



Project: West Bank

Subject: fire flow

Job: 130-034

By: \_\_\_\_\_

Date: 2/23/24

Page: \_\_\_\_\_

• from 2022 Oregon Fire Code: Table B105.1(1)

Minimum fire flow for single family

assume: 0-3600 sq ft → min fire flow = 1,000 gpm

Minimum fire flow for townhomes

assume: 6 unit townhome = 7,920 sq ft

Type 1A and 1B: 0-22,700 sq ft

↳ min fire flow = 1,500 gpm

elevation change

test hydrant = 219.8

phase 1 hydrant = 204.0

elevation difference = -15.8

$$\text{head loss} = (1/2.31) \times (-15.8) = -6.84 \text{ psi}$$

friction loss

$$\text{@ } 2,000 \text{ gpm} = 51.04 \text{ psi}$$

$$\text{@ } 1,500 \text{ gpm} = 28.08 \text{ psi}$$

at test hydrant: static pressure = 80 psig

residual pressure = 77 psig

$$\text{@ } 2,000 \text{ gpm: } 77 \text{ psi} - 6.84 - 51.04 = 25.96 \text{ psi}$$

$$\text{@ } 1,500 \text{ gpm: } 77 \text{ psi} - 6.84 - 28.08 = 42.08 \text{ psi}$$

FLOW HYDRANT  
PITOT PRESSURE = 45 PSIG  
OBSERVED FLOW = 1,131 GPM  
CALCULATED FLOW @ 20 PSI = 5,710 GPM

356 LF  
FRICTION LOSS  
@2,000 GPM = 10.32 PSI  
@1,500 GPM = 5.70 PSI

TEST HYDRANT  
STATIC PRESSURE = 80 PSIG  
RESIDUAL PRESSURE = 77 PSIG  
ELEV = 219.8

8" C900

14" DIP

14" DIP

422 LF  
FRICTION LOSS  
@2,000 GPM = 1.69 PSI  
@1,500 GPM = 0.84 PSI

8" DIP

FIRE HYDRANT - 2088 LF  
TOTAL FRICTION LOSS  
@2,000 GPM = 51.04 PSI  
@1,500 GPM = 28.08 PSI  
ELEV = 204.0

FRICTION LOSS  
@2,000 GPM = 39.03 PSI  
@1,500 GPM = 21.54 PSI

