





American Concrete Institute
Always advancing

Structural Concrete Design - The Legacy of Dr. W. Gene Corley

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ACI
WEB SESSIONS



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Remembering

Gene Corley

The Borgia Testament



Leonardo Vinci was a handsome man.
He certainly played the lute and sang very well.
He also drew very finely.
But he claimed not only to be an artist but a practical man and he wanted me to employ him as my engineer.

I gave him the job though I never felt very happy about it.

I prefer my engineers to be engineers and not engineering lute players.

Vinci was never really a success as an engineer.

He certainly had an ingenious mind and a very fair amount of technical information.

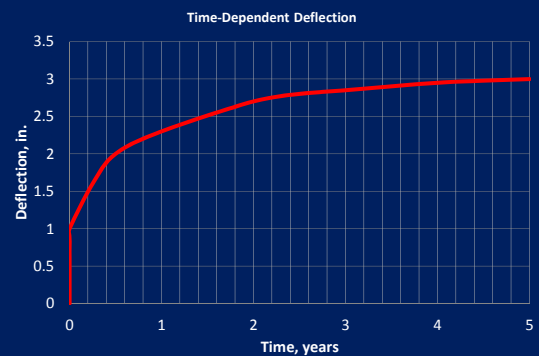
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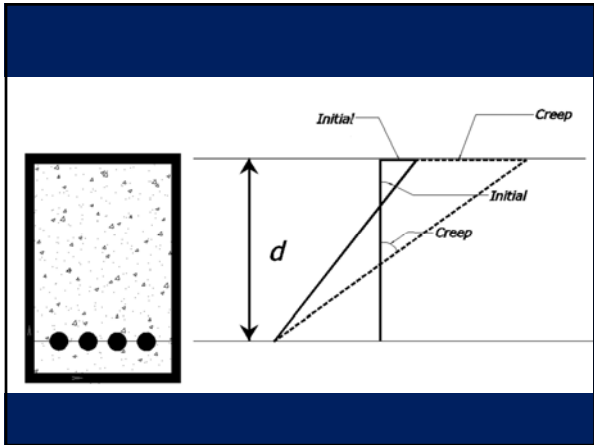
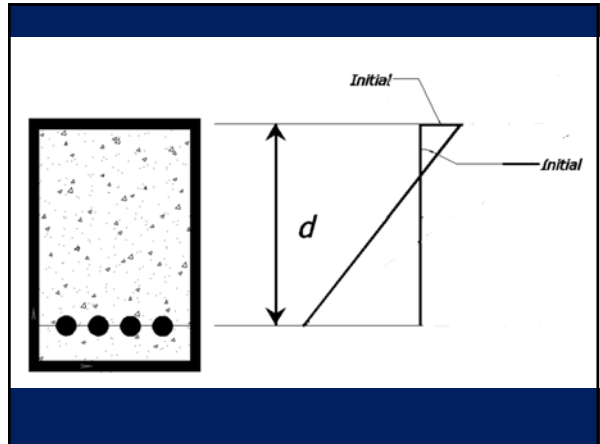
Structural Engineer

1. Should Be Reliable in Day-to-Day Details
2. Should Make Difficult Tasks Simple

TIME-DEPENDENT DEFLECTIONS OF REINFORCED CONCRETE BEAMS



Time
 Age at Loading
 Size
 Shape
 Mix
 Aggregate
 Carbonation
 Humidity
 Temperature
 Tension Reinf.
 Compression Reinf.
 Seasons



Creep Strain

$$\frac{\epsilon_{creep}}{\epsilon_{initial}} = 3 - \frac{\rho_{compression}}{\rho_{tension}} \Rightarrow 2$$

Increase in Unit Curvature Related to Creep

$$\phi_{creep} = \frac{\epsilon_{creep}}{d}$$

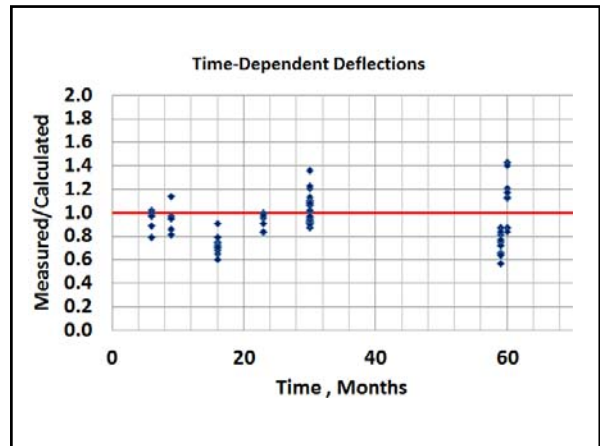
Increase in Unit Curvature Attributed to Shrinkage

$$\phi_{shrinkage} = \frac{(\rho - \rho')}{30 * d}$$

Change with time

$$Fraction_{2-year\ total} = \frac{\ln(t+1)}{8}$$

Simple and Continuous Spans
 Rectangular and T-Sections
 With and without Environmental Control
 Age at Loading 2 to 28 Days after Casting
 With and without Compression Reinforcement



Talbot
 Abrams
 Richart
 Cross
 Westergaard
 Newmark
 Siess
 ↓
 Corley



- Born in Illinois
- Child of Clarence and Mary Corley
- Grew up in Shelbyville
- Fell in love with Sailing
- Left Shelbyville for Urbana
- Fell in love with singing
- Fell in love with Lynd
- Worked as an officer and then as an engineer
- Doted on his children
- Always helped those who asked for help
- Never gave up on what he thought was right
- Will be remembered as a pioneer in engineering forensics



