C. Resulting Stress Equations. Depending on the assumptions that are applied, different stress solutions are obtainable. These solutions are derivable from the same basic equations, but are presented under separate headings to preserve and emphasize the effects and influence of each assumption. The more general solution is presented first, followed by the results of a simpler analysis. The last topic of this group is concerned with the extension of the present analysis to include the effects of a concentric hole located along the axis of the wafer.

1. Two-Dimensional Wafer Profile-With Shear. The assumed profile of the wafer in the loaded state has been portrayed in Figure 1, and leads to the following trial for the displacement function ψ .

$$\psi = a_1 r^4 z + a_2 r^2 z^3 + a_3 r^2 z \qquad (28)$$

where a_1, a_2, and a_3 are constants, and will be referred to as displacement coefficients. Using this function with equations (3), the displacements become

$$u = a_1 r^3 + (3a_2 z^2 + a_3) r \qquad (29)$$