



*Celebrating 101 Years*  
**An Independent Commercial Testing Laboratory, Established 1904**

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Offices Located in:

**Anaheim, California  
Los Angeles, California  
Banning, California**

**Shanghai, P. R. China  
British Virgin Islands  
Salem, Oregon**

*1904-2005*

**Enter**

## General Services

Tile and Stone  
Geotechnical  
Construction Materials  
Structural  
Curtain Wall

Chemical  
Calibration  
Field Services  
Environmental  
Metallurgy

## Contact Us

Los Angeles	213-749-3411
Anaheim	714-220-1945
Salem	503-371-9941
Shanghai	86-21-6122 6819

## Overview

Smith Emery Laboratories, Inc. is a subsidiary of Smith-Emery Company. We primarily do testing, and we operate on a non-union basis. Smith-Emery Laboratories is divided into five offices; Los Angeles, Anaheim, and Banning CA; Salem, OR; and now Shanghai China as SEL-BVI. Each office is involved in predominantly different areas of testing and inspection with some overlap.

Our **Los Angeles Branch** is the main office of Smith-Emery Laboratories and has the following departments/laboratories, each headed by an engineer with at least 10 years of experience:

- Construction Materials Laboratory
- Tile Laboratory
- Metallurgical Laboratory
- Structural Laboratory
- Geotechnical Laboratory
- Geoservices Department
- Curtain Wall Laboratory
- Field Services Department
- Chemical Laboratory
- Calibration Laboratory
- Quality Assurance Department

Our **Anaheim and Banning Branches** are involved primarily in Public Works related testing and inspection services. This includes field and laboratory testing of soil, aggregates, concrete, and asphalt for both State and Local projects.

Our Salem **Branch** is primarily involved in product testing and certification services, code consulting, and 3<sup>rd</sup> party QA services.

## Construction Materials Testing

Performs laboratory testing of concrete, shotcrete, gunite, rebar, spliced and coupled rebar, wire fabric, post tension strand, brick, concrete block, mortar, grout, roofing tile, building stone, slate, wire rope, epoxy, fireproofing, GFRC, plastic plumbing components, carbon fiber wrap, structural lumber, manhole covers and grates, and geogrid. We also provide field testing in many of these materials as well as forensic analysis services.

- Rico Lubas, Mechanical Engineer (Bio)
- Photos of Concrete Cyls, Masonry, ...testing
- Pages of tests capabilities from fee schedule w/o fees
- Links to AASHTO, ACI, APA, ACE, CMA, others...



## Tile and Stone Testing

Performs laboratory and field testing of ceramic tile, porcelain tile, slate, and stone products, as well as related adhesion and anchoring systems.

- Rafael Cruz, Electrical Engineer (Bio)
- Photos of stone, tile, marble ... testing
- Pages of tests capabilities from fee schedule w/o fees
- Links to CTI and others



## Metallurgical Testing and Consulting

Provides field and laboratory testing and analysis of metal components as well as forensic analysis of failed components. We also perform WPQR and WPS services.

- Praful Patel, Metallurgical Engineer (Bio)
- Photos of WHATEVER, ...testing
- Pages of tests capabilities from fee schedule w/o fees
- Links to ? others...



## Structural and Product Testing

Performs static and dynamic testing of structural systems and components such as diaphragms, shear walls, moment frames, modular house systems, anchorage systems, retaining systems, vaults, covers, etc. We also do commercial data acquisition of acceleration, vibration, displacement, pressure, temperature, and strain on various components, such as nose cones for guided missiles, cockpit assemblies, and composite satellite components.

Finally, we provide code consulting services to manufacturers of products wanting to bring their products to market.

- Andy Tan, Civil Engineer (Bio)
- Photos of various structural testing
- Pages of tests capabilities from fee schedule w/o fees
- Links to IAS, others...



## Geotechnical Testing and Engineering

Provides field and lab testing of soil and aggregates. We perform our own drilling operations, shallow and deep foundation investigation as well as material quality and conformance testing prior to and during construction.



## Curtain Wall Testing

Provides field and laboratory testing of curtain wall systems. In our 10 test chambers we can do full scale testing up to 10-stories in height.

- Dana Nelson, (Bio)
- Photos of Curtain Wall testing
- Pages of tests capabilities from fee schedule w/o fees
- Links to AAMA



## Field Testing and Inspection Services

Provides field testing and inspection services for various construction related products, product manufacturers, and projects. We also do invasive and non-invasive structural analysis of existing structures using various destructive and nondestructive techniques.

- Jimmy Ordonez, Civil Engineer (Bio)
- Photos of Field Jobs, ...testing
- Pages of tests capabilities from fee schedule w/o fees
- Links to ? others...



## Organic and Inorganic Chemistry

Our Chemical Lab, DBA Positive Laboratories, is a state certified environmental and water quality laboratory. We provide both organic and inorganic chemical analysis in our lab as well as site sampling and testing services.

- John Schmidt, (Bio)
- Guilda Neshved (Bio)

[Links to State certification boards](#)

[Link to Positive Lab Services](#)

- Photos of testing
- Pages of tests capabilities from fee schedule w/o fees
- ???, others...

## Calibration Services

Performs internal calibrations of our various measuring devices such as

linear measuring devices,  
force measuring devices,  
temperature measuring devices,  
mass measuring devices,  
pressure measuring devices,  
and multimeter measuring devices.

We also providing commercial calibration of hydraulic force application systems.

Pics of calibration equip,

## Environmental Consulting

Our Geoservices department provides geologic investigation and consulting services, and environmental engineering services such as phase I and II investigations and remediation consultation.

## Accredited Independent Quality Assurance

Provides 3<sup>rd</sup> Party Quality Assurance services for manufacturers of various products and components used in the construction field. We perform quality system reviews and plant operation analysis on a consulting basis, and perform required periodic auditing of manufacturers around the world as required by various certification bodies.

Len Cross  
John Latiolait  
Bill Tate

ASQ  
RAB

Photos of manufacturing

## Public Works Construction

Provides testing and inspection services relating to State, County and City infrastructure construction. This includes field and laboratory testing of soil, aggregates, concrete, and asphalt for State DOT, FAA, and Local projects.

Rob Greely, Bio

Greenbook, CalTrans,

Pics of airport construction, roadway, bridge, etc.

Smith-Emery Laboratories (Shanghai)

史密斯艾莫雷检测咨询（上海）有限公司

Source Inspection, Observation, Project Expiditing, Structural Testing,.

China, Korea, Japan, Thailand, Vietnam, Mylasia, Australia, New Zealand.

Europe, Middle East,

Etc.

## Laboratory Accreditations and Certifications

DSA and OSHPD

AASHTO (CCRL and AMRL)

IAS – Laboratory ISO/IEC 17025

IAS – 3<sup>rd</sup> Party QC ISO/IEC 17020

Army Corps of Engineers

CSD

ICC-ES,

MTA,

ANSI,

APLAC,

SEOSC,

ACI,

NCMA,

CMACN

City of Los Angeles

CalTrans

Bechtel ASL

AAMA

ANSI/ASME NQA-1

## American Architectural Manufacturers Association

Army Corps of Engineers

AAMA

[Link to AAMA](#)

We are certified by the American Architectural Manufacturers Association under ISO/IEC 17025, the international standard for the *General Requirements for the Competence of Testing and Calibration Laboratories*.

We are certified to perform testing to the following standards:

- ASTM E283: Standard Test Method for Determining the Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Difference Across the Specimen.
- ASTM E330: Standard Test Method for Structural Performance of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference.
- ASTM E331: Standard Test Method for Water Penetration of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference.
- ASTM E547: Standard Test Method for Water Penetration of Exterior Windows, Curtain Walls, and Doors by Cyclic Static Air Pressure Difference.
- ASTM E1105: Standard Test Method for Field Determination of Water Penetration of Installed Exterior Windows, Curtain Walls, and Doors by Uniform or Cyclic Static Air Pressure Difference.
- ASTM E1233: Standard Test Method for Structural Performance of Exterior Windows, Curtain Walls, and Doors by Cyclic Static Air Pressure Differential.
- AAMA 501.1: Standard Test Method for Exterior Windows, Curtain Walls, and Doors for Water Penetration Using Dynamic Pressure.
- AAMA 501.2: Field Check of Metal Storefronts, Curtain Walls, and Sloped Glazing Systems for Water Leakage.

## DSA and OSHPD Testing Services

We are certified by the Division of the State Architect under ASTM E329 and relevant Section of the California Building Code. Our Lab Certification Identification Number is 25.

We are certified to perform **testing** of the following materials;

[Link to DSA](#)

- Masonry: Portland Cement, Masonry Units, Aggregates, Mortar and Grout, Masonry Prisms, Masonry Cores, Masonry Shear.
- Concrete: Aggregates, Tensile Splitting, Concrete Cylinders, Concrete Cores, Composite Construction Cores, Shotcrete Cores, Lightweight Concrete Fill Cores, Mix Designs, Gypsum, Expansion Bolts and Epoxy Anchors in Concrete. \*We subcontract chemical analysis of cement. There are no DSA approved labs certified for this testing.
- Reinforcement: Reinforcing Bars, Prestressing Steel and Anchorage, Reinforcing Bar Couplers. \*We subcontract chemical analysis of reinforcing steel for weldability. There are no DSA approved labs certified for this testing.
- Structural/Light Metals: Structural Metals, Light Gage Metals, High Strength Bolts, End Weld Studs, Open Web Steel Joists, and Aluminum Alloys.
- Foundation: Fill Material and Soil Compaction, Soil Bank Stability.
- Roofing: Roofing Tiles.
- Other Capabilities: Proof Load, Tile, Window Wall, Fireproofing, Slip Resistance, Stone, Ceramics, Moment Frames, and Load Testing.

## DSA and OSHPD Inspection Services

We are certified to perform **inspection services** in the following areas:

- Masonry Units: Reinforced Masonry
- Wood: Light Gage Metal Plate Trusses
- \*We subcontract Glued Laminated Timber Fabrication, Timber Connector Installation, Hybrid Trusses Fabrication, and Wood I-Joists.
- Concrete: Batch Plant, Concrete and Reinforcement Placement, Prestressed Concrete, Shotcrete, Welding Reinforcing Bar, Expansion Bolt Tests and Anchor Installation, Epoxy Injection, Reinforced Gypsum Concrete.
- Structural/Light Metal: Shop Fabrication, High Strength Bolting Installation, Shear Stud Installation, Non-destructive Welding Inspection including; visual, magnetic particle, ultrasonic (ASTM E54 and ASNT), liquid penetrant, light gage metals, and aluminum alloys.
- \*We subcontract radiographic examination.
- NDT Personnel: We have on staff 2-ASNT Certified Level III and AWS/CWI, 24-Certified Level II and AWS/CWI, and 17-AWS/CWIs.
- Foundations: Soil Compaction, Piles, and Caissons.

# City of Los Angeles

We are certified by the City of Los Angeles Department of Building and Safety under Los Angeles Municipal Code Section 98.0503. Our Lab Certification Identification Number is 2122.

We are certified to perform testing on the following materials;

[Link to CLA DGS RD](#)

Soils,  
NDT,  
Fireproofing,  
Glazing,  
Concrete/Masonry/Grout Compression,  
Reinforcing Steel,  
Structural Steel,  
Slip Resistance,  
Stone,  
Tile,  
Ceramics,  
Curtain Walls,  
Industrial Storage Racks,  
Moment Frames,  
Load Testing, and  
Manholes.

# AASHTO

We are accredited by AASHTO under AASHTO R18. Our Lab Certification Identification Number is 280. We are accredited for testing of the following ASTM test methods:

## Aggregate:

C40	Standard Test Method for Organic Impurities in Fine Aggregates for Concrete	<a href="#">Link to AASHTO</a>
C117	Materials Finer than 75 $\mu$ (No. 200) Sieve by Washing	<a href="#">Link to CCRL</a>
C127	Specific Gravity and Absorption	<a href="#">Link to ARML</a>
C128	Specific Gravity and Absorption	
C136	Sieve Analysis	
C566	Standard Test Method for Total Evaporable Moisture Content of Aggregate by Drying	
C702	Standard Practice for Reducing Samples of Aggregate to Testing Size	
C1077	Standard Practice for Laboratories Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Laboratory Evaluation	

## Portland Cement Concrete:

C31	Standard Practice for Making and Curing Concrete Test Specimens in the Field	
C39	Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens	
C138	Standard Test Method for Density (Unit Weight), Yield, and Air Content (Gravimetric) of Concrete	
C143	Slump	
C172	Standard Practice for Sampling Freshly Mixed Concrete	
C173	Air Content (By Volume)	
C231	Air Content (By Pressure)	
C617	Standard Practice for Capping Cylindrical Concrete Specimens	
C1064	Temperature of Freshly Mixed Concrete	
C1077	Standard Practice for Laboratories Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Laboratory Evaluation	

## Soil:

D 421-02	Dry Preparation for Particle Size Distribution & Soil Constant
D 422-63	Particle Size Analysis
D 698-00	Compaction Characteristics by Standard Effort
D 854-02	Specific Gravity of Soils
D 1140-00	Materials Finer than 75 $\mu$ m (No.200) Sieve
D 1156-00	Density and Unit Weight by Sand Cone
D 1557-02	Compaction Characteristics by Modified Effort
D 1883-99	CA Bearing Ratio (CBR)
D 2166-00	Unconfined Compressive Strength
D 2216-98	Water Content
D 2217-85	Wet Preparation for Particle Size Analysis
D 2419-02	Sand Equivalent Value of Soil and Fine Aggregate
D2435-03	One-Dimensional Consolidation Properties
D 2487-00	Classification of Soils
D 2488-00	Description and Identification of Soils (Visual-Manual Procedure)
D 3080-03	Direct Shear Test in Consolidated Drained Conditions
D 4318-00	Liquid & Plastic Limit and Plasticity Index

## Asphalt Concrete:

D1560	Hveem Method
D1561	California Kneading Compactor
D6307	Asphalt Content of Hot Mix Asphalt (HMA) by the Ignition Method

## Metal:

E 18	Rockwell Hardness
M 111	Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products - Adhesion of Coating
M 270	Tension Test

# Army Corps of Engineers

We are accredited by the Department of the Army, Engineer Research and Development Center, Geotechnical and Earthquake Engineering Branch under Engineer Regulations 1110-1-8100 (Laboratory Investigations and Testing) and 1110-1-261 (Quality Assurance of Laboratory Testing Procedures). We are accredited for testing of the ASTM test methods:

## Aggregate:

[Link to ACE](#)

- C40 Standard Test Method for Organic Impurities in Fine Aggregates for Concrete
- C117 Materials Finer than 75 $\mu$  (No. 200) Sieve by Washing
- C127 Specific Gravity and Absorption
- C128 Specific Gravity and Absorption
- C136 Sieve Analysis
- C566 Standard Test Method for Total Evaporable Moisture Content of Aggregate by Drying
- C702 Standard Practice for Reducing Samples of Aggregate to Testing Size
- D2419 Standard Test Method for Sand Equivalent Value of Soils and Fine Aggregate

## Portland Cement Concrete:

- C31 Standard Practice for Making and Curing Concrete Test Specimens in the Field
- C39 Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens
- C138 Standard Test Method for Density (Unit Weight), Yield, and Air Content (Gravimetric) of Concrete
- C143 Slump
- C172 Standard Practice for Sampling Freshly Mixed Concrete
- C173 Air Content (By Volume)
- C231 Air Content (By Pressure)
- C511 Standard Specification for Mixing Rooms, Moist Cabinets, Moist Rooms, and Water Storage Tanks Used in the Testing of Hydraulic Cements and Concretes
- C617 Standard Practice for Capping Cylindrical Concrete Specimens
- C1064 Temperature of Freshly Mixed Concrete
- C1077 Standard Practice for Laboratories Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Laboratory Evaluation

## Soil:

- D 421-02 Dry Preparation for Particle Size Distribution & Soil Constant
- D 422-63 Particle Size Analysis
- D 698-00 Compaction Characteristics by Standard Effort
- D 854-02 Specific Gravity of Soils
- D 1140-00 Materials Finer than 75 $\mu$ m (No.200) Sieve
- D 1156-00 Density and Unit Weight by Sand Cone
- D 1557-02 Compaction Characteristics by Modified Effort
- D 1883-99 CA Bearing Ratio (CBR)
- D 2166-00 Unconfined Compressive Strength
- D 2216-98 Water Content
- D2435-03 One-Dimensional Consolidation Properties
- D 2487-00 Classification of Soils
- D 2488-00 Description and Identification of Soils (Visual-Manual Procedure)
- D 3080-03 Direct Shear Test in Consolidated Drained Conditions
- D3740-01 Standard Practice for Minimum Requirements for Agencies Engaged in the Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction
- D 4318-00 Liquid & Plastic Limit and Plasticity Index
- D4546-03 Standard Test Methods for One-Dimensional Swell or Settlement Potential of Cohesive Soils

## IAS Accredited Laboratory

We are accredited by the International Accreditation Service (formerly ICBO-ES) under ISO/IEC 17025, the international standard for the *General Requirements for the Competence of Testing and Calibration Laboratories*. Our Lab Certification Identification Number is TL191. Our accreditation expires on April 1, 2006.

We are accredited to perform testing the following materials; Physical Testing of Concrete under ASTM C39, C138, C143, C511, C617, and ICC ES AC170. Soil Testing under UBC 18-1 and 18-2. Physical Testing under ASTM A370, A416, A615, E18, ICC ES AC133, and ICC ES AC129. Structural Testing of Panels under E72. Mortar and Admixtures under ICC ES AC87. Structural testing of Skylights, Windows, and Curtain Walls under ICC ES AC16 and ASTM E330. Structural Testing of Floor and Roof Diaphragms under ASTM E455.

- [Link to IAS](#)

## IAS Accredited Auditing

We are accredited by the International Accreditation Service under ISO/IEC 17020, the international standard for the *General Requirements for the Operation of Various Types of Bodies Performing Inspection*. Our Lab Certification Identification Number is AA554.

We are accredited to perform Quality Assurance services for; Pre-cast Structural Concrete, Pre-stressed Concrete, Steel Fabrication, and Spa Shells. Please note that this accreditation does not apply to Deputy Inspection work.

- [Link to IAS](#)

# Cal Trans

- Standard specs and test methods,
- Training, certification of technicians,
- Laboratory audits
- Pics of bridge and highway work. SF Golden Gate project.
- [Link to Cal Tans](#)

# ANSI ASME NQA-1

- The standard for Quality Assurance in the construction of Nuclear Energy facilities is governed by NQA-1.
- Pics of Hanford and other nuc facilities and projects.

## Third Party Audits

We are audited by the following agencies on a regular basis:

- **Cement and Concrete Reference Laboratory** for testing of Portland Cement Concrete and Aggregates for Concrete under ASTM C1077, as well as Reinforcing Steel under ASTM A615/615M and A706/706M, and for compliance with ASTM E329 and AASHTO R18.
- **American Materials Research Laboratory** for testing of Soil under ASTM D3740, Asphalt Concrete under ASTM D3666, and Metal under ASTM D3740, as well as compliance with ASTM E329 and AASHTO R18.
- **City of Los Angeles Department of Building and Safety** for testing under the relevant standards for the testing listed on our certificate, and for the requirements of the Los Angeles Municipal Code 98.0503.
- **City of San Diego Development Services Department, Inspection Services Division** for testing under the relevant standards for the testing listed on our certificate.
- **American Architectural Manufacturers Association** for testing under the relevant standards for the testing listed on our certificate and for compliance with ISO/IEC 17025, the international standard for the *General Requirements for the Competence of Testing and Calibration Laboratories*.
- **International Accreditation Service** for compliance with ISO/IEC 17025, the international standard for the *General Requirements for the Competence of Testing and Calibration Laboratories*.
- **International Accreditation Service** for compliance with ISO/IEC 17020, the international standard for the *General Requirements for the Operation of Various Types of Bodies Performing Inspection*.
- **Division of the State Architect** for testing under the relevant standards for the testing listed on our certificate, and for the requirements of the Part 1 and Part 2 of Title 24 of the California Building Code.
- **Metropolitan Transit Authority** for general laboratory quality control functions as well as specific testing methods on a job to job basis.
- **ANSI/ASME NQA-1** for compliance to quality control and management provisions of ASME NQA-1 requirements for laboratories performing testing for nuclear projects, and inclusion on Bechtel National's approved subcontractor list (ASL).
- **U.S Army Corps of Engineers** for compliance with Engineer Regulations 1110-1-8100 (Laboratory Investigations and Testing) and 1110-1-261 (Quality Assurance of Laboratory Testing Procedures).

# PROFICIENCY SAMPLE PROGRAM PARTICIPATION

We participate in the following reference sample programs:

**Cement and Concrete Reference Laboratory** for testing of freshly mixed Concrete:

- ASTM C173 Air Content (By Volume)
- ASTM C231 Air Content (By Pressure)
- ASTM C143 Slump
- ASTM C138 Unit Weight
- ASTM C192 Making and Curing Concrete Test Specimens
- ASTM C1064 Temperature of Freshly Mixed Concrete

**Cement and Concrete Reference Laboratory** for testing of hardened Concrete:

- ASTM C39 Compressive Strength of Molded Concrete Cylinders

**Cement and Concrete Reference Laboratory** for testing of Masonry:

- ASTM C140 Sampling and Testing Concrete Masonry Units

**American Materials Research Laboratory** for testing of Fine Aggregates:

- ASTM C117 Materials Finer than 75 $\mu$  (No. 200) Sieve by Washing
- ASTM C136 Sieve Analysis
- ASTM C128 Specific Gravity and Absorption
- ASTM C88 Sulfate Soundness
- ASTM D2419 Sand Equivalent

**American Materials Research Laboratory** for testing of Coarse Aggregates:

- ASTM C117 Materials Finer than 75 $\mu$  (No. 200) Sieve by Washing
- ASTM C136 Sieve Analysis
- ASTM D4791 Flat and Elongated Particles
- ASTM C127 Specific Gravity and Absorption
- ASTM C131 Los Angeles Abrasion
- ASTM C88 Sulfate Soundness

**American Materials Research Laboratory** for testing of Soil:

- ASTM D2844 Resistance (R) - Value
- ASTM D421 Sample Preparation
- ASTM D422 Particle Size Analysis
- ASTM D4318 Liquid Limit
- ASTM D4318 Plastic Limit
- ASTM D698 Moisture Density Relation (2.5kg rammer)
- ASTM D854 Specific Gravity

**American Materials Research Laboratory** for testing of Hot Mixed Asphalt Concrete:

- ASTM C136 Sieve Analysis of Aggregates
- CTM 382 Extraction by Ignition Oven
- CTM 105 Calculations Pertaining to Gradings and Specific Gravities of Aggregates
- CTM201 Sample Preparation
- CTM202 Sieve Analysis

**Asian Pacific Laboratory Accreditation Council** for Structural Steel Tension and Hardness Testing

- ASTM E18 Rockwell Hardness
- ASTM A6 Tensile Properties of Steel: Diameter, Gage Length, Yield by 0.2% offset, Tensile, elongation, Area Reduction

## List of Services

- Concrete
- Reinforcement
- Masonry
- Construction Materials
- Calibration
- Tile
- Plastic
- Metallurgical
- Curtain Wall
- Geotechnical Engineering
- Environmental Engineering
- Soil
- Aggregated
- Asphalt
- Organic Chemistry
- Inorganic Chemistry
- Field Testing, Inspection and Investigation Services

# Concrete

- **Cylinders, Beams & Cores**
- Compression Test, 6" x 12" cylinders, including hold, ASTM C 39, each
- Weight per cubic foot of lightweight concrete cylinders, each
- Flexure Test, 6" x 6" beams, ASTM C 78, each
- Splitting Tensile, 6" x 12" cylinders, ASTM C 496, each
- Modulus of Elasticity Test - Static, ASTM C 469, each
- Compression Test, 2" - 4" - 6" Cores, ASTM C 42, each
- In Laboratory Core Cutting, each
- Petrographic Examination
- **Shrinkage**
- Length Change (3 bars, 4 readings, up to 90 days), ASTM C 157 Modified
- **Mix Design**
- Mix Design, Determination of Proportions, each
- **Laboratory Trial Batch**
- Laboratory Trial Batch, (includes slump, % air, unit weight, compression and shrinkage; ASTM C 192, each
- **Gunit & Shotcrete**
- Compression, 2", 4", 6" Cores, ASTM C 42, each
- **Lightweight Roof Fill ASTM C 495**
- Compression Test, each
- Density, each

# Reinforcement

- **Reinforcing Steel ASTM A 615/706**
- Tensile Test, No. 11 Bar or Smaller, each
- Bend Test, No. 11 Bar or Smaller, each
- Tensile Test, No. 14 Bar, each
- Tensile Test, No. 18 Bar, each
- Dimensional Analysis, per hour
- Sampling and Tagging at Fabricators Plant (within 40-mile radius from Laboratory)
- **Welded Specimens**
- Tensile Test, Welded, No. 11 Bar or Smaller, each
- Tensile Test, Welded, No. 14 Bar, each
- Tensile Test, Welded, No. 18 Bar, each
- Nick Break, Welded Re-Bar, each
- Straightening Hoops
- **Coupled Reinforcement**
- Tensile Test, Mechanically Spliced Bar, No. 11 Bar or Smaller, each
- Tensile Test, Mechanically Spliced Bar, No. 14 Bar, each
- Tensile Test, Mechanically Spliced Bar, No. 18 Bar, each
- Type I Coupler Testing
- Type II Coupler Testing
- ACI 349 Testing
- Caltrans Slip Testing
- IAS AC 133 Testing
- **Post-Tensioning Strand**
- Tensile Test and Elongation in 24" for Prestress Strand, ASTM A 416, each
- Tensile Test and Elongation in 10" for Prestressing Wire, ASTM A 421, each
- Modulus of Elasticity (Prestress Strand), each

# Masonry

- **Brick ASTM C 67**
- Compressive Strength, each
- Modulus of Rupture (flexure), each
- Dimensions, overall, coring, shell and web thickness, per brick
- Coefficient of Friction (slip test), each
- Initial Rate of Absorption, each
- Absorption - 5 hour or 24 hour, each
- Boil, 1, 2 or 5 hour, each
- Efflorescence, each
- Cores, Compression, each
- Cores, Shear, 6" and 8" Diameter, 2 Faces, per core
- **Concrete Block ASTM C 140**
- Compression, each
- Moisture Content as Received, each
- Absorption, each
- Shrinkage, Modified British, ASTM C 426, each
- Compression, 4" - 6" - 8" Cores, each
- **Masonry Prisms ASTM E 447**
- Compression Test, Grouted Prisms, each
- Cutting Prisms, when requested
- **Mortar & Grout UBC St'd 24-22 & 24-28**
- Compression, 2" x 4" Masonry Mortar Cylinder, each
- Compression, 2" Grout Cubes, ASTM C 109, each
- Compression, 3" x 6" Masonry Grout, each
- **Unreinforced Masonry Building Tests**
- In-Place Shear (Push) Tests
- 15 Degree Core Shear Tests
- Wall Anchors
- Flat Jack Testing

# Construction Materials

- **Roofing Tile**
- Absorption, each
- Additional/Special Tests
- Breaking Strength per U.B.C., each
- **Building Stone**
- Compression Test, each
- Flex Strength, each
- Modulus/Rupture
- Specific Gravity
- Water Absorption
- **Slate**
- Modulus of Elasticity, each
- Modulus of Rupture, each
- Water Absorption, each
- Weathering, each
- **Wire Rope**
- Wire Rope 0 through 1" diameter, each
- Wire Rope 1 through 2" diameter, each
- Wire Rope over 2" diameter, each
- **Note:** Sockets furnished by client
- **Epoxy - Cores & Coring**
- Shear Test on Epoxied Cores, each
- Compression Test, Cylinders
- Compression Test, Cores
- **Manhole Cover and Tree Grate Tests, (L.A. City)**
- 1-3, each
- 4 or more, each
- **Salt Spray**
- 24 Hours, per panel
- **Fireproofing Tests**
- Oven Dry Density, per sample
- Adhesion/Cohesion Testing, per hour (4-hour minimum)
- **Mechanical Testing Services**
- Tensile Test -- No Strain Measurement, Yield by Halt of Dial, Up to 1,100,000 lb., each

# Calibration

- **Calibration of Skidmore-Wilhelm Device & Torque Wrench**
- Calibration of Skidmore-Wilhelm Device, in Lab
- Calibration of Torque Wrench, each bolt size (3 required)
- **Calibration of Hydraulic Jacks**
- Up to 50-tons
- 50 to 74-Tons
- 75-99-tons
- 100 to 199-tons
- 200-300-tons
- Custom Systems
- Tension Rams
- Compression Rams
- Skidmore-Wilhelm
- Torque Wrench
- Linear
- Mass
- Electrical
- V,A,R
- Pressure
- Temperature

## Tile and Stone

- **Ceramic Tile Institute Standard**
- C.T.I. Stain Resistance (8 required) Set, CTI T72
- Reflectance Test, each
- Shear Tests, each
- Mortar Skinning Test, each
- Mortar Initial Setting Time, each
- Mortar Drop-off Test, each
- Grout Skinning Test, each
- Grout Compression - 2" cubes, each
- Autoclave (3 required), each
- Water Immersion Processing for Shear Tests, each
- Oven Processing for Shear Tests, each
- Low Temperature Processing for Shear Tests, each
- **Test In Accordance with A.S.T.M.**
- Thickness, 5.50 each (ANSI requires 80), ASTM C499
- Facial Dim, 5.50 each (ANSI requires 80), ASTM C499
- Warpage, 7.00 each (80 required), ASTM C485
- Wedging, 6.50 each (80 required), ASTM C502
- Coefficient of Friction (3) per set, ASTM C1028
- Water Absorption, 35.00 each (5 required), ASTM C373
- Bond Strength, 47.00 each (shear test) (5 required), ASTM C482
- Breaking Strength, 20.00 each (10 required), ASTM C648
- Abrasive Wear Index, 95.00 each (4 required), ASTM C501
- Crazeing, 74.00 each (10 required), ASTM C424
- Thermal Shock, 73.00 each (3 required). ASTM C484
- Color Uniformity, ASTM C609
- Chemical Resistance, ASTM C650
- Freeze-Thaw Resistance (10) 15 cycles, ASTM C1026, per set
- Modulus of Rupture, 34.00 each (3 required), ASTM C133
- Moisture Expansion, 73.00 each (5 required), ASTM C370
- Floor Installation Performance Level, ASTM C627-76
- Impact, (15 required), ASTM C368 per set
- Mohs Hardness (5 required) per set
- Tensile Tests in Laboratory (5) each

## Plastic Pipe

- Weatherometer Test, each
- Plastic Tensile Tests, each
- Plastic Pipe Flexural Tests, each
- Plastic Pipe Load Tests, each
- Plastic Pipe Acetone Test, each
- Plastic Pipe Flattening Tests, each
- Plastic Pipe Heat Distortion, each
- Plastic Pipe Hydrostatic Burst
- Plastic Pipe Impact Tests
- Plastic Pipe Joint Tightness, each
- Plastic Pipe Load/Crush Test
- Plastic Pipe Miscellaneous Tests
- Plastic Pipe Stiffness, Deflection Load, Crush Resist, each
- Plastic Pipe Sustained Pressure
- Plastic Pipe Tensile Tests
- Plastic Pipe Water Resistance, each
- Plastic Pipe Water Absorption Test

# Plumbing

- Plumbing Area Impact Tests
- Plumbing Bond Strength Tests, set of 5
- Plumbing Cigarette Test, each
- Plumbing Chemical Resistance
- Plumbing Cleanability and Wear, each
- Plumbing Color Fastness
- Plumbing Cracking And Crazing, each
- Plumbing Fitting Dimensions, each
- Plumbing Pipe Dimensions, each
- Plumbing Drain Fitting Connections, each
- Plumbing Fire Tests, each
- Plumbing Barcol Hardness, each
- Plumbing Load Tests, each
- Plumbing Miscellaneous Tests
- Plumbing Point Impact Tests, each
- Plumbing Sidewall Load Tests
- Plumbing Stain Resistance, each
- Plumbing Subsurface Test, each
- Plumbing Surface Test, each
- Plumbing Temperature Resistance, each
- Plumbing Washability, each
- Plumbing Water Absorption, each
- Plumbing Water Resistance, each
- Plumbing Water Resistance Cycling Test
- Gel Coat Thickness, each

# Metallurgical

- Charpy Impact Test
- Galvanized Coating
- Hardness Tests Brinell, Rockwell (Standard or Superficial), excluding specimen preparation if required
- Heat Treatment to 1 hour
- Grain Size by comparison method, includes metallurgical mount, preparation, and evaluation, each
- Spectrographic Chemical Analysis – Ferrous Material (carbon steel, low alloy), each
- Wet Chemical Analysis From Filings – Ferrous Material (carbon, low alloy), each.....
- Microhardness Survey, (includes metallurgical mount & preparation), each
- Field Hardness Equipment, per day
- Metallographic Replication Kit, per day
- Special Preparation
- Scanning Electron Microscopy (SEM), and EDS, per Hour (min 1 hr)
- **Mechanical Testing**
- Bend Test – Base material
- Load Tests (Proof Load, Flexural, Stress-corrosion, etc.)
- Tensile Test -- Under 100,000 lb., excludes sample cutting and specimen machining, each
- Tensile Test – With Electronic Extensometer , excludes sample cutting and specimen preparation, each
- Tensile Test – Square or Round Tubes up to 1.75-in. OD
- **Weld Procedure Qualification and Welder Qualification**
- Welded Fabric Weld shear strength, each sample
- Guided Weld Bend Test, excluding specimen preparation, each
- Age Bend Specimens – 48 Hrs, up to 3 specimens...
- Weld-Fillet Weld Fracture Test In Sheet Steel & Evaluate, each
- Weld-Macro Etch - cut, polish, etch, and evaluate, each
- Weld-Radiography
- Weld Transverse Tensile Test
- Welded Rebar Transverse Tensile Test

## High Strength Bolts

- **High Strength Bolt, Nut, and Washer Testing**
- Wedge Tensile Test - A 490 or A 325 Bolts – Under 100, 000lbs, each
- Wedge Tensile Test - A 490 or A 325 100, 000 – 200, 000 lbs, each...
- Wedge Tensile Test - A 490 325 Bolts – over 200, 000 lbs, each
- Tensile Test – Anchor Bolts, up to 1-3/8-in diameter, tested with displacement transducers, each
- Tensile Test – Anchor Bolts, over 1-3/8-in diameter, tested with displacement transducers, each
- Tensile Test – Anchor Bolts, over 1-3/8-in diameter by machined tensile specimen, each
- Nut – Hardness and Proof Load test under 100,000 lbf, each
- Nut – Hardness and Proof Load test over 100,000 lbf, each
- Washer or Nut - Hardness, each
- Nut Cone Proof Load Test, each
- A325 or A490 – Bolt hardness only, each
- Bolt A325 or A490 – Wedge Tensile Under 100, 000 lbs, and Hardness, each
- Bolt A325 or A490 – Wedge Tensile Over 100, 000 lbs, and Hardness, each
- Bolt, Nut, and Washer – hardness, wedge tensile, and proof load under 100, 000 lbs.
- Bolt, Nut, and Washer – hardness, wedge tensile, and proof load over 100, 000 lbs.....

# Curtain Wall

- **Inspection and Testing**
- Special Curtain Wall Evaluation, per hour
- Curtain Wall Attachment, per hour
- Exterior Skin from Swing Stage (2 men), per hour
- Caulking, Sealants, Adhesives, per hour
- Coatings, Paint
- Chemical Analysis
- Materials Evaluation
- Glass, Granite, Metal Cladding, Caulking, Paint Coatings
- Adhesive Bond
- Field Water Test, AAMA 501,2, (2 men) per hour
- Static Water Infiltration, ASTM E 331/1105
- Static Air Infiltration, ASTM E 283/783
- Seismic Structural Loading
- Structural Performance ASTM E 330
- Concentrated Load Testing (window washer, etc.)
- Stress and Rupture - Stone and Granite
- Dynamic Water Infiltration
- Water Penetration By Cyclic Air Pressure, ASTM E 547
- AAMA Thermal Testing

# Soil

- Atterberg Limits, (LL, PI) ASTM D 4318, each
- California Bearing Ratio, ASTM D 1883, set
- California Impact, CAL 216, each
- Chuck Density, each
- Collapse Potential, each
- Consolidation Test,
- Corrosivity, each
- Direct Shear Test, ASTM D 3080:
- Consolidated, Drained 1 Point, each
- Consolidated, Undrained 1 Point, each
- Unconsolidated, Undrained, 1 Point, each
- Expansion Index, UBC-18-2, ASTM D 4829, each
- Material Finer - #200 Sieve, ASTM D 1140/C 117, each
- Moisture, ASTM D2216, each
- Moisture (microwave), ASTM D4643, each
- Moisture-Density Relations of Soils, ASTM D1557
- Moisture-Density Check Point, each
- Permeability, Constant Head, ASTM D 2434, CAL 220, each
- Permeability, Falling Head ASTM D 5084, CAL 220, each
- “R” (Resistance) Value, Lime Treated or Requiring Recombining, each
- “R” (Resistance) Value, Calif. 301, ASTM D 2844, each
- Relative Density (max/min) D 4254, each
- Sieve Analysis of Combined Fine and Coarse, ASTM D-422, each
- Sieve and Hydrometer Analysis, ASTM D 422, each
- Specific Gravity for Soils, ASTM D 854, each
- Triaxial Unconsolidated, Undrained, ASTM D 2850, each
- Unconfined Compression Test, ASTM D 2166, each
- **Peat Moss**
- Loss on Ignition, ASTM D 2974 each
- Bulk Specific Gravity, ASTM D 4531, each
- Classification, ASTM D 4427, each
- pH, ASTM D 2976, each
- Absorption, ASTM D 2980, each

# Aggregates

- Absorption, Coarse, ASTM C 127, each
- Fine, ASTM C 128, each
- Clay Lumps/Friable Particles, ASTM C 142, each
- Cleanness Value, Calif. 227, each
- Durability Index, Calif. 229, Coarse/Fine, each
- Hardness Test, ASTM D 1865, each
- Lightweight Aggregate, ASTM C 123, each
- Los Angeles Rattler, ASTM C 131, each
- Los Angeles Rattler, ASTM C 535, each
- Unconfined Compression Test of Intact Rock, ASTM D2938, including coring to 3" diameter, each
- Organic Impurities, ASTM D2974
- Percent Flat/Elongated CRD C 119, ASTM D 4791, each
- Plate Bearing Test, ASTM D 1195, D 1196
- Petrographic Analysis of Aggregate for Concrete, ASTM C295, each
- Potential Alkali-Silica Reactivity of Aggregate for Concrete, ASTM C 289, Chemical Method, each
- Potential Alkali Reactivity of Aggregate for Concrete, ASTM C 1260, Mortar-Bar Method, each
- Potential Alkali Reactivity of Carbonate Rocks for Concrete, ASTM C 586, Rock Cylinder Method, each
- Sand Equivalent (Average of 3) Calif. 217, ASTM D 2419, each
- Sieve Analysis, Fine or Coarse, ASTM C 136, each
- Sieve Analysis, Fine and Coarse Combined, ASTM C 136, each
- Sodium or Magnesium soundness, 5 cycles, ASTM C 88, each
- Specific Gravity, Bulk SSD, Coarse, ASTM C 127, each
- Fine, ASTM C 128, each
- Staining Materials, ASTM C 641, each
- Unit Weight, ASTM C 29, (No Air Void Determination) each
- Unit Weight and Air Void Determination – Coarse Aggregates, ASTM C 29, each
- Unit Weight and Air Void Determination – Fine Aggregates, ASTM C 29, each

# Asphalt Concrete

- **Asphalt Concrete**
- Aggregate Correction for Ignition Oven, each
- Asphalt Core Density, each
- Centrifuge Kerosene Equivalent
- Complete Asphalt Concrete Mix Design, each
- Extraction, % Asphalt, ASTM D 2172 (Method A, B, or C) or Calif. 310. Excluding Ash Correction, each
- Extraction, % Asphalt, Ignition Oven, each
- Gradation on Extracted Sample (Including Wash) Calif. 202, each
- Maximum Density:
- Hveem, Lab-mixed - Calif. 366, each
- Hveem, Pre-mixed - Calif. 366, each
- Marshall, Lab-mixed - ASTM D 1559, each
- Marshall, Pre-mixed - ASTM D 1559, each
- Maximum Theoretical Unit Weight (Rice Gravity) ASTM 2041, each
- Moisture Vapor Susceptibility
- Penetration ASTM D 5, each
- Stability Tests:
- Hveem, Lab-mixed - Calif. 304, each
- Hveem, Pre-mixed - Calif. 304, each
- Marshall, Lab-mixed - ASTM D 1559, each
- Marshall, Pre -mixed - ASTM D 1559, each

# Organic Chemistry

- 1664 TRPH
- 413.1 Oil and Grease
- Oil & Grease, Floatable
- 418.1 TRPH
- 8015B TPH-Gasoline
- 8015B TPH-Diesel
- 8015B TPH-Gasoline and Diesel
- 8015B TPH-Hydrocarbon Range
- 602 or 8021B BTEX
- 8015B/8021B Combination-Gasoline
- 601 or 8021B Halogenated Organics
- 624 / 8260B Volatile Organics
- 524 Volatile Organics
- 625 or 8270C Extractable Organics
- 608 or 8082 PCBs Water or Soil
- 8082 PCBs Oil
- 608 or 8081A Chlorinated Pesticides
- 608 or 8082 / 8081A PCBs and Pesticides
- 8151A Chlorinated Herbicides
- Total Organic Carbon
- Total Organic Halides
- Flash Point
- Petroleum Analysis
- Identification/Interpretation of Spectrum
- 5035 or 5030, 8015B / 8260B Gasoline and Volatile Organics

# Inorganic Chemistry

- Alkalinity
- Ammonia, Direct
- Ammonia, Distillation
- Biochemical Oxygen Demand (BOD)
- Chemical Oxygen Demand (COD)
- Chloride, IC
- Chloride, Argentometric
- Chlorine
- Color
- Conductance
- Cyanide, Amenable \*(surcharge to Total cyanide)
- Cyanide, Free
- Cyanide, Total
- Cyanide, Reactive
- Fluoride, IC
- Hardness
- Mercaptans
- Nitrate, IC
- Nitrate, Colorimetric
- Nitrite
- Nitrogen, Kjeldahl
- Oxygen, Dissolved
- pH, Aqueous
- pH, Non-aqueous
- Phosphate, IC
- Phenols
- Solids, Total Dissolved
- Solids, Settleable
- Solids, Suspended
- Solids, Total
- Sulfide, Dissolved
- Sulfide, Reactive
- Sulfide, Total
- Sulfate, IC

# Metals

- **Metals Preparation**
- Digestion, Aqueous
- Digestion, Nonaqueous
- STLC Extraction
- TCLP Extraction
- Parr Oxygen Bomb
- TCLP Extraction ZHE, Per Sample
- **Metals Analysis**
- Individual Metals, per element
- Hexavalent Chromium
- Organic Lead
- Total Lead
- Lead in Paint
- Lead in Drinking Water
- **Metals Group Determinations**
- TTLC CAM Metals
- STLC CAM Metals
- RCRA Metals
- Priority Pollutant Metals

## Misc. Chemisrty

- Asbestos Analysis
- Other Analyses
- **FDA Testing of Tableware for Lead and Cadmium**
- FDA Testing, on six like pieces, per test
- **VOC (Volatile Organic Content) Testing**
- VOC, including water or exempt solvent AQMD reg)
- **Biological**
- Biotoxicity, aqueous
- Biotoxicity, nonaqueous
- Coliform, total
- Coliform, fecal
- **Mobile Laboratory Services**

## Field Service

- Technician with Pachometer, per hour
- Fireproofing Technician, per hour
- Firestopping Technician
- Batch Plant Technician
- Roofing Technician, per hour
- Membrane Technician, per hour
- Roofing/Waterproofing Technician, per hour
- Water Control Technician, per hour
- Field Coring Technician, per hour
- Special Testing/Inspection Services
- Structural Investigations of Existing Buildings
- **Equipment Charges**
- Skidmore, per day
- Torque Wrench, per day
- Multiplier, per day
- Pull Test Equipment (ram, pump, gage), per day
- Dynamometer, per day
- Schmidt Hammer, per day
- Windsor Probe, per location (3-shots)
- Rental Dipstick 2000, per week
- Flatness Testing, (under 10,000-square feet), per hour
- Flatness Testing, (over 10,000-square feet), per square foot
- Field Hardness Equipment, per day
- Metallographic Replication Kit, per day
- Dry Film Thickness Gage
- Misc. Equipment Charge
- Photostress, per day
- Vibration and Sound Monitoring, per day
- Concrete Core Cutting
- Materials Purchased
- Rental of Equipment
- Calcium Chloride Moisture Kit
- **Unreinforced Masonry Building Tests**
- In-Place Shear (Push) Tests

## Geotechnical, Geologic, and Environmental Service

- Geotechnical Field Exploration
- Final Report of Compacted Fill (submitted at end of project, if required)
  
- **Environmental Investigations and Reports**
- Site Assessments Phase I & II
- Groundwater Monitoring; Remediation Oversight; Risk Assessment; Site Characterization; Work Plan
- **Support Equipment Environmental**
- Air Monitoring Equipment, per day
- Magnetometer Equipment, per day
- Water Pump and Generator, per day
- Water Monitoring Equipment
- Health Safety Equipment:
- Level A, per Person
- Level B, per Person, per day, plus hourly rate
- Level C, per Person, per day, plus hourly rate
- Health and Safety Supplies, per day

## Field Coring Services

- **Concrete Coring Services**

- Technician and Equipment Concrete (4 and 8 hour minimum), per hour
- Individual Core Prices (all prices are for a four core minimum job):
- Slab on Grade Coring for 2", 3" and 4" Diameter (First 6" in depth), each
- Slab on Grade Coring for 6" and 8" Diameter (first 6" in depth), each
- Slab on Grade Concrete Core (price per inch after 6" in depth), each
- Wall Cores 2", 3" and 4" Diameter (first 6" in depth), each
- Wall Concrete Core (price per inch after 6" in depth), per inch
- (Wall core prices based on Contractor supplying access to area to be cored)
- Miscellaneous Concrete Coring Prices:
- Patching Slab on Grade Cored Holes with 2500 psi Concrete Patch, each
- Thickness Determination per ASTM C42, each
- Compression Strength Determination
- Pachometer to Locate Reinforcing Steel (coring jobs only, 2 hour minimum), per hour
- Travel Time, per hour
- Mileage, per mile

- **Asphalt Concrete Coring Services**

- Technician and Equipment Asphaltic Concrete Cores (4 and 8 hour minimum), per hour
- Alternate Individual Core Prices (all prices are for a four core minimum job):
- Asphaltic Concrete Cores 2", 3" and 4" Diameter (First 6" in depth), each
- Asphaltic Concrete Cores 6" and 8" Diameter (first 6" in depth), each
- Asphaltic Concrete Cores price per inch after 6" in depth), each
- Miscellaneous Asphaltic Coring Prices:
- Patching of Core Drilled Holes Using Cold Patch Material, each
- Thickness Determination per ASTM C42, each
- Specific Gravity for Determination of Percent Compaction per ASTM D 2726
- (Includes thickness determination), each
- Specific Gravity for Determination of Percent Compaction by paraffin, each

## Professional Staff

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