

CONCRETE LAB

Department of Civil Engineering



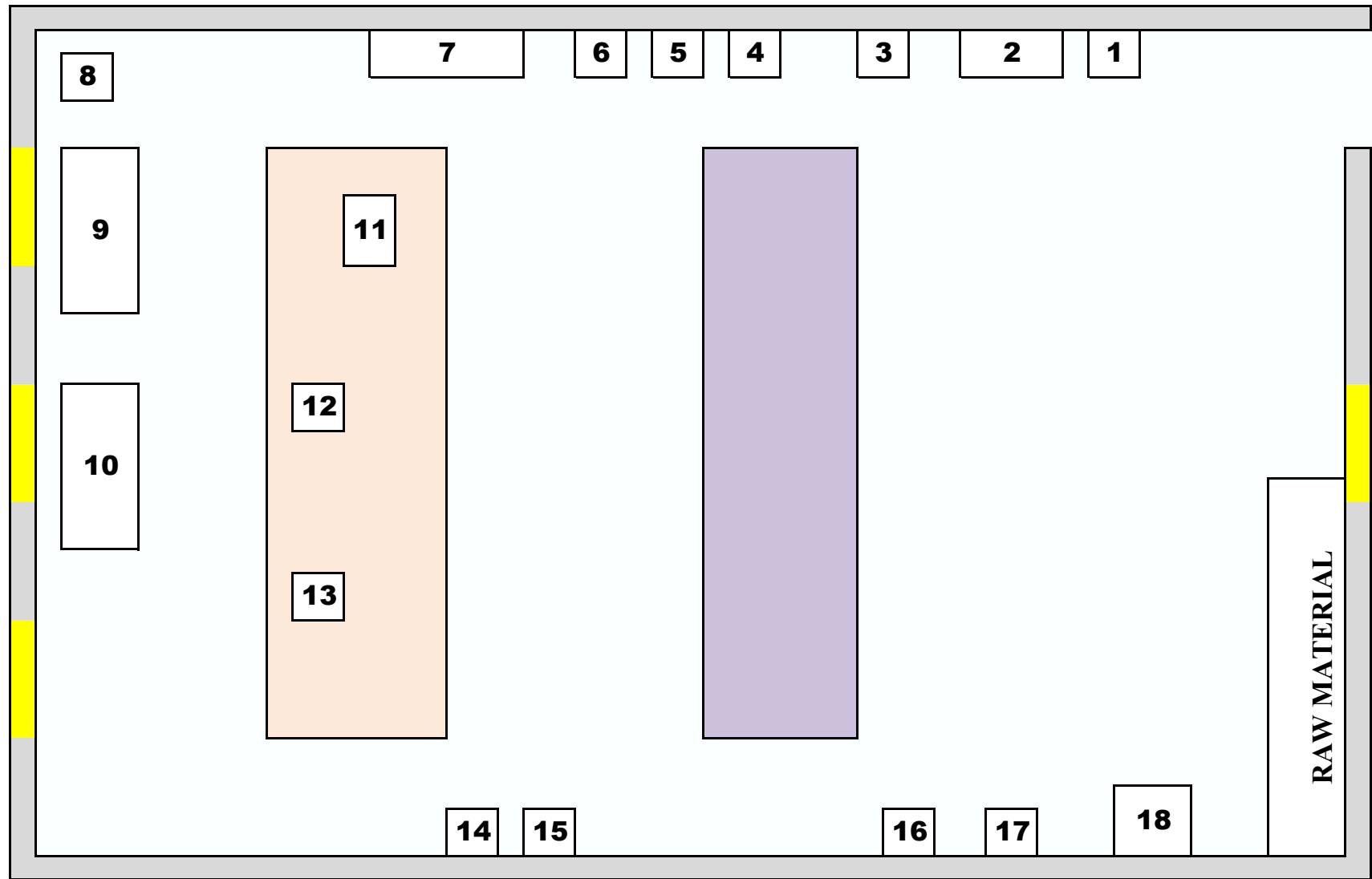
2012
Knowledge is Power



GOVERNMENT POLYTECHNIC COLLEGE, BUDGAM (J&K)

Recognized by the J&K Government, Approved by AICTE and Affiliated with J&K Board of Technical Education

LAYOUT OF CONCRETE LABORATORY



1 Fire Extinguisher

2 Locker

3 Weighing Scale

4 Cube Moulds

5 Beam Moulds - Small

6 Beam Moulds - Big

7 Pigeon Box Almirah

8 Shhovels

9 Curing Tank (Unit-1)

10 Curing Tank (Unit-2)

11 Wash Basin

12 Blaine Apparatus

13 Cube Mould - Cement

14 Vee Bee Apparatus (Unit 1)

15 Vee Bee Apparatus (Unit 2)

16 Slump Cone Apparatus

17 Compaction Factor Apparatus

18 Vibrating Table

Pigeon Box Almirah

1 Vicata Apparatus

2 Flakiness Gauge

3 Elongation Gauge

4 Picnometer

5 Steel Float

6 Trovel

Locker

1 Sieve Set

2 Apron

3 Safety Glasses

1		Vibrating Table The unit consists of a motor fitted with a variable pitch pulley housed in a cabinet. The vibrations are imparted by means of off balance masses rotating on a shaft of a vibrator clamped to the underside of the table top. The table top is 50 cm x 50 cm and has stops along its edges to prevent moulds from walking off the table during vibration. A cross arm adjustable on a vertical rod at the centre of the table is provided to hold the moulds while operating the table. The variable pitch pulley arrangement permits the frequency to be varied step Lesley between a maximum of 3600 vibrations down to 2600 vibrations per minute. A speed regulation handle is provided for increasing or decreasing the frequency a switch is provided for starting the motor.	1	<i>Max Weight</i> 200 Kg 440W III Phase
2		COMPACTION FACTOR APPARATUS The compaction factor is defined as the ratio of the mass of the concrete compacted in the compaction factor apparatus to the mass of the fully compacted concrete. It involves dropping a volume of concrete from one hopper to another and measuring the volume of concrete in the final hopper to that of a fully compacted volume. The results of the compaction factor test can be correlated to slump, although the relationship is not linear. This test is difficult to run in the field and is not.	1	<i>Dimensions</i> 320x420x1300 mm <i>Weight (approx)</i> 45 Kg

3.		SLUMP TEST APPARATUS IS: 7320, BS1881: Part 102, BS 5075, ASTM C143 It is used for the determination of the consistency of freshly mixed concrete, where the maximum size of the aggregate does not exceed 38 mm.	3	The Apparatus consists of one Slump Cone with handles and foot pieces. The Slump Cone has internal dimensions 20 cm dia at base 10 cm top dia and 30 mm height. One graduated steel rod 16 mm dia x 600 mm long rounded at one end and graduated in mms.
4.		VEE BEE CONSISTOMETER IS : 1199, BS 1881: Part 104, AS 1012: Part3 The instrument is used for workability as well as consistency of fresh concrete. A slump cone and a graduated rod supplied with the instrument helps the operator to find out slump values and vibration table with container and acrylic disc is used to find out workability of concrete expressed in Vee Bee degrees which is defined as the time in seconds to complete required vibrating at which the fresh concrete flows out sufficiently to come in contact of the entire face of acrylic disc.	2	A Vibrating Table size 380 mm long and 260 mm wide, resting upon elastic support at a height of about 305 mm above the floor, complete with start/ stop switch, cord and plug. A holder is fixed to the base into which a swivel arm is telescoped with funnel and guide sleeve. The Swivel arm is also detachable from the Vibrating Table. A graduated rod is fixed on a swivel arm and at its end a plastic disc is screwed. The divisions of scale on the rod record the slump of the rod record the slump of the concrete in millimeters. Supplied complete with a sheet metal container with lifting handles which can easily be fixed to the vibrating table. A slump cone open at both ends with lifting handles and a tamping rod of size 16 mm dia and 600 mm long, rounded at one end.

5.		CONCRETE CURING TANK BS : 1881 (Part III) BS : 1881 (Part 114) Concrete Curing Tank is used for the curing of concrete samples. The purpose of curing is to ensure that all concrete samples are similar with regards to quality and strength.	2	The curing tank has been designed to accommodate 150mm / 70.6mm cube moulds and upto 36/72 cube mould can be cured. The tank is fully insulated, comes complete with a hinged lid, heater, thermostat and re-circulated pump. Provision of two removable racks allows free circulation of water around each mould. The pump, drain valves and electrical equipment are housed in a compartment located at one end of the tank. The tank is heated by an immersion heater under normal conditions and refrigeration system for grey cement the temperature is controlled at 35°C or $100^{\circ}\text{C} \pm 2^{\circ}\text{C}$ / $27^{\circ}\text{C} + 2^{\circ}\text{C}$.
6.		BLAINE' S AIR PERMEABILITY APPARATUS IS : 4031,5516,172 7 & 4828 , ASTM C-204, BS- 4359 The apparatus is used for determining the fineness of cement in terms of specific surface expressed as total surface area in square centimeters per gram of cement. This is a variable flow type air permeameter.	4	<i>Specifications</i> The apparatus consists one each of permeability cell 12 . 5 mm I . D. Manometer ' U' type mounted on stand with a built in a stop cock, perforated disc plunger rubber stopper, rubber tube 30 cm long. Packet of 12 filter paper discs and a bottle of 100 cc dia but yiphthalate liquid. <i>Accessories:</i> Punch to cut filter discs, Non - perforated disc Suction bulb.

7.		VICAT NEEDLE APPARATUS IS:4031,2645,25 42(Part-I) BS:12,146,915,1 370 This instrument is used for determining the normal consistency and setting times of cement and ‘ A’ class Limes.	4	<i>Specifications</i> The apparatus consists of a metallic frame bearing a freely movable rod with a cap at top, one vicat mould. Split type and glass base plate and one set of needles one each initial needles, final needles and consistency plunger.
8.		THICKNES GAUGE FOR AGGREGAE IS: 2386 (Part I) Used for determining the flakiness index of aggregates.	6	It consists of a frame with a sliding panel. The panel has slots of different standard in the IS 2386 (Part-I)
9.		LENGTH GAUGE FOR AGGREGAE IS : 2386 (Part I), BS 812 For determination of the elongation index of aggregates.	4	Consists of a hard wood base with vertically mounted metal studs as specified in the IS 2386 (Part- I), BS 812

10.		CUBE MOULD IS : 516, IS : 10086-1982 Used widely for the purpose of making concrete blocks for the preparation of cube specimens of concrete under investigation.	12	<i>Size</i> 150mm x 150mm x 150mm
11.		CUBE MOULD IS 4031 (Part 6) Used widely for the purpose of making cement cube for investigation of compressive strength of cement used for construction purpose	6	<i>Size</i> 70mm x 70mm x 70mm
12.		BEAM MOULDS IS : 516, IS : 10086-1982 Used for casting concrete specimens for flexure tests. Made out of cast iron, and moulds are made of 4 plates assembled together.	5	<i>Sizes</i> 10cm x 10cm x 50cm

13.		BEAM MOULDS IS : 516, IS : 10086-1982 Used for casting concrete specimens for flexure tests. Made out of cast iron, and moulds are made of 4 plates assembled together.	6	Sizes 15cmx15cmx70cm
14.		TEST SIEVES BRASS 4.75mm down size. Test Sieves are used for sieving of aggregate, sand, soil and cement etc. These sieves are manufactured as per various standards like ISS, BSS, and ASTM.	2 Set	Test Sieves are made of brass frame. The Sieve cloth used is standard SS or bronze wire mesh.
15.		TEST SIEVES G I 4.75mm up size. Test Sieves are used for sieving of aggregate. These sieves are manufactured as per various standards like ISS, BSS, and ASTM. Test Sieves are made of G. I. frame.	1 Set	The G. I. Frames sieves manufactured with steel perforated sheet having accurately punched square holes.

16		PYCNO METER Useful to determine specific gravity of clays, sand and gravel of size smaller than 10mm.	8	<i>Dimensions</i> Dia – 4’’ Height – 9’’ <i>Weight</i> 650 grams Brass Cap
17.		SHOVEL A shovel is a tool used for digging, lifting, and moving bulk materials, such as soil, coal, gravel, snow, sand, or ore.	8	
18.		WEIGHING SCALE Weighing balance is an instrument that is used to determine the weight or mass of an object.	1	<i>Manufacturer</i> Gold Line <i>Capacity</i> Max 50Kg Min 100 gm

19.		CONCRETE MIXING TRAY Concrete Mixing Tray, is widely used for the purpose of mixing concrete. In this tray Mortar and concrete are mixed. Mixing of soil and mud into motar can be avoided by using this tray.	1	<i>Material</i> Metallic coated with paint <i>Dimensions</i> 65cm x 56cm x 5cm
20.		PLASTERING TROWEL Plastering trowels are used to apply the plaster onto the surface and to even the materials out for a smooth finish.	2	<i>Material</i> Steel <i>Handle</i> Wooden
21.		MASONRY TROWEL The Masonry trowel is a hand trowel used in brickwork or stonework for leveling, spreading and shaping mortar or concrete.	7	Wooden Handle

22		RUBBER GLOVES	15	
23		SAFETY GOGGLES Safety goggles are tight-fitting eye protection that completely cover the eyes, eye sockets and the facial area around the eyes and provide protection from impact, dust, mists, and splashes.	2	
24		FIRE EXTINGUISHER A fire extinguisher is a handheld active fire protection device usually filled with a dry or wet chemical used to extinguish or control small fires, often in emergencies.	2	Carbon Dioxide Type 4.5 Kg