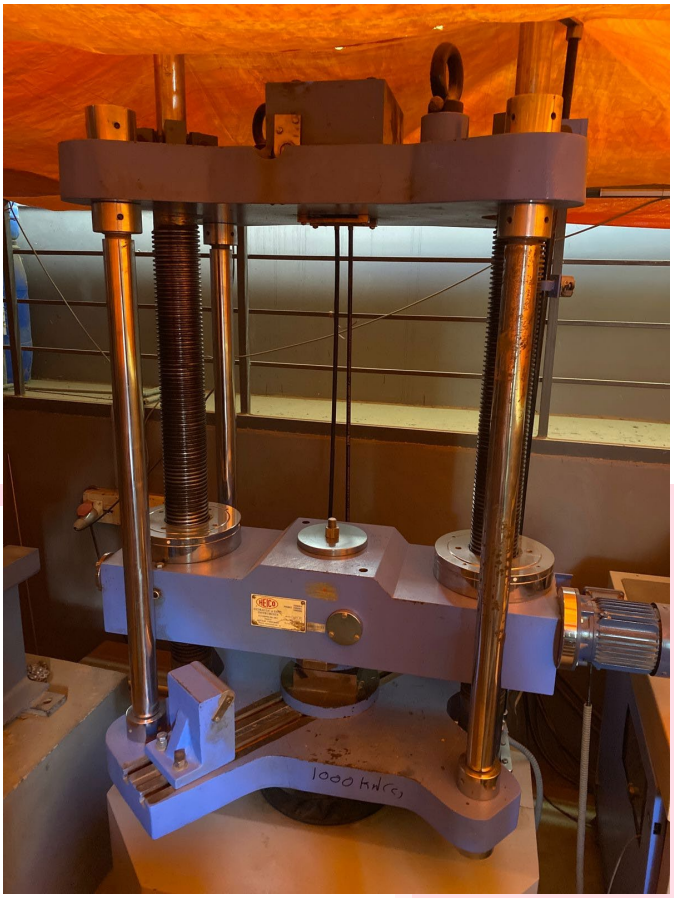
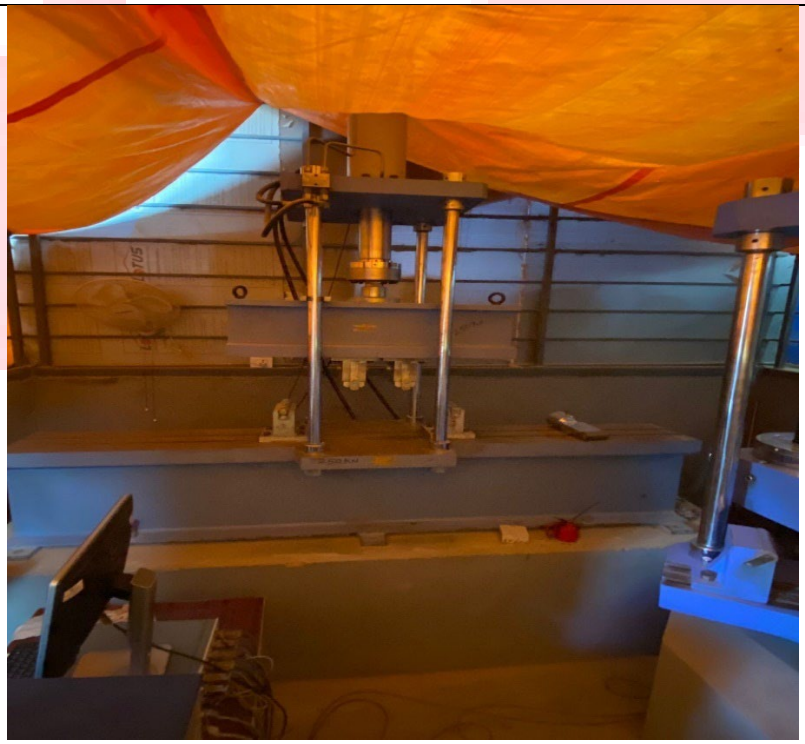
Concrete and Advanced Concrete Technology laboratory

S.no	Equipment name	Photo
1.	Compression Testing Machine (3000KN)	

2.	**Vibrating Table**	
3.	**Needle Vibrator**	

4.	**Electronic Weighing Balance 5 Kg**	
5.	**Electronic Weighing Balance 100 Kg**	

10.	**Tensile Strength Tester**	
11.	**Universal testing machine capacity 20kN**	\ 

12.	**Universal testing machine capacity 1000kN**	
13.	**UTM Flexural 250KN**	

14.	**Flow Table**	
15.	**Flow table Test (cement)**	
16.	**Flow table Test (concrete)**	

17.	**Rheometer**	
18.	**Humidity chamber**	

19.	**Marsh Cone**	
20.	**Thermostatic Oven**	

22.	**SCC apparatus-V funnel**	
23.	**L-box**	

24.	U-box	
25.	J -Ring	

26.	**Flow Table**	
27.	**Energy absorption test**	

28.	**Prestressing of strands along with a hydraulic jack**	
29.	**Abrasion resistance of concrete underwater**	
30.	**Rapid chloride permeability tester 4 cell**	

31.	**Oxygen permeability indicator**	
32.	**Water penetration apparatus**	
33.	**Shrinkage test**	

34.	**Half-cell &double-cell potentiometer**	
35.	**Concrete resistivity meter digital**	
36.	**Corrosion Rate Meter**	

37.	Coating Thickness Gauge	
38.	PIT Depth Gauge	
39.	Mist Generation	

40.	Cement Auto Clave	
41.	Mini Slump	

42.	**Cement Mixing Machine Motor Mixer**	
43.	**Shake table**	

44.	**Carbonation test Chamber Walk-in With 3 Equipment**	
45.	**Compression test using Phenolphthalein Indicator**	

46.	**Muffle furnace**	
47.	**UV Chamber**	

Concrete Research Lab: Research Facilities-

3D Concrete Printer facility:

A four-axis 3D Concrete Printer with a built-up volume of 1.4 cubic meters. Its on-site extendibility reaches up to 8 meters along the X-direction and 7 meters along the Z-axis (height), with unlimited potential along the Y-axis, capable of construction of three-story buildings. The printer is equipped with a progressive cavity pumping system with a 40-litre capacity and interchangeable nozzles of various shapes and sizes of nozzles, enabling it to print with all types of pastes, mortars and concretes.

3D concrete printer

Universal Testing machine facility:

A Universal Testing Machine (UTM) is a versatile instrument used to evaluate the mechanical properties of materials under various loading conditions. It is widely employed in civil, mechanical, and materials engineering to assess parameters such as compressive, tensile, and flexural strength, as well as shear resistance and fracture toughness. The UTM consists of a load frame with upper and lower crossheads, a load cell for force measurement, grips and fixtures to secure the specimen, an extensometer to measure strain, and a control panel or software for test operation and data recording. By providing precise and reliable measurements, the UTM plays a crucial role in material characterization, quality control, and research applications.

Controls Testing Machine facility:

A **Controls Testing Machine** is a specialized device used for assessing the mechanical properties of construction materials such as concrete, cement, and aggregates. These machines are commonly used in material testing laboratories to evaluate parameters like compressive strength, flexural strength, and tensile strength under controlled conditions. Equipped with advanced load frames, digital controllers, and data acquisition systems, these machines ensure accurate and reliable testing. They operate through hydraulic or electromechanical systems, applying precise loads to specimens while monitoring real-time performance. Controls testing machines are essential for quality control, research, and compliance with international standards such as ASTM and EN, ensuring materials meet structural and durability requirements.

Carbonation test Chamber with 3 Equipment. Combination facility:

A carbonation test chamber is a laboratory instrument used to test the effects of carbonation on concrete samples. It's a sealed chamber that allows you to control the temperature, humidity, and carbon dioxide
The chamber exposes concrete samples to a set level of at a specific temperature and humidity.
Testing the durability of concrete

Rheometer facility

A rheometer is a scientific instrument that measures how materials deform or flow when force is applied. It's used to study the viscoelastic properties of fluids and soft solids, such as polymers, gels, and suspensions.