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Title: **DYNAMIC BEHAVIOUR OF RCC FLAT SLAB STRUCTURES UNDER EQRTH QUAKE FORCES AND DIFFERENT CONDITIONS USING ETABS**

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DYNAMIC BEHAVIOUR OF RCC FLAT SLAB STRUCTURES UNDER EQRTH QUAKE FORCES AND DIFFERENT CONDITIONS USING ETABS

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ABSTRACT
A significant amount of building uses the flat label scheme. It provides architectural flexibility, Clearer room, low construction height, easier forming, short construction time. But the flat plate structures are considerably more flexible than the conventional concrete structures since the beams are not usable. They are progressively prone to earthquakes. The object of this paper is in four cases to examine the behaviour of G+8

1. Flat configuration of the dropless slab
2. Flat plate structure with drop column
3). Shear wall flat plate arrangement
4. Flach structure with a drop column and a shear wall.

The study is performed using ETABS software, using the response spectrum process. The flat sheet 's action is analysed in four cases in terms of displacements of the storeys, floor drifts, shears and lateral loads. We may infer from these parameters that the flat shear-wall structure with the dropping of the column is more prone to extreme burdens.

Keywords: Flat slab, wall shear, comportement, spectrum response process, storey answers, ETABS.

CHAPTER 1
INTRODUCTION
1.1 General Introduction
The common practise in design and construction is to promote the plate with its beams and beams. It's called a beam column of a home. But the beam reduces the open ceiling 's net transparent height. The aesthetically low construction of this kind is nevertheless high efficiency. The aesthetic and architectural point of view was explicitly incorporated into columns in the recent experience. The manner in which the load is transmitted changes as columns are deleted. The protection of the building should nevertheless be controlled. Moreover, on the flat slab, seismic codes are silent. However, it can be understood from historical experience that the flat plate is highly vulnerable to earthquakes. The action of the flat plate construction is evaluated using the Response Spectrum approach to

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avoid failure.

1.2 About FlatSlabs

The production of technology in India is a flat-platbed construction. A sheet placed directly over columns without supporting beams is called a flat sheet.

Fig 1.1 Flat Slab resting directly on columns

Fig 1.2 Flat Slab with Drop panels

Fig 1.3 Flat slab with column capital

Fig 1.4 Flat slab with drop panel and column Capital together

1.2.1 Advantages of FlatSlabs

The following advantages over conventional buildings are the flat slab buildings.

1. The ease of formwork building.

2. The height of the ceiling is clear.

3. The pleasure and appeal. The pleasure.

1.2.2 Flat Slabs Drawbacks

1. Flat slab system rigidity is less than the slab-beam-column system. These significant moments can not be transferred effectively.

1.2.3 Load Transfer Mechanism in FlatSlab

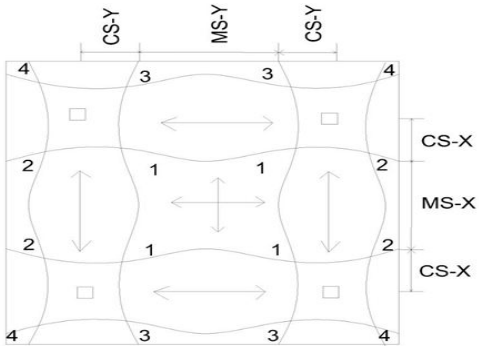

Fig 1.5 Actual load transferring system in column and middle strips

Figure 1.5 indicates that part 1-1-1-1 is charged by a 2-way action with the column stripes 2-1-1-2, and part 3-1-1-3 behaves as two-way action supports for the centre strip. Figure 3-1-1-1-3 The column bands act in the thickness of the plate as shallow beams.

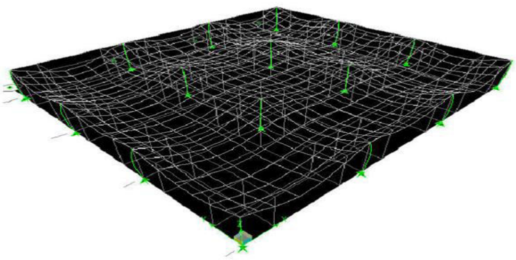

Fig 1.6 Flat slab deformation under gravity loads

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1.3Behaviour of Flat Slab under Earthquake Loads

In comparison to the frame structure, the performance of the flat plate construction in seismic loadings is poor, due to lack of frame motion, which results in excessive lateral deformation. The column declines in low seismic areas can be resolved. But the transference by shear from the dome to the column increases further and leads to bount shear failure during earthquakes. What is this destructive structure?

1.4 Failure Modes of FlatSlabs:

The protection of flat shears and flat shears in shear must be thoroughly tested. In the past, most failures have been recorded, particularly in the outside columns, due to an improper shear transfer design. This is because shear forces in flat layers and bending times generated in outside columns are not sufficiently appreciated.

One Way Shear or BeamShear:

Thecriticalsectionfortfor the column and edge of the drop is equally effective.

Two Way Shear or Punching ShearFailure:

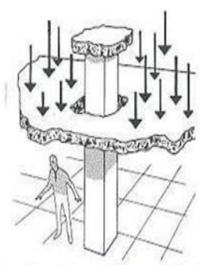

Fig 1.7 Punching shear failure in Flat slab

The capacity to "punch" a form of shear failure if the concentration load is applied. Likewise, if flats or plates are lying on columns and are exposed to a load of gravity, they are also bent in two ways.

CHAPTER 2

LITERATURE REVIEW

Shruti Ratnaparkhe, Dr. Padma Gome, Dr. Uttamasha Gupta1, Seismic behaviour of buildings with drops (International News and Technology Journal)

Sathawane and R.S. with A. Deotale (International Journal of Ofen Engineering Research) and GridSlab Architecture and theirCostComparison.

Amin Ghali,Mahmoud Z. Elmasri, And Walter Dilger Special Shear Strengthening flat plates under static dynamic transmission (US institute of concrete)

Wayne Kirk Shear Reinforcement in a Flat Plate Reinforced Burst Structure (American concrete institute) in the slab-column connects Leonard Scavuzzo, S Unnikrishna Pillai.

R.C. The International Structural Engineering and Construction Management Conference (ISCEM-2013) Mohd Rizwan Bhina, Arnab Banerjee, D.K. Paul Audit of various aspects R.C. Assessment of various aspects R.C.

CHAPTER -3

METHODOLOGY

3.1 General

Static analysis or dynamic analysis may be conducted for earthquake analysis of a system. Power of load, ductility, rigidity, damping and mass are the major parameters for the sismic study of the structures. The IS 1893-2002 Code is used for the seismic analysis of multistage structures. This study shapes and analyses the buildings with a description of the answer spectrum.

3.2 Study of the earthquake

A structure can be tested with four different approaches.

• Static (static equivalent) linear analysis

• Static non-linear analysis (push analysis)

Linear dynamic study (continuity of answers study)

• non-linear (tempo historical) analytical complex; •

3.2.1 Static method equivalent

This is the safest way to research and produce fair outcomes for earthquakes. It is prescribed and widely used in any relevant earthquake analyses code, particularly in buildings and other common structures that meet certain regularity requirements. The method is also known as the method of side forces, because the earthquake effects were meant to be identical to the effects of static cross loads. Each code presents itself as a process to calculate and distribute static equivalent forces for the achievement of a structural earthquake effect. The minimum laterally seismic force is commonly known as the fundamental shear force.

3.2.2 Nonlinear static analyses

Non-linear static analysis is a method to assess the final load and deflection potential of a system. The structure is modelling and deforming or 'pushing' to shape enough hooks to create a mechanism for collapse or to exceed the plastic deformations limit at the hooks.

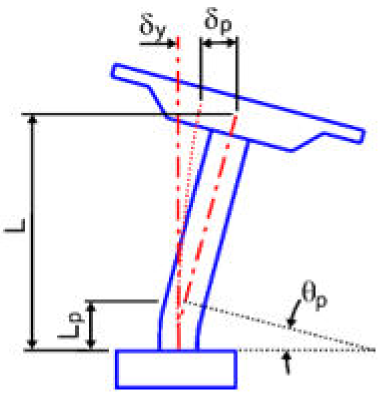

Fig.3.1 Push over deformation

It constitutes not only the direct evaluation of the overall structural response per element, but also makes the evaluation of inelastic deformations the leading response number in the case of inelastic response.

3.3 ZoneFactor

It depends on the seismic zone, the MCE and the structure's life cycles. Factor 2 in the denominator Z is employed in the reduction of the maximum conservation earthquake (MCE) to the basic design earthquake factor (DBE) value.

3.4 Importance Factor(I)

This will depend, but it will not be the case.(2) All other significant buildings, essential facilities and Community buildings (2) and all other important buildings, and the value of 1.0 are allocated.

The importance of I depends on the economy. Strategic factors such as multi-story buildings are vital facilities in order to conserve the peace, health and safety of the general population.

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The essential facilities are buildings that have to be secure and accessible for emergencies after a significant erosion.

3.5 Response ReductionFactor (R)

Doctile or broken deformations represent structural performance during earthquakes. In the first place, the need to incorporate this structure is an elastic one. The structure must be given a minimal inelastic yield, considering that its vertical carrying capacityand endangeringlifesafetys shouldn't be hampered. This creates the forces which are more or less matching those in an actual structure. This is the basic shear equation.

3.6 TimePeriod

The elastic characteristics and mass of the build-up induce a vibratory motion, while the vibration is subject to vibration. Andthis vibrationisinaformof so-called modes. In buildings on a low elevation (i.e. less than 5 storeys), the seismic reaction is mainly based on the fundamental mode of vibration.

CHAPTER 4

MODELING AND ANALYSIS

4.1 Building Data

Table 4.1 Description of the Building data

1	**Details of the building**	
i)	Structure	OMRF
ii)	Number of stories	G+8
iii)	Type of building	Regular and Symmetrical in plan
iv)	Plan area	32 m x 24 m
v)	Height of the building	24 m
vi)	Storey height- Bottom story	3.0 m
	Typical story	3.0 m
vi)	Support	Fixed
viii)	Seismic zones	IV
2	**Material properties**	
i)	Grade of concrete	M30
ii)	Grade of steel	Fe415
iii)	Density of reinforced concrete	25 kN/m^3
iv)	Young's modulus of M30 concrete, E_c	27386127.87 kN/m^2
v)	Young's modulus steel, E_s	2 x 10^{8}kN/m^2

3	**Type of Loads & their intensities**	
i)	Floor finish	1.5 kN/m^2
ii)	Live load on floors	3 kN/m^2
iii)	wall load on beams	3.9 kN/m^2
iv)	Parapet wall load	1 kN/ m^2

4	**Seismic Properties**			
i)	Zones	IV	0.24	
ii)	Importance factor (I)		1	
iii)	Response reduction factor (R)		5%	
iv)	Soil type		II	
v)	Damping ratio		0.05	
5	**Member Properties**	**No. of stories**	**Grade**	**Section sizes (mm)**
i)	Column	Base to 8th	M30	700 x 700
ii)	Beam	Base to 8th	M30	300 x 230 for all
iii)	Slab	Base to 8th	M30	175

4.2 Models of Structures

This analysis modelled ETABS and analysed using the Zone IV response spectrum method four different flat slab structures. In this analysis, The height, plan and 3D views of various plate structures are shown in Figures 4.1 to 4.5.

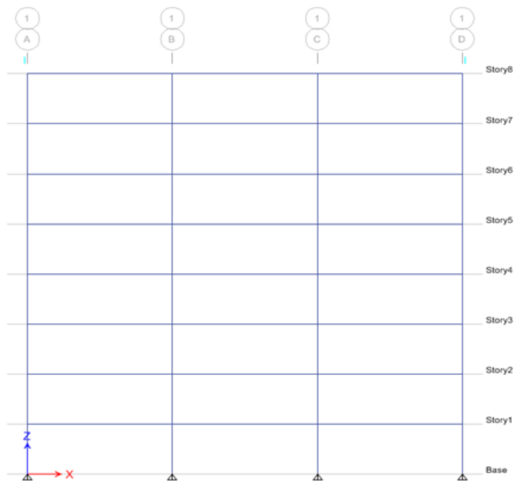

Figure 4.1 Elevation of the flat slab structures

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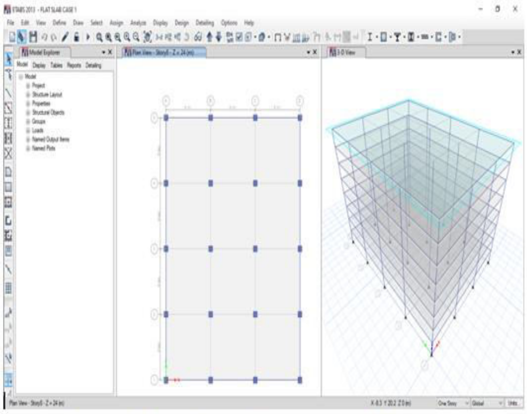

Figure 4.2Plan and 3D view of flat slab structure without drop

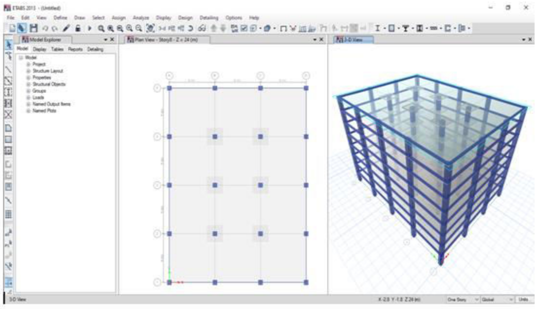

Figure 4.3Plan and 3D view of flat slab structure with drop

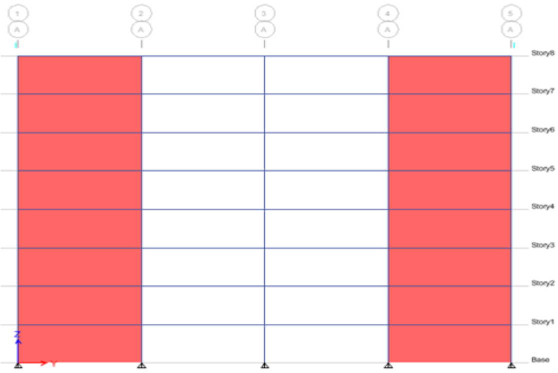

Figure 4.4 Elevation of the flat slab structures with shear wall

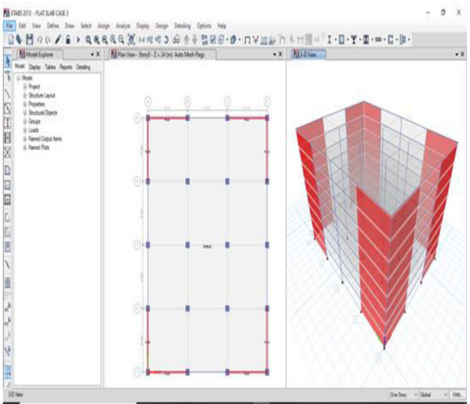

Figure 4.5Plan and 3D view of flat slab structure with shear wall

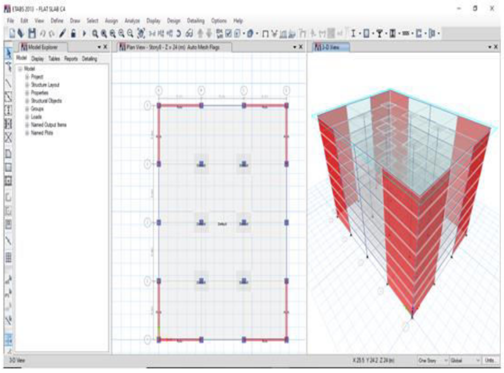

Figure 4.6Plan and 3D view of flat slab structure with shear wall and drop

CHAPTER 5

RESULTS AND DISCUSSION

5.1 Analysis results of flat slab structure without drop

Table 5.1 Storey displacements of flat slab structure without drop

Story	Elevation m	Location	For EQ X and Y	
			X-Dir (mm)	Y-Dir (mm)
Story8	24	Top	178.2	1.08
Story7	21	Top	158.76	0.99
Story6	18	Top	138.6	0.9
Story5	15	Top	117.54	0.81
Story4	12	Top	95.58	0.72
Story3	9	Top	72.72	0.54
Story2	6	Top	49.14	0.36
Story1	3	Top	24.84	0.18
Base	0	Top	0	0

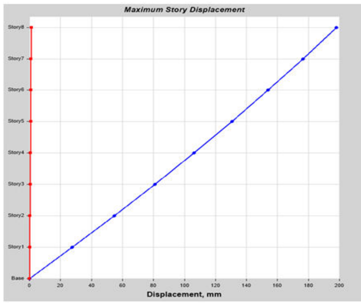

Fig: 5.1 Maximum storey displacements of flat slab structure without drop for EQ X and EQ Y

Table 5.2 Storey drifts of flat slab structure without drop

Story	Elevation m	Location	For EQ X and Y	
			X-Dir	Y-Dir
Story8	24	Top	0.006155	0.0000315
Story7	21	Top	0.006383	0.000027
Story6	18	Top	0.006658	0.0000315
Story5	15	Top	0.006953	0.0000396
Story4	12	Top	0.007232	0.0000486
Story3	9	Top	0.007481	0.0000567
Story2	6	Top	0.007692	0.0000639
Story1	3	Top	0.007865	0.0000684
Base	0	Top	0	0.0000315

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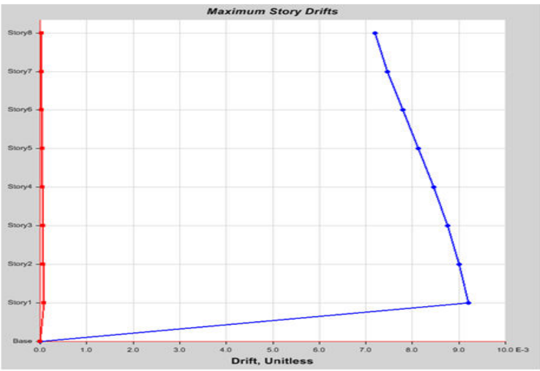

Fig: 5.2 Maximum storey drifts of flat slab structure without drop for EQ X a EQ Y

Table 5.3 Storey shear so flat slab structure without drop

Story	Elevation m	Location	For EQ X and Y	
			X-Dir (kN)	Y-Dir (kN)
Story8	24	Top	-105.252	0
		Bottom	-105.252	0
Story7	21	Top	-191.081	0
		Bottom	-191.081	0
Story6	18	Top	-254.139	0
		Bottom	-254.139	0
Story5	15	Top	-297.930	0
		Bottom	-297.930	0
Story4	12	Top	-325.955	0
		Bottom	-325.955	0
Story3	9	Top	-341.720	0
		Bottom	-341.720	0
Story2	6	Top	-348.726	0
		Bottom	-348.726	0
Story1	3	Top	-350.478	0
		Bottom	-350.478	0
Base	0	Top	0.000	0
		Bottom	0.000	0

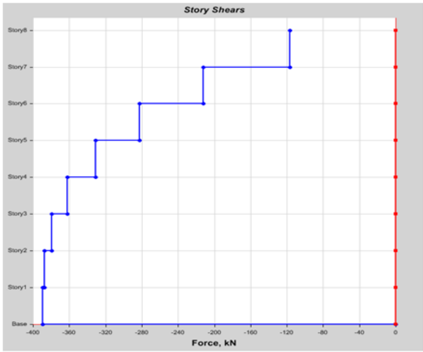

Fig: 5.3Storey shears of flat slab structure without drop for EQ X and EQ Y

Table 5.4 Storey stiffnessofflat slab structure without drop

Story	Elevation m	Location	For EQ X and Y	
			X-Dir kN/m	Y-Dir kN/m
Story8	24	Top	4895.968	0
Story7	21	Top	8575.911	0
Story6	18	Top	10943.779	0
Story5	15	Top	12301.260	0
Story4	12	Top	12954.196	0
Story3	9	Top	13143.749	0
Story2	6	Top	13056.364	0
Story1	3	Top	12840.280	0
Base	0	Top	0.000	0

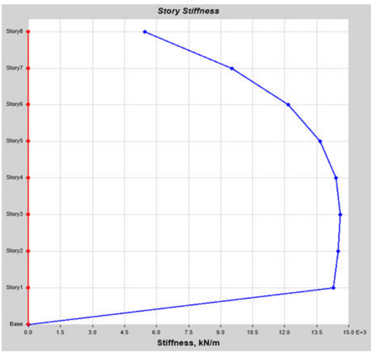

Fig: 5.4Storey stiffness of flat slab structure without drop for EQ X and EQ Y

5.2 Analysis results of flat slab structure with drop

Table 5.5 Storey displacements of flat slab structure with drop

Story	Elevation m	Location	For EQ X		For EQ Y	
			X-Dir (mm)	Y-Dir (mm)	X-Dir (mm)	Y-Dir (mm)
Story8	24	Top	187.844	6.120	5.814	147.420
Story7	21	Top	167.409	5.580	5.301	131.940
Story6	18	Top	146.205	4.950	4.703	115.650
Story5	15	Top	124.061	4.320	4.104	98.460
Story4	12	Top	100.890	3.600	3.420	80.370
Story3	9	Top	76.865	2.790	2.651	61.380
Story2	6	Top	51.899	1.890	1.796	41.580
Story1	3	Top	26.249	0.990	0.941	21.060
Base	0	Top	0.000	0.000	0.000	0.000

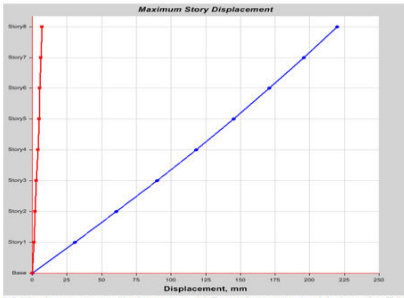

Fig: 5.5 Maximum storey displacements of flat slab structure with drop for EQ X

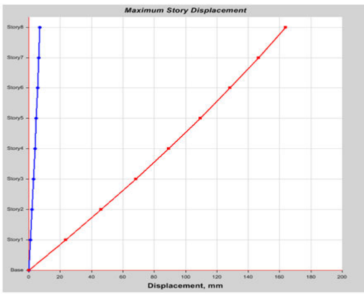

Fig: 5.6 Maximum storey displacements of flat slab structure with drop for EQ Y

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Table 5.6 Storey drifts of flat slab structure with drop

Story	Elevation m	Location	For EQ X		For EQ Y	
			X-Dir	Y-Dir	X-Dir	Y-Dir
Story8	24	Top	0.007178	0.000200	0.000189	0.005461
Story7	21	Top	0.007439	0.000216	0.000204	0.005714
Story6	18	Top	0.007772	0.000238	0.000225	0.006035
Story5	15	Top	0.008121	0.000261	0.000248	0.006370
Story4	12	Top	0.008451	0.000283	0.000268	0.006686
Story3	9	Top	0.008746	0.000304	0.000288	0.006968
Story2	6	Top	0.009000	0.000324	0.000307	0.007212
Story1	3	Top	0.009209	0.000339	0.000322	0.007419
Base	0	Top	0.000000	0.000000	0.000000	0.000000

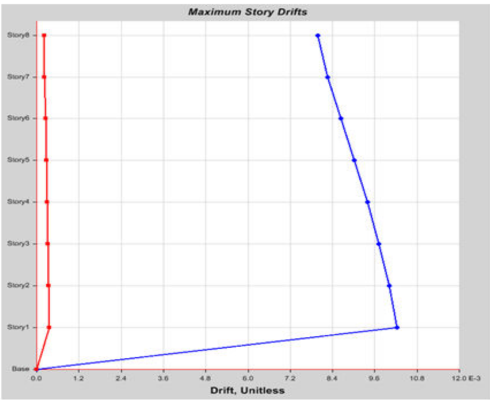

Fig: 5.7 Maximum storey drifts of flat slab structure with drop for EQ X

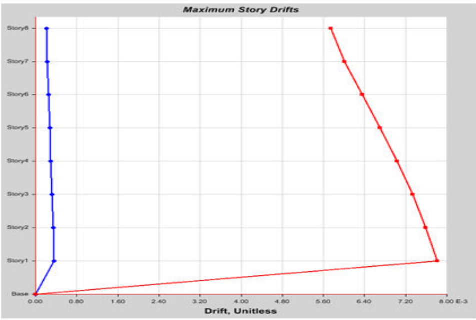

Fig: 5.8 Maximum storey drifts of flat slab structure with drop for EQ Y

Table 5.7 Storey shears of flat slab structure with drop

Story	Elevation m	Location	For EQ X		For EQ Y	
			X-Dir (kN)	Y-Dir (kN)	X-Dir (kN)	Y-Dir (kN)
Story8	24	Top	-131.320590	0	0	-131.320590
		Bottom	-131.320590	0	0	-131.320590
Story7	21	Top	-237.390275	0	0	-237.390275
		Bottom	-237.390275	0	0	-237.390275
Story6	18	Top	-315.318965	0	0	-315.318965
		Bottom	-315.318965	0	0	-315.318965
Story5	15	Top	-369.436190	0	0	-369.436190
		Bottom	-369.436190	0	0	-369.436190
Story4	12	Top	-404.071195	0	0	-404.071195
		Bottom	-404.071195	0	0	-404.071195
Story3	9	Top	-423.553320	0	0	-423.553415
		Bottom	-423.553320	0	0	-423.553415
Story2	6	Top	-432.212095	0	0	-432.212095
		Bottom	-432.212095	0	0	-432.212095
Story1	3	Top	-434.376765	0	0	-434.376860
		Bottom	-434.376765	0	0	-434.376860
Base	0	Top	0.000000	0	0	0.000000
		Bottom	0.000000	0	0	0.000000

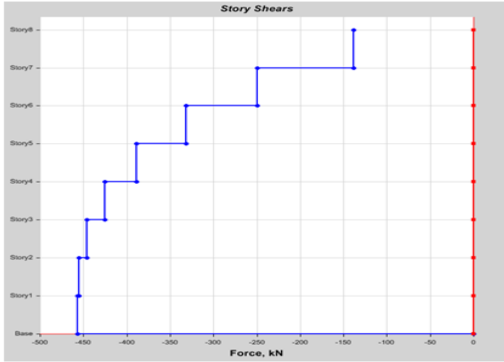

Fig: 5.9Storey shears of flat slab structure with drop for EQ X

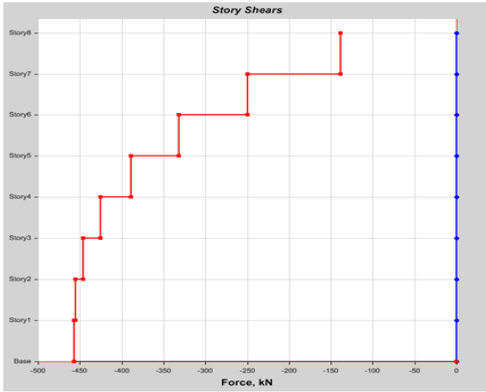

Fig: 5.10Storey shears of flat slab structure with drop for EQ Y

Table 5.8 Storey stiffnessofflat slab structure with drop

Story	Elevation m	Location	For EQ X		For EQ Y	
			X-Dir kN/m	Y-Dir kN/m	X-Dir kN/m	Y-Dir kN/m
Story8	24	Top	5387.753	0	0	7418.506
Story7	21	Top	9413.820	0	0	12828.241
Story6	18	Top	11993.293	0	0	16152.882
Story5	15	Top	13474.892	0	0	17952.340
Story4	12	Top	14186.860	0	0	18726.799
Story3	9	Top	14393.081	0	0	18853.685
Story2	6	Top	14296.991	0	0	18606.509
Story1	3	Top	14060.387	0	0	18192.007
Base	0	Top	0.000	0	0	0.000

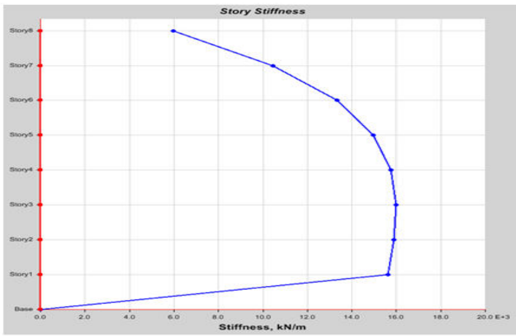

Fig: 5.11Storey stiffness of flat slab structure with drop for EQ X

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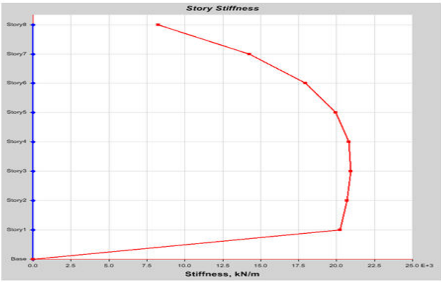

Fig: 5.12Storey stiffness of flat slab structure with drop for EQ Y

5.3 Analysis results of flat slab structure with shear wall

Table 5.9 Storey displacements of flat slab structure with shear wall

Story	Elevation m	Location	For EQ X and Y	
			X-Dir (mm)	Y-Dir (mm)
Story8	24	Top	3.240	0.25
Story7	21	Top	2.700	0.12
Story6	18	Top	2.250	0.11
Story5	15	Top	1.710	1.011E-02
Story4	12	Top	1.260	8.452E-03
Story3	9	Top	0.810	6.005E-03
Story2	6	Top	0.450	3.589E-03
Story1	3	Top	0.180	1.593E-03
Base	0	Top	0.000	0

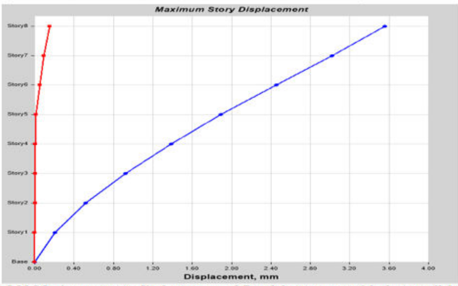

Fig: 5.13 Maximum storey displacements of flat slab structure with shear wall for EQ X and EQ Y

Table 5.10 Storey drifts of flat slab structure with shear wall

Story	Elevation m	Location	For EQ X and Y	
			X-Dir	Y-Dir
Story8	24	Top	0.000161	0.000018
Story7	21	Top	0.000168	0.000013
Story6	18	Top	0.000174	0.000013
Story5	15	Top	0.000151	0.000001
Story4	12	Top	0.000140	0.000001
Story3	9	Top	0.000121	0.000001
Story2	6	Top	0.000095	0.000001
Story1	3	Top	0.000060	0.000001
Base	0	Top	0.000000	0.000000

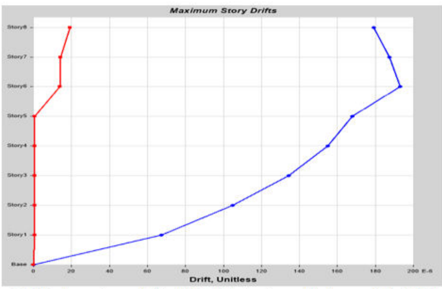

Fig: 5.14 Maximum storey drifts of flat slab structure with shear wall for EQ X and EQ Y

Table 5.11 Storey shears of flat slab structure with shear wall

Story	Elevation m	Location	For EQ X and Y	
			X-Dir (kN)	Y-Dir (kN)
Story8	24	Top	-821.579	0
		Bottom	-970.494	0
Story7	21	Top	-1644.291	0
		Bottom	-1758.305	0
Story6	18	Top	-2253.339	0
		Bottom	-2337.104	0
Story5	15	Top	-2680.877	0
		Bottom	-2739.048	0
Story4	12	Top	-2959.063	0
		Bottom	-2996.292	0
Story3	9	Top	-3120.050	0
		Bottom	-3140.992	0
Story2	6	Top	-3195.996	0
		Bottom	-3205.303	0
Story1	3	Top	-3219.054	0
		Bottom	-3221.380	0
Base	0	Top	0.000	0
		Bottom	0.000	0

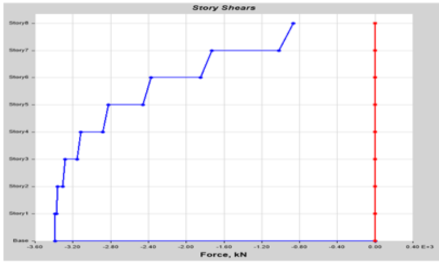

Fig: 5.15Storey shears of flat slab structure with shear wall for EQ X and EQ Y

Table 5.12 Storey stiffnessofflat slab structure with shear wall

Story	Elevation m	Location	For EQ X and Y	
			X-Dir kN/m	Y-Dir kN/m
Story8	24	Top	1820697.37	0
Story7	21	Top	3125941.88	0
Story6	18	Top	4069796.89	0
Story5	15	Top	5176415.27	0
Story4	12	Top	6147204.42	0
Story3	9	Top	7444807.30	0
Story2	6	Top	9747193.50	0
Story1	3	Top	15247786.50	0
Base	0	Top	0.00	0

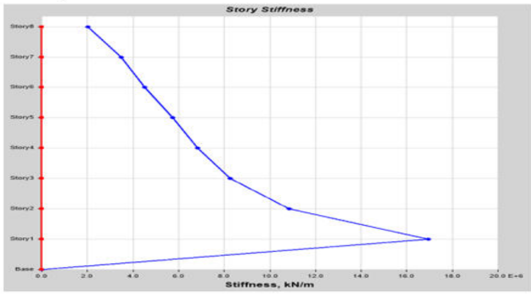

Fig: 5.19Storey stiffness of flat slab structure with shear wall for EQ X

5.4 Analysis results of flat slab structure with shear wall and drop

Table 5.13 Storey displacements of flat slab structure with shear wall and drop

Story	Elevation m	Location	For EQ X		For EQ Y	
			X-Dir (mm)	Y-Dir (mm)	X-Dir (mm)	Y-Dir (mm)
Story8	24	Top	3.33	0.1	0.1	3.42
Story7	21	Top	2.88	0.1	0.1	2.95
Story6	18	Top	2.34	0.1	0.1	2.47
Story5	15	Top	1.89	0.1	0.1	1.90
Story4	12	Top	1.35	4.65E-02	4.445E-02	1.43
Story3	9	Top	0.90	3.19E-02	3.145E-02	0.95
Story2	6	Top	0.54	1.775E-02	1.543E-02	0.57
Story1	3	Top	0.18	7.755E-03	7.773E-03	0.19
Base	0	Top	0.00	0	0	0.00

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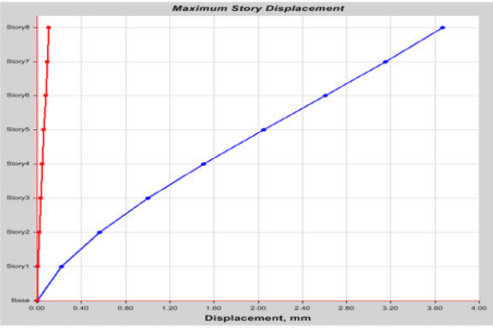

Fig: 5.20 Maximum storey displacements of flat slab structure with shear wall drop for EQ X

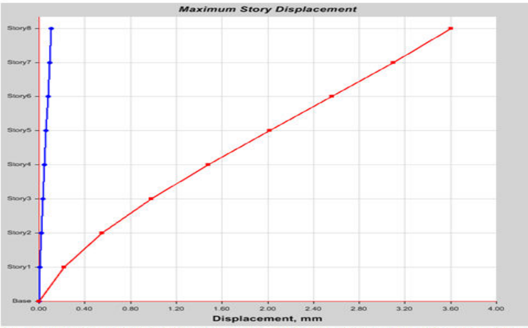

Fig: 5.21 Maximum storey displacements of flat slab structure with shear wall a drop for EQ Y

Table 5.14 Storey drifts of flat slab structure with shear wall and drop

Story	Elevation m	Location	For EQ X		For EQ Y	
			X-Dir	Y-Dir	X-Dir	Y-Dir
Story8	24	Top	0.000162	0.000005	0.000005	0.000161
Story7	21	Top	0.000173	0.000005	0.000005	0.000170
Story6	18	Top	0.000176	0.000005	0.000005	0.000173
Story5	15	Top	0.000172	0.000005	0.000005	0.000169
Story4	12	Top	0.000160	0.000005	0.000005	0.000157
Story3	9	Top	0.000139	0.000004	0.000004	0.000136
Story2	6	Top	0.000108	0.000004	0.000004	0.000106
Story1	3	Top	0.000070	0.000003	0.000003	0.000068
Base	0	Top	0.000000	0	0	0.000000

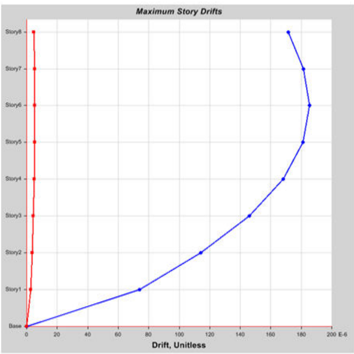

Fig: 5.22 Maximum storey drifts of flat slab structure with shear wall and drop for EQ X

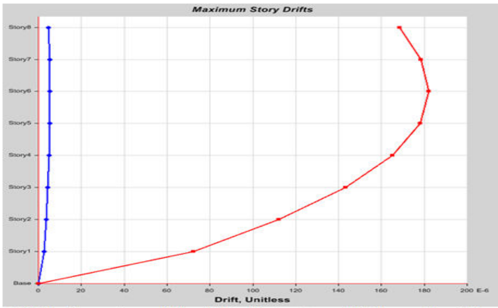

Fig: 5.23 Maximum storey drifts of flat slab structure with shear wall and drop for EQ Y

Table 5.15 Storey shears of flat slab structure with shear wall and drop

Story	Elevation m	Location	For EQ X		For EQ Y	
			X-Dir (kN)	Y-Dir (kN)	X-Dir (kN)	Y-Dir (kN)
Story8	24	Top	-995.88	0	0	-943.466
		Bottom	-1105.16	0	0	-1046.997
Story7	21	Top	-1929.32	0	0	-1827.777
		Bottom	-2012.99	0	0	-1907.043
Story6	18	Top	-2618.49	0	0	-2480.677
		Bottom	-2679.96	0	0	-2538.913
Story5	15	Top	-3100.45	0	0	-2937.270
		Bottom	-3143.14	0	0	-2977.712
Story4	12	Top	-3412.25	0	0	-3232.660
		Bottom	-3439.57	0	0	-3258.543
Story3	9	Top	-3590.95	0	0	-3401.951
		Bottom	-3606.32	0	0	-3416.510
Story2	6	Top	-3673.59	0	0	-3480.248
		Bottom	-3680.42	0	0	-3486.718
Story1	3	Top	-3697.24	0	0	-3502.652
		Bottom	-3698.95	0	0	-3504.270
Base	0	Top	0.00	0	0	0.000
		Bottom	0.00	0	0	0.000

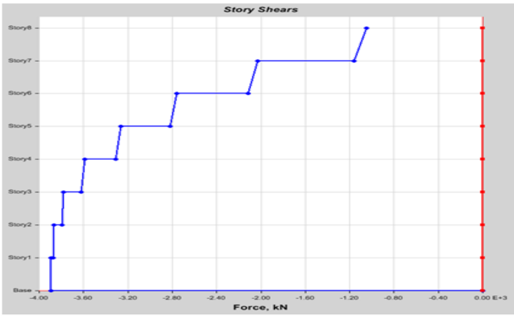

Fig: 5.24 Storey shears of flat slab structure with shear wall and drop for EQ X

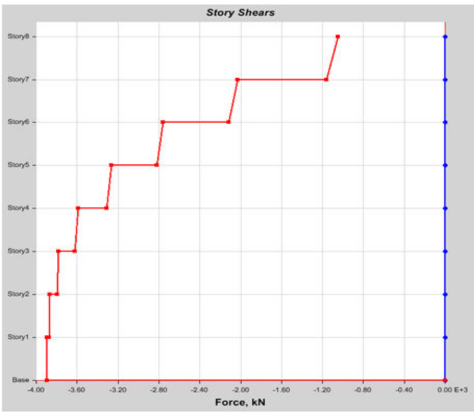

Fig: 5.25Storey shears of flat slab structure with shear wall and drop for EQ Y

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Table 5.16 Storey stiffnessofflat slab structure with shear wall and drop

Story	Elevation m	Location	For EQ X		For EQ Y	
			X-Dir kN/m	Y-Dir kN/m	X-Dir kN/m	Y-Dir kN/m
Story8	24	Top	2231840.58	0	0	2115205.67
Story7	21	Top	3841810.32	0	0	3640487.03
Story6	18	Top	5012300.85	0	0	4749794.89
Story5	15	Top	6018484.62	0	0	5703232.11
Story4	12	Top	7099187.14	0	0	6727323.42
Story3	9	Top	8579764.65	0	0	8130291.93
Story2	6	Top	11212031.99	0	0	10624663.05
Story1	3	Top	17505739.69	0	0	16586519.46
Base	0	Top	0.00	0	0	0.00

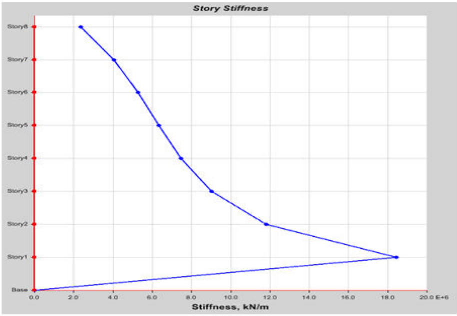

Fig: 5.26Storey stiffness of flat slab structure with shear wall and drop for EQ X

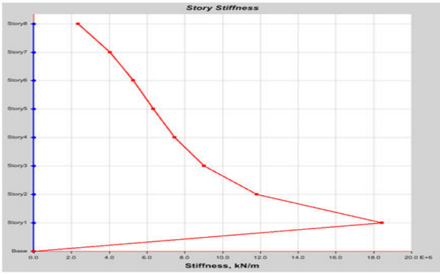

Fig: 5.27Storey stiffness of flat slab structure with shear wall and drop for EQ Y

CHAPTER 6
CONCLUSIONS
6.1 Conclusions

The following conclusions are drawn within the framework of the present work

• Furnishing flatslab column drops, shore displacements slightly lower, with the steepness slightly increased. However, in conjunction with shaving walls, the displacement reduction increases the steadiness of the lateral system in general.

• When flat slabs and shear walls combine, the reduction in thesedrifts increases the overall lateral rigidity structure. •

• Simple modes of supply of flat labstructures increase20% when drop labsarepresent, and increase steadiness through provision of walls to 96%.

• When column drops are issued, store shears increase. The shear wall is supplied to the framework of the column drop, which raises the shaft shears further.

• Flax label with a shearwall instead of the flat label with columndrop. flatslabattractsmoreshearvalue.

• Store and displacement of column dropstoflatslab slightly, as steepness slightly increases. However, when flat platens are coupled with shear walls, the displacementsreduces the overall side rigidity of the structure extremely steeply.

• The supply of fireworks does not have any effect on firewalls and firewalls attracts lateral moments from columns. The fireworks may be successful firewalls.

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