

HR-74 Fatigue and Residual Stress Investigation of Composite Pre-stressed Steel Beams

Abstract

Two composite, pre-stressed, steel beams, fabricated by slightly different methods, were fatigue tested to destruction. Stresses and deflections were measured at regular intervals, and the behavior of each beam as failure progressed was recorded. Residual stresses were then evaluated by testing segments of each beam, made to assess the effects of the residual stresses on fatigue strength. An attempt was made to assess the effects of the residual stresses on fatigue strength.