

1. Előadás

Egyszerű csarnokok elsődleges teherviselő szerkezeteinek rendszerei

Szerkezeti acélok

Szerkezeti keresztmetszetek

- Acélvázcsarnokrendszerek
- Rugalmas és képlékeny méretezés
- Tervezés - Gyártás – Szerelés
- Keretfőtartós rendszer elsődleges teherviselő szerkezeti rendszerei

Tipikus melegen hengerelt szelvények



Gerenda



Oszlop



Szádpalló



Darusín



U-szelvény



Szögacél



Zártszelvények



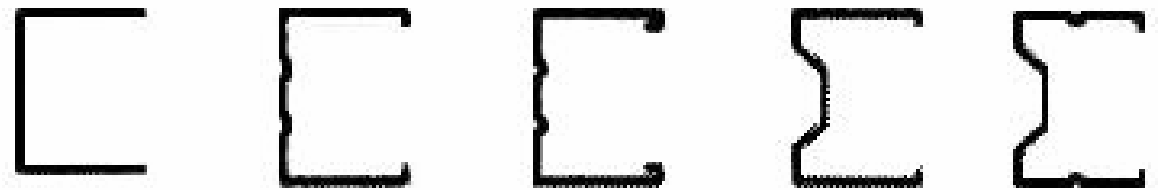
T-szelvény



Hengerelt merevítő

Tipikus hidegen alakított szelvények

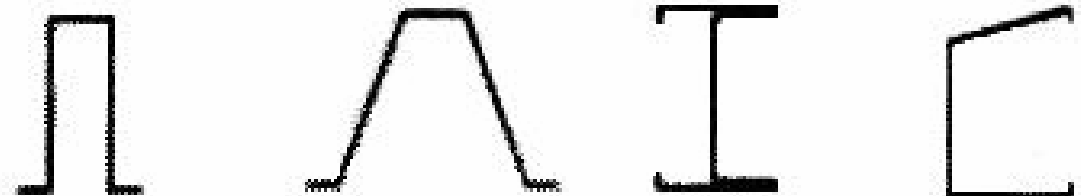
U-szelvények



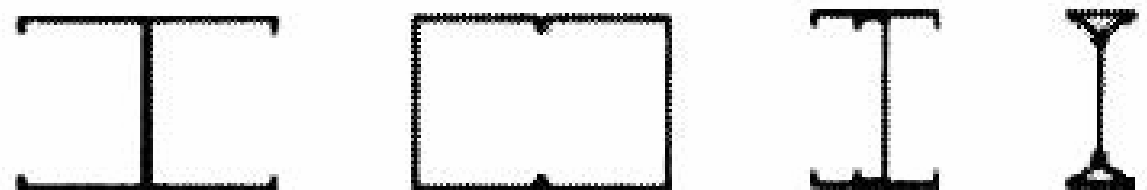
Z szelvények



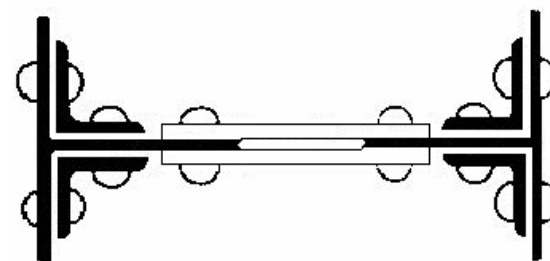
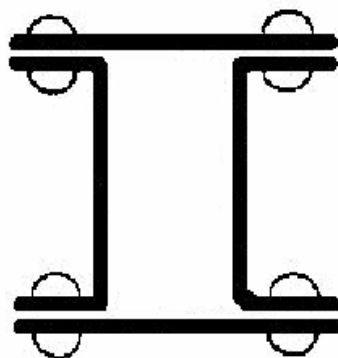
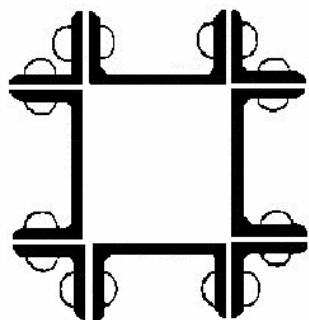
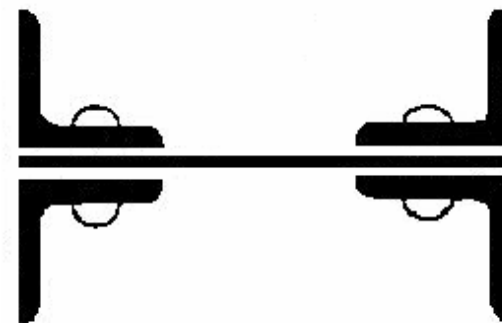
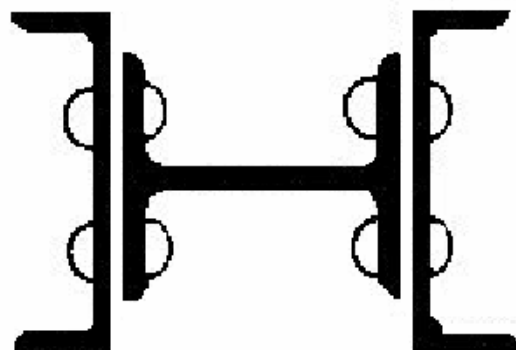
Speciális szelvények



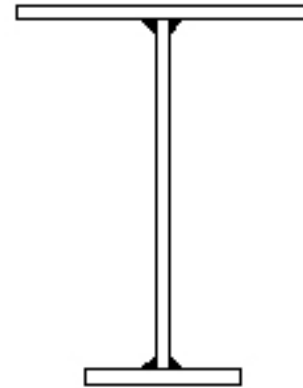
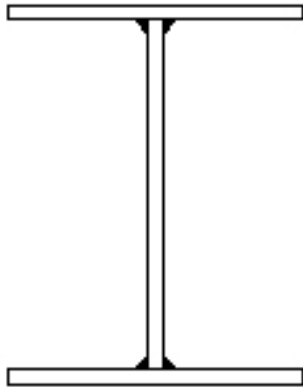
Összetett szelvények



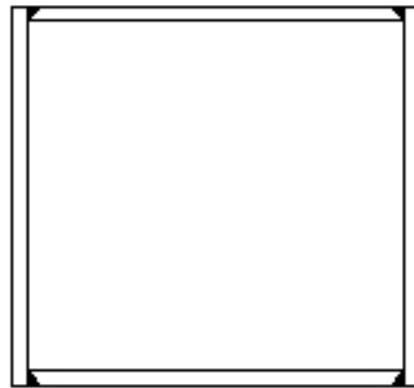
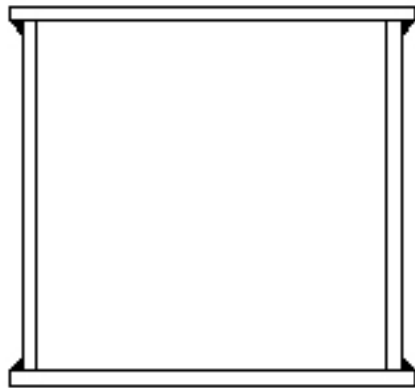
Szegecselt keresztmetszetek



Hegesztett keresztmetszetek

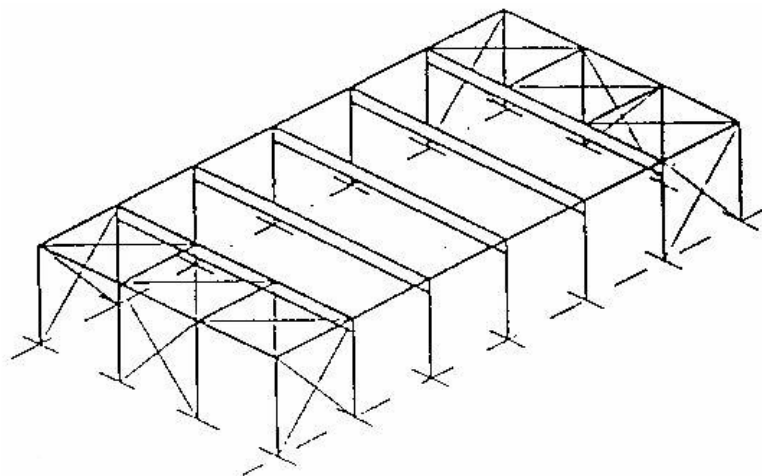


IPE hengerelt
szelvény

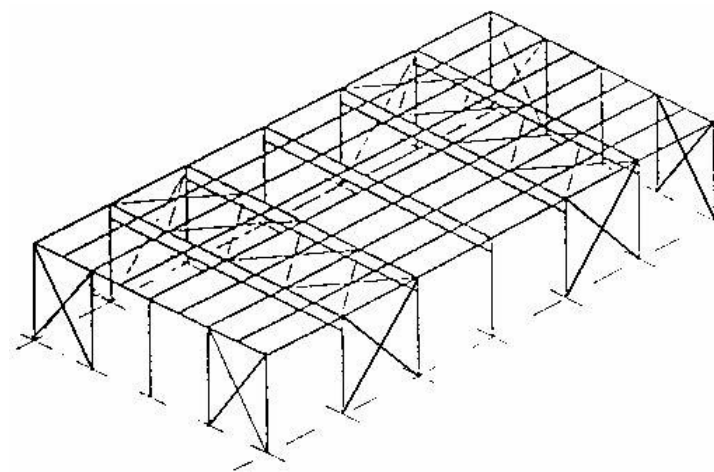


Acélvázás csarnokrendszerek

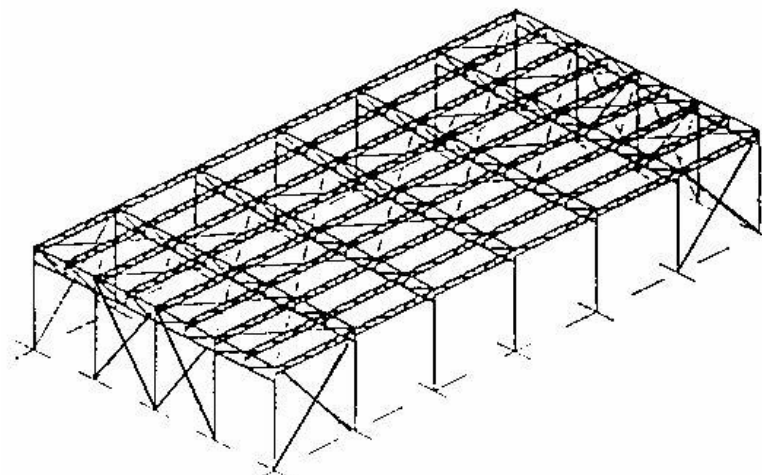
I. Szaruzat (-oszlop) főtartós rendszer



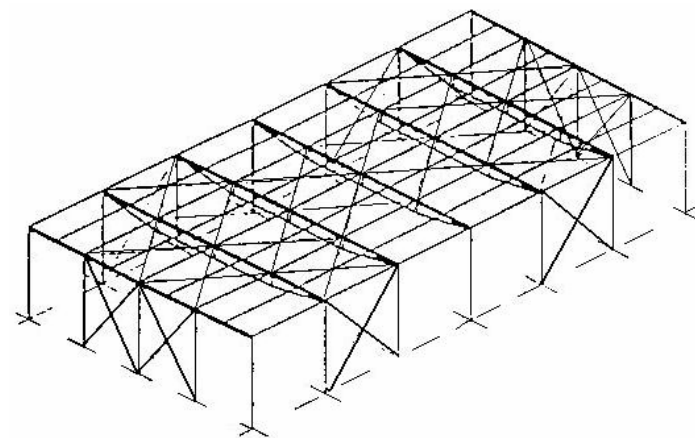
(a) Oszlop-szaruzat kapcsolatnál csuklós csomópontú, szelemenek nélküli rendszer



(b) Oszlop-szaruzat kapcsolatnál csuklós csomópontú, szelemenés rendszer

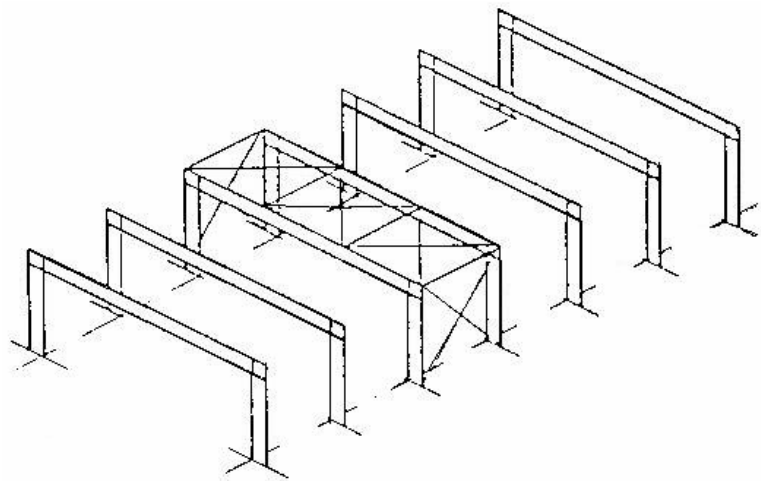


(c) Oszlop-szaruzat kapcsolatnál csuklós csomópontú rendszer: rácsos szaruzat, rácsos szelemen

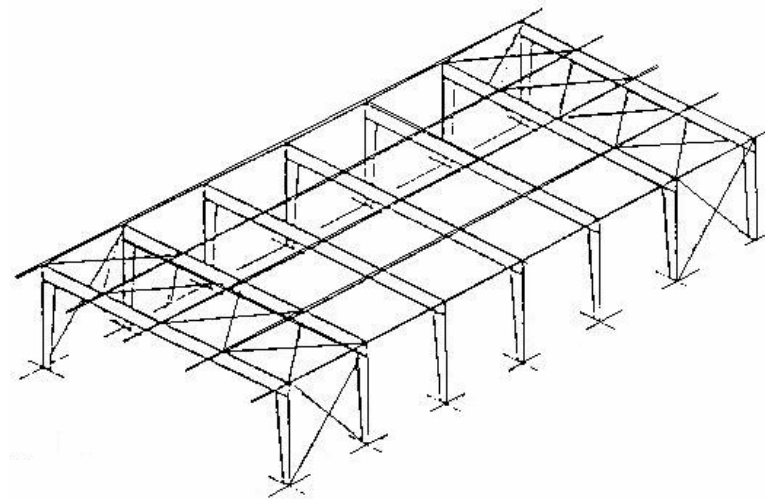


(d) Oszlop-szaruzat kapcsolatnál csuklós csomópontú rendszer: feszítőműves szaruzattal

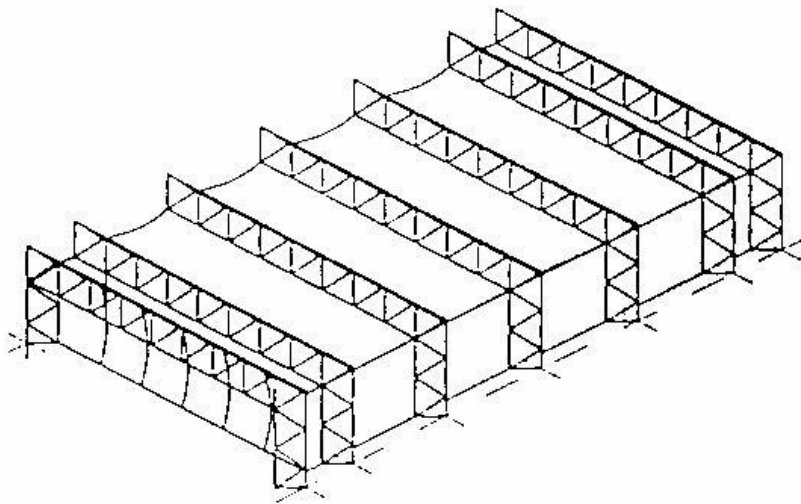
II. Keretfőtartós rendszer



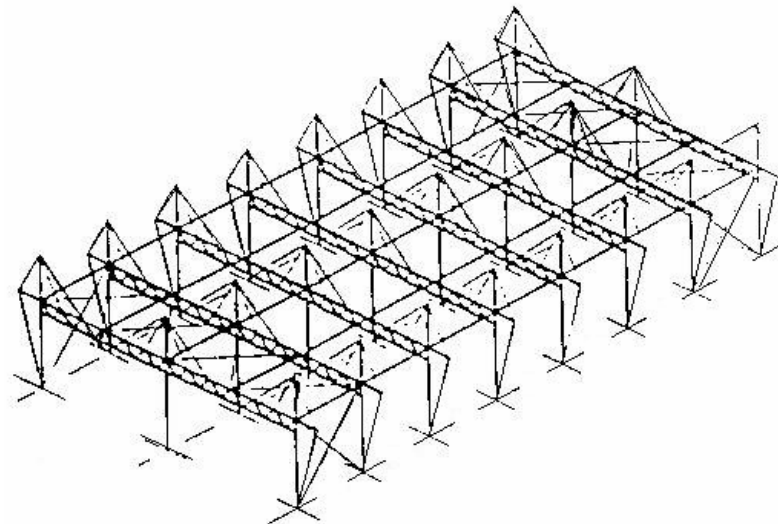
(a) Keretfőtartós, szelemenek nélküli rendszer



(b) Keretfőtartós, szelemenés rendszer

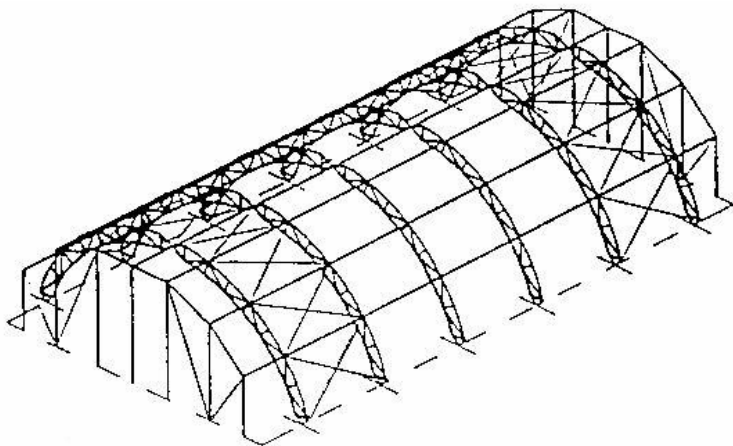


(c) Rácsos, keretfőtartós, szelemenek nélküli rendszer

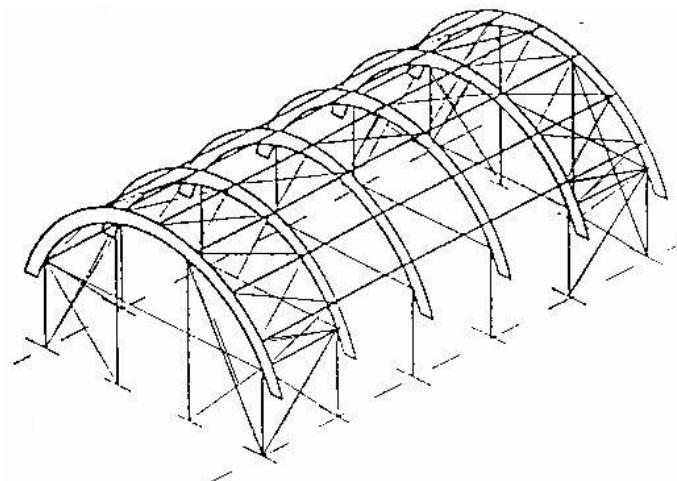


(d) Függesztőműves, keretfőtartós rendszer

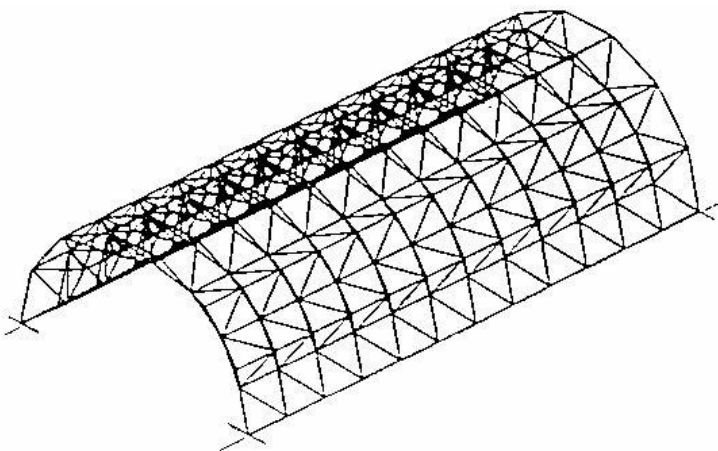
III. Ívfőtartós rendszer



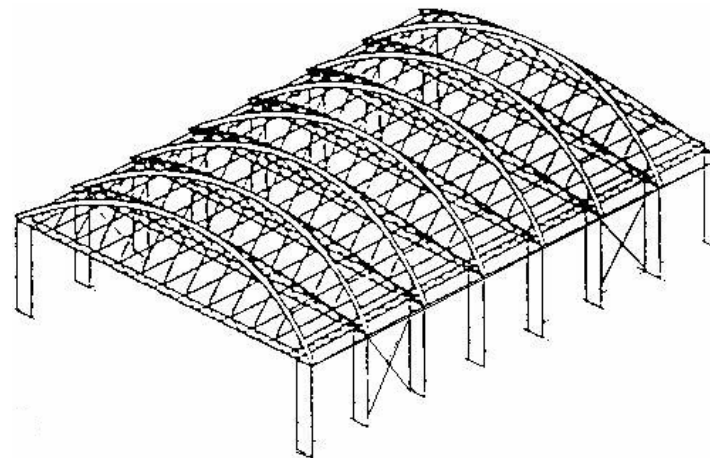
(a) Padlószintre támaszkodó,
íves főtartó rendszer



(b) Oszlopokra támaszkodó,
íves főtartó rendszer

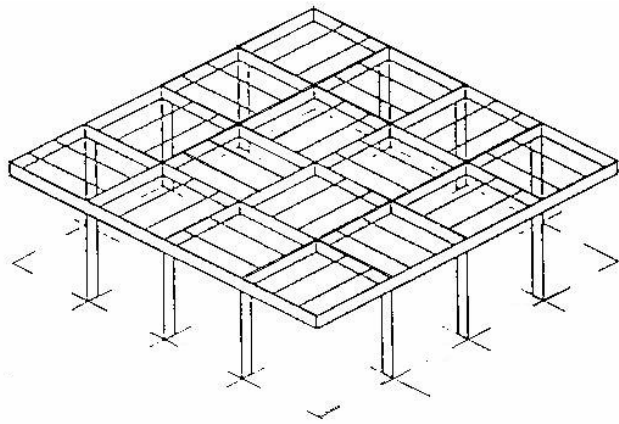


(c) Egy irányban görbült,
rácsos ívenszer

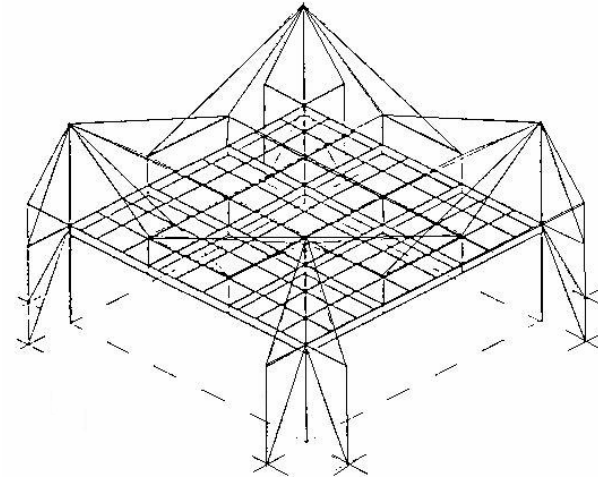


(d) Oszlopokra támaszkodó
ikerívek rendszere

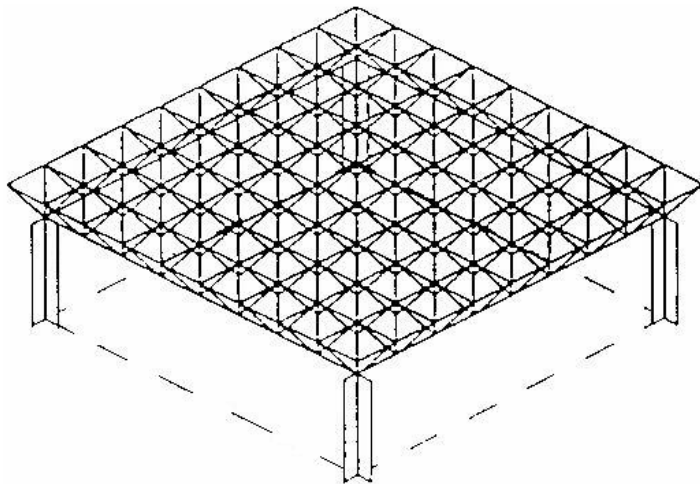
IV. Térbeli főtartós rendszer



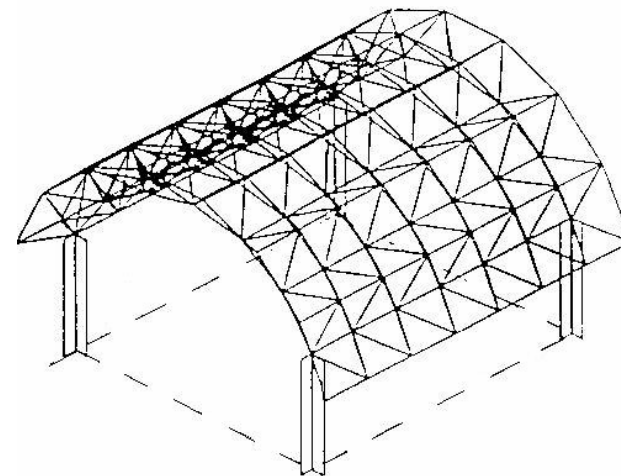
(a) Gerendarács rendszer



(b) Gerendarács rendszer függesztőművel



(c) Oszlopokra támaszkodó, síkban elhelyezett, térbeli rácsos tartó

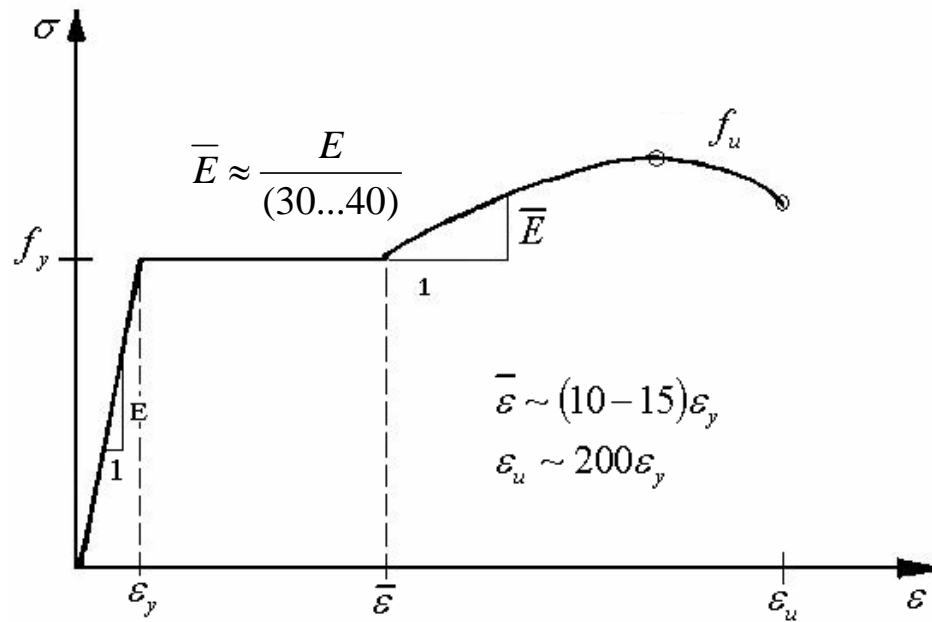


(d) Oszlopokra támaszkodó, egy irányban görbült felületen levő térbeli rácsos tartó

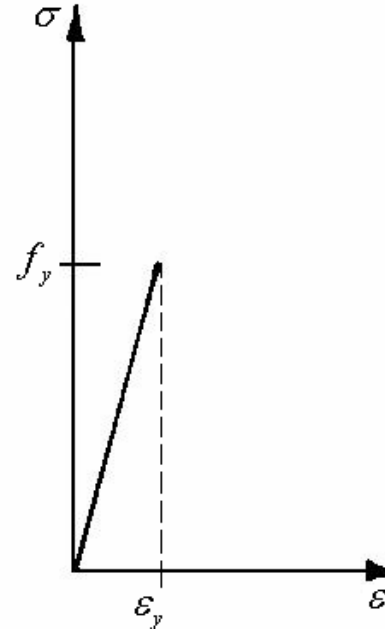
Rugalmas és képlékeny méretezés

I. Szerkezeti acél

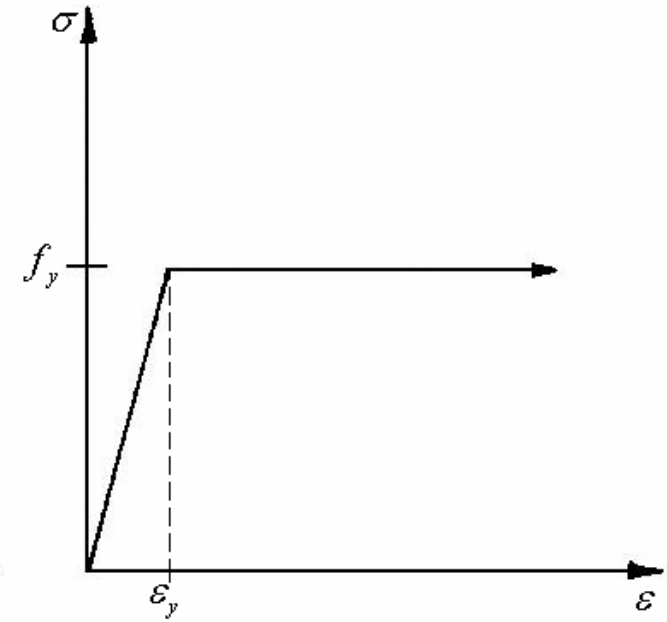
Kísérlet:



Rugalmas



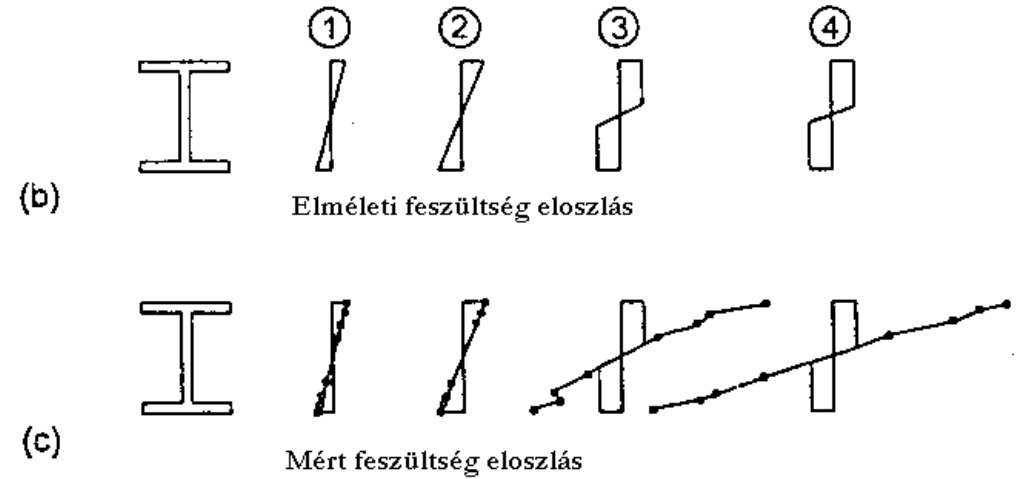
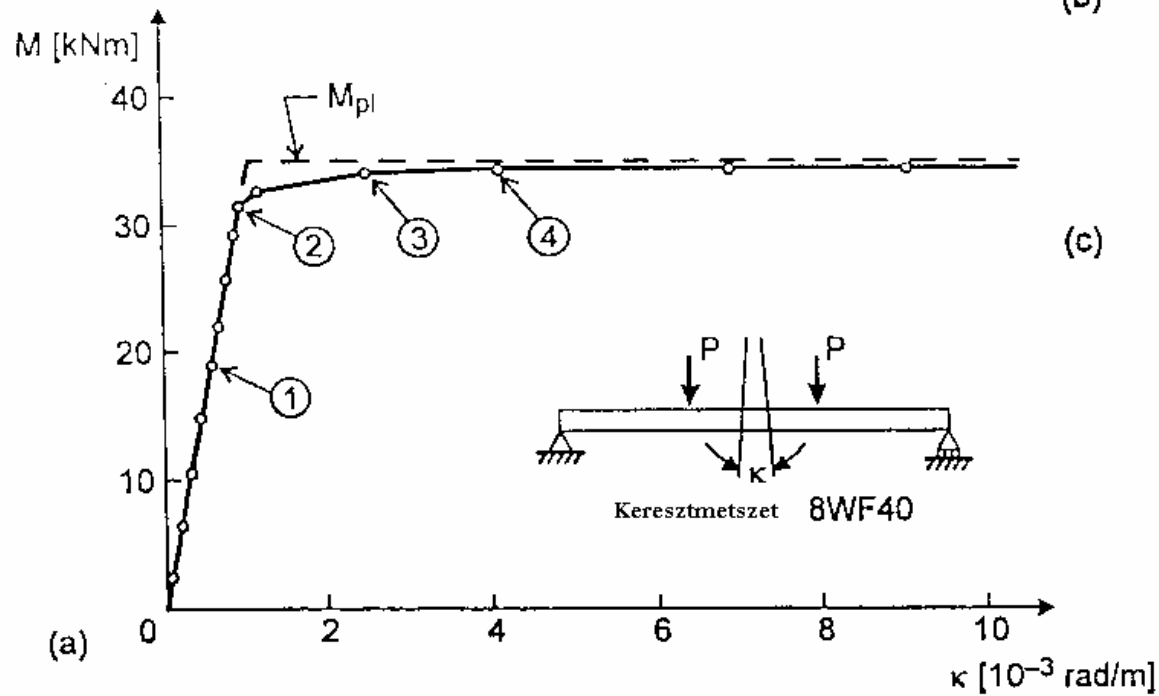
Képlékeny

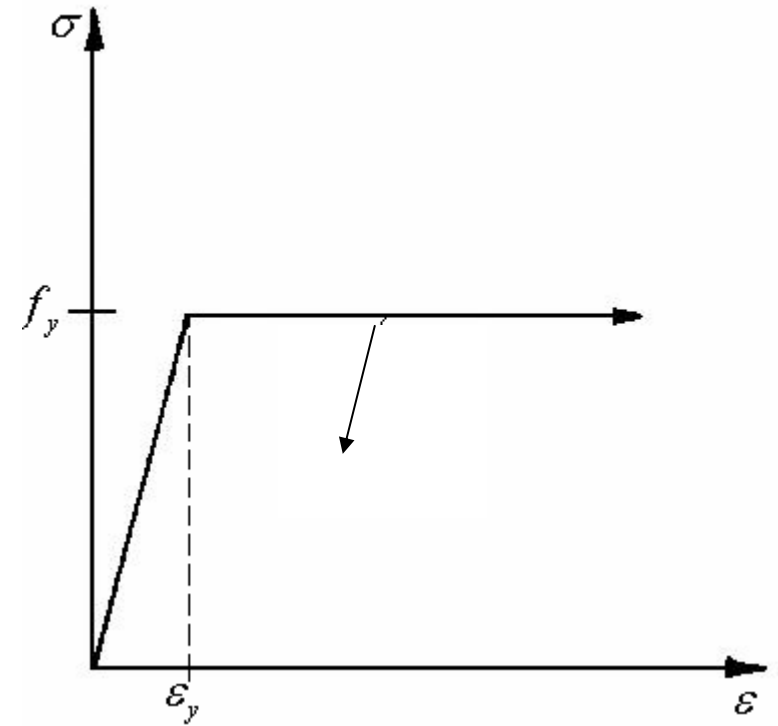
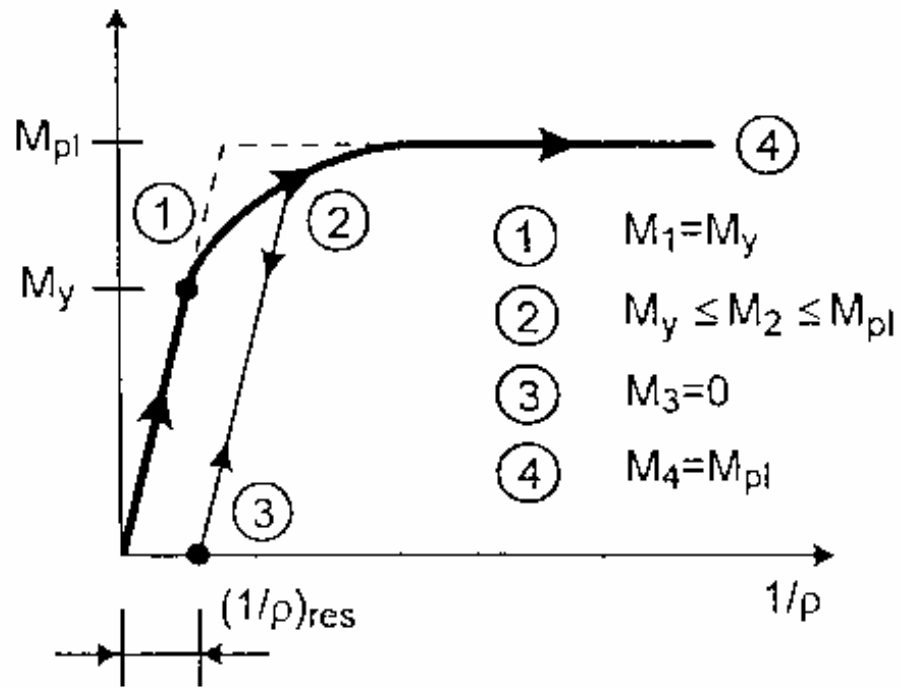
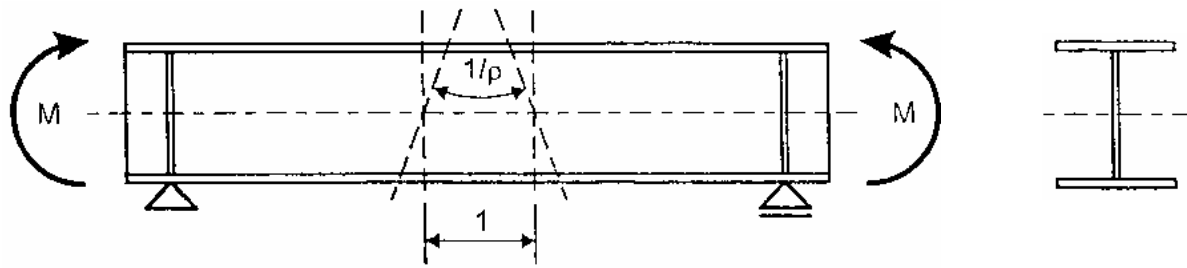


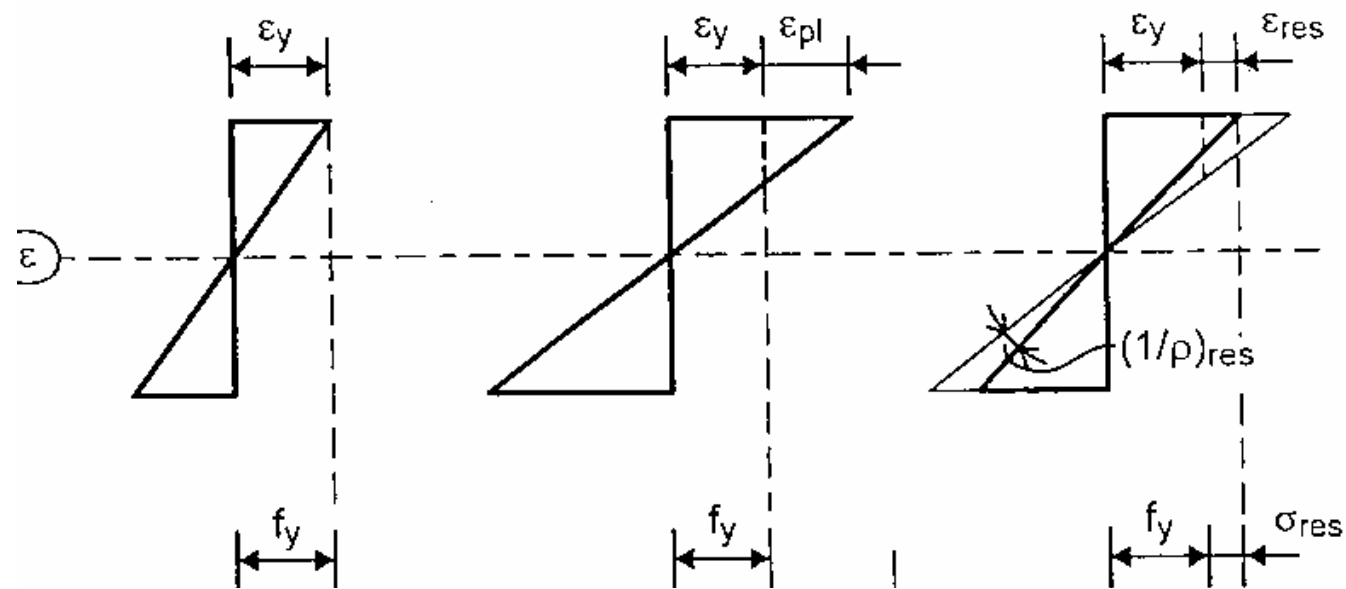
Rugalmas és képlékeny méretezés

II. Szerkezeti keresztmetszet

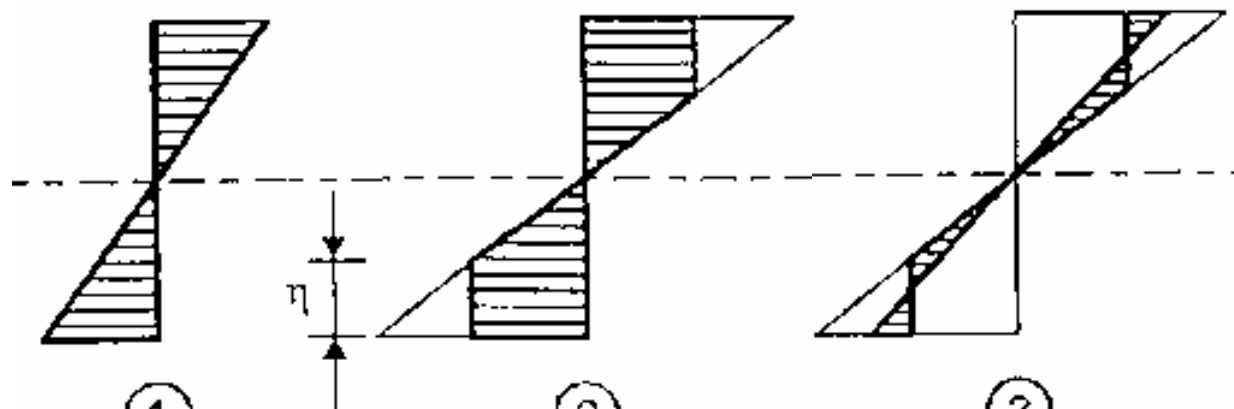
Kísérlet







Képlékeny csukló



①

$$M_1 = M_y$$

②

$$M_y \leq M_2 \leq M_{pl}$$

③

$$M_3 = 0$$

④

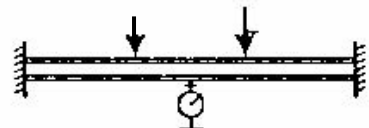
$$M_4 = M_{pl}$$

Rugalmas és képlékeny méretezés

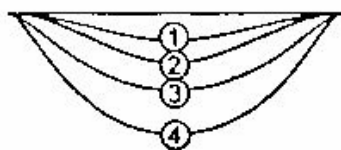
III. Szerkezet

Kísérlet

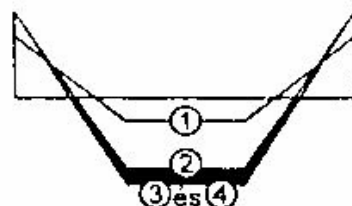
Keresztmetszet: 8WF40



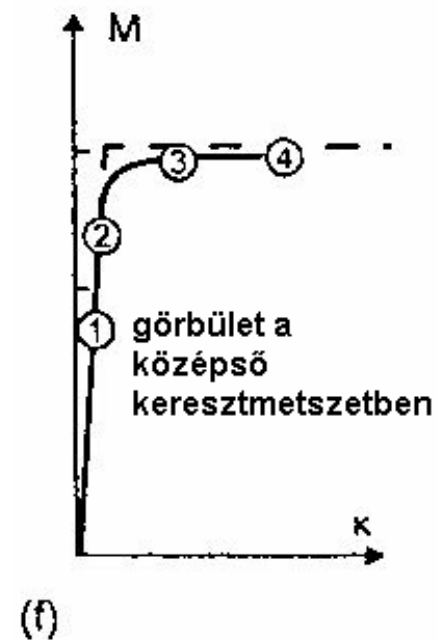
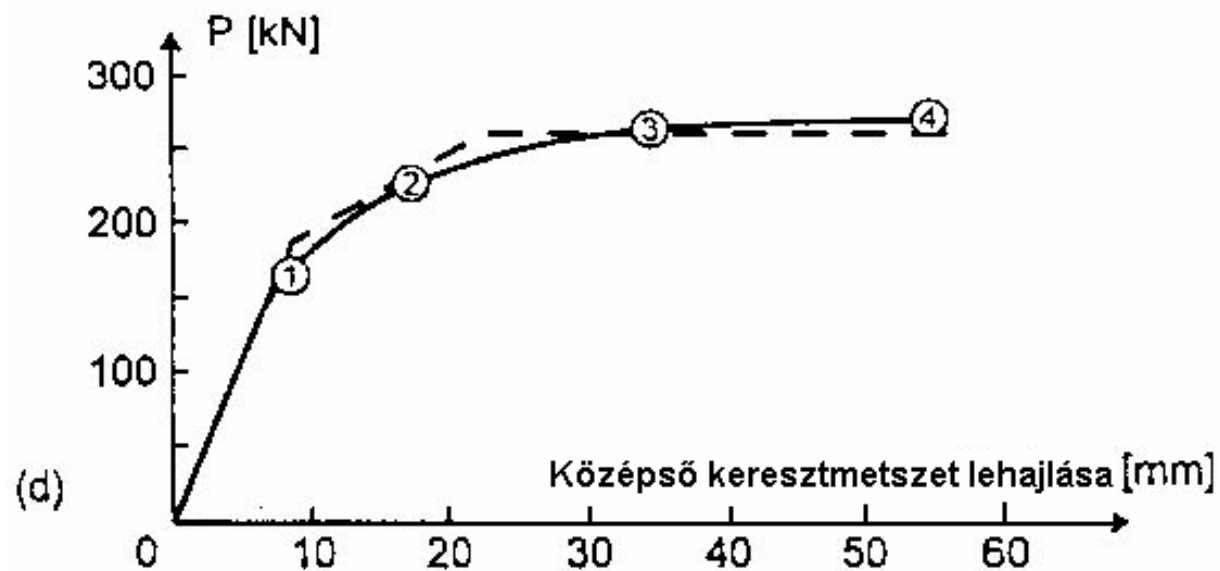
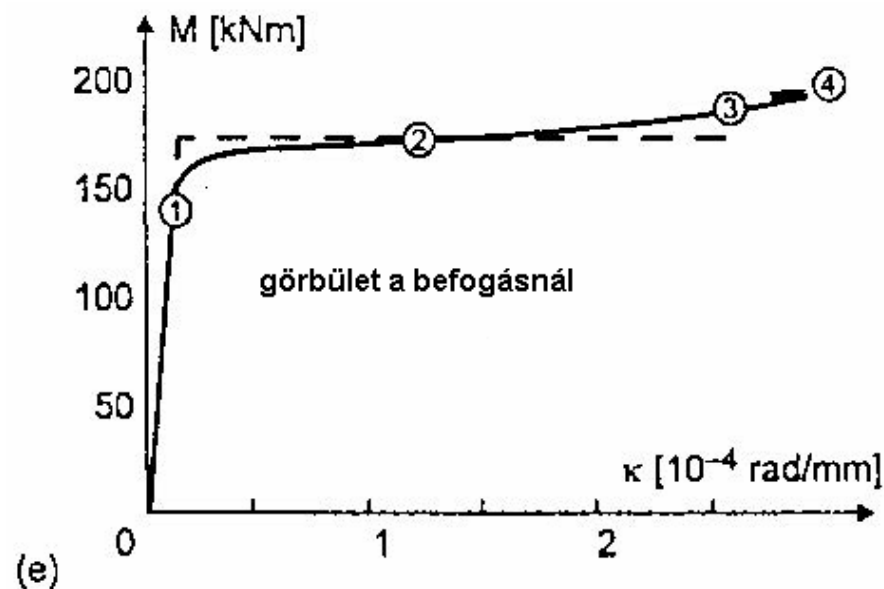
(a)

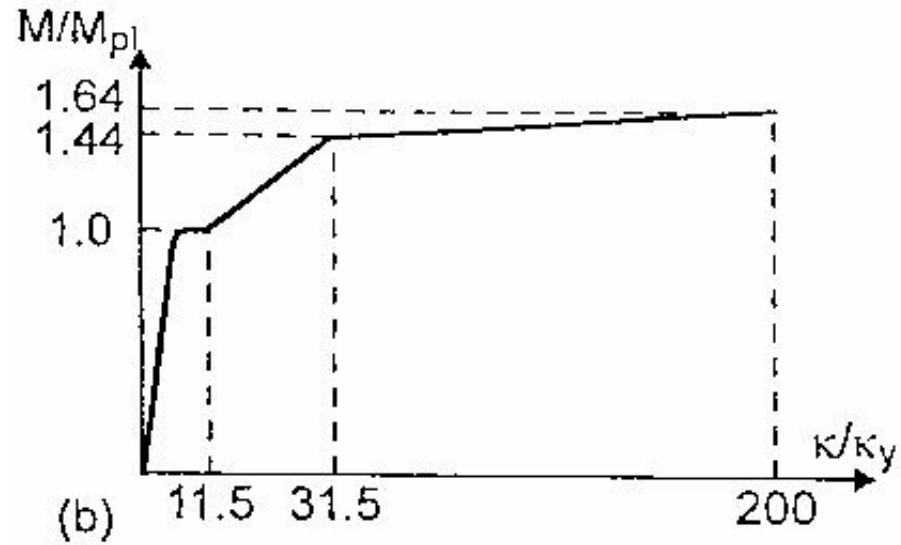
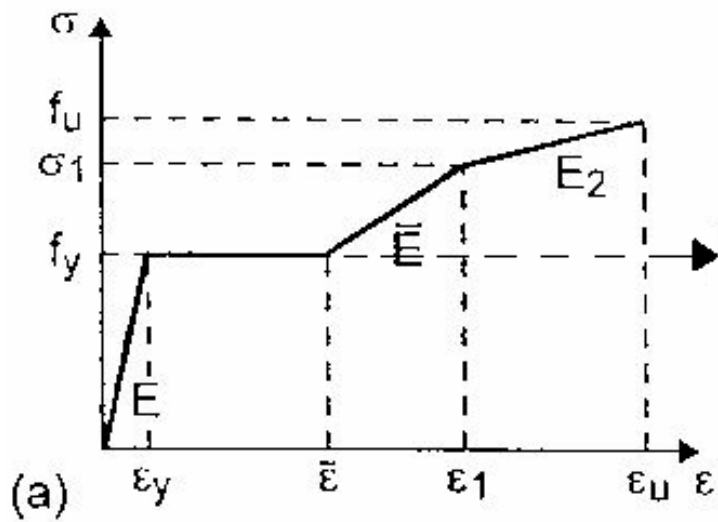


(b)



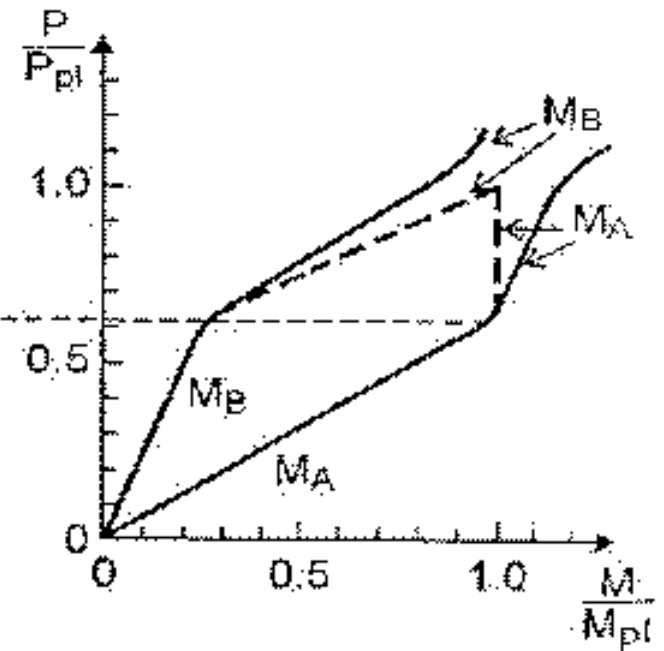
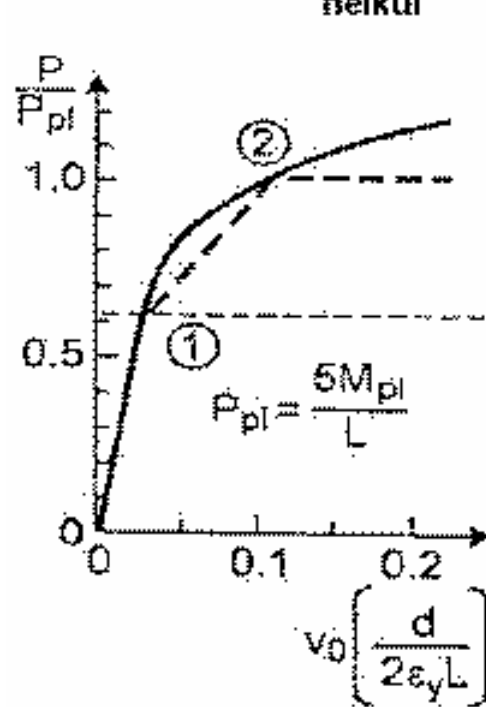
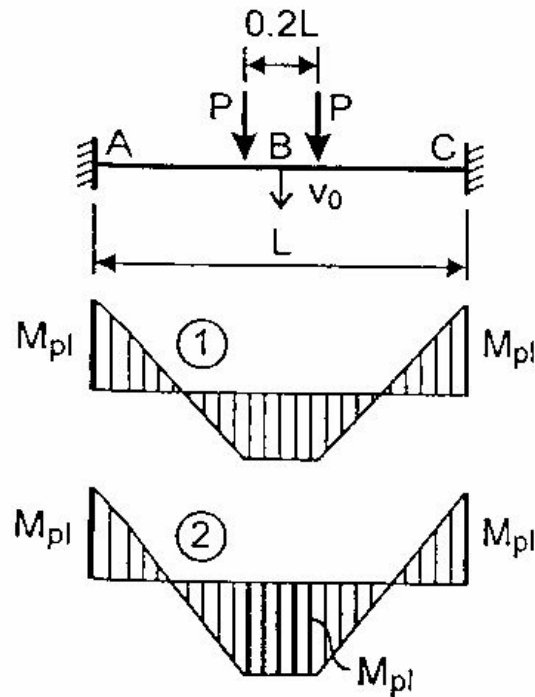
(c)



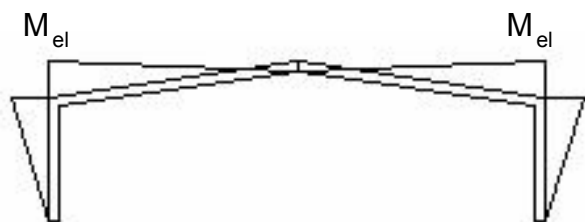


———— Acél felkeményedés figyelembevételével

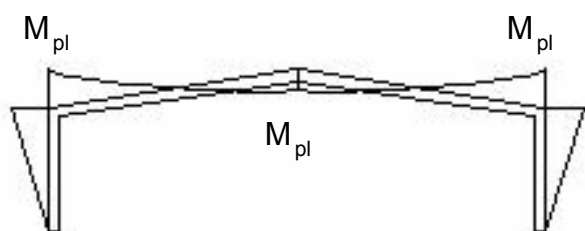
- - - - Acél felkeményedés figyelembe vétele nélkül



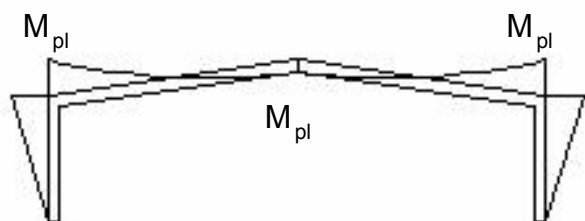
Tervezés – Gyártás - Szerelés



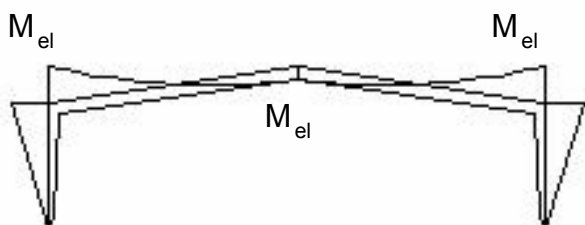
Prizmatikus keret rugalmas méretezése (1950 előtt)



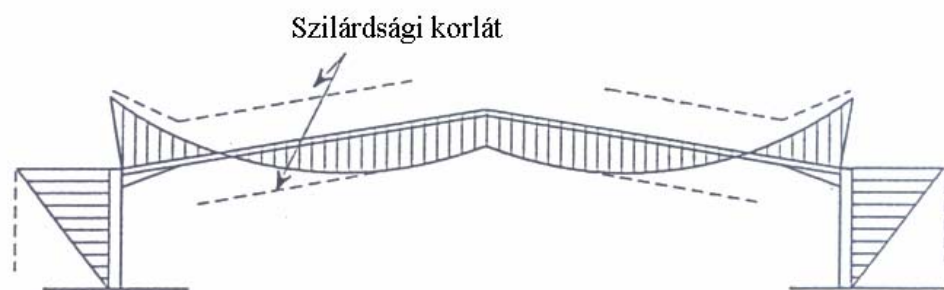
Prizmatikus keret képlékeny méretezése (1950-1960)



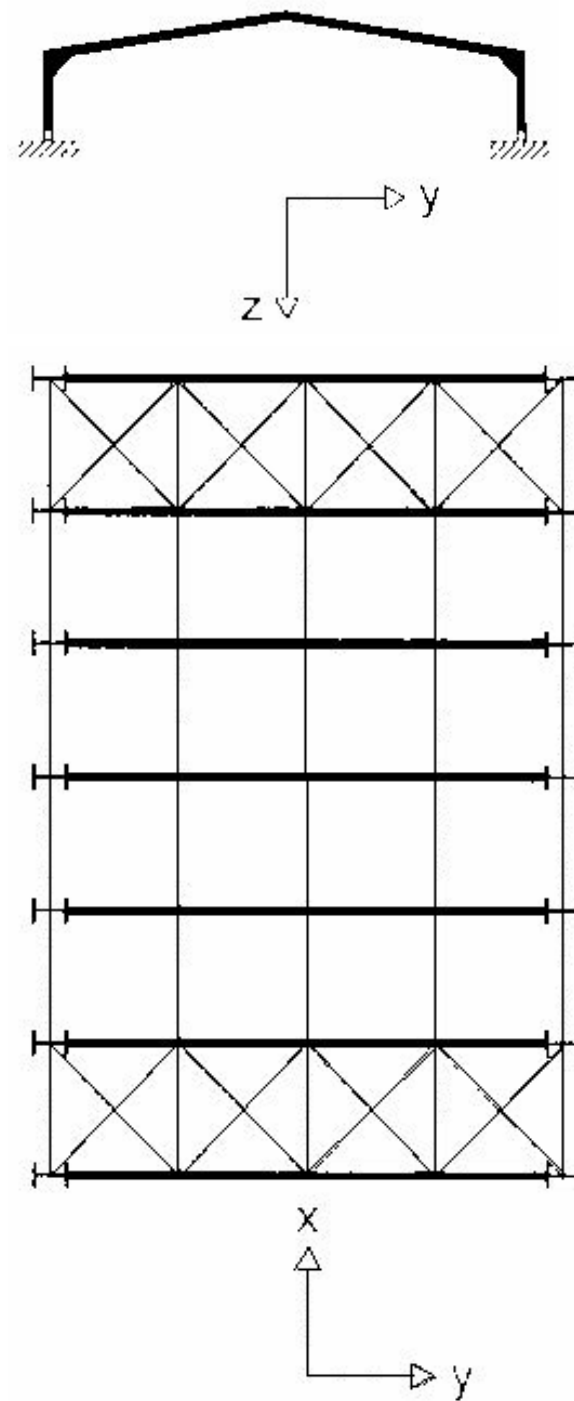
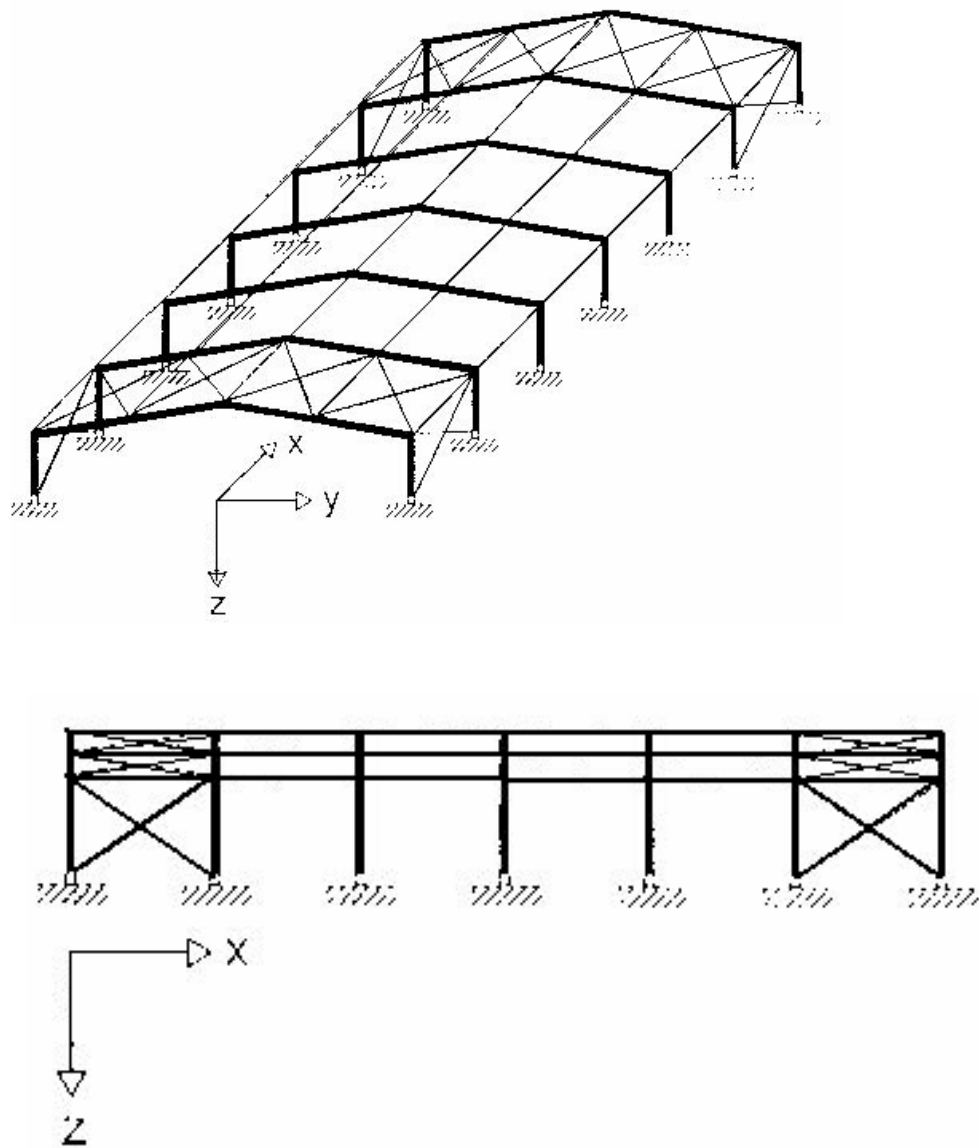
Kiévelt keret képlékeny méretezése (1960 után)



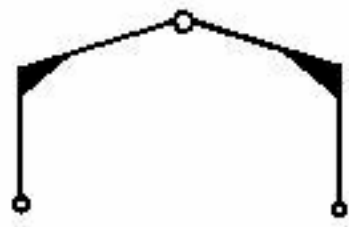
Nem prizmatikus keret rugalmas méretezése (1975 után)



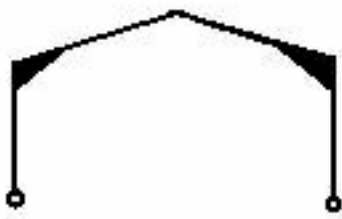
Keretfőtartós rendszer



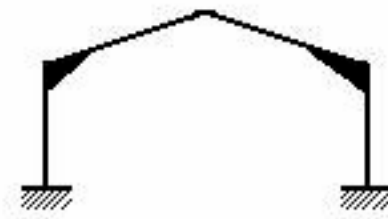
Keretfőtartók



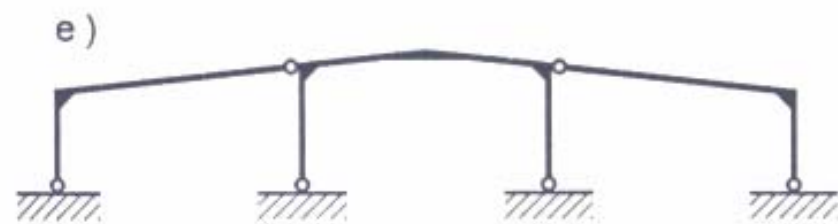
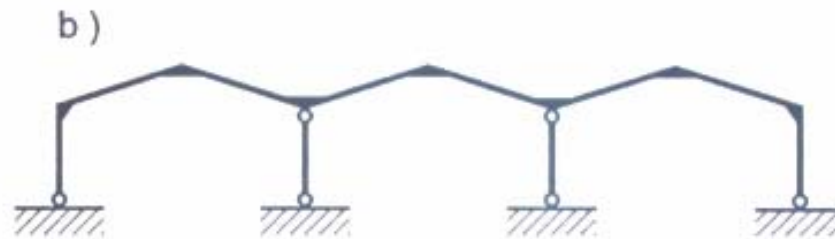
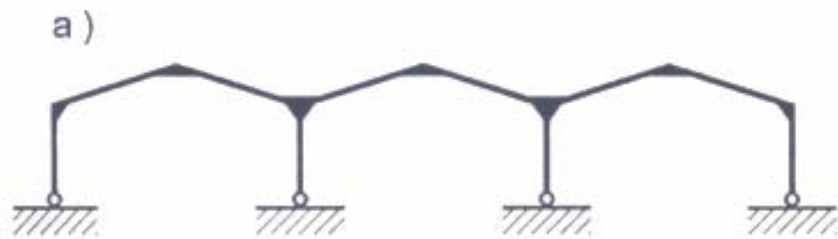
Háromcsuklós keret



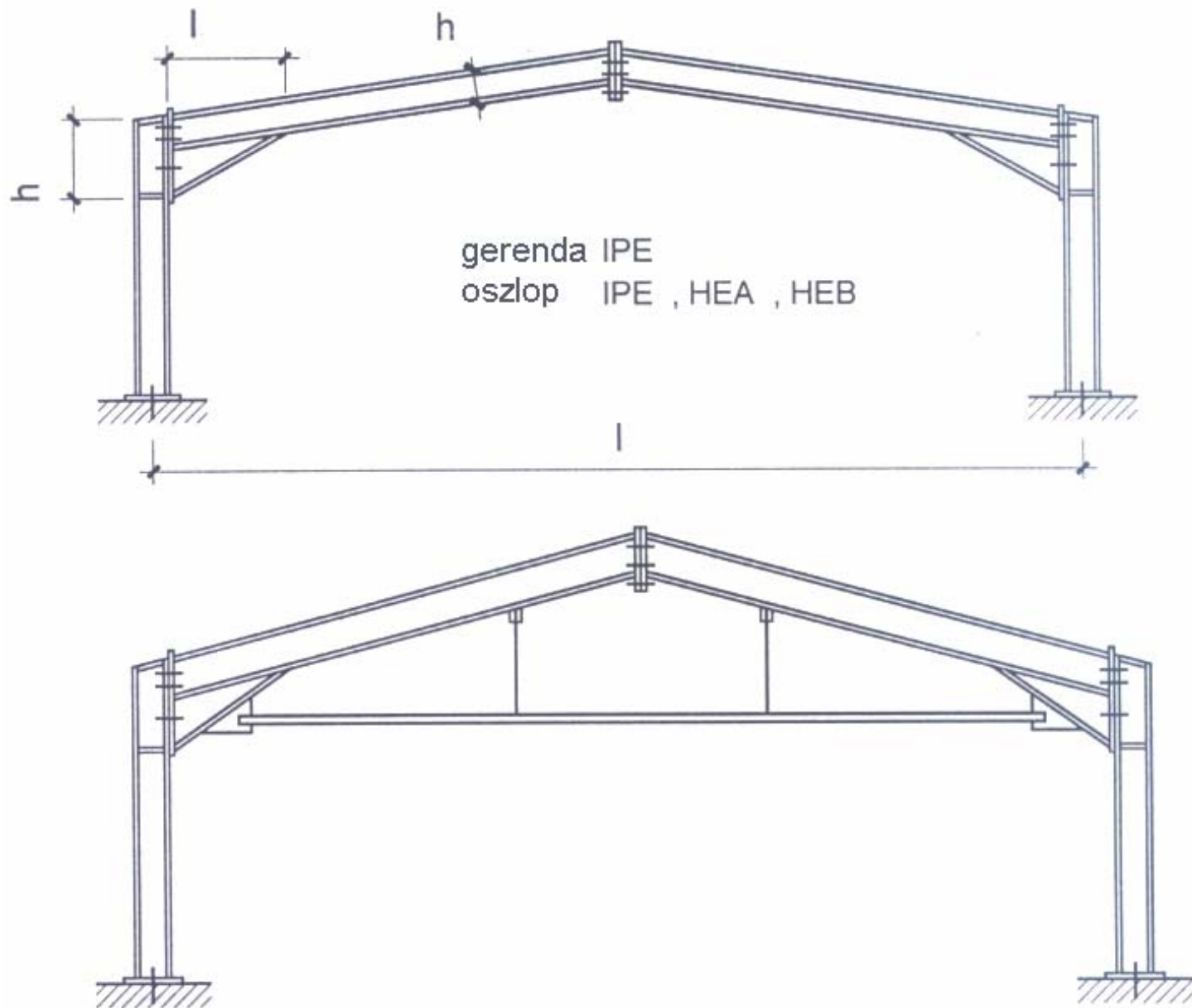
Kétsuklós keret



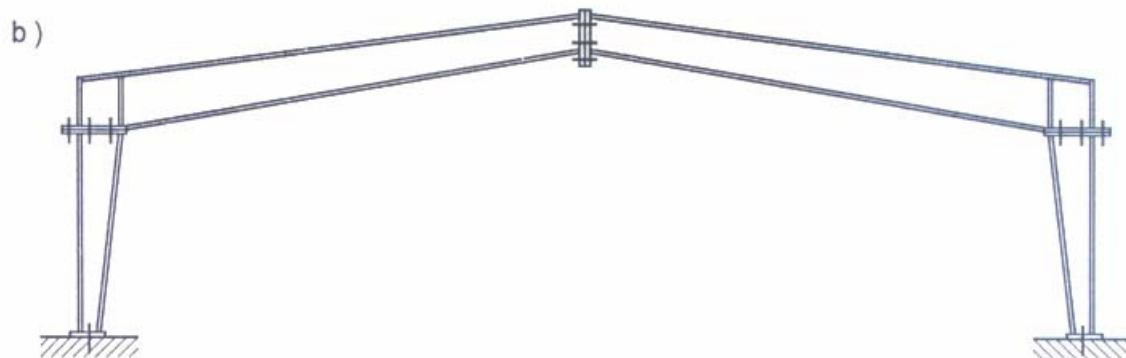
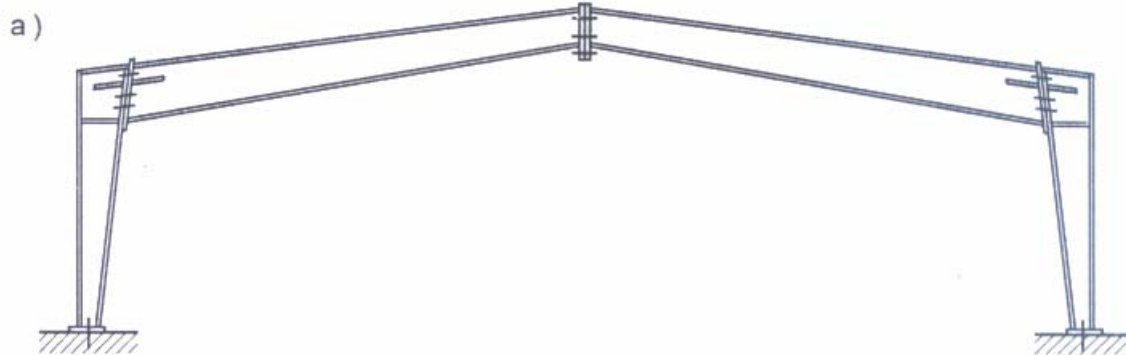
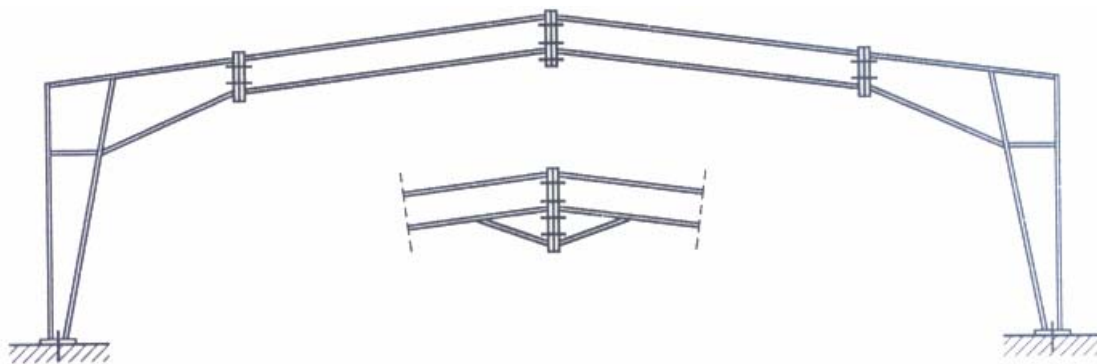
Befogott keret



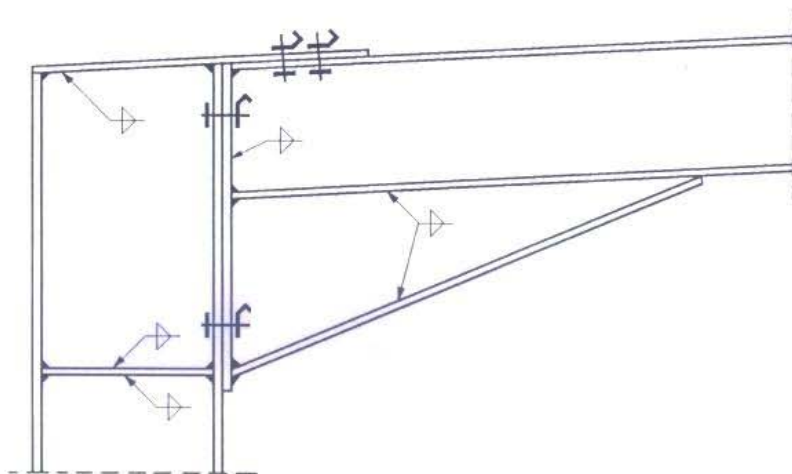
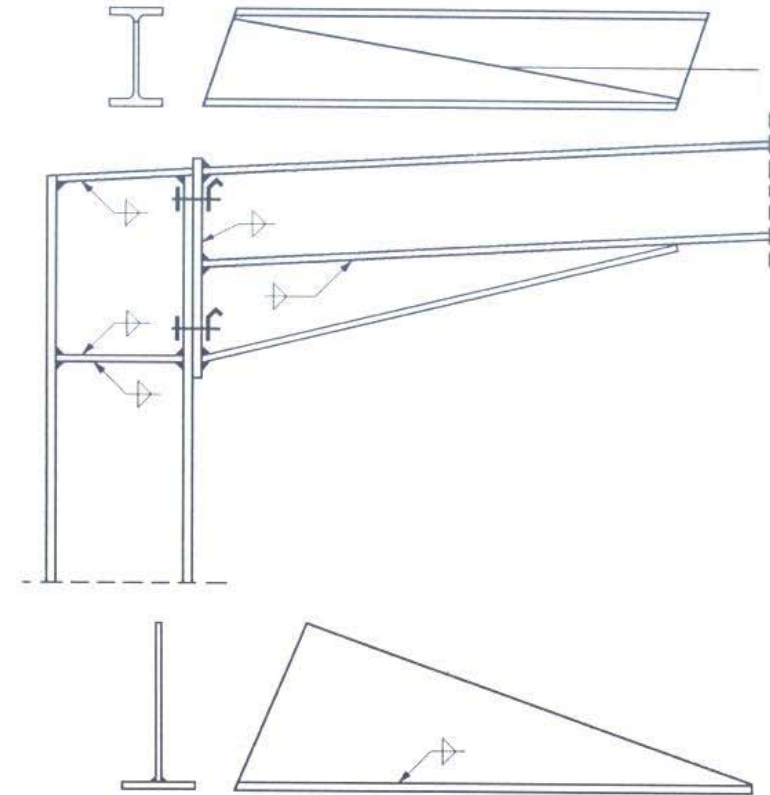
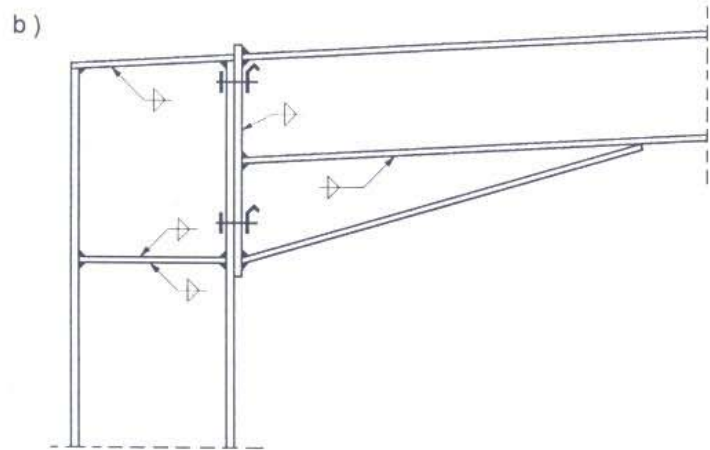
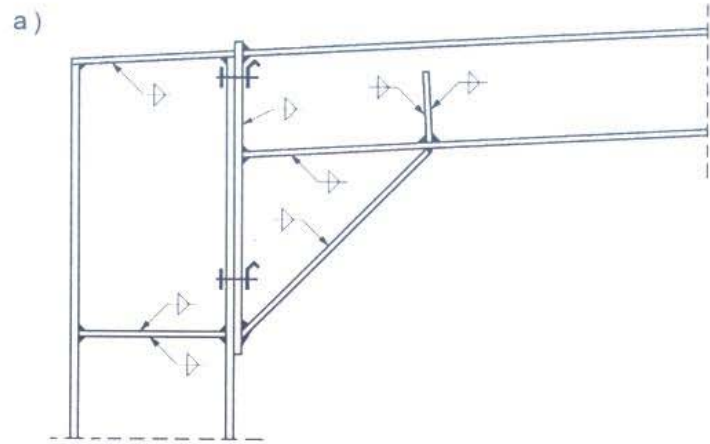
Keretfőtartók: hengerelt szelvények



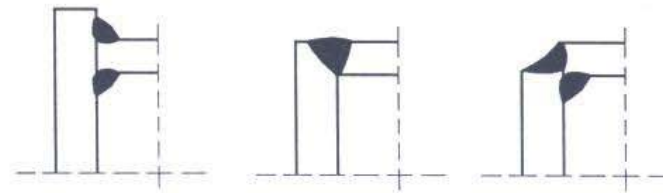
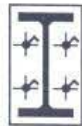
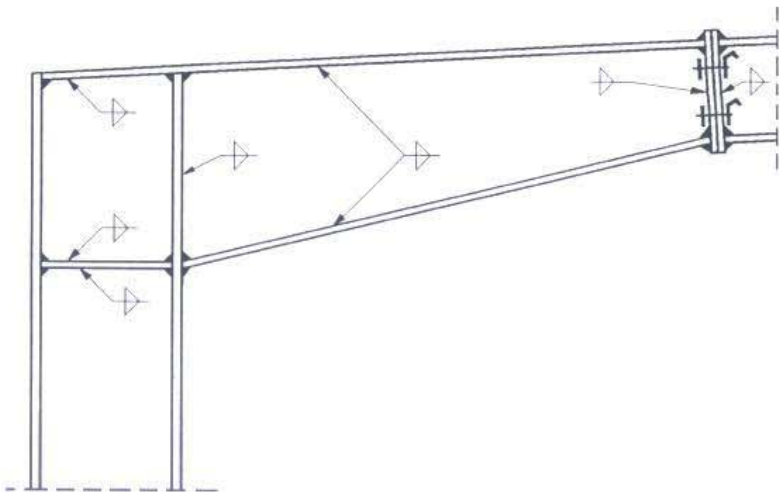
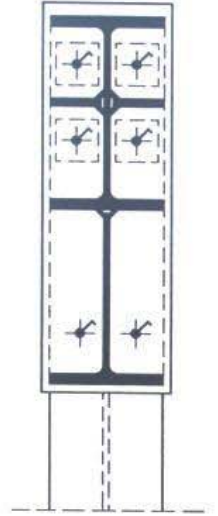
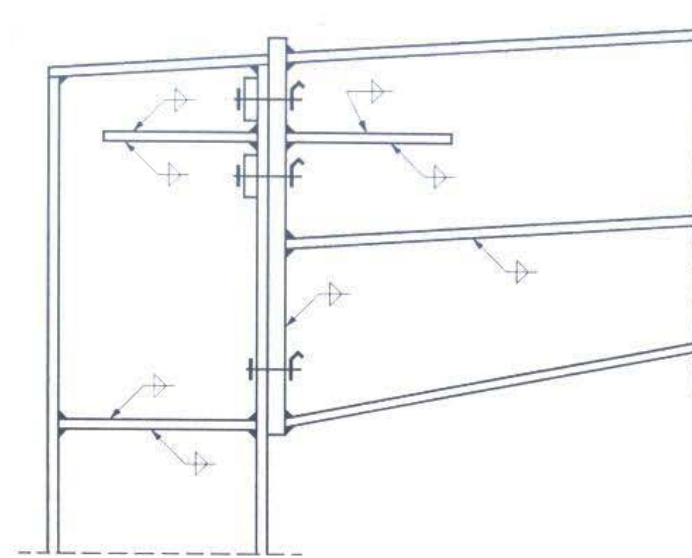
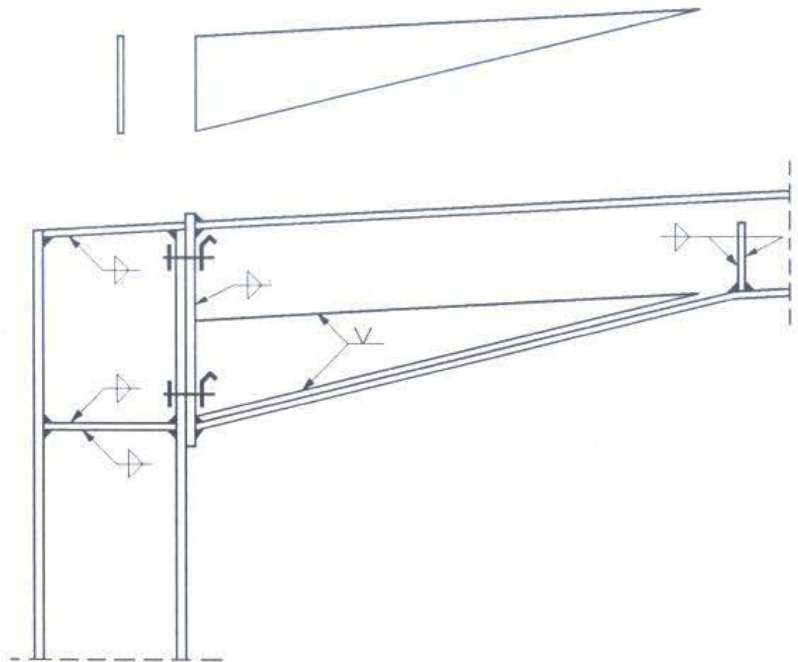
Keretfőtartók: hegesztett szelvények



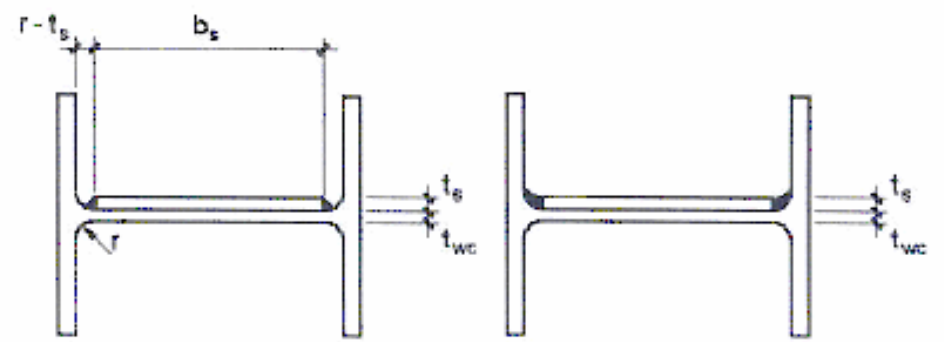
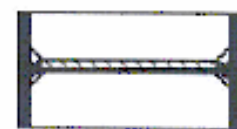
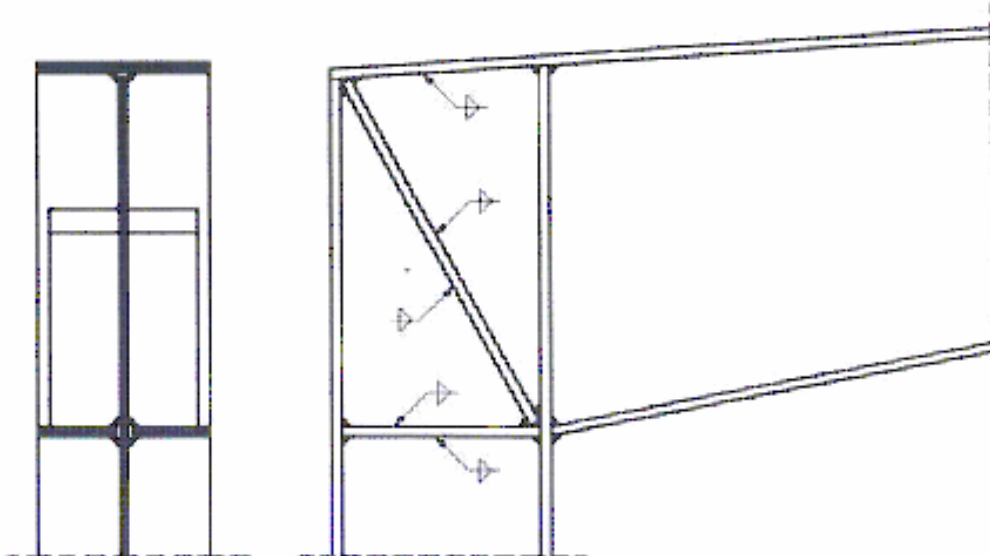
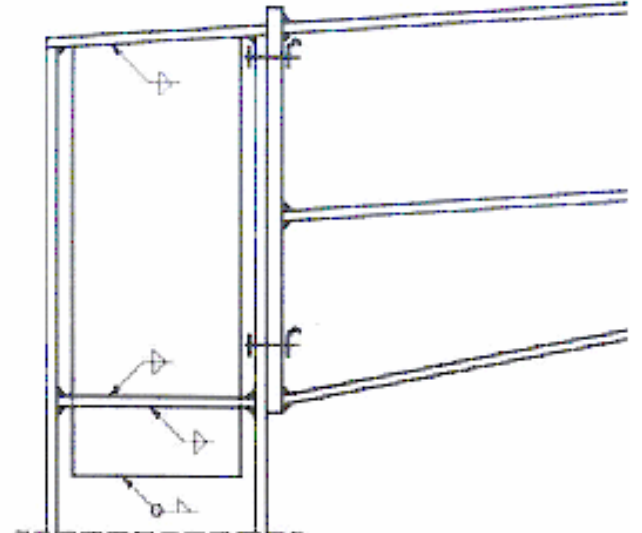
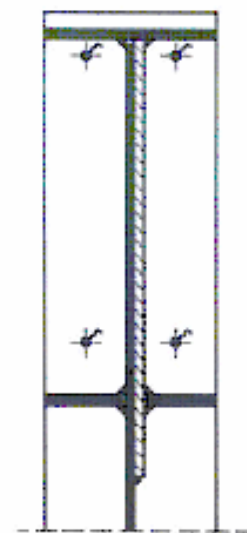
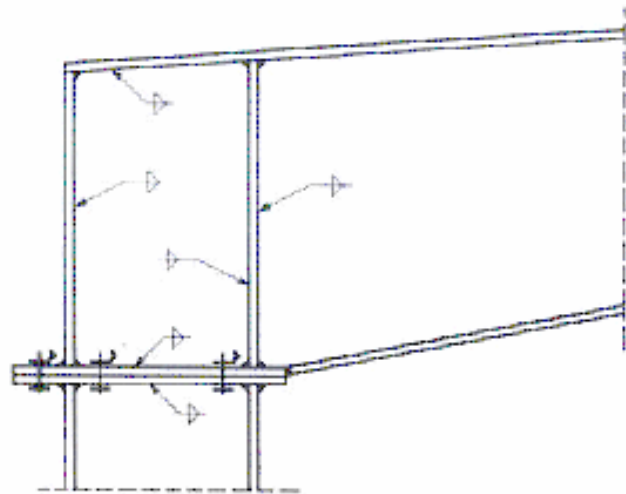
Keretsarkok I.



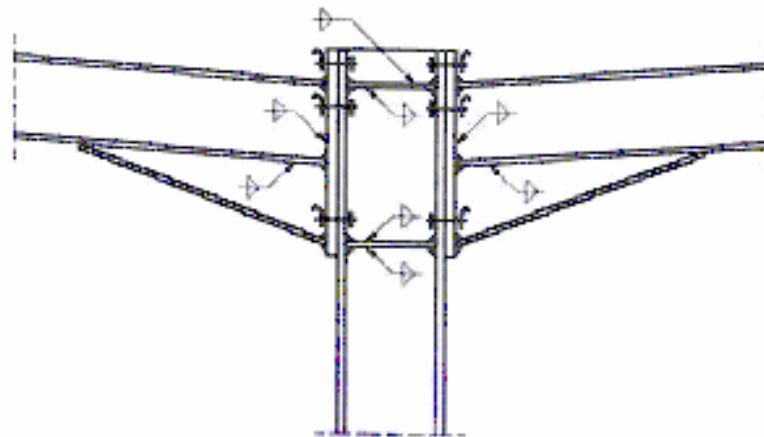
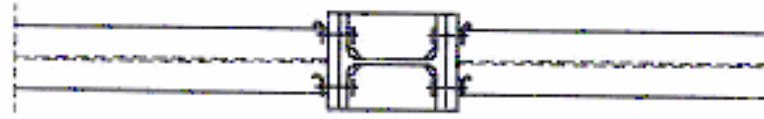
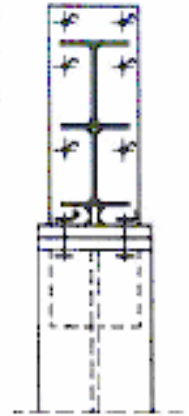
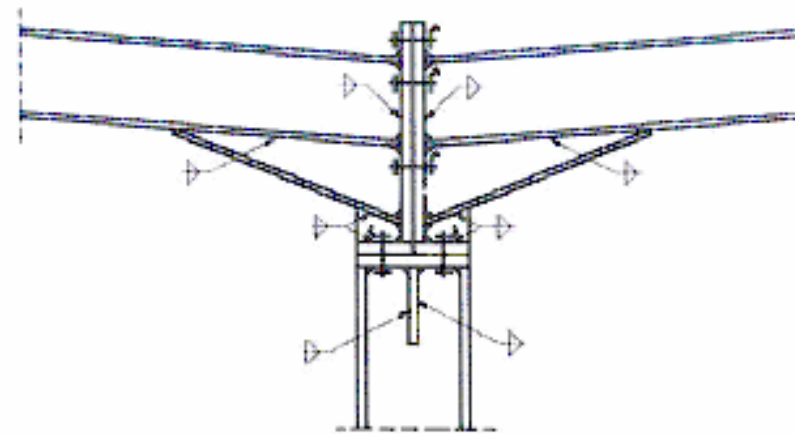
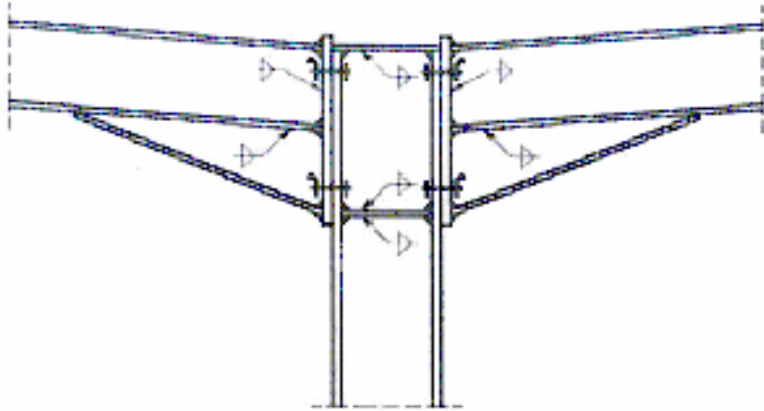
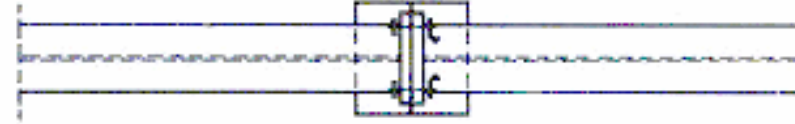
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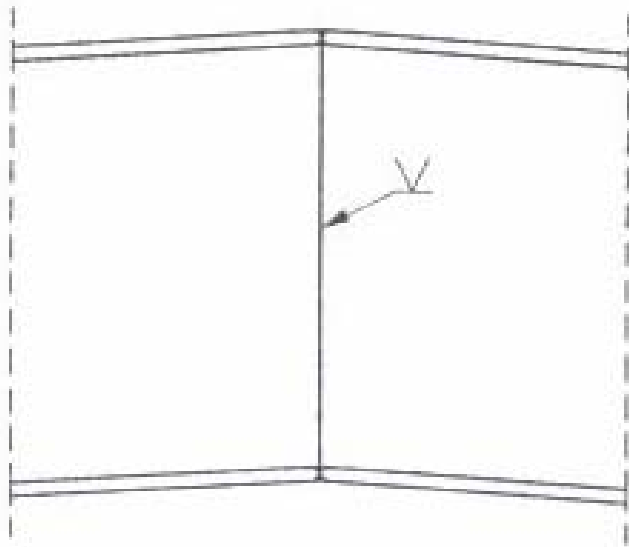
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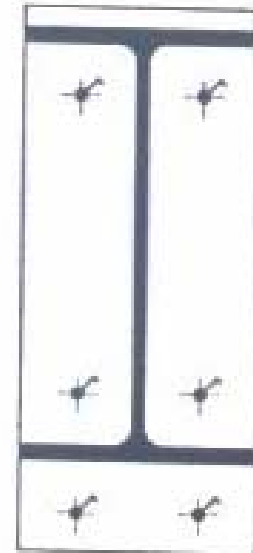
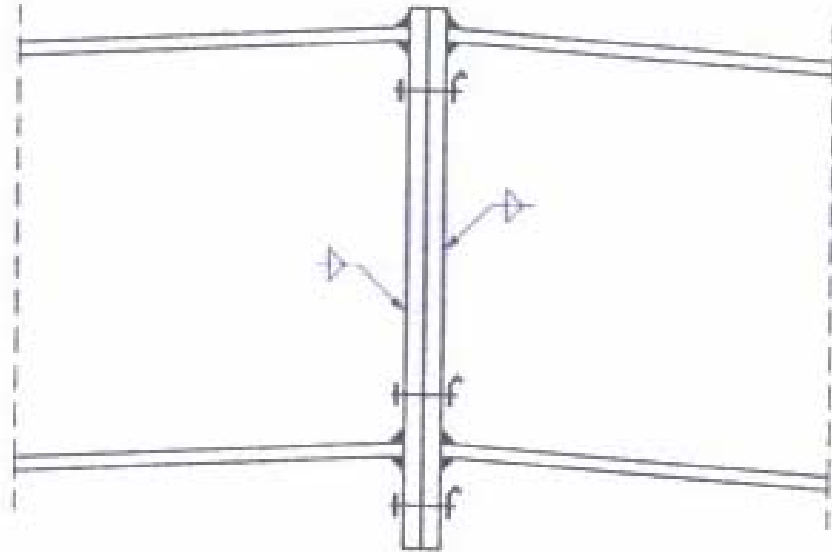
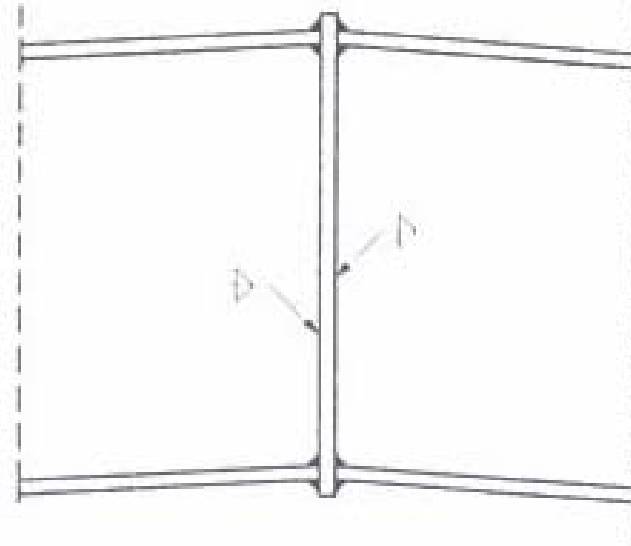
Keretsarkok IV.



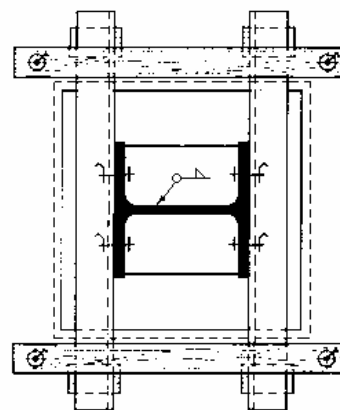
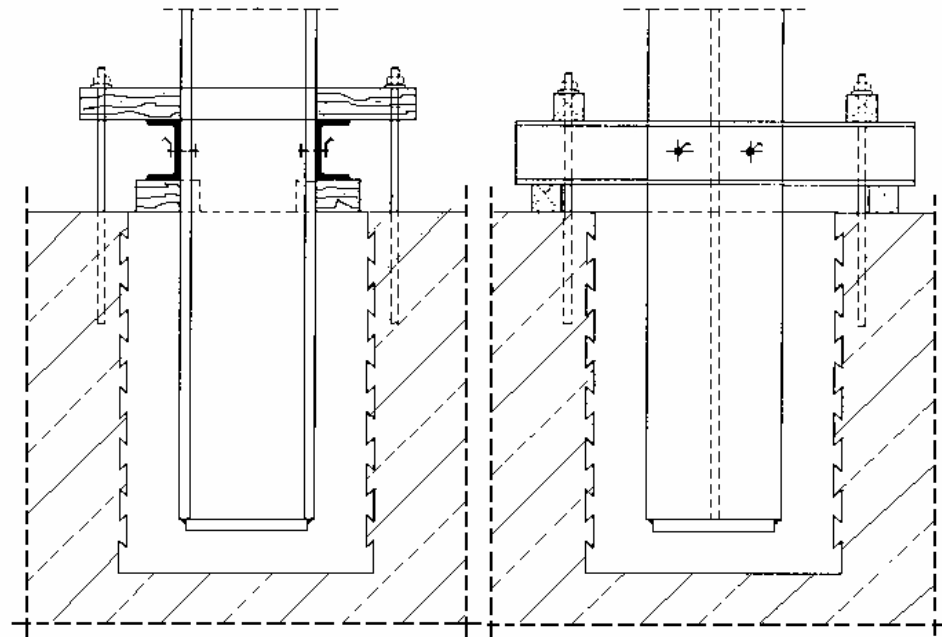
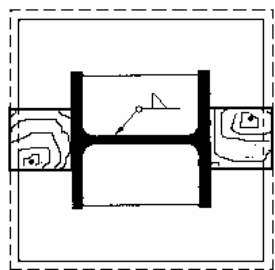
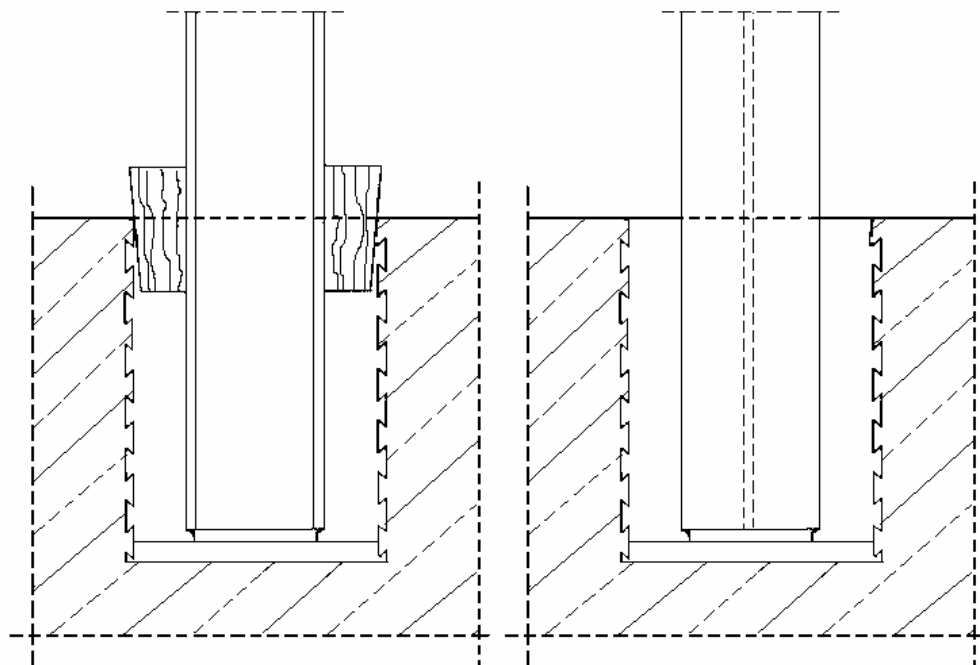
a)



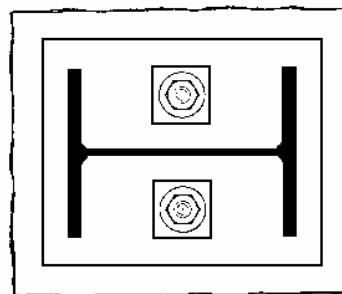
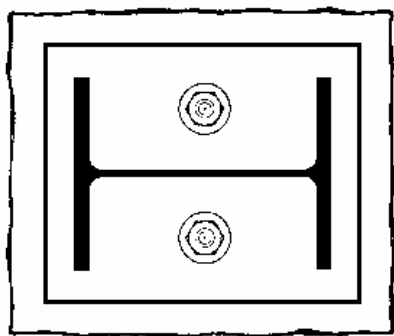
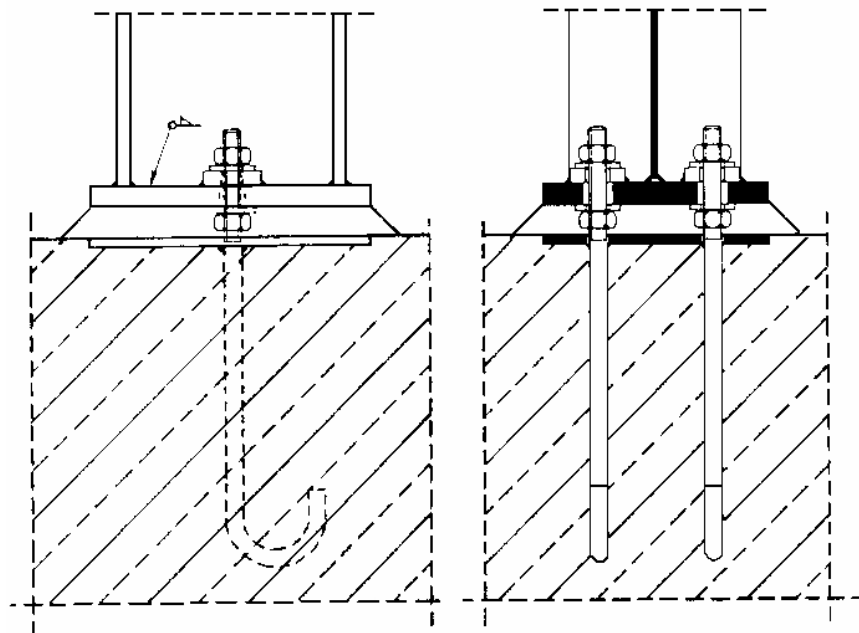
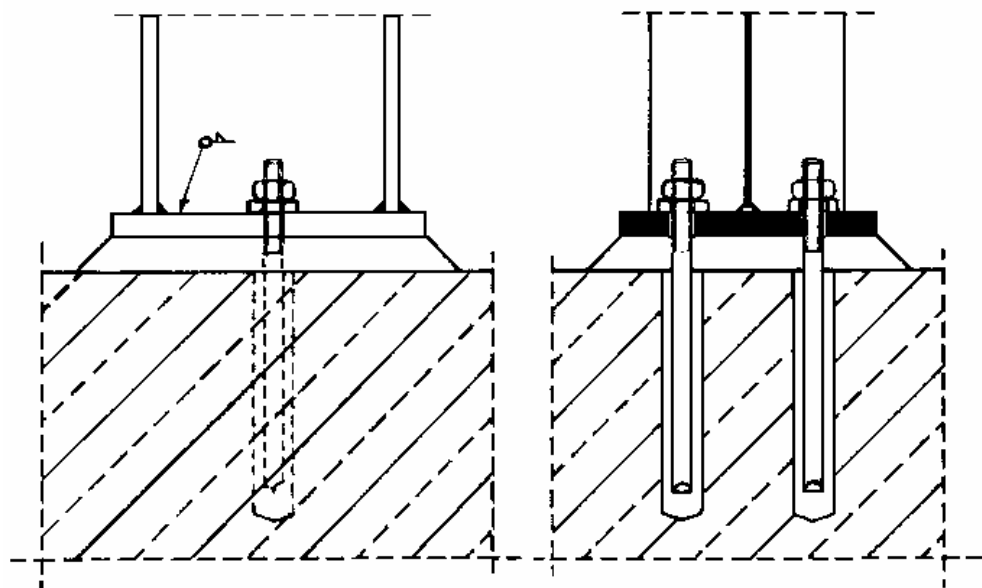
b)



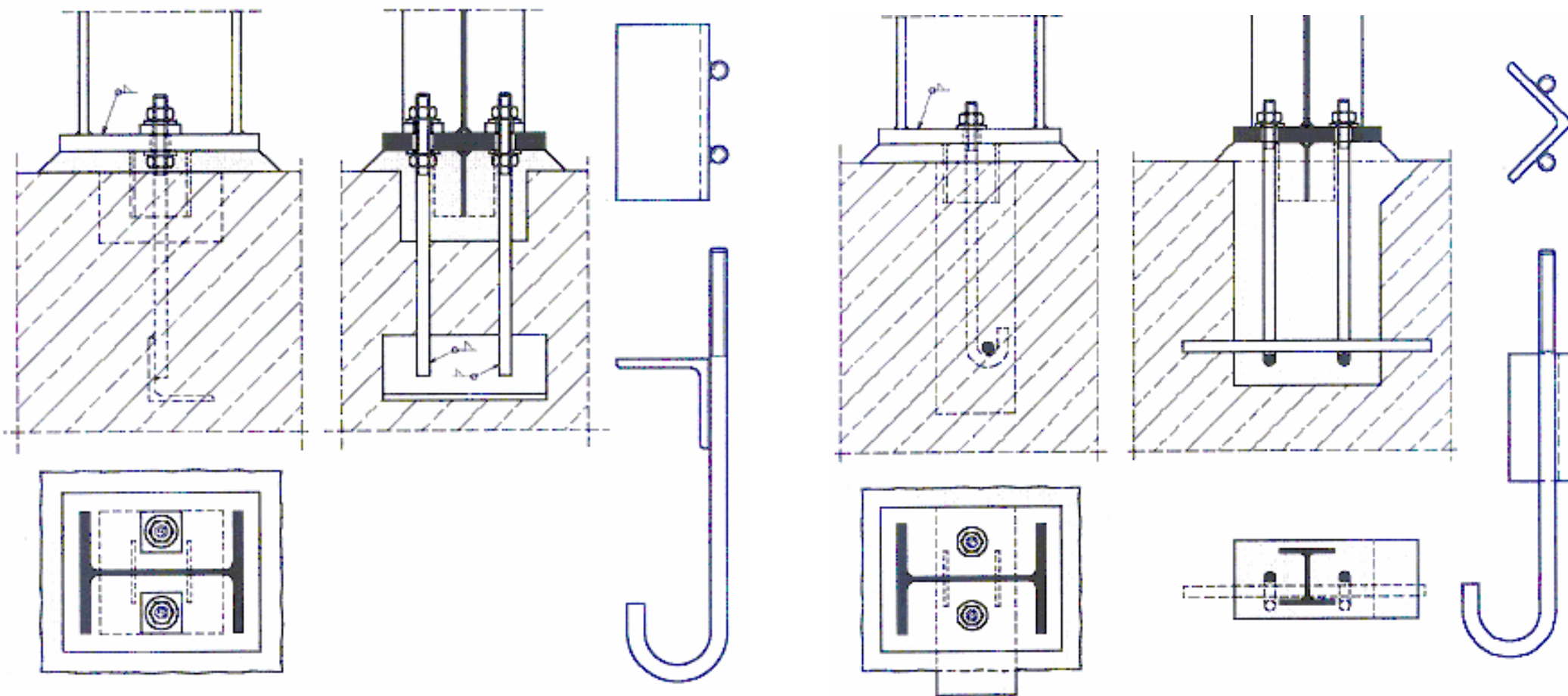
Kehelyalapba befogott oszlop



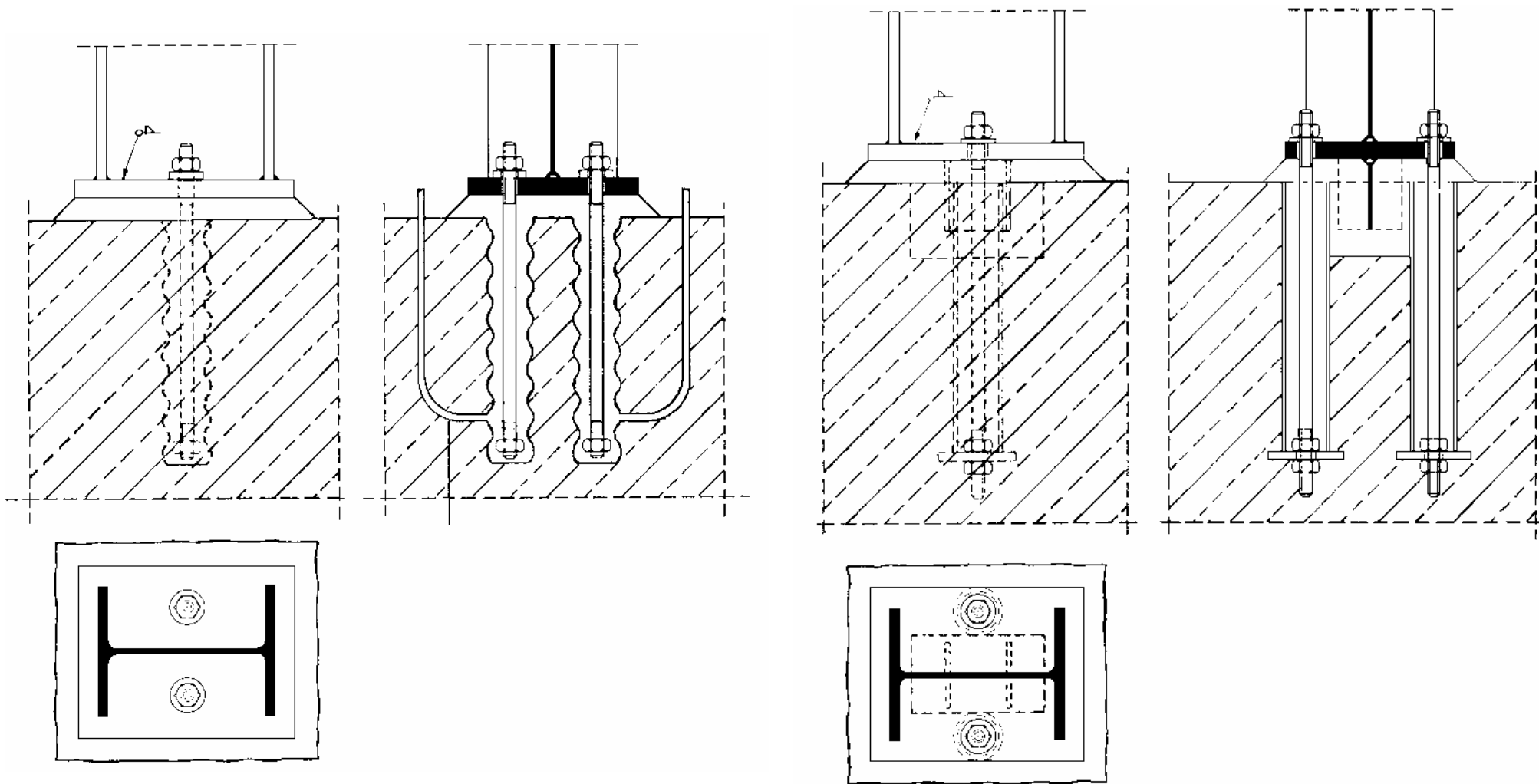
Oszlopok lehorgonyyzása I.



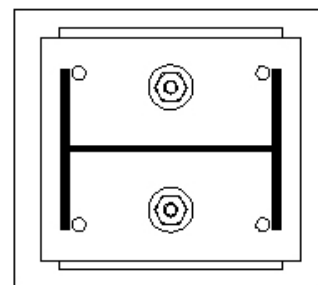
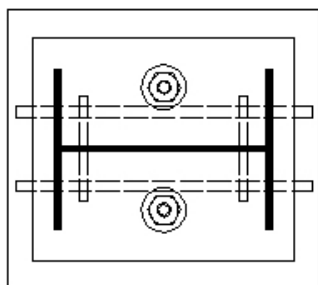
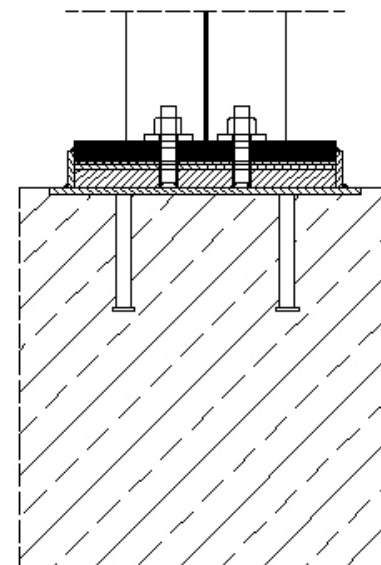
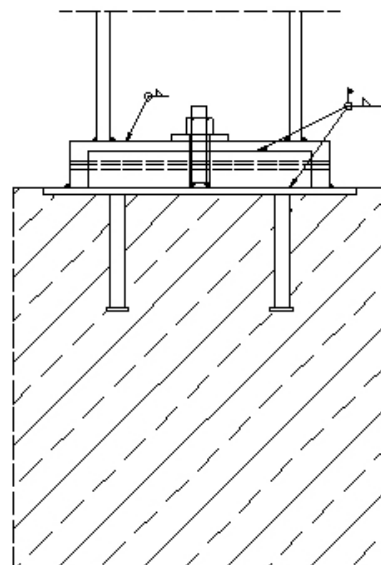
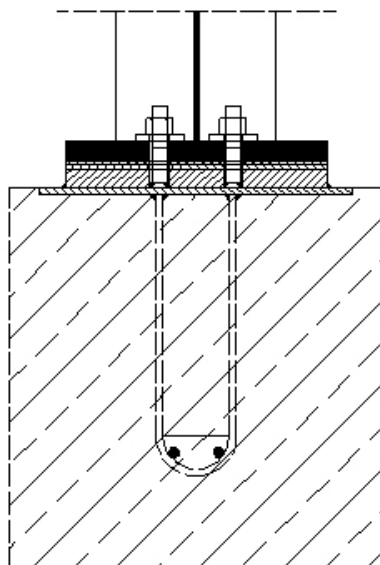
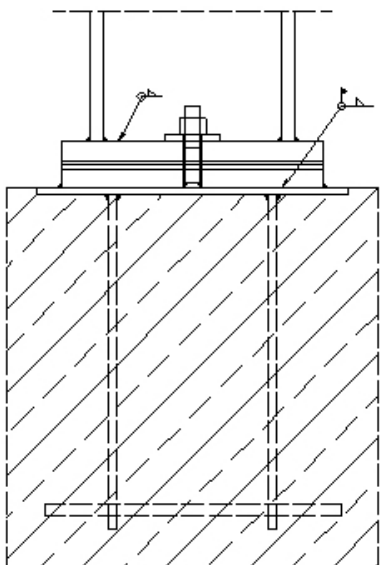
Oszlopok lehorgonyozása II.



Oszlopok lehorgonyozása III.



Oszlopok lehorgonyyzása IV.



Talpgerendás oszloptalp

