Static admissibility #1

A prismatic concrete column of mass density ρ supports its own weight (height of the column is H, squared cross section, bottom cross section is centered on point O=(0,0,0), axis of the column is the vertical direction (O,$\underline{e}_2$)). We sssume that the solid is subjected to a uniform gravitational body force of magnitude g per unit mass.

All surfaces are free of traction except the bottom surface which is perfectly clamped.

Question: Write all the equations defining static admissibility for $\underline{\underline{\sigma}}$ and expand them.

Question: Can the following stress field be a viable solution for the problem:

$$\sigma_{22} = -\rho g(H - x_2) \quad ; \quad \sigma_{ij} = 0 \quad otherwise \tag{1}$$