Review on Condition Assessment and NDT of Building

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Abstract- *as we know that we are facing the problems against the cracking, shrinkages, seepages, etc. to overcome this difficulty there are several techniques. NDT, which means Non Destructive Testing which helps to improve the structural damages after proper testing.*

I. INTRODUCTION

NDT is the test performing on the actual structure or object without damaging to get strength.NDT allows material to be examined without changing properties or destroying their usefulness.NDT gives quality assurance when it used properly. NDT can be easily investigated for New and old structure also. Thus, NDT methods are extremely valuable in condition assessment of building or structure such as bridges highways etc.

NDT is nothing but a non destructive testing which is generally been used for gaining the actual strength of building or a material or member of structure.non destructive testing is gradually using in construction to check the actual report of strength. Hence this method is used in actual structure to improve the strength and to recommend that the structure is capable to resist the further structure.

NDT truly received a great importance in terms of engineering value and is growing intention during recent years. Non destructive evalution of concrete are well known and extensively used. It is very important to use the non destructive technique. The main objective of NDT is to determine the strength as well as to avoid the damages or the activity of structural components. The NDT gives the brief idea about the condition assessment of the building and performing the various techniques.

Condition assessment of building which gives the brief idea about the damages, shrinkages, etc. of building. Depending upon condition the suitable methods are conducted, not only one method is applicable to do but also the more over methods are adopted.

Ultra sonic pulse velocity (UPV) is more usefull non destructive test, which are so familiar now-a-days and gives the correlation between RH number and UPV reading and to strength of concrete. Ultrasonic pulse velocity is also most commonly used method now a days so it very applicable to all user and hence to improve the strength of building is commonly used. Test procedure is well known described in IS: 13311 Part1 1992.

Also the Rebound hammer is usefull to detect the changes in concrete such as cracks, shrinkages, and seepages. This test is moniterated to the elastic mass depends on the principal which on the hardness of surface of rebound. Test procedure is described in IS: 13311 Part2 1992.

Objective:

1) Strength properties
2) Durability
3) Density
4) Elastic properties
5) Moisture content
6) Extent of visible cracks
7) Position &condition of steel reinforcement
8) Concrete cover over the reinforcement

The standard range of RCC building can be considered as 50-60 years approximately depending upon the use & importance. But many of building observed that distressing of structure & need to improve performance of builing depending upon the extent of deterioration of the structure.

Purpose:

1) Determining compressive strength
2) Determining unit formation and homogeneity of concrete.
3) Calculating integrity surface in comparison to other parts.
4) Identifying cracks in wall, voids and other incompleteness.
5) Supervising the structural changes in concrete wrt time.

II. LITERATURE REVIEW

chapter gives the idea about the previous work done in condition assessment of building and NDT of building. Condition assessments in earlier studies are presented and

roles of NDT discussed. Application of test and tools were discussed such as RHT, UPVT & Corrosion test.

CONDITION ASSESSMENT OF STRUCTURE

Literature review of previous work presented as below.

- S. Bhaskar et.al (2006) this paper carried out the reservoir assessment which is 30 years old by NDT method. Outcomes were efficient and reconstructable given by NDT. This includes visual observation and documentation, ultrasonic pulse velocity testing on columns. For corrosion activity Half call test were performed. Based on test result, it is found that distressing in structure due to voids, honeycombing and carbonation of concrete. Necessary measures suggested to improve repair strength and performance of structure.

- Jochen H. Kurz et.al (2012) this paper studied that the combination of different NDT method for material characterization, flaw detection. Therefore, multi-sensor system is necessary with high degree automation. Multi-sensor NDT plays an important role for infrastructure assessment. Also detailed information about inner structure is gained by ultrasound, radar, and eddy current for concrete coverage.
- Jochen H. Kurz et.al (2013) this paper said that the combination of different NDT method for material properties, flaw exposure. OSSCAR & BetoScan will be described.
- D. Breysse et.al (2008) In this paper, combination of several NDT to determine the actual RC structure. They clearly focus on the valuation of water ratio and concrete character.
- Akash Jain et.al (2013) They applied the practical examination on the effect of concrete mix material and related technique. RH and UPV of concrete are examined. They estimating concrete strength by using UPV. From an experimental study they derives the reading UPV and Rebound number gives brief idea about compressive strength.

III. DISCUSSION

Studied above research paper testings were carried out on the actual structure and gives the remedial measures hence it gives last attempts to get strength of building or a existing structure. By using the different methods to check the strength and capacity of structure.

IV. CONCLUSION

Based on above paper it concludes that the testing are carried on existing structure to get the final strength after repairing. Chemicals and reactor are the responsible material in remedial measures hence it is very important factor in building repairing.

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