(6.14) A 40-story high modern business building is supported by 0.9 m thick pillars of reinforced concrete. The insurance company must check that the number of iron bars are as many as required, and therefore they want to investigate the pillars by γ-radiography. What exposure times are required for (a) a small 200 GBq ^{60}Co source, (b) for a large 150 TBq source? Use the same film data as in 6.9.2.

$x := 0.9 \cdot 100$ cm $log(A \cdot t) = 1.068 + 0.040 \cdot x$ Eqn. on p. 162.

(a) $A := 200$ GBq

$t := \dfrac{10^{1.068 + 0.040 \cdot x}}{A}$ $t = 232.793$ hours $\dfrac{t}{24} = 9.7$ days

(b) $A := 150 \cdot 10^3$ GBq

$t := \dfrac{10^{1.068 + 0.040 \cdot x}}{A}$ $t = 0.310$ hours $t \cdot 60 = 18.6$ minutes