

पूर्वोत्तर सीमा रेलNORTH EAST FRONTIER RAILWAY

कार्यालय

मुख्य सतर्कता अधिकारी
मालीगाँव, गुवाहाटी-11

Office of the

Chief Vigilance officer
Maligaon, Guwahati -11

No. Z/VIG/68/05/A

दिनांक/Date: 07-10-2021

Pr.CE, CAO/CON-I, II & III.

DRMs/KIR, APDJ, RNY, LMG & TSK

Sub: System improvement regarding proper maintenance of cube test register.

Cube test register is maintained at site to keep records of cube test results of concrete in connection with assessing the quality of concrete being used for execution of different works and checking strength requirement of concrete with respect to acceptance criteria.

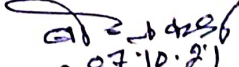
Acceptance criteria of concrete is detailed in Clause 4.4.9.2 and Annexure – 4.2 of “Indian Railways Unified Standard Specification – 2010” as well as Clause – 16 of IS-456 (incorporating latest correction slips).

During scrutiny of cube test registers, it has been observed that field officials are not checking/recording the acceptance criteria of concrete correctly in the cube test register. It has been observed that test result of individual specimen is not being compared with average of the strength of 03 specimens of sample to determine acceptance limit of variation. It has also been observed that the “Mean of the Group of 04 non-overlapping consecutive test results” are not being considered for determining the acceptance criteria, instead, result of individual samples (usually consisting of 03 specimens) are being considered. Furthermore, even after conducting several tests, no attempt is being made to establish the value of standard deviation.

Therefore, in order to ensure quality and to improve monitoring of concrete works at different construction site, following are suggested as system improvement:

- (i) Minimum number of Samples from the fresh concrete shall be taken as per frequency specified in para 15.2.2 of IS: 456 as well as para 15.2 of Unified Standard Specifications for Works and Materials.
- (ii) The test results of a sample shall be determined by taking average of the strength of 03 specimens. Individual variation shall be checked w.r.to average of strength of 03 specimens and recorded in the cube test register. Test results of the sample shall be treated as “valid” only if individual variation is not more than $\pm 15\%$ of the average.
- (iii) “Mean of the Group of 4 Non-overlapping Consecutive test results” shall be determined and then this mean value should be checked against the limits specified in Col. 2 of Table – 11 of IS: 456.
- (iv) In accordance with Note against Table-11 of IS: 456, attempt should be made to obtain results of 30 samples as early as possible to establish the value of standard deviation. The established standard deviation thus obtained (rounded off to nearest 0.5 N/m^2) should be considered while determining the acceptance criteria.
- (v) The acceptance criteria should be checked against Compressive strength as well as flexural strength as detailed in clause 16 of IS: 456.

In view of the above, all the concerned officials may be advised to adopt the above-suggested system improvement. A copy of the instruction issued may be sent to this office for record.


(बी. लक्ष्मी)

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