**CMGT 235 – Electrical and Mechanical Systems**

Department of Construction Management 🏵 California State University, Chico

Homework #11 – Plumbing Systems

Points: 20

Due: 9/29/2022

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

Solution

1. The local municipal water service has a MDSSPA of 80 psi. For the house plan used in homework #10 the highest fixture is a showerhead that is 14 ft above the source of the supply. Assume a water meter pressure loss of 5 psi and a water softener pressure loss of 9 psi. Calculate the Available Water Pressure.

Available Pressure = 80 psi – (14 ft x 0.433 psi/ft) – 5 psi – 9 psi = 59.938 psi

1. Complete the table below for the home plan used for homework #10. There are four ¾” hose bibbs outside around the perimeter of the home and one laundry machine.
See: <https://www.engineeringtoolbox.com/fixture-water-capacity-d_755.html>

|  |  |
| --- | --- |
| Fixture | Minimum Supply Pressure (psi) |
| Water Closet | 8 |
| LAV | 8 |
| Tub/Shower | 8 |
| Tub | 8 |
| Shower | 8 |
| Kitchen Sink | 8 |
| Dishwasher | 8 |
| Laundry Machine | 8 |
| Laundry Sink | 8 |
| ¾” Hose Bibb | 8 |

1. If every fixture in the home was used simultaneously what would be the total pressure demand?

|  |  |  |
| --- | --- | --- |
| Fixture | Number of Fixtures | Total Pressure (psi) |
| Water Closet | 5 | 40 |
| LAV | 7 | 56 |
| Tub/Shower | 3 | 24 |
| Tub | 1 | 8 |
| Shower | 1 | 8 |
| Kitchen Sink | 1 | 8 |
| Dishwasher | 2 | 16 |
| Laundry Machine | 1 | 8 |
| Laundry Sink | 1 | 8 |
| ¾” Hose Bibb | 4 | 32 |
| Total Pressure Demand | 208 |