City of Los Angeles
Department of General Services
Standards Division

“Setting the Standards for Excellence in Materials Testing”

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STANDARDS DIVISION
MISSION STATEMENT

To provide all City agencies a complete range of materials testing services in the fields of design, construction and environmental protection in the most cost effective and timely manner with motivated, competent and experienced professional staff using state-of-the-art procedures and equipment.

ORGANIZATIONAL CHART
STANDARDS DIVISION
CLIENT LIST

Bureau of Contract Administration
Bureau of Engineering
Bureau of Sanitation
Bureau of Street Lighting
Bureau of Street Services
City of Glendale
Community Redevelopment Agency
Convention Center & Exhibition Center Authority
Department of Water & Power
Fire Department
General Services Department
Los Angeles World Airports
Port of Los Angeles (Harbor)
Private Companies (doing business with Los Angeles)
Recreation & Parks Department
Transportation Department
MATERIALS TESTING SERVICES

Standards Division is the largest most comprehensive licensed materials testing laboratory for the City of Los Angeles mandated by Admin. Code Title 7, Article 22.530 and 22.531 to provide unbiased quality control and acceptance testing for all City Departments in the major fields of Design, Construction and Environmental Control. The services provided by the division include the following:

♦ Monitoring the quality of construction materials and construction methods employed
♦ Determining the extent and severity of contamination in soil, ground water, industrial waste, sewers, and storm drains
♦ Assisting in writing and modifying specifications
♦ Determining and verifying the adequacy of the parameters used in the design of projects
♦ Initiating programs to find efficient and economical ways to serve the public

Tests are performed in strict compliance with ASTM, ACI, AASHTO, EPA, Green Book, California Test Methods, or other relevant procedures and specifications as required by the individual project. The Standards Division is subject to federal, state, and local certification and licensing requirements.
I.A.T. UNIT

INDEPENDENT ASSURANCE TESTING (I.A.T.) provides independent evaluation of material sampling and testing methods to assure compliance with federal quality requirements.

Concrete slump test performed by a Standards Technician while being witnessed by an I.A.T. officer.

Certification exam being given to employees to ensure a high level of competence with the testing procedures respective to the labs which they are assigned and to meet Federal and State requirements for compliance testing.
ENVIRO-CHEM SECTION

The Environmental-Chemistry Section (Enviro-Chem) consists of three fully equipped environmental and chemical testing laboratories certified by the State of California. These labs perform analysis on materials including wastewater, industrial waste, and solids using EPA approved methods. The labs provide testing to satisfy the requirements of local, state, and federal programs such as Title 22, UST, and NPDES.

**Chemical Laboratory** analyzes for traditional wastewater constituents such as total and fecal coliform, BOD, cyanide, phenols, nitrogen compounds, and anions (chloride, fluoride, etc.) The solid materials tested include cement, soil, aggregate, concrete, lime slurry.

**Inorganic Laboratory** analyzes samples for over twenty-five metals including lead, selenium, mercury, and arsenic.

**Organic Laboratory** tests for more than 150 constituents including benzene, toluene, chloroform, and DDT. Analyses performed include VOC, PCB, BNA and other semi-volatile organic compounds, pesticides, as well as gasoline and diesel range petroleum hydrocarbons.

**Support Units**

**Management Information Systems** maintains and enhances information systems and lab automation for the division.

**Administrative Unit** supports Standards operational sections in personnel management, cost accounting, billing and time keeping functions.
Chemist loading soil samples into headspace autosampler for evaluating Volatile Organic Compounds using GC/MS.

Chemist determining anions in samples using Ion Chromatograph

Evaluating Inorganic Compounds on ICP-AES

Calibrating carbon monoxide, nitrogen dioxide and flammable gas detection meters at various Fleet Services fueling locations
GEOTECHNICAL SECTION

The Geotechnical Section consists of three areas that provide soil testing services as well as earthwork construction monitoring.

**COMPACCTION LABORATORY** tests soils for relative compaction. Certified personnel conduct field in-place density tests using both the nuclear gauge and sand cone methods. Soil is tested for lab maximum density and optimum moisture content, which in turn are used to compare with field density and moisture content to determine relative compaction and optimum moisture content.

![Nuclear gauge testing for soils compaction by a Materials Testing Technician.](image)

Compacting Sample for ASTM D1577 Curve (Lab. Max)
**FOUNDATION & CLASSIFICATION LABORATORY** performs soil tests including particle size, Atterberg limits, direct shear, consolidation, triaxial, California Bearing Ratio, R-Value, and Permeability. These tests determine the soil parameters used in formulation design and construction recommendations.
**SPECIAL PROJECTS UNIT** inspects and monitors earthwork construction activities such as excavations and backfill compaction. This group performs fill certifications to be approved by Building and Safety Department, coordinates field and lab soil testing during construction, and records field observations. Seismic testing on unreinforced masonry buildings is also provided by this group.

Paving of Taxiway C shoulder area at Los Angeles International Airport

Construction of bridge over Sepulveda Boulevard for Taxiway C widening

Airport Drive Improvement Project at Ontario Airport
East Valley Solid Resources Management Complex in Sun Valley

Ontario Airport Parking Lot Expansion

Laurie Drive Landslide Slope Repair

Boyle Heights Youth Technology & Recreation Center

Astral Drive Washout Investigation

Taxiway N Easterly Extension project at Ontario International Airport.
CONSTRUCTION SECTION

The Construction Section consists of five units that provide testing services on construction materials and also drilling and coring services.

ROADS & HIGHWAYS GROUP consisting of Pavement Evaluation and Asphalt Laboratory provides complete services for road construction, reconstruction and maintenance. All phases from planning, evaluation, design, mix design, construction monitoring, and quality control are supported.

PAVEMENT EVALUATION provides Nondestructive Deflection Testing services for use in pavement structural evaluation and overlay design for flexible and rigid pavement. This lab also provides core sampling on pavement and wall structures.

Sensor array for a truck mounted Falling Weight Deflectometer (FWD) for evaluating pavement structural integrity non-destructively.

Ground Penetrating Radar mounted on the front of this truck can measure pavement and base layer thickness. FWD is mounted in rear of truck.
ASPHALT LABORATORY tests asphalt based paving materials and is AMRL accredited. Full support for paving projects from mix design verification to compaction testing by nuclear gauge. Testing is performed on Emulsion Aggregate Slurry, Asphalt Concrete, Rubberized Recycled Asphalt Concrete, Aggregate, Emulsion, Asphalt Cement, Mixture Additives, and Recycling Agents.

Asphalt concrete sample taken from the hot mat of a Street Services paving operation for testing.

Slurry sample taken from slurry seal operation for testing.

Indirect tensile strength test on a gyratory compacted asphalt concrete specimen using the Universal Testing Machine.
Superpave binder test on the Dynamic Shear Rheometer  

Superpave binder testing on Rotational Viscometers

Core sample being taken for the Pier 400 Project at the Harbor.  

Quality assurance testing with a nuclear gauge on asphalt concrete at Pier 400.

A residential street undergoing refurbishment by means of a recent advance in paving technology known as “Cold-In-Place Recycling – Foamed Enhanced Base Stabilization”.  

**PHYSICAL LABORATORY** performs compression strength tests on concrete and masonry products. Tensile strength tests are performed on steel products including reinforcing steel and prestressed cables. D-load tests are performed on both concrete and clay pipe used for sewer and storm drain construction. Sampling and testing is also conducted on PCC aggregate.

Concrete sampled from the middle third of the truck load used in the construction of a handicapped access ramp.

Various stages of Aggregate Sieve Analysis
SPECIAL MATERIALS LABORATORY tests miscellaneous construction materials including paint, rubber, plastic, coatings, high strength bolts, metals, floor finishing materials, and sewer system liners. Nondestructive testing such as ultrasonic testing is also available for welds and construction materials.
Some of the materials and tests performed using the Universal Testing Machine.

Controlled drop test of Refuse Container.

Spark testing of the top section of a large channel at Hyperion where there is live sewage flowing.
**SUBSURFACE INVESTIGATION (DRILLING) UNIT** provides subsurface investigation through drilling, logging, and sampling services. Full laboratory support is available for testing the soil samples for engineering properties and possible chemical contamination. Other services include well installation and
ROUTinely TESTed MATERIALs

Asphalt          Paints
AC Aggregates    Pavement
Asphalt Concrete PCC Aggregates
Base Materials   Pipe Products (Clay, Concrete, Plastic, Steel)
Cement           Plastics
Coatings         Reinforcing Steel (Rebar)
Concrete         Sewer lines & Coatings
Fireproof Materials Slurry Seal
Geotextiles      Soils
Masonry Products Steel Products, Steel Welds
Metals           Water (Ground, Sewer, Storm Drain)

STATE OF THE ART TECHNOLOGY

Falling Weight Deflectometer Superpave Level 1
GC/MS Mix Design
ICP-AES Binder Testing

NONDESTRUCTIVE TECHNOLOGY

Liquid Penetrant Testing Ultrasonic Testing
Magnetic Particle Testing Spark Testing
GLOSSARY

AASHTO – American Association of State Highway and Transportation Officials
ACI – American Concrete Institute
AMRL – AASHTO Materials Reference Laboratory
ASTM – American Society for Testing and Materials
BNA – Base-Neutral and Acid Extractables
BOD – Biological Oxygen Demand
CBR – California Bearing Ratio
DDT – Dichloro Diphenyl Trichlor
EPA – Environmental Protection Agency
GC/MS – Gas chromatograph with mass spectrometer detector
GREENBOOK – SSPWC: Standard Specifications for Public Works Construction
ICP-AES – Inductive Coupled Plasma Atomic Emission Spectrograph
I.A.T. – Independent Assurance Testing
NPDES – National Pollution Discharge Elimination System
PCB – Polychlorinated Biphenyls
PCC – Portland Concrete Cement
R-VALUE – Resistance parameter for pavement design
S-VALUE – Stability parameter from Hveem method
S.T.A.R. – Safety, Training, Accreditation, Research Section
UST – Underground Storage Tanks
VOC – Volatile Organic Compounds

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