

## FIRE FLOW REQUIREMENT WORK SHEET

DATE: 2021/11/04 CONTACT PHONE#: \_\_\_\_\_  
 NAME OF PROJECT: SSRC | BASE AREA PLAZA IMPROVEMENTS  
 OWNER/DEVELOPER: SSRC, ALTERRA  
 TOTAL BUILDING SQ.FT: 12,228 SF (BUILDING B)  
 TYPE OF CONSTRUCTION (2015 IBC): V-A  
 OCCUPANCY CLASSIFICATION (2015 IBC): A-2, M, S-1, & S-2  
 BUILDING SPRINKLERED/UNSPRINKLERED: SPRINKLERED PER NFPA-13 903.3.1.1

FIRE FLOW DEMAND (GPM): 1,000 DURATION (HRS): 2  
 MIN.# OF HYDRANTS: 1 AVERAGE SPACING (FT.): 500  
 MAX.DISTANCE FROM HYD.TO STREET OR ROAD: 250  
 (Please attach a vicinity map illustrating approx. location & distances to existing fire hydrants.)  
 NOTES: 2,000 GPM \* 25% = 500 GPM (1,000 GPM IS MINIMUM)

USE TABLES ON FOLLOWING PAGE TO OBTAIN INFORMATION REQUIRED ABOVE.

QUESTIONS REGARDING THE ABOVE INFORMATION MAY BE DIRECTED TO THE FIRE DEPARTMENT AT 879-8216.

**REQUIRED FIRE-FLOW FOR BUILDINGS OTHER THAN ONE- AND**  
**TABLE B105.2 TWO-FAMILY DWELLINGS, GROUP R-3 AND R-4 BUILDINGS AND TOWNHOUSES**

| AUTOMATIC SPRINKLER SYSTEM<br>(Design Standard)         | MINIMUM FIRE-FLOW<br>(gallons per minute)        | FLOW DURATION<br>(hours)                             |
|---------------------------------------------------------|--------------------------------------------------|------------------------------------------------------|
| No automatic sprinkler system                           | Value in Table B105.1(2)                         | Duration in Table B105.1(2)                          |
| Section 903.3.1.1 of the <i>International Fire Code</i> | 25% of the value in Table B105.1(2) <sup>a</sup> | Duration in Table B105.1(2) at the reduced flow rate |
| Section 903.3.1.2 of the <i>International Fire Code</i> | 25% of the value in Table B105.1(2) <sup>b</sup> | Duration in Table B105.1(2) at the reduced flow rate |

For SI: 1 gallon per minute = 3.785 L/m.

- a. The reduced fire-flow shall be not less than 1,000 gallons per minute.
- b. The reduced fire-flow shall be not less than 1,500 gallons per minute.

TABLES BELOW TAKEN FROM 2015 INTERNATIONAL FIRE CODE

**TABLE B105.1(2): REFERENCE TABLE FOR TABLES B105.1(1) AND B105.2**

| FIRE-FLOW CALCULATION AREA (square feet) |                                |                              |                                |                       | FIRE FLOW<br>(gallons per minute) <sup>b</sup> | FLOW<br>DURATION<br>(hours) |
|------------------------------------------|--------------------------------|------------------------------|--------------------------------|-----------------------|------------------------------------------------|-----------------------------|
| Type IA and IB <sup>a</sup>              | Type IIA and IIIA <sup>a</sup> | Type IV and V-A <sup>a</sup> | Type IIB and IIIB <sup>a</sup> | Type V-B <sup>a</sup> |                                                |                             |
| 0-22,700                                 | 0-12,700                       | 0-8,200                      | 0-5,900                        | 0-3,600               | 1,500                                          | 2                           |
| 22,701-30,200                            | 12,701-17,000                  | 8,200-10,900                 | 5,901-7,900                    | 3,601-4,800           | 1,750                                          |                             |
| 30,201-38,700                            | 17,001-21,800                  | 10,901-12,900                | 7,901-9,800                    | 4,801-6,200           | 2,000                                          |                             |
| 37,701-48,300                            | 21,801-24,200                  | 12,901-17,400                | 9,801-12,600                   | 6,201-7,700           | 2,250                                          |                             |
| 48,301-59,000                            | 24,201-33,200                  | 17,401-21,300                | 12,601-15,400                  | 7,701-9,400           | 2,500                                          |                             |
| 59,001-70,900                            | 33,201-39,700                  | 21,301-25,500                | 15,401-18,400                  | 9,401-11,300          | 2,750                                          | 3                           |
| 70,901-83,700                            | 39,701-47,100                  | 25,501-30,100                | 18,401-21,800                  | 11,301-13,400         | 3,000                                          |                             |
| 83,701-97,700                            | 47,101-54,900                  | 30,101-35,200                | 21,801-25,900                  | 13,401-15,600         | 3,250                                          |                             |
| 97,701-112,700                           | 54,901-63,400                  | 35,201-40,600                | 25,901-29,300                  | 15,601-18,000         | 3,500                                          |                             |
| 112,701-128,700                          | 63,401-72,400                  | 40,601-46,400                | 29,301-33,500                  | 18,001-20,600         | 3,750                                          |                             |
| 128,701-145,900                          | 72,401-82,100                  | 46,401-52,500                | 33,501-37,900                  | 20,601-23,300         | 4,000                                          | 4                           |
| 145,901-164,200                          | 82,101-92,400                  | 52,501-59,100                | 37,901-42,700                  | 23,301-26,300         | 4,250                                          |                             |
| 164,201-183,400                          | 92,401-130,100                 | 59,101-66,000                | 42,701-47,700                  | 26,301-29,300         | 4,500                                          |                             |
| 183,401-203,700                          | 130,101-114,600                | 66,001-73,300                | 47,701-53,000                  | 29,301-32,600         | 4,750                                          |                             |
| 203,701-225,200                          | 114,601-126,700                | 73,301-81,100                | 53,001-58,600                  | 32,601-36,000         | 5,000                                          |                             |
| 225,201-247,700                          | 126,701-139,400                | 81,101-89,200                | 58,601-65,400                  | 36,001-39,600         | 5,250                                          |                             |
| 247,701-271,200                          | 139,401-152,600                | 89,201-97,700                | 65,401-70,600                  | 39,601-43,400         | 5,500                                          |                             |
| 271,201-295,900                          | 152,601-166,500                | 97,701-106,500               | 70,601-77,000                  | 43,401-47,400         | 5,750                                          |                             |
| 295,901-Greater                          | 166,501-Greater                | 106,501-115,800              | 77,001-83,700                  | 47,401-51,500         | 6,000                                          |                             |
| --                                       | --                             | 115,801-125,500              | 83,701-90,600                  | 51,501-55,700         | 6,250                                          |                             |
| --                                       | --                             | 125,501-135,500              | 90,601-97,900                  | 55,701-60,200         | 6,500                                          |                             |
| --                                       | --                             | 135,501-145,800              | 97,901-106,800                 | 60,201-64,800         | 6,750                                          |                             |
| --                                       | --                             | 145,801-156,700              | 106,801-113,200                | 64,801-69,600         | 7,000                                          |                             |
| --                                       | --                             | 156,701-167,900              | 113,201-121,300                | 69,601-74,600         | 7,250                                          |                             |
| --                                       | --                             | 167,901-179,400              | 121,301-129,600                | 74,601-79,800         | 7,500                                          |                             |
| --                                       | --                             | 179,401-191,400              | 129,601-138,300                | 79,801-85,100         | 7,750                                          |                             |
| --                                       | --                             | 191,401-Greater              | 138,301-Greater                | 85,101-Greater        | 8,000                                          |                             |

For SI: 1 square foot = 0.0929 m<sup>2</sup>, 1 gallon per minute = 3.785 L/m, 1 pound per square inch = 6.895 kPa.

a. Types of construction are based on the *International Building Code*.

b. Measured at 20 psi residual pressure.

**TABLE C102.1: REQUIRED NUMBER AND SPACING OF FIRE HYDRANTS**

| FIRE-FLOW REQUIREMENT<br>(gpm) | MINIMUM NUMBER<br>OF HYDRANTS | AVERAGE SPACING<br>BETWEEN HYDRANTS <sup>a,b,c,f,g</sup><br>(feet) | MAXIMUM DISTANCE FROM ANY<br>POINT ON STREET OR ROAD<br>FRONTAGE TO A HYDRANT <sup>d,f,g</sup> |
|--------------------------------|-------------------------------|--------------------------------------------------------------------|------------------------------------------------------------------------------------------------|
| 1,7500 or less                 | 1                             | 500                                                                | 250                                                                                            |
| 2,000-2,250                    | 2                             | 450                                                                | 225                                                                                            |
| 2,500                          | 3                             | 450                                                                | 225                                                                                            |
| 3,000                          | 3                             | 400                                                                | 225                                                                                            |
| 3,500-4,000                    | 4                             | 350                                                                | 210                                                                                            |
| 4,500-5,000                    | 5                             | 300                                                                | 180                                                                                            |
| 5,500                          | 6                             | 300                                                                | 180                                                                                            |
| 6,000                          | 6                             | 250                                                                | 150                                                                                            |
| 6,500-7,000                    | 7                             | 250                                                                | 150                                                                                            |
| 7,500 or more                  | 8 or more <sup>e</sup>        | 200                                                                | 120                                                                                            |

For SI: 1 foot = 304.8 mm, 1 gallon per minute = 3.785 L/m.

a. Reduce by 100 feet for dead-end streets or roads.

b. Where streets are provided with median dividers that cannot be crossed by fire fighters pulling hose lines, or where arterial streets are provided with four or more traffic lanes and have a traffic count of more than 30,000 vehicles per day, hydrant spacing shall average 500 feet on each side of the street and be arranged on an alternating basis.

c. Where new water mains are extended along streets where hydrants are not needed for protection of structures or similar fire problems, fire hydrants shall be provided at spacing not to exceed 1,000 feet to provide for transportation hazards.

d. Reduce by 50 feet for dead-end streets or roads.

e. One hydrant for each 1,000 gallons per minute or fraction thereof.

f. A 50-percent spacing increase shall be permitted where the building is equipped throughout with an approved automatic sprinkler system in accordance with Section 903.3.1.1 of the *International Fire Code*.

g. A 25-percent spacing increase shall be permitted where the building is equipped throughout with an approved automatic sprinkler system in accordance with Section 903.3.1.2 or 903.3.1.3 of the *International Fire Code* or Section P2904 of the *International Residential Code*.