

Yüksek Yapıların Tasarımı

Gebze Teknik Üniversitesi, 2017

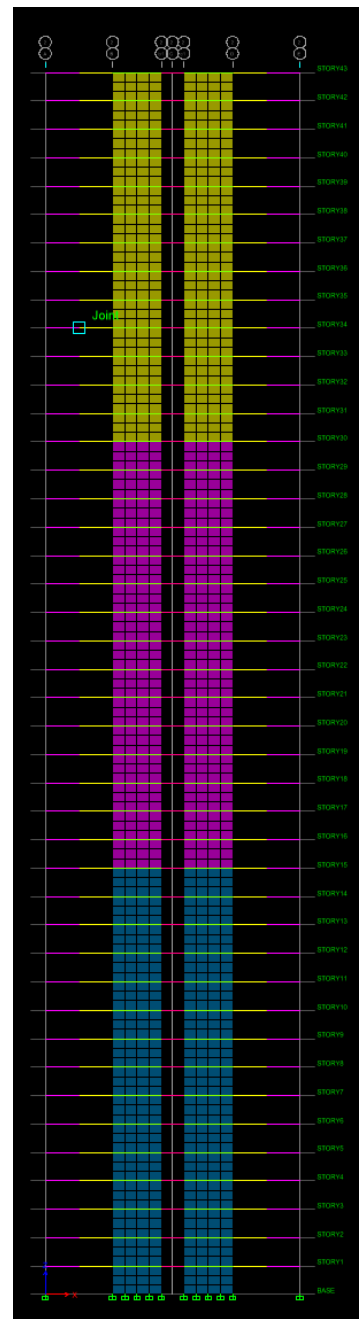
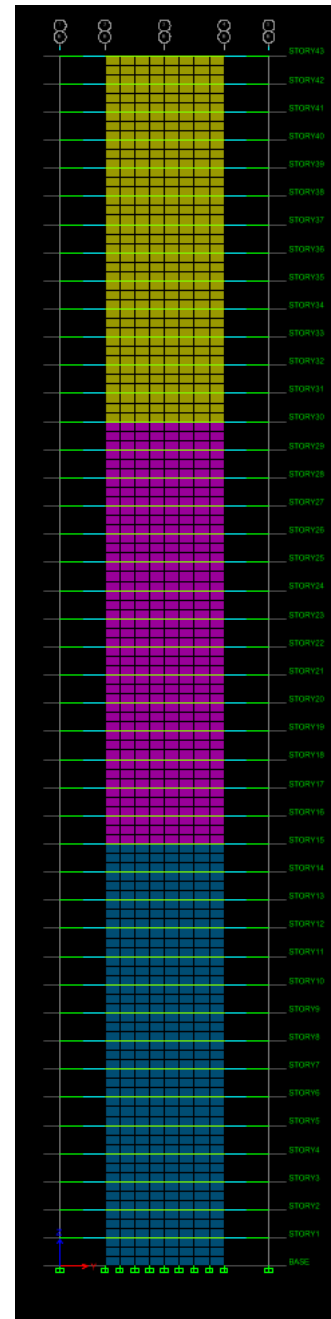
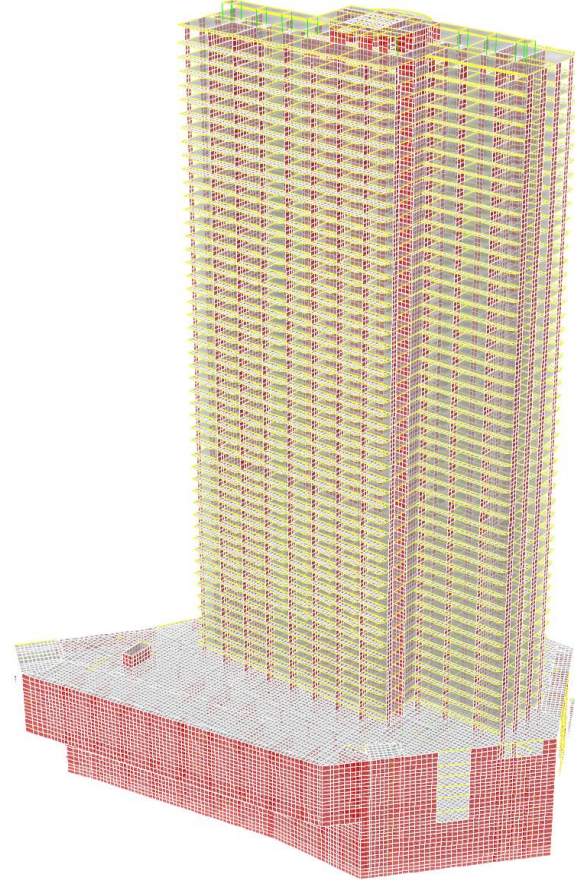
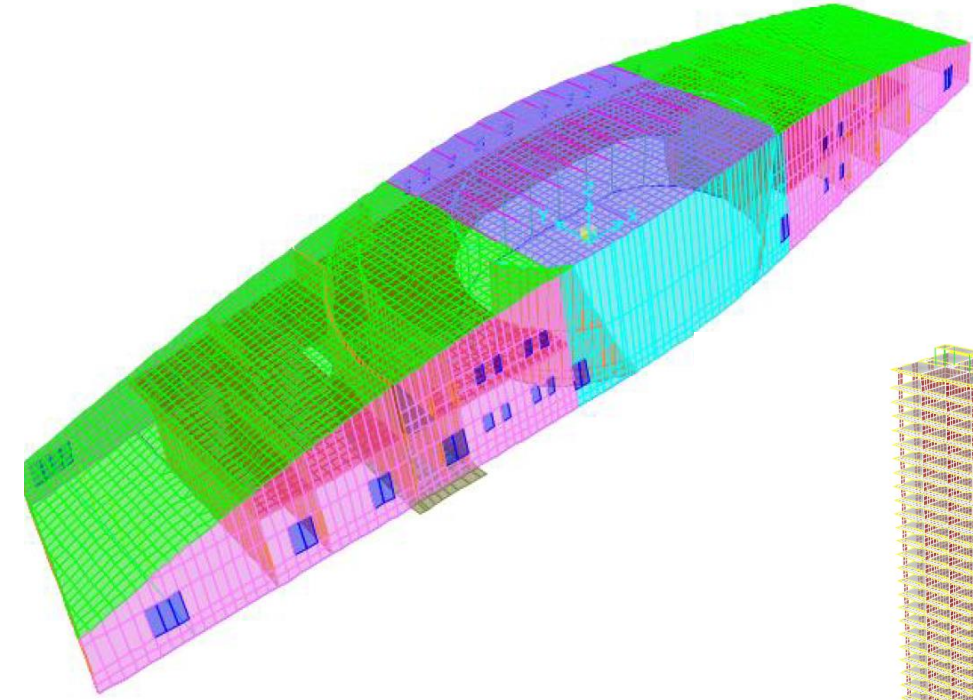
Yüksek Yapılara Giriş, Tasarımda Dikkat Edilmesi Gereken Hususlar

Dr. Barış Erkuş (İTÜ)

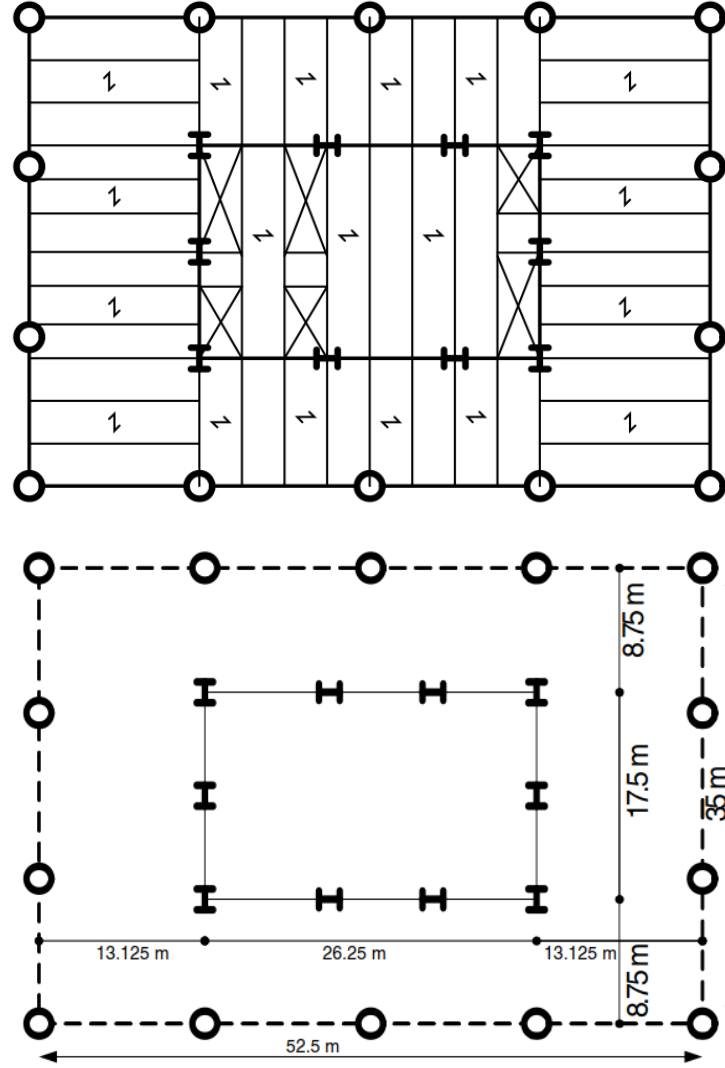
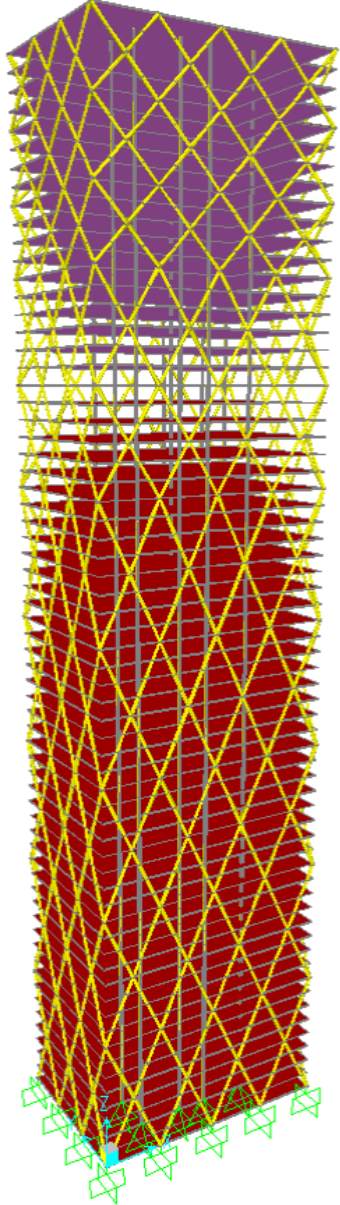
Tasarımda Dikkat Edilmesi Gereken Hususlar

- SE Ağ Oluřturulması
- Rijit Diyafram kabulü
- Çatlamıř Kesit
- Döřeme ve Baza Katlarının Tasarımı
- Dengesiz Toprak Yükleri İçin Tasarım
- Birden Fazla Yapı Durumu
- Soğuk Derz ve Sürünme Kesmesi

SE Ağı

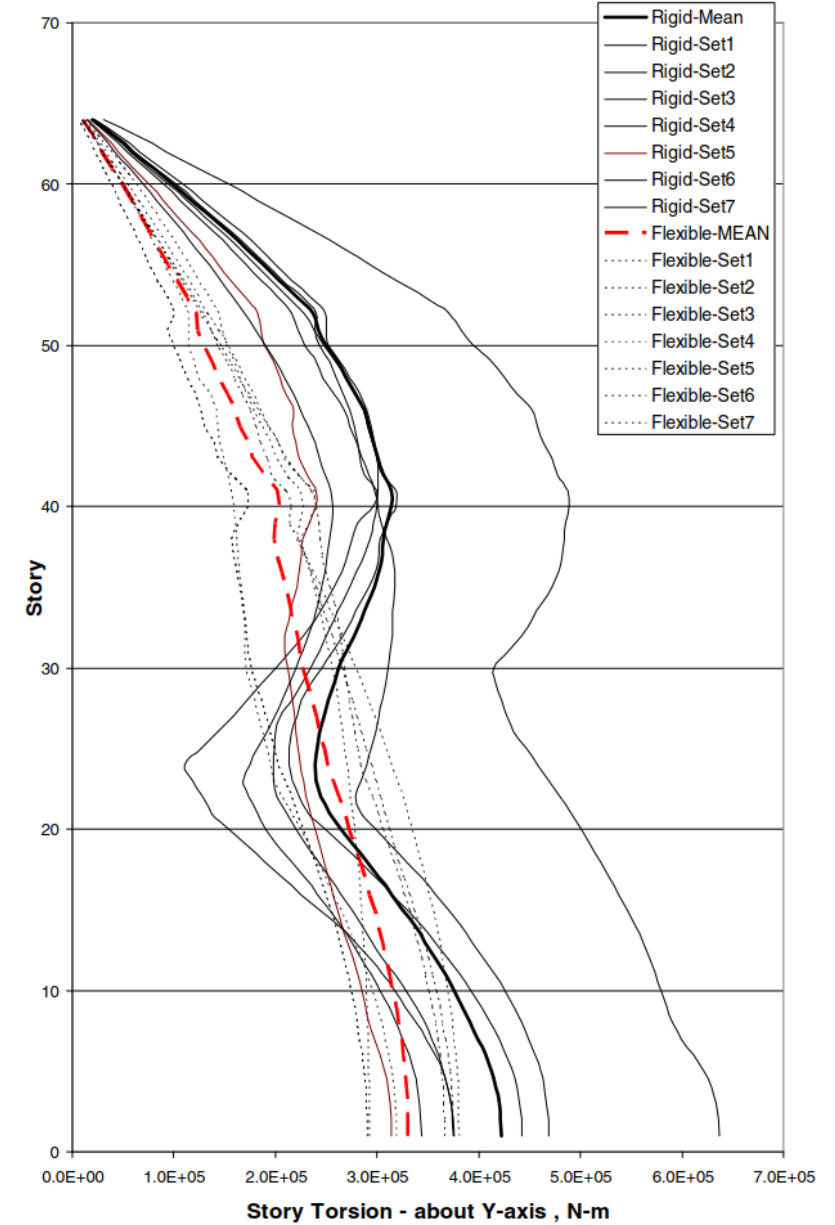
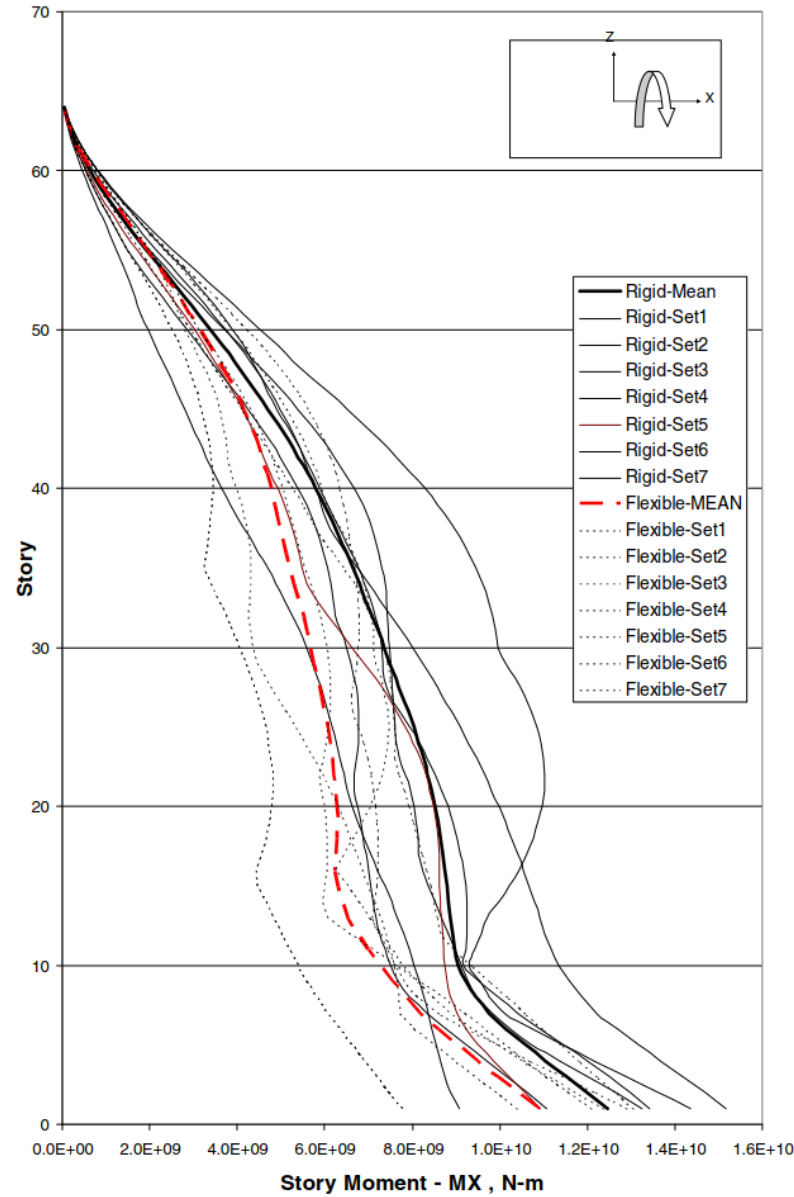
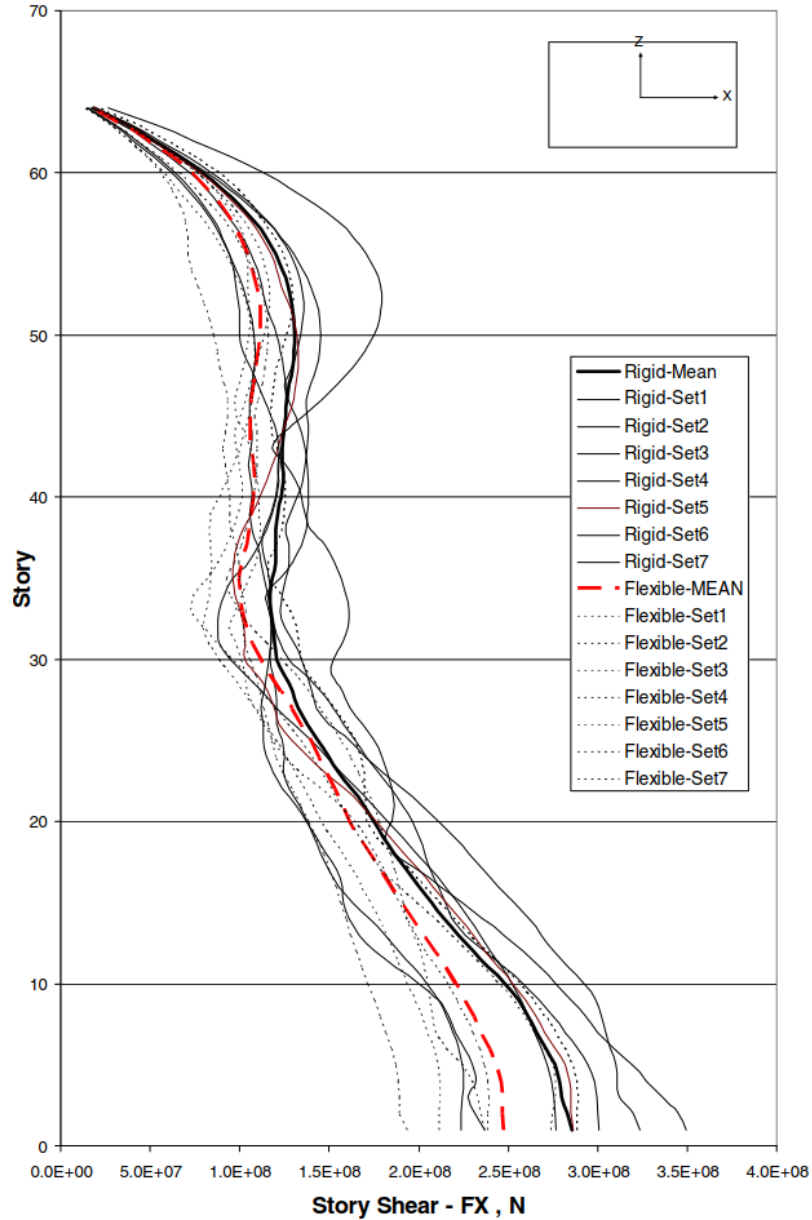


Rijit Diyafram Kabulü



	Rigid Diaphragm	Flexible Diaphragm	
		No Concrete Stiffness Degradation (E=3024 ksi)	Concrete Stiffness Degradation to 1/3 rd (E=1008 ksi)
Mode - 1	5.2 - UZ	5.60 - UZ	5.89 - UZ
Mode - 2	3.8 - UX	4.12 - UX	4.33 - UX
Mode - 3	1.41 - Torsional	1.44 - Torsional	1.50 - Torsional
Mode - 4	1.36 - UZ	1.42 - UZ	1.42 - UZ
Mode - 5	0.96 - UX	1.02 - UX	1.05 - UX
Mode - 6	0.69	0.75	0.81
Mode - 7	0.49	0.53	0.59
Mode - 8	0.49	0.52	0.55
Mode - 9	0.47	0.49	0.50
Mode - 10	0.37	0.43	0.49
Mode - 11	0.35	0.38	0.44
Mode - 12	0.34	0.36	0.41

Rijit Diyafram Kabulü



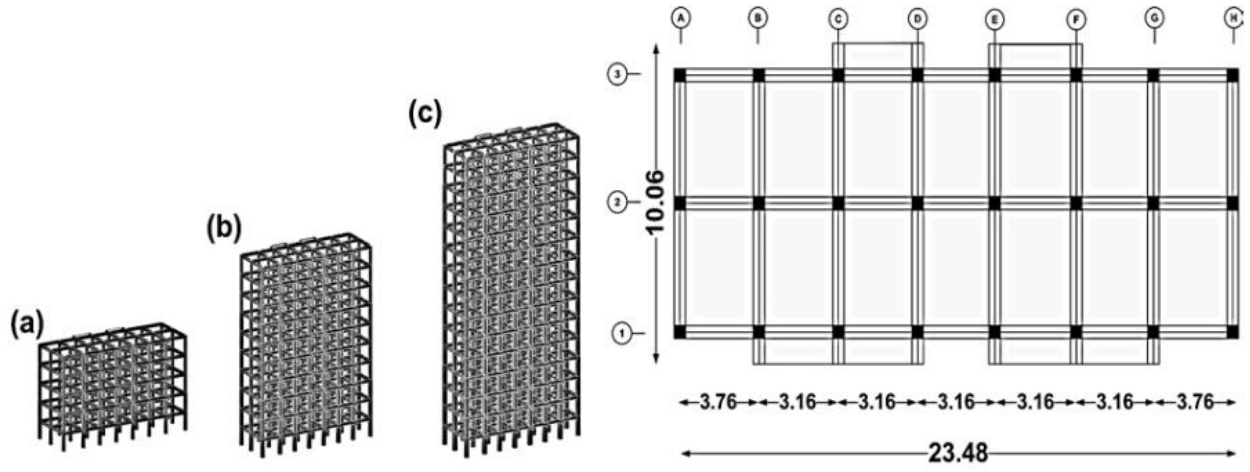


Figure 2.1. Plan view of frame buildings.

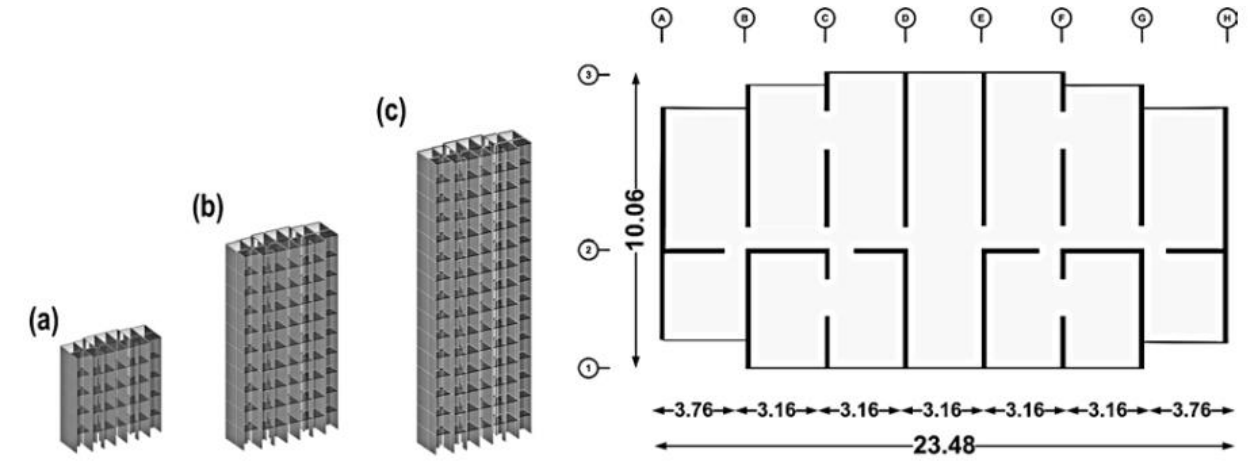
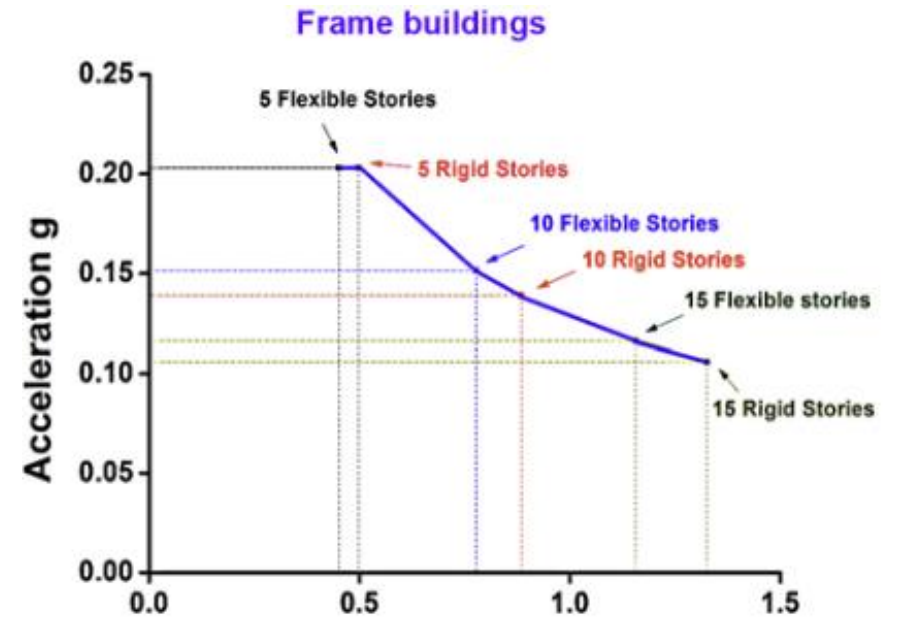
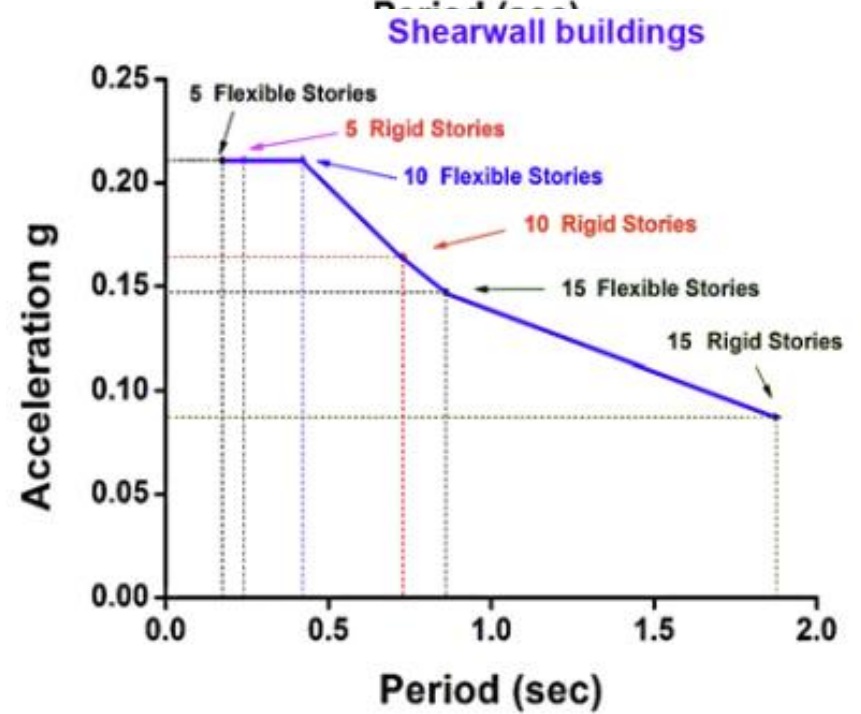
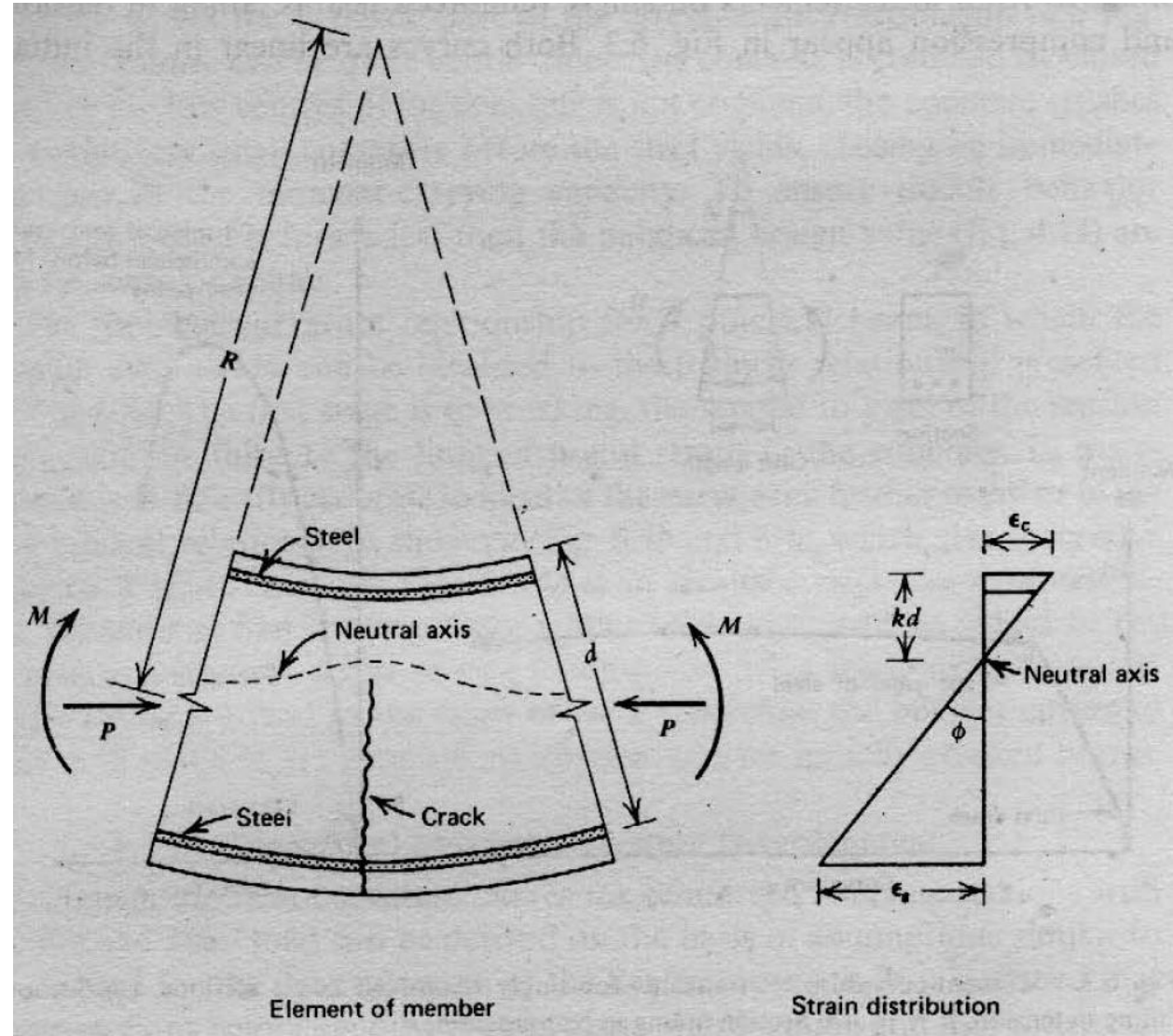
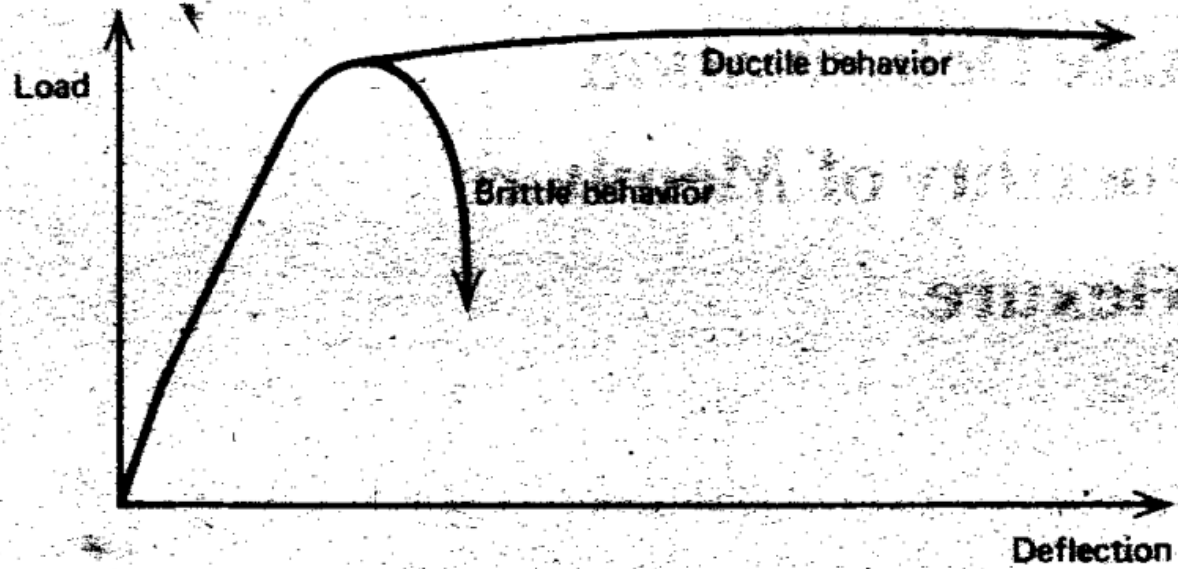
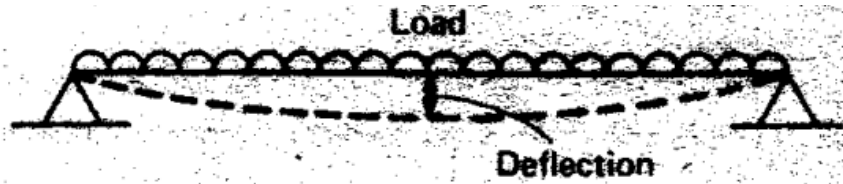
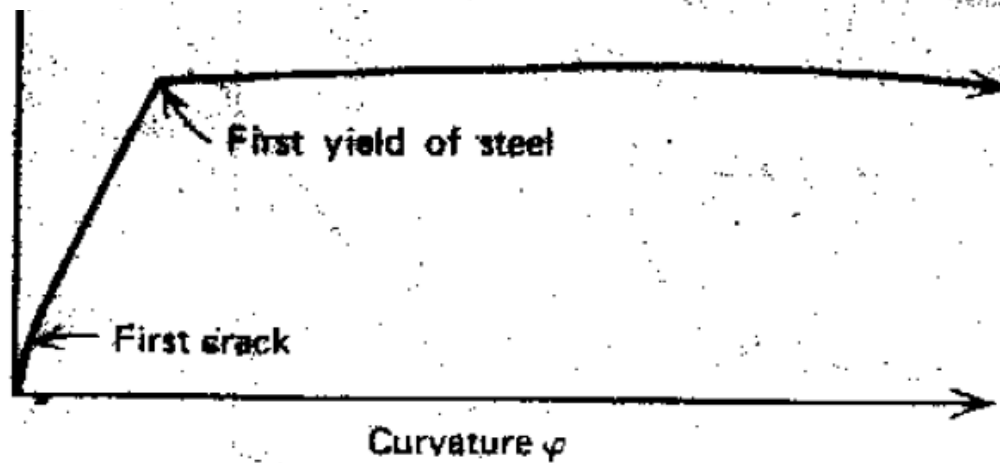
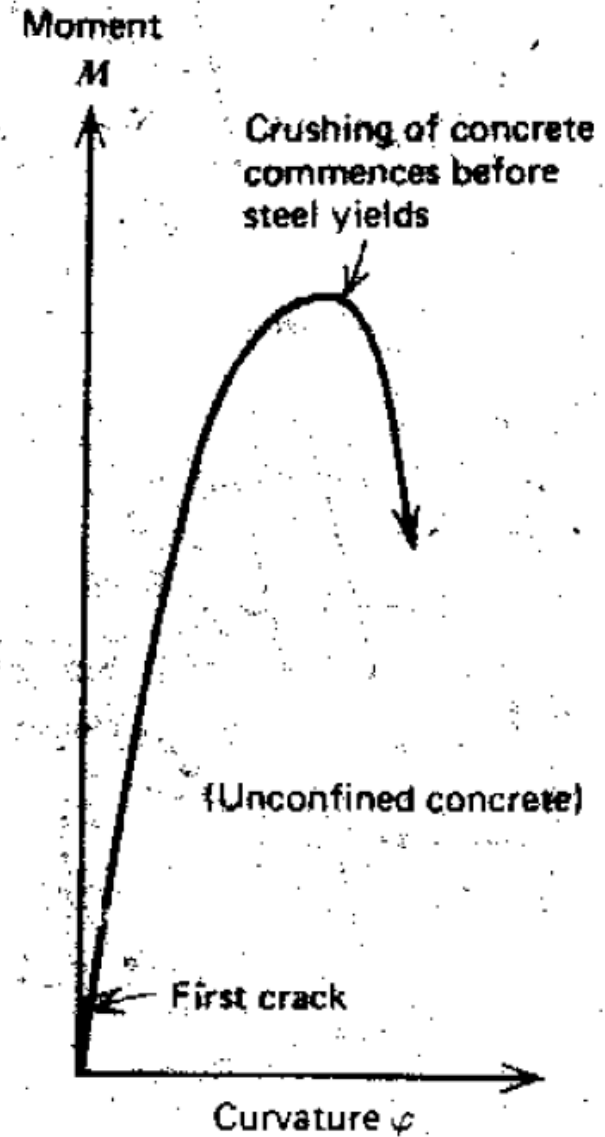
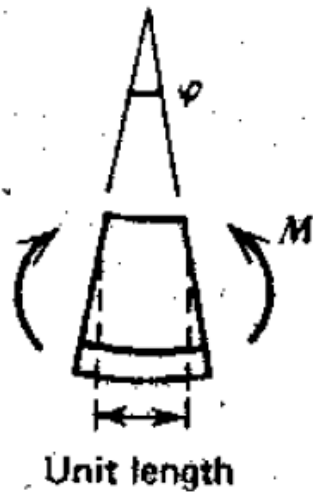
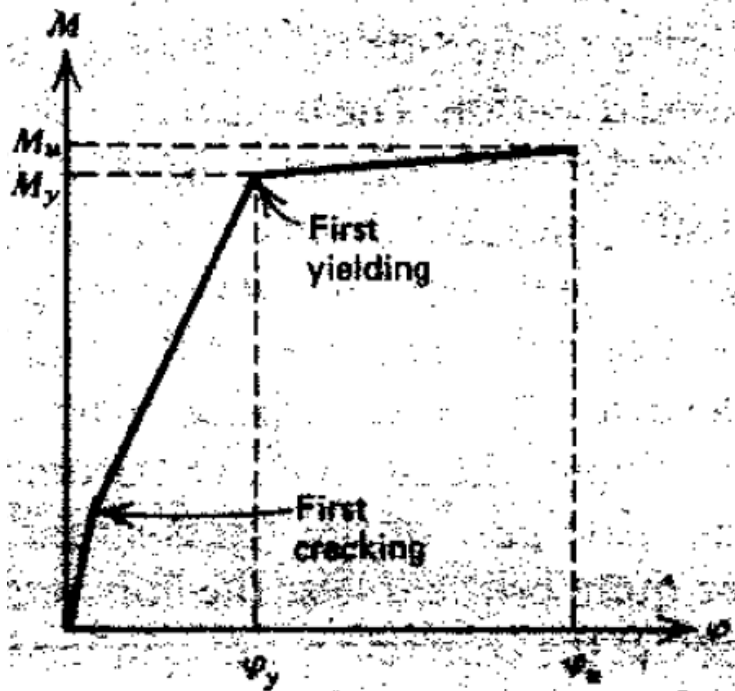


Figure 2.3. plan view of shearwall buildings.



Çatlama Kesit





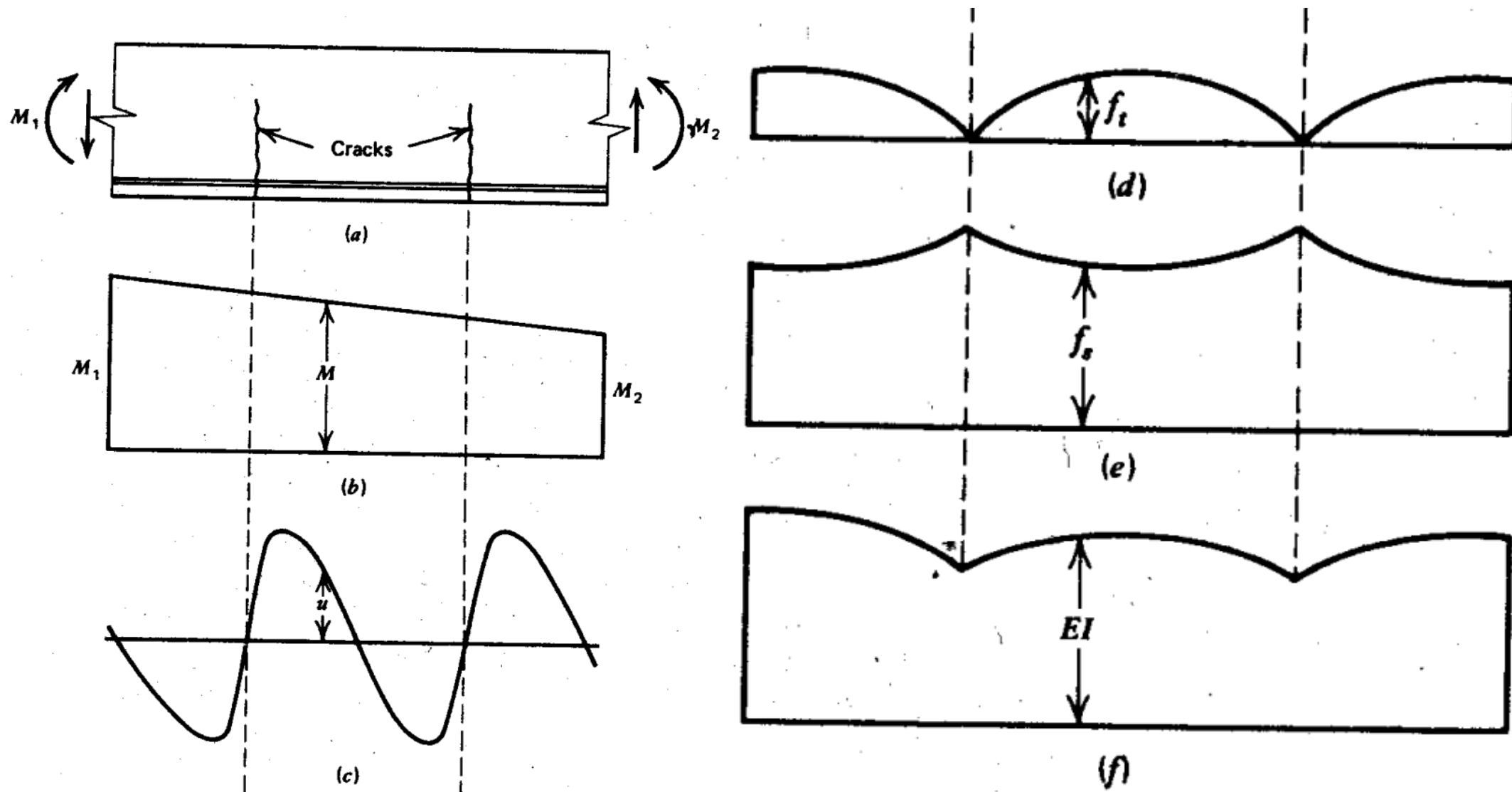
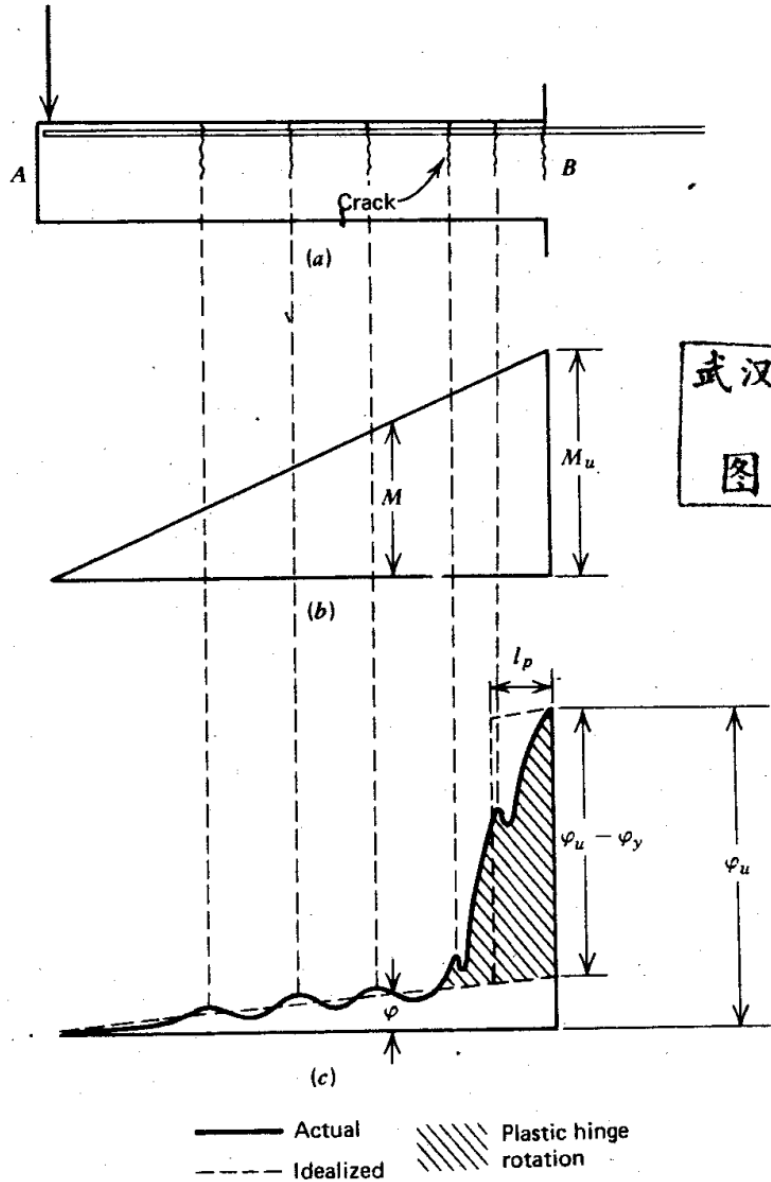
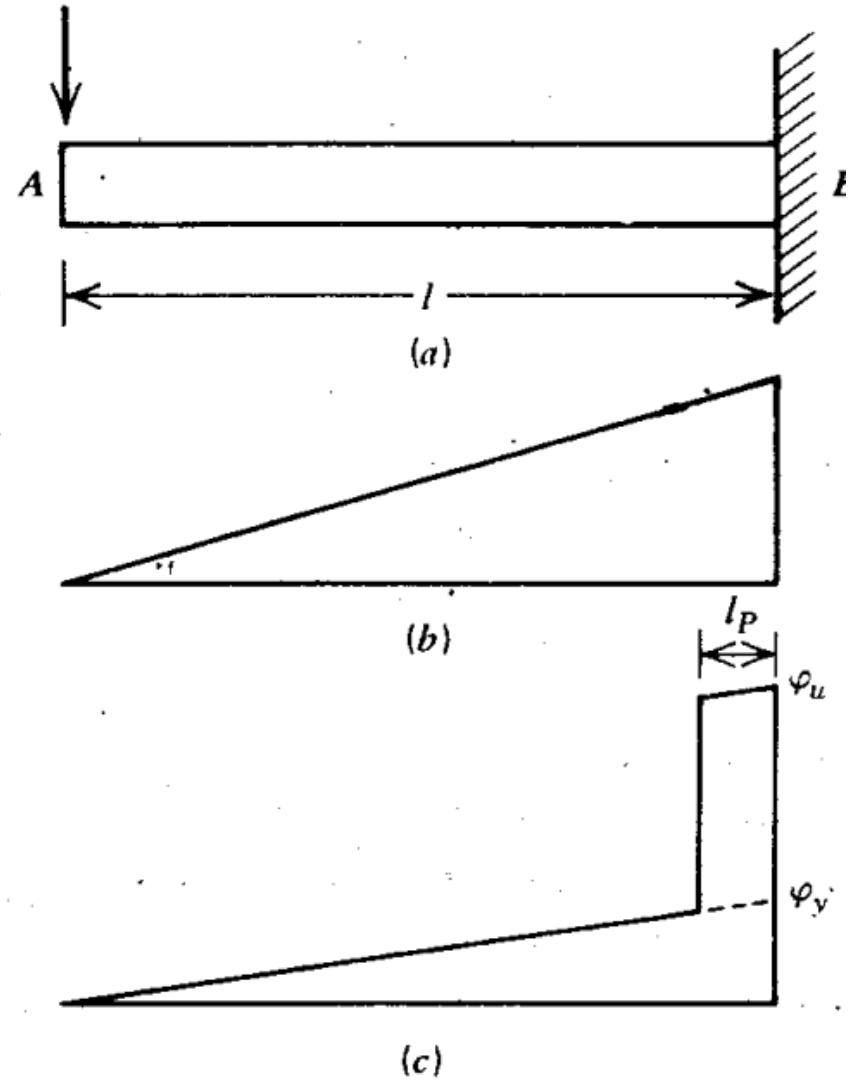


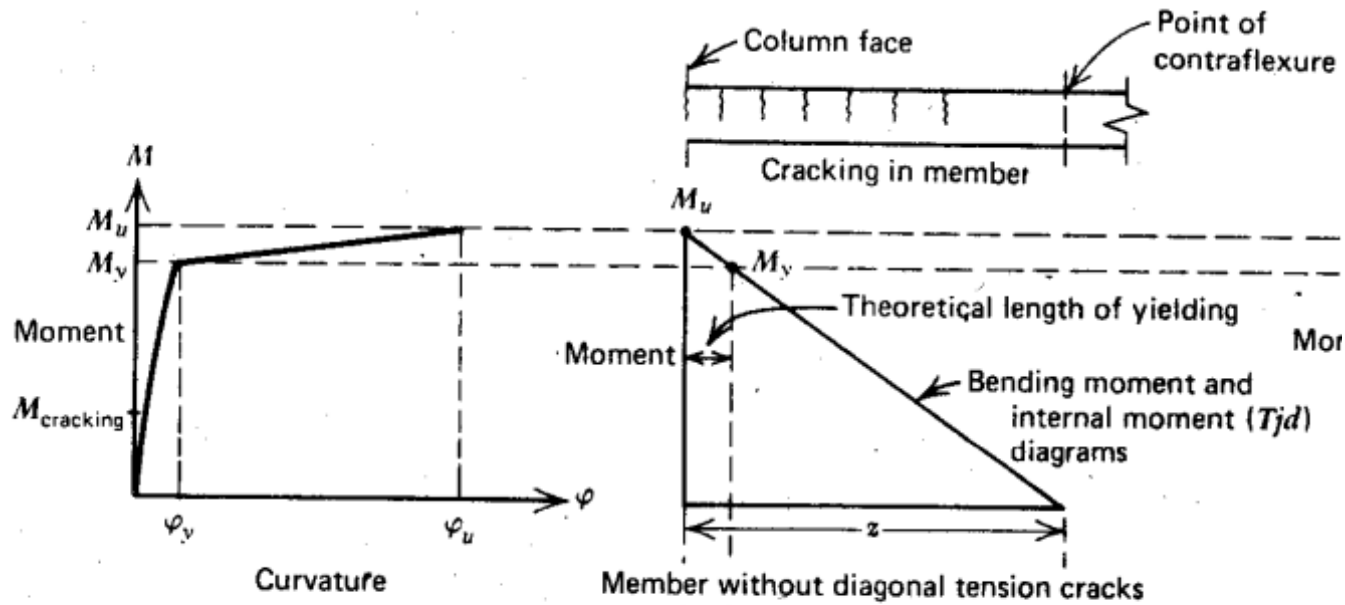
Fig. 6.22. Effect of cracking of a reinforced concrete flexural element. (a) Element of beam. (b) Bending moment distribution. (c) Bond stress distribution. (d) Concrete tensile stress distribution. (e) Steel tensile stress distribution. (f) Flexural rigidity distribution in elastic range.

$$I_e = \left(\frac{M_{cr}}{M_a} \right)^3 I_g + \left[1 - \left(\frac{M_{cr}}{M_a} \right)^3 \right] I_{cr}$$



武汉
图





Curvature

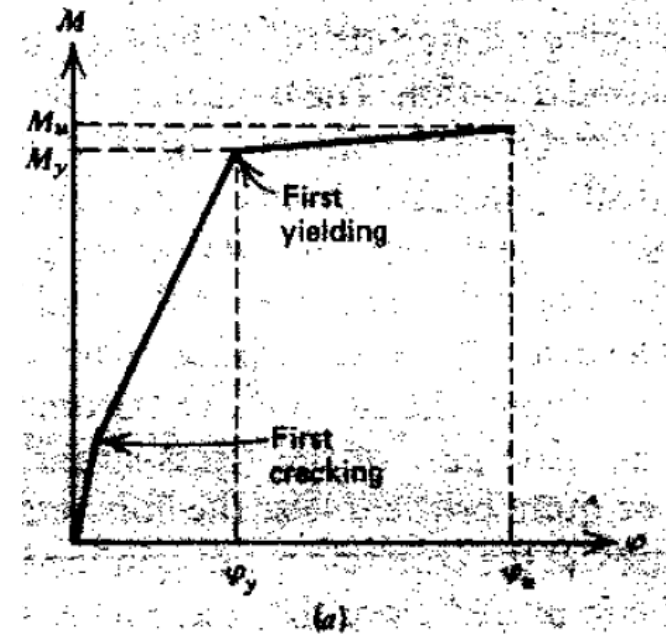
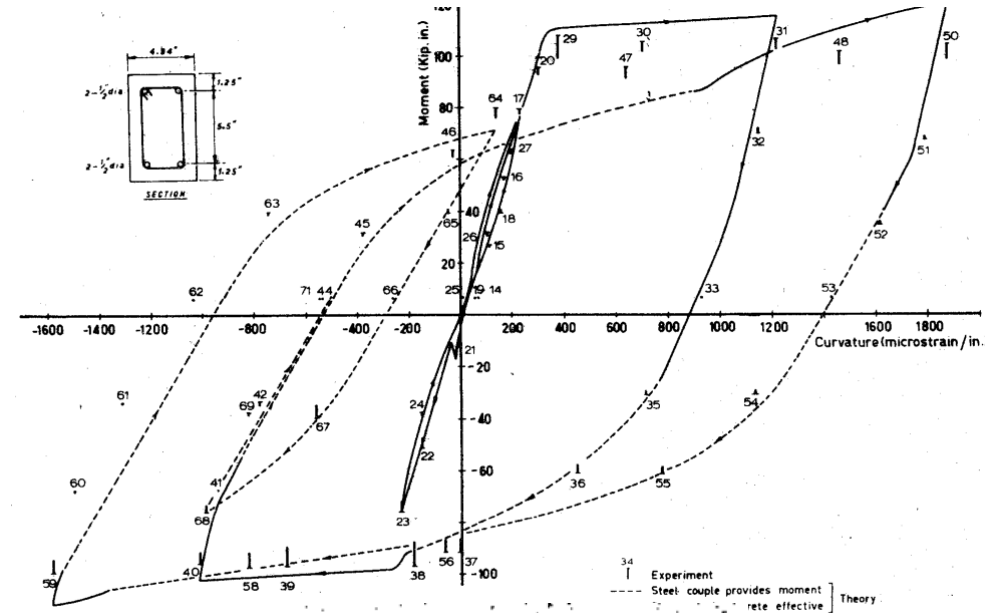
(a)

Member without diagonal tension cracks

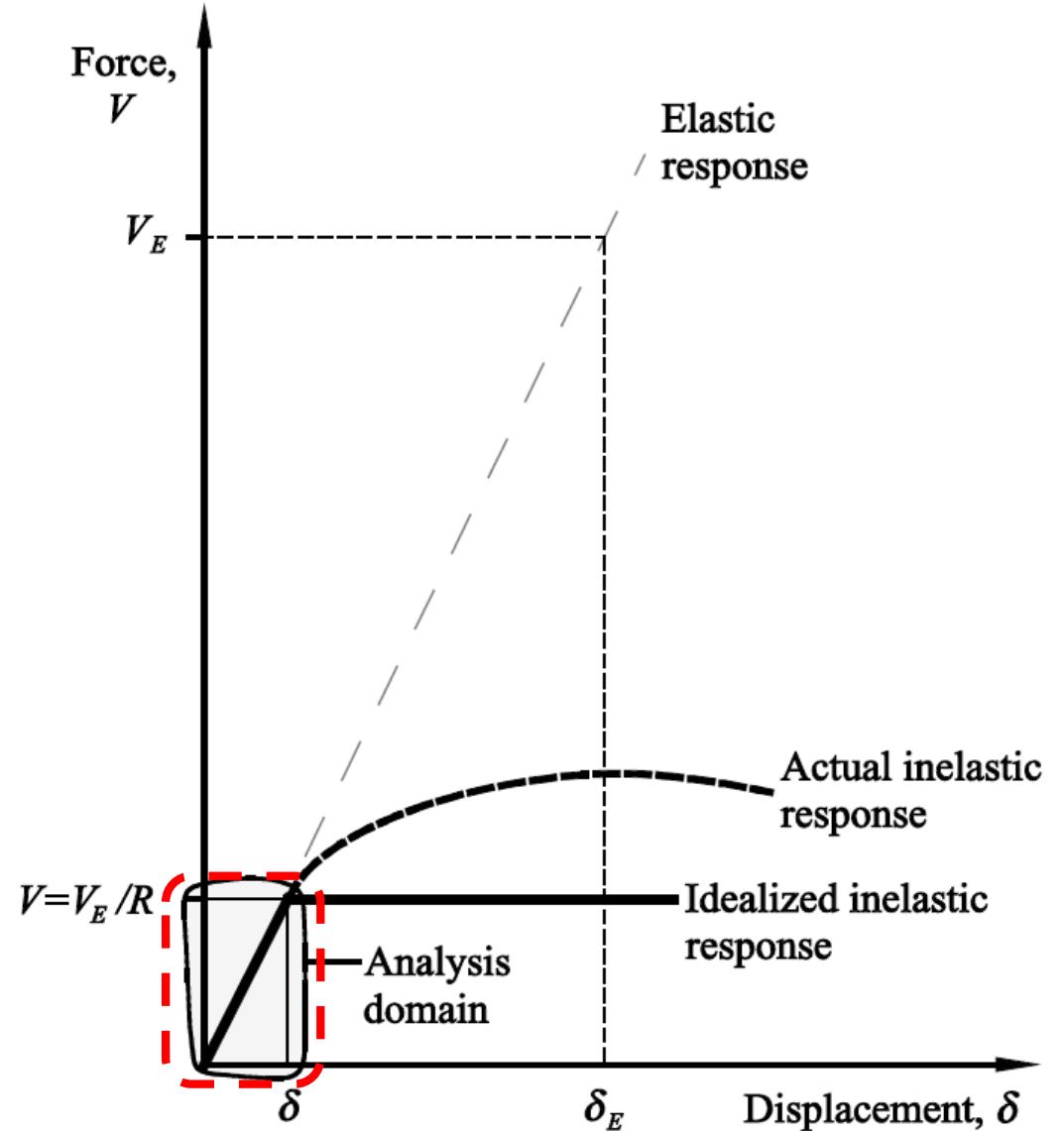
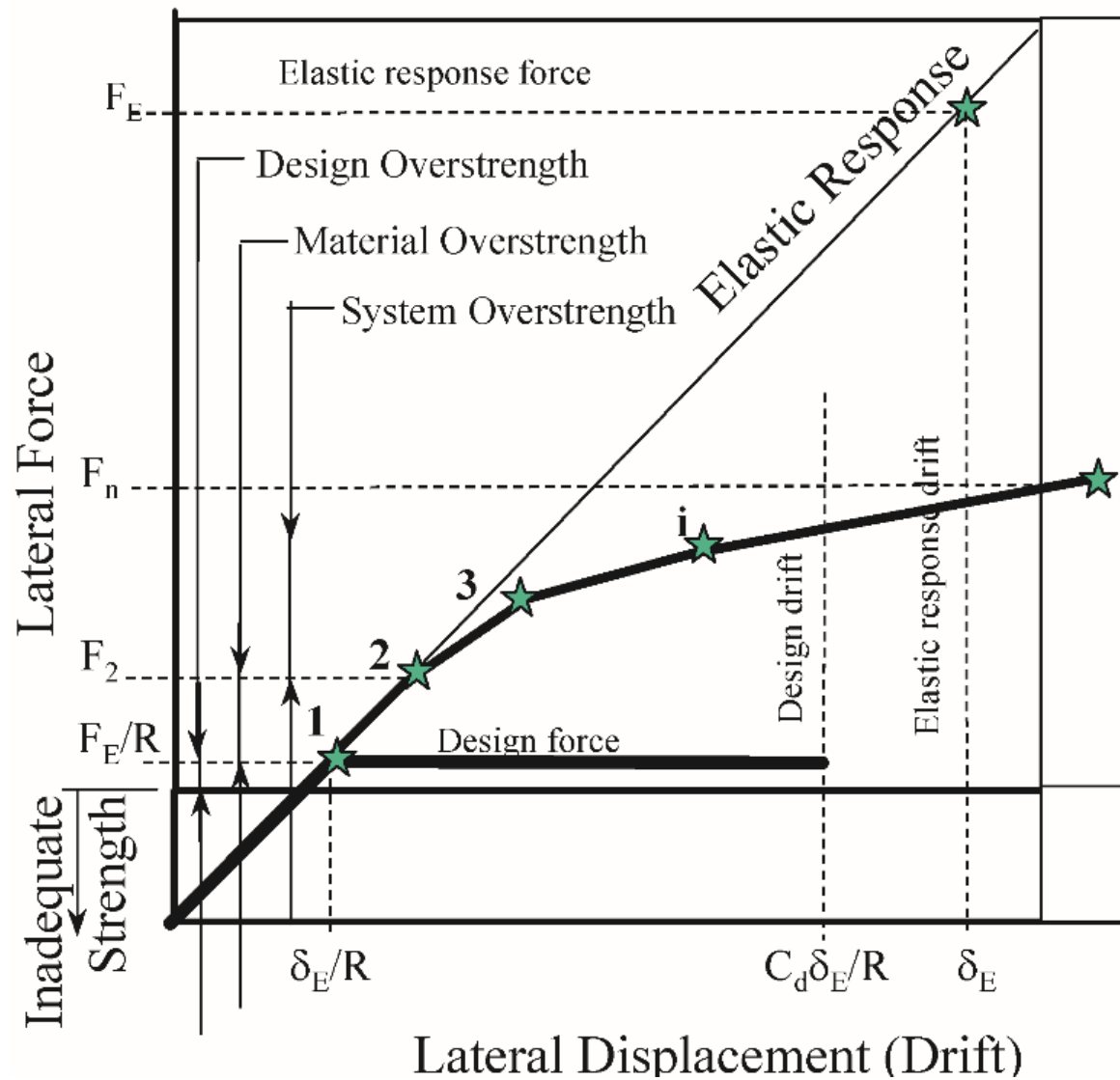
(b)

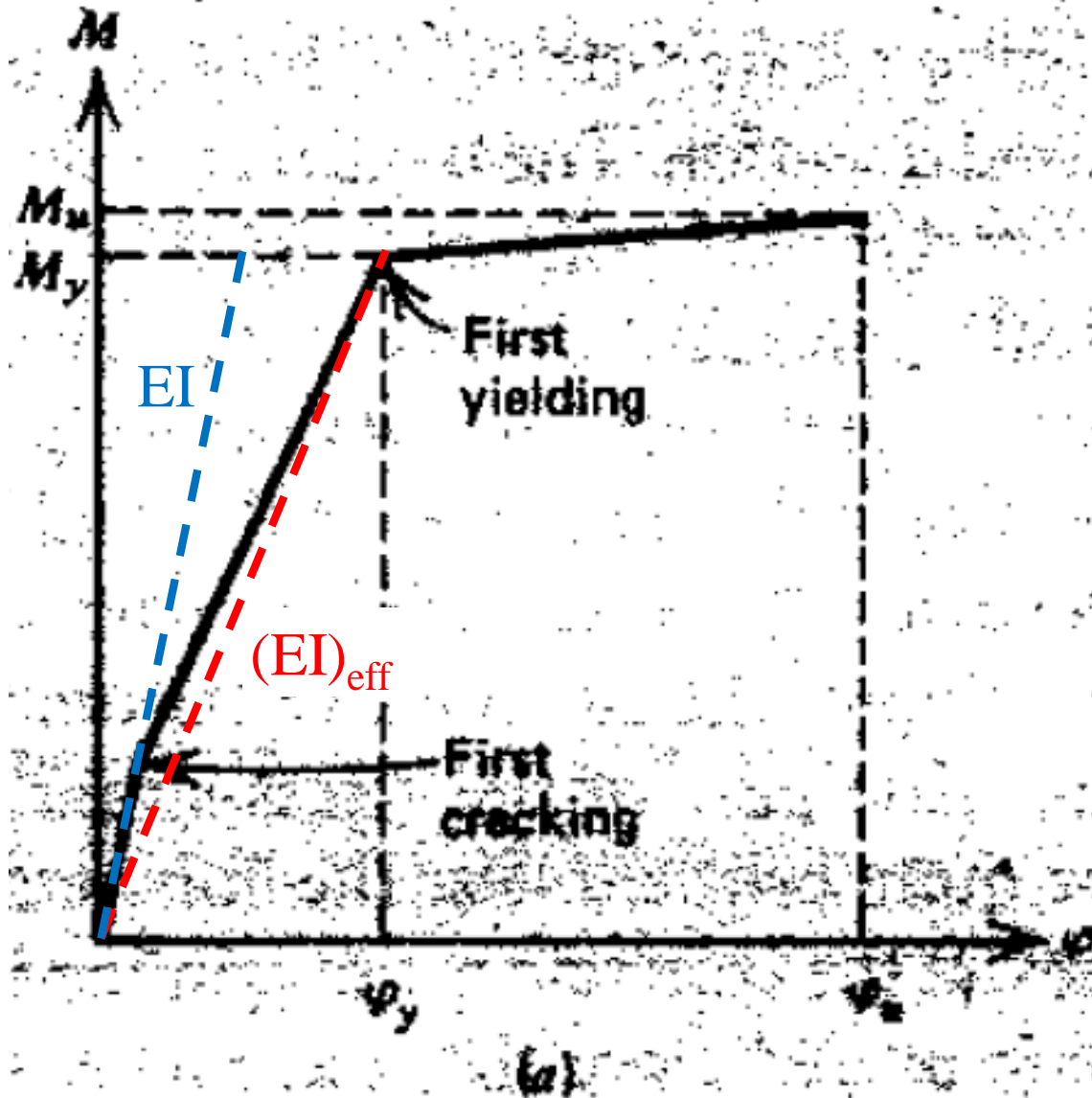
Member without diagonal tension cracks

z = distance from section of maximum bending moment to point of contraflexure

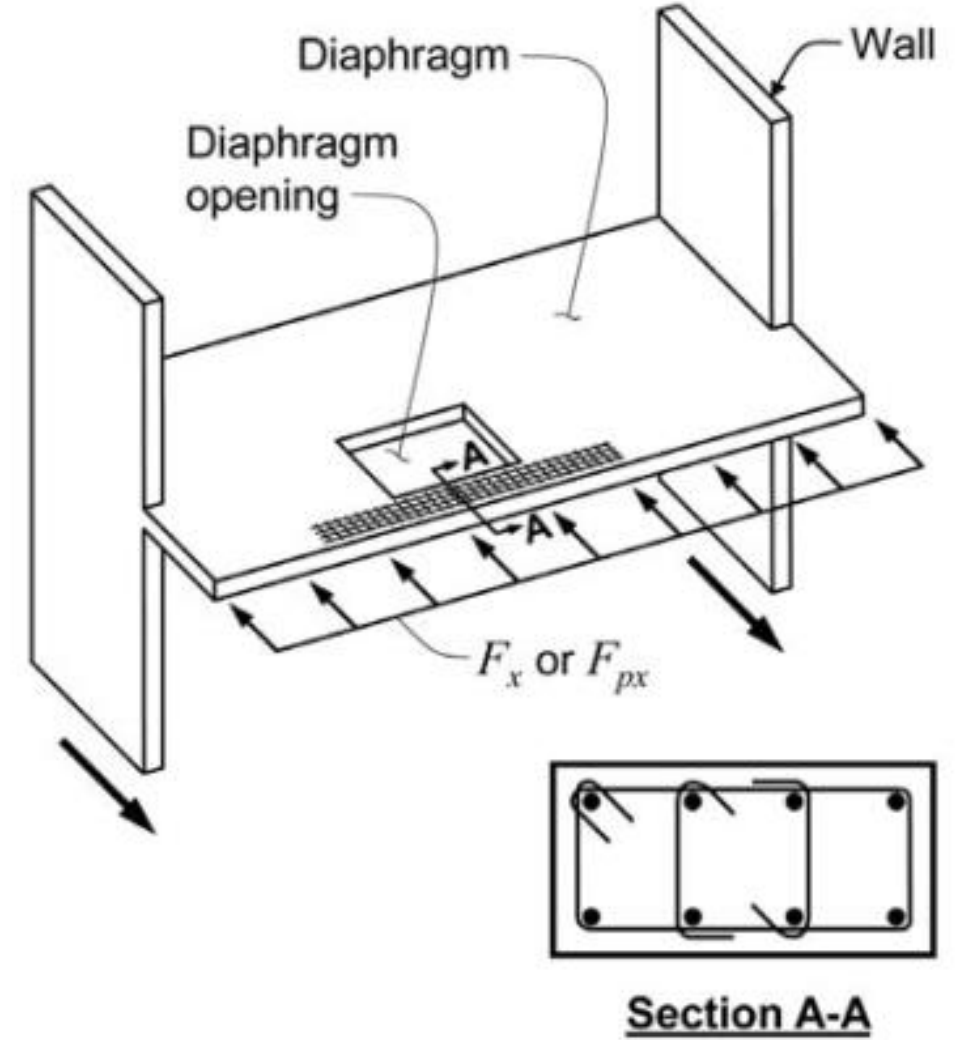
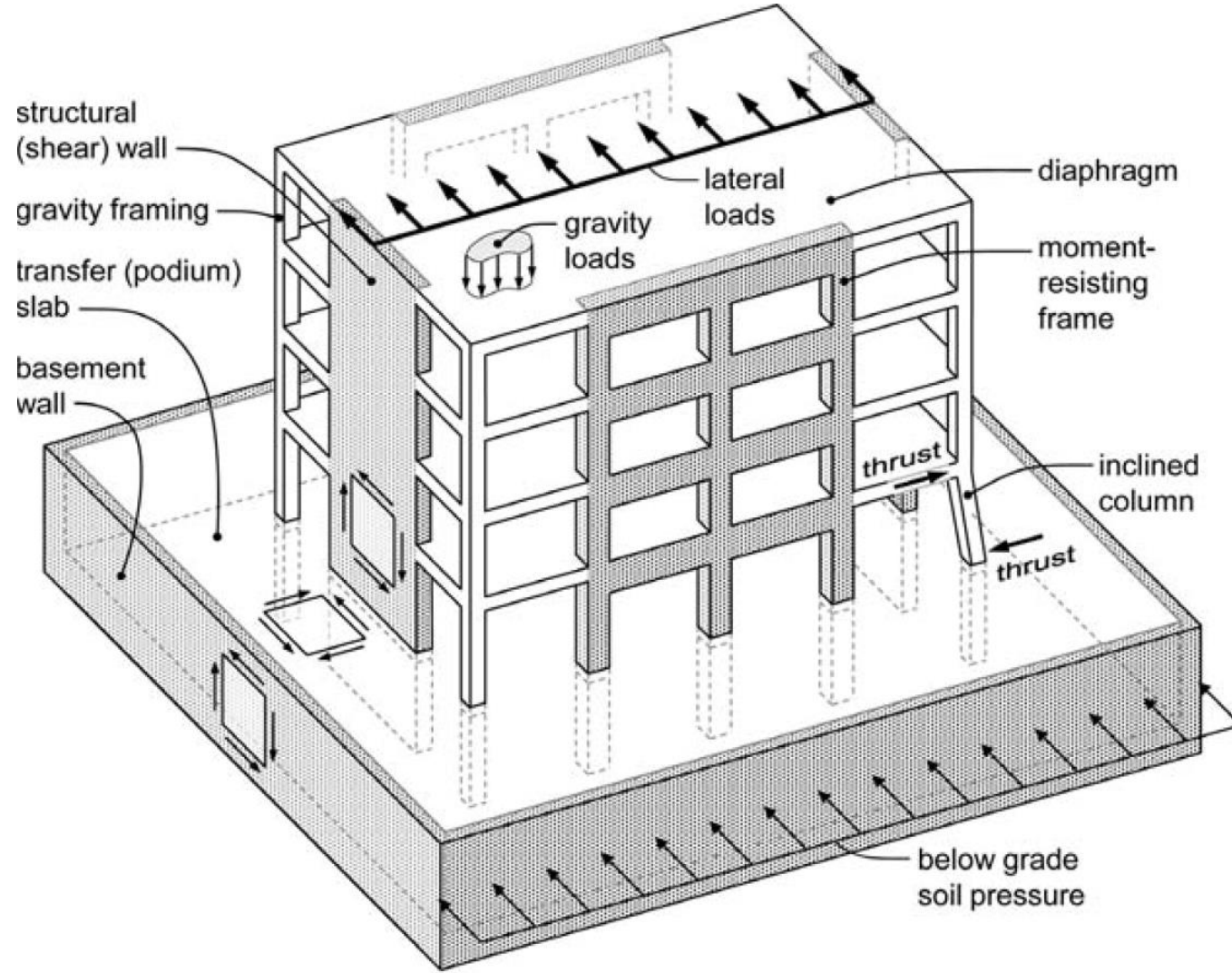


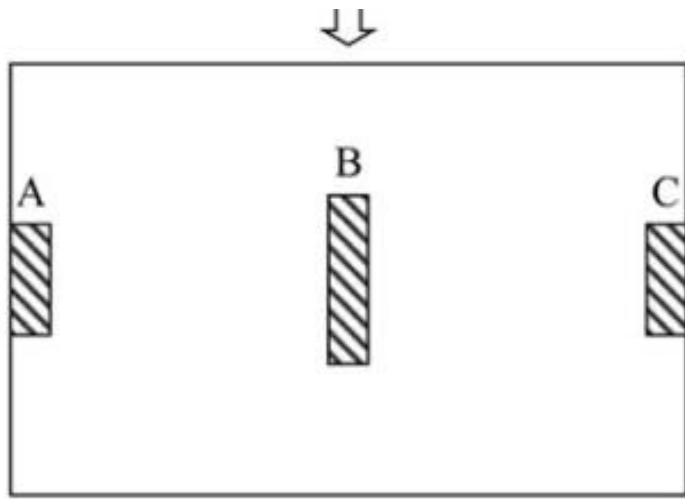
(a)



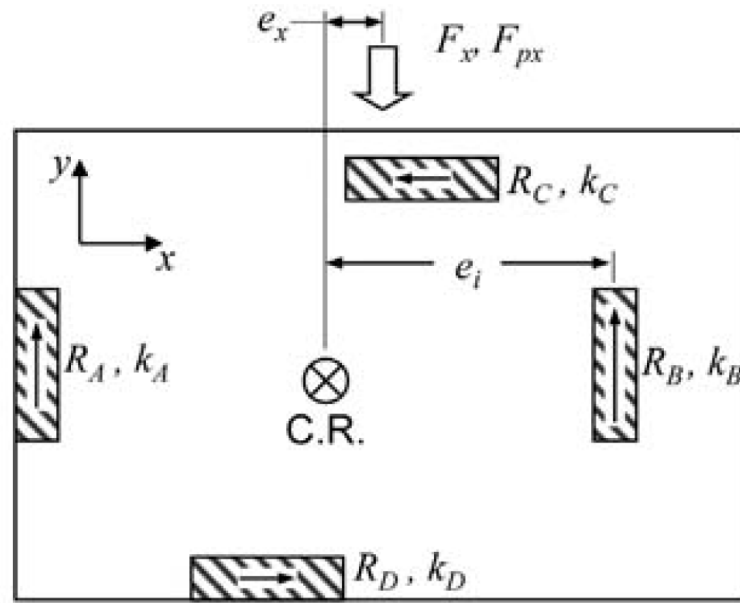


Diyafram Tasarımı

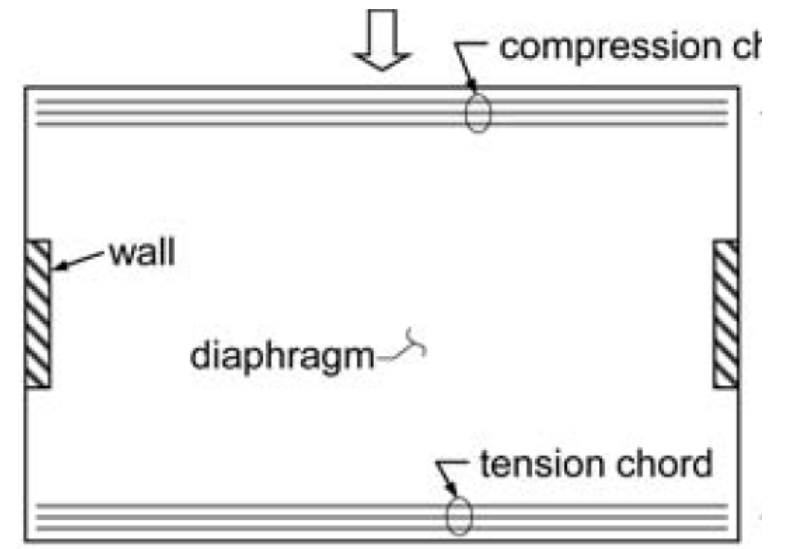




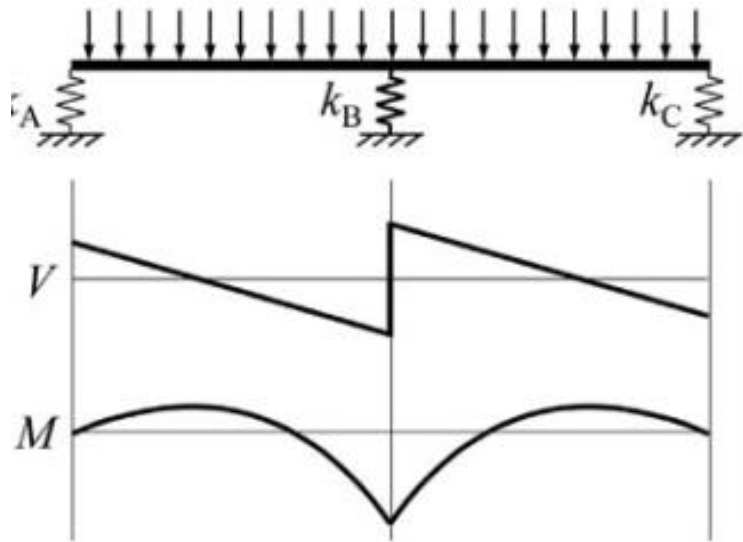
(a) Plan



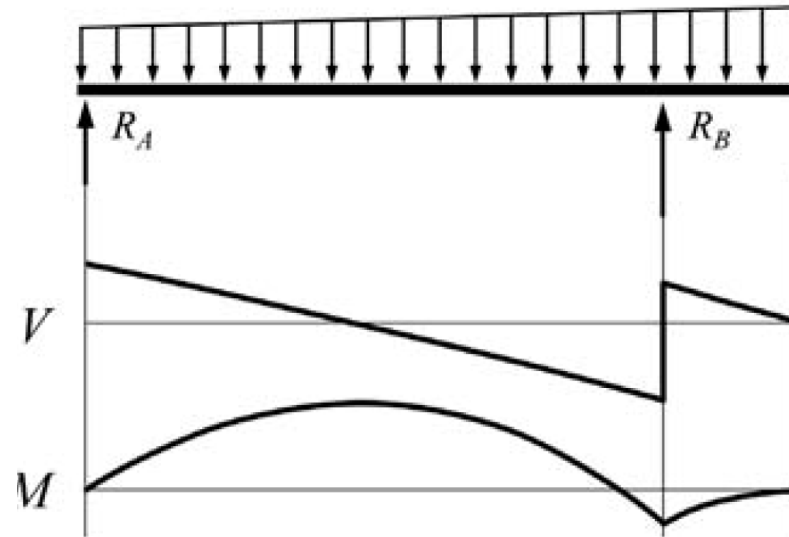
(a) Plan



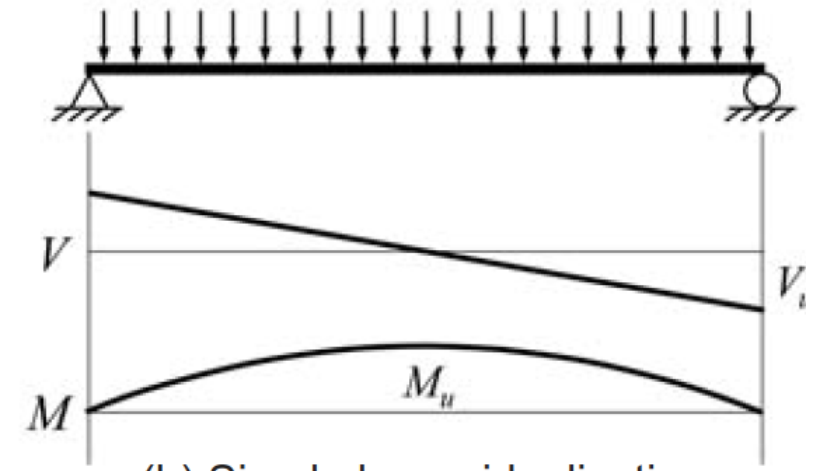
(a) Plan



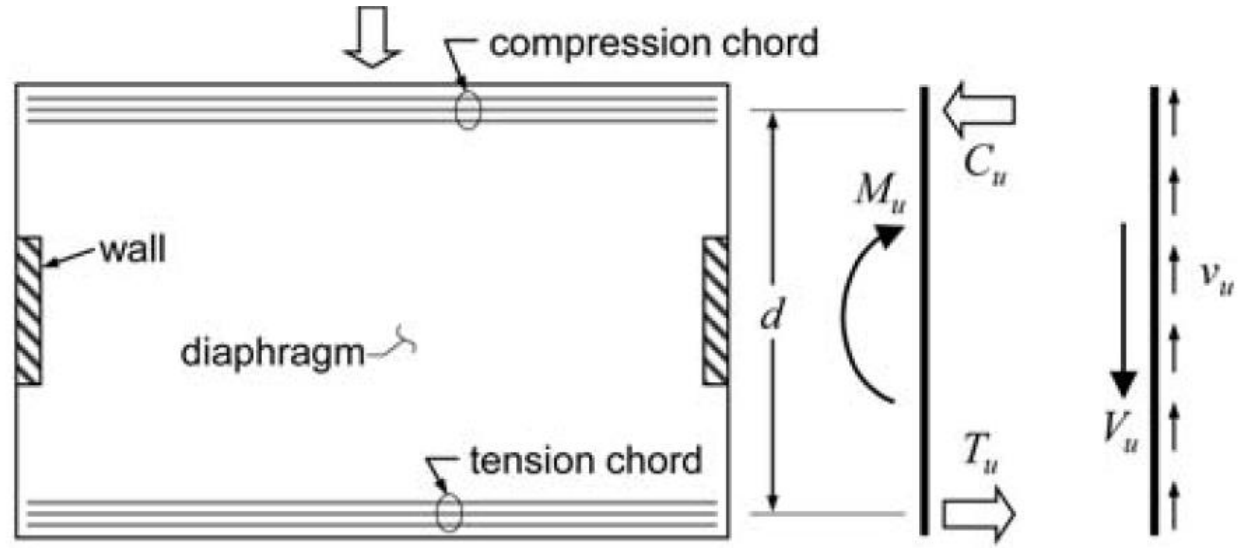
(b) Simple beam idealization



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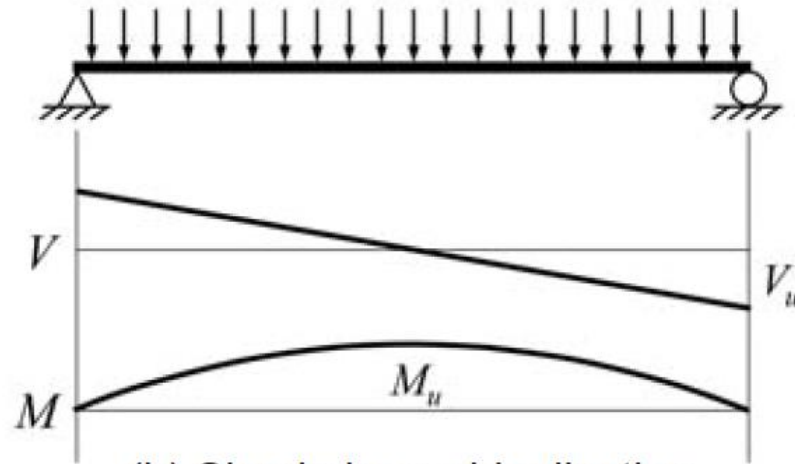


(b) Simple beam idealization

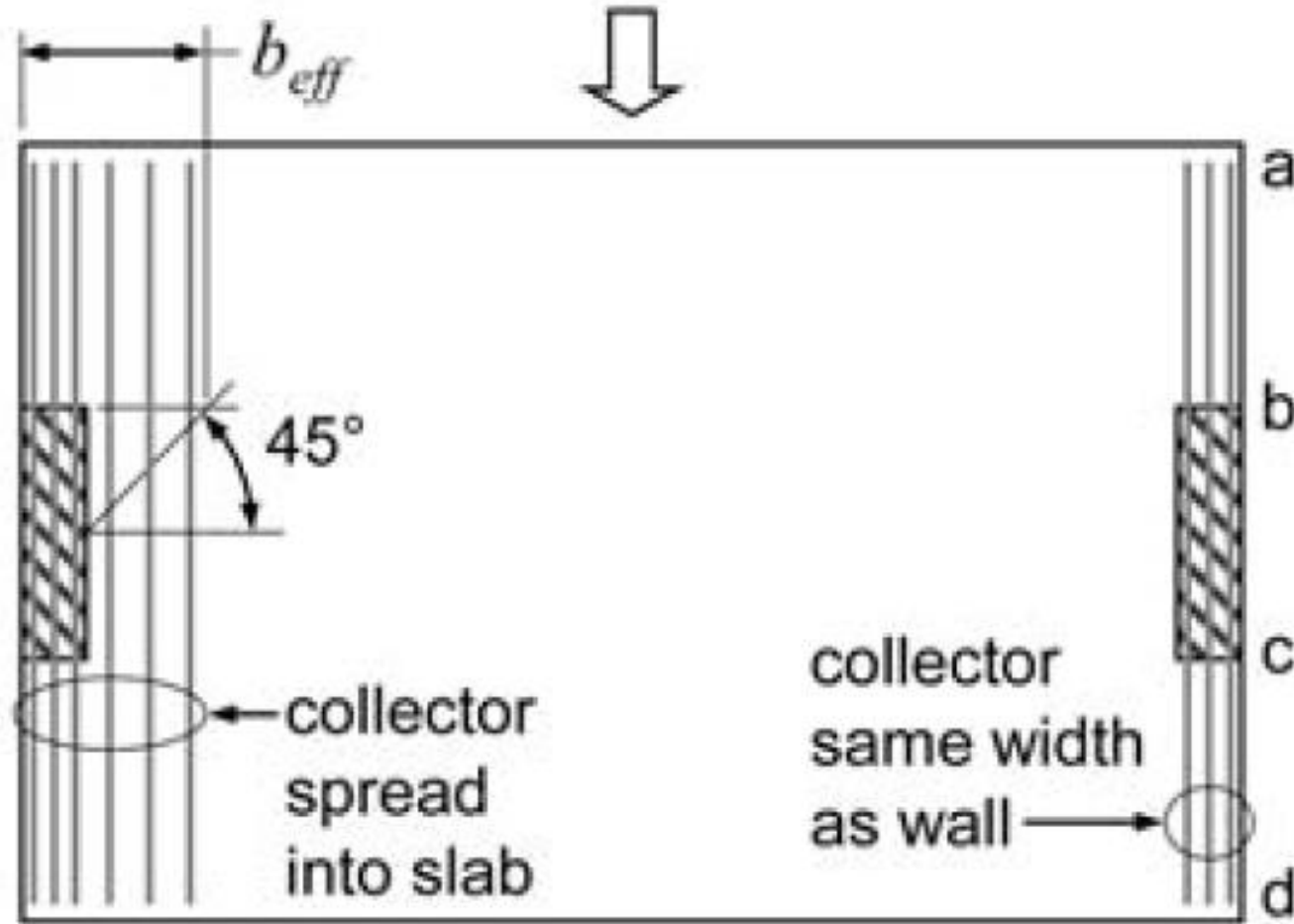


(a) Plan

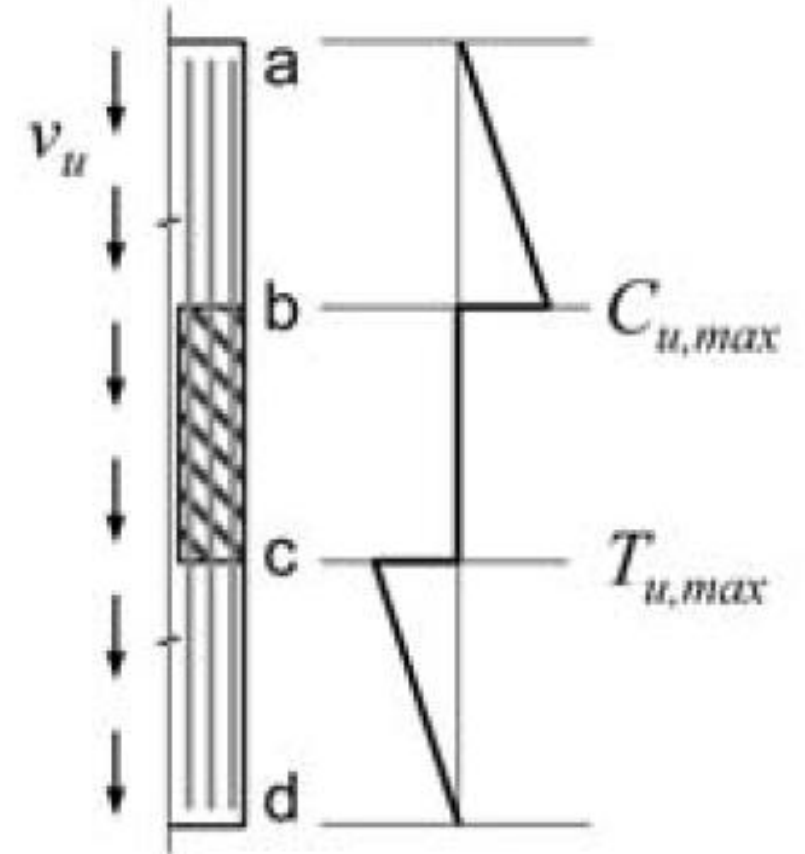
(c) Internal moment and shear resistance



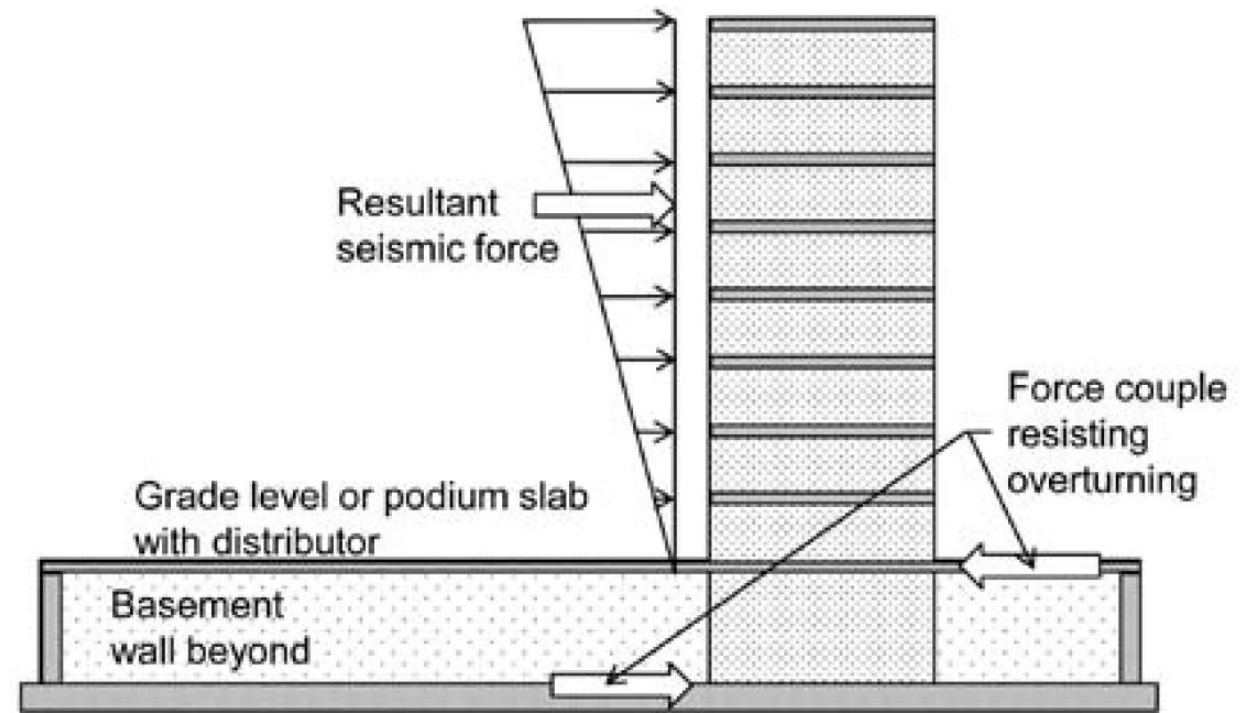
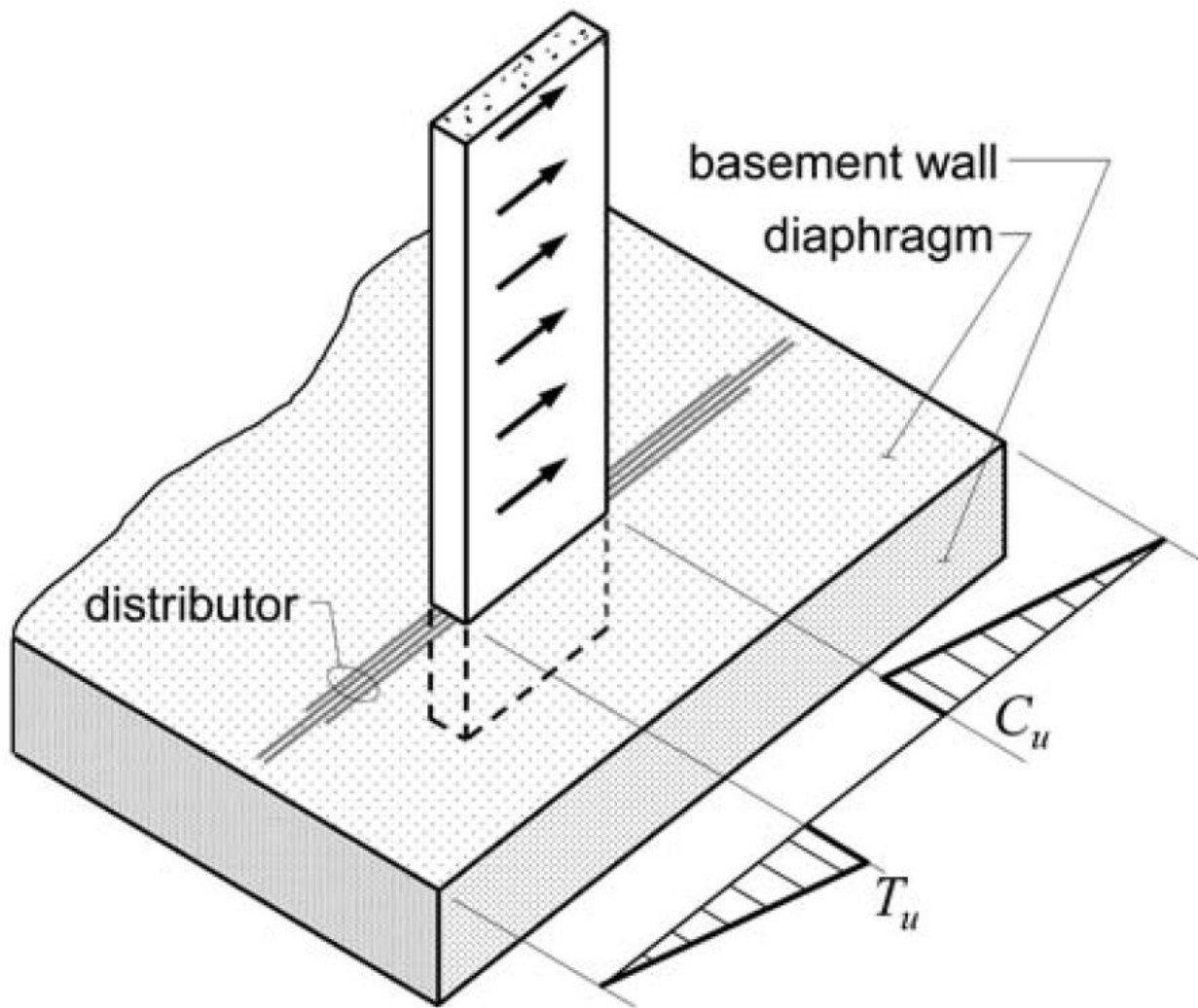
(b) Simple beam idealization

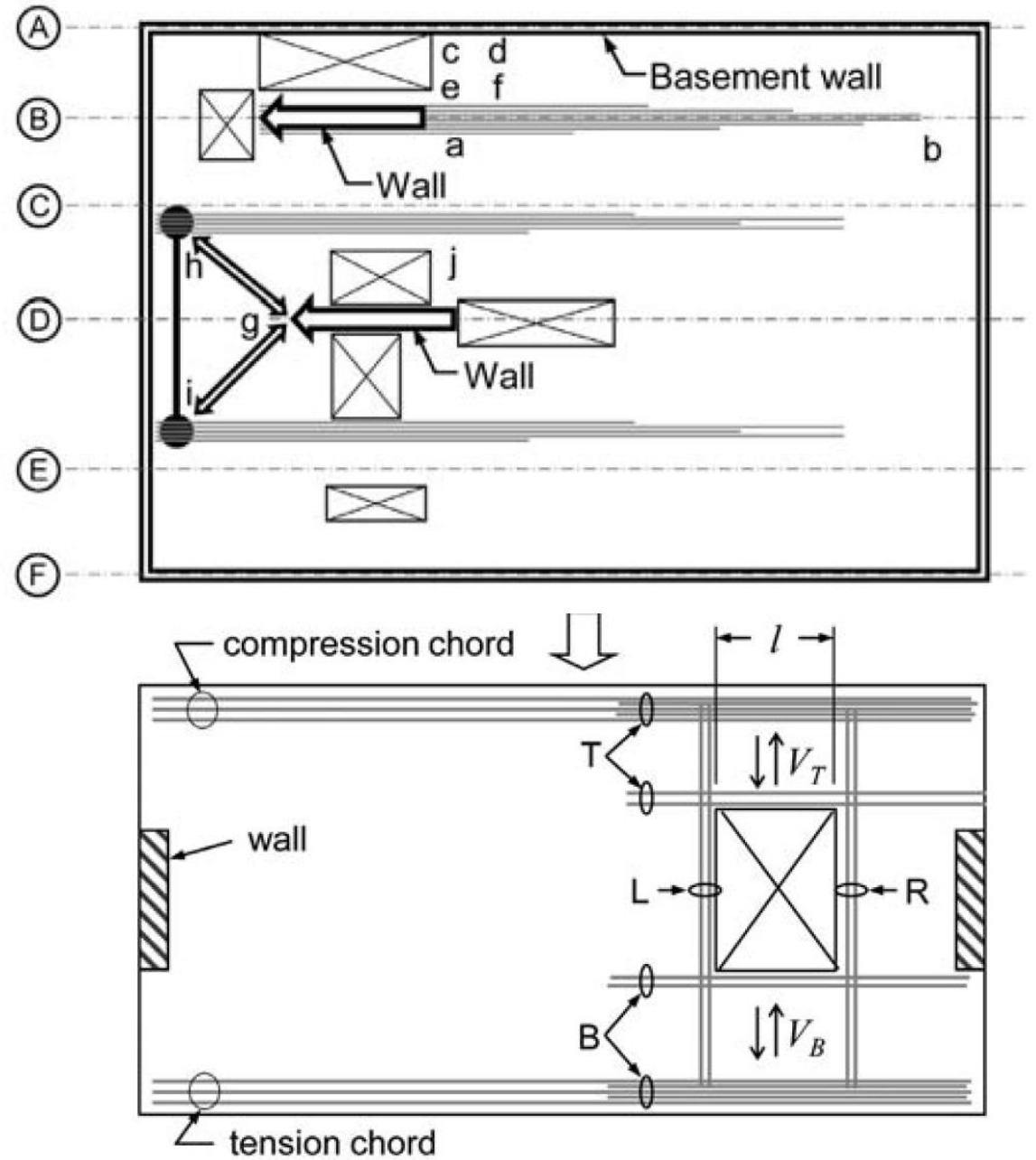
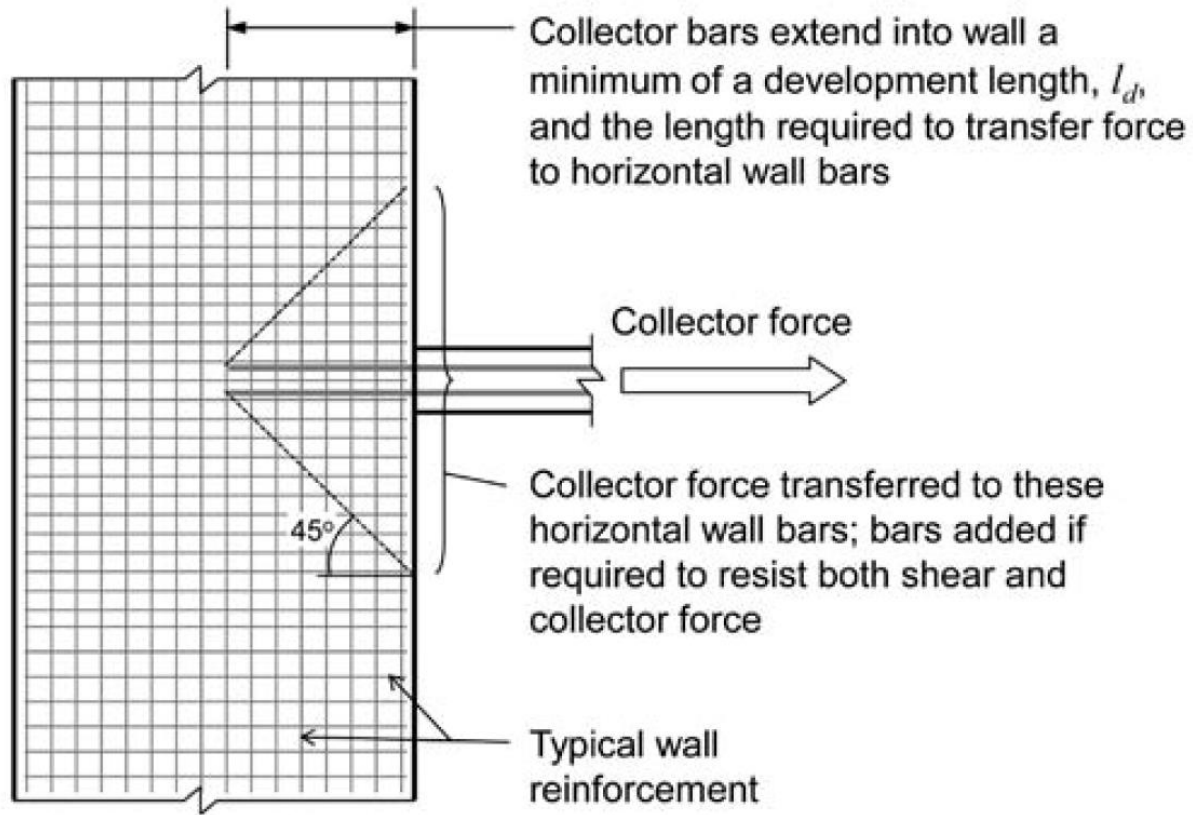


(a) Plan

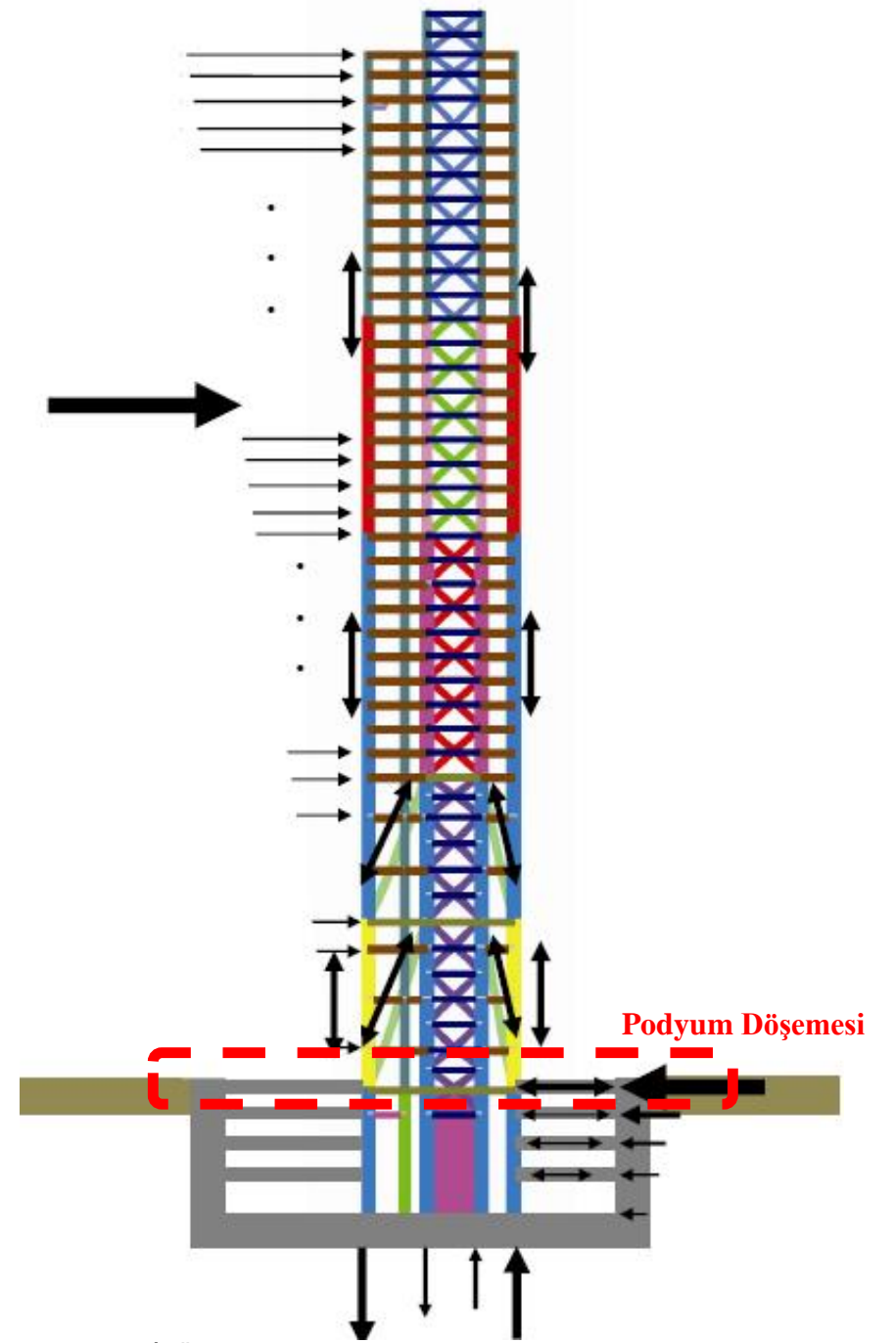
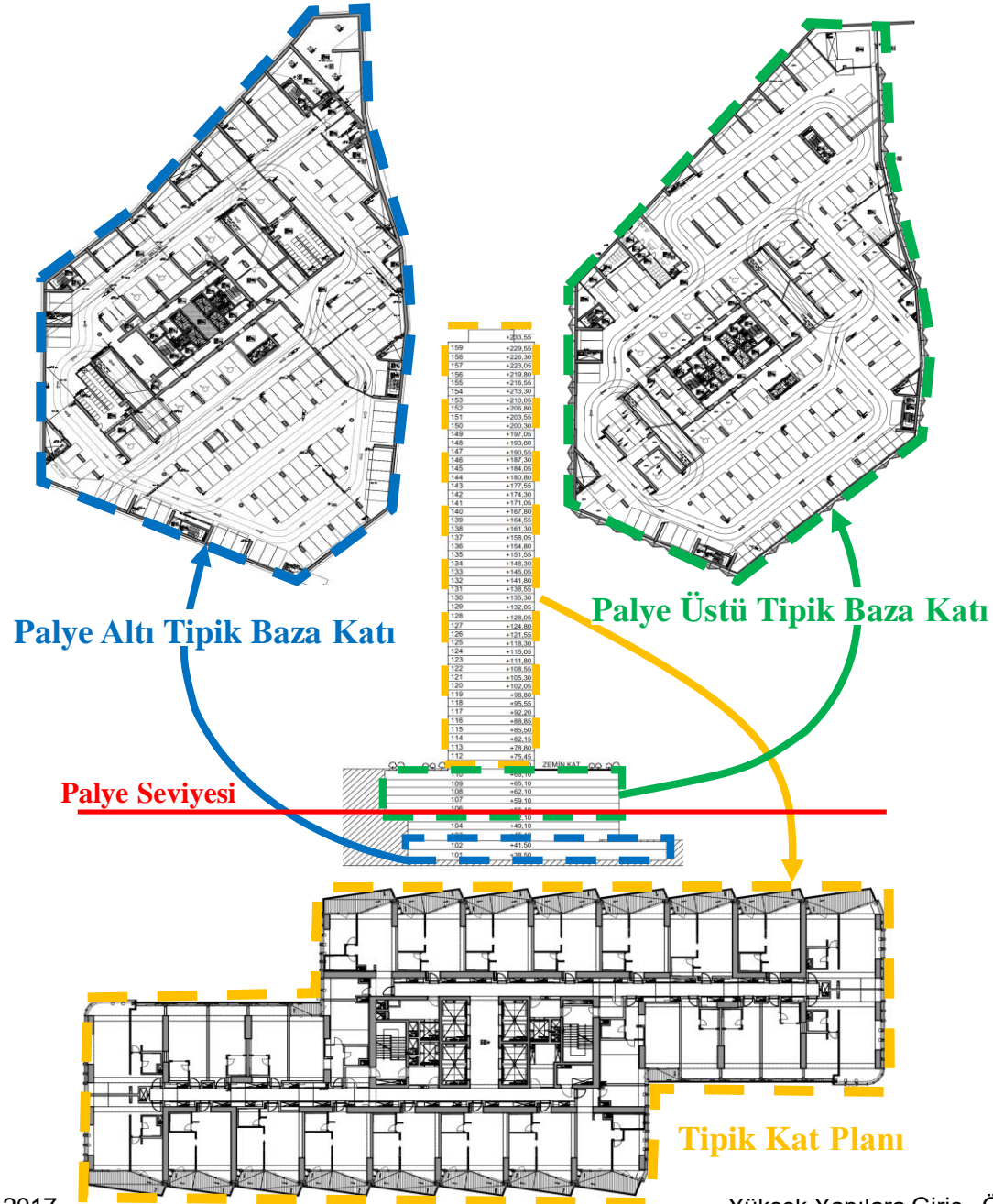


(b) Collector actions

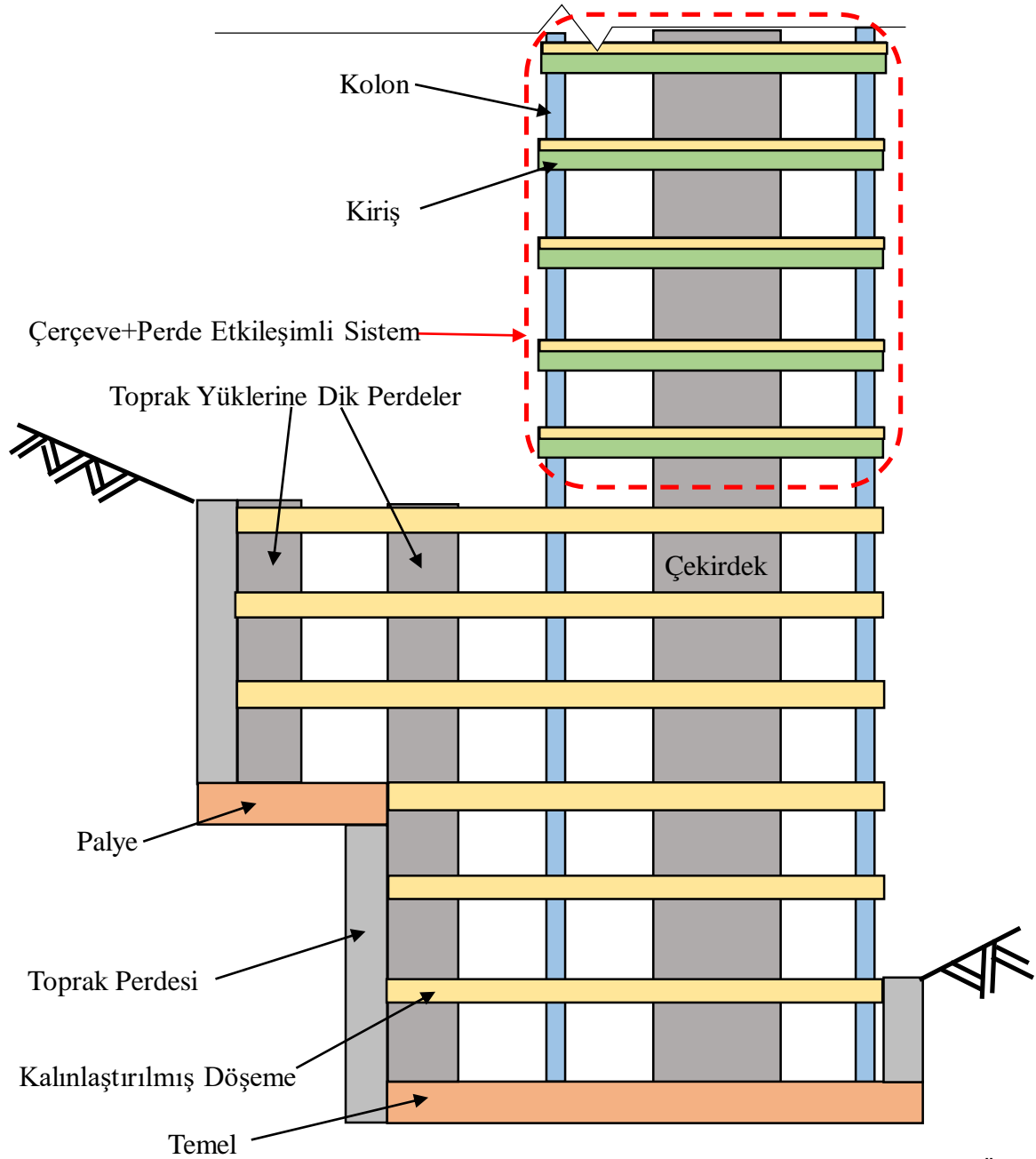


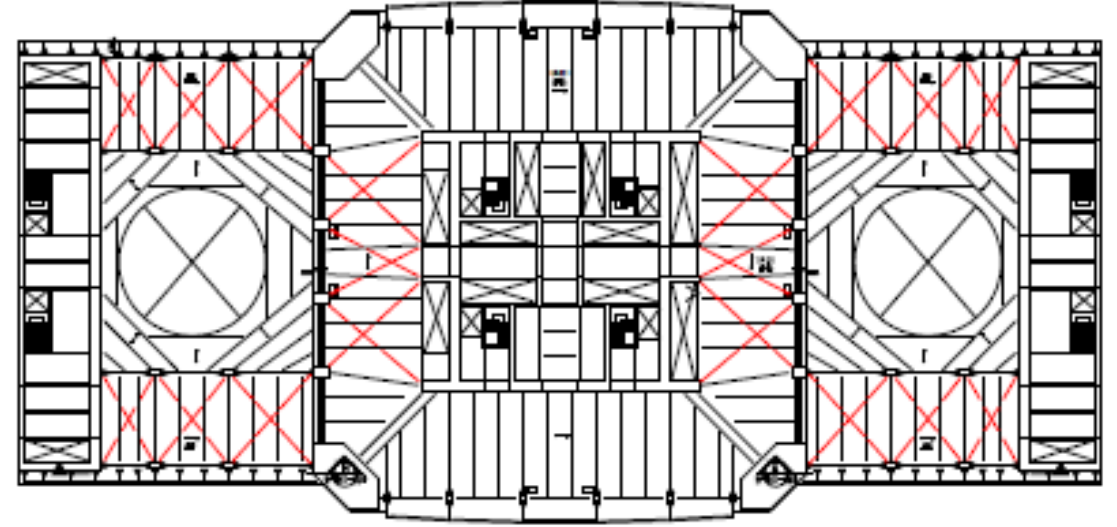
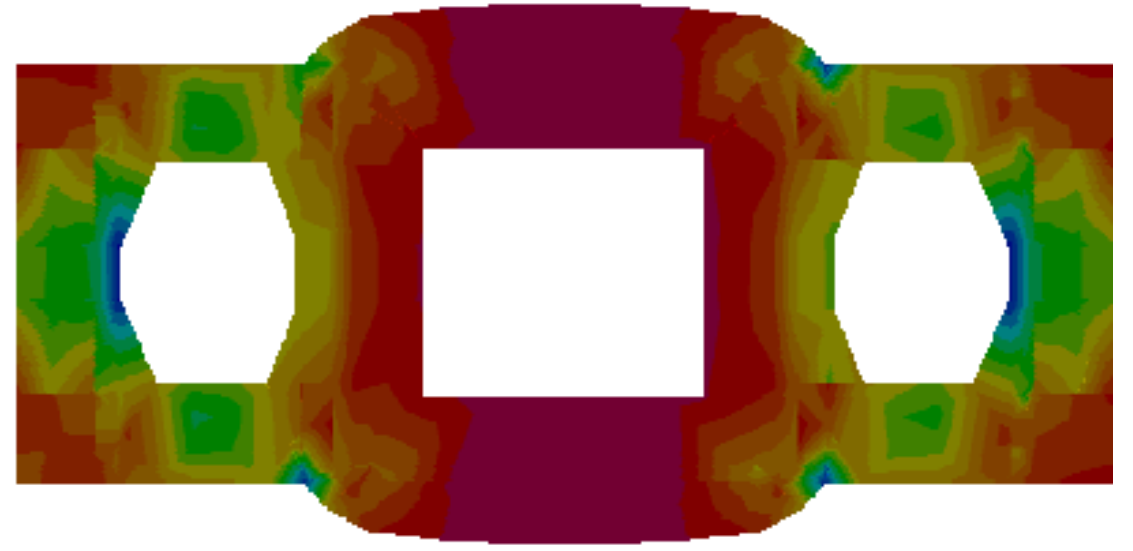
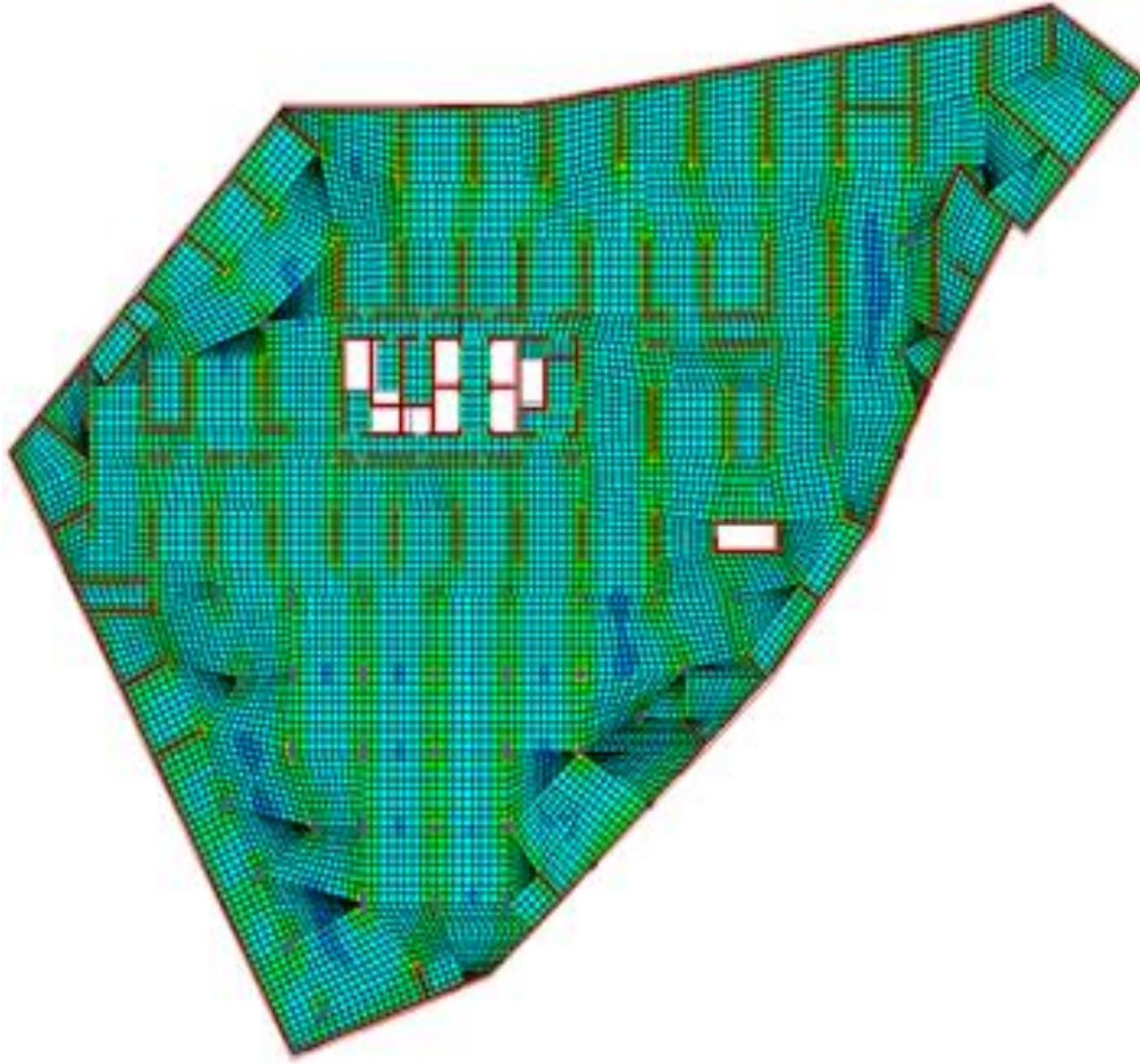


Baza Katlarının Tasarımı

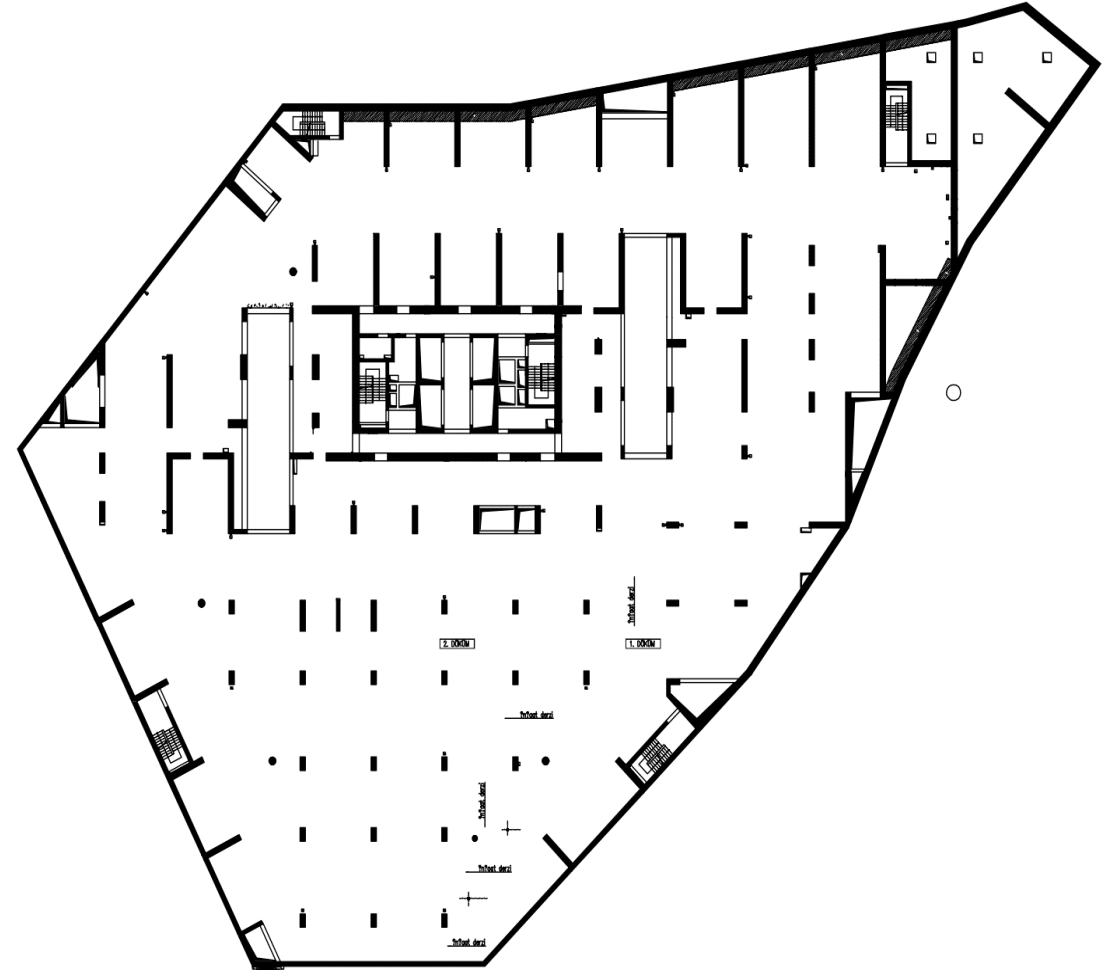
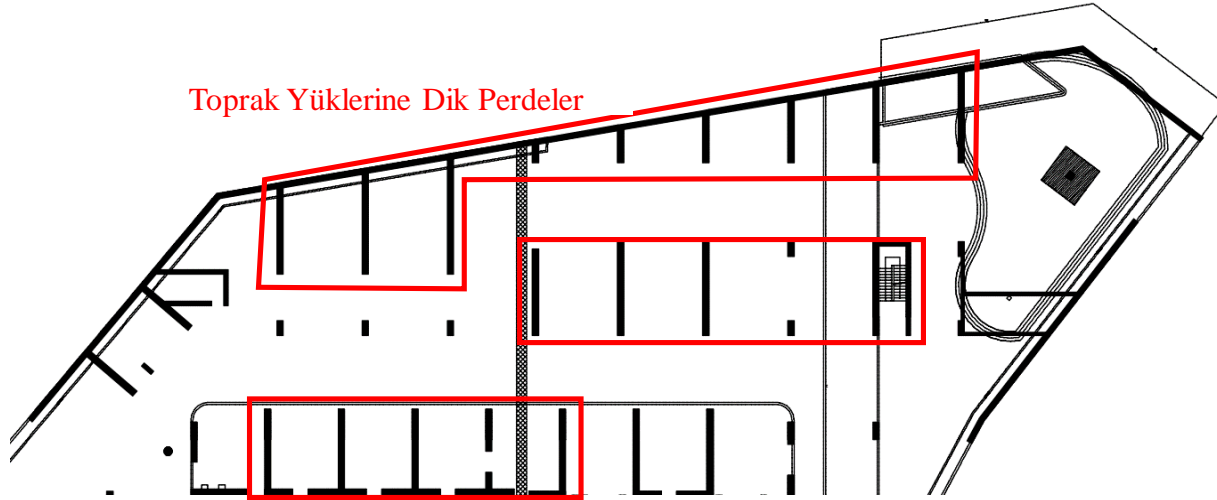
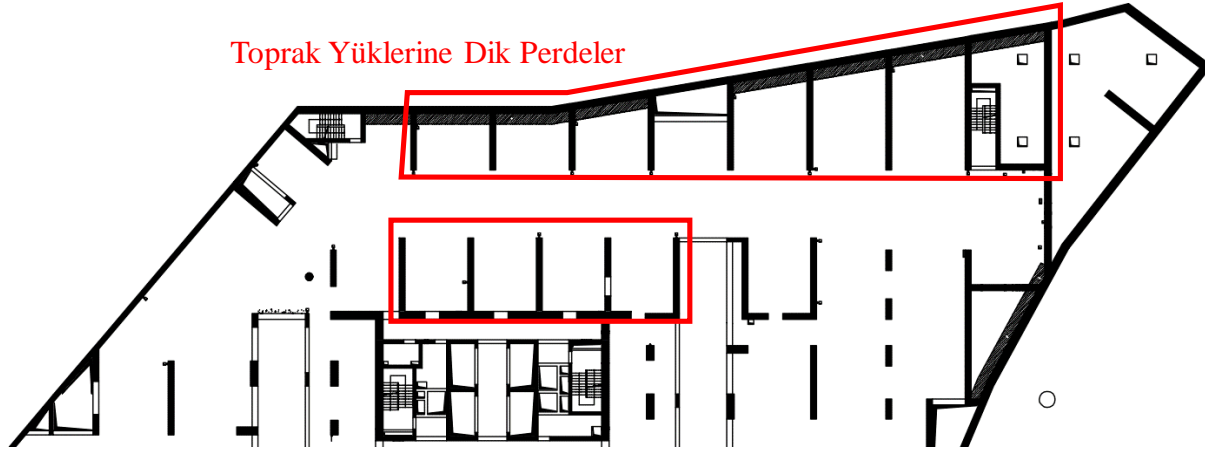


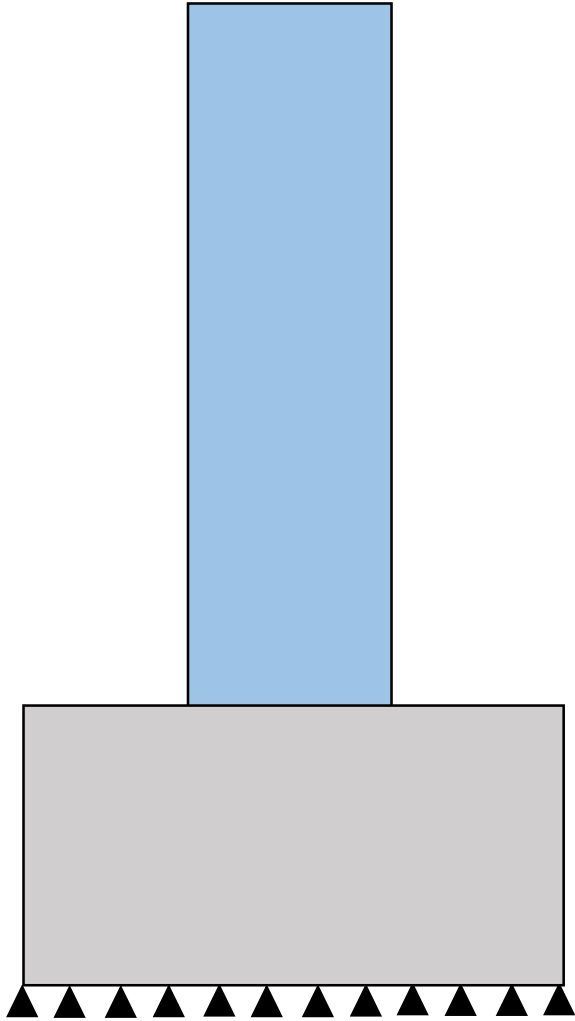
Baza Katlarının Tasarımı



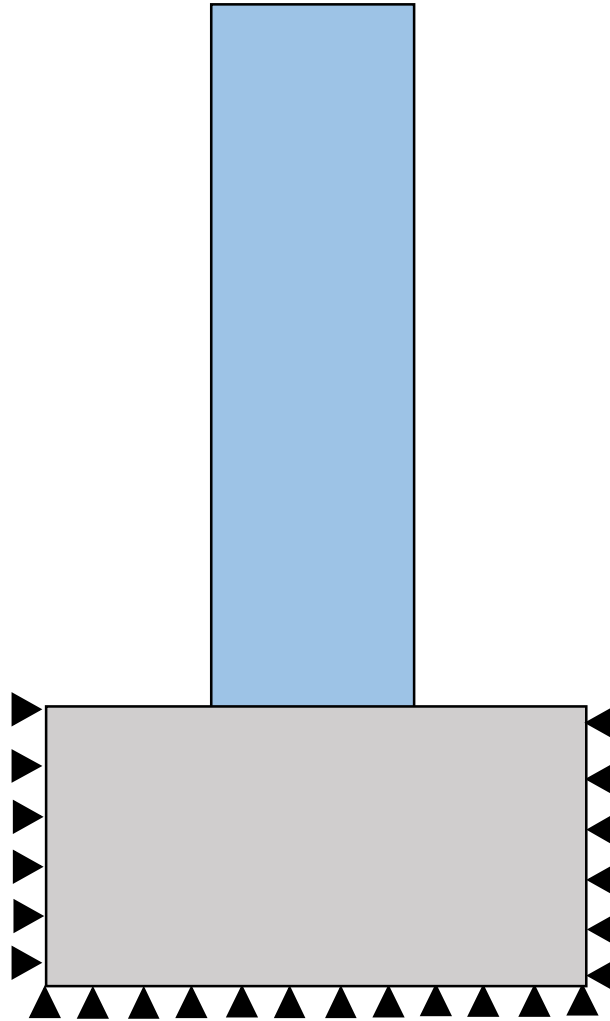


Dengesiz Toprak Yükleri İçin Tasarım

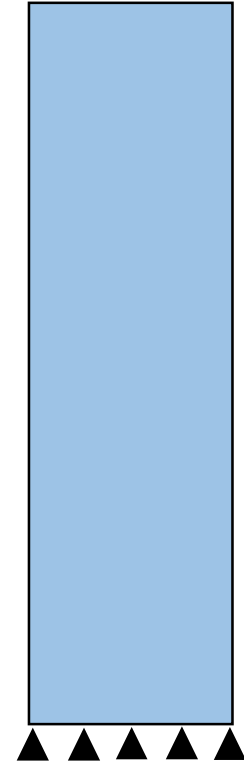




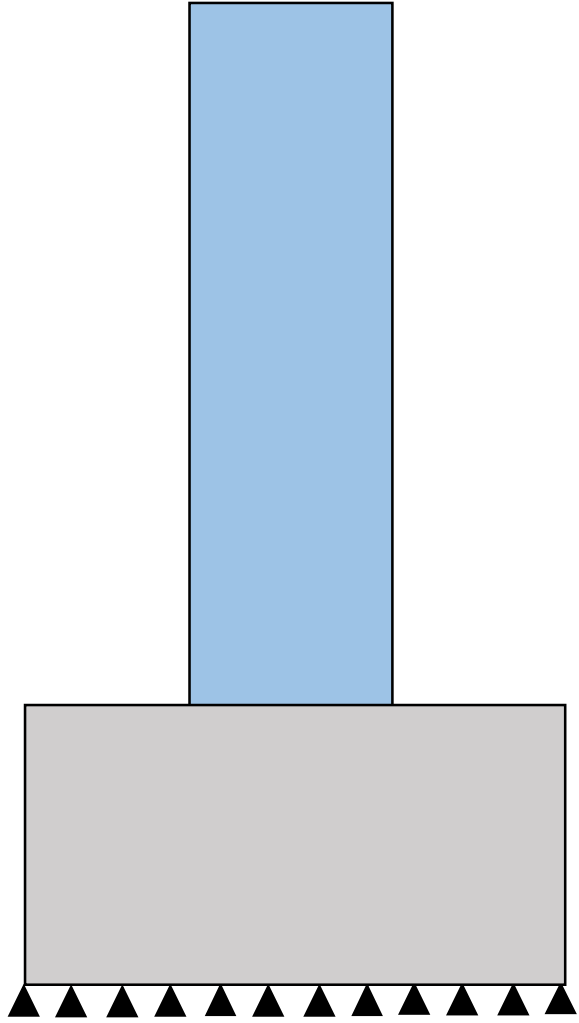
Model 1



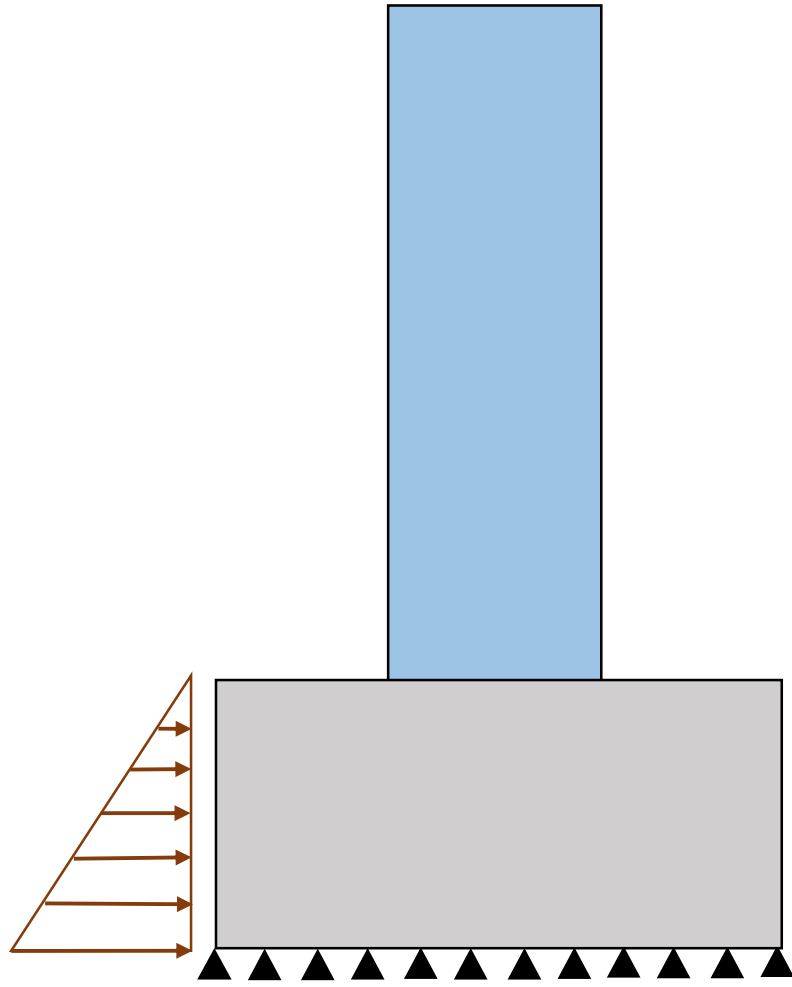
Model 2



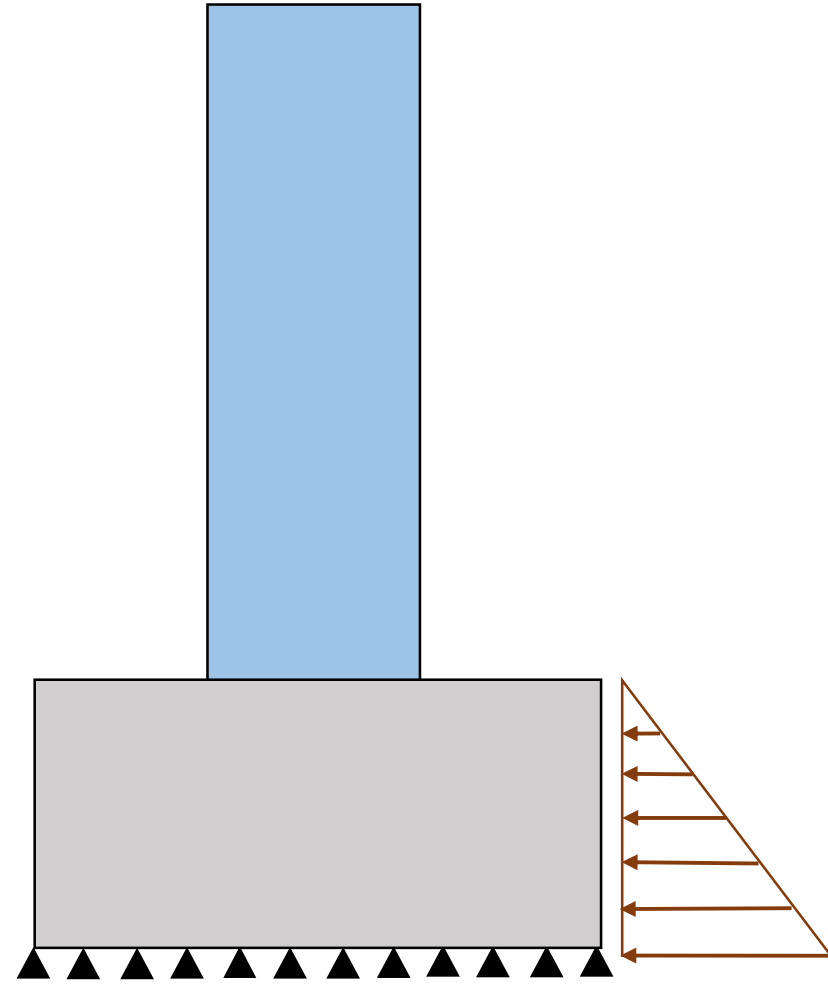
Model 3



Model 1

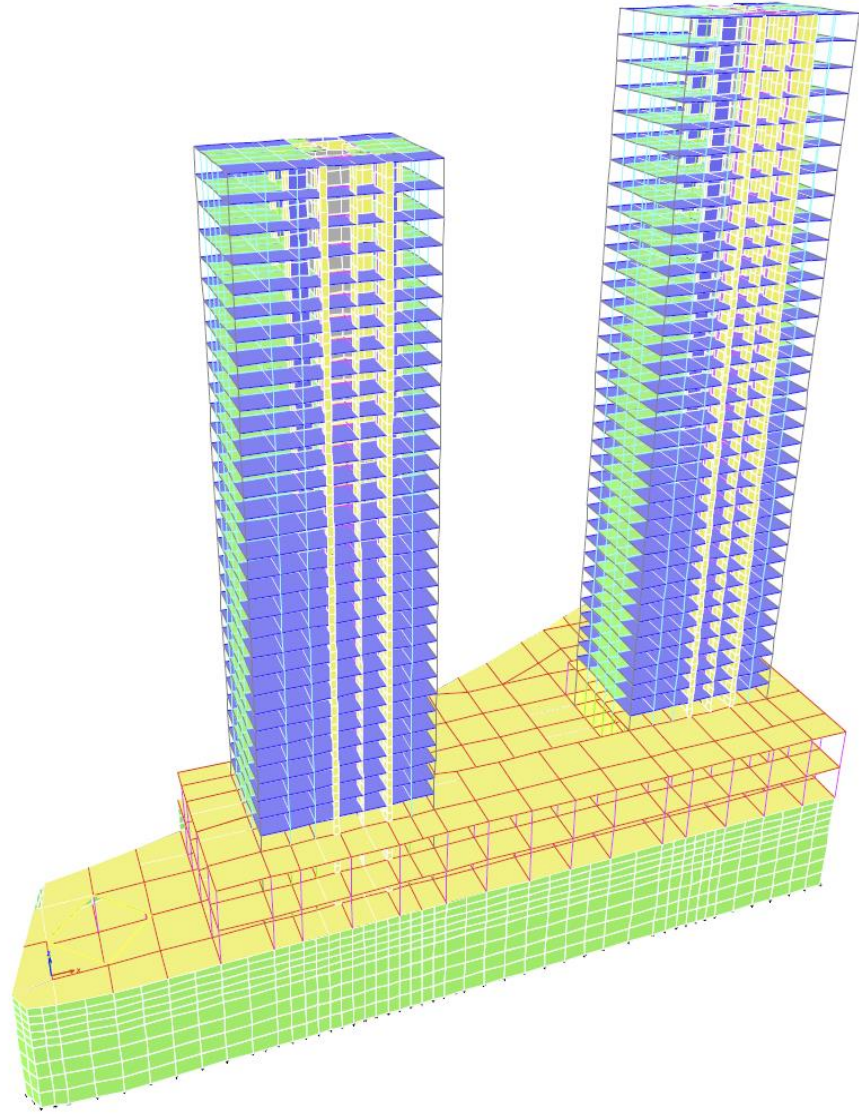


Model 1 Ek Yükleme



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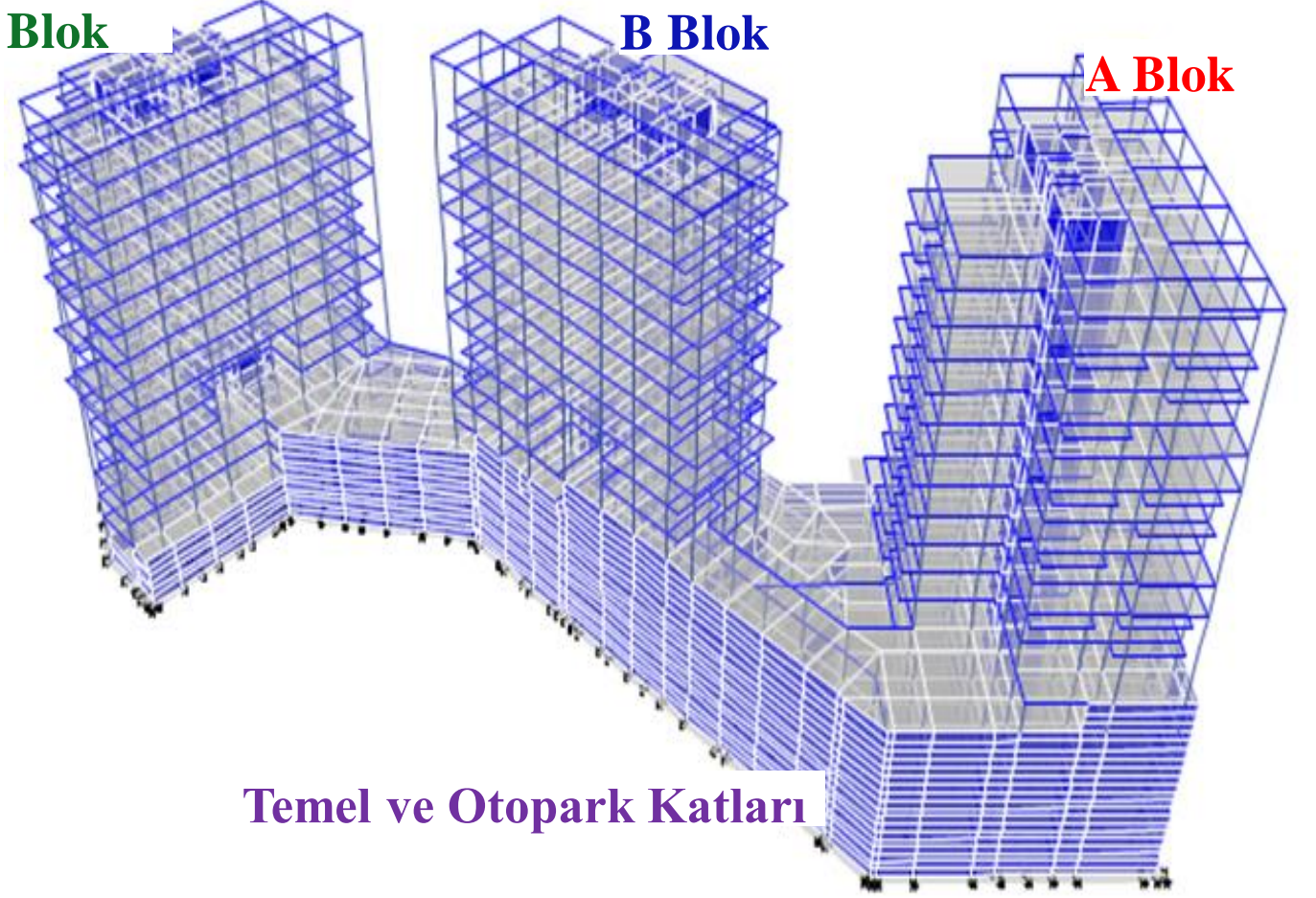
Birden Fazla Yapı Durumu



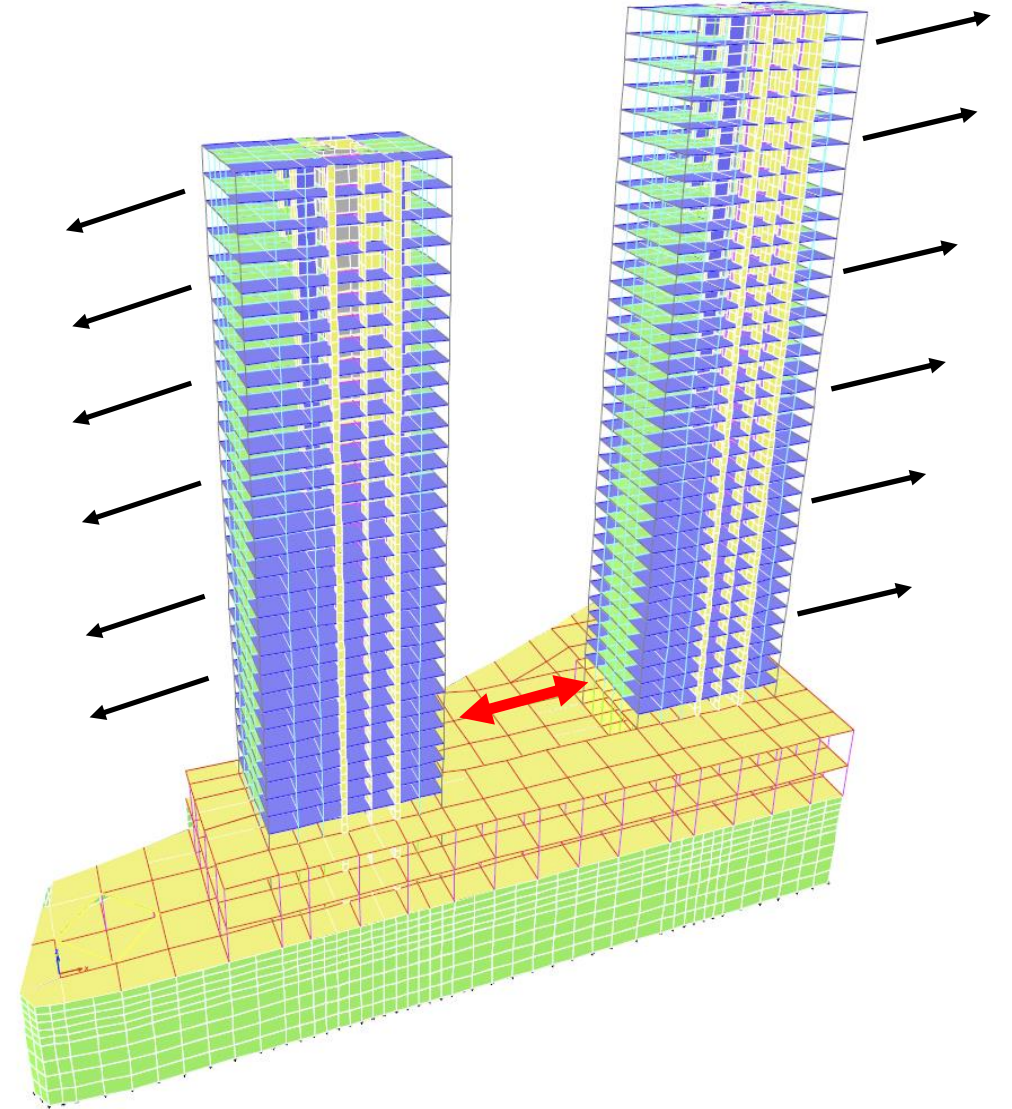
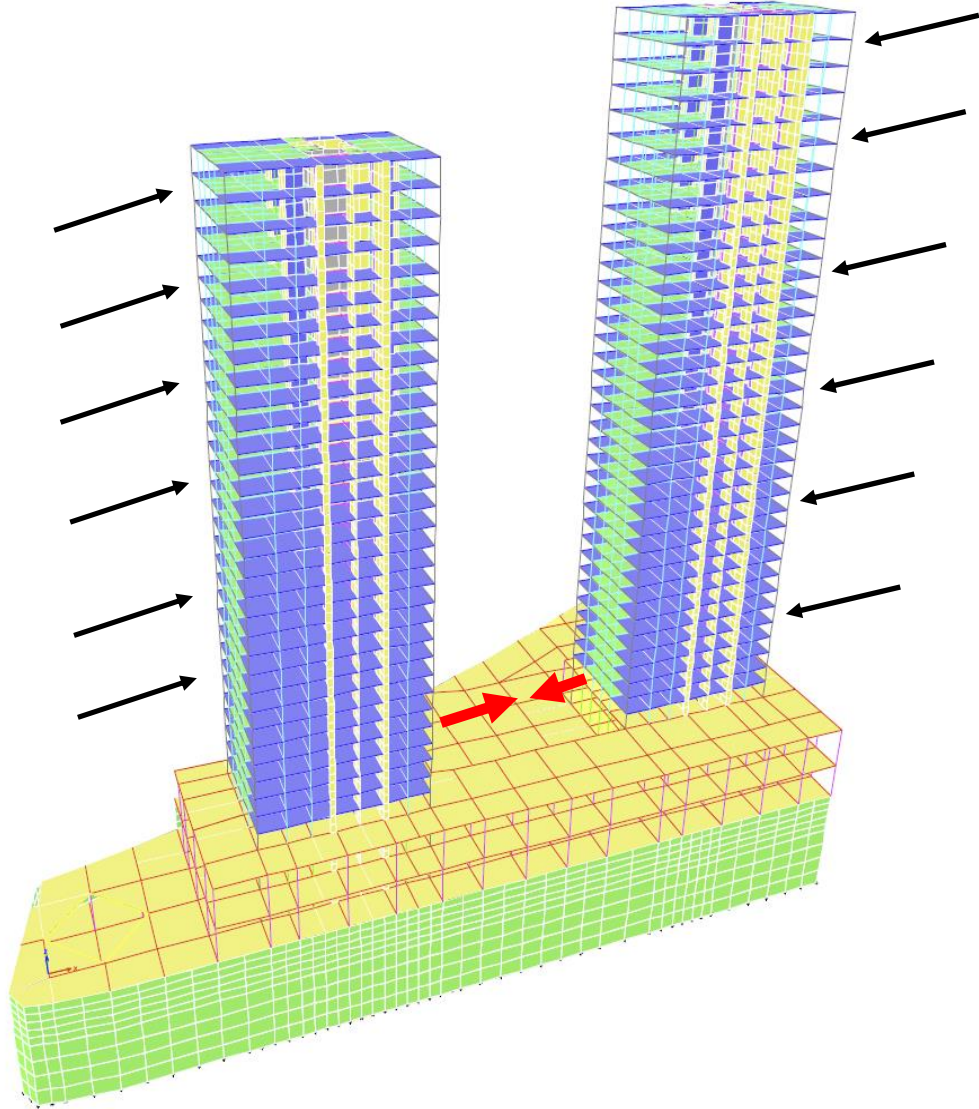
C Blok

B Blok

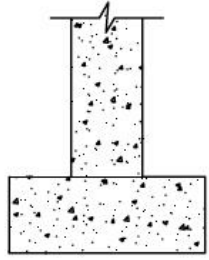
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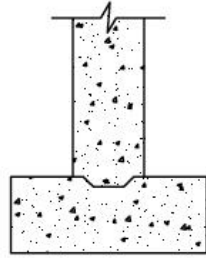
Temel ve Otopark Katları



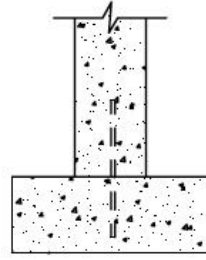
Soğuk Derz ve Sürtünem Kesmesi



FRICION



KEY



DOWEL (REBAR)

