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CASTCO ENVIRONMENTAL PROTECTION TECHNOLOGY TESTING LIMITED

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Testing Laboratory TL-1059

has met the requirements of AC89, *IAS Accreditation Criteria for Testing Laboratories*, and has demonstrated compliance with ISO/IEC Standard 17025:2017, *General requirements for the competence of testing and calibration laboratories.* This organization is accredited to provide the services specified in the scope of accreditation.

Effective Date April 3, 2024

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CASTCO ENVIRONMENTAL PROTECTION TECHNOLOGY TESTING LIMITED

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Accredited to ISO/IEC 17025:2017 *Effective Date April 3, 2024*

Grout	
ASTM C403-90	Time of Setting of Concrete Mixtures by Penetration Resistance
ASTM C939-10	Flow of grout (Flow cone method)
HKHA Specification Library (2004 edition), section PIL 1.M410.4, PIL1.T320.4 and General Specification for Civil Engineering Works (2006), Section 7,8 &17	Determination of Bleeding and Free Expansion of Grout
Foundation	
ASTM D1143; BS8004	Static loading tests on piles
ASTM D1194-94	Plate Loading Test
ASTM D4945 2017	Dynamic Pile Test
ASTM D5731-95	Point load strength index of rock
ASTM D5882-07	Pile integrity test
ASTM D6760-16	Ultrasonic crosshole sonic logging test
ASTM D8169 -2018	Bi-Directional Static Axial Compressive Load Test of Piles
BS 1377: Part 9	Plate load test
HKCI: TM3	Ultrasonic echo sounder test (UEST)
In-house Method	Inclinometer monitoring
In-house Method	Piezometer monitoring
In-house Method	Tiltmeter monitoring
In-house Method	Vibration monitoring
In-house Method (KODEN)	Ultrasonic echo sounder test (UEST)

JGJ/T 403-2017	Bi-Directional Static Axial Compressive Load Test of Piles
Concrete	
BS 1881: Part 202	Surface hardness measurement of concrete
BS EN 12504-2	Surface hardness measurement of concrete
CASTCO-SOP-SM-33-2022	Concrete - Temperature Monitoring of Fresh Concrete
CS1: 2010 Section 2 Part 1	Slump test
CS1: 2010 Section 12 + Amd. 1/2013	Compressive strength of concrete cubes
CS1: 2010 Section 15 + Amd. 1/2013	Compressive strength of concrete cores
CS1: 2010 Section 18	Concrete - Depth of penetration of water under pressure
ISO 1920-3:2019	Testing of concrete — Part 3: Making and curing test specimens
ISO 1920-4:2020	Testing of concrete — Part 4: Strength of hardened concrete
Building Diagnostic	
AAMA 501.2-03	Quality Assurance and Diagnostic Water Leakage Field Check of Installed Storefronts, Curtain Walls, and Sloped Glazing Systems
ASTM D6132-04	Nondestructive Measurement of Dry Film Thickness of Applied Organic Coating Using an Ultrasonic Gage
BS1881:204: 1988, Clause 7.3	Covermeter Survey
BS EN ISO 2178	Measurement of Non-Magnetic Coating Thickness on Magnetic Substrates
BS EN ISO 2808:2007; BS3900-C5 2007 Method 7C	Coating – Determination of Dry Film Thickness (By Magnetic Induction Gauge)
CASTCO-SOP-SM-35-2022	Tiles - Pull Off Test of Tiles
CASTCO-SOP-SM-36-2021	Mortar - Pull Off Test of Mortar
CASTCO-SOP-SM-37-2022	Coating - Pull Off Test of Coating
CASTCO-SOP-SM-38-2022	Determination of Coating Thickness

The Hong Kong Concrete Institute TM2 (2009)	Surface penetration radar survey for determination of concrete cover and distribution of steel reinforcement
HKCI: TM1	Detection of building defects by Infra-red Thermography
HKHA MTS (2004/2006) Specification, (Part D) Clause 10	Infrared Thermography Survey
HKHA MTS (2008/2010) Package D Specification, Part D Clause 4.3.1 Method 1 and HKHA MTS (2012/2014) Package D Specification, Part D Clause 4.3.1 Method 1 / HKHA MTS (2008/2010) Maintenance & Building Materials Package D, Specification, Part D Clause 4.3.1 Method 2 and HKHA MTS (2012/2014) Maintenance & Building Materials Package D, Specification, Part D Clause 4.3.1 Method 2	Carbonation test
HKHA MTS (2017/2018) (2018/2020) Maintenance & Building Materials Specification Part D Cl. 10.6	Concrete (Diagnostic) - Spark Test
HKIS Prof Guide of Water Seepage	Water Seepage Investigation, Diagnosis, Testing & Reporting in Residential Building
JGJ/T110-2017	Pull-off test of tile and tile adhesive and render
Metallic materials	
BS 4449:1988	Bend test of carbon steel bars
BS 4449:1988	Rebend test of carbon steel bars
BS 4449:1988	Tensile test of carbon steel bars
BS 4449:2005 + A2:2009	Rebend test of steel reinforcing bars
BS 4449:2005 + A2:2009	Tensile test of steel reinforcing bars
CS2: 1995	Bend test of carbon steel bars
CS2: 1995	Rebend test of carbon steel bars

CS2: 1995	Tensile test of carbon steel bars
CS2: 2012	Rebend test of steel reinforcing bars
CS2: 2012	Tensile test of steel reinforcing bars
Structural fixing	
BS 5080-1; BS 5080-2	Structural fixings in concrete and masonry - method of test for tensile or shear loading
HKHA MTS (2012/2014) Package D Specification	Tensile Proof Load Test on Grouted Dowel Bars or Anchor Bolts
Welds (non-destructive)	
BS 3923-1:1986	Non-destructive testing of welded joints - ultrasonic testing of welded joints
BS 5289:1976	Non-destructive examination of fusion weld - visual examination
BS 6072-1981(1986)	Non-destructive examination of weld - magnetic particle examination of welds
BS EN 287-1:2011 Clause 6.4	Qualification test of welders Fusion welding Part 1
BS EN 571-1:1997 (Colour Contrast Method)	Non-destructive test of welds - liquid penetrant test
BS EN 970:1997	Non-destructive examination of fusion weld - visual examination
BS EN 1290:1998	Non-destructive examination of weld - magnetic particle examination of welds
BS EN 1714:1998	Non-destructive testing of welded joints - ultrasonic testing of welded joints
BS EN ISO 3452-1:2013 (Colour Contrast Method)	Non-destructive test of welds - liquid penetrant test
BS EN ISO 9606-1:2017 Clause 6.4	Qualification testing of welders. Fusion welding
BS EN ISO 9934-1:2016	Non-destructive examination of weld - magnetic particle examination of welds
BS EN ISO 15614-1:2017 Clause 7.3	Specification and qualification of welding procedures for metallic materials — Welding procedure test — Part 1: Arc and gas welding of steels and arc welding of nickel and nickel alloys
BS EN ISO 17637:2016	Non-destructive examination of fusion weld - visual examination
BS EN ISO 17638:2016	Non-destructive examination of weld - magnetic particle examination of welds
BS EN ISO 17640:2018	Non-destructive testing of welded joints - ultrasonic testing of welded joints
Soil	
GEOSPEC 3: 2001 Test 10.1	Dry density/moisture content relationship of soils containing particle which are not susceptible to crushing (using a 1000cc mould and 2.5 kg rammer)

GEOSPEC 3: 2001 Test 10.2	Dry density/moisture content relationship of soils containing particle which are susceptible to crushing (using a 1000cc mould and 2.5 kg rammer)
GEOSPEC 3: 2001 Test 10.7	Dry density/moisture content relationship of soils containing particle which are not susceptible to crushing (using a CBR mould and 4.5 kg rammer)
GEOSPEC 3: 2001 Test 10.8	Dry density/moisture content relationship of soils containing particle which are susceptible to crushing (using a CBR mould and 4.5 kg rammer)
GEOSPEC 3: 2001 Test 11.1	In-situ bulk density and in-situ dry density of soils by the sand replacement method suitable for fine- and medium-grained soils (with small pouring cylinder)
GEOSPEC 3: 2001 Test 11.2	In-situ bulk density and in-situ dry density of soils by the sand replacement method suitable for fine- and medium-grained soils (with large pouring cylinder)
Water	
GB/T 5750.4-2023 9.1 Electrode method	Standard examination methods for drinking water – Part 4: Organoleptic and physical indices
GB/T 5750.4-2023 11.1 Gravimetric method	Standard examination methods for drinking water – Part 4: Organoleptic and physical indices
GB/T 11901-1989	Water quality - Determination of suspended substance - Gravimetric method
GB/T 13195-1991	Water quality - Determination of water temperature - Thermometer or reversing thermometer method
HJ 506-2009	Water quality - Determination of dissolved oxygen - Electrochemical probe method
HJ 637-2018	Water Quality – Determination of Petroleum, Animal Fats and Vegetable Oils – Infrared Spectrophotometry
HJ 1147-2020	Water quality -Determination of pH-Electrode method
HJ 1182-2021	Water quality -Determination of colority - Dilution level method
Standard methods for the examination of water and wastewater of China (4th Edition, 2002) 3.1.6.2	Portable pH meter method
Standard methods for the examination of water and wastewater of China (4th Edition, 2002) 3.1.7.1	Total solid dried at 103-105°C
Noise	
Dispatch of the Chief Executive No.96/2020, Macao	Approved Standard on Acoustics

(Despacho do Chefe do Executivo n.º 96/2020, Macau)	
Law No.34/93/M, Macao (Decreto-Lei n.º 34/93/M, Macau)	Approved legal regime applicable to occupational noise Chapter 3, article 8 Chapter 4, article 12 Chapter 5, article 14 Annex 1, Annex 2 & Annex 3
Air	
CASTCO-SOP-EN-23-2022	Indoor Air Quality – On-Site Measurement of: Respirable Suspended Particulate - Light Scattering Laser Diode Method (In-house method)
CASTCO-SOP-EN-24-2022	Indoor Air Quality – On-Site Measurement of: Total Volatile Organic Compound -Photo-Ionization Sensor Method (In-house method)
GB/T 15435-1995	Ambient Air – Determination of Nitrogen Dioxide –Saltzman Method
GB/T 16157-1996	Determination of particulates and sampling methods of gaseous pollutants emitted from exhaust gas of stationary source
GB/T 18204.1-2013	Examination Methods for Public Places – Part 1: Physical Parameters – 3. Air Temperature
GB/T 18204.1-2013	Examination Methods for Public Places – Part 1: Physical Parameters – 4. Relative Humidity
GB/T 18204.1-2013	Examination Methods for Public Places – Part 1: Physical Parameters – 5. Interior Wind Velocity
GB/T 18204.2-2014	Examination Methods for Public Places – Part 2: Chemical Pollutants – 3. Carbon Monoxide
GB/T 18204.2-2014	Examination Methods for Public Places – Part 2: Chemical Pollutants – 4. Carbon Dioxide
GB/T 18204.2-2014	Examination Methods for Public Places – Part 2: Chemical Pollutants – 7. Formaldehyde - 7.2 Phenol Reagent Spectrophotometry
HJ 590-2010	Ambient Air – Determination of Ozone – Ultraviolet Photometric Method
HJ 618-2011	Determination of atmospheric articles PM_{10} and $PM_{2.5}$ in ambient air by gravimetric method
HJ 1212-2021	Measurement Methods for Determination of Radon in Environmental Air
HJ/T 45-1999	Stationary source emission - Determination of asphaltic smoke - Gravimetric method
Title 40 of the Code of Federal Regulations, Chapter 1 (Part 50), Appendix J	Testing of Respirable Suspended Particle