**CMGT 235 – Electrical and Mechanical Systems**

Department of Construction Management 🏵 California State University, Chico

Exam #2 [100 points]

**You may work with one person or individually. Every student SHALL complete their own answer sheet.**

|  |
| --- |
| Name: |
| Name: |

Diagram, engineering drawing

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1. Complete the following steps for the dwelling plan provided. The owner has approved all options shown.

**Step 1.** Calculate the Available Water Pressure

MDSSPA = 60 psi

Highest Fixture = 10 feet above the source of supply

Meter Pressure loss = 5 psi

Water Softener Pressure Loss = 9 psi

**Step 2.** Determine the Effective Maximum Developed Length (DL) of Pipe

Length of pipe to the Furthest Fixture = 105 feet

**Step 3**. Complete the WSFU table below. [2016 CPC - Table 610.3]

Mark all fixtures shown on the plan using a yellow highlighter.

There is a total of five ½" hose bibbs: three on one supply segment and two on another supply segment.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Water Supply Fixture Units | | | | | | | |
| Fixture | # of Fix. | HOT WSFU | | COLD WSFU | | TOTAL WSFU | |
| EACH | THIS JOB | EACH | THIS JOB | EACH | THIS JOB |
| SHW |  |  |  |  |  |  |  |
| BT |  |  |  |  |  |  |  |
| BT/SHW |  |  |  |  |  |  |  |
| LAV |  |  |  |  |  |  |  |
| WC FT |  |  |  |  |  |  |  |
| KS |  |  |  |  |  |  |  |
| DW |  |  |  |  |  |  |  |
| CW |  |  |  |  |  |  |  |
| LT |  |  |  |  |  |  |  |
| HB |  |  |  |  |  |  |  |
| TOTALS |  |  |  |  |  |  |  |

**Step 4.** Use the 2016 CPC Table 610.4 complete the table below for your results:

**2016 CPC - Table 610.4**

|  |  |
| --- | --- |
| Pressure Range |  |
| Maximum Allowable Length |  |
| **Distribution Piping** | **Pipe Size (inches)** |
| Meter and Street Service |  |
| Building Supply |  |
| Cold Water Supply |  |
| Hot Water Supply |  |

1. For the private residence shown write the individual DFU value above each fixture and determine the total DFU at the points indicated.

Diagram, engineering drawing

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1. For the 2-line drawing shown complete the 1-line drawing by replacing each fitting in the locations shown with its corresponding symbol found on drawing P-011 located on lorisweb.com [CMGT 235 DIS 20].

A picture containing text, antenna

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1. For the residential site shown use the Rational Method to determine the peak runoff rate (gpm) and volume (gallons) for the drainage area given. The rainfall intensity is 8.0 in/hr.

Diagram

Description automatically generated

1. For a building in Wilmington, NC, determine the minimum size roof drain, horizontal pipe, and leader pipe for the roof shown. Use the 2016 CPC Appendix D rainfall rate with no amendments.

Diagram

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