Colorado Springs Utilities
Customer Contract Administration
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Commercial Water Meter Sizing Form

Commercial is defined as all construction involving commercial and industrial development, including all residential housing equal to or greater than two (2) living units with one common meter and/or any separate irrigation meter. Colorado Springs Utilities reserves the right to request a Commercial Water Meter Sizing Form to verify water capacity and demand requirements, and must be submitted and approved prior to accepting payment for Development Charges/Fees and executing a utility service contract. If you are seeking an Irrigation Only service connection, use the Commercial Water Meter Sizing – Irrigation Only form.

Review Process

Sizing of water meters will be based upon the peak flow rate for the system. Please complete and submit this form along with proposed plumbing and irrigation plan (if combined system) for the service location to Customer Contract Administration, Pikes Peak Regional Development Center, Suite 210 (second floor). Submittals may also be sent via email to cca@csu.org. If submitting electronically please thoroughly identify the address and project information. You may refer to our current Water Line Extension and Service Standards for additional information regarding service line and meter sizing specifications.

Customer/Project Information

To ensure timely processing of your application, please provide all requested information.

Owner/Applicant Name: _____ **Phone #:** _____
(Print Name)

Service Address: _____ **TSN:** _____
(Address issued by PPRBD) *(Tax Schedule Number)*

Legal Description: _____

Use of Facility: _____

Domestic Use Only: ☐ **Combined Domestic/Irrigation Use:** ☐

Water Meter Sizing Information

Water meter approval methodology is based on the cumulative peak flow rates of the domestic and/or irrigation supply, in accordance with the American Water Works Association's (AWWA) maximum flow rate specifications for a compound displacement water meter as shown in Table 1.

Table 1 AWWA Maximum Flow Rates

Meter Size	Max Flow Rate
¾"	30 GPM
1"	50 GPM
1.5"	100 GPM
2"	160 GPM
3"	320 GPM
4"	500 GPM
(Compound Displacement Water Meter)	

Any new or modified commercial service connection requires an approved Utility Service Plan.

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Plumbing Fixture Data Sheet

Step 1 Input all existing and proposed plumbing fixtures in the table below and multiply by IPC Load Value to determine total Water Supply Fixture Units (WSFU). Total WSFU value will be used to determine domestic peak flow rates on page 5.

All listed fixture values are from IPC Table 103.3(2). Please include any unlisted fixtures in the Other rows below. Loads should be assumed by comparing the fixture to one listed that uses water in similar quantities and at similar rates.

Fixture Type		**Number of Fixtures**			**Total**		**IPC Load Value** (60 PSI)		**IPC Total Fixture Units**
Rev. 5-1-2017		*Existing*	*Proposed*				*Hot and Cold*		*WSFU*
Bathroom Group *(WC – Lav – Bathtub)*	Flush Valve	(	+)	=		X	8	=	
	Flush Tank	(	+)	=		X	3.6	=	
Bathtub	Public	(	+)	=		X	4	=	
	Private	(	+)	=		X	1.4	=	
Dishwasher		(	+)	=		X	1.4	=	
Drinking Fountain		(	+)	=		X	.25	=	
Kitchen Sink	Public	(	+)	=		X	4	=	
	Private	(	+)	=		X	1.4	=	
Laundry Tray		(	+)	=		X	1.4	=	
Lavatory	Public	(	+)	=		X	2	=	
	Private	(	+)	=		X	.7	=	
Service Sink/Mop Basin		(	+)	=		X	3	=	
Shower Head	Public	(	+)	=		X	4	=	
	Private	(	+)	=		X	1.4	=	
Urinal	1" Flush Valve	(	+)	=		X	10	=	
	¾" Flush Valve	(	+)	=		X	5	=	
	Flush Tank	(	+)	=		X	3	=	
Washing Machine	8 lb. (Public)	(	+)	=		X	3.0	=	
	8 lb. (Private)	(	+)	=		X	1.4	=	
	15 lb.	(	+)	=		X	4	=	
Water Closet (Flush Valve)	Public	(	+)	=		X	10	=	
	Private	(	+)	=		X	6	=	
Water Closet (Tank Type)	Public	(	+)	=		X	5	=	
	Private	(	+)	=		X	2.2	=	
	Flushometer	(	+)	=		X	2	=	
Hose Bibb/Wall Hydrant	1/2"	(	+)	=		X	5	=	
	3/4"	(	+)	=		X	10	=	
Other		(	+)	=		X		=	
Other		(	+)	=		X		=	
Other		(	+)	=		X		=	
Other		(	+)	=		X		=	
Other		(	+)	=		X		=	
							Total Fixture Units (WSFU)	=	

Refer to IPC Table 103.3 (3) on Page 5 to convert the WSFU total to peak GPM.

Step 2 **Will Booster Pump(s) be used for the domestic system?**
If yes, please provide peak pumping capacity (GPM) and information on any water fixtures that will bypass the booster pump(s).

Y ☐ N ☐ **Peak Capacity** = _____GPM

Step 3 **Any process water or special use water not included in above fixtures?**
If yes, please list type and peak GPM demand.
Type/Description: _____

Y ☐ N ☐ **Peak Demand** = _____GPM

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Irrigation Demand Worksheet

This worksheet is intended for use in conjunction with the Plumbing Fixture Data Sheet for combined domestic and irrigation services. For dedicated irrigation meters, we offer a Commercial Water Meter Sizing - Irrigation Only form for your convenience. Please proceed to the next page if this application is specifically for domestic service.

Step 1: **Select calculation method →** **Actual Demand (AD)** ☐ *(Proceed to Step 2)* **OR** ***Design Criteria (DC)** ☐ *(Proceed to Step 3)*

Actual Demand Example

This example illustrates a three-zone system with zones A and B running simultaneously, and C independently. To determine peak GPM: zone A + B operating together yields demand of 40 GPM (30 + 10); zone C yields demand of 30 GPM. Meter is sized to peak demand of 40 GPM for system. Appropriate meter size is 1 inch.

Zone	# Heads	GPM (per head)	Peak GPM per Zone
A	30	1	30
B	20	0.5	10
C	20	1.5	30

Example: Zone **A** + Zone **B** + Zone _____ = **30** GPM + **10** GPM + _____ = **40** GPM Peak Irrigation System Demand

Step 2: **AD Method - Please provide requested information in table below**
DC Method – Proceed to Step 3

Zone	# Heads	GPM (per Head)	Peak GPM per Zone

Step 3 **For DC Method - Enter Design Criteria Peak Irrigation Demand →** _____ **GPM**

**By selecting the DC method for Irrigation Demand reporting, Applicant/Owner agrees to have empowered the Applicant (if other) to submit the information on their behalf and to the accuracy of the irrigation peak demand value reported herein. The DC peak demand value will be used in lieu of an Approved Final Irrigation Plan submittal for the purposes of this form.*

AD Method - Enter Peak Irrigation Demand by identifying which zones will be operating together

Zone ____ **+ Zone** ____ **+ Zone** ____ **=** ____ **GPM + ____GPM + ____GPM =** _____ **GPM Peak Irrigation Demand**

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Summary Sheet

The Summary Sheet serves as a final calculation to determine and evaluate overall peak flow rates and demand requirements based on information provided on previous worksheets within this document. Please provide ***all*** requested information.

Flow Rate Information

To determine the Peak Domestic Flow Rate, convert the WSFU total from page 2 to GPM using IPC Table 103.3 (3) on page 5, and add GPM for special process water and/or booster pump capacity from Page 2.

Domestic Flow (DF):	A)	Normal Flow Rate =	_____ GPM	
	B)	Peak Flow Rate =	_____ GPM	
Irrigation Flow (IF):	C)	Normal Flow Rate =	_____ GPM	☐ *Check Box if DC Method Used*
	D)	Peak Flow Rate =	_____ GPM	
Total Irrigation and Domestic (DF) + (IF):		Normal Flow Rate (A + C) =	_____ GPM	
		Peak Flow Rate (B + D) =	_____ GPM	

Tap, Service Line and Meter Information

Tap **Size:** _____ **Status:** ☐ Existing ☐ Proposed

Service Line **Size:** _____ **Material:** _____ **Status:** ☐ Existing ☐ Proposed

Total Developed Length: _____ **Feet**

Please refer to our Water Line and Extension & Service Standards for permissible tap, service line and meter size configurations.

Meter **Requested Meter Size:** _____ Inch **Status:** ☐ Existing ☐ Proposed

Meter Location: Pit/Vault ☐ Mechanical Room ☐ *(Requires floor drain)* Other ☐ _____ *(Please specify location)*

Backflow Pressure Loss (BPL) **(***Based on make/model):* _____ psi *(Located in manufacturer's specification manuals)*

All requests require submittal of a completed Backflow Assembly Plan Review Form to the Backflow Prevention team at crossconnection@csu.org for review and approval.

Additional Customer Comments

Owner/Applicant has read and understands the application instructions and certifies that all information herein is accurate to the best of their knowledge and belief. Approval of the requested meter size is based solely on the information provided within this application, and such determination is at the sole discretion of Colorado Springs Utilities. Applicant/Owner hereby agrees to indemnify Colorado Springs Utilities from any and all claims, damages, losses and/or costs arising out of, or related to any misinformation, change or alteration of any information provided in this document. Any change in use, change in occupancy or modifications to the facilities served by the water meter that result in increased water demands exceeding the meter's maximum flow rates as shown on page five, Table 5.1 of this document will require the Owner(s) to increase the meter size pursuant to Utilities Rules and Regulations. Authorized submission to Colorado Springs Utilities of the provided information herein indicates that Applicant/Owner accepts the above conditions.

Owner/Applicant Signature	**Print Name**	**Date**

IPC TABLE E103.3(3) TABLE FOR ESTIMATING DEMAND

SUPPLY SYSTEMS PREDOMINANTLY FOR FLUSH TANKS			SUPPLY SYSTEMS PREDOMINANTLY FOR FLUSH VALVES		
Load	Demand		Load	Demand	
(Water supply fixture units)	(Gallons per minute)	(Cubic feet per minute)	(Water supply fixture units)	(Gallons per minute)	(Cubic feet per minute)
1	3.0	0.04104	—	—	—
2	5.0	0.0684	—	—	—
3	6.5	0.86892	—	—	—
4	8.0	1.06944	—	—	—
5	9.4	1.256592	5	15.0	2.0052
6	10.7	1.430376	6	17.4	2.326032
7	11.8	1.577424	7	19.8	2.646364
8	12.8	1.711104	8	22.2	2.967696
9	13.7	1.831416	9	24.6	3.288528
10	14.6	1.951728	10	27.0	3.60936
11	15.4	2.058672	11	27.8	3.716304
12	16.0	2.13888	12	28.6	3.823248
13	16.5	2.20572	13	29.4	3.930192
14	17.0	2.27256	14	30.2	4.037136
15	17.5	2.3394	15	31.0	4.14408
16	18.0	2.90624	16	31.8	4.241024
17	18.4	2.459712	17	32.6	4.357968
18	18.8	2.513184	18	33.4	4.464912
19	19.2	2.566656	19	34.2	4.571856
20	19.6	2.620128	20	35.0	4.6788
25	21.5	2.87412	25	38.0	5.07984
30	23.3	3.114744	30	42.0	5.61356
35	24.9	3.328632	35	44.0	5.88192
40	26.3	3.515784	40	46.0	6.14928
45	27.7	3.702936	45	48.0	6.41664
50	29.1	3.890088	50	50.0	6.684
60	32.0	4.27776	60	54.0	7.21872
70	35.0	4.6788	70	58.0	7.75344
80	38.0	5.07984	80	61.2	8.181216
90	41.0	5.48088	90	64.3	8.595624
100	43.5	5.81508	100	67.5	9.0234
120	48.0	6.41664	120	73.0	9.75864
140	52.5	7.0182	140	77.0	10.29336
160	57.0	7.61976	160	81.0	10.82808
180	61.0	8.15448	180	85.5	11.42964
200	65.0	8.6892	200	90.0	12.0312
225	70.0	9.3576	225	95.5	12.76644
250	75.0	10.026	250	101.0	13.50168
275	80.0	10.6944	275	104.5	13.96956
300	85.0	11.3628	300	108.0	14.43744
400	105.0	14.0364	400	127.0	16.97736
500	124.0	16.57632	500	143.0	19.11624
750	170.0	22.7256	750	177.0	23.66136
1,000	208.0	27.80544	1,000	208.0	27.80544
1,250	239.0	31.94952	1,250	239.0	31.94952
1,500	269.0	35.95992	1,500	269.0	35.95992
1,750	297.0	39.70296	1,750	297.0	39.70296
2,000	325.0	43.446	2,000	325.0	43.446
2,500	380.0	50.7984	2,500	380.0	50.7984
3,000	433.0	57.88344	3,000	433.0	57.88344
4,000	525.0	70.182	4,000	525.0	70.182
5,000	593.0	79.27224	5,000	593.0	79.27224