

NABL 224



## **National Accreditation Board for Testing and Calibration Laboratories (NABL)**

### **Specific Criteria for Recognition of Temporary Site Laboratories Testing Aggregates and Concrete in Building Projects**

**ISSUE NO.: 01**  
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**AMENDMENT NO.: --**  
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## AMENDMENT SHEET

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## INTRODUCTION

Civil engineering projects have temporary site testing facilities for the testing of building materials such as fine aggregates, coarse aggregates, and concrete cubes at construction sites. Testing of all these building materials is normally being done at temporary construction sites which is required across the construction industry in which the project size is more than 50,000 Sq.ft area (Constructed area). Site testing laboratory which is having area of 50,000 sq. ft or more can apply for this recognition program.

To ensure the quality and competency of the temporary site testing laboratories, NABL has launched a recognition scheme for such laboratories. This recognition scheme will give confidence in the test result/report issued by temporary site testing laboratories, which is very much necessary to ensure the quality of materials used for building construction. The scheme is applicable only to temporary site testing facilities. Mobile testing facilities are not included in this scheme at present.

**This scheme is voluntary and an independent quality assurance scheme, which is not covered under APAC & ILAC MRA.**

The competency of the temporary site testing laboratory will be determined through the results of the onsite assessment (including test witness), participation in proficiency testing program (PT), and records in accordance with this specific criteria.

The temporary site testing laboratory will get recognition for the project duration (however it will be maximum of 5 years). The starting date of the project will be the commencement certificate from the authority and end date will be getting the occupancy certificate from the authority. The onsite surveillance will be conducted in every 10 months & before 12 months. In case of shorter project duration surveillance will be conducted in 6 months. The Unannounced assessment may be conducted during the recognition period.

This recognition scheme is developed for the testing of the following basic building materials at the construction site, with the defined test parameters for the following materials.

1. Fine Aggregates
2. Coarse Aggregates
3. Concrete

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## 1. SCOPE

This specific criteria document describes the recognition requirements specifically applicable to the laboratories performing all the below mentioned tests at a location temporarily set up at site premises for a defined duration. Site testing laboratory which is having area of 50,000 sq. ft or more can apply for this recognition program.

The temporary laboratory shall apply for all the test parameters under the scope of recognition as given below:

### Scope of Recognition

Materials/Product	Test Parameter	Test Method
Fine Aggregates	Sieve Analysis	IS 2386 (Part-I)
	Bulk Density	IS 2386 (Part-III)
	Specific Gravity	IS 2386 (Part-III)
	Water Absorption	IS 2386 (Part-III)
	Material Finer Than 75 $\mu$ m	IS 2386 (Part-I)

Materials/ Product	Test Parameter	Test Method
Coarse Aggregates	Sieve Analysis	IS 2386 (Part-I)
	Bulk Density	IS 2386 (Part-III)
	Flakiness index	IS 2386 (Part-I)
	Elongation Index	IS 2386 (Part-I)
	Impact Value	IS 2386 (Part-IV)
	Crushing Value	IS 2386 (Part-IV)
	Specific Gravity	IS 2386 (Part-III)
	Water absorption	IS 2386 (Part-III)
	Material Finer Than 75 $\mu$ m	IS 2386 (Part-I)

Materials/ Product	Test Parameter	Test Method
Hardened Concrete	Compressive Strength	IS 516 (Part-1/Sec-1)
Fresh Concrete	Workability by Slump	IS 1199 (Part-2)

## 2. NORMATIVE REFERENCES

ISO/ IEC 17025: 2017 “*General Requirements for the competence of testing and calibration laboratories*”

ISO/ IEC 17000 “*Conformity assessment – Vocabulary and general principles*”

ISO/IEC Guide 99 “*International Vocabulary of metrology — Basic and general concepts and associated terms (VIM)*”

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### 3. TERMS AND CONDITIONS FOR RECOGNITION

The applicant and recognized laboratories under the scheme shall be required to fulfill the following terms & conditions:

- 3.1 The laboratory shall meet the requirements of regulators (local/regional/state/national regulations).
- 3.2 The laboratory shall offer cooperation to NABL or its representative in undergoing assessments and on the following whenever NABL considers it necessary:
  - a) Access to all laboratory areas of operations.
  - b) Undertaking any assessment to verify the capability of the laboratory for the applied scope.
  - c) Witnessing the activities being performed relevant to this scheme.
  - d) Assessing the competence of the staff during assessment.
  - e) Access to all relevant information, documentation, and records.
  - f) Access to all records pertaining to relevant personnel.
  - g) Providing names of all personnel(s) who are responsible for authenticity for review, evaluation & release of results as applicable.
  - h) Investigating any complaints against the laboratory.
- 3.3 The laboratory shall pay the stipulated fee to NABL.
- 3.4 If performance in two successive PT samples (for the same parameter) is not satisfactory, the laboratory shall be de-recognized.
- 3.5 The laboratory shall not be involved in any kind of activity(ies) which may bring NABL to disrepute.
- 3.6 The recognized laboratories can relinquish recognition through a written notice to NABL by clearing any outstanding payment and surrendering the certificates along with the scope.
- 3.7 The laboratory shall respond promptly to the changes initiated by NABL in this specific criteria. The lab shall inform NABL when such alterations under the agreed time frame have been completed.
- 3.8 NABL absolves itself of any legal or financial liability arising out of activities of any of the labs covered under this scheme involving any accidental or consequential damages to personnel/equipment/products at any time.
- 3.9 The Laboratory shall inform NABL within 15 days of significant changes affecting the Lab's activities and operations relevant to recognition, such as:
  - a) change in the physical location of the laboratory (within the same project site).
  - b) change in name of the laboratory.
  - c) resources (equipment & personnel)
- 3.10 The laboratory shall offer cooperation to the NABL assessment team in carrying out unannounced visit as a part of continuous monitoring activity by NABL for its recognized laboratories.
- 3.11 Any violation of the above terms and conditions shall result in denial of recognition in the case of applicant laboratories or derecognition in the case of recognized laboratories.
- 3.12 All disputes, arising out of NABL decisions that remain unresolved through the mechanism provided by NABL, are subject to the exclusive jurisdiction of the Courts at New Delhi and none other.

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- 3.13 The recognized organization agrees and shall indemnify NABL fully against all losses, damages and expenses suffered by NABL including but not limited to legal costs on a full indemnity basis and all claims by any third parties against NABL, arising directly or indirectly from the recognition of the recognized organization, assessment activities carried out on the recognized organization by NABL, its representatives, employees and/or experts/assessors or NABL's exercise or performance of its rights, powers, duties or obligations under these Terms and Conditions.

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#### 4. TERMINOLOGY/ DEFINITIONS

- 4.1. **Temporary Site Laboratory:** A testing laboratory set up in a temporary location for in-house testing requirements for the duration of building construction.
- 4.2. **Constructed Area:** Total constructed Floor area of a building.
- 4.3. **Proficiency Testing:** Evaluation of participant performance against pre-established criteria by means of Inter laboratory comparisons.
- 4.4. **Impartiality:** Presence of Objectivity.
- 4.5. **Scope of Recognition:** Specific test to be conducted as per defined test method for which recognition is sought or has been granted.
- 4.6. **Metrological Traceability:** Property of a measurement result whereby the result can be related to a reference through a documented unbroken chain of calibrations, each contributing to the measurement uncertainty”.
- 4.7. **Assessment:** process undertaken by an accreditation body (i.e., NABL) to determine the competence of a laboratory, based on standard(s) and/or other normative documents and for a defined scope.
- 4.8. **Assessor:** Person assigned by an accreditation body (i.e., NABL) to perform, alone or as part of an assessment team, an assessment of a laboratory.
- 4.9. **Test Witness:** Observation by the accreditation body (i.e., NABL), of a laboratory carrying out testing activities within its scope of recognition.
- 4.10. **Subcontracting:** Outsourcing of testing activity to another competent laboratory.
- 4.11. **Appeal:** request by a laboratory for reconsideration of any adverse decision related to its desired recognition status.
- 4.12. **Sampling:** selection and/or collection of material or data regarding an object of testing.
- 4.13. **Testing:** determination of one or more characteristics of an object of testing, according to a procedure.
- 4.14. **Surveillance:** systematic iteration of conformity assessment activities as a basis for maintaining the validity of the statement of conformity.

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## 5. MANPOWER REQUIREMENTS

- 5.1. All personnel of the laboratory shall be competent and work impartially.
- 5.2. The laboratory shall have records for the competency of personnel (education, qualification, training, technical knowledge, skills and experience).
- 5.3. The laboratory shall authorize personnel to perform testing activities in the laboratory.
- 5.4. The laboratory shall ensure the training for newly recruited personnel and records to be maintained.
- 5.5. All Site testing parameters shall be performed by the laboratory staff only. However, assistance/support staff for the operation/functioning of testing activities can be contractual/outsourced.
- 5.6. Adequate testing personnel shall be available (depending upon the project size) to ensure quality control and assurance.
- 5.7. The temporary site testing laboratory shall have personnel with the following qualifications and experience:

Designation	Educational Qualification	Minimum Work Experience
Lab Assistant	12+	Minimum 6 months experience (fresh candidate is considered subject to technical training)
Lab Technician	B.Sc./Diploma in Civil Engineering	Minimum one year, must be involved in building materials testing activities.
Lab In-Charge / Lab Engineer	B.Sc./ Diploma in Civil Engineering	Minimum two years of experience in building materials testing activities.
	B.E./ B.Tech in Civil Engineering	Minimum one year experience in building materials testing activities.

- 5.8. The lab in charge / Lab Engineer shall be authorized to report, review and authorize the test report.
- 5.9. Relevant records shall be retained for 1 Year.

## 6. REQUIREMENTS FOR FACILITIES AND ENVIRONMENTAL CONDITIONS

- 6.1. Facilities and environmental conditions shall be suitable for laboratory activities.
- 6.2. Temperature controls shall be provided wherever necessary during the testing of samples (i.e., curing of concrete cube specimens which need to be stored in temperature-controlled water curing tanks as per the Standard Requirement).
- 6.3. The temperature of the curing tank shall be monitored and shall be recorded on a daily basis.
- 6.4. The laboratory shall have adequate space to carry out all site testing parameters.
- 6.5. The laboratory shall be free from any external disturbances that may adversely affect the test results (for example testing should not be conducted where vibrations and other activity affect the test performance).
- 6.6. The site laboratory shall be adequately lit, and ventilated with proper water supply arrangements.
- 6.7. The lab In-charge/ Lab Engineer shall ensure good housekeeping of the laboratory.
- 6.8. Relevant records shall be retained for 1 Year.

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## 7. TEST METHODS REQUIREMENTS

The laboratory shall use relevant and current version of IS test methods. Test method details are given as follows:

Materials/Product	Test Parameter	Test Method
Fine Aggregates	Sieve Analysis	IS 2386 (Part-I)
	Bulk Density	IS 2386 (Part-III)
	Specific Gravity	IS 2386 (Part-III)
	Water Absorption	IS 2386 (Part-III)
	Material Finer Than 75 µm	IS 2386 (Part-I)

Materials/Product	Test Parameter	Test Method
Coarse Aggregates	Sieve Analysis	IS 2386 (Part-I)
	Bulk Density	IS 2386 (Part-III)
	Flakiness index	IS 2386 (Part-I)
	Elongation Index	IS 2386 (Part-I)
	Impact Value	IS 2386 (Part-IV)
	Crushing Value	IS 2386 (Part-IV)
	Specific Gravity	IS 2386 (Part-III)
	Water absorption	IS 2386 (Part-III)
	Material Finer Than 75 µm	IS 2386 (Part-I)

Materials/Product	Test Parameter	Test Method
Hardened Concrete	Compressive Strength	IS 516 (Part-1/ Sec-1)
Fresh Concrete	Workability by Slump	IS 1199 (Part-2)

The brief test procedure for each test parameter is as follows:

## Compressive strength

- Performing a test for the compressive strength of a concrete cube consists of a few steps.
- The concrete being tested is poured into a mould cube used for this test has a dimension of 150 mm x 150 mm x 150 mm as long as the largest aggregate does not exceed 20 mm.
- The concrete is appropriately tempered to remove any voids or gaps in the concrete.
- After 24 hours of casting and covering by wet gunny bag, the test specimens are removed from the forms and put into water curing tanks in 27+/-2°C to regulate the curing period and tested.
- For a single test, minimum six numbers of cubes are required, out of which three numbers cube test in seven days and another three numbers cube test for twenty-eight days to determine the compressive strength of concrete.
- These specimens are tested in a compression testing machine.
- Load should be applied gradually at the rate of 140 kg/cm<sup>2</sup> per minute till the Specimens fails.
- The maximum load at the failure/break down of specimen divided by area of specimen gives the compressive strength of concrete. This test to be carried out after 7 days and 28 days curing.
- Refer IS 516 (Part-1/Sec-1) for the detailed procedure for conducting compressive strength test of concrete

## Slump Test

- Concrete slump test is to determine the workability or consistency of concrete mix prepared at the laboratory or the construction site during the progress of the work.
- Fill the mould with the prepared concrete mix in 4 approximately equal layers.
- Tamp each layer with 25 strokes of the rounded end of the tamping rod in a uniform manner over the cross section of the mould.
- For the subsequent layers, the tamping should penetrate into the underlying layer.
- Remove the excess concrete and level the surface with a trowel.
- Raise the mould from the concrete immediately and slowly in vertical direction.
- Measure the slump as the difference between the height of the mould and that of height point of the specimen being tested.
- Refer IS 1199 for the detailed procedure for conducting slump test of concrete

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## Sieve analysis

- A sieve analysis determines the distribution of aggregate particles by size within a given sample of aggregate.
- The aggregate fraction from 4.75 to 75  $\mu\text{m}$  is referred to as fine aggregate and 20mm to 4.75 mm is considered as coarse aggregate.
- The grading pattern of a sample is found out by sieving a sample successively through the entire sieve set mounted one over the other in order of size, with largest sieve on the top.
- The material retained on each sieve after shaking, represents the fraction of aggregates coarser than the below sieve.
- After the shaker is turned off and the sieves are taken out for weighing the remaining samples on each of the respective sieves.
- Cumulative weight passing through each sieve sizes are calculated as a percentage of the total sample weighed.
- Refer IS 2386 (Part I) for detailed procedure for conducting sieve analysis of aggregates.

## Crushing value

- This test indicates the strength of coarse aggregate, which is the most essential property of coarse aggregate.
- Coarse aggregate crushing value is the percentage by weight of the crushed material under standardised load and condition.
- The crushing value indicates the strength of aggregates.
- Refer IS 2386 (Part 4) for detailed procedure for conducting crushing value test of aggregates.

## Impact value

- A relative measure of the resistance of aggregate due to the sudden shock or impact on it is called aggregate impact value. The Aggregates Impact Value (AIV) Apparatus is used to determine the aggregate impact value.
- Based on the impact value, we can decide whether the coarse aggregate is suitable for construction or not. This test is performed to ensure the aggregate toughness, which is used in construction to work.
- Refer IS 2386 (Part 4) for detailed procedure for conducting impact value test on aggregates.

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## Specific Gravity & Water Absorption of Aggregate

- Specific Gravity is the ratio of the weight of a given volume of aggregate to the weight of an equal volume of water.
- It is the measure of strength or quality of the specific material. Aggregates having low specific gravity are generally weaker than those with higher specific gravity values. The main objective of these test is to:
  - ✓ measure the strength or quality of the material.
  - ✓ determine the water absorption of aggregates.
- There are two methods of testing the specific gravity of aggregates, according to the size of the aggregates larger than 10 mm and smaller than 10 mm. For samples larger than 10 mm, the wire basket test method is used and for samples smaller than 10 mm Pycnometer test is done.
- Refer IS 2386 (Part 3) for detailed procedure for conducting Specific Gravity & Water Absorption tests on the aggregates.

## Bulk Density

- Density is an important parameter for aggregate. For aggregates, density is determined by multiplying the relative density (specific gravity) of the aggregate times the density of water.
- The bulk density or unit weight of an aggregate is the mass or weight of the aggregate that is required to fill a container of a specified unit volume.
- Refer IS 2386 (Part 3) for detailed procedure for conducting Bulk density tests on aggregates.

## Flakiness and Elongation Index Test

- Flakiness and Elongation Index Test are very important tests to be performed on aggregate in the laboratory.
- This test gives the percentage of flaky and elongate aggregate present in the total aggregate sample. Aggregate shape, size, and surface texture majorly affect the properties of freshly mixed concrete more than the properties of hardened concrete.
- Angular, flaky, rough-textured, and elongated aggregate particles require more water to produce workable concrete than the smooth, rounded compact aggregate. Also when using such irregular-shaped aggregate, the cement content must also be increased to maintain the water-cement ratio.
- The Flakiness and Elongation Index Test is performed by sieving a sample of coarse aggregate through a set of standardized sieves, and then measuring the percentage of particles that are either flaky or elongated.

## Flakiness Index:

- The Flakiness Index is the percentage of particles in a coarse aggregate sample that have a thickness less than three-fifth of their mean dimension.
- These particles are considered to be flaky, and can cause problems in concrete by reducing the workability and increasing the amount of voids in the mix.

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## Elongation Index

- The Elongation Index is the percentage of particles in a coarse aggregate sample that have a length greater than one and a half times their width.
- These particles are considered to be elongated, and can cause problems in concrete by reducing the workability and increasing the amount of voids in the mix.
- Refer IS 2386 (Part 1) for detailed procedure for conducting Flakiness and Elongation Index Test on aggregates.

## Material Finer than 75 µm

- This method of test deals with the procedure for determining the total quantity of material finer than 75 µm IS sieve in aggregate by washing.
- A known amount of material is placed in a wash container and covered with water, agitated to suspend the fine size particles in water, and then poured through a 75 µm sieve.
- After thorough rinsing, the portion remaining on the 75 µm sieve is transferred to a pan, dried and weighed.
- The percentage passing through the 75 µm sieve is then calculated.
- Refer IS 2386 (Part 2) for detailed procedure for conducting Materials finers than 75 µm test on the aggregates.

All test methods/Standard Operating Procedures (SOP) shall be made readily available to the testing personnel.

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## 8. SUBCONTRACTING REQUIREMENTS

- 8.1. The recognized laboratory can subcontract the testing activities of their scope of recognition only in case of equipment breakdown/ exigency of work/ unforeseen reasons.
- 8.2. The laboratory can subcontract the testing activities to NABL accredited/ recognized laboratory only.
- 8.3. The laboratory is responsible for the testing being subcontracted.
- 8.4. The subcontracted test results shall be clearly and unambiguously identified in the test report.
- 8.5. The laboratory shall have the records of subcontracting work w.r.t selection and approval.
- 8.6. Relevant records shall be retained for 1 Year.

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## 9. PURCHASE REQUIREMENTS

- 9.1. The laboratory shall ensure suitable suppliers are used for the purchase of equipment such as compression testing machine (CTM), Electronic weighing balance, and test sieves, etc. as required for the scope.
- 9.2. The laboratory shall have records of all the types of equipment purchased from approved suppliers.
- 9.3. The laboratory shall communicate its requirements to suppliers for the items to be purchased.
- 9.4. The laboratory shall maintain the records for the purchased items.
- 9.5. The laboratory shall use calibration services from NABL accredited laboratories.
- 9.6. Maintenance of the equipment shall be carried out by the laboratory-approved suppliers.
- 9.7. Relevant records shall be retained for 1 Year.

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## 10. EQUIPMENT REQUIREMENTS

10.1. The laboratory shall have the following list of equipment for performing the test as per the scope:

S. No.	List of Equipment
1.	Compression Testing Machine (with pace rate control)
2.	Weighing Balance 6 kg (Least Count - 0.1 g)
3.	Buoyancy Balance 15 kg (Least Count - 0.1 g)
4.	Impact testing machine
5.	Crushing Value Mould
6.	Flakiness gauge
7.	Elongation gauge
8.	Sieve Shaker (300 mm & 200 mm diameter)
9.	G.I Sieves (300 mm diameter) – 63 mm, 40 mm, 32 mm, 25mm, 20mm, 12.5mm, 10mm, 4.75mm
10.	Brass sieves (200 mm diameter) – 10mm, 4.75mm, 2.36mm, 1.18mm, 0.600mm, 0.300mm, 0.150mm, 75 µm
11.	Cube moulds (150 X 150 X 150) in mm
12.	Slump Cone Apparatus
13.	Vibrating Table
14.	Temperature-controlled curing tank
15.	Hot air Oven
16.	Pycnometer bottles

The laboratory shall ensure that all the equipment/ apparatus used in the laboratory meets the specifications of the relevant standard.

10.2. The laboratory shall calibrate the equipment from NABL accredited laboratory as per below mentioned frequency.

S. No.	List of Equipment	Calibration Frequency
1.	Compression Testing Machine (with pace rate control)	Once in 12 months
2.	Weigh Balance 6 kg (Least Count - 0.1 g)	Once in 12 months
3.	Buoyancy Balance 15 kg (Least Count -0.1 g)	Once in 12 months
4.	Temperature-controlled curing tank	Once in 12 months
5.	Hot air Oven	Once in 12 months

- 10.3. Calibrated equipment shall be labelled, to readily identify the status of calibration of the equipment.
- 10.4. The laboratory shall use its own equipment for testing activities.
- 10.5. Records of verification shall be maintained for cube mould and density cylinders etc.
- 10.6. The laboratory shall maintain records of maintenance of equipment used for testing .
- 10.7. The laboratory shall authorize the personnel to operate specific equipment.
- 10.8. The laboratory shall verify that equipment conforms to specified requirements before being placed or returned into service.
- 10.9. The equipment used for measurement shall be capable of achieving the measurement accuracy required to provide a valid result.
- 10.10. Records shall be maintained for all equipment used in the laboratory like those of purchase, calibration and maintenance.
- 10.11. Relevant records shall be retained for 1 Year.

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## 11. MEASUREMENT TRACEABILITY REQUIREMENTS

- 11.1.** The laboratory shall establish and maintain metrological traceability of its measurement results by means of a documented unbroken chain of calibrations, each contributing to the measurement uncertainty, linking them to an appropriate reference.
- 11.2.** The laboratory shall ensure that measurement results are traceable to the International System of Units (SI) through the calibration provided by an NABL accredited calibration laboratory.
- 11.3.** The laboratory shall calibrate all its equipment through NABL accredited calibration laboratory.

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## 12. SAMPLING REQUIREMENTS

**12.1.** The method of sampling and frequency for testing materials shall be as per the requirements of the project quality plan/ contract agreement.

**12.2.** The records must include the relevant details of the sampling information, including identification of the following, where appropriate:

- sampling method used
- date and time of sampling
- unique identification and description the sample (e.g. sample number, amount, name)
- identification of the personnel performing sampling
- sampling plan
- identification of the equipment used
- environmental or transport conditions
- the location of sampling, including any diagrams, sketches or photographs.

**12.3.** Relevant records shall be retained for 1 Year.

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### 13. REQUIREMENTS FOR SAMPLES (HANDLING, STORAGE, TRANSPORTATION AND DISPOSAL)

#### 13.1. Handling

The laboratory shall have appropriate facilities for avoiding deterioration, loss, or damage to the test item during storage, handling, preparation, and testing.

- a) Each test item shall be uniquely identified and labelled upon receipt at the laboratory.
- b) The Laboratory shall not permit any action that may compromise the integrity of the test Item.
- c) If identified directly on test sample ensure that the ID tag or other ID method is not likely to come off resulting in a mis- identification or confusion with other samples.
- d) This unique identification is to be retained with the item throughout the laboratory activities.
- e) The integrity of the test items is to be maintained throughout their journey from the original location, transportation, receipt, storage, handling, retention, and disposal.
- f) While handling the sample, the following precautions are to be taken.
  - To avoid spillage
  - Keep the sample at appropriate place after use
  - Avoid any mix up or contamination of samples
  - Use proper personal protective equipment.

#### 13.2. Storage

- a) When test items need to be stored or conditioned under specified environmental conditions, these conditions shall be maintained, monitored and recorded (i.e., concrete cube samples received from site where construction activities are undertaken shall be stored under temperature controlled water tanks for 7 days and 28 days duration at site laboratory before testing for compressive strength)
- b) Deviations from specified conditions shall be recorded, asking the customer for further instructions and record the results of the consultation, and inclusion of a disclaimer
- c) Lab shall retain the tested aggregate samples for minimum period of two weeks unless the requirement is not specified by the customer or the project.

#### 13.3. Transportation

- a) Laboratory is responsible for the transportation of samples from sampling site to the laboratory (if sampling is carried out by the laboratory).

#### 13.4. Disposal

- a) The laboratory shall follow appropriate method for disposal of test items, including all provisions necessary to protect the integrity of the test item, and to protect the interests of the laboratory and the customer.
- b) Disposal of destructive test items to be undertaken with precautions to avoid any damage to environment.

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## 14. QUALITY CONTROL REQUIREMENTS

- 14.1. The laboratory shall mandatorily participate in at least one product in a Proficiency Testing (PT) program before applying for recognition.
- 14.2. The laboratory shall continue participation in PT programs during the recognition period (minimum one PT program per year covering the entire scope).
- 14.3. The laboratory shall submit appropriate corrective actions based on root cause analysis in case of non-satisfactory performance in the PT program.
- 14.4. The recognized laboratory shall submit the reports of Proficiency Testing (PT) participation annually from the date of issue of the recognition certificate and the same shall be reviewed by NABL.
- 14.5. Relevant records shall be retained for 1 Year.

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## 15. REQUIREMENTS FOR TEST REPORTS

- 15.1.** Results obtained from site tests shall be clearly identified on the test Reports, with the details of the following:
- a) a title "Test Report";
  - b) the location of the performance of the laboratory activities,
  - c) identification of the method used;
  - d) a description, unambiguous identification, and the condition of the item;
  - e) the date of receipt of the testing item(s), the date(s) of performance of the testing activity
  - f) the results with the units of measurement.
  - g) deviations, or exclusions from the method.
  - h) identification of the person(s) authorizing the report;
- 15.2.** The results shall be provided accurately, clearly and unambiguous in a test report.
- 15.3.** The report shall include all the information agreed with the customer and necessary for the interpretation of the results.
- 15.4.** All issued test reports shall be retained as technical records for the period of 1 year.
- 15.5.** The results shall be reviewed and authorized prior to release.
- 15.6.** The lab shall identify the specific test parameter in the test report when the test results are obtained from the Subcontractor.

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## 16. REQUIREMENTS FOR IMPARTIALITY & CONFIDENTIALITY

### 16.1. Impartiality

- a) Laboratory activities shall be structured and managed to safeguard impartiality.
- b) The head of the laboratory shall be responsible for the impartiality of its laboratory activities.
- c) The head of the laboratory shall not allow commercial, financial, or other pressures to compromise impartiality.
- d) The laboratory personnel shall be free from any kind of pressure from construction activity (Production, Purchase, or Sales, or any other management).
- e) Risk to impartiality to be reviewed on an ongoing basis.

### 16.2. Confidentiality

- a) Personnel, including contractors, personnel of external bodies, or individuals acting on the laboratory's behalf, shall keep confidential all information obtained or created during the performance of laboratory activities, except as required by law.
- b) When the laboratory is required by law or authorized by contractual arrangements to release confidential information, the customer or individual concerned shall, unless prohibited by law, be notified of the information provided.

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## 17. SAFETY AND REGULATORY REQUIREMENTS

- 17.1. Proper safety measures during experimentation should be arranged while conducting the tests.
- 17.2. Adequate protective clothing, and safety helmets for staff shall be provided. Statutory safety requirements are to be recorded & met.
- 17.3. Adequate arrangements for the control of the following shall be available:
- a) Fire safety, Fire alarm.
  - b) Shock due to electric current.
  - c) Safety guards during load testing.
- 17.4. The laboratory shall meet all the relevant regulatory/ statutory requirements (National/ local bodies).

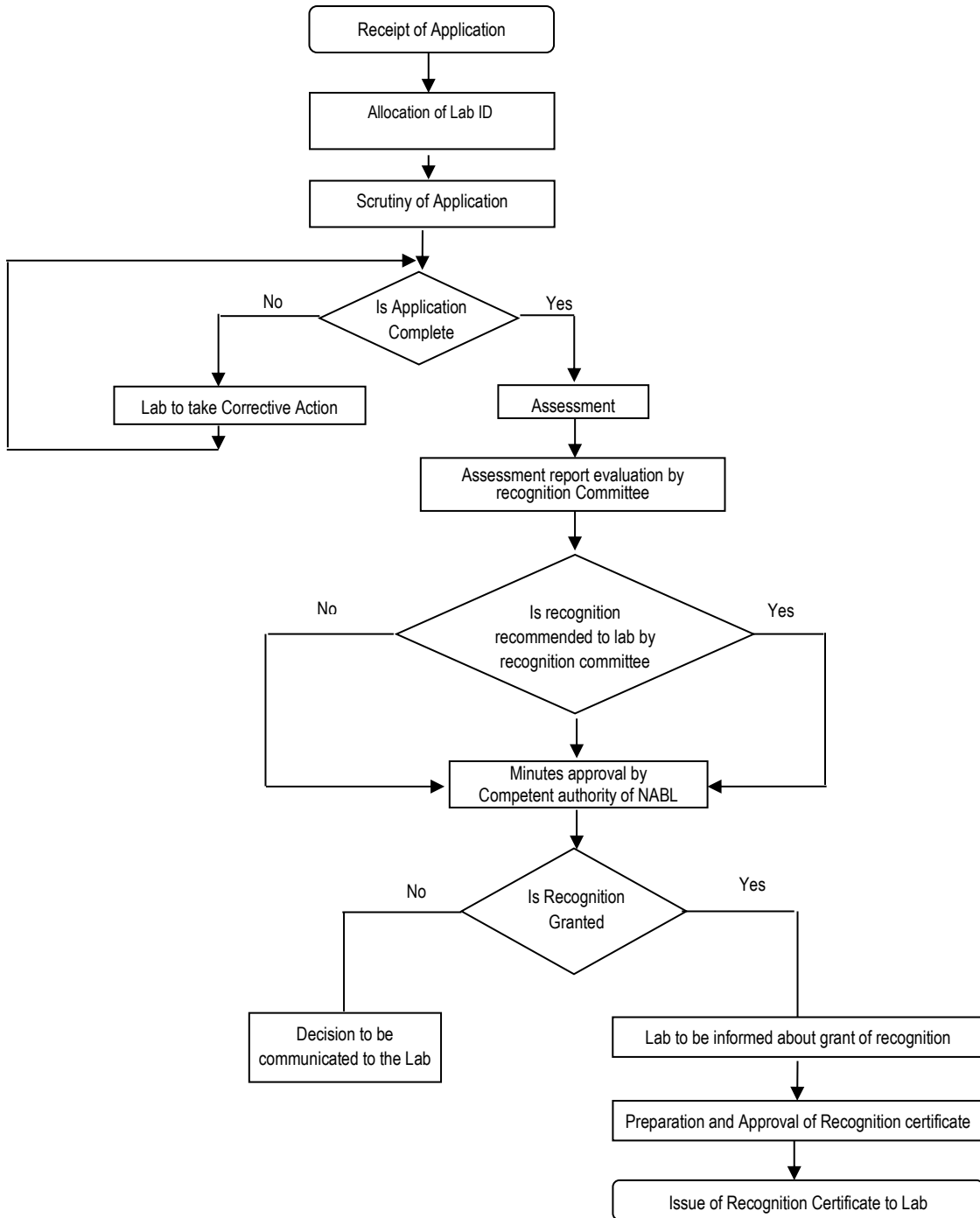
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## 18. ASSESSMENT PROCESS FOR RECOGNITION SCHEME

- 18.1. The application submitted by the laboratory will be scrutinized by NABL.
- 18.2. In case of any discrepancies observed during the scrutiny of the application the same will be communicated to the laboratory for the necessary corrective actions.
- 18.3. Laboratory shall submit the corrective actions within 10 days.
- 18.4. The onsite assessment of the laboratory will be conducted by the assessment team consisting of the Lead assessor, technical assessor/technical expert, observer, etc depending on the scope of recognition.
- 18.5. The following will be verified during the assessment:
- Test witness for all the parameters applied in the scope.
  - Records of participation in Proficiency Testing program (PT program)
  - Calibration of equipment.
  - Records of testing personnel.
  - Environmental conditions
  - Subcontracting records (if applicable)
  - Other criteria specified in this document.
- 18.6. In case of any non-conformity observed during the assessment, the laboratory shall submit the satisfactory corrective action within 10 days.
- 18.7. On completion of satisfactory corrective actions/ no non-conformity observed during the assessment, the assessment report and corrective action of the laboratory will be reviewed by NABL and the same will be placed in the recognition committee for recommendation on recognition.
- 18.8. Based on the outcome of the assessment and recommendation of the committee, decision regarding the grant of recognition or otherwise will be communicated to the laboratory.
- 18.9. Recognition is valid for the period of project duration (however it will be maximum of 5 years).
- 18.10. NABL will issue a certificate and Scope of Recognition.
- 18.11. During the recognition period the on-site surveillance will be conducted every 10 months and before 12 months from the date of grant of recognition. In case of a shorter duration of the project, the surveillance will be conducted for six months.
- 18.12. Unannounced assessment shall be conducted at any time during the recognition period to ensure compliance to meet the criteria requirements.
- 18.13. In case the laboratory is shifting to another project site, the laboratory shall submit a fresh application to NABL.
- 18.14. The recognition scheme is project site specific and it is not transferable to another project site.

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## Flow diagram for Recognition Process



## 19. ADVERSE DECISION

In case of any violation of the terms and conditions or non-compliance observed during the recognition process, NABL will take any of the following adverse decisions (as applicable) against the laboratories:

- a) Closed
- b) Suspension of Recognition
- c) Denial of Recognition
- d) Withdrawal of Recognition

The conditions of adverse decision is taken are as follows:

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**a) Closed**

**Conditions**

1. When the laboratory voluntarily withdraws the application at any stage.
2. When the laboratory has not addressed the inadequacies of document review (Application) done by NABL secretariat within 10 days from the date of communication of inadequacies to the laboratory.

**Actions by NABL**

1. The application will be closed.
2. The decision will be formally communicated to the laboratory by NABL

**Procedure for re-enrollment**

The laboratory can apply afresh with the relevant application form and fees applicable at that time along with outstanding charges (if any).

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## b) Suspension of Recognition

### Conditions

1. When a total system failure or gross negligence is identified at any point of time during the valid recognition period.
2. Failure to undergo surveillance within the stipulated time period.
3. Outcome of investigation of Complaints and/ or unannounced visit by NABL.
4. Outstanding payment/fees of over three months in response to the invoice(s) raised by NABL.
5. Misuse/ misclaim of NABL recognition.

### Actions by NABL

1. The recognition of the lab will be suspended.
2. The decision will be formally communicated to the laboratory by NABL.
3. The laboratory is informed not to use NABL recognition symbol and/or claim recognition.

### Procedure for Re-enrollment

1. To regain recognition status during the suspension period, the laboratory in "Suspended" status must notify NABL of the corrective actions taken and its desire to undergo assessment, paying the outstanding payments. 'Suspension' status will continue till assessment is completed and a decision is taken.
2. The new certificate of recognition will be issued from the date of restoration of recognition with earlier existing validity.

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**c) Denial of Recognition**

**Conditions**

1. Non-submission of satisfactory corrective actions for the non-conformities raised during the assessment within the stipulated time of 10 days.
2. Not providing satisfactory clarification as desired by NABL / showing inability to undergo the proposed assessment within 10 days from the formal communication from NABL.
3. Non adherence to terms & conditions for recognition.
4. The information provided in the application like personnel, availability of equipment and details of PT participation is found to be false, leading to denial of recognition.

**Actions by NABL**

1. The recognition will be denied.
2. The decision will be formally communicated to the laboratory by NABL.

**Procedure for re-enrollment**

The laboratory can apply afresh with valid responses for the reason(s) on earlier denial, using relevant application form and application fees applicable at that time along with outstanding charges (if any).

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#### **d) Withdrawal of Recognition**

##### **Conditions**

1. When the laboratory voluntarily withdraws its recognition status during any adverse decision initiated.
2. When a laboratory has been involved in fraudulent activities bringing disrepute to NABL.
3. When the laboratory fails to comply Specific criteria or any regulatory authorities' obligations.
4. Unethical practices by recognized laboratory.
5. If the laboratory intimidates / threatens NABL officials or assessors.
6. Repeated misuse/ misclaim of NABL recognition.
7. If performance in two successive PT samples (for the same parameter) is not satisfactory, the laboratory shall be de-recognized.

##### **Actions by NABL**

1. The recognition will be withdrawn.
2. The decision will be formally communicated to the laboratory by NABL
3. The laboratory under the withdrawal of recognition category can apply for recognition on completion of one month from the date of withdrawal.
4. Processing of any application submitted by the laboratory will be stopped.

##### **Procedure for re-enrollment**

On completion of one month (cooling off period), the laboratory can be enrolled for recognition by submitting fresh application along with corrective actions for reason(s) of imposing the withdrawal of recognition status. The application will be treated as new application.

##### **Note:**

1. *A showcase notice will be issued to the laboratory to reply within 10 days in case of initiation of any adverse action (except voluntary withdrawal of recognition for recognized laboratories, for which no showcase notice will be communicated to the laboratory).*
2. *An opportunity may be given to the laboratory authorized representative to be present in person during the process of adverse decision-making of that particular laboratory.*

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## 20. APPEAL

- 20.1. Lab may appeal against any adverse decision taken against it by NABL in respect of the lab's recognition.
- 20.2. The appeal made by the lab will be reviewed by an independent committee.
- 20.3. An opportunity shall be given to the appellant to present the appeal to the appeals committee. The appellant shall represent himself/herself or depute representative(s) from its own staff.
- 20.4. Based on the review of the data gathered through investigation, etc., the appeals committee shall finalize the decision on appeal within a reasonable time. lab as well as NABL team shall be informed of the outcome accordingly.
- 20.5. All decisions communicated to the appellant, are made, reviewed and approved by the person not involved in the activities in question.
- 20.6. NABL shall give formal notice at the end of the appeals handling process to the appellant.

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## 21. PRIVILEGES EXTENDED TO THE LABORATORY UPON RECOGNITION

21.1. Certificate of recognition shall be issued to the laboratories upon approval by NABL. The same will carry Certificate No. along with validity period. Below is the representation of NABL claim to be made by the recognized laboratory on its test reports.



### 22.2 Instructions to claim recognition:

- a) Recognized laboratory should claim recognition for the recognized test parameters by using above image in test reports.
- b) The image shall be legible and displayed only in the appropriate form and proportion.
- c) Electronic reproduction of above image is permitted provided that the requirements of this document are met, integrity of above image is maintained and distortion of graphic is avoided.
- d) Recognition under this scheme is site specific. The recognition claim shall be related only to the specific temporary site laboratory location/site that is covered under the recognized scope, and not with any other non-recognized site.
- e) Recognized laboratory shall not authorize the claim of recognition by their customers, sub-contractors or any other third party. It is the responsibility of each recognized laboratory to describe their recognition status in a manner that does not imply recognition in areas that are outside their actual recognized scope and facilities not covered under this scheme and to minimize the risk of a customer / general public being misled.
- f) The claim of recognition shall only be used by recognized temporary site laboratory during the period when it holds valid recognition.
- g) If recognized laboratory wishes to claim recognition, then they may write the following statement: "Recognized for NABL Temporary site testing Labs Program vide NABL-TSLC- XXXX".
- h) There shall be nothing in test report or in any attachment or other material, which implies or may lead any user of the results or any interested party to believe/ made to believe, that the work is recognized by NABL when in fact it is not.
- i) The subcontracted test results shall be clearly and unambiguously identified in the test report.

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### 22.3 Situations when not to claim recognition

- a) Applicant laboratories shall neither claim recognition nor use any image related to NABL and/or NABL recognition program.
- b) When a laboratory is derecognized by NABL, then the laboratory shall neither claim recognition nor use any image related to NABL and/or NABL recognition program.

**Note:** Once derecognized, the laboratory shall immediately cease to issue test report claiming the NABL recognition in any form; and shall cease publishing and/or distribution of documents (including promotional material & advertisement, website, letter head etc.) containing the NABL recognition status.

### 22.4 Actions for Misuse/ Misclaim of recognition

- Any misclaim of recognition under this scheme in any form shall be treated as misuse of recognition and suspension of recognition process shall be initiated against the laboratory. If repeated misclaim or misuse of recognition is observed, then withdrawal of recognition process shall be initiated against the laboratory.

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## 22. Fee Structure

Application Fee (non-refundable, to be paid along with the application)	₹ 11,000				
Annual Recognition Fee (per year from the date of recognition) Note: Annual Recognition fee is payable in advance and is non-refundable and non-adjustable.	₹ 24,000				
Overhead Charges	₹ 11,000				
Assessment Charges (payable after the completion of the assessment visit to the lab)	Comprising of - Travel, Boarding, Lodging - Honorarium for NABL Assessors - Overhead Charges				
Travel, Boarding and Lodging expenditure	<p>The lab will make the travel arrangements for assessors as per the following entitlements. Any travel or boarding and lodging beyond the following entitlement shall be agreed upon in advance by the lab under the intimation to NABL. The laboratory shall not make any cash transactions/money transfers in any mode etc. with the assessor. Also, lab shall ensure the safety and security of the assessor visiting their premises for conducting assessments.</p> <p><b>Travel</b> If the journey is more than 300 km, travel to be made by Air in economy class (Apex fare). If the journey is up to 300 km, travel may be made by train in 2nd AC Class / AC Chair Class or by AC Bus. If the outstation journey is made by own car, the reimbursement will be restricted to 2<sup>nd</sup> AC class fare by train. Travel within the city by taxi will be reimbursed on the production of receipts/bills. In the absence of taxi bills or travel by own car within the city, claim will be reimbursed @ ₹ 15 per km. Any other relevant expenses during the travel will be reimbursed only on the production of receipts/bills.</p> <p><b>Boarding and Lodging</b> A single occupancy AC accommodation to be provided for each Assessor in a reasonably good hotel/guest house and arrangement for local transportation from temporary residence to the lab site and airport/railway station/bus stand to be made. The lab shall pay for meals of the Assessor/ Observer during the stay, within reasonable limitations.</p> <p><b>Note:</b> <i>The travel, boarding &amp; lodging for Observer/ NABL Officials joining assessment as Observer, shall be borne by NABL.</i></p>				
Honorarium for NABL Assessors	<table border="1"> <tr> <td>- by Lead Assessor</td> <td>₹ 5,500 per day</td> </tr> <tr> <td>- by Technical Assessor/ Expert</td> <td>₹ 5,000 per day</td> </tr> </table>	- by Lead Assessor	₹ 5,500 per day	- by Technical Assessor/ Expert	₹ 5,000 per day
- by Lead Assessor	₹ 5,500 per day				
- by Technical Assessor/ Expert	₹ 5,000 per day				

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## Committee

### **Technical Committee:**

1. Mr. E. Gopalkrishnan, Head–Consultancy Services, Dr. Fixit Institute of Structural Protection & Rehabilitation, Chairman of the committee
2. Dr. Shivakumar Babu, Professor, Indian Institute of Science, Member of the committee
3. Dr. K. Sivakumar, Head - Concrete Technology, L&T Construction, Chennai, Member of the committee
4. Mr. Aswin Moghe, Senior Vice President & Head Technical services – Key Accounts Cell, UltraTech Cement Ltd, Member of the committee
5. Mr. Paramand Ojha, Joint Director and Head-CDR, National Council for Cement and Building Materials, Member of the committee
6. Mr. Bharat Vadnal, Assistant General Manager, B.G.Shirke Construction Technology Pvt Ltd, Member of the committee
7. Mr. Venugopal C, Advisor, NABL, Member of the committee

### **Advisory committee:**

1. Mr. Jaxay Shah, Chairman, Quality Council of India
2. Mr. Manoj Gaur, Gaursons India Ltd, Chairman, CREDAI
3. Mr. Ranjit Naiknavare, Naiknavre Developers Pvt. Ltd, Chairman, RERA Committee, CREDAI
4. Mr. Chaitanya Kulkarni, CGK Constructions & Real Estate Pvt. Ltd, Chairman, Affordable Housing Committee, CREDAI
5. Mr. S. N. Raghuchandra Nair, SI Property Pvt. Ltd, EC Member, CREDAI
6. Mr. Jitendra Thakker, Thakker Developers Ltd., Constitutional Advisory Council, CREDAI

### **Review committee:**

1. Mr. N. Venkateswaran, CEO, NABL
2. Ms. Mallika Gope, Director, NABL
3. Ms. Anuja Anand, Director, NABL
4. Ms. Anita Rani, Joint Director, NABL
5. Mr. Ravi Rajkumar Johri, Deputy Director, NABL

### **Convener & co-convener**

1. Mr. Ramprasath. R, Joint Director, NABL
2. Mr. Neeraj Verma, Assistant Director, NABL

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