WATER SERVICE SIZING WORKSHEET

Buildings Containing One or Two Dwelling Units or Row Houses with Separate Water Service Pipes

Water Account Number:		Existing Meter No.:		Existing Meter Size:	

Project Name:				Building Permit No.:	
Owner Name:		Phone No.:		Email Address:	
Agent Name:		Phone No.:		Email Address:	

Property Address:	
Work Description:	

INSTRUCTIONS: This worksheet is for information purpose only. Please complete the items below and submit one Water Service Sizing Worksheet for each building on the property as applicable. Refer to page 2 for additional information and requirements. Should you have any questions, please contact the Building Department at 604.469.9877.

DOMESTIC WATER DEMAND – BC Plumbing Code - Table 2.6.3.2.-A Sizing of Water Distribution Systems

TYPE OF FIXTURE	No. Existing Fixtures	+	No. New Fixtures Added	-	No. Existing Fixtures Removed	=	Total Fixtures	X	Fixture Unit Value (FU)	=	Total Fixture Value (FU)
Bathroom Group *		+		-		=		x	3.6	=	
Bathtub w/wo Shower		+		-		=		x	1.0	=	
Bidet		+		-		=		x	2.0	=	
Lavatory Sink <8.3 LPM		+		-		=		x	0.7	=	
Shower < 9.5 LPM		+		-		=		x	1.4	=	
Shower > 9.5 LPM		+		-		=		x	2.0	=	
Shower – multi heads		+		-		=		x	1.4	=	
Urinal w/Flush Tank		+		-		=		x	3.0	=	
Water Closet (Toilet)		+		-		=		x	2.2	=	
Kitchen Sink		+		-		=		x	1.5	=	
Dishwasher		+		-		=		x	1.4	=	
Bar Sink		+		-		=		x	1.0	=	
Laundry Sink		+		-		=		x	1.4	=	
Clothes Washer		+		-		=		x	1.4	=	
2" Floor Drain		+		-		=		x	2.0	=	
3" Floor Drain		+		-		=		x	3.0	=	
Hose Bibb – ¾" *		+		-		=		x	3.0	=	
Other		+		-		=		x		=	
									Total Fixture Unit Load:		

* **Bathroom Group:** is a group of plumbing fixtures installed in the same room, consisting of one domestic lavatory sink, one water closet (toilet) and either one bathtub/shower combo or one-head shower. Additional fixtures in a bathroom must be included for overall domestic water demand calculations.

* **Hose Bibbs:** a minimum of 2 hose bids shall be included for each building.

* **Fixture Unit Values (FU):** additional FU's can be found in Table 2.6.3.2-A of the current BC Plumbing Code.

Table 2.6.3.4. Water Pipe Sizing for Buildings Containing One or Two Dwelling Units or Row Houses with Separate Water Service Pipes * This is the minimum water service size to supply the building from the city main *

Size of Water Pipe, inches	Water Velocity, m/s		
	3.0 (Cold)	2.4 (Hot)	1.5
	Hydraulic Load, *fixture units*		
1/2"	8	7	4
3/4"	21	16	9
1"	43	31	18
1-1/4"	83	57	30

Piping Suited for Cold Water ONLY	Piping Suited for Hot Water
HDPE - high-density polyethylene	PEX - cross-linked polyethylene
PE - polyethylene	CPVC - chlorinated polyvinyl chloride
	PVC - polyvinyl chloride piping
	PP-R - random polypropylene
	Copper

2.6.3.4.(1). Water service pipes shall be sized according to the peak demand flow but shall not be less than **3/4" inch** size.

WATER SERVICE SIZING WORKSHEET

Buildings Containing One or Two Dwelling Units or Row Houses with Separate Water Service Pipes

WATER METER SERVICE SIZING

BUILDING WATER DEMAND

Please provide the existing water service line flow rate in **GPM: _____ (existing flow as measured at the building).**

SWIMMING POOL/SPA/TANK & OTHER MISCELLANEOUS WATER DEMAND

Please indicate how your swimming pool/spa/tank is to be filled: *Hose Bib* or *Dedicated Line*.

- If filled by hose bib, no additional water demand is assessed.
- If filled by dedicated water line, please provide the existing water service line flow rate in **GPM: _____.**

IRRIGATION WATER DEMAND

Option A: State the measured flow rate for the largest separate circuit of your irrigation system in **GPM: _____.**

Option B: Describe the largest separate circuit. Provide the number of sprinkler heads ___ and rated flow in GPM per head ___ to obtain a total flow rate in GPM: _____.

FIRE SPRINKLER WATER DEMAND

Please provide the flow rate in **GPM: _____.**

NFPA 13D: Min 18 gpm for 1 design head, if unknown.
NFPA 13D: Min discharge density of 0.05 gpm/sqft.
NFPA 13D: Min operating pressure of 7 psi for any sprinkler.

NFPA 13 - *K-Factor and Minimum Pressure* **($Q = k\sqrt{P}$)**
Q = Flow (gpm) | k = Sprinkler k-Factor | P = Pressure (psi)
i.e. 4.9 k-factor at min. 7.0 psi = **12.96 gpm** (4.9 x $\sqrt{7}$) per sprinkler system**.**

NFPA 13 - *Density-Area minimum flow* (**Q = D x A)**
Q = Flow (gpm) | D = Minimum Density (gpm/sqft) | A = Area Covered by Sprinkler (sqft)
4.9 k-factor at min. 7.0 psi, spaced 16 x 16 feet with a 0.05 gpm/sqft density = min **12.8 gpm** per sprinkler system.

NFPA 13D: Installation of Sprinkler Systems in One- and Two-Family Dwellings and Manufactured Homes, the minimum size pipe/meter will be based upon meeting the system design criteria. **Sprinkler pipe** sizing **greater** than the value determined by *Table 2.6.3.4.* shall be the **minimum building water service pipe size.**

TOTAL WATER DEMAND in GPM (the sum of total GPM from above items – exempt Fire Sprinkler): _____.

`Verify that the total water demand is within you're the allowable water meter's capacity as noted in the table below, otherwise a meter upgrade will be required.

Water Meter Flow Table (subject to change as per manufacturer specifications)

Meter Size	Maximum Capacity (GPM)
5/8"	**20**
3/4"	**30**
1"	**50**
1-1/2"	**100**
2"	**160**

As per Fixture Unit Table 2.6.3.4. **Building Water Service Size = _____**

As per Water Meter Flow Table **Water Meter Size = _____**

CERTIFICATION: I certify that the information contained within this document is correct to the best of my knowledge.

Applicant/Agent Signature(s): _____ Print Name: _____ Date: _____
Applicant/Agent Signature(s): _____ Print Name: _____ Date: _____

This guide has been prepared for convenience only and is not a bylaw or legal document. If there are any discrepancies between this guide and the BC Building and BC Plumbing Code, the code shall prevail.