Optimization of a Box

The problem is looking find the minimum material and dimensions needed to build a box that has a volume of 2 cubic ft. The box has to have a volume of 2ft3. The box is folded and has 4 flaps on the top and bottom as shown below. The price of material to build the box is $2/ft2. What are the material cost and dimensions to build the cheapest box that meets the constraint of volume?

Notes: This is an optimization problem that is trying to show the minimum. I think a good place to start is by eliminating a variable such as Length, Width, or Height using the constraint of volume. This will produce an objective function with only two variables. From that formula the stationary points can be defined by setting up the partial derivatives of the function equal to zero. I have tried to work this problem a couple of times and am really looking for some help on this one. If this problem is in the wrong subject, please let me know. All work for this problem can only be solved by hand or calculator (no Matlab script).

