

1116-VR-310 **Jay M. Kappraff*** (kappraff@njit.edu), Department of Mathematics, NJIT, University Heights, Newark, NJ 07102. *Calculus and structures.*

Architectural structures is used to motivate the development of the calculus. Using the idea that the area under the curve of shear stress results in the bending moment and that the derivative of the bending moment equals the shear stress. Also when the shear stress goes from positive to negative or negative to positive the bending moment is a maximum or minimum and that the inverse of the bending moment curve gives a rough idea of the deflection of a beam. In this way the elements of calculus can be developed quite naturally. In the development of this approach to calculus it is natural to introduce the integral in the second week. Although the concept of a derivative is introduced in the third week computations of derivatives is not introduced until it is needed in the sixth week. I have had a good deal of success in teaching this approach to calculus to students of architecture. (Received August 24, 2015)