Report portal frame

Business



Portal Frame (Plastic Bending of Portals) AIM : To compare the ability of the portal frame to resists vertical and horizontal loadings. DESCRIPTION: Figure 1 shows the Plastic Bending of Portals experiment set up in a Test Frame. The Plastic Bending of Portals experiment consists of a specimen steel portal frame held firmly at the bottom corners by two fixing blocks (ensuring an encastre fixing).

Two load cells load the specimen frame by wires and adjustable pulleys.

These ensure the loads pull the frame in the correct direction. Each of the pulley mounting plates has a long travel digital indicator attached. This accurately measures the deflection of the specimen frame in the horizontal and vertical directions. Figure 1 Plastic Bending of Portals Experiment in the Structures Frame PROCEDURE FOR VERTICAL LOADING: 1.

Using a combination of the adjustable pulley and the load cell, make sure the wire comes vertically down from the frame, around the pulley, then horizontally across to the load cell. . Look at the digital force display readout to ensure the frame is not pulled during these adjustments. Ensure there is no load on the wire and zero both the load cell and the indicator. 3. Wind the load cell hand wheel to pull the frame and cause a measured deflection of 1 mm, take a reading of the force required.

4. Continue to wind the load cell to cause deflections in 1 mm steps for seven increments. Enter your results into Table 1. . Repeat procedures 3 and 4 for horizontal loading and record your results into Table 2. 6.

Plot a graph of force versus deflection for both types of loading and compare the ability of the portal frame to resist these two kinds of loading. RESULT: https://assignbuster.com/report-portal-frame/ For vertical loadings. Table 1 Deflection (mm)Force (N) 0 1 2 3 4 5 6 7 RESULT: For horizontal loadings. Table 2 Deflection (mm)Force (N) 0 1 2 3 4 5 6 7 COMMENTS AND CONCLUSIONS: