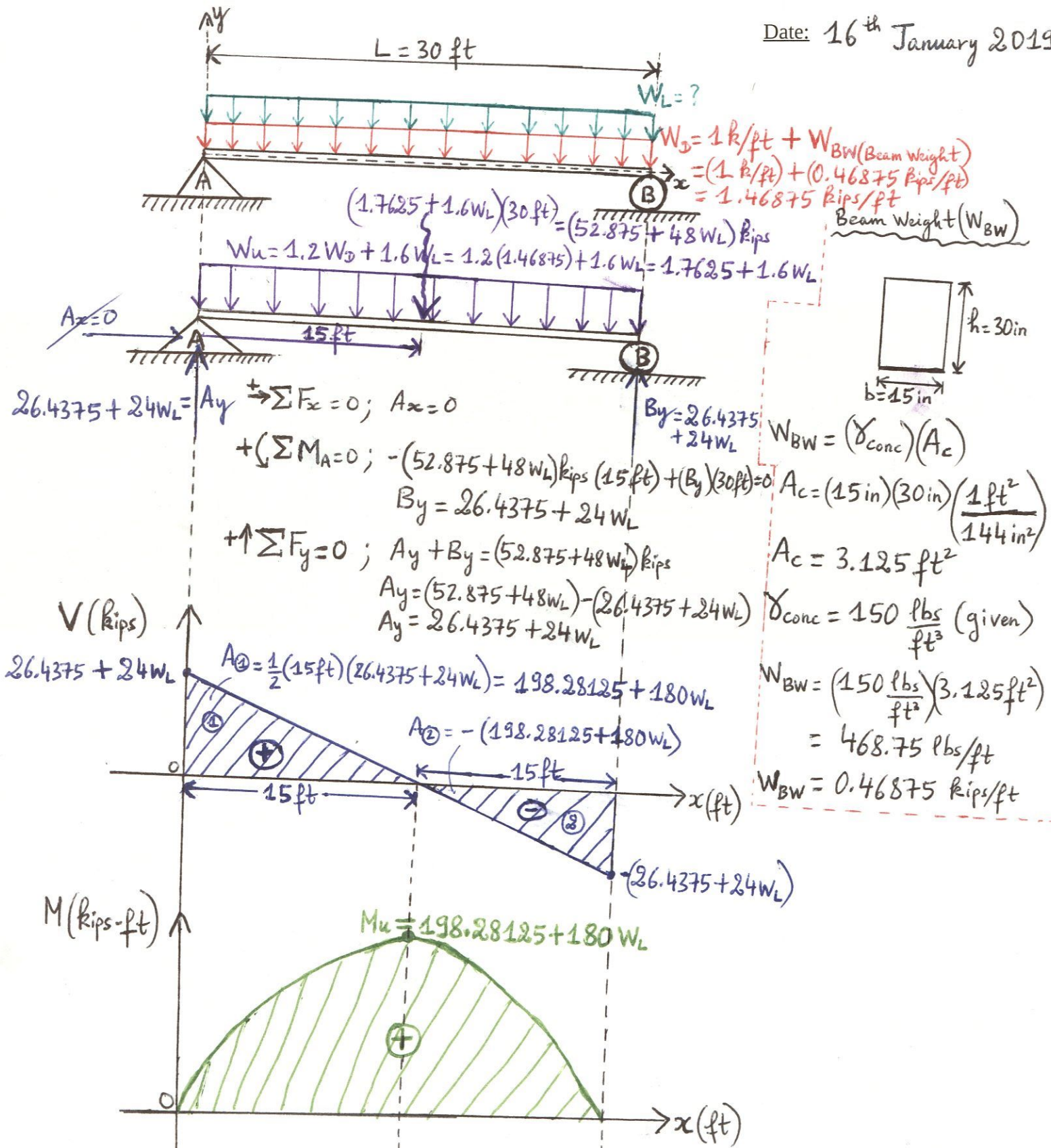
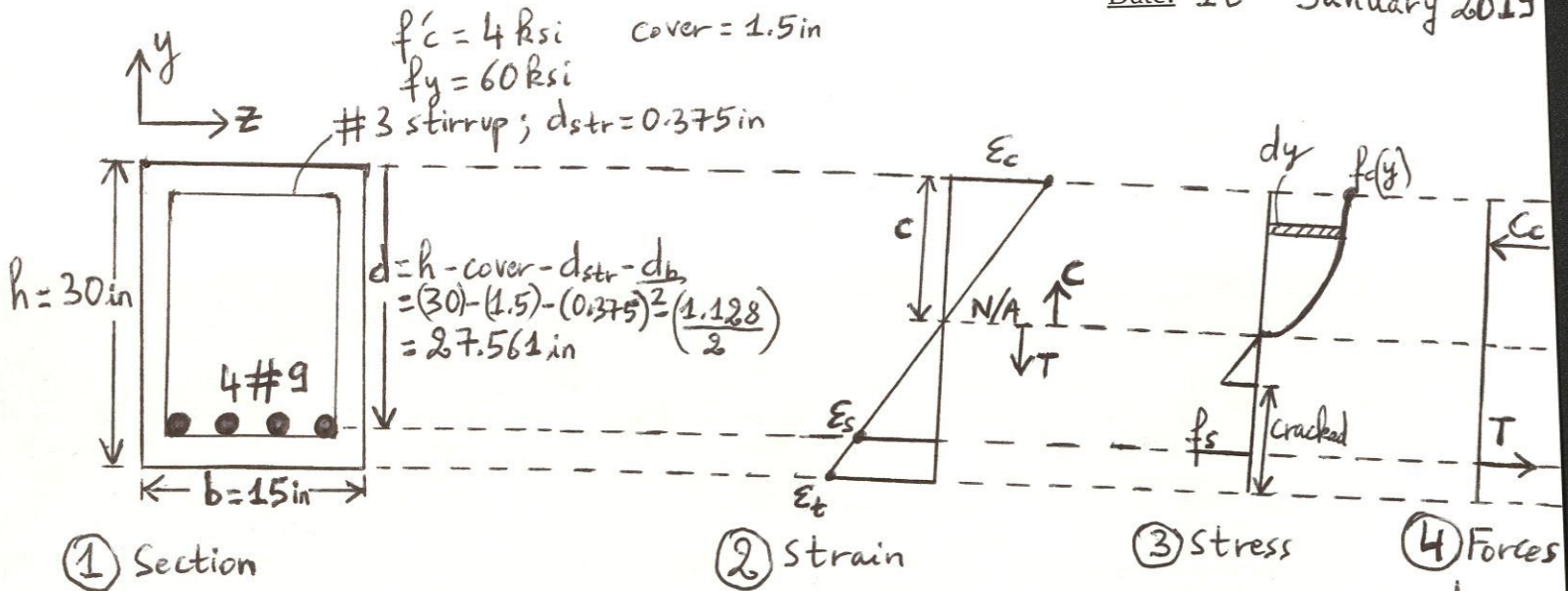


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#9 bars $\rightarrow A_b = 1 \text{ in}^2$; $A_s = (4)(1 \text{ in}^2) = 4 \text{ in}^2$

$f'_c = 4,000 \text{ psi} \leq 4,000 \text{ psi} \Rightarrow \beta_1 = 0.85$

$a = \frac{A_s f_y}{0.85 f'_c b} = \frac{240 \text{ kips}}{0.85 (4 \text{ ksi})(15 \text{ in})} = 4.705882353 \text{ in}$

$M_n = A_s f_y \left[d - \frac{a}{2} \right] = 240 \text{ kips} \left[27.561 - \left(\frac{4.705}{2} \right) \right] = 6,049.934118 \text{ kips-in}$

$\phi M_n = 0.9 (6,049.934118 \text{ kips-in}) \left(\frac{1 \text{ ft}}{12 \text{ in}} \right) = 453.7450589 \text{ kips-ft}$

$\phi M_n \geq M_u$

$453.7450589 \text{ kips-ft} \geq (198.28125 + 180 W_L)$

$W_L = 1.419243383 = 1.42 \text{ kips/ft}$

↓

$\rightarrow \Sigma F_x = 0$
 $T = C_c$

$T = A_s f_y$
 $= (4 \text{ in}^2)(60 \text{ kips/in}^2)$
 $\leftarrow \left[\begin{array}{l} T = 240 \text{ kips} \\ C_c = 0.85 f'_c a b \end{array} \right.$