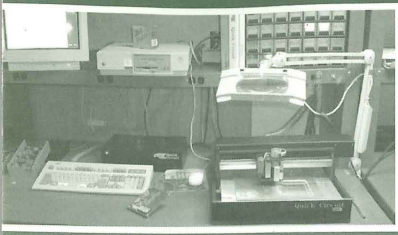
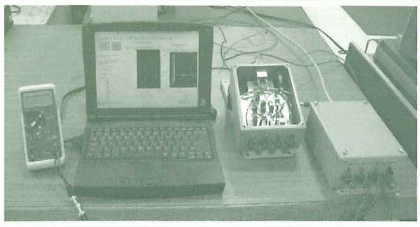
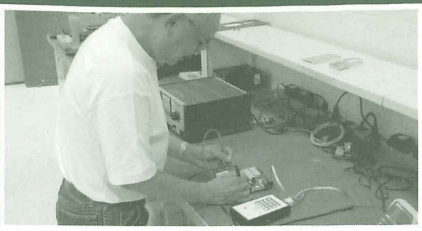
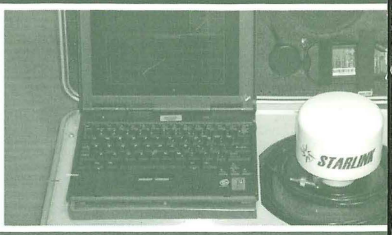

SAXTON HIGHWAY ELECTRONICS LABORATORY FACT SHEET

Research that is Essential, Indispensable, and Connected to our Customers.

PURPOSE

The Saxton Highway Electronics Laboratory (SHEL) started as a small electrical repair shop. Today, it is a modern design and fabrication facility, consisting of a large three-bay vehicle preparation laboratory, model shop, test and storage area, and the main electronics laboratory. The mission of the Highway Electronics Laboratory is to provide electronic engineering support services to the offices of Research, Development and Technology (RD&T) and other offices of the Federal Highway Administration (FHWA). SHEL provides electronic design engineering and electronic technician support, including design, fabrication, wiring, repair, and other associated electronic services, to all of RD&T's research labs.

DESCRIPTION

The laboratory comprises a main research laboratory with 2,800 square feet of workspace and a 2,200-square-foot vehicle preparation area. The laboratory is equipped with state-of-the-art equipment, including several digital and analog oscilloscopes, function generators, spectrum and network analyzers, voltage and other electronic calibrating tools, counters, microwave and RF amplifiers, inverters, analog and digital meters, CAD-CAM electronics design system tools, a quick circuit PC board maker, and printed circuit board markers for prototype and finished design projects.

LAB VALUE

The Office of Resource Management provides this unique and valuable highway electronic support service to the research community of RD&T. SHEL has a fully equipped in-house electronics lab, which can accommodate all the electronic requirements of RD&T and other offices in FHWA. The lab provides consultation on electronic instrumentation requirements; prepares electronic project specifications; assists with the design and fabrication of electronic systems; and repairs, retrofits, and maintains the existing commercial equipment in RD&T's various labs.

PRODUCTS AND SERVICES

Some of the products designed and fabricated in the Highway Electronics Laboratory for data acquisition are:

- the Nationwide Differential Global Positioning Satellite (NDGPS),
- the Mobile Concrete Lab compressor (stress/strain) system,
- the Vibrating Slope Apparatus,
- and the Accelerated Loading Facility (ALF) temperature monitoring.

Some of the services provided by the laboratory include:

- hardware and software development and documentation on all instruments and systems developed,
- design and fabrication of unique, precision, state-of-the-art electronic instruments and systems for highway research conducted within other Turner-Fairbank Highway Research Center (TFHRC) laboratories,
- design and installation of sensors and data acquisition systems for highway research vehicles,
- repair and calibration of electronic equipment,
- consultation and specialized training,
- maintenance of a large inventory of test equipment and supplies,
- modified/repaired the SmartLight lighting control system,
- repaired the XL-20 Colorimeter,
- repaired an infrared spectrometer,
- repaired/serviced the Georgia Faultmeter,
- repaired the ALF RS232-485 converter,
- repaired/serviced an environmental chamber heater/humidity controller,
- and repaired a Pentax 420 KV X-ray machine.

LAB PARTNERS

Partners who recently used SHEL include: TFHRC laboratories and researchers, FHWA, State departments of transportation, and universities.

EXPERTISE

SHEL is administered and managed by a Mechanical Engineer and supported by an Engineering Technician VI and an Electronic Technician I.

The Turner-Fairbank Highway Research Center (TFHRC) has more than 24 laboratories for research in the following areas: safety operations, including intelligent transportation systems; materials technology; pavements; structures; and human centered systems. The expertise of TFHRC scientists and engineers covers more than 20 transportation-related disciplines, these laboratories are a vital resource for advancing this body of knowledge created and nurtured by our researchers. The Federal Highway Administration's Research, Development, and Technology Service Business Unit operates and manages TFHRC to conduct innovative research to provide solutions to transportation problems both nationwide and internationally. TFHRC is located in McLean, Virginia. Information on TFHRC is available on the Web at ***www.tfhrc.gov****.*

FHWA-RD-01-104

This RD&T fact sheet provides concise information about a TFHRC facility.