The reported results cannot be directly compared with the bearing capacity. Maximum base pressure should be compared with ultimate bearing capacity rather than allowable bearing capacity. However, the above parameters have limitations. They can be applied to footings where settlement is better compared with ultimate bearing capacity rather than the allowable bearing capacity. The safety factor can vary with settlement, and there are no calculable formulas for the allowable settlement for the calculated bearing capacity. Similarly, it is to be noted that the base pressure values depend on the settlement. It is therefore tempting to conclude that the modulus of subgrade reaction (Ks) can be calculated using the following equation:

\[ K_s = 40(SF)q_a \quad \text{(SI)} \]
\[ K_s = 12(SF)q_{a} \quad \text{(FPS)} \]

But there should be one, as both are the measurements of soil capacities and any of these two parameters can be used to design the foundation. From earlier discussions, it is also clear that even bearing capacity has an allowable settlement. It is therefore tempting to conclude that the modulus of subgrade reaction (Ks) can be calculated using the following equation:

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Failure governs, but cannot be related to footings where shear failure occurs before reaching the allowable settlement limit. So, engineers must exercise caution before using these equations. Conclusion: The correlation between bearing capacity and modulus of subgrade reaction is at best an estimation. It can be used for estimation, but a Ke value determined by a plate load test should always be used if available or should be requested whenever possible. Therefore, the above discussion gives insight into these values and helps engineers understand the physical significance of modulus of subgrade reaction. And, as always, structural engineers should consult a geotechnical engineer professional prior to analyzing soil stiffness and bearing values. References: Deep Foundations Engineering Practice (Third Edition) – Terzaghi, Peck, Mesri Foundation Analysis and Design (Fifth Edition) – Joseph E. Bowles modulus of subgrade reaction typical values for rock, modulus of subgrade reaction (typical values) for sand, modulus of subgrade reaction typical values for clay, modulus of subgrade reaction typical values for clayey soil, modulus of subgrade reaction typical values, horizontal modulus of subgrade reaction typical values, vertical modulus of subgrade reaction (typical values), modulus of subgrade reaction typical values, modulus of subgrade reaction k typical values, modulus of subgrade reaction values