2. **Dial Switching Problem #2:** The Beavis Panel Company manufactures porcelain metal panels for the appliance industry. The porcelain is set under conditions of heat, pressure and thickness. The company is presently having a problem with porcelain brittleness (...the stuff cracks too easily). The ideal brittleness is measured by an impact device that records the striking force (...measured between 0 and 99) that shat­ters the panel. Ideally, the company does not want the panels to shatter with striking forces below 40.0. Belmont Beavis, the chief of porcelain panel quality control (...and grandson of Bartholomew Beavis, the CEO and founder) suspects that the problem is with the application temperatures. The panel production is in statistical process control. Beavis then begins experimenting with the application temperatures holding the other variables constant. He tries four different temperature settings with the following results:

 **Temperature Temperature Temperature Temperature**

 **Setting #1 Setting #2 Setting #3 Setting #4**

 30.7 36.8 31.2 33.4

 38.0 40.9 31.3 36.2

 36.4 40.7 30.7 35.4

 33.8 38.7 34.0 39.2

 36.5 38.6 33.6 37.1

 38.9 30.5 36.4

 39.9 35.3

 28.6

 33.8

 What say? Does the application temperature make a difference (...test at the = .05 level)? Then, is porcelain hardness that results from pressure setting #4 different from the others (…build the Scheffé shading contrast between setting #4 and the other 3, and set the interval at the Fisher .05 two-tail level).

[SStotal = 305.06, df 26; SSfactors = 177.8, df 3; SSwithin = 127.26, df 23; MSfactors = 59.27; MSerror = 5.53; Fobsv = 10.71; Ftest, .05, 3, 23 =3.028; Scheffé L1=12.72, s=3.50, Interval: 2.10 to 23.34, thus Temp #2 is best]