



DESIGN, ENGINEERING & FABRICATION TEAM | (DEFT)

INTRODUCTION

The Design, Engineering & Fabrication Team (Shelters Technology Engineering & Fabrication Directorate) combines CAD design, finite element analysis, rapid prototyping, custom physical testing with a full service mechanical prototype, integration and production capability. The Team provides design solutions and drawings to suit customer's requirements. With state-of-the-art equipment and experienced personnel, the facility produces high quality prototypes, integrated systems and production runs of equipment and systems for the Soldier. This full service operation offers a wide variety of manufacturing techniques designed to provide customers with a single source for design, prototyping, testing and fabrication. DEFT works with engineers and a fabric prototyping and production facility and also develops strategic partnerships with vendors to provide additional capabilities such as anodizing, painting, powder coating, hardening, annealing, testing, plastic injection molding, shelter, tentage & fabric designs, etc.

RAPID PROTOTYPING

DEFT has the ability to produce rapid prototypes directly from CAD drawings, create or design a model from an existing item or design a model to meet the customer's specifications.

LOAD TESTING

The Team has an Instron® Model 5889 Load Frame with a 130,000 Lb capacity in tension or compression. Applications include proof testing, ultimate load testing, and failure analysis. Custom tests can be set up for customers to measure many failure variables. Systems tested have included airdrop systems and materials, structural components for shelters, and combat equipment.



CUSTOM TEST DESIGN & SETUP

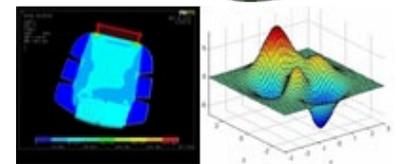
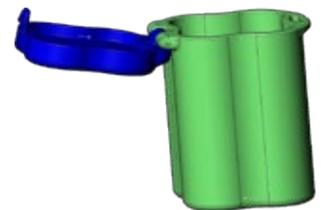
Multiple sensor types to include temperature, pressure, humidity, force and fluid flow. Additional test control to include power supply control and switching. Examples include Microclimate Cooling, Inflatable Shelters, Heating Garments, etc.

Additional Testing Services:

- Environmental Chamber (high or low temperature conditioning)
- Salt Fog Exposure Chamber
- Ballistic Eyewear Test System

ENGINEERING SERVICES

- Computer Aided Design (Solid Modeling) with SolidWorks®
- Finite Element Analysis for solution of Structural and/or Thermal problems with ANSYS®.
- Engineering Analysis with Computational Tools to include MATLAB® EXCEL® and custom software written with LabView® or Labwindows/CVI®.



FABRICATION AND ASSEMBLY SHOP

The Fabrication and Assembly Shop has the capability to fabricate and assemble a wide variety of systems and equipment ranging from specialty metal components for airdrop applications to plastic water tanks used for waste water collection to complicated Shelter integration projects — from kitchens to special order communications shelters. This shop also specializes in refurbishing equipment damaged or degraded in the field or equipment retuning for modernization and upgrades.

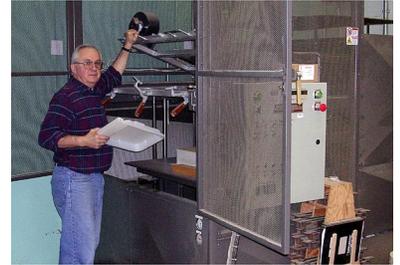
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WOOD AND PLASTIC

The wood and plastic shop provides customers with a wide variety of prototype and modeling capabilities.

- Wood patterns and models
- Thermoforming plastic fabrication up to 30"×36"
- Plastic fabrication of all types and sizes
- Specialty items molded for unconventional use
- Prototype injection molded parts for engineering evaluation.
- Thermoforming mold making in aluminum, epoxy, silicone rubber or urethane elastomers in any duro-meter.



MACHINE SHOP

The Machine Shop will provide you with a broad range of capabilities that incorporate the use of metal, wood, plastic and composite materials. A high degree of precision is guaranteed with the use of the latest Computerized Numerically Controlled (CNC) machining and cutting equipment. A Computer Aided Design and Computer Aided Manufacturing (CAD/CAM) System will assist you with exact drawings and tight tolerances to assure that the item will meet your needs.



SHEET METAL

When it comes to metal fabrication, our skilled personnel can provide you with anything from a simple panel to a complex stainless steel mobile kitchen. We have a variety of sheet metal material types and thickness to choose from that range from lightweight aluminum to highly corrosion resistant stainless steel, mild steel, alloy steel and other sophisticated sheet metals to fulfill any of your special requirements. All sheet metal manufacturing can be made in accordance with commercial and/or precision tolerances.



WATERJET CUTTING CENTER

Waterjet equipment has a large platform, (4'×8') which cuts material up to 5" thick. This technology cuts with an extremely high pressure (55,000 psi) water through a .030" nozzle and garnet mixture and will cut all metals, stone, ceramic and composites.

WELDING

The Welding Shop has the capability for manual and semi-automatic welding. In addition, we are capable of structural welding fabrication and non-destructive testing of welds and base materials. We offer assistance in the practical approach to design of weldments, evaluation of welding procedures and conducting procedure qualification in accordance with the applicable regulations and specifications.

Material types welded and/or cut are carbon and alloy steel, stainless steel, aluminum, copper and copper alloys, and titanium.



POINT OF CONTACT:

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