وزارة التخطيط
الهيأة العراقية للاعتماد
IQAS

# شـــهـادة اعتـــمـاد

رقم TL 077

يقر نظام الاعتماد العراقي بأن:

## مختبر المكتب الاستشاري الهندسي/ كلية الهندسة الجامعة المستنصرية

العراق- بغداد- باب المعظم

تم اعتماده وفقا لمتطلبات المواصفة ISO/ IEC 17025:2017
(المتطلبات العامة لاهلية مختبرات الفحص والمعايرة)

في مجال:

- اختبارات المواد الانشائية
- اختبارات المواد المعدنية
- اختبارات المواد البلاستيكية
- اختبارات المواد الكيمياوية
- اختبارات الاجهزة والمعدات الكهربائية والالكترونية

شرط التوافق مع متطلبات المواصفة اعلاه ومتطلبات IQAS الخاصة بالاعتماد
مجال الاعتماد المرفق بالشهادة يعتبر جزءا لايتجزء منها
يمكن الحصول على الاصدار الاحدث من مجال الاعتماد من خلال الموقع الالكتروني
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يكون الاعتماد نافذا من ٢٠٢٦/٤/١٩ الى ٢٠٢٨/٤/١٨
تاريخ منح الاعتماد لاول مرة
٢٠٢٢/٥/٣١

أ.د. خالد بنال النجم
وزير التخطيط/ وكالة

محمد أيدن عمر
مدير عام الهيأة/ وكالة

Ministry of planning
Iraqi Organization for Accreditation
IQAS

# ACCREDITATION CERTIFICATE

**No. TL 077**

Iraqi Accreditation System Certify that:

## Engineering Consultancy Bureau Laboratory
## College of Engineering /Mustansiriyah University

**Iraq –Baghdad- Bab Al-Mudham**
**Is accredited according to the requirements of the standard ISO/IEC 17025:2017**
**(General Requirements for the Competence of Testing and Calibration Laboratories)**

**In the field of:**

- **Construction Materials Testing**
- **Metallurgical Materials Testing**
- **Polymer Materials Testing**
- **Chemical Materials Testing**
- **Electrical & Electronic Devices Testing**

**This accreditation is subject to with the above standard & IQAS requirements**
**The scope of accreditation is attached to the certificate & considered as part of it**
**The most recent issue of the accreditation scope is available on IQAS website**
https://iqas.mop.gov.iq

**Accreditation is valid From 19/4/2026 To 18/4/2028**
**Initial accreditation date**
**31/5/2022**

**Mohammed Ayden Omar**
**Director General of IQAS**

**Prof. Dr. Khalid Battal Al-Najim**
**Minister of Planning**

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| **Organization address:**<br>**Iraq –Baghdad-**<br>**Bab Al-Mudham** | **Organization name:**<br>**Engineering Consultancy Bureau**<br>**Laboratory/ College of Engineering**<br>**Mustansiriyah University** | **Accreditation no.:**<br>**TL 077** |
| **Signature:**<br>**Abdul Wahid M. Ibrahim**<br>**Deputy General Manager** | **Accreditation is valid:**<br>**From 19/4/2026 To 18/4/2028** | **Issue no.:**<br>**004** |

| Testing field | Type of test | Test object or product | Reference to standardized method |
|---|---|---|---|
| Mechanical | Determination of compressive strength | Concrete cubes | Iraqi guide no. 348:2017<br>BS EN 12390-3:2009 |
| Physical | Determination of density | Concrete cubes | Iraqi guide no. 247:1992 |
| Mechanical | Determination of modulus rapture and breaking strength | Pre – cast concrete tiles | IQS 1107:1992 |
| Mechanical | Determination of modulus rapture and breaking strength | Ceramic tiles | Iraqi technical requirement NO.8<br>EN ISO 10545 PART 4 |
| Mechanical | Determination of stability and flow | Asphalt mixtures | ASTM D6927-15 |
| Mechanical | Preparation of asphalt mixture specimens using marshal apparatuses | Asphalt mixtures | ASTM D6926-20 |
| Physical | Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort | Subbase | ASTM D1557-12 |
| Physical | Determination of sieve analysis | Subbase | ASTM D1241 |
| Physical | Determination of density | Subbase | ASTM D1556-15 |
| Physical and Mechanical | Determination of Atterberg limit (liquid, plastic limit and plasticity index) | Subbase | ASTM D 4318-17 |
| Physical | Determination of lab density | Soil materials | ASTM D7263 |
| Physical | Determination of field density | Soil materials | ASTM D 2937 – 00 |
| Physical and Mechanical | Determination limit (liquid , plastic limit and plasticity index) | Soil materials | ASTM D 4318 – 17 |
| Physical and Mechanical | Determination of elongation<br>Determination of tensile strength<br>Determination yield strength<br>Determination of dimensions | Carbon structural steel | ASTM A370<br>ASTM A36<br>ASTM A529 |
| Physical and Mechanical | Determination of elongation<br>Determination of tensile strength<br>Determination yield strength | Steel reinforcing bars | ASTM A370<br>ASTM A615M |

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| | **Determination bending** | | |
| | **Deformation requirements** | | |
| | **Determination of weight** | | |
| | **Determination of dimensions** | | |
| **Physical and Mechanical** | **Determination of tensile strength** | **Carbon-steel wire and welded wire reinforcement** | **ASTM A370**<br>**ASTM A1064** |
| | **Determination yield strength** | | |
| | **Determination bending** | | |
| | **Deformation requirements** | | |
| | **Determination of weight** | | |
| | **Determination of dimensions** | | |
| | **Spacing** | | |
| **Chemical** | **Zinc Coating Thickness** | **Zinc (hot-dip galvanized) coatings on iron and steel products** | **ASTM A90**<br>**ASTM A123** |
| **Mechanical and Physical Testing** | **Determination of thickness** | **Pipe, steel, black and hot dipped, zinc-coated, welded and seamless** | **ASTM A370**<br>**ASTM A53**<br>**ASTM A106** |
| | **Determination of elongation** | | |
| | **Determination of tensile strength** | | |
| | **Determination yield strength** | | |
| | **Determination of dimensions** | | |
| **Mechanical and Physical** | **Determination of elongation** | **Ductile iron pipes, fittings, accessories and their joints for water applications** | **ISO 2531** |
| | **Determination of tensile strength** | | |
| | **Determination yield strength** | | |
| | **Determination of dimensions** | | |
| | **Iron wall thickness** | | |
| | **Cement mortar lining thickness** | | |
| | **Surface condition** | | |
| | **Pipe coating** | | |
| **Mechanical and Physical Testing** | **Determination of form Supplied and Surface Quality** | **Unplasticized polyvinyl chloride (PVC-U) pipes** | **DIN 8061**<br>**DIN 8062** |
| | **Dimensions, Tolerances and out of Roundness** | | |
| | **Long-Term Hydrostatic Pressure** | | |
| | **Determination of Weight** | | |
| | **Impact Strength** | | |

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| | **Heat Reversion** | | |
| **Mechanical and Physical Testing** | **Determination of form Supplied and Surface Quality** | **Polypropylene (pp) pipes** | **DIN 8077**<br>**DIN 8078** |
| | **Dimensions, Tolerances and out of Roundness** | | |
| | **Long-Term Hydrostatic Pressure** | | |
| | **Determination of Weight** | | |
| | **Heat Reversion** | | |
| **Chemical and Physical** | **Determination of Compressive Strength** | **Cement** | **I.G.O 198**<br>**I.Q.S No. 5** |
| | **Determination of Setting Time** | | |
| | **Determination of $SiO_2$ contents** | | **I.G.O 472**<br>**I.Q.S No. 5** |
| | **Determination of CaO contents** | | |
| | **Determination of MgO contents** | | |
| | **Determination of $Fe_2O_3$ content** | | |
| | **Determination of $Al_2O_3$ content** | | |
| | **Determination of Loss of Ignition** | | |
| | **Determination of Insoluble Residue** | | |
| | **Determination $SO_3$ contents** | | |
| **Mechanical and Physical Testing** | **Determination of Compressive Strength**<br>**Determination of Absorption**<br>**Determination of Dimensions** | **Concrete interlocking paving units** | **ASTM C140**<br>**I.Q.S No. 1606** |
| **Physical Testing** | **Determination of compressive strength**<br>**Determination of modulus rapture and breaking strength**<br>**Determination of hardness**<br>**Determination of Setting time**<br>**Determination of Smoothness** | **Gypsum** | **I.Q.S NO.28:1988** |

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| **Mechanical and Physical Testing** | **Determination of Compressive Strength**<br>**Determination of Absorption**<br>**Determination of Dimensions**<br>**Determination of General Mechanical Appearance and Shape**<br>**Determination of Leveling of Surface**<br>**Determination of Dimensions**<br>**Determination of Water Absorption**<br>**Determination of Efflorescence** | **Clay building bricks** | **IQ.S 24**<br>**I.Q.S 25** |
| **Mechanical and Physical** | **Determination of Compressive Strength** | **Concrete cube** | **I.G.O 348** |
| | **Determination of Density** | | **I.G.O 274** |
| **Mechanical and Physical** | **Determination of compressive strength** | **Concrete core** | **Iraqi guide no.1:1987** |
| | **Determination of density** | | **Iraqi guide no. 247:1992** |
| **Mechanical and Physical** | **Determination of Dimensions** | **Concrete masonry units** | **I.Q.S 32**<br>**ASTM C140** |
| | **Determination of Absorption** | | |
| | **Determination of Compressive Strength** | | |
| **Mechanical and Physical** | **Determination of Flexural** | **Terrazzo tiles** | **I.Q.S 1042** |
| | **Determination of Dimensions** | | |
| | **Determination of Absorption** | | |
| | **Determination of Appearance** | | |
| | **Determination of Wear** | | |
| **Mechanical and Physical** | **Determination of flexural**<br>**Determination of dimensions**<br>**Determination of absorption**<br>**Determination face leveling** | **Precast concrete flags** | **I.Q.S 1107**<br>**I.G.O 995** |
| **Mechanical and Physical** | **Determination of bending** | **Concrete kurb units** | **ISO 1340**<br>**I.Q.S 5164** |
| | **Determination of dimensions** | | |

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| | **Determination of absorption** | | |
| | **Determination of texture** | | |
| **Mechanical and Physical** | **Determination of dimensions** | **Nonloadbearing concrete masonry units** | **I.Q.S 5190** |
| | **Determination of absorption** | | |
| | **Determination of compressive strength** | | |
| | **Determination of finish and appearance** | | |
| **Mechanical and Physical** | **Determination of dimensions and anical surface quality** | **Ceramic tiles** | **ISO 13006**<br>**ISO 10545-2** |
| | **Determination of Modulus of Rupture and Breaking Strength** | | |
| **Physical and Chemical** | **Determination of Grading (Sieve Analysis)** | **Coarse aggregate (gravel)** | **I.Q.S 45** |
| | **Determination of Finer Than 0.075mm** | | |
| | **Determination $SO_3$ contents** | | **I.G.O 500/3** |
| **Physical and Chemical** | **Determination of Grading (Sieve Analysis)** | **Fine aggregate (sand)** | **I.Q.S 45** |
| | **Determination of Finer Than 0.075mm** | | |
| | **Determination $SO_3$ contents** | | **I.G.O 500/3** |
| **Physical and Chemical** | **Standard test method for Marshall stability and flow and air void and bulk density** | **Asphalt concrete** | **ASTM D6927** |
| | **Quantitative Extraction of Asphalt Binder from Asphalt Mixtures** | | **ASTM D2172** |
| | **Determination of Compaction and Thickness** | | **ASTM D3549** |
| | **Standard test Method for Asphalt Content of Asphalt Mixture and Sieve Analysis** | | **ASTM D6307**<br>**ASTM D136** |
| **Physical and Mechanical** | **Determination of breaking strength** | **Bituminous sheet material** | **ASTM D5147** |

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| | **Determination of pliability** | | |
| | **Determination of thickness** | | |
| | **Determination of Loss on Heating** | | **ASTM D146** |
| **Physical and Mechanical** | **Cone Penetration**<br>**Flow**<br>**Bond** | **Sealants and fillers, hot and cold- applied for joints and cracks** | **ASTM D5329**<br>**I.Q.S 1110**<br>**I.Q.S 1136** |
| **Physical and Mechanical** | **Weight per Litter** | **Emulsified asphalt** | **ASTM D1227**<br>**I.Q.S 1173** |
| | **Residue by Evaporation** | | |
| | **Ash Content of Residue** | | |
| | **Water Content** | | |
| | **Flammability** | | |
| | **Heat Test** | | |
| | **Flexibility** | | |
| **Physical and Mechanical** | **Kinematic Viscosity** | **Cutback asphalt**<br>**prime coat**<br>**Tack coat** | **ASTM D2027**<br>**ASTMD2028**<br>**AASHTO M 81**<br>**AASHTO M 82** |
| | **Flash Point** | | |
| | **Residue from Distillation to 360°C** | | |
| | **Water %** | | |
| | **Residue Solubility in Trichloroethylene** | | |
| | **Tests on residue:**<br>**Viscosity at 60°C**<br>**Ductility at 25°C** | | |
| **Physical and Chemical Testing** | **Penetration Test** | **Asphalt used in roofing** | **ASTM D36**<br>**ASTM D92**<br>**ASTM D113**<br>**I.Q.S 1196**<br>**ASTM D5** |
| | **Ductility** | | |
| | **Flash Point** | | |
| | **Softening Point** | | |
| | **Solubility in Trichloroethylene** | **Sub base** | |
| **Physical and Chemical Testing** | **Determination of grading (sieve analysis)** | | **ASTM C136** |
| | **Determination of maximum dry density** | | **ASTM D1557** |
| | **Determination of California bearing ratio** | | **ASTM D1883** |

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| | **Determination of density and unit weight of soil in place** | | **ASTM D2167**<br>**ASTM D1556** |
| | **Testing determination of $so_3$ contents** | | **B.S 1377-3** |
| | **Determination of T.S.S contents** | | **Earth manual E8** |
| **Physical , and Mechanical** | **Determination of density of soil in place by the drive-cylinder method** | **Soil** | **ASTM D2937** |
| | **Determination of maximum dry density** | | **ASTM D698**<br>**ASTM D1557** |
| | **Determination of grading (sieve analysis)** | | **ASTM C136** |
| | **Determination of Finer Than 0.075mm** | | **ASTM D1140** |
| | **Determination of the liquid limit, plastic limit, and the plasticity index of soils** | | **ASTM D4318** |
| | **Determination of California Bearing Ratio** | | **ASTM D1883** |
| **Chemical** | **Determination of $SO_3$ contents** | | **B.S 1377-3** |
| **Physical and Chemical** | **Determination of TSS, CI, $SO_3$, and Organic content for soil PH, CI, $SO_4$, and TDS for water** | **Soil investigation** | **B.S 1377**<br>**Earth manual E8** |
| | **Determination of Atterberg Limits (liquid limit and plastics limit)** | | **ASTM D 4318** |
| | **Determination of Direct Shear** | | **ASTM D 3080** |
| | **Determination of Grain Size Analysis** | | **ASTM D 422** |
| | **Determination of Weight** | | **B.S 1377** |
| | **Neutral Water Content** | | **ASTM D 2216** |
| | **Field Standard Penetration Test** | | **ASTM D 1586** |
| | **Unconfined Compression Test** | | **ASTM D 2166** |
| | **Specific Gravity** | | **ASTM D 854** |
| | **Consolidation Test** | | **ASTM D 2435** |
| **Physical and** | **PH** | **Aluminum sulfate** | **HG 2225-2010** |

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| **Chemical** | **Melting point** | **powder** | **CDC 6 (960) DTZS (BS EN 878: 2016)** |
| | **Density** | | |
| | **Water solubility** | | |
| | **Appearance** | | |
| | **$AL_2O_3$** | | |
| | **$FE_2O_3$** | | |
| | **Water insoluble matter** | | |
| | **Pb** | | |
| | **Particle Size** | | |
| **Physical and Chemical** | **appearance** | **Chlorine powder** | **ISIRI 2361** |
| | **chlorine** | | |
| | **Density, g/ml** | | |
| | **$Na_2CiO_3$, %w/v** | | |
| | **$Na_2CiO_3$** | | |
| | **Fe** | | |
| | **Co** | | |
| | **Cu** | | |
| | **Ni** | | |
| | **Hg** | | |
| | **As** | | |
| | **Cd** | | |
| | **Cr** | | |
| | **Pb** | | |
| | **Sb** | | |
| | **Se** | | |
| **Physical** | **Determination of dimension** | **Pre – cast concrete tiles** | **IQS 1107:1992** |
| | **Determination of water absorption** | | |
| | **Determination of class** | | |
| **Physical and Chemical** | **Determination deviation from straightness** | **Ceramic tiles** | **Iraqi technical requirement NO.8**<br>**EN ISO 10545 PART 4** |
| | **Determination deviation from flatness in surface** | | |
| | **Determination of water absorption** | | |
| | **Determination chemical resistance** | | |

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| **Physical and Mechanical** | **Determination of Residual strength resulting from water damage** | **Asphalt mixtures** | **AASHTO T283** |
| **Physical** | **Roughness Flatness Level of asphalt layer** | **Asphalt** | **ASTM E1364**<br>**ASTM E1703**<br>**AASHTO R41** |
| **Physical and Chemical** | **Determination of Gypsum contents** | **Sub base** | **Earth manual E8** |
| | **Determination of clay contents** | | |
| | **Determination of organic contents** | | |
| **Physical and Mechanical** | **Determination of Elongation** | **Aluminum section** | **ASTM A370** |
| | **Determination of Tensile strength** | | **ASTM A36** |
| | **Determination Yield strength** | | **ASTM A529** |
| | **Determination of Dimensions** | | **EN 485-4** |
| **Physical and Mechanical** | **Determination of Dimensions** | **Anchor bolts, screw, wisher, Shear connector** | **ASTM A325**<br>**ASTM F1554**<br>**ISO 989** |
| | **Determination of Elongation** | | |
| | **Determination of Tensile strength** | | |
| | **Determination Yield strength** | | |
| | **Determination Bending** | | |
| | **Deformation Requirements** | | |
| | **Determination of Weight** | | |
| **Mechanical** | **Determination of pressure** | **Pipe, steel, black and hot dipped, zinc-coated, welded and seamless** | **ASTM A370**<br>**ASTM A53**<br>**ASTM A106**<br>**ASTM B280** |
| | **Hardness** | | |
| **Physical and Mechanical and chemical** | **Determination of dimension** | **Cooper pipes** | **ASTM B42** |
| | **Determination of pressure** | | |
| | **Determination Yield strength** | | |
| | **Determination Elongation** | | |
| | **Coper percentage** | | |
| **Physical and Mechanical** | **Determination Hardness** | **Ductile iron pipes, fittings, accessories and their joints for water applications** | **ISO 2531** |
| | **Determination Ovality** | | |
| | **Determination of Pressure** | | |
| **Mechanical** | **Strength at yield** | **Unplasticized polyvinyl** | **DIN 8061** |

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| and Chemical | Elongation at yield<br>Resistance to dichloromethane<br>Determination of pressure | chloride (PVC-U) pipes | DIN 8062 |
| Mechanical | Impact Strength<br>Strength at yield<br>Elongation at yield | Polypropylene (PPR) Pipes | DIN 8077<br>DIN 8078 |
| Physical and Mechanical | Dimensions<br>Hydrostatic pressure<br>Thickness<br>Tensile strength<br>Impact test<br>Stiffness | GRP Glass Reinforced Polyester Pipes | ISO23856/2021 |
| Chemical | Resistance to dichloromethane | | |
| Physical and Mechanical | Dimensions<br>weight<br>Hydrostatic Pressure<br>Thickness<br>Tensile strength<br>Impact<br>Hardness | Polyethylene pipes (PE Pipes) | DIN 8074 |
| Chemical | Resistance to dichloromethane | | |
| Physical and Mechanical | Determination of Stability<br>Determination of Softness | Cement | I.G.O 472<br>I.Q.S No. 5 |
| Chemical | Loss by burning<br>Percentage of SO3<br>Percentage of Cao<br>percentage of united water | Gypsum | I.Q.S NO.28:1988 |
| Physical and Chemical | Determination of clay content<br>Determination of light materials content | Coarse Aggregate (gravel) | I.Q.S 45 |
| | Determination of organic content | | I.G.O 500/3 |
| Physical and Chemical | Determination of clay content<br>Determination of light materials | Fine Aggregate (sand) | I.Q.S 45 |

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| | content | | |
| | Determination of organic content | | I.G.O 500/3 |
| Physical and Mechanical | Determination of elongation | Bituminous sheet material | ASTM D5147<br>IQS 4 |
| | Density | | |
| | Determination of cracks | | |
| Physical and Mechanical | Determination of breaking strength and elongation | Bitumen Felts | ASTM D5147<br>IQS 4 |
| | Density | | |
| | Determination of cracks | | |
| | Determination of pliability | | |
| | Determination of thickness | | |
| | Determination of Loss on Heating | | ASTM D146 |
| Physical | Effect of temperature | Sealants and Fillers, Hot and Cold- Applied for Joints and Cracks | I.Q.S 1136 |
| Physical and Mechanical | Elastic recovery | Polymer Asphalt | ASTM D113 |
| | G*/ Sin Δ original binder @ 76, kPa | | SORB \R9 |
| | G*/ Sin Δ by short term aging RTFO@ 76, kPa | | ASTM D6084 |
| Physical and Mechanical | Dimension | Manhole cover | BS EN 124<br>IQS 1490 |
| | Load bearing | | |
| | Group and classification | | |
| | Uses | | |
| Physical and Mechanical | Maximum load | Load test for concrete structure | ACI-318 |
| | Deflection | | |
| Physical and Mechanical | Maximum load | Pile Load test | ASTM D-1143<br>IBC 302 |
| | Deflection | | |
| Physical and Mechanical | Maximum load | Plate load test | ASTM D-1196 |
| | Deflection | | |
| Physical and Mechanical | Dimension | Sandwich panel | EN14509 |
| | Density of isolation materials | | |
| | compressive strength of isolation materials | | |

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| **Physical and Mechanical** | **Dimension** | **Foam Styropor** | **ASTM C272**<br>**ASTM C203**<br>**ASTM C303**<br>**ASTM D2126**<br>**ASTM D1621**<br>**EN 13501-1** |
| | **Density** | | |
| | **Water absorption** | | |
| | **Compressive resistance** | | |
| | **Flexural strength** | | |
| **Chemical** | **Quantity of Pb** | **Extractability of toxicity materials in water** | **I.Q.S 417** |
| | **Quantity of Cd** | | |
| | **Quantity of Hg** | | |
| | **Quantity of Sn** | | |
| | **Quantity of Ni** | | |
| | **Quantity of MN** | | |
| | **Quantity of Cr** | | |
| | **Quantity of Fe** | | |
| | **Quantity of Zn** | | |
| | **$Fe_2O_3$** | | |
| **Physical and Mechanical** | **Type and class** | **Adhesive ma Adhesive materials terials** | **EN:12004** |
| | **Extended Open Time** | | |
| | **Tensile strength** | | |
| | **Slip-Resistance** | | |
| **Physical and Mechanical** | **Dimension** | **Cement Board** | **ASTM C 1185**<br>**ASTM C 518**<br>**ASTM C 696**<br>**ASTM D 1037**<br>**EN 13501-1** |
| | **Density** | | |
| | **Appearance** | | |
| | **Water absorption** | | |
| | **Compressive resistance** | | |
| | **Determination of Humidified deflection** | | |
| | **Flexural strength** | | |
| | **Thermal Expansion** | | |
| **Physical and Mechanical** | **Dimension** | **Gypsum Board**<br>**Boardex panel**<br>**Frontek panel** | **IQS 1676**<br>**EN 520**<br>**EN 13501-1**<br>**EN ISO 10545-2**<br>**ASTM E136** |
| | **Density** | | |
| | **Appearance** | | |
| | **Deviation due to humidity** | | |
| | **Flexural strength** | | |

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| | استمارة<br>مجال الاعتماد<br>Scope of Accreditation form | نظام الاعتماد العراقي<br>IQAS |
| **Organization address:**<br>**Iraq –Baghdad-**<br>**Bab Al-Mudham** | **Organization name:**<br>**Engineering Consultancy Bureau**<br>**Laboratory/ College of Engineering**<br>**Mustansiriyah University** | **Accreditation no.:**<br>**TL 077** |
| **Signature:**<br>**Abdul Wahid M. Ibrahim**<br>**Deputy General Manager** | **Accreditation is valid:**<br>**From 19/4/2026 To 18/4/2028** | **Issue no.:**<br>**004** |

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| | **Compressive resistance** | | |
| | **Thermal Expansion** | | |
| **Physical and Mechanical** | **Dimension** | **Wool materials** | **IQS 1470** |
| | **Density** | | |
| | **Absorption** | | |
| | **Compressive resistance** | | |
| | **Thermal stability** | | |
| **Physical and Mechanical** | **Density**<br>**Flash point**<br>**Solubility in water**<br>**Tensile Strength**<br>**Flexural Strength**<br>**Physical state**<br>**Coat thickness**<br>**Solid content**<br>**Full curing** | **Epoxy materials** | **EN ISO 527**<br>**ASTM 638**<br>**ASTM 790**<br>**ASTM D 2240**<br>**ASTM C 307** |
| **Physical and Chemical** | **Density** | **Filter materials**<br>**Sand and gravel Filters** | **IQS 1555** |
| | **Grading limit** | | |
| | **$SO_3$ percentage** | | |
| | **Solubility in HCL** | | |
| | **organic content** | | |
| | **silica content** | | |
| | **sieve analysis** | | |
| **Physical, Mechanical and Chemical** | **Number of reinforcements** | **Concrete pipe** | **AASHTO T280-06**<br>**IQS 1432** |
| | **Dimension** | | |
| | **Spacing and Diameter of steel bar** | | |
| | **area of reinforcement** | | |
| | **Absorption** | | |
| | **Compressive strength** | | |
| | **cover of reinforcement** | | |
| | **Shape and defect point** | | |
| | **$SO_3$ content** | | |
| **Chemical** | **Carbon** | **Steel section (plate, pipe, shape) and steel** | **ASTM A36** |
| | **Manganese** | | |

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| | **Phosphorus**<br>**Sulfur**<br>**Silicon**<br>**Cooper** | **bars, Anchor bolt, shear connector, bolts, screw** | |
| **Physical and Mechanical** | **Dimension**<br>**Compressive strength**<br>**determination of cracks** | **Nondestructive test (ultrasonic and hammer)** | **ASTM C 597**<br>**ASTM C 805** |
| **Physical and Mechanical** | **Dimension**<br>**Tensile strength**<br>**Elongation at break**<br>**Linear dimensional change** | **Lamella sheet** | **ISO 11922-1**<br>**ASTM D938**<br>**ASTM D1004**<br>**ASTM D1204** |
| **Chemical** | **$SO_3$**<br>**Carbonate and bicarbonate**<br>**Chloride**<br>**Inorganic impurities**<br>**organic impurities**<br>**TDS**<br>**Hardness**<br>**PH** | **Water for contraction purpose** | **IQS 1703**<br>**IQS 2270** |
| **Chemical** | **TDS**<br>**TSS**<br>**PH**<br>**BOD**<br>**COD**<br>**Ammonia NH3**<br>**Nitrate NO2**<br>**Pats. Oil grense**<br>**Total bacteria removal**<br>**99.99% virus removal**<br>**Turbidity**<br>**Phenol** | **Wastewater from sewer system**<br>**Wastewater disposal from treatment plant** | **Environmental Limitation**<br>**IQS 25** |
| **Physical and Mechanical** | **Determination of Appearance**<br>**Determination of dimension**<br>**Determination of density** | **Natural stone**<br>**Granite, Marble, basalt** | **IQS 1837**<br>**IGO 65** |

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| | **Determination of modulus of rupture** | | |
| | **Determination of water absorption** | | |
| | **Determination of compressive strength** | | |
| | **Determination of wear resistance** | | |
| **Mechanical** | **Determination of bond strength of steel rebar** | **pull out test rebar in site** | **client's requirements** |
| **Physical and Mechanical** | **Appearance** | **Glass** | **ASTM C1048**<br>**DIN EN ISO 12543**<br>**BS-EN 12150**<br>**IQS 1608** |
| | **Determination of dimension** | | |
| | **Impact test** | | |
| | **Resistance to Fragmentation** | | |
| **Physical and Mechanical** | **Appearance** | **Exterior and interior Paints**<br>**Red oxide – Linseed oil Priming Paint**<br>**Priming Coat Zinc – Yellow Iron Oxide Ready Mixed Enamel, Alkyd, Gloss Air Drying for Exterior and Interior Surfaces**<br>**Hot –Applied Thermoplastic Road Traffic, Highway, White & Yellow Paint** | **I.Q.S 985**<br>**I.Q.S 871**<br>**I.Q.S 877**<br>**I.Q.S 960**<br>**I.Q.S 1744**<br>**I.Q.S. 1101** |
| | **Specific gravity** | | |
| | **Heat Stability** | | |
| | **Dilute in Water** | | |
| | **Drying Time** | | |
| | **Chemical resistance** | | |
| | **Wash resistance** | | |
| | **Color** | | |
| | **Shine** | | |
| | **Spray feature** | | |
| | **Contrast ratio of white** | | |
| | **Water resistance** | | |
| | **Glass ball** | | |
| | **Slip resistance** | | |
| | **Uses** | | |
| **Physical and Mechanical** | **Determination water content** | **Additive materials for concrete** | **ASTM C494/C 494** |
| | **Determination Time setting** | | |
| | **Determination Compressive strength** | | |
| | **Determination Flexural Strength** | | |
| | **Determination shrinkage Length change** | | |

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| **Signature:**<br>**Abdul Wahid M. Ibrahim**<br>**Deputy General Manager** | **Accreditation is valid:**<br>**From 19/4/2026 To 18/4/2028** | **Issue no.:**<br>**004** |

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| **Physical and Mechanical** | **Determination of Dimensions**<br>**Stability of dimension**<br>**Antibacterial resistance**<br>**Impact resistance**<br>**Isolation**<br>**Effect of change in Temperature**<br>**Effect of Humidity**<br>**Wear resistance** | **Acoustic ceilings**<br>**PVC floor and door**<br>**PVC marble**<br>**PVC wood**<br>**PVC chair** | **EN 13501-1**<br>**(ISO) 20743**<br>**IQS 1168**<br>**EN ISO 10582**<br>**BS 3042**<br>**EN 426** |
| **Physical and Mechanical** | **Insulation test**<br>**Generic general specification, Definition and requirements**<br>**Dimensions**<br>**Determination Ratio test TTR Omicron cpc 100**<br>**Determination of Finish and Appearance**<br>**Determination of DC voltage test**<br>**Determination of Max. Conductor Resistance**<br>**Determination of Elongation for Insulation, Sheath and Conductor**<br>**Tensile Strength for Insulation, Sheath and Conductor**<br>**Determination of Yield Strength for Insulation, Sheath and Conductor** | **Electrical**<br>**Power transformers**<br>**Circuit breakers**<br>**Wires**<br>**Cables**<br>**Coaxial**<br>**Conductors**<br>**Electric generators**<br>**Lights**<br>**Fans**<br>**Solar cells** | **Iraqi building code 402/1:2015**<br>**IEC 60076 /1-11**<br>**IEC 60502-1**<br>**IEC 60288** |