Mid-ASSIGNMENT/ QUIZ

Name MUSHTAQ AHMAD

Id # 7722

Section c

Subject introduction dynamic and earthquake engineering.

……

Qno1 .describe the types and configuration depicted in fig 1,2,&3.how they can affected seismic performance of structure and what are their possible solution.

Answer fig1:

Shear wall: shear wall are one of the most basic lateral load resistance elements in an earthquakes. Resistance building

To the purpose of shear wall is to collect diaphragm loads at each floor and transmit them as directly and efficiently as possible to the foundation. To interrupt this load path is undesirable.

Bracket centre: the *bracket centre can be provided to the lateral as well as horizontal seismic performance of structure to avoid earthquakes.*

And also has to be provided additional column plus shear wall elements thats to be Coordinate to the end of the frame structure

- *Shears wall*
- *Bracket center*

Providing additional column +shear wall elements end framstruure

possible solution: is to provide for large strength and stiffness

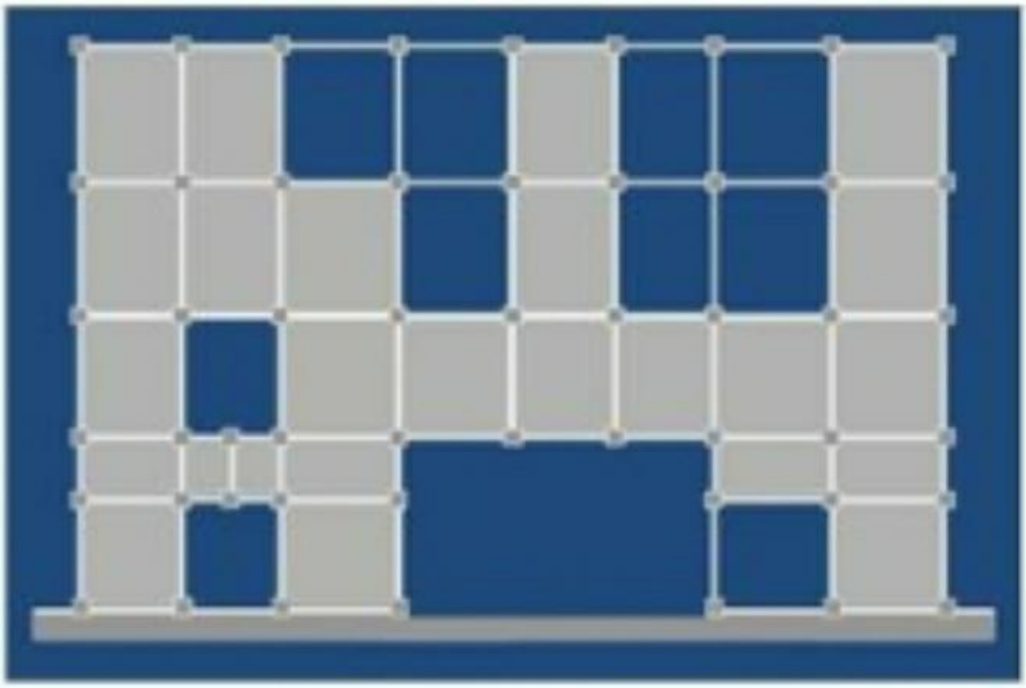


Figure 1

to buildings in direction of orientation.

- ……

Answer fig02:

_____ Soft stories is the most prominent of the problem caused by severe stress concentration is that of the “soft" story . The term has commonly been applied to the building whose ground-level story is less stiffness than those above portion a soft and weak stories at any height can be created a problem, but since the cumulative loads are greatest towards the base of the building.

And also provide additional brace plus

Additional column.

- Soft stories
- Lower portion is less stiffness.

- Upper portion is more stiffness.
- Additional braces +
- Additional column will be provided.

Figure 2

POSSIBLE solution:

This configuration is to separate corner from another .

To avoid seismic performance of structure during in an earthquakes.

Figuremo03:"

Re entrant corner:

The re entrant corner is the common characterization of the building forms that, in plan . Assuming the shape of an l,T,H, etc...or a combination of theses shape

These are two problem created bye shape.

The first is that that the tend to produce an differential motion between different wings of the building that, because of stiff elements that tend to be located in this region

The second problem of this form is torsion which caused because the canter of the mass of rigidly in this form cannot geometricaly coincided for all possible earthquakes direction. These results is rotation the resulting force are very difficult to analysed and predict.

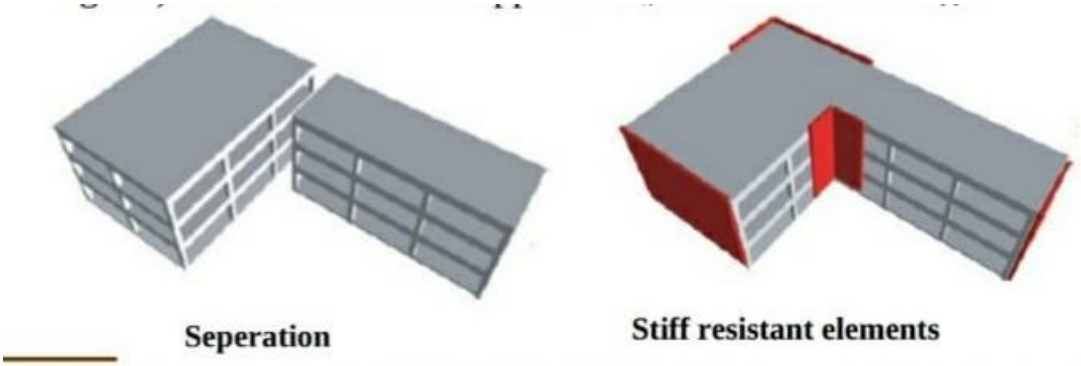
- *Re entrant corner.*

- *Differential has corner.*
- *In corner become of earthquakes.*

Figure 3

Their possible solution:

- *There are two alternative approaches to the problem re entrant corner structurally to separate the building into simpler shape.*
- ***The*** *use of played rather than right angles re entrant corner lessens the stresses concentration*
-



.....

Q of numerical problem.

Givendata .

E=29000ksi

I=1200in^2

Uniformly distracted gravity load =7722lb/ft

Required. Devolpe of equation of motion =p(t)

Solution:

Given data:-

$E = 29{,}000\ ksi$

$I = 1200\ in^2$

Uniformly distributed gravity load $= 7722\ lb/ft$

Required data Develop Equation of motion $= p(t) =$

Sol:- $m = \frac{w}{g} = \frac{7722 \times 20}{32.2\ ft/sec^2}$

$$\boxed{m = 4796.2\ Lb\ sec^2/ft.}$$

Now using D- Alembert's principle of dynamic motion.

$p(t) - f_I - \delta_{s1} - \delta_{s2} = 0$

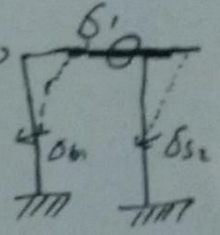
$p(t) - mu - (\delta_{s1} + \delta_{s2}) = 0$

$(k_1 u + k_2 u) + mu = p(t)$

$(ku) + mu = p(t)$

As $k = 3759\ K/ft$

$$\boxed{p(t) = 4796.2 + 3.759 \times 10^6}$$



where u and $p(t)$ are in ft and Lb.