

Analysis of Multi-storey Building (G+7) due to Seismic Loading Using ETABS and compare its results with STAAD Pro

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ABSTRACT : *The result of analysis of RCC frame (G+7) residential building is analysis by the STAAD PRO and ETABS. The analysis of structure is done under the seismic load condition by the both software. The result found that under the both software by the seismic load compare the result of bending moment and displacement. That also need to compare the both software.*

KEYWORDS – Regular, Irregular, Multi-story Building, Steel structure, and E-Tabs.

BASIC DIFFERENCE BETWEEN BOTH SOFTWARE

STAAD PRO	E-TABS
<ul style="list-style-type: none"> • Staad pro is less updated as compare to E-tabs its updated version comes in 2008. • Staad pro always gives higher or over reinforcement. • Staad pro is better for the analysis of steel structure. • Staad is quite fast in analysis it takes less time as compare to E- tabs. 	<ul style="list-style-type: none"> • E-tabs is more updated with latest version of 2015. • E- Tabs Gives less or under reinforcement in comparison to Staad pro. • E- Tabs is good for analysis of concrete structure as compare to Staad Pro. • E- Tabs analysis procedure is slow as compare to Staad pro.

COMPARISON OF RESULT BOTH SOFTWARE

TBAL NO 1 MAXIMUM BENDING MOMENT BY STAAD

Floor Name	Maximum value in EQ-X (K-Nm)	Maximum value in EQ-Z (K-Nm)
1	15.617	15.592
2	16.555	16.675
3	15.982	16.081
4	14.668	14.709
5	12.566	12.675
6	10.560	9.662
7	8.021	6.046
Top Floor	4.413	3.040

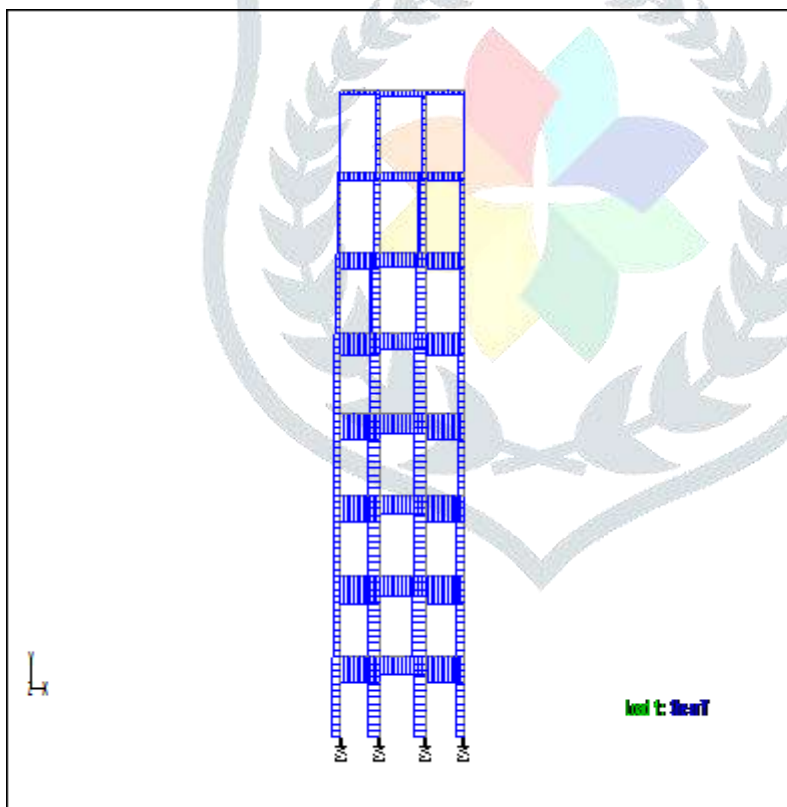
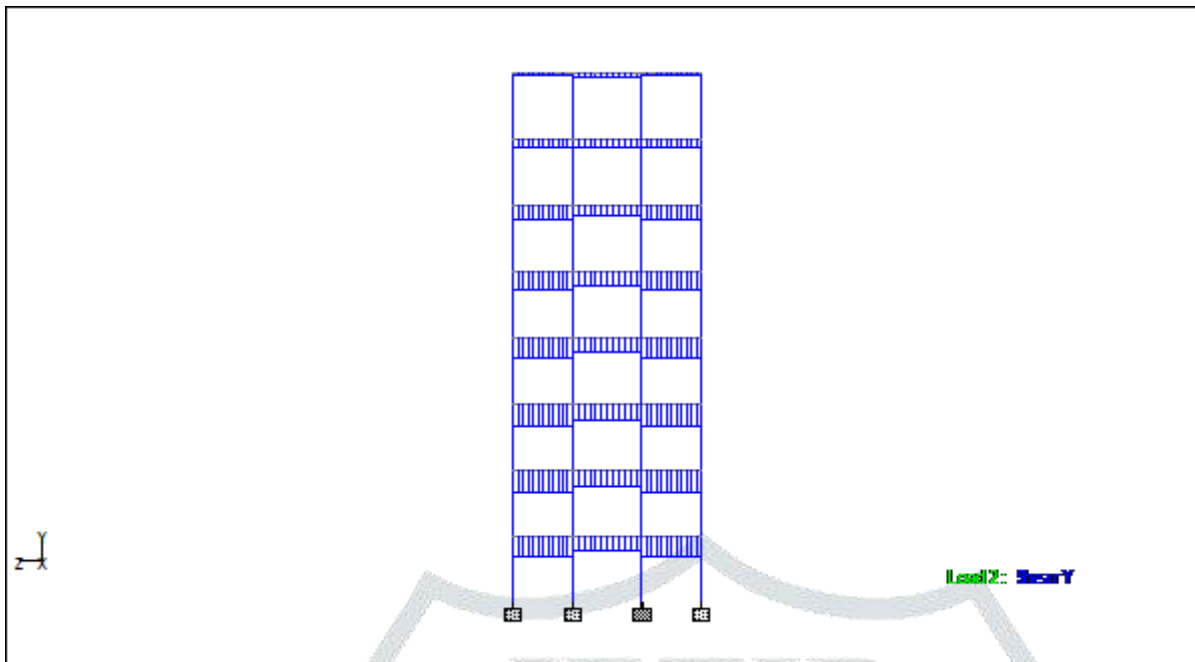
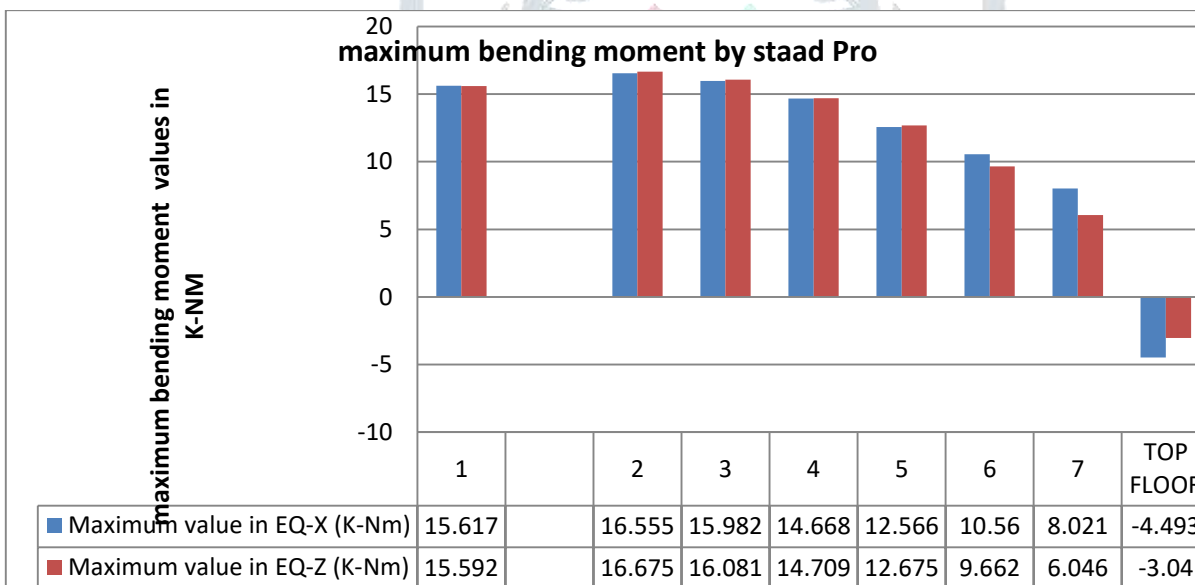


Fig no 1 shows Bending moment in x- direction by Staad pro

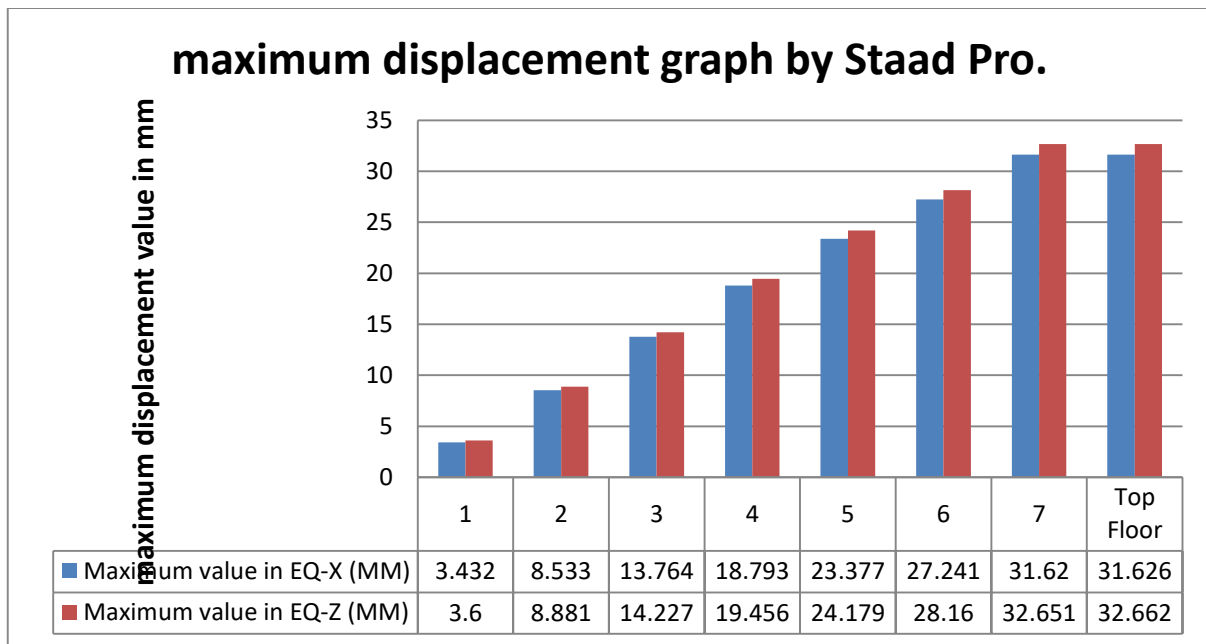


Bending moment by Staad pro on each floor in z- direction

GRAPH



Graph no 1 shows the bending moment on each floor in both direction



Graph no 2 shows maximum displacement on each floor in both direction

ANALYSIS BY E-TABS

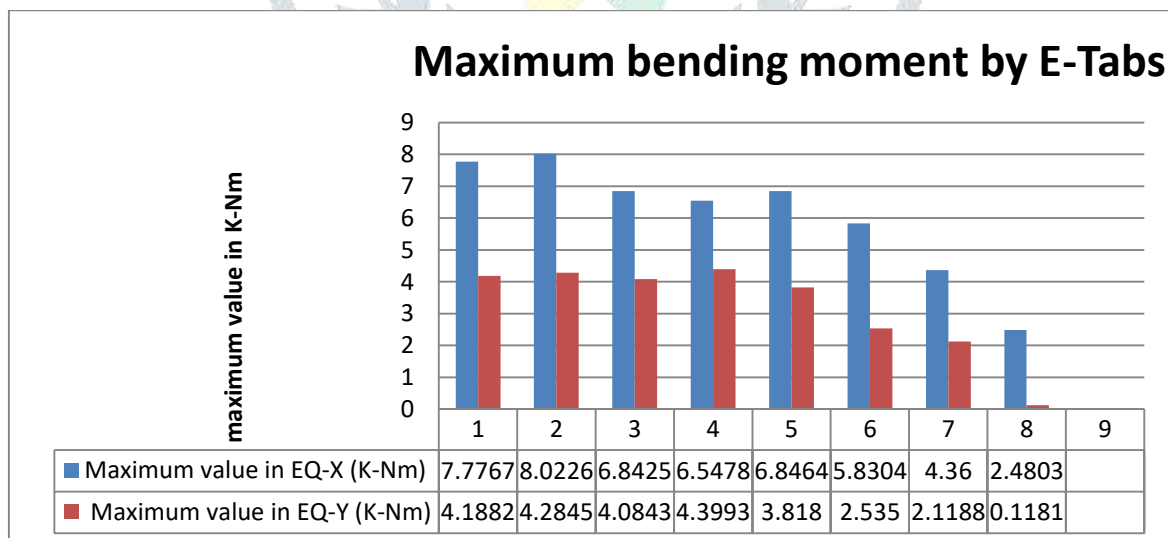
Table No. 2: Maximum Bending moment value on each floor

Floor Name	Maximum value in EQ-X (K-Nm)	Maximum value in EQ-Y (K-Nm)
1	7.7767	4.1882
2	8.0226	4.2845
3	6.8425	4.0843
4	6.5478	4.3993
5	6.8464	3.818
6	5.8304	2.5350
7	4.36	2.1188
Top Floor	2.4803	0.1181



Figure Shows Bending Moment On Each Floor In Both X And Y direction

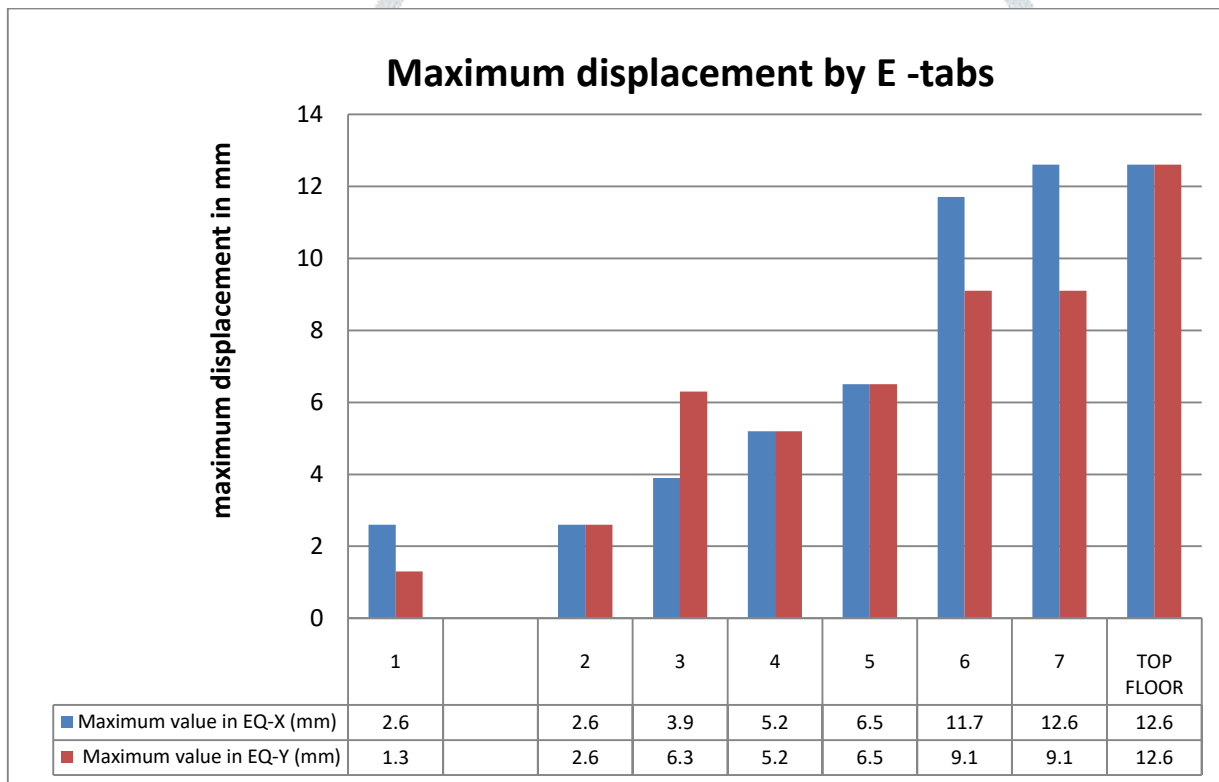
GRAPHS



Graph no 1 shows bending moment on each floor due to seismic load

Table No. 4: Maximum Displacement with Maximum Values on each Floor

	Maximum value in EQ-X (mm)	Maximum value in EQ-Y (mm)
1	2.60	1.30
2	2.60	2.60
3	3.90	6.3
4	5.20	5.20
5	6.50	6.50
6	11.7	9.10
7	12.6	9.10
TOP FLOOR	12.6	12.6



Graph no 2 shows maximum displacement values n each floor due to seismic load

Results and Comparison

- Bending moment on each floor by the both software in above table and graph has been given. In STAAD PRO the values on each floor is more than in comparison to E-TAB .these result comes under the seismic load
- Maximum displacement on each floor in E- tabs is less than in comparison to STAAD PRO there is such a big difference in values of displacement on each floor in comparison to the STAAD-Pro

RECOMMENDATIONS

STADD PRO is better software for steel design and E- tabs is good for the concrete design STADD PRO does not provide the detail design report but E-tabs provide the detail report with detail and it is useful for design analysis for future research work.

FUTURE SCOPE

The present study is done for RCC frame multistory residential building is analyze by the STADD PRO and E- tabs for the bending moment, shear force displacement and

Reinforcement under seismic load condition And results of both software is compared. The results of this type of study it can be vary by the story or and can be followed by the rise of building. This type of study can be done for the other load cases and result can be compared by the both software.

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