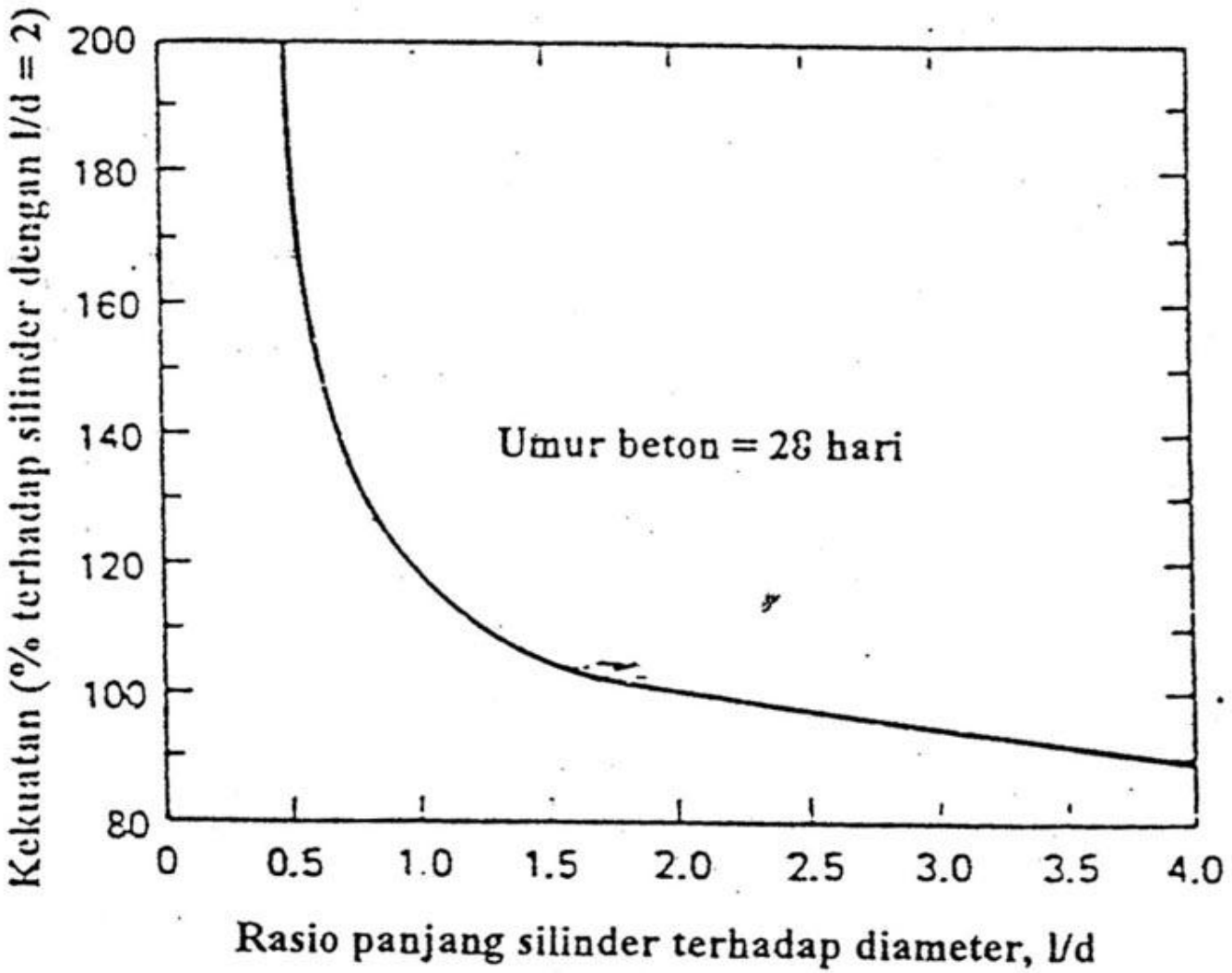
# TEKNOLOGI BETON LANJUT

# KEKUATAN TEKAN BETON

- **ASTM C31 atau C92**
- **Kondisi ujung benda uji**
- **Ukuran benda uji L/D=2**

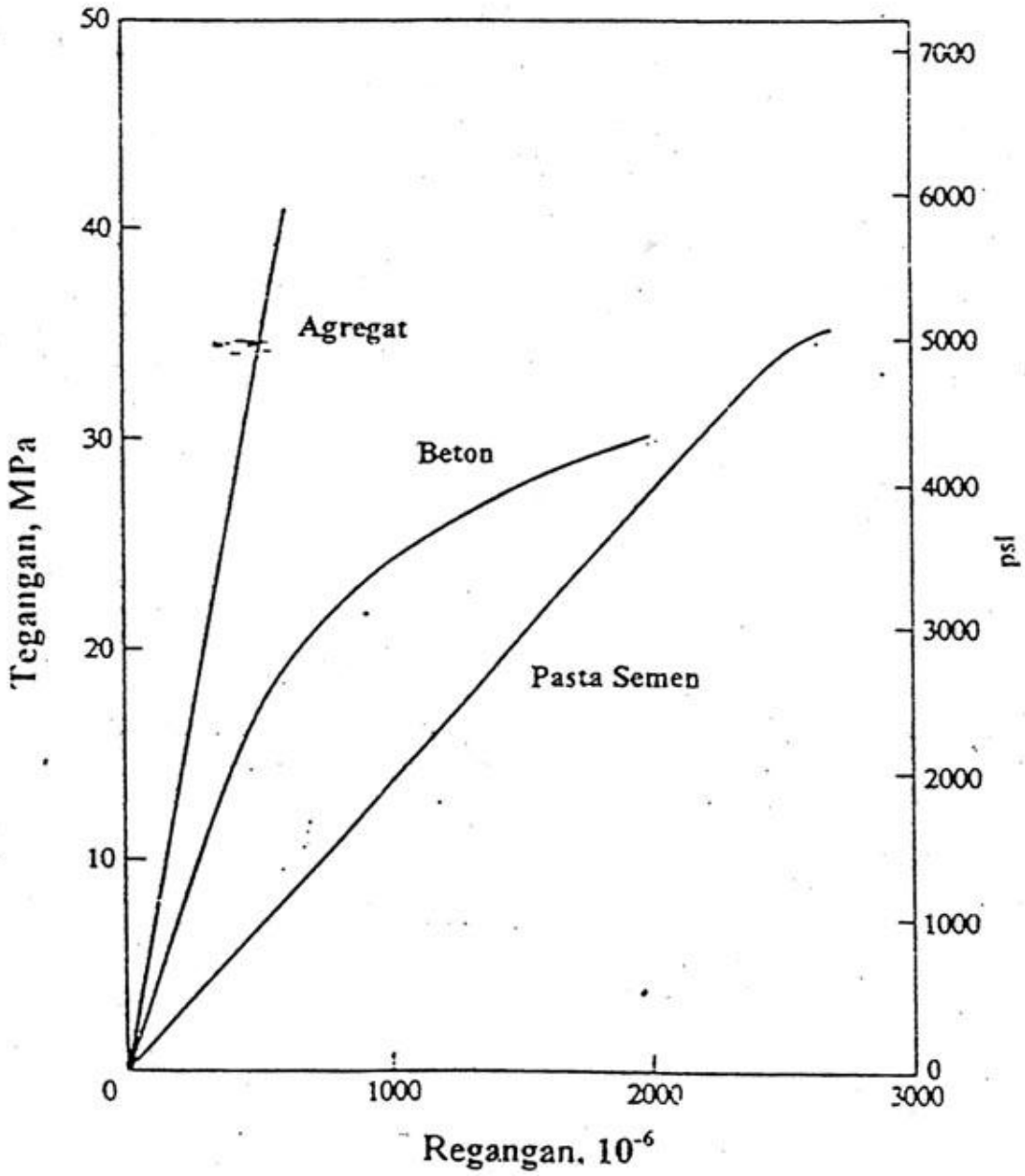
# Gambar 4

**Hubungan antara rasio ε/d terhadap nilai kuat tekan beton**



- Ratio diameter benda uji terhadap ukuran maksimum agregat, dimensi terkecil benda uji haruslah minimum 3 kali ukuran maksimum agregat yang digunakan
- Kondisi kelembaban dan suhu benda uji
- Arah pembebanan vs arah pengecoran
- Laju pembebanan → ASTM 0.14-0.34 MPa/detik
- Bentuk geometri benda uji, benda uji silinder (150x300) antar 75-85% nilai kuat tekan benda uji kubus (150x150x150)

# Gambar 5
# Hubungan tegangan regangan



## Elastic Behavior

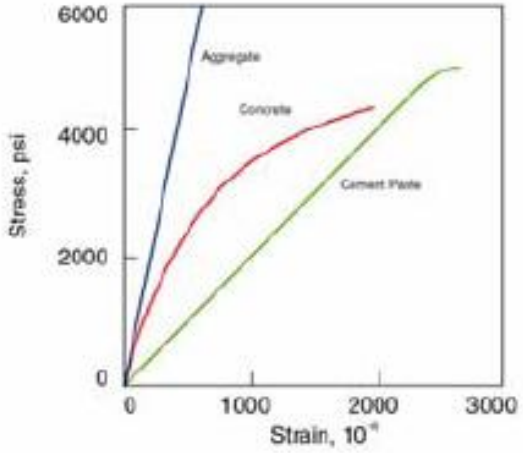
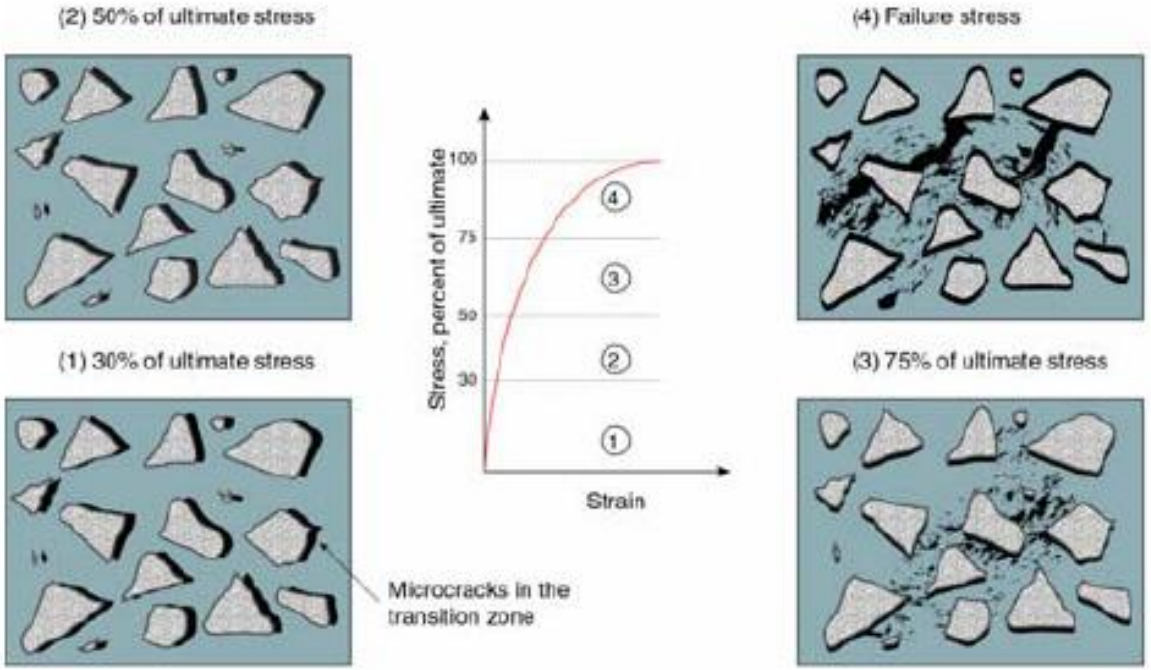



Figure 4-2 Typical stress-strain behaviors of cement paste, aggregate and concrete.

*The properties of complex composite material need not be equal to the sum of the components. The both hydrated cement paste and aggregates show linear elastic properties.*



# KEKUATAN TARIK BETON

Pengujian tarik langsung (ASTM D 2936)

Pengujian tarik tidak langsung, dapat berupa

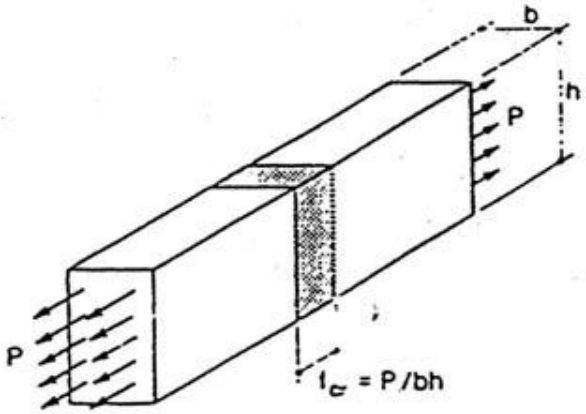
Uji lentur ASTM C78 dan C293

Uji belah ASTM C496

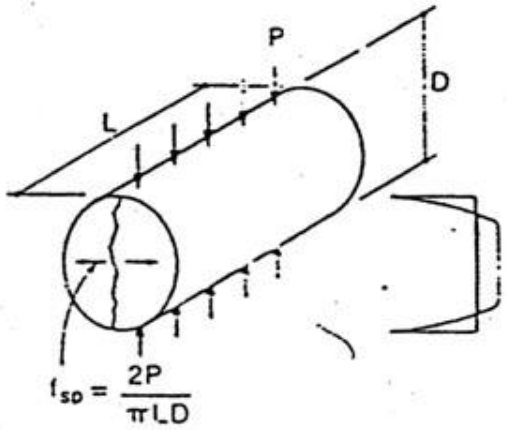
Kapasitas tarik langsung dapat diperkirakan melalui persamaan ( hasil kuat tekan) :

$f_{cr} = 0.33 \sqrt{f_c'}$ (Mpa)

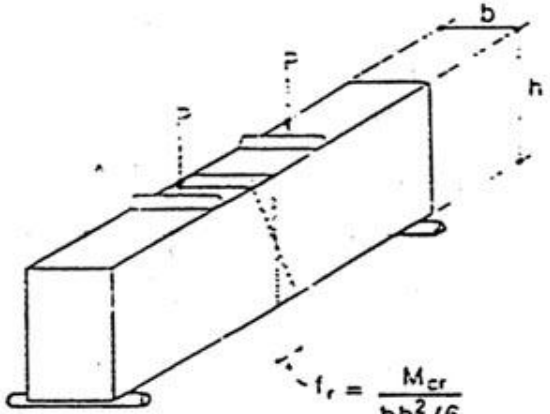
# Gambar 6
## Metoda-metoda pengujian tarik beton



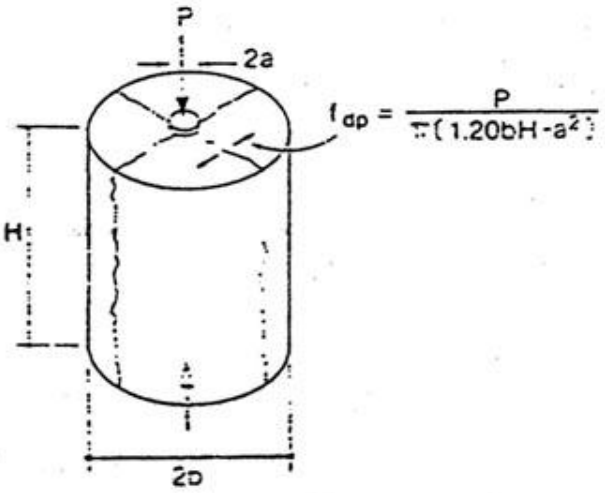

(a) Direct tension test
($f_{cr} = 0.33\lambda\sqrt{f'_c}$ MPa)




(c) Split cylinder test ($f_{cr} = 0.65 f_{sp}$)




(b) Modulus of rupture test
($f_r = 0.6\lambda\sqrt{f'_c}$ MPa)




(d) Double-punch test ($f_{cr} = 0.7 f_{dp}$)