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Site Visit Report

To

Dated 08/02/2016

The Secretary
The Oriental Co-operative Group Housing
Society Ltd, DC Chauk Rohini
Delhi-110085

Subject: Visit to Site for Assessment of structural health of the existing group Housing Society with reference to structural stability and safety as per earthquake resistant structural provision of NBC and other related general aspects.

Dear Sir,

The above site was visited by the undersigned on behalf of the secretary of the society to assess the various structural and services aspects of the structure in relation to its suitability against various safety provision of the NBC of India and related IS codes. Our observations and conclusions are briefly given below based on the visual inspection carried out in the presence of the society secretary.

1. The existing buildings are G+3 storey Load bearing structure as structural supporting system. In some block some portion is only stilt+3 storey with columns and beams as structural supporting element.
2. The most of the columns in the stilt portion are either 230X450 or 230X600 in size.
3. The beams are normally 230X450 in sizes.
4. The most of the blocks are having flats on ground floor except in some block where the structure is having stilt for parking etc.
5. Extensive External cosmetic repairs have been observed in almost all the blocks of the society without addressing the structural damages caused due to various reasons.
6. The above society was built almost 25-30 years before i.e. in between 1985-1990.
7. Seepage has been observed at many places due to damages in the pipe lines of various services.
8. Spalling of concrete of beams in shaft portion and in balconies has been observed from many places.
9. Capillary action of Soil moisture has been seen above DPC due DPC failure.
10. Balconies parapet has been found to be cracked from many places.
11. Shaft beams have been extensively damaged due to rusting of steel and spalling of concrete.
12. Cracks have also been observed at some places in the slab of balconies and shaft beams, parapets etc.

13. Medium to large tress has been grown near some blocks causing the damage of the foundation system.
14. Drainage and sewer line pipes have been found to be severely damaged.
15. External plaster has been found to be leaving the brick surface.
16. RCC bands at Plinth, cill and lintel level was not provided which is necessary for eath quake resistant design of the structure.
17. Planters are found to be hanged on balcony parapet causing additional loading and damaging the concrete due to water seeping into the balcony slab.
18. Additional columns of very less strength have been provided to support deflecting balconies to save it from collapse.
19. Bricks used are of good quality and have enough strength to take care of superstructure load if properly protected from rains and sun.
20. There is no settlement of foundation at any place.

From the above observations and structural evaluations of basic structural systems the following conclusions and recommendations are made.

1. The structural design of the structure do not conform to various provision of earth quake resistant design codes like IS 1893-2002; IS 4326-1993; IS1905 and various other provision of IS 456-2002. Due to this the structure needs extensive seismic strengthening.
2. At the time the structure was built there were a little advancement in the technical knowledge of the earth quake resistant design. Since the state of the knowledge has advanced to a new level, which has not been taken care of during execution.
3. The existing 230 mm size of the columns do not satisfy the various provision of IS 13920, the ductile detailing of earth quake resistant design and hence needs structural strengthening.
4. The Safe bearing capacity of soil was not properly evaluated leading to inadequate design of foundation of the structure which needs retrofitting and strengthening against vibration and earthquake.
5. **The structural stability and safety is further compromised due to the additions and alteration carried out individually by the members and modification of internal existing layout.**
6. **The structure has weakened due to rusting of reinforcement of the beams, and slabs due to inadequate cover to concrete and use of salty water during construction.**
7. **The deterioration of structure is expedited further due to seepage from service pipe lines and DPC failure requiring strengthening and retrofitting.**
8. **The large tree adjoining the foundation has further weakened the foundation, it is strongly advisable to remove them after taking proper approval from the concerned authority.**
9. **Placing of flower pots on the parapet of balconies/ or terraces shall be discouraged as the seeping water entering into the slab causes rusting of reinforcement.**
10. **All external face require redoing of plaster and water proof paint.**

11. All damaged/faulty service lines shall be replaced immediately to prevent further damage to the structure.

Due to above observations and conclusions covering basic problems in structures it is recommended to go for Structural rehabilitation and structural strengthening to make the complex safe. This report is based on site visit and visual inspection based on sound engineering practice.

Thanking You,

Yours sincerely

Sadanand ojha

Dr. Sadanand ojha
(Managing Director,)