Creep and Stress Relaxation of 150 ksi Threaded Bars

It is not widely known that ASTM A722 is a process specification that requires bars to be cold stressed to 80% of the specified minimum tensile strength and then stress relieved. This process produces a bar with properties that can be important to prestresssing applications. However, ASTM A722 includes bar sizes up to and including 3” diameter and currently no steel producers in the USA have the capability to cold stress and stress relieve bars larger than 1-3/4” diameter. Therefore, most domestic suppliers have been manufacturing these bars for many years using different methods. This presentation will present the findings of research funded by ADSC/DFI on the metallurgical creep characteristics of the larger bars and how they compare to bars made following the process requirements of ASTM A722. It will also discuss creep and stress relaxation properties of steel and how they pertain to use in prestressed ground anchor applications.