



ADVANCED STANDARD LABORATORY
FOR BUILDING MATERIAL

INTRODUCTION

ADVANCED SLBM Founded in Jeddah for Civil, Structural and Geotechnical testing. That has continued to expand each year in skills, size and number of projects tackled.

Engineer Khalid Musallam founded this lab for implementation of VISION 2030 of Crown prince His Excellency honourable Crown Prince Mr. Mohammad bin Salman.

ADVANCED SLBM Lab will provide cost-effective and fast services in providing test report with a multiskilled team of professionals under one roof, which will save the time and money of customers all over the kingdom of Saudi Arabia.

We believe in forming a close partnership with our clients: gaining a clear understanding of their requirements, then - utilising the synergy of appropriate engineering expertise, a skilled drawing/design team and admin staff - coming up with the right tailor-made solution for each specific job.



No two projects are ever assumed to be the same; we approach each challenge with an innovative outlook, never a stereotyped textbook solution.

As a result, an excellent ratio of repeat business from our clients bears testimony to the consistent quality of the services we provide.

- Site reconnaissance
- Subsurface exploration of soil and groundwater conditions
- Field soil sampling and testing
- Laboratory soil testing
- Development of design criteria for foundations and retaining walls

- Pavement design
- Earthen dam design
- Mechanically stabilized earth slope and wall design

Construction Observation and Testing

- Quality control observations during earthwork operations
- In situ soil moisture and density determination
- Soil compaction testing using ASTM, AASHTO, Saudi Aramco and Saudi Specs and British Standards
- Quality control observations for foundation excavations etc.

1) Wide-ranging Versatility

From initial geotechnical investigations to complete turnkey projects, **Advanced SLBM** offers a broad range of professional services.

2) Full In-house Capability

With m **Advanced SLBM** multi-skilled team, there's no need to subcontract and employ a variety of different professionals. Our unique combination of in-house engineering disciplines offers clients the cost- saving synergy of a one-stop service.

3) State-of-the-Art Technology

Advanced SLBM invests continually in the latest technology, both hardware and software in order to provide our clients with the best-possible service.

MANAGEMENT TEAM

ADVANCED SLBM, management team is well equipped in the quality management services to public and private sector in We place the highest value on teamwork and mutual respect among our employees and between ADVANCED SLBM and our clients.

Our success is the result of working diligently as a team to do each job right as well as maintaining a long-term perspective and integrity in the face of daily pressures. The value of our services is derived from our commitment to produce consistently high quality work within the constraints of the client's schedule and budget.



We constantly adapt our skills to meet individual client needs and the opportunities of the marketplace.

Above all, at Advanced SLBM we get the job done. We aspire to grow in stature and geographic reach in order to enhance our reputation as a stable, highly respected member of the professional services community in middle east.

“We make a difference!”

Regardless of the scale of the project, we apply our skills in providing the optimum solution for a job.

- We provide a unique blend of world-wide expertise along with a thorough understanding of the construction industry in Middle East.
- The diversity of our sectors allows us to provide a "one-stop service" for all our clients. We can provide master planning services, civil and structural engineering and design, architecture,
- Our staff is a dynamic blend of experience and innovation. Most of our key staff have either trained or worked overseas and are equipped to provide state-of-the-art solutions to our clients' requirements.
- They also ensure a professional and ethical framework so that a project is delivered on time and well within the prescribed budget.

Our team has leading project expertise in the construction and, highway engineering sector as well as geological and geotechnical studies. Our engineers and technicians combine their extensive education, field and laboratory experience to carry on material quality tests to give you accurate and independent information at every stage of your project. We have a flexible approach to teamwork and that will shape our way of working to meet clients' needs.

Health & Safety:

Safety is a top priority at Advance SLBM and we continue to develop new ways to sharpen our focus in this area. We promote occupational health and safety to our employees regardless of their duties or positions. We comply with the requirements of Health & Safety at work. We familiarize our stakeholders with the design and instructions of company equipment for safe operation and handling.

ASPHALT,SOIL CONCRETE and GEOTECHNICAL SERVICES

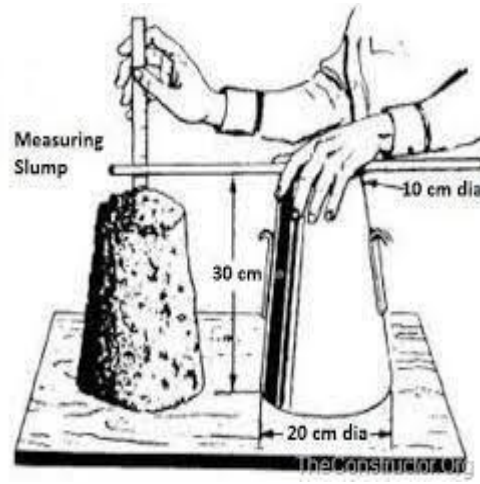
The Laboratory's principal areas of expertise are in the testing of soil, concrete, asphalt materials, storm water and related materials. We also perform foundation investigations, pile inspections and maintain a full-time environmental staff for environmental site assessments as well as asbestos, lead paint and mold assessments and inspections.

All of our laboratory technicians are exposed to extensive training, possess experience in our field and participate in continuing education and where necessary, professional licensing yearly.

We continue to accumulate invaluable knowledge and experience with area development; local county, state and federal requirements; coastal plain geologic formations and their effects on shallow and deep foundation system performance as well as industry standard construction techniques and cutting-edge material resources.

CONCRETE

Advanced SLBM. provides a wide range of Concrete Laboratory and Field-Testing Services



Tests Include		تارا تخا نم ضنت
Test Name	Method	را تخ لا ممسا
Sieve Analysis of Coarse and Fine Aggregate	ASTM C 136	م عانلاو نشخلا مارنلا ش لاوا خنم لال لحتللة سا فلاق طلا
Los Angeles Abrasion Test	ASTM C 131	مارنلا سولچن سول ل نلارا تخا
Specific Gravity & Absorption of Coarse Aggregate	ASTM C 127	نشخلامارنلا صا صتملاو عورنلا فقات لارا تخ لاة سا فلاق طلا
Specific Gravity & Absorption of fine Aggregate	ASTM C 128	معانلا مارنلا صا صتملاو عورنلا فقات لارا تخ لاة سا فلاق طلا
Flat and Elongated Particles in Coarse Aggregate	ASTM D 4791	نشخلامارنلا حطلفنللاو غا طنس لاة سا فلاق طلا
Bulk Density (Unit Weight) and Voids in Aggregate	ASTM C 29	جوج لاق جوج نرود دجت
Total Moisture Content of Aggregate by Drying	ASTM C 566	مارنلا طولة سا فلاق طلا
Clay Lumps and Friable Particles in Aggregate	ASTM C 142	مارنلا تنفتلا قله بس دوملاو بظال لارا تخ لاة سا فلاق طلا
Sand Equivalent Test	ASTM D 2419	جولا املا ص جفرا تخا
Lightweight Pieces in Aggregate	ASTM C 123	مارنلا نرولا فف تخ تام سچلارا تخ لاة سا فلاق طلا
Sampling Aggregates	ASTM D 75	مارنلا تانوع ذخ لاة سا فلاق طلا

Laboratory Services

- **Concrete Mix Design**
 - Establish Strength Curves
 - Collection and statistical analysis of available data
 - Batch proportioning – based on previous experience
 - Time of set
 - Drying shrinkage
- **Concrete Strength Testing**
 - Compressive
 - Flexural
 - Splitting Tensile
- **Aggregate Testing**
 - Mechanical Analysis and Quality Testing
 - Specific Gravity and Absorption
 - Soundness
 - Abrasion resistance
 - Chloride permeability
 - Sulphate resistance
 - Organic contents



- Tests of Masonry Units
- Tests of Masonry Mortar
- Tests of Brick
- Calibration/verification of test equipment
- Consultation and Troubleshooting

Field Services

- Jobsite Tests of Concrete
 - Slump, Air Content, Unit Weight, Temperature, Yield, Casting Strength Specimens
 - Floor flatness/floor levelness
 - Moisture vapor emission testing
 - Concrete coring
 - Compressive strength
 - Thickness measurement
 - For forensic/petrographic testing
- Consultation and Troubleshooting

ASPHALT

ADVANCED SLBM provides a wide range of Asphalt Laboratory and Field-Testing Services

Test Name	Method	را تـخ لا مهـا
Marshall Compaction & Stability of Asphalt	ASTM D 6977	تـلفـس لا رلـقـتـس اولـشـر امـكـمـد
Quantitative Extraction of Bitumen	ASTM D 2172	موت بلانم ة م جلـختـسا
Gradation on Asphalt aggregate after extraction	ASTM C 136	جلـختـس لا ادع لا تلفـس لا عـجـردت
Softening Point	ASTM D 36	قورـطـلا ةـطـقـن د دـجـتـل ة سـا قـلا ةـق طـلا
Specific Gravity of Bituminous Paving Mixture	ASTM D 2041	تـلفـس لا فـصـر طـلـخـل و ن لا زـوـلا
Penetration of Bituminous Materials	ASTM D 5	تـلفـس لا اـدوم قـا خـا
Flash and fire points	ASTM D 92	ضـن مـولا ةـطـقـن
Density & Thickness of Asphalt cores	ASTM D 2726	تـلفـس لا قـبـع ةـكـاـثـكـو مـجـح
Asphalt Sampling at Site	ASTM D 140	ة تـلفـولا دـولـل قـبـسـم تـابـع ذـخـا





Laboratory Services

- Laboratory Bituminous Mix Design Services
 - Superpave Mix Design
 - Marshall Mix Design
- Tests of Bituminous Mixture
 - Marshall Properties
 - Superpave Volumetric properties
 - Tensile Strength Ratio (TSR)/Lottman
 - Bituminous Extraction and Mechanical Analysis
- Tests of Bituminous Materials
 - Kinematic Viscosity of Cut Back Asphalt (outside services)
 - Saybolt Fural Viscosity and Sieve Test of Emulsified Asphalt
- Aggregate Testing
 - Mechanical Analysis & Lightweight Pieces
 - Plasticity Index, Clay Content, Sand Equivalent
 - Fractured Faces, Flakiness Index
 - Fine Aggregate Angularity
 - Specific Gravity and Absorption
 - Soundness
 - Abrasion Resistance
 - Calibration/Verification of Balances and Sieves
- Consultation and Troubleshooting

Tests Include		تارا تخانم ضنت
Test Name	Method	را تخانم
Sampling Freshly Mixed Concrete	ASTM C 172	ة طلا قنميرخل طلمم تان يرخ نأ
Making and Curing Concrete test Specimens in the field	ASTM C 31	ة ن امرخلان يرخ لاة ع لاجو عنص
Making and Curing Concrete Test Specimens in the Lab	ASTM C 192	نضلا ة ن امرخلان يرخ لاة ع لاجو عنص
Slump of Hydraulic-Cement Concrete	ASTM C 143	املا تنمير لاة قنميرخ قزل لرا ن خلا ة سا قلا قن طلا
Slump Flow Test of Self-Consolidating Concrete (SCC)	ASTM C 1611	ة طانمير لاة ع ن ن امرخل لاس ارا نأ
Temperature of Freshly Mixed Hydraulic-Cement Concrete	ASTM C 1064	ن امرخل لاة ع قرح قنمير د دحت
Compressive Strength of Cylindrical Concrete Specimens	ASTM C 39	(ن اوطنس) طانمير لاة ع قواقم
Compressive strength of Concrete cubes	BS: 1881: Part: 116	(ن ا عقمير) طانمير لاة ع قواقم
Concrete by the Pressure Method	ASTM C 231	ء او هلا ي و ن ميرا نأ
Density (Unit Weight) of Concrete	ASTM C 138	ة طلا قنميرخ لاة ع فنانا
Water Permeability Test	DIN 1048	قنميرخ لاة ع ن ا فنان ل م ا ع م د دحت رانأ

Rebound Number of Hardened Concrete	ASTM C 805	تد مېش قورطم قوق را تخا
Concrete Mix Design	ACI 211	قنبروخ لا قنطلام مېصرت



Field Services

Advanced SLBM has a staff of technicians holding certifications with Saudi Aramco Approved, Saudi General Quality approved and ACI etc.

- Production Quality Control/Quality Assurance Testing
- Pavement Coring Services for Density and Thickness
- Consultation and Troubleshooting

Construction Services – Soils

Advanced SLBM Provides a wide range of soil related construction testing services both in the laboratory and in the field.



Tests Include	تترا تخا ندمصتت	
Test Name	Method	راتخ لا مسا
Percentage of material passing sieve #200	ASTM C 117	مؤر نم فوعن لأ داولارا تخلا س را و لا نى 200
Modified proctor	ASTM D 1557	مجا 4.5 قوظم لدع ملبا لئوربرا تخ
Standard proctor	ASTM D 698	مجا 2.5 قوظم ا قلا لئوربرا تخا
Liquid limit, plastic limit, and plasticity index of soil	ASTM D 4318	ة لا موقد دجتو مزودلا دح را تخا و طويس لادح را تخا
California bearing ratio	ASTM D 1883	انروف لا لمجة س د دحت را تخا
Particle size analysis of soils	ASTM D 422	ة ال يبجلا جرتلارا تخا
Classification of soil	ASTM D 2487	ة لاع ن ف صيت
Specific gravity of soil using pycnometer	ASTM D 854	ييونك لازاهج مادختسا ة لل ون لا انزولاد دحت را تخا
Determination of moisture content of soils	ASTM D 2216	ة لاة طو ة س د دحت را تخا
Consolidation test of soil	ASTM D 2435	ة لاة جاسن لاة جت را تخا
Permeability of soil	ASTM D 5084	ة لاة ذافن لماج د دحت را تخا
Point load strength index of rock	ASTM D 5731	فطن عل محبتلا طغض را تخا
Rock quality designation (RQD)	ASTM D 6032	رخصلا قنوج بعت را تخا
Shear strength test	ASTM D 3080	صقلا ة لا قموقمر را تخا
Determination of physical properties of rock	ISRM 1972	روخصلا ة نيا فل صا و خ لاد دحت
Swelling and collapse test	ASTM D 4546	ة لاة خافقن و ة را هنا را تخا



- Atterberg Limits
- Mechanical Analysis, Hydrometer Analysis
- Organic Content
- Coefficient of Permeability
- Moisture-Density Relations of Soils
- Max-Min Relative Density of Cohesion less Soil
- Consultation and Troubleshooting

Field Services

- Excavation Observations
- Compaction Control

- Field Density Tests, Nuclear, Sand Cone,
- Proof Rolling Observation
- Moisture Content Testing
- Caisson Observations
- Pile Driving Observations
- Geomembrane or Clay Liner Construction Observations

Laboratory Services

- Moisture Content and Density

Geotechnical Field Services

Geotechnical Laboratory Services

Advanced SLBM maintains modern equipment to perform the full range of laboratory tests required for construction materials and geotechnical services. We conduct laboratory testing to evaluate soil classification, shear strength, compaction, consolidation, swell potential and permeability. Our tests are conducted in accordance with ASTM, Saudi Aramco and AASHTO standards.

Drilling Equipment

One Mobile B-47 HD truck-mounted drill rig (Grand Forks)

Two Mobile B-53 truck-mounted drill rigs (Fargo and Bismarck)

Track mounted all terrain rig with Mobile B53 Drill

- Standard Penetration Test (SPT) Borings
- Hollow Stem Auger Borings 3-1/4", 4-1/4", 6-1/4"
- Mud Rotary with Tri-cone Bit
- Install 1" to 4" Monitoring Wells
- Borehole Grouting
- Monitoring Well Abandonment
- Soil and Groundwater Sampling
- Field Resistivity Testing
- Field CBR's
- 2 inch by 5-foot Continuous Sampler

Testing Capabilities

- Moisture/ Density
- Atterberg Limits Coefficient of Permeability
- Falling Head
- Constant Head
- Flexible Wall
- Swell Potential
- Consolidation
- California Bearing Ratio (CBR)
- Direct Shear

- o Triaxial Compression
- Shrinkage Limit
- o Specific Gravity
- o Mechanical Analysis
- o Hydrometer Analysis
- o Organic Content



Tests Include		تلا تخوا زمضتت
Test Name	Method	را تخوا لا مسا
Standard Penetration Test (SPT)	ASTM D 1586	اقلا قا خلا را تخوا
Plate Bearing Test	ASTM 1195	ة للل محتلا صرحف
Field Density Test (FDT)	ASTM D 1556	رلا طورخملا ق ط ة لل عقوملا نفاك لا يعترا تخوا
Asphalt Pavement Coring	ASTM D 5361	لغسلا بلاقلا رفح قزيع
Concrete Core Drilling	ASTM C 42	اسرخللا بلاقلا رفح قزيع