

NAŞİT YILMAZTÜRK  
Civil Engineer

# Motional force on Earthquake and force against to Earthquake

*The Target of This Project :*

*With this project and the studies ,p<sup>2</sup>, it is targeted to be at service of the mankind and the sector and also to enable the countries ,where these projects are applied, to supply their citizens with high-tech and modern services.*

NAŞİT YILMAZTÜRK

Civil Engineer

$(p^2)$

*Section 1 :*

*The project is planned using central computer technology in order to supply the mankind with a safe, well-planned and clear service in minimized periods while ensuring the constructions during the urbanization to be vigorous, systematic, inexpensive , well-organized and based on the latest technologies.*

NAŞİT YILMAZTÜRK

*Civil Engineer*

(p<sup>2</sup>)

*Section 2 :*

*The equations detailed here was prepared in order to minimize the material losses and to save more lives and contains calculations to serve to the mankind for other issues.*

**NAŞİT YILMAZTÜRK**

*Civil Engineer*

$(p^2)$

*Section 3 :*

*The samples given in this section shows that the equation detailed here will guarantee an easier and faster result in greater calculations.*

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*Civil Engineer*

$(p^2)$

*Section 4 :*

*It is foreseen that the equation shown here shall correct some of the physical and astronomical mistakes. Its activities, effectiveness and the proofs were made.*

*Nisan 1999*

NAŞİT YILMAZTÜRK

*Civil Engineer*

*I would like to thank to T.Ü.B.İ.T.A.K. and its executive president for the evaluation and the approval of this project and also for the permission in registration of my studies with the Institution of Patent and Intellectual rights.*

*Best regards,*  
NAŞİT YILMAZTÜRK

<u>SYMBOLS</u>	<u>DESCRIPTION</u>
A	= Area
$B\zeta$	= Concrete group
$\sigma$	= Material selection
P	= Force
L	= Distance
E	= Elasticity module
i	= Moment of inertia
$\delta$	= Displacement
q	= Load
N	= Column load
M	= Moment
Mt	= Buckling moment
T	= Cutting force
$\tau$	= Displacement force
W	= Resistance moment
Wi	= Force per flat
K	= Compaction coefficient
V	= Sink
Rv	= Rotation redor
e	= Eccentricity
$tg\emptyset$	= Angle
R	= Redor
D	= Rigidity mode
$\delta r$	= Relative displacement
F	= Horizontal force
v	= Speed
$\Sigma$	= Total sum
h	= Height
Q	= Floor Cutting force
S	= Column
G	= Weight
t	= Time
f	= Frequency
a	= Acceleration
g	= Gravity



## **CONTENTS**

### **Section 1**

*Tall buildings  
in Urbanization and Habitation*

### **Section 2**

*Motional Force on Earthquake  
and  
Force Against to Earthquake*

### **Section 3**

*Atomic Equation and  
its Applications*

### **Section 4**

*Transmission Calculations*

*Section 1*

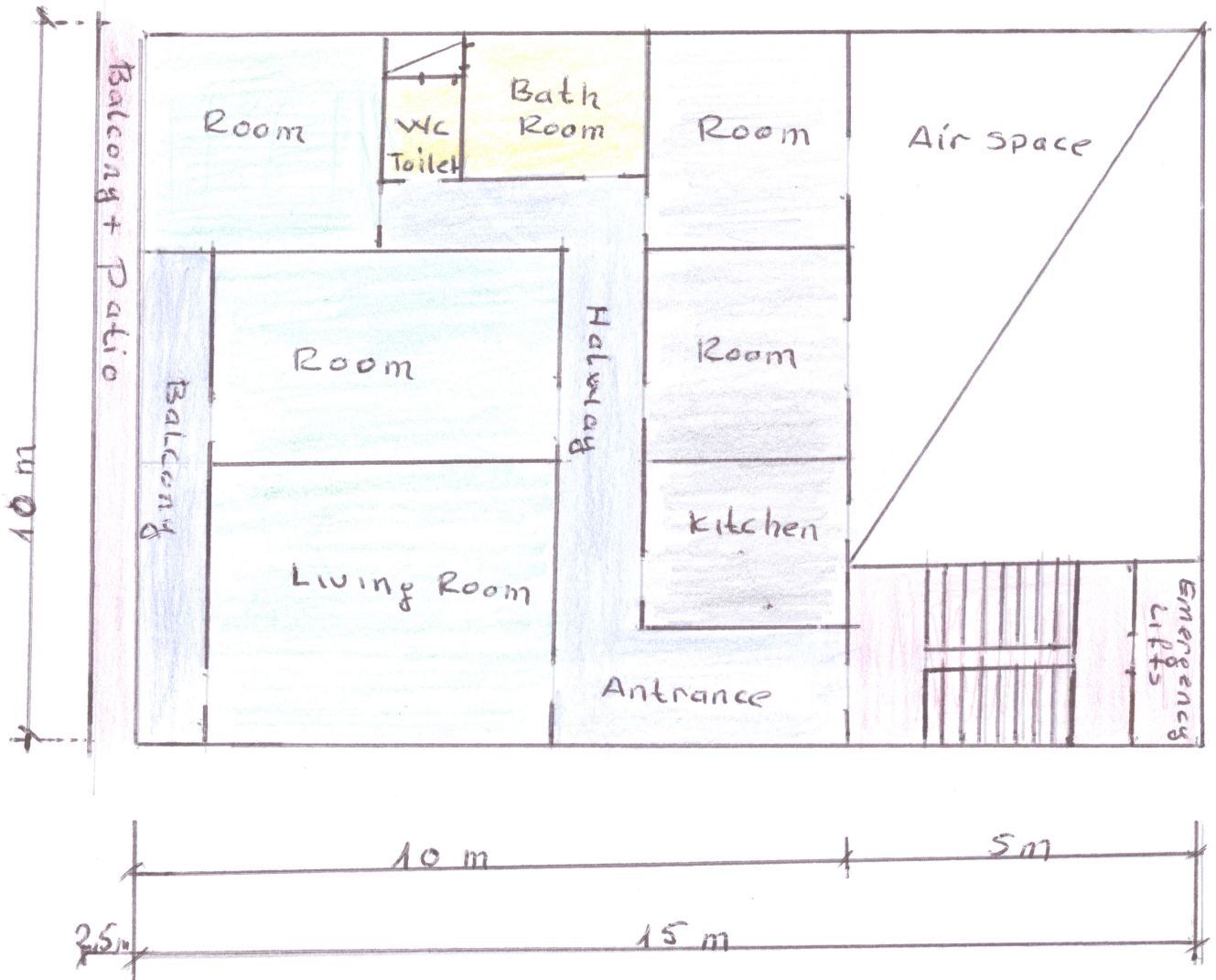
*TAIL BUILDINGS  
IN URBANIZATION  
AND  
HABITATION*

*Project : 330 floors  
Application : 200 floors*

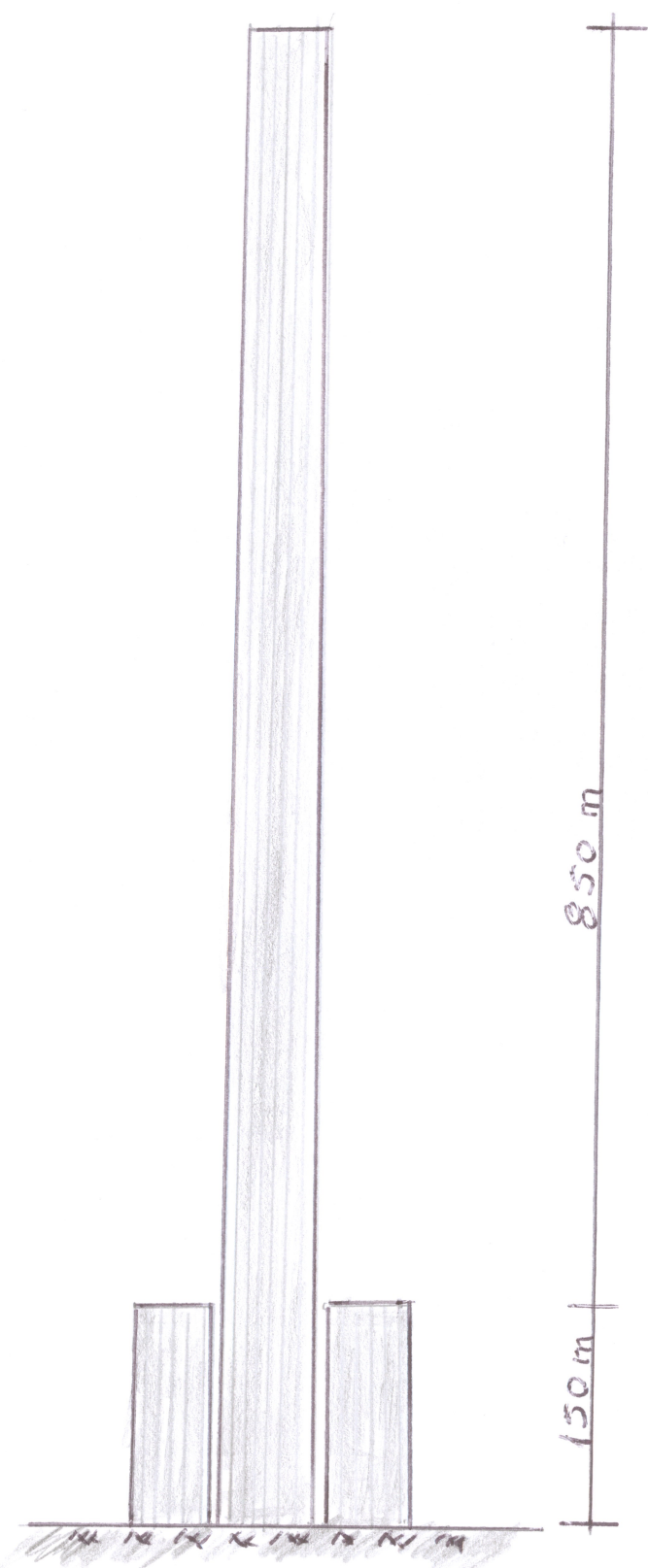
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*st:57*

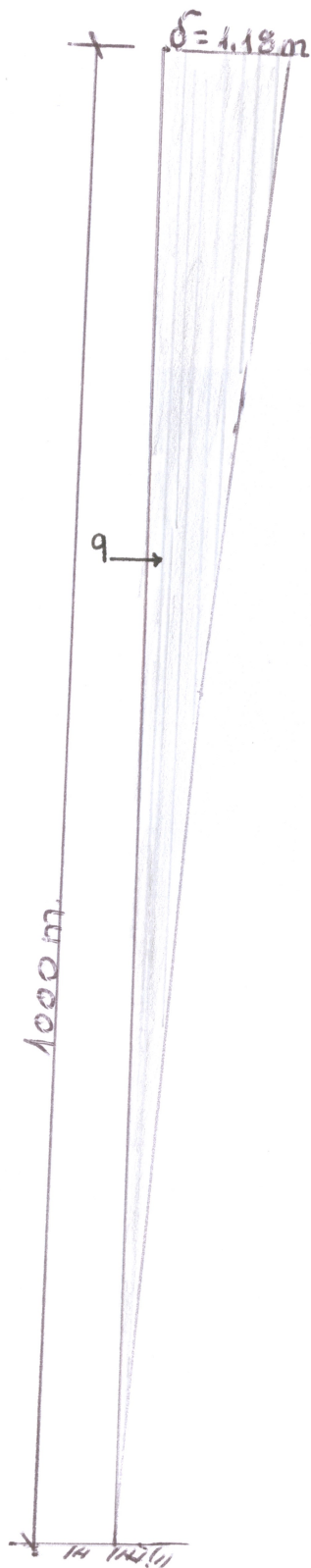




PLAN OF A FLAT     1/100



VERTICAL VIEW 1/5000



### Vertical Load

$$b = 100 \times 100 \times 1000 \times 2.4 = 2400 < 6000 \text{ t/m}^2$$

### Horizontal Displacement

$$\delta = qL^4 / 8EJ \text{ max}$$

$$J = \Sigma J + a^2 \cdot F$$

$$E = 2.10^6$$

$$J = 404597 \text{ m}^4$$

$$\delta = 8 \times 1000^4 / 8 \times 2.10^6 \times 404567$$

$$\delta = 1.18 \text{ m} < L / 300$$

Load capacity, max (q) = ?

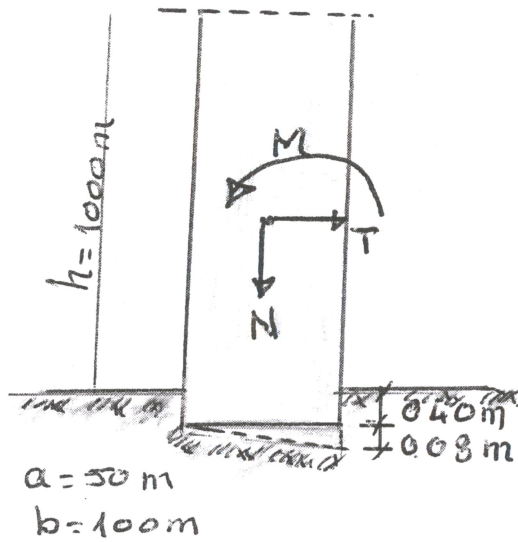
$$e / 300 = 1000 / 300 = 3 \text{ m}$$

$$q = \delta \times 8 EJ / L^4$$

$$q = 3 \times 8 \times 404567 \times 2.10^6 / 1000^4$$

$$q = 20 \text{ t/m}$$

## CALCULATIONS FOR THE ROTARY & SINKING REDORS



N	=	7320000 t.
M	=	4.000.000 tm
T	=	8000 t
q	=	2400 t/m <sup>2</sup>
J	=	404597 m <sup>4</sup>
W	=	9292 m <sup>3</sup>
K	=	6000 t/m <sup>3</sup>

### Max. moment-resistance capacity of the cross-section

$$\sigma = M / W ; 2400 = M / 9292$$

$$M = 22312 \ 800 \text{ tm} > 4.000.000 \text{ tm}$$

### Max. Horizontal force capacity of the cross-section

$$\tau = T / a \times b ; 60 = T / 3050$$

$$T = 183 \ 000 \text{ t.} > 8000 \text{ t}$$

### SINKING CALCULATIONS

$$V = q / K ; 2400 / 6000 = 040 \text{ m}$$

$$R_v = N / V ; 7320 \ 000 / 040 = 18300 \ 000 =$$

$$f_x K = 3050 \times 6000 = 18300000 \text{ tm}$$

## ROTARY REDOR CALCULATIONS

$$\text{tg}\varnothing = M/K.J ; 4.000.000 / 6000 \times 404597$$

$$\text{tg}\varnothing = 4.000.000/2427582000 = 0.00165$$

$$R = M/\varnothing = 4.000.000/0.00165 = 2424242424$$

$$K \times J = 6000 \times 404597 = 2427582000$$

## ECCENTRICITY

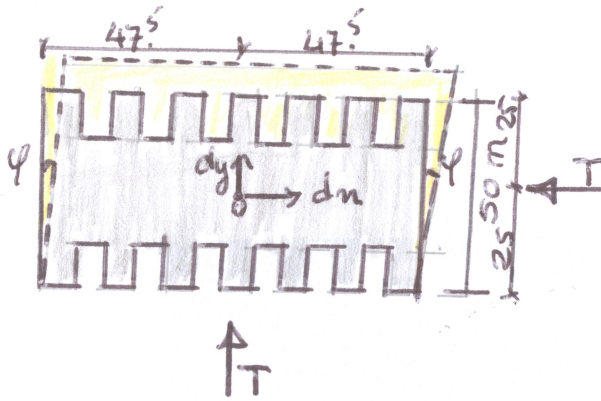
$$e = M/N = 4.000.000/432.000 = 0,546 \text{ m}$$

References :

Prof. Dr. Aytaç MERTOL



## BUCKLING CALCULATIONS Y-Y



$$J_y = 404597 \text{ m}^4$$

$$h = 1000 \text{ m}$$

$$T = 8000 \text{ t}$$

$$D_y = 12 E_j / h^2 \times \check{D} ; \check{D} = j / h = 404597 / 1000 = 404.597$$

$$D_y = 12 \times 2100000 \times 404597 / 1000^2 \times 404.597 = 4125208067$$

$$D\emptyset = X^2 \times D_y = 47,5^2 \times 4125208067 = 9307500678000$$

$$\delta = T / D_y = 8000 / 4125208067 = 0.00000194$$

$$M_t = T \times Y = 8000 \times 25 = 200\ 000 \text{ tm}$$

$$\emptyset = M_t / D\emptyset = 200\ 000 / 9307500678000$$

$$\emptyset = 0.0000000214$$

## References :

Prof. Dr. ADNAN ÇAKIROĞLU

Prof. Dr. GÜNAY ÖZMEN

Prof. Dr. ERKAN ÖZER

## RELATIVE DISPLACEMENT CALCULATIONS

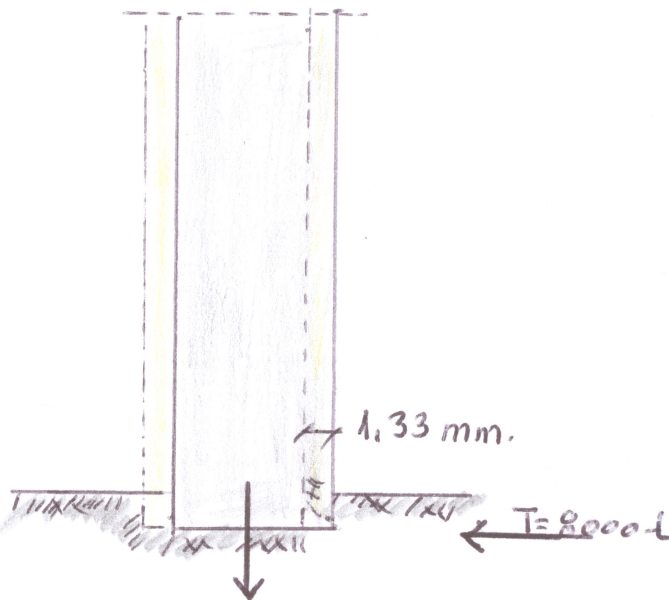
$$N = 7200\ 000\ t.$$

$$N^2 = 4500\ 000\ t.$$

$$T = 8000\ t.$$

$$K = 60000\ t/m^3$$

$$q = 8000/100 = 80\ t/m$$



$$N_2 = 4500\ 000\ t.$$

$$V = q / K = 80 / 60000 = 0.001333\ m = 1.33\ mm$$

$$\delta R_1 = 7200\ 000 \times 0.001333 = 9600\ t > 8000$$

$$\delta R_2 = 4500\ 000 \times 0.001333 = 5985 < 8000$$

Remarks : the construction will be applied  
as 200 floors.

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December 1990

### DETAILS OF THE CONSTRUCTION

- No ground excavation work,
- less use of iron (front tension, cable),
- an airport on the upper floor,
- 60 elevators/lifts in service,
- lasts for 600 ≈ 1000 years,
- optimum use of construction site,
- 10.000 habitants in one block of apartments,
- contains a municipality and head official of the district/site,
- each block is located on 1 km<sup>2</sup> area,
- $1.000.000/10.000=100$  m<sup>2</sup> building plot per person,
- inexpensive sales prices,
- 500 m<sup>2</sup> free building plot to give away as a gift for each apartment purchased,
- whole population of turkey can easily be resided in Istanbul,
- this method can be applied across the world.