One very hot day a one-mile long length of railroad track on a level surface expanded exactly one foot. If it rose vertically only and in a circular arc and the two ends stayed in their original positions, how high would the middle be?

Your instrument is set up on the roof of a 3-story building across the street from a building that is a cube 100.00 feet on a side. Your zenith angle to the upper left corner is $66^\circ 58' 23"$ and to the lower left corner is $106^\circ 19' 36"$. Your zenith angle to the upper right corner is $68^\circ 45' 38"$ and to the lower right is $104^\circ 59' 44"$. Your horizontal angle from the upper left to the upper right is $39^\circ 47' 49"$. What is the shortest distance from your instrument to the building? How far from the prolongation of the left edge is your instrument?