

## CMGT 235 – Electrical and Mechanical Systems

### In Class Activity #4 – Plumbing Plans and Specifications

Points: 50 [4 points each properly formatted answer]

Due: At the End of Class Today

WRITE NEATLY

Check One: Worked with a:  Partner  INDIVIDUAL

Name	Solution
Name	
Name	

- To answer the following questions, you will need to access electronically the HomeGoods Distribution Plumbing Plans (P-101, P-102, P-103, P-104, P-202, P-203, P-204, P-205, P-206, P-207, P-208, P-209, P-210) and HomeGoods Distribution Specifications. See: <https://lorisweb.com/cmgt235.html>
- Format for answers. Write answer and directly below clearly indicate the location it was found (be specific).  
Example Answer:  
Sanitary Waste Piping  
P6.01 Plumbing Schedules – Plumbing symbol legend

#### Plan Questions

- What size is the cold-water supply pipe for the water closet in the Guardhouse?  
1"  
P-101, Fixture Schedule
- What is the storage capacity for EWH-2?  
50 gallons  
P-101, Water Heater Schedule
- What is the required minimum slope for sanitary and drainage piping 3" and larger?  
1/8" per foot  
P-101, Plumbing Notes
- What are the GPFs for WC-1H?  
1.28 GPF  
P-101, Plumbing Fixture Schedule
- What is the HP for the HWR Pump?  
1/12 HP  
P-102 Details – Plumbing, Electric Water Heater (with HWRP)

6. What is the outlet pressure for the RTU pressure regulator?  
10" W.C.  
P-102 Details – Plumbing, Rooftop Gas Connection Detail
  
7. What is the point of discharge for the 10" Emergency Rain Leaders on the main office roof?  
Spill on Grade  
P-202, GL C1
  
8. What size gas supply pipe is shown for RTU-B34?  
1-1/2"  
P-203
  
9. Where is EWH-1 located?  
Main Office  
P101 – Water Heater Schedule  
Janitor (A53)  
P-209
  
10. Where must the Water Hammer Arrestors (WHA-D, WHA-E, and WHA-F) be installed?  
Locate water hammer arrestor above ceiling at access panel  
P-209, Key Notes 9
  
11. What supplies the emergency shower (ES-1) with hot water?  
EWH-5  
P-210, Detail 6
  
12. What size waste pipe is shown for the shipping office LAV-2?  
3"  
P-210, Detail 3
  
13. What is the total number of urinals installed in the men's restroom A51?  
8  
P-209, Detail 1

14. What size are the CW and HW supply pipes for the Kitchen Sink (KS-1) in the Coffee Room (A19)?

½"

P-209, Detail 2

15. What is the minimum size waste line for water closets?

4"

P-101, Fixture Schedule

16. What is an FD - "AR"?

Acid Resistant Floor Drain

P-101, Drainage Products / Specialties

17. What size aerator must be installed on the faucet for the Kitchen Sink (KS-1)?

1.8 GPM

P-101, Plumbing Fixture Schedule

18. What is the total DFU for the Waste & Vent Riser 1/P-209?

Fixture	QTY	DFU (Each)	DFU (Total)
WF-1	12	0.5	6.0
2" FD	9	2.0	18.0
MS-1	1	3.0	3.0
WC-1	21	4.0	84.0
WC-1H	4	4.0	16.0
UR-1	7	2.0	14.0
UR-2	1	2.0	2.0
DF-1	0	0	0
TOTAL			143.0

### Specification Questions

19. Who are the acceptable manufactures for plumbing fixtures?

American Standard, Kohler, Toto and Zum

22 4000-2 of 3, 2.3 A.1

20. What is required for testing the entire gas piping system?

Tested with compressed air to 100 psi for a period of two (2) hours

22 1600-4 of 4, 3.2 B.

21. What shall be the maximum spacing between pipe hangers for  $\frac{3}{4}$ " – 1" gas pipe?  
8'-0"  
22 1600-3 of 4, 2.9 C.2.
22. What shall the sleeves for pipe penetrations be?  
Schedule 40 black steel  
22 0000-16 of 19, 3.9 A.
23. For plastic pipe installed in soil what is the minimum depth for the layer of sand?  
6" deep  
22 0000-14 of 19, 3.2 D.
24. For domestic hot water what is the required insulation thickness for pipe sizes 2-1/2 to 4 in.?  
1.5 in.  
22 0000-11 of 19, 2.8 D.
25. What type of pipe is the basis of design for domestic cold water and hot water systems above ground?  
Type "L" hard drawn copper tubing per ASTM B-88 and Federal Specification WWT-799.  
22 0000-7 of 19, 2.3 C. 1. a. 1)