

Office of the Director (CRTS)
Khulna University of Engineering & Technology
 Pre-define Tests under CRTS according to 5th meeting of CRTS committee on 12.06.2008

CIVIL

SL No	Name of Test	Department	Remarks
	AGGREGATES	CE	
1.	Absorption and Specific Gravity	CE	
2.	Aggregate Crushing Value (ACV)	CE	
3.	Aggregate Impact Value (AIV)	CE	
4.	Angularity number (Including Sp. Gr.)	CE	
5.	Bulking of sand	CE	
6.	CBR of Base and Sub-base material	CE	
7.	CBR (Field), per point	CE	
8.	Clay lump & friable particles	CE	
9.	Coal & lignite	CE	
10.	Elongation Index(EI)	CE	
11.	Flakiness Index (FI)	CE	
12.	L.A. Abrasion (Small sized aggregates, ASTM C 131)	CE	
13.	LA. Abrasion (Large sized aggregates, ASTM C 535)	CE	
14.	Mica Content	CE	
15.	Organic impurities	CE	
16.	Effect of organic impurities	CE	
17.	PROCTOR TEST OF AGGREGATE (MDD)	CE	
18.	SALT CONTENT	CE	
19.	Sulphate content	CE	
20.	Sieve analysis (Small sized CA, 10kg)	CE	
21.	Sieve analysis (Large sized CA. 50kg)	CE	
22.	Sieve analysis (FA)	CE	
23.	Combined F.M.	CE	
24.	Wash sieve analysis	CE	
25.	Soundness with Na ₂ SO ₄	CE	
26.	Soundness with Mg ₂ SO ₄	CE	
27.	Ten percent fines (10% fines)	CE	
28.	Unit weight Of aggregate	CE	
29.	Void Ratio	CE	
	BRICKS (set of 5 nos)		
1.	Absorption	CE	
2.	Crushing strength	CE	
3.	Efflorescence	CE	
4.	Size & shape	CE	
5.	Unit weight	CE	
6.	Acid resistance (Vitriol)	CE	
	HOLLOW/SPECIAL BRICK BLOCKS (Set of 3 nos)		
1.	Comp. Strength of Hollow bricks, Pavers. Concrete blocks	CE	
2.	Compressive strength of Road Kerb Stone	CE	
3.	Absorption	CE	
4.	Unit weight	CE	
	BITUMEN		
1.	Bitumen content	CE	
2.	Coating and Stripping test	CE	
3.	Design of A.C mixes	CE	
4.	Distillation	CE	
5.	Ductility	CE	
6.	Flash & Fire points	CE	
7.	Float test	CE	
8.	Loss-on-heating	CE	

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9.	Softening point (R&B)	CE	
10.	Solubility	CE	
11.	SPECIFIC GRAVITY	CE	
12.	SPOT TEST	CE	
13.	Standard penetration	CE	
14.	Theoretical Max. Sp. Gr. A.C. mixes	CE	
15.	Thin Film OVEN	CE	
16.	Viscosity (S.F)	CE	
17.	Viscosity (Kinematics)	CE	
18.	Water Content	CE	
19.	Any test on residue from Loss-on-heating test	CE	
20.	Any test on residue from Thin Film Oven test	CE	
	CEMENT		
1.	Compressive strength, 3 & 7 days	CE	
2.	Compressive strength, 14 & 28 days	CE	
3.	Fineness	CE	
4.	Setting time	CE	
5.	Tensile Strength	CE	
6.	Soundness	CE	
	CEMENT CONCRETE		
1.	Concrete Cylinders (100mm X 200mm), for a set of 3 nos.	CE	
2.	Concrete cylinders (150 minX300 mm), for a sol of 3 nos.	CE	
3.	Concrete Spun, for a set of 3 nos.	CE	
4.	Concrete cylinders (casting & testing), for a set of 3 nos.	CE	
5.	Concrete beam in flexure, for a set of 3 nos.	CE	
6.	Concrete slab in flexure, for a set of 3 nos.	CE	
7.	Design of concrete mixes	CE	
8.	Cubes (<200 mm), for a set of 3 nos.	CE	
9.	Cubes (200mm -300mm), for a set of 3 nos.	CE	
10.	Cubes (>300 mm), per sample	CE	
11.	Core cutting & testing, for per core	CE	
12.	Impact hammer, FOR PER SPOT	CE	
13.	Split Cylinder	CE	
	GAUGES (Calibration)		
1.	Pressure gauge	CE	CE Will do pile load & plate load. All other will done be ME
2.	Hydraulic Jack without Pressure Gauge	CE	
3.	Hydraulic Jack with Pressure Gauge	CE	
4.	Deflection dial	CE	
5.	Proving ring	CE	
6.	Compression Testing Machine	CE	
7.	Water Meter	CE	
8.	Dynamometer	CE	
9.	BALance up to 20kg	CE	
	R. C. C PIPES (Max. length of pipe is 2' 6")		
1.	Pipes (dia above 300mm and up to 600mm)	CE	
2.	Pipes (dia above 600mm and up to 000mm)	CE	
3.	Pipes (dia above 000mm)	CE	
4.	In-situ pipe testing	CE	
5.	Steel / PVC Strainer pipe (Dimension. Slot Size. Strength. open Area)	CE	
6.	Tension (Deformed bar up to 25mm). for a set of 3 nos	CE	
7.	Tension (Plain bar upto 25mm). for a set of 3 nos	CE	
8.	Tension (Def. bar > 25mm), for a set of 3 nos	CE	
9.	Tension (Plain bar > 25mm), for a set of 3 nos	CE	
10.	Bend test (up to 25mm), for a set of 3 nos	CE	
11.	Rebind test (up to 25mm). for a set of 3 nos	CE	
12.	Bend test (above 25mm). for a set of 3 nos	CE	

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13.	Rebind test (above 25mm). for a set of 3 nos	CE	
14.	Shear Test, for a set of 3 nos	CE	
15.	Hardness (Rockwell), for a set of 3 nos	CE	
16.	Impact, for a set of 3 nos	CE	
17.	Stress-strain curves (Modulus of Elasticity), a set of 3 nos	CE	
18.	Deformation measurement (Elongation), for a set of 3 nos	CE	
19.	Spring test, for per specimen	CE	
20.	Tension (Eye-hooks, anchor bolt) for per specimen	CE	
21.	Weight for a set of (3 nos (Unit wt.)	CE	
22.	Carbon content	CE	
23.	H.T. Wire, for a set of 3 nos	CE	
24.	Strand, for a set of 3 nos	CE	
25.	Angle, for a set of 3 nos	CE	
	SOIL		
1.	CBR of soil (Three points)	CE	
2.	Field density	CE	
3.	Sp. Gr.	CE	
4.	Hydrometer, sieve analysis & Sp. Gr.	CE	
5.	Linear Shrinkage	CE	
6.	Shrinkage limit	CE	
7.	Liquid limit	CE	
8.	Plastic limit	CE	
9.	Standard proctor	CE	
10.	Modified Proctor	CE	
11.	Unit weight (wet & dry)	CE	
12.	Void ratio	CE	
13.	Moisture content	CE	
14.	Organic matter content	CE	
15.	Loss on ignition	CE	
16.	Sand equivalent test	CE	
17.	Permeability (cohesive)	CE	
18.	Permeability (Non-cohesive sample)	CE	
19.	One dimensional consolidation	CE	
20.	Consolidated drained test (Direct Shear Test)	CE	
21.	Consolidated drained triaxial test	CE	
22.	Consolidated quick test (Direct Shear Test)	CE	
23.	Con. Undrained triaxial test with pore pressure,	CE	
24.	Con. Undrained triaxial test without pore pressure, a set of 3	CE	
25.	Unconfined compression test	CE	
26.	Unconsolidated quick test (Direct shear Test)	CE	
27.	Uncon. undrained triaxial test without pore pressure	CE	
	GEOTEXTILES (for a set of 3 no. samples)		
1.	Apparent/Effective opening size (AOS/EOS) or pore size	CE	
2.	Burst Test Index	CE	
3.	Index Puncture Resistance of CBR Puncture	CE	
4.	Cone Penetration Test	CE	
5.	Grab Tensile Test	CE	
6.	Seam STRENGTH	CE	
7.	Thickness	CE	
8.	Trapezoidal Tearing Strength	CE	
9.	Unit weight/mass	CE	
10.	Ver, Permeability Under 2 KN/M2 and 200kN/m2	CE	
11.	Vertical permeability under 2kN/m2 Pressure	CE	
12.	Water Permeability by permeability	CE	
13.	Horizontal water permeability Test	CE	
14.	Strip/wide-width Tensile Test (Tensile elongation)	CE	

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MISCELLANEOUS			
1.	Rubber/Plastic/PVC materials	CE	
2.	Tension, for a set of 5 no samples	CE	
3.	Hardness, for 1 no sample	CE	
4.	flexural, for a set of 5 no samples	CE	
5.	compression set, for 1 no sample	CE	
6.	Compression stiffness, for 1 no sample	CE	
7.	Boiling of pipes before test, for 1 no sample	CE	
8.	Bolt, for a set of 3 no samples	CE	
9.	Compression of fiber glass, for 1 no sample	CE	
10.	Compression of timber	CE	
11.	Design of Deep tube well (Plus 10 sand sample)	CE	
12.	Flexure test of timber	CE	
13.	Load test on manhole covers,<18 inch dia	CE	
14.	Load test on manhole covers,>18 inch dia	CE	
15.	Tension test of fiber glass strainers/pipes	CE	
ELASTOMERIC BEARING			
1.	Vulcanised rubber and thermoplastic elastomers	CE	
	in tension and elongation at break, ASTM D412 (Set 3)	CE	
2.	Short duration compression test on plain and steel laminATED elastomeric bearings for bridges, ASTM D4014(set 1)	CE	
3.	Long duration compression test on plain and steel laminated elastomeric bearings for bridges. ASTM D4014(set 1)	CE	
4.	Determination nf shear modulus. ASTM D4014(sot 3)	CE	
5.	Test for compression set. ASTM D395(SET OF 4)	CE	
6.	Determination of durometer hardness. ASTM _D2_240(set of 1)	CE	
7.	Test for rubber durability deterioration in an air oven ASTM D573 (set of 1)	CE	
8.	Test for determining the adhesion on rigld substrates, ASTM D429 (set of 1)	CE	
9.	Dimensional test (external and internal) giving number & thickness of steel plates,elastomer parallelism, leastomer thickness of steel plates, elastomer parallelism,elastomer thickness, ASTM D4014 (SET 1).	CE	
WATER			
1.	Water (Drinking + As), Total Package	CE	
2.	Water (Drink +As+TC & FC), Total Package	CE	
Drinking Water			
1.	pH/Hydrogen Ion Density	CE	
2.	Color (Filtered)	CE	
3.	Carbon dioxide (CO ₂)	CE	
4.	Chloride (Cr)/Salinity	CE	
5.	Fluoride (F)	CE	
6.	Iron (Fe)	CE	
7.	Manganese(Mn)	CE	
8.	Nitrate-Nitrogen(NO. ₃ -N)	CE	
9.	Total Alkalinity	CE	
10.	Total Hardness (EDTA)	CE	
11.	Total Dissolved Solids(TDS)	CE	
12.	Arsenic(As)	CE	
13.	TurbidITY	CE	
14.	Sulphate	CE	
Agriculture Use			
1.	Boron(B)	CE	
2.	Electrical conductivity(EC)	CE	
3.	Magnesium Density(Mg)	CE	
4.	Sodium (Na) Density(SAR)	CE	
Pollution Study			
1.	Biochemical Oxygen demand(BOD) for Drinking Water	CE	

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2.	Biochemical Oxygen demand(BOD) for Waste Water	CE	
3.	Chem. Oxygen Demand(COD)-Dichromate	CE	
4.	Chem. Oxygen Demand (COD) by KMnO4 for Drinking water	CE	
5.	Chem. Oxygen Demand(COD) by KMnO4 for Waste water	CE	
6.	Dissolved Oxygen(DO)	CE	
7.	Sulphate (SO4)	CE	
8.	Colour (scanning)	CE	
	Miscellaneous Parameters		
1.	Acidity	CE	
2.	Carbonate (CO3)	CE	
3.	Ammonia-Nitrogen (NH3-N)	CE	
4.	Nitrate-Nitrogen (NO2-N)	CE	
5.	Aluminum (Al)	CE	
6.	Bromine content (Br)	CE	
7.	Total Chlorine content, Cl2	CE	
8.	Free Chlorine content, Cl2	CE	
9.	Break Point Chlorination	CE	
10.	Hydrogen Sulphide (H2S)	CE	
11.	Iodine content (I)	CE	
12.	Mercury (Hg)	CE	
13.	Phosphate content (PO4)	CE	
14.	Sulphite (SO3)	CE	
15.	Silica-content (SiO2)	CE	
16.	B/Ba/Ca/Cr/Cu/Cd/K/Na/Ni/Pb/Zn	CE	
17.	Oil and grease content in water	CE	
18.	Organic Matter	CE	
19.	E.Coli/Faecal Coliform (FC)	CE	
20.	Total Coliform (TC)	CE	
21.	Total Solids (TS)	CE	
22.	Total Suspended Solids (TSS)/TDS	CE	
23.	Pb & Cd release of Tableware	CE	
24.	Extraction charge for oil	CE	
25.	Extraction charge for salt	CE	
	SAMPLE VISIT		
1.	Sampling for Bacteriological Analysis	CE	
2.	Sampling for physical and chemical Analysis	CE	
	ENVIRONMENTAL QUALITY OF SOIL		
1.	PH	CE	
2.	Boron (B)	CE	
3.	Electrical conductivity(EC)	CE	
4.	Organic Matter (Dry Combustion Method)	CE	
5.	Organic Matter (Wet Combustion Method)	CE	
6.	Ammonia-Nitrogen(NH3-N)	CE	
7.	Phosphate content (PO4)	CE	
8.	Exchangeable Sodium (Na)	CE	
9.	Aluminum (Al)	CE	
10.	Arsenic (As)	CE	
11.	Mercury (Hg)	CE	
12.	Sulphite (SO3)	CE	
13.	Ca, Cd, Cl, K, Mg, Na, Pb	CE	
14.	Toxicity Characteristic Leaching Procedure (TCLP)	CE	
15.	TOC	CE	
16.	Other Metals, for each	CE	
	PARAMETRIC STUDY OF WATER FOR		
1.	Concreting:		
	pH, Turbidity, Total Dissolved Solids, Chloride, Alkalinity,	CE	
	Organic Matter. Inorganic Matter, SO4	CE	

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2.	Swimming Pool:		
	pH, Alkalinity, Colour, Turbidity, Total Suspended Solids,	CE	
	Chloride, TC,FC.Fe. NO3 PO4	CE	
3.	Textile (only Dyeing):		
	pH, Alkalinity, Colour, Turbidity, Hardness. Chemical Oxygen	CE	
	Demand (KMnO4). Total Chlorine, NO3 NO2 Fe. Mn,Cu TS	CE	
4.	Textile (Boiler):		
	pH, Alkalinity, Colour. Turbidity, Hardness, Chemical Oxygen	CE	
	Demand (KMnO4). Total CHLORINE. CA, FE, MN, SiO2. SO4	CE	
5.	Tanning:		
	pH, Alkalinity. Colour, Turbidity, Hardness, Fe, Mn	CE	
6.	Cooling:		
	PH, Hardness, Turbidity, Total Dissolved Solids, Fe, Mn,	CE	
	COD, (KMnO4), PO4	CE	
7.	Paper and pulp (Ground wood):		
	pH, Alkalinity, Colour, Turbidity, Hardness, Total Dissolved	CE	
	Solids, Chloride, Fe Mn, SiO2 CO2	CE	
8.	Boiler Feed Water:		
	PH, Alkalinity, Colour, P-Alkalinity. M-Alkalinity, Turbidity,	CE	
	Hardness IDS total suspended Sohds , Dissolved Oxygen	CE	
	Oil & Grease Contents, Fe Mn, SiO2, PO4	CE	
	Field visit per day	CE	
1.	Sub-Soil Exploration (Boring, sampling, Testing and Reporting)	CE	
	Rate for Each Borehole (Tk.)	CE	
	Depth of bore holes from ground surface	CE	
	1 st Bore hole	CE	
	2 nd Bore hole	CE	
	3 rd and for each additional Bore hole	CE	
	Note: Minimum 3 (three) Boreholes in each site are to be explored	CE	
	Transportation Accommodation and VAT by client	CE	
2.	Plate load test		
	Note: Loading Arrangement, Transportation, Accommodation & VAT by Client	CE	
3.	Rate Chart for Pile Load Test Applied Field Load on Pile (Tons)	CE	
	END OF CIVIL		