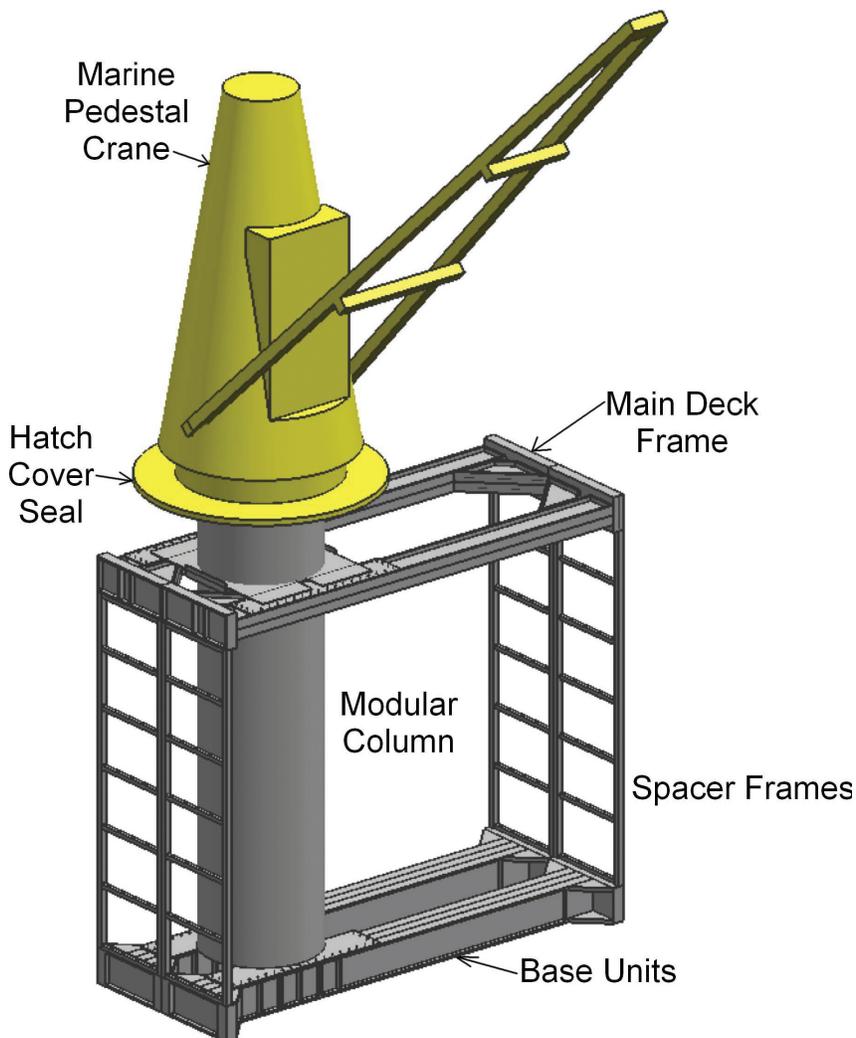
During a renovation, Craft Engineering Associates, Inc. was selected to design and build a chain drive system to position the belt conveyor along the elevated structure. A 50 HP Marathon motor, Cone Drive gearbox, Royersford Bearings and H.K. Chain components were chosen for this demanding application.



Modular Column Support Structure



In order to test a unique crane design, the Office of Naval Research needed a temporary crane column support structure on a vessel of opportunity. Craft had previously proposed a modular column support structure that could be rapidly installed in two adjacent 40-foot cells in a container ship. The system consisted of two base units, spacer frames, main deck frames, and modular column sections. [Total Weight: 100 LT]

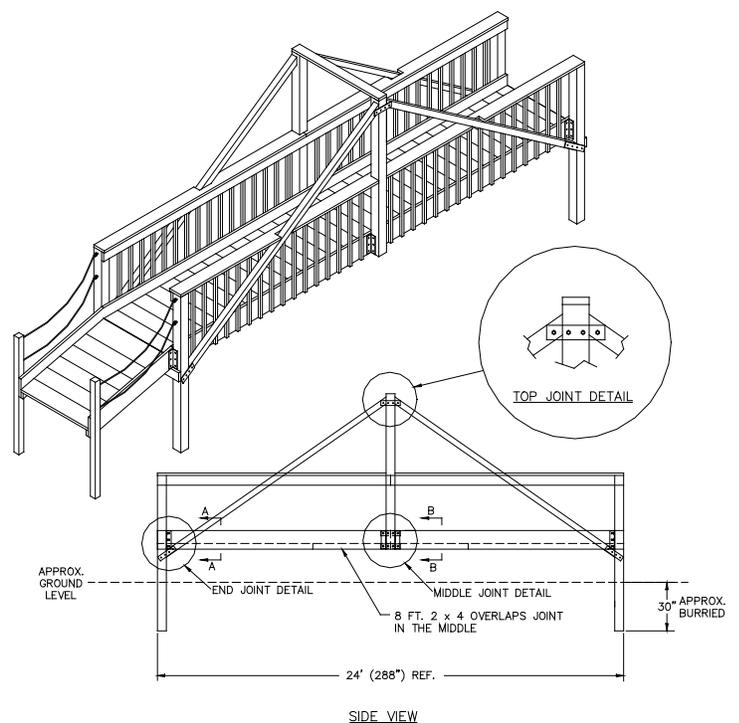


Nature Trail Pedestrian Bridge



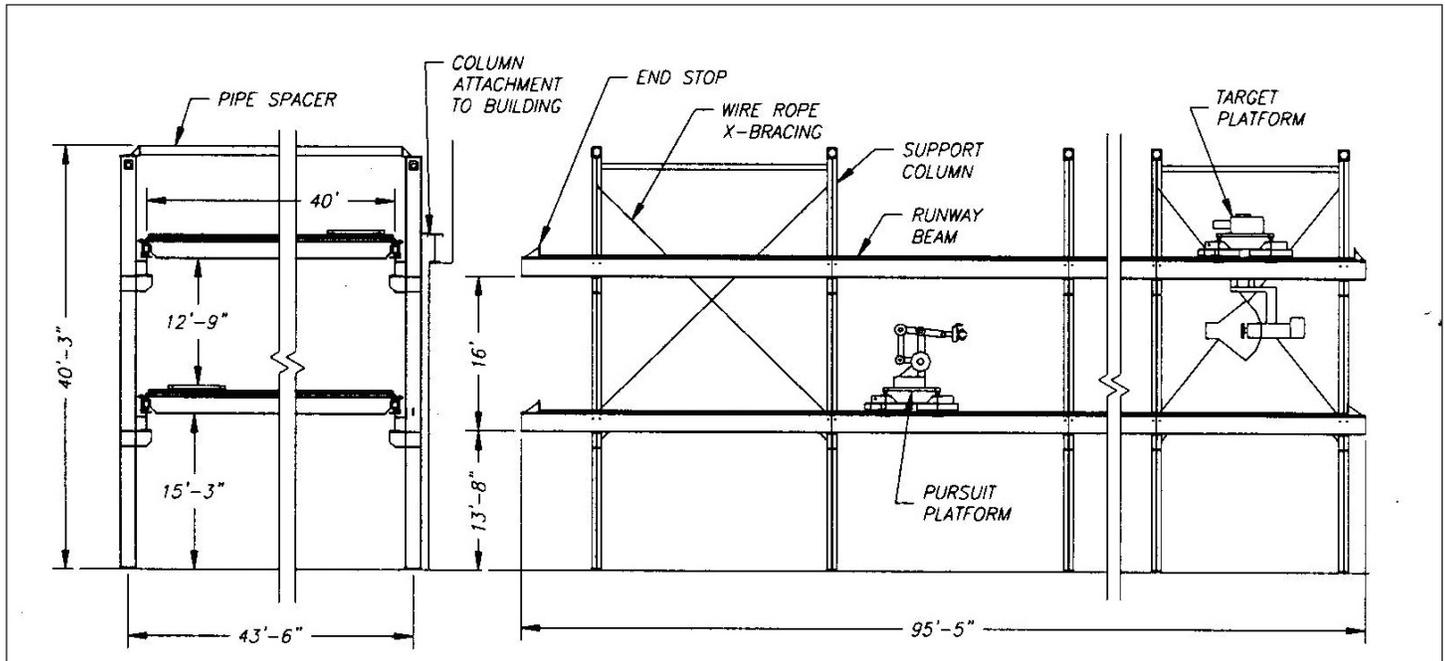
The Millboro, Virginia Ruritan Club decided to build a Nature Trail across from the local elementary school so the students could experience nature firsthand. A central element of the trail is a bridge over a small pond. The bridge needed to be easily constructed from readily available lumber, while having a rugged aesthetic appeal.

The bridge was designed to meet all building codes and safety standards commensurate with the valued pedestrian traffic it would carry.

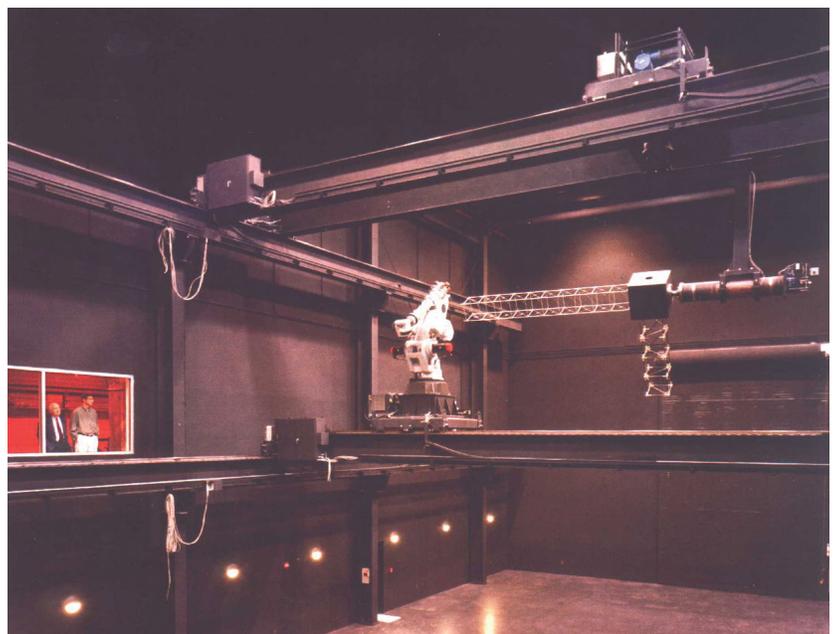


Rendezvous & Docking in Space Simulator

The Robotics Engineering and Controls Laboratory at the Naval Research Laboratory houses a dual platform, multi-degree-of-freedom, dynamic motion simulator. The Rendezvous and Docking in Space Simulator serves as a national test bed for real-time hardware-in-the-loop and software-in-the-loop research, development, and validation of the technologies necessary for multi-spacecraft missions.



Craft Engineering Associates, Inc. designed and fabricated the dual-platform bridge crane system, with individual multi-axis control of both platforms over a standard serial link. Craft also designed, built and programmed the electronic computer controls. The system uses laser measurement devices to provide precise relative and absolute position tracking.



Ship Roll Simulation System



One of Two 20-foot Systems During Testing at Craft's Facility

The Ship Roll Stimulation System (SRSS) is a modular system of container-like tanks with piping, adapters, and a hydraulic power unit that can be rapidly installed in the hold of a containership. The tank sections are stacked in the outermost cells on each side of the vessel. Cross piping is provided to connect the two tanks through a bow thruster that is mounted in the hydraulic power unit. The tanks are partially filled with water and the bow thruster can push water rapidly from one side of the ship to the other.

The system was developed for the US Navy to provide a method of actively rolling a T-ACS ship in order to test crane enhancements and provide realistic training for crane operators and deck crews while at the pier.

| OPERATING SPECIFICATIONS | |
|--------------------------|---|
| Power | 400 HP (2 x 200 HP) |
| Thruster Diameter | 66 inches |
| Water Capacity | 64,000 gallons |
| Water Weight | 530,000 pounds |
| Maximum Flowrate | 240,000 gpm (120,000 gpm per thruster) |
| Stack Height | 25'-3" (Base + 2 stack tanks) |

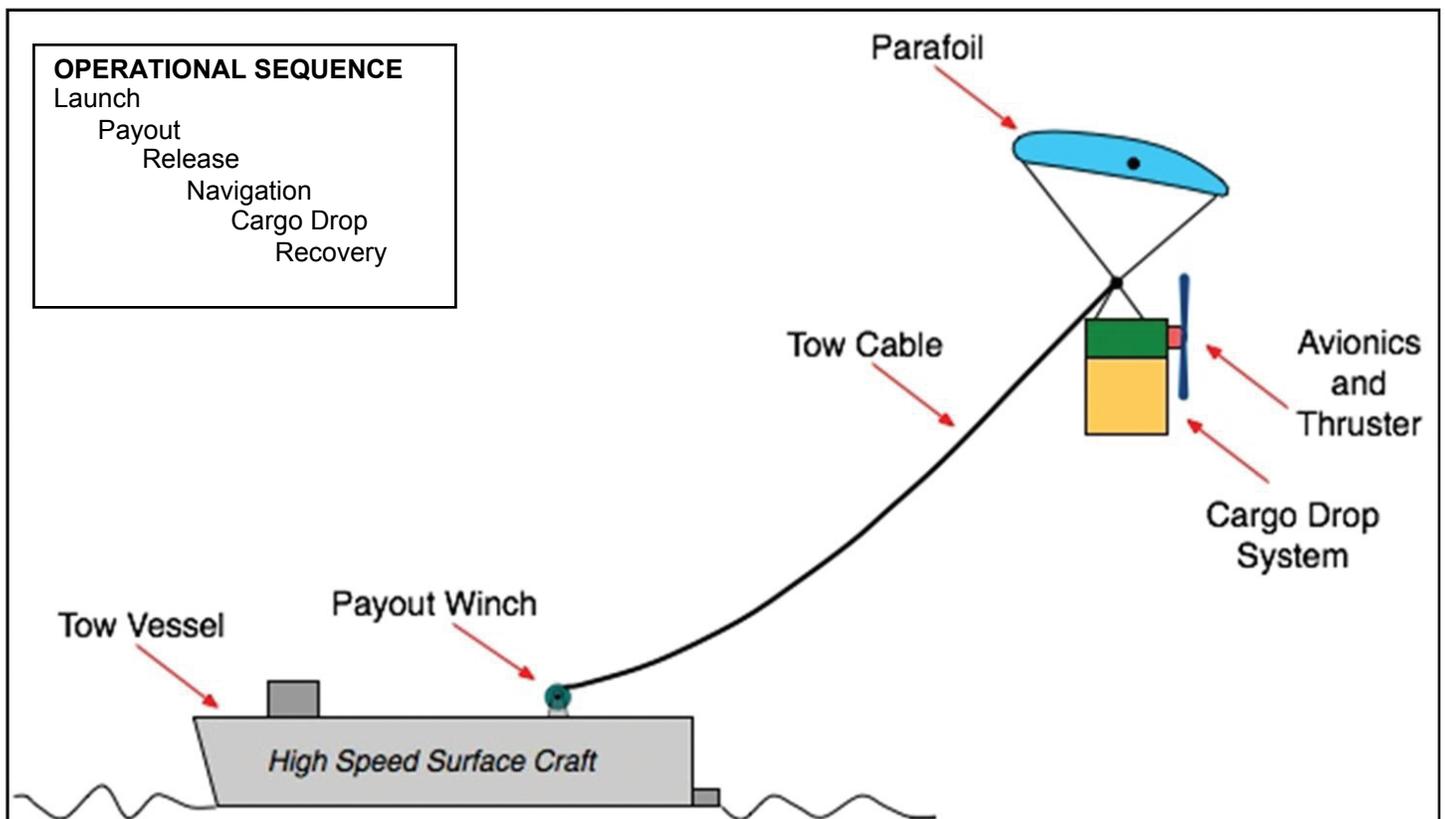
Ship Launched Aerial Delivery System

The United States Navy has a need for a medium range, low cost, precision cargo delivery system that will permit direct ship-to-objective re-supply of small operational units with 200-500 pound loads of high-value, mission critical cargo.

Craft is developing a Ship Launched Aerial Delivery System (SLADS) that can operate from a High Speed Ship (HSS). The system uses a high-performance parafoil and a GPS guided control system to autonomously deliver cargo from ship to shore.

Preliminary aerodynamic testing was performed with our land-based test facility at a nearby airport.

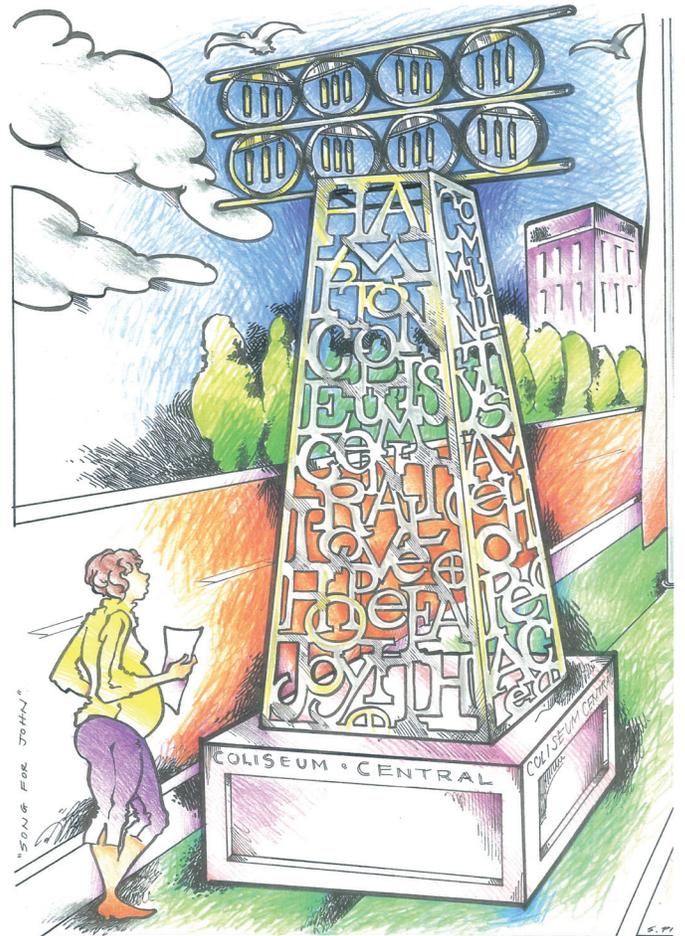
Craft Engineering Associates, Inc., of Hampton, Virginia, was selected under a Navy Small Business Innovative Research (SBIR) program to develop this concept.



Kinetic Sculpture | Foundation & Structure Design

The City of Hampton, Virginia commissioned a work of art to accent the redevelopment of the Coliseum Central Business District. A local artist, Steve Prince, was chosen. His vision was a 15-foot tall, laser cut, stainless steel obelisk, on a marble base, topped by multiple circular wind chimes.

Steve worked with Craft's engineers to bring his vision to fruition. Structural and foundation design requirements needed to blend seamlessly with the aesthetic details of the finished product.





Complete Machining Capabilities

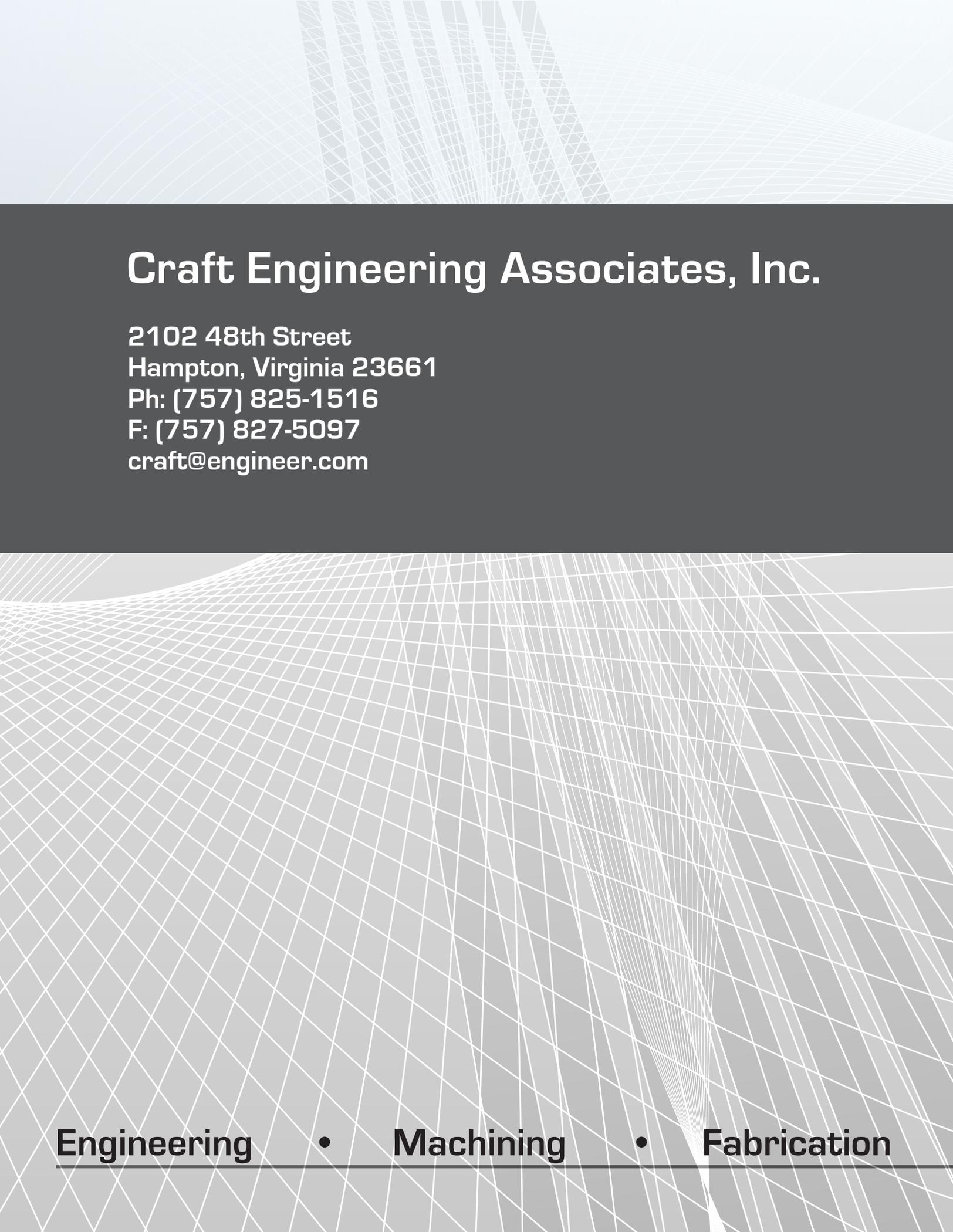
- ▶ Over 50 machine tools, including multi-axis CNC equipment, large open and closed planers, large horizontal and vertical boring mills, as well as small complimentary equipment
- ▶ Craft is able to bore large parts up to 25 feet in diameter and 13 feet tall

Complete Fabrication Capabilities

- ▶ Craft offers thousands of square feet of burning, forming, fitting and welding capabilities in steels, aluminum and exotic materials
- ▶ Craft's fabrication facility is served by 40 ton overhead lift capacity and numerous small cranes
- ▶ Complete Mig, Tig, Sub-Arc and SMAW Welding equipment

Other Capabilities

- ▶ 60 foot long Heat Treating Oven
- ▶ 80 foot long Blasting Facility
- ▶ Quality Assurance programs for fabrication include MIL-I-45208A, MIL-Q-9858A, AISC Categories I, II and III, NAVSEA Standard Item 009-04



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Engineering • Machining • Fabrication
