Maybe One-Third?

In the diagram, square $OABC$ is positioned with $O$ at the origin $(0, 0)$, $A$ on the positive $y$-axis, $C$ on the positive $x$-axis, and $B$ in the first quadrant. Side $OA$ is trisected by points $F$ and $G$ so that $OF = FG = GA = 100$. Side $OC$ is trisected by points $D$ and $E$ so that $OD = DE = EC = 100$. Line segment $BE$ intersects line segment $CF$ at $H$.

If the interiors of $\triangle BHF$ and $\triangle CHE$ are both shaded, then what fraction of the total area of the square is shaded?

More Info:

Check the CEMC at Home webpage on Thursday, April 30 for the solution to this problem. Alternatively, subscribe to Problem of the Week at the link below and have the solution, along with a new problem, emailed to you on Thursday, April 30.

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