


CMGT 235 – Electrical and Mechanical SystemsDepartment of Construction Management  California State University, Chico**Homework #12 – Plumbing Systems**

Points: 20

Due: 10/4/2022

USE 2-DECIMALS FOR GPM AND WSFU

Name: _____

1. Calculate the Total Demand Load (GPM) for the home used in homework #10 using the flow rates given.

Fixture	Number of Fixtures	Flow Rate (GPM)	Total (GPM)
Water Closet		3.0	
LAV		2.2	
Tub/Shower		5.0	
Tub		5.0	
Shower		2.5	
Kitchen Sink		2.2	
Dishwasher		3.0	
Laundry Machine		3.0	
Laundry Sink		2.2	
¾" Hose Bibb		12.0	
Total			

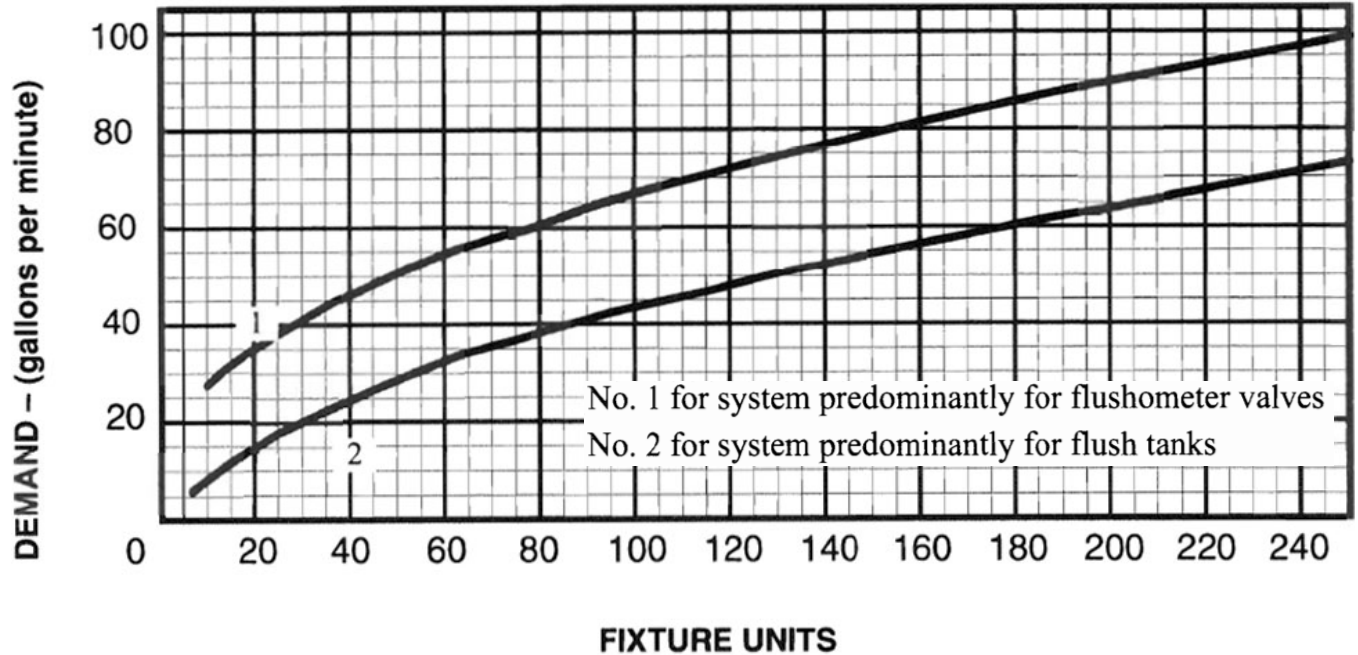
2. Complete the total Water Supply Fixture Units (WSFU) for the home used in homework #10. Assume one segment of water distribution piping supplies two hose bibbs.

Fixture	Number of Fixtures	WSFU	Total WSFU
Water Closet			
LAV			
Tub/Shower			
Tub			
Shower			
Kitchen Sink			
Dishwasher			
Laundry Machine			
Laundry Sink			
¾" Hose Bibb			
Total			

- Using the result for problem 2, determine the Demand Load Using Chart A 103.1 (2) Enlarged Scale Demand Load from the 2016 CPC. Show how you found the demand load on the chart below.

Demand Load = _____

**CHART A 103.1(2)
ENLARGED SCALE DEMAND LOAD**



For SI units: 1 gallon per minute = 0.06 L/s

- Based upon a maximum desired velocity of 8ft.sec, determine the minimum diameter (D_{i-min}) copper tubing for the demand loads found in problem 1 and problem 3. Show calculations (Answers, use 3-DECIMALS).

D_{i-min} - Problem 1

D_{i-min} - Problem 3

- Using the copper tubing handbook determine the size of copper tube for Type L. Complete the table below. Find pricing at: <https://www.plumbingsupply.com/copperpipe.html>

	Q (gpm)	v (fps)	D_{i-min}	Copper Tube: Type L	Price per 4 ft
Problem 1		8			
Problem 3		8			