

OBC Fire Flow Calculation

Calculations based on Ontario Building Code Division B A.3.2.5.7 Water Supply

Project Name: Data Input by:

Review by:

Sept 2025 Jeff Homer Kyle Nielissen

Water Available for Fire Fighting Purposes $Q = K \cdot V \cdot \mathcal{S}_{tot}$

Fire Flow Calculation #:

Building Description: Building Occupancy Group: Construction Type

Boat Storage Group F, Div 2 - Medium Hazard Non-combustible

Area = Max Height =

±2,900 m²

Q = Minimum Supply of Water in Litres K = Water Supply Coefficient from Table 1 (below) V = Total Building Volume in Cubic Metres $S_{\text{tot}} = \text{Total of Spatial Coefficients Values from Property Line Exposures on All Sides}$ $S_{\text{tot}} = \text{Total of Spatial Coefficients Values from Property Line Exposures on All Sides}$ $S_{\text{tot}} = \text{1.0 + S}_{\text{side}} + \text{S}_{\text{cisc}} + \text{S}_{\text{cisc}}, S_{\text{tot}} \text{ not to exceed 2.0}$ Refer to the Office of the Fire Marshal (OFM) Fire Protection Water Supply Guideline for Part 3

Step	Task	Term			Optio	ns		Value Used	Units	Total Fire Flow (L/min)
		1				oup or Divis				
		Type of Construction	A-2, B-1 , B-2, B-3, C, D	A-4, F-3	A-1, A-3	E, F-2	F-1			
		Building is of non-combustible construction with fire separations and fire resistance ratings provided in accordance with Subsection 3.2.2. including loadbearing walls, columns, and arches	10	12	14	17	23			
1	Determine Water Supply Coefficient K from Table 1	Building is of non-combustible construction or of heavy timber construction conforming to Article 3.1.4.6. Floor Assemblies are fire separations but no fire-resistance rating. Fool assemblies, mezzanines, loadbearing walls, columns and arches do not have a fire-resistance rating.	16	19	22	27	37	47.0		
	*	Building is of combustible construction with fire separations and fire- resistance rating provided in accordance with Subsection 3.2.2. Including loadbearing walls, columns, and arches. Non-combustible construction may be used in lieu of fire-resistance rating where permitted in Subsection 3.2.2.	18	22	25	31	41	17.0		
		Building is of combustible construction. Floor assemblies are fire separation but with no fire-resistance rating. Roof assemblies, loadbearing walls, columns and arches do not have a fire resistance rating.	23	28	32	39	53			
					Boat Sto	rage				
2	Determine V, the Volume of the Building	Total Volume of Building (Including Basement) measured to the underside of the roof	# Floors Gross Fl Width = Length = Avg Heig	oor Area ht =		1 2,900 36.6 79.3 8.7	m m m	25,200	m³	
			Total Vo			25,200		400000000000000000000000000000000000000		
3	Determine S _{tot} , the total Spatial Coefficient from Figure 1	Exposure Distance to Property Limit (Minimum of 1.0, Maximum of 2.0)	Side 1 Side 2 Side 3 Side 4	Side		>15m >15m >15m >15m 10m	0 0 0 0	1.0		
4	Calculate Q	$Q = K \cdot V \cdot S_{tot}$	Q =	KVS=	: 17.0 ×	25200.0 × 1	.0 =	428,400	L	
5	oubbit 1 joss trate	1,800 One Storey Building with Area less than 600 m ² 2,700 L/min (if Q≤ 108,000 L) 3,600 L/min (if Q> 108,000 L and ≤135,000 L) 4,500 L/min (if Q> 135,000 L and ≤162,000 L) 5,400 L/min (if Q> 162,000 L and ≤190,000 L) 6,300 L/min (if Q> 190,000 L) 9,000 L/min (if Q> 270,000 L)								Required Fire Flow: 9,000 L/m
								ım Supply of W		428,400
6	Summary	Total Required Fire	Flow, ro	ounded	to neare					9,000
								Fire Flow (above ration of Fire Fl		150 30.0

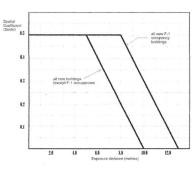


Figure 1 Spatial Coefficient vs Exposure Distance

Notes from the OFM Fire Protection Water Supply Guidelines for Part 3 $V = \text{all spaces below and above grade within a building, measured to the underside of the roof deck.} \\ \mathbf{S}_{tot} \text{ is a minimum of 1,0 and increases for each exposure, but need not exceed 2.0} \\ \text{Firewalls that divide a structure into two or more buildings can be considered to have a Saide of 0} \\$

<u>Summary</u>
Based on Table 2 of OBC A-3.2.5.7, the minimum required flow rate for fire protection is 9,000 L/min for 30 minutes.

The Township of Leeds and the Thousand Islands has an FUS Water Tanker Shuttle Accreditation of 444 IGPM (2,018 L/min). The nearest station is located at 1233 Prince Street, in Lansdowne, approximatly 5 km from the site, with a travel time of 6 minutes.

It will be necessary to store water onsite for fire protection, in a quantity of (9000 L/min - 2018 L/min) x 30 Minutes = 209,447 Litres. An onsite water supply, with a dry hydrant for fire department access, with a minimum 209 m³ capacity, is required.

1 IPGM = 4.546 L/min	
Superior Tanker Shuttle (IGPM)	444
Superior Tanker Shuttle (L/min)	2018
04	
Storage =	
Storage = (9000 L/min - 2018 L/min) x 30 minutes Storage (L) =	209,447

