

TABLE B2: FIRE FLOW REQUIREMENTS BASED ON FIRE UNDERWRITERS SURVEY(FUS) 2020

PROJECT: OTT-24006874-A0

Building: 1136 Gabriel Street



An estimate of the Fire Flow required for a given fire area may be estimated by:

$$F = 220 * C * \text{SQRT}(A)$$

where:

F = required fire flow in litres per minute

A = total floor area in m<sup>2</sup> (including all storeys, but excluding basements at least 50% below grade)

C = coefficient related to the type of construction

Task	Options	Multiplier	Input	Value Used	Fire Flow Total (L/min)
Choose Building Frame (C)	Wood Frame	1.5	Non-combustible Construction	0.8	
	Ordinary Construction	1			
	Non-combustible Construction	0.8			
	Fire Resistive Construction	0.6			
	Fourth Floor		335	1340.0 m²	
	Third Floor		335		
	Second Floor		335		
	First Floor		335		
	Basement (At least 50% below grade, not included)		335		
Fire Flow (F)	F = 220 * C * SQRT(A)				6,443
Fire Flow (F)	Rounded to nearest 1,000				6,000

## Reductions/Increases Due to Factors Effecting Burning

Task	Options	Multiplier			Input						Value Used	Fire Flow Change (L/min)	Fire Flow Total (L/min)
Choose Combustibility of Building Contents	Non-combustible	-25%			Limited Combustible						-15%	-900	5,100
	Limited Combustible	-15%											
	Combustible	0%											
	Free Burning	15%											
	Rapid Burning	25%											
Choose Reduction Due to Sprinkler System	Adequate Sprinkler Conforms to NFPA13	-30%			No Sprinkler						0%	0	5,100
	No Sprinkler	0%											
	Standard Water Supply for Fire Department Hose Line and for Sprinkler System	-10%			Not Standard Water Supply or Unavailable						0%	0	5,100
	Not Standard Water Supply or Unavailable	0%											
	Fully Supervised Sprinkler System	-10%			Not Fully Supervised or N/A						0%	0	5,100
	Not Fully Supervised or N/A	0%											
Choose Structure Exposure Distance	Exposures	Separation Dist (m)	Cond	Separation Condition	Exposed Wall type	Exposed Wall Length							
						Length (m)	No of Storeys	Length-Height Factor	Sub-Condition	Charge (%)	Total Charge (%)	Total Exposure Charge (L/min)	
	West	6.61	2	3.1 to 10	Type V	7.37	1	7.37	2A	15%	31%	1,581	6,681
	East	4.69	2	3.1 to 10	Type V	11.38	2	22.76	2B	16%			
	South	32.87	5	30.1 to 45	Type V	14.87	2	29.74	6	0%			
	North	39.05	5	30.1 to 45	Type V	30.42	1	30.42	6	0%			
Obtain Required Fire Flow	Total Required Fire Flow, Rounded to the Nearest 1,000 L/min =												7,000
	Total Required Fire Flow, L/s =												116.7

## Exposure Charges for Exposing Walls of Wood Frame Construction (from Table G5)

Type V	Wood Frame
Type IV-III (U)	Mass Timber or Ordinary with Unprotected Openings
Type IV-III (P)	Mass Timber or Ordinary with Protected Openings
Type II-I (U)	Noncombustible or Fire Resistive with Unprotected Openings
Type II-I (P)	Noncombustible or Fire Resistive with Protected Openings

## Conditions for Separation

Separation Dist	Condition
0m to 3m	1
3.1m to 10m	2
10.1m to 20m	3
20.1m to 30m	4
> 30.1m	5