**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**

1. What size is the cold-water supply pipe for the water closet in the Guardhouse?

1”

P-101, Fixture Schedule

1. What is the storage capacity for EWH-2?

50 gallons

P-101, Water Heater Schedule

1. What is the required minimum slope for sanitary and drainage piping 3” and larger?

1/8” per foot

P-101, Plumbing Notes

1. What are the GPFs for WC-1H?

1.28 GPF

P-101, Plumbing Fixture Schedule

1. What is the HP for the HWR Pump?

1/12 HP

P-102 Details – Plumbing, Electric Water Heater (with HWRP)

1. What is the outlet pressure for the RTU pressure regulator?

10” W.C.

P-102 Details – Plumbing, Rooftop Gas Connection Detail

1. What is the point of discharge for the 10” Emergency Rain Leaders on the main office roof?

Spill on Grade

P-202, GL C1

1. What size gas supply pipe is shown for RTU-B34?

1-1/2”

P-203

1. Where is EWH-1 located?

Main Office Janitor (A53)

P101 – Water Heater Schedule P-209

1. 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

1. What supplies the emergency shower (ES-1) with hot water?

EWH-5

P-210, Detail 6

1. What size waste pipe is shown for the shipping office LAV-2?

3”

P-210, Detail 3

1. What is the total number of urinals installed in the men’s restroom A51?

8

P-209, Detail 1

1. 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

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

4”

P-101, Fixture Schedule

1. What is an FD - “AR”?

Acid Resistant Floor Drain

P-101, Drainage Products / Specialties

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

1.8 GPM

P-101, Plumbing Fixture Schedule

1. 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**

1. Who are the acceptable manufactures for plumbing fixtures?

American Standard, Kohler, Toto and Zum

22 4000-2 of 3, 2.3 A.1

1. 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.

1. What shall be the maximum spacing between pipe hangers for ¾” – 1” gas pipe?

8’-0”

22 1600-3 of 4, 2.9 C.2.

1. What shall the sleeves for pipe penetrations be?

Schedule 40 black steel

22 0000-16 of 19, 3.9 A.

1. 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.

1. 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.

1. 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)