Determination of proper size of service pipe (cont.)

loss allowable per 100 feet of pipe is based on the assumption that the entire peak demand issues from the most remote fixture through piping of same size as the service.

Pressure desired at most remove fixture ..... 8 p.s.i.
Pressure loss due to 10 feet elevation ..... 4.34 p.s.i.

Pressure loss at peak demand, meter (Fig. 9) ..... 9.0 p.s.i.
21.34 p.s.i.

Actual length of service pipe..... 75 ft.

Developed length of customer's piping to most remote fixture including equivalent length elbows, tees, etc. ..... 40 ft.

Corporation Stop/Valve. Equivalent length straight pipe ..... 5.86 ft.

Curb Stop/Valve. Equivalent length straight pipe ..... 4.08 ft.
124.94 ft.

Main to most remote fixture.....(approx. 125 ft.)

Pressure available for pipe friction

Main pressure 50 p.s.i. - 21.34 = 28.66 p.s.i.

Max friction loss allowable per 100 ft.
100 x 28.66 = 23.00 p.s.i.
125
Referring to chart "Flow Chart for Type "K" Copper Pipe," it will be noted that a 3/4" pipe loss is 20 p.s.i. per 100 feet at 12 GPM. Therefore, it is satisfactory from the standpoint of pressure loss.

It will be noted that the velocity is 9 ft/sec which is near the upper limit. However, the peak flow may only occur during use of hose outlet, and the 3/4" service is probably ample. In a service where the peak demand would be expected to occur frequently, it might be advisable to install a 1" service to reduce the erosion-corrosion effect if the water was somewhat active. A velocity approaching 10 feet per second may cause annoyance from water hammer and noise.

Table 10 offers considerable simplification in determining the demand estimate. Referring to table 10, it will be noted that the building in our example falls in Class A, and that the demand estimate is 6 GPM, to which is added the 5 GPM demand for the hose outlet for a total demand of 11 GPM - close near enough for estimating purposes.