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Calculation of yielding penetration zone of 8 wf 40, October 1951

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Calculation of Yielding penetration zone

\[ P_0 = 41.05 \, \text{in}^3 \]
\[ t_{nw} = 0.371 \, \text{in} \]
\[ C_{op} = 3.76 \, \text{kips/ft} \]
\[ C_{oweb} = 38.7 \, \text{in} \]

\[ M_{A806} = \left( \frac{6.5^2}{2} \right) \times 371 = 3.91 \]

\[ M_0 = (41.05 - 3.91) \times 37.6 + \frac{a}{3} \left( \frac{b}{2} \right)^2 \times 0.371 \times 38.7 \]

\[ M_0 = 37.14 \times 37.6 + \frac{3}{3} \left( \frac{3.25}{2} \right)^2 \times 0.371 \times 38.7 \]

\[ = 1395 + 101 = 1495 \]

\[ W = 21.6 \, \text{kips} \]

\[ l = 1495 / 21.6 = 69.3 \, \text{in} \]

\[ M = 1395 + \frac{a}{3} \left( \frac{b}{2} \right)^2 \times 0.371 \times 38.7 \]

\[ + \left( 3.25 - y \right) (3.25 + y) \times 38.7 \]

\[ = 1395 + \frac{3}{3} \frac{3.25^2 - y^2}{2} \times 371 \times 38.7 \]

\[ \geq 1395 + \frac{1}{2} \times 0.371 \times 38.7 \]
\[
= 1395 - \frac{1}{3} \cdot 371 \times 38.7 \cdot y^2 + (3.25)^2 [\cdot 371 \times 38.7] \\
= 1395 - \frac{1}{3} \times 14.35 \cdot y^2 + 3.25^2 \times 14.35 \\
= 1395 + 151 - 4.78 \cdot y^2 \\
= 1546 - 4.78 \cdot y^2 \\
\text{previous calculated } 1546 \\
\]

\[
y = 0 \quad x = \frac{1546}{21.6} = 71.6'' \\
y = 3.5'' \quad x = 69.3'' \quad 71.6 - 69.3 = 2.3'' \\
\text{The Curve} \\
21.6 \cdot x = 1546 - 4.78 \cdot y^2 \quad \text{between } x = 71.6'' \\
\& x = 69.3'' \\
\]

Calculation of yield p zonesy MW 3 to be continued.
1. Simple tension test with white
work to see the yield point
development as a companion
of measured strain.

2. More strain gages on cantilever
to study split-

in kenosis.
The image contains a handwritten mathematical calculation. The text appears to be a series of fractions and numbers, but the handwriting is not entirely clear. It seems to involve a series of divisions, possibly related to a problem involving fractions or ratios. The exact nature of the calculation is not immediately apparent due to the handwriting style.