

# Earthquake Analysis of Multi Storied G+10 RCC Building

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**ABSTRACT:** In India with a seismic moderate zone, the equivalent static force method to estimate the seismic force, subsequent vulnerability and behaviour of RC building under seismic load is inadequate. From past seismic tremors, it is seen that on the off chance that the structures are not appropriately examined and developed with required quality, then it may lead to great destruction and loss to human lives. It has been demonstrated that numerous structures are completely or halfway harmed because of the quake. This reality was never disregarded while plan of multi-story structures by the basic specialists, scientists to guarantee wellbeing against tremor powers while erection. In this Project seismic reaction of a private G+10 RC outline building is breaking down by the direct examination methodologies of Equivalent Static Lateral Force and Response Spectrum techniques utilizing Stadd Pro Ultimate software according to the Seems to be 1893-2002-Part-1. These analyses are carried out by considering different seismic zones. A substitute response like lateral force, story drift, displacements, base shear are plotted to think about the consequences of the static and dynamic investigation.

**KEYWORDS:** Earthquake, Seismic Zones, Multi-Storey Building, Response Spectrum techniques, Lateral Force, STAAD Pro

## I. INTRODUCTION

A seismic tremor might be characterized as the arrival of versatile vitality by sudden slip on a blame and coming about ground shaking and transmitted brought about by slip. Tremors are one of the most exceedingly bad among the cataclysmic events. Around 1 lakh tremors of extent in excess of three hit the earth each year. As indicated by a reservationist gauge of in excess of 15 million, human lives have been lost and harm worth hundred billion of dollars have been dispensed in the written history due to these. In present scenario, transformation of India due to urbanization, modernization & industrialization represents the level of development of our country. Rapid development indicates the scarcity of land and increases the demand of high-rise buildings. In today's era of modernization, major share in infrastructures are occupied by high-rise building structure and increases the demand of engineers & architect to plan & construct high-rise structures with more and more complex individual plan and elevation. The Indian subcontinent has suffered some of the greatest earthquakes & have most active seismic zone in the world. Prior decade, consideration of earthquake forces in structural design was neglected but today its consideration is significant one. Even though there is early advancement in field of seismic safety, moderate earthquakes in India are still became reason of thousands of people deaths and major property loss, representing the poor seismic performance of the existing infrastructure. There is a necessity: to build a more specialized environment for planning, analysing, designing, detailing and constructing earthquake resistant high- raised multi-storeyed structure by following seismic codal provisions. An earthquake-resistant high- raised multi-storeyed building has features like Good Structural Configuration, Lateral Strength, adequate Stiffness, Good Ductility which required adequate knowledge and experience to achieve in different zones of India. Bureau of Indian Standards [IS 1893 (part 1):2002] has grouped INDIA into four seismic zones and same structure in different zone have different behaviour under seismic load and have varying requirements for effective seismic designs of high-raised structure because of categorisation of zone as per intensities or magnitude of earthquake. Structural Analysis determines behaviour of structures so as to predict the responses of actual structures under the grading of predictable loading & outside environment during the service lifespan of structure. The present research describes the behaviour of (G+10) symmetrical high-rise multi-storey building structure under seismic analysis to