



## Fire Code Analysis, Fire Flow Demand and Availability - Planning Applications

Use this form for any planning application that includes Fire Code Analysis, Fire Flow Demand and Availability as a submittal requirement.

### Fire Code Analysis

Provide responses to the following:

- Occupancy classification and uses. For example: residential, commercial, mixed use, accessory.
- Estimated occupancy load, if applicable.
- Construction type.
- Square footage.
- Will the building be sprinklered? Based on occupancy type and or location.
- Will the building have a monitored fire alarm system?
- Will the building have a security system? Will it monitor smoke or carbon monoxide?
  - If so, a permit is required. Refer to the [Steamboat Springs Fire Rescue Plans and Permit submittal Policy \(web\)](#).
- Alterations or remodels in existing buildings with fire sprinkler or alarm systems require permits and a final fire inspection.
- Number stories above and below grade.
- Fire Department Access
  - Detailed site plans are required showing all dimensions including street/driveway length, width, grade, turnarounds and turn-outs. Refer to the [Fire Prevention Services Access Standards \(web\)](#).
- Will the property be gated? Please see IFC 503.6 for details call fire prevention at 970-879-7170.
- Will there be a commercial kitchen? If so permits are required.

## **Fire Flow Demand Worksheet**

Please attach a vicinity map illustrating location and distances to existing fire hydrants. Use tables on following pages to obtain the information required below. Tables taken from 2018 International Fire Code. Contact the Steamboat Springs Fire Department at 970-871-8216 or Mt Werner Water at 970-879-2424 with questions.

### **Property Information**

Physical Address

Legal Description

Parcel ID #

### **Primary Contact**

Name

Address

Phone

Email

### **Project Information**

Total building square footage (sf)

2018 International Building Code (IBC) Type of Construction

2018 IBC Occupancy Classification

Building sprinklered or Unsprinklered?

Fire Flow Demand Gallons per Minute (GPM)

Minimum Number of Hydrants and Average Space in Feet

Maximum Distance from Hydrant to Street or Road

Other Notes

**Table B105.1(2) Two Hour Flow Duration: Reference Table for Tables B105.1(1) and B105.2**

| 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> | Fire Flow (gallons per minute) <sup>b</sup> | Flow Duration (hours) |
|-----------------------------|--------------------------------|------------------------------|--------------------------------|-----------------------|---|-----------------------|
| 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                                       | 2                     |
| 30,201-38,700               | 17,001-21,800                  | 10,901-12,900                | 7,901-9,800                    | 4,801-6,200           | 2,000                                       | 2                     |
| 37,701-48,300               | 21,801-24,200                  | 12,901-17,400                | 9,801-12,600                   | 6,201-7,700           | 2,250                                       | 2                     |
| 48,301-59,000               | 24,201-33,200                  | 17,401-21,300                | 12,601-15,400                  | 7,701-9,400           | 2,500                                       | 2                     |
| 59,001-70,900               | 33,201-39,700                  | 21,301-25,500                | 15,401-18,400                  | 9,401-11,300          | 2,750                                       | 2                     |

Types IA, IB, IIA, IIIA, IV, V-A, IIB, IIIB, and V-b represent the Fire Flow calculation area in sf. For SI: 1 square foot = 0.0929 m<sup>2</sup>, 1 gallon per minute = 3.785 L/m, 1 pound per square inch (PSI) = 6.895 kPa.

<sup>a</sup> Types of construction are based on the IBC.

<sup>b</sup> Measured at 20 PSI residual pressure.

**Table B105.1(2) Three Hour Flow Duration: Reference Table for Tables B105.1(1) and B105.2**

| 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> | Fire Flow (gallons per minute) <sup>b</sup> | Flow Duration (hours) |
|-----------------------------|--------------------------------|------------------------------|--------------------------------|-----------------------|---|-----------------------|
| 70,901-83,700               | 39,701-47,100                  | 25,501-30,100                | 18,401-21,800                  | 11,301-13,400         | 3,000                                       | 3                     |
| 83,701-97,700               | 47,101-54,900                  | 30,101-35,200                | 21,801-25,900                  | 13,401-15,600         | 3,250                                       | 3                     |
| 97,701-112,700              | 54,901-63,400                  | 35,201-40,600                | 25,901-29,300                  | 15,601-18,000         | 3,500                                       | 3                     |
| 112,701-128,700             | 63,401-72,400                  | 40,601-46,400                | 29,301-33,500                  | 18,001-20,600         | 3,750                                       | 3                     |

Types IA, IB, IIA, IIIA, IV, V-A, IIB, IIIB, and V-b represent the Fire Flow calculation area in sf. For SI: 1 square foot = 0.0929 m<sup>2</sup>, 1 gallon per minute = 3.785 L/m, 1 pound per square inch (PSI) = 6.895 kPa.

<sup>a</sup> Types of construction are based on the IBC.

<sup>b</sup> Measured at 20 PSI residual pressure.

**Table B105.1(2) Four Hour Flow Duration: Reference Table for Tables B105.1(1) and B105.2**

| 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> | Fire Flow (gallons per minute) <sup>b</sup> | Flow Duration (hours) |
|-----------------------------|--------------------------------|------------------------------|--------------------------------|-----------------------|---|-----------------------|
| 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                                       | 4                     |
| 164,201-183,400             | 92,401-130,100                 | 59,101-66,000                | 42,701-47,700                  | 26,301-29,300         | 4,500                                       | 4                     |
| 183,401-203,700             | 130,101-114,600                | 66,001-73,300                | 47,701-53,000                  | 29,301-32,600         | 4,750                                       | 4                     |
| 203,701-225,200             | 114,601-126,700                | 73,301-81,100                | 53,001-58,600                  | 32,601-36,000         | 5,000                                       | 4                     |
| 225,201-247,700             | 126,701-139,400                | 81,101-89,200                | 58,601-65,400                  | 36,001-39,600         | 5,250                                       | 4                     |
| 247,701-271,200             | 139,401-152,600                | 89,201-97,700                | 65,401-70,600                  | 39,601-43,400         | 5,500                                       | 4                     |
| 271,201-295,900             | 152,601-166,500                | 97,701-106,500               | 70,601-77,000                  | 43,401-47,400         | 5,750                                       | 4                     |
| 295,901-Greater             | 166,501-Greater                | 106,501-115,800              | 77,001-83,700                  | 47,401-51,500         | 6,000                                       | 4                     |

Types IA, IB, IIA, IIIA, IV, V-A, IIB, IIIB, and V-b represent the Fire Flow calculation area in sf. For SI: 1 square foot = 0.0929 m<sup>2</sup>, 1 gallon per minute = 3.785 L/m, 1 pound per square inch (psi) = 6.895 kPa.

<sup>a</sup> Types of construction are based on the IBC.

<sup>b</sup> Measured at 20 PSI residual pressure.

**Table B105.1(2) Four Hour Flow Duration Continued: Reference Table for Tables B105.1(1) and B105.2**

| 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> | Fire Flow (gallons per minute) <sup>b</sup> | Flow Duration (hours) |
|-----------------------------|--------------------------------|------------------------------|--------------------------------|-----------------------|---|-----------------------|
| --                          | --                             | 115,801-125,500              | 83,701-90,600                  | 51,501-55,700         | 6,250                                       | 4                     |
| --                          | --                             | 125,501-135,500              | 90,601-97,900                  | 55,701-60,200         | 6,500                                       | 4                     |
| --                          | --                             | 135,501-145,800              | 97,901-106,800                 | 60,201-64,800         | 6,750                                       | 4                     |
| --                          | --                             | 145,801-156,700              | 106,801-113,200                | 64,801-69,600         | 7,000                                       | 4                     |
| --                          | --                             | 156,701-167,900              | 113,201-121,300                | 69,601-74,600         | 7,250                                       | 4                     |
| --                          | --                             | 167,901-179,400              | 121,301-129,600                | 74,601-79,800         | 7,500                                       | 4                     |
| --                          | --                             | 179,401-191,400              | 129,601-138,300                | 79,801-85,100         | 7,750                                       | 4                     |
| --                          | --                             | 191,401-Greater              | 138,301-Greater                | 85,101-Greater        | 8,000                                       | 4                     |

Types IA, IB, IIA, IIIA, IV, V-A, IIB, IIIB, and V-b represent the Fire Flow calculation area in sf. For SI: 1 square foot = 0.0929 m<sup>2</sup>, 1 gallon per minute = 3.785 L/m, 1 pound per square inch (PSI) = 6.895 kPa.

<sup>a</sup> Types of construction are based on the IBC.

<sup>b</sup> Measured at 20 PSI residual pressure.

**Table C102.1: Required Number and Spacing of Fire Hydrants**

| Fire Flow Requirement (GPM) | Minimum Number of Hydrants | Average Spacing Between Hydrants <sup>a,b,c,f,g</sup> (feet) | Maximum Distance from Any Point on Street or Road Frontage to a Hydrant <sup>d,f,g</sup> |
|-----------------------------|----------------------------|--|--|
| 1,750 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.

<sup>a</sup> Reduce by 100 feet for dead-end streets or roads.

<sup>b</sup> 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.

<sup>c</sup> 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.

<sup>d</sup> Reduce by 50 feet for dead-end streets or roads.

<sup>e</sup> One hydrant for each 1,000 gallons per minute or fraction thereof.

<sup>f</sup> 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.

<sup>g</sup> 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.

## Request for Fire Flow Availability Form

Please attach a vicinity map illustrating location and distances to existing fire hydrants or sketch plan. Contact the Steamboat Springs Fire Department at 970-871-8216 or Mt Werner Water at 970-879-2424 with questions.

### Property Information

Physical Address

Legal Description

Parcel ID #

### Primary Contact

Name

Address

Phone

Email

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### Staff Use Only

The information in this box must be completed and signed by an authorized representative of Steamboat Springs Water District by representative from City Utility Dept. or Mt. Werner Water & Sanitation, whichever is applicable.

Fire Flow Demand for Projects GPM is (insert GPM)

As determined by the following methods used (list methods)

Attach computational sheet.

Printed Name, Title

Entity

Signature

Date

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### Applicant Acknowledgement

I the undersigned request the available fire flow at said project and agree to pay all costs associated with obtaining such information. Costs are based on time and materials for obtaining such information from available records and performing actual field tests for computation of flows in GPM at a residual of 20 PSI.

Printed Name

Signature

Date