Part No. a

Figure 01

- Shows Discontinious Shear wall
- If Seismic occur and there is not a continious load path through which load transfer from roof to foundation safetly.
- thus the result can be serious over stressing at a point of discontinious.
- Due to above situation structure can be damage and collaps at a critical point of structure.

Soloution :->

the Solooution to the problem of discontinious shear wall is to determine the shear wall.

- If the decision is made to use Shear wall then their pressure must be recognized from the begining of Schematic design and their size and location made the subject of carefol archetechure and engineering co-ordination early

Part No. (b)

Figure (02)

The figure 2 is soft story effect and stiffness of top story is mere as compared to first one

The discontinious between first and second floor level to result is the most serious condition

Possible Solootion

the Soloution of this type of problem in structure to add the following structural element

(i) Add more coloumn
(ii) Add bracing
(iii) add external butresses.

part No. "C"

Figure # 03

the figure (03) have reinterent corners have more stress concentration at these corner and therefore structure fail through twisting.

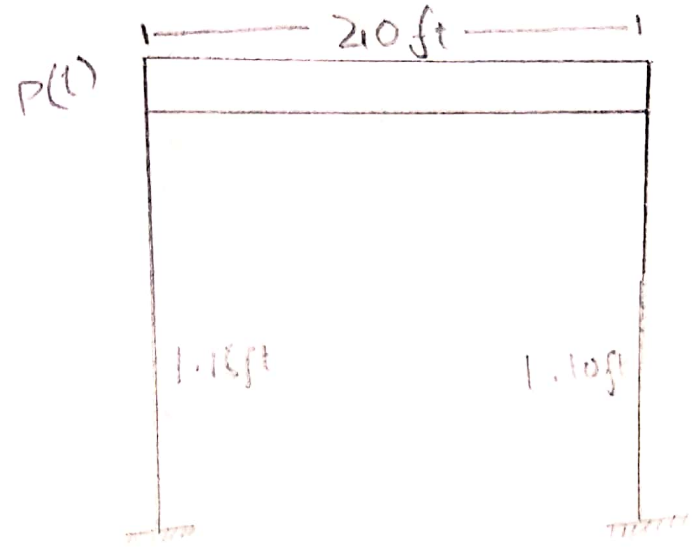
Soloution

(a) To provide the building will be together more strongly with element position to provide a more balanced resistence.

this soloution is usable only for small buildings.

Q No. 2

ANS Equation of motion for a frame under lateral dynamic force



As we know

$E = 29000$ ksi

$I = 1200$ in^4

Lets $L = 6871$ lb/ft^2

Soloution

As $K = K_1 + K_2$

$$K = 12 E t \left[\frac{1}{(15 \times 12)^2} + \frac{1}{(10 \times 12)^2} \right]$$

$$K = 313.29 \ K/in$$

OR

$$K = 3759 \ K/ft$$

Mass

As, $m = \frac{w}{g}$

$$= \frac{6.871 \times 20}{32.2 \ ft/sec^2}$$

$$m = 4.267 \ K \cdot sec^2/ft$$

$$m = 4.267 \ lb \cdot sec^2/ft$$

Slug $\quad w = 6871 \ lb/ft$

using D-Alemberts principal of dynamic equilibrium

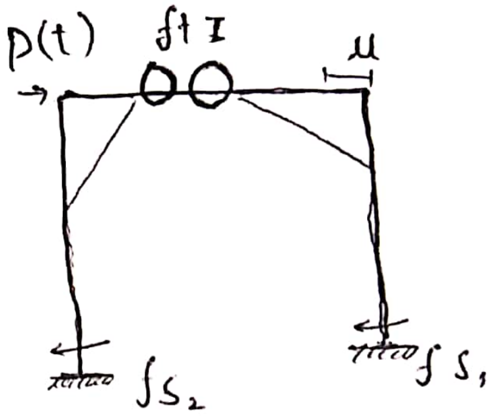
$$P(t) - f_I - f_{S_1} - f_{S_2} = 0$$

$$P(t) - m\ddot{u} - (f_{S_1} + f_{S_2}) = 0$$

$$(K_1 u + K_2 u) + m\ddot{u} = P(t)$$

$$Ku + m\ddot{u} = P(t)$$

As; By putting values



where u and $p(t)$ are in "ft" and "lb" respectively.

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