

Doubly Reinforced Beams

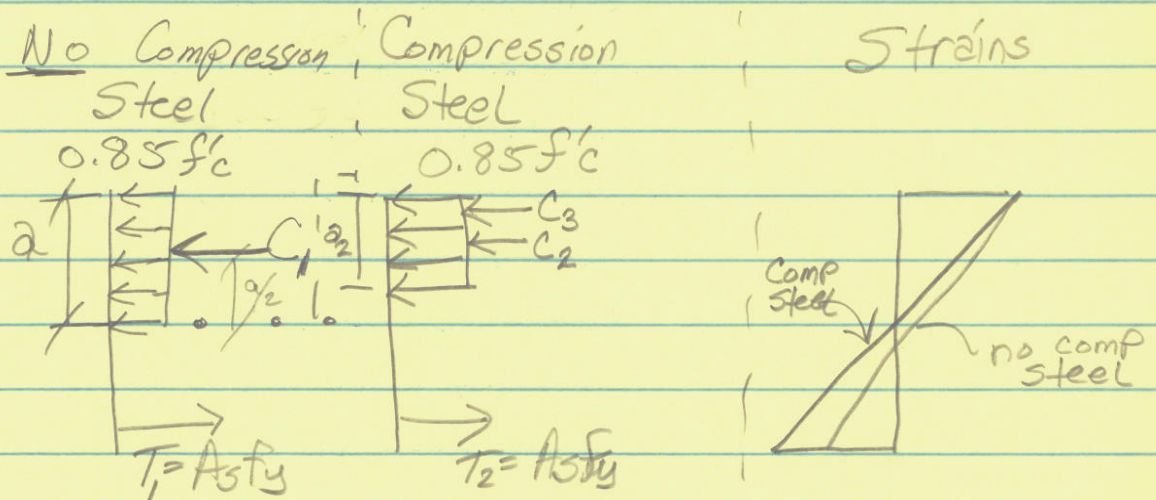
→ beams with steel in the tension & compression zones

Doubly
Reinforced
Concrete
Review
Test

Why doubly reinforce?

- Helps increase ϵ_T
 - increase ϕ
 - help meet [10.5.3] ($\epsilon_c \geq 0.004$)
 - increase ductility
- Reduces compression stress on concrete
 - reduces creep, decreases long term deflection
- Can be helpful if height restrictions exist

The addition of compression steel



Assume tension steel yielding

Do not assume compression steel is yielding