Name = Sajid Shahzaela

ID = 7685

Section = C

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Teacher = Engr: Yaseen khan

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Student Signature = Sajid

(Q=No=01)

Answer: Fig (I) Distcontinuous Shear wall

(1) Distcontinous shear wall: "Are those shear wall where no Continous load path found between roof to foundation.

Effect of discontinous shear wall:

They are effect by earth-quack.

During earthquake the shear wall break or distroyed at the center and fallclown and totally distroyed.

Solution of discontinous Shear wall:

There are many solution of the discontinous Shearwall but the most Common Solution is that.

* Add additional Column
* Shearwall or should be elimented
* Shearwall or Should be Continous from foundation or bottom to floor or top.

x=========x

Fig (II) Soft and weak Stories:

Explaination of weak Stories:

The term soft and weak Stories are applied for building whose ground level story is less Stiff than above.

Soft Stories building are less Stiff or more flexible while the above weak Stories have less Strength and Cause

problem at the height.

Solution of Soft and weak Stories:

The Common Solution of soft and weak Stories are to add additional Column or bracing or external buttresses to provid Stiffnen and Strength to building

Fig (III) Re-entrant Corner:

Explaination: Re-entrant Corner are of different Shap Such as L, H, T etc. but Fig (III) re-entrant Corner is "L" Shape.

Effect of re-entrant Corner: There are two different effect or problem of re-entrant Corner.

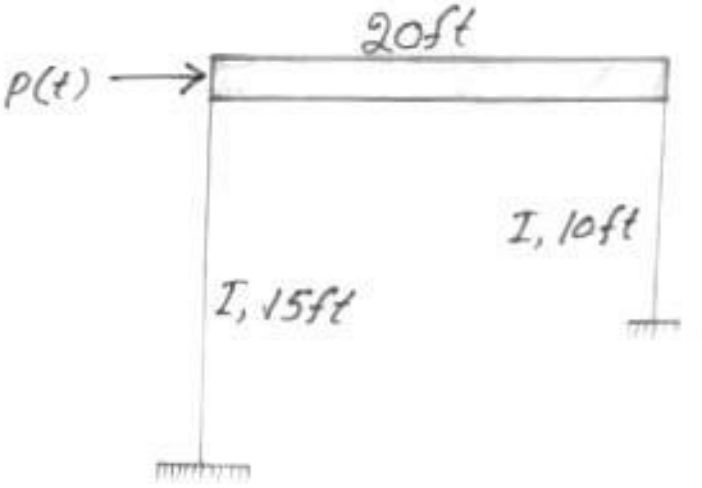
(1) 1st problem is that it produce differential motion b/w different Side/wing of the building due to Stiff element in these region and Cause stress Concentration in re-entrant Corner.

2 2nd problem is that it Produce or form Torsion due to the Center mass and rigidity are not geometrically Coincid for earthquake direction. The result is rotation and the force produce as a result is difficult to analyze and predict.

Solution of re-entrant Corner:

The building are Separated into Simpler Shapes or clue to element make tie the building to provid more balance resistance.

Q = NO = 02



Given data:

* $E = 29{,}000$ ksi
* $I = 1200\ in^4$
* Uniformly Distributed Gravity load $= 7685\ lb/ft$

Required data:

* Develop Equation of motion $= p(t) = ?$

Solution:

As; $K_{eq} = K_1 + K_2$

$$\Rightarrow K = 12EI\left[\frac{1}{h_1^3} + \frac{1}{h_2^3}\right]$$

$$= 12 \times 29000 \times 1200 \times \left[\frac{1}{(15\times12)^3} + \frac{1}{(10\times12)^3}\right]$$

$$K = 313.29\ k/in$$

$$\boxed{\Rightarrow K = 3759\ k/ft}$$

(5)

$\Rightarrow$ Now,

$$\Rightarrow m = \frac{W}{g} = \frac{7685 \times 20}{32.2\ ft/sec^2}$$

$$m = 4.773292\ k.Sec^2/ft$$

$$\boxed{m = 4773.292\ lb.Sec^2/ft}$$

Now using D-Alembert's principle of dynamic equilibrium

$$P(t) = ku + m\ddot{u} \rightarrow (1)$$

As $k = 3759 = 3.759 \times 10^6\ lb/ft$

Puting value we get

$$P(t) = 4773.292\ddot{u} + 3.759 \times 10^6$$

$$\boxed{p(t) = 4773\ddot{u} + 3.759 \times 10^6} \rightarrow \textbf{Answer}$$

Where u and p(t) are in ft and lb respectively.

==End==