**CMGT 235 – Electrical and Mechanical Systems**

Department of Construction Management 🏵 California State University, Chico

Homework #13

Points: 25

Due: 3/28/2017

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Answer**

1. A five-story office building is designed to have Lav faucets and flush valve toilets on every floor. The floor-to-floor height is 12 ft. The service piping is 5 ft below the first-floor level. Assume 10 psi for friction head and a street mains pressure of 40 psi. Flush valves are 2 ft above floor level (AFL) and Lav faucets are 32-in AFL.

Determine the required street mains pressure.

Total (mains) pressure = Static head + Friction head + Flow pressure

= (5 ft + 4(12 ft) + 2 ft) x (0.433 psi/ft + 10 psi + 15 psi

= 23.8 psi + 10 psi + 15 psi

= 48.8 psi

What type of supply system would you recommend for the project and why?

The design value is close to the city mains pressure. A booster pump upfeed system would be the best choice.

Less expensive to purchase/install/maintain

1. How many feet of water is 80 psi?

Ft of water = 80 psi x 2.31 ft/psi = 185 ft