







## 7. Results and Discussions

The columns are tested for load-deflection. The load-deflection graph is plotted and ultimate load for each column is noted. The average ultimate load capacity for the columns is 230kN.

The cracks appeared at the load 200kN. The cracks are developed at the points of bolted connections.

The load carrying capacity of the column is safe enough to provide for a residential building up to 3storeys.

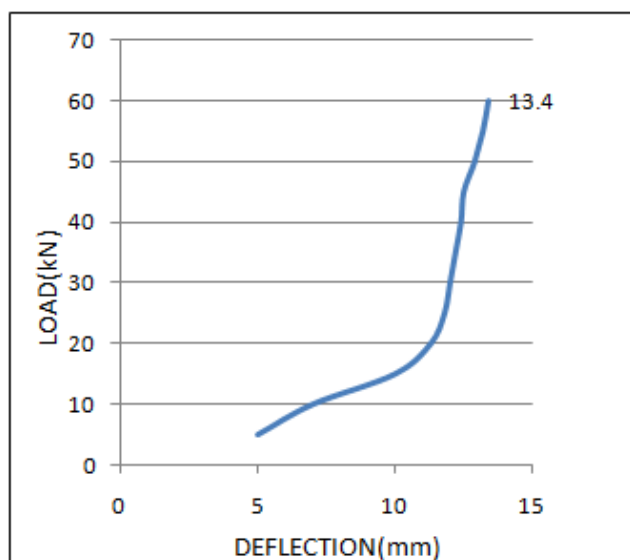


Figure 10: Load-deflection graph



Figure 11: Crack formation



Figure 12: Bending pattern of column

## 8. Conclusion

- The mechanical properties of bamboos are good and comparable with concrete and steel.
- The tensile strength dominates for bamboo when compared with the compressive strength.
- Bamboo can be used as structural members such as columns.
- The load carrying capacity for steel bolted bamboo column is high enough for a residential building which requires lesser load carrying capacity.
- It is a solution for many environmental problems caused by concrete.

## References

- [1] IS 6874:2008- "Method of test for bamboo" - Bureau of Indian standards- New Delhi
- [2] IS 9096:2006- "Preservation of bamboo for structural purposes – code of practice"- Bureau of Indian standards- New Delhi
- [3] Ajinkya Kaware, Prof. U.R.Awari, Prof. M.R.Wakchaure(2013) Review of bamboo as reinforcement material in concrete structure. International Journal of Innovative Research in Science, Engineering and Technology. Vol. 2, Issue 6, June 2013
- [4] Ghavami, K., (1988). Application of bamboo as a low-cost construction material. Proceedings of International Bamboo Workshop, Cochin, India, pp. 270-279.
- [5] Ghavami, K., (2008). Bamboo: Low cost and energy saving construction materials. Modern Bamboo Structures, Xiao, Y., Inoue, M., and Paudel S.K., eds., London, UK, pp. 5-21.
- [6] Nwoke, O.A and Ugwuishiwu, B .O (2011). Local bamboo and earth construction potentials for provision of affordable structures in nigeria. International Journal of Sustainable Construction Engineering & Technology, Vol 2, Issue 2, December 2011

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