

Sprinkler Heads & General Design Information
Residential Fire Sprinkler System

FKL Engineering Consultants Ltd.
 (cell) 604-618-0438, (email) fred@leemail.ca

Project Address :	(LWH) 3419 E 48th Ave., Vancouver	Date:
Installation Contractor :	General Fire Sprinkler Systems	August 9, 2019

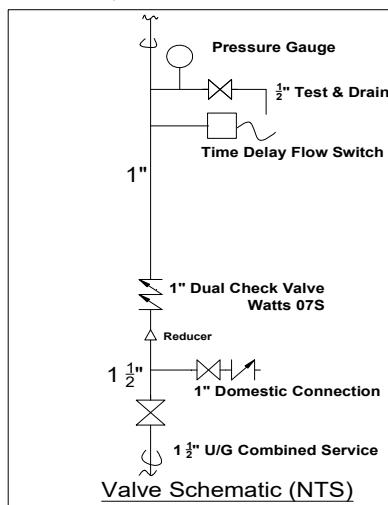
Manufacturer's Listed Minimum Design Flow & Pressure													
Type Selected	Style	Make Model	Temp . K	1@12x12 2@12x12 (gpm@psi)	1@14x14 2@14x14 (gpm@psi)	1@16x16 2@16x16 (gpm@psi)	1@18x18 2@18x18 (gpm@psi)	1@20x20 2@20x20 (gpm@psi)	Sym.	Bsmt Count	Main Count	2nd fl. Count	3rd fl. Count
	Pendent	Tyco LFII TY2234	155 4.9	13@7.0	13@7.0	13@7.0	17@12.0	20@16.7	●				
	Conceal Pendent	Tyco LFII TY3596	155 4.9	13@7.0	13@7.0	13@7.0	17@12.0	20@16.7	●				
	Pendent	Reliable F1/RES/49	155 4.9	13@7.0	13@7.0	13@7.0	17@12.0	20@16.6	●				
	Conceal Pendent	Reliable RFC 49	155 4.9	13@7.0	13@7.0	13@7.0	17@12.0	20@16.7	●				
	Conceal Pendent	Viking VK456	155 4.9	13@7.0	13@7.0	13@7.0	17@12.0	23@22.0	●				
	Pendent	Globe GL4910	155 4.9	13@7.0	14@8.2	14@8.2	17@12.0	20@16.7	●				
X	Conceal Pendent	Globe GL4906	155 4.9	13@7.0	13@7.0	13@7.0	17@12.0	20@16.7	●	7	8		
	Pendent	Victaulic V2740	155 4.9	12@7.8	13@7.0	13@7.0	17@12.0	20@16.7	●				
	Commercial Conc.Pend.	Tyco 3531 Reliable G4A	155 5.6	coverage=148 sq.ft per head, min. flow = 14.8 usgpm@7.0psi max. distance from walls - 7' 6"						●			
	Commercial Pendent	Tyco 3231 Globe 5601	155 5.6	coverage=148 sq.ft per head, min. flow = 14.8 usgpm@7.0psi max. distance from walls - 7' 6"						●			
	Sidewall	Tyco LFII Ty2334	155 4.4	12@8.7	14@10.1	16@13.2	N/A	N/A	◀				
	Sidewall	Reliable F1/RES/44	155 4.4	12@7.5	14@10.2	16@13.3	19@18.7		◀				
	Sidewall	Victaulic V2738	155 4.2	14@11.1	14@11.1	17@16.4	N/A	N/A	◀				
	Sidewall	Reliable RFS42	155 4.2	12@8.2	14@11.1	18@18.4	N/A	N/A	◀				
	Sidewall	Globe GL4431	155 4.4	13@8.7	15@11.6	16@13.2			◀				
	Commercial Sidewall	Tyco 3331 Reliable F1FR	155 5.6	coverage=148 sq.ft per head, min. flow = 14.8 usgpm@7.0psi max. from side walls - 7', max. from opposite wall - 14'						◀			
	Sidewall Hi-Temp.	Globe GL Series	200 5.6						▶				
X	Pendent Hi-Temp.	Globe GL Series	200 5.6						///	1			

General Notes:

1. Sprinkler system shall conform to the requirements of NFPA-13D, 2012 B.C.Building Code, V.B.B.L.2007
2. Verify all dimensions on site and coordinate with other trades for location of pipes and sprinklers
3. Exposed piping shall be type L copper & concealed piping shall be BlazeMaster protected with minimum 1/2" drywall.
4. Unsprinklered washroom shall be max. 55 sq.ft.
5. Unsprinklered closets max. 24 sq.ft. and the least dimension less than 3 ft and with drywall finish.
6. Unsprinklered crawl space shall be max. 3'-11" high and shall not be used for storage.
7. Install all piping so as to be drainable.
8. Piping run in outside wall/roof/deck assemblies shall be boxed in against any exposed sides with 2-1/2" R- 15 high density insulation and all joints sealed with expansion foams.
9. The sprinkler fire water shall be connected to the furthest toilet (flow thru. system), unless otherwise specified.

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Total Heads	16
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General Information:

City Water Supply (psi)	Static: 72	Residual: 63	@ 36 usgpm
Fire Pump	- NA -		

Sprinkler heads Coverage (ft x ft)

basmt fl	main fl	2nd fl	3rd fl
16x16	12x12	16x16	12x12

Demand (psi @ usgpm, 2 heads)

44.91 psi @ 31.44 usgpm	(Professional Engineers of BC F. K. LEE # 16918 BRITISH COLUMBIA ENGINEER 2019-08-09)
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HYDRAULIC CALCULATIONS

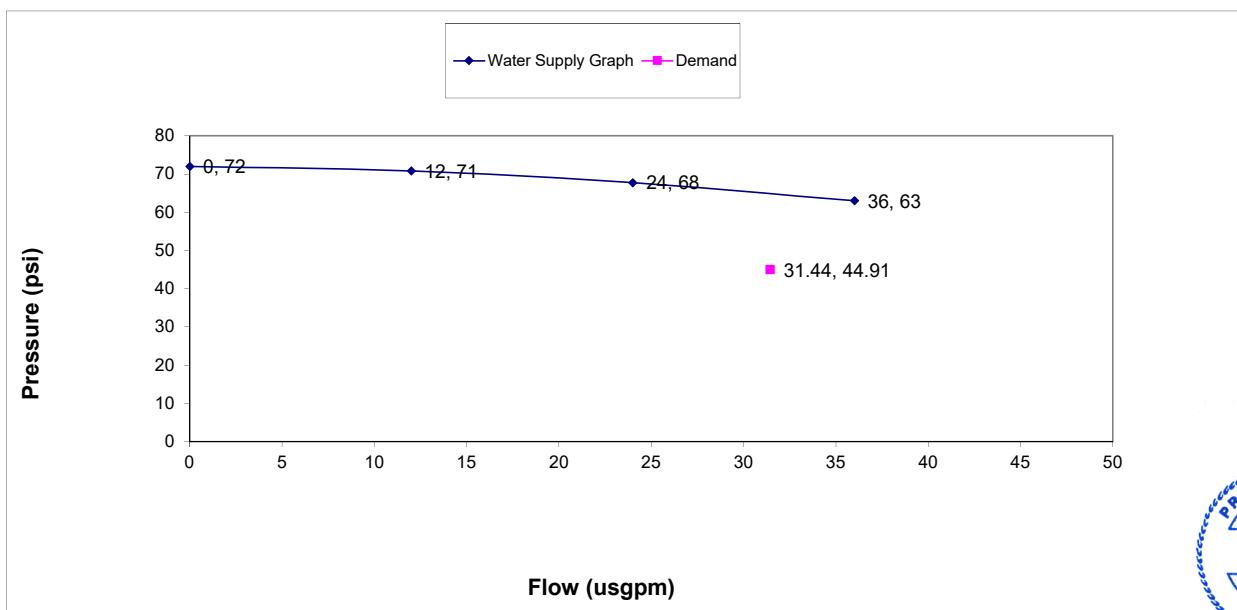
Address: (Laneway House) 3419 E 48th Ave., Vancouver

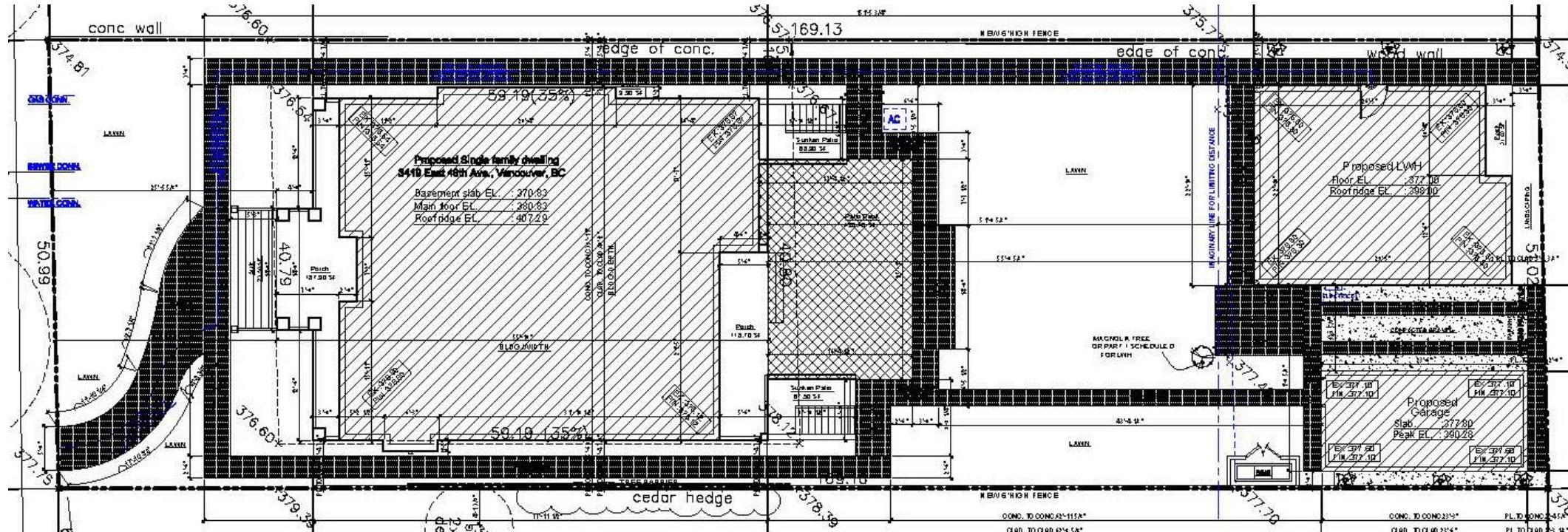
Date: 09-Aug-19

Make : Globe GL4906					Type: Conc. Pendent	Listed Flow/Pressure: <u>13.00</u> usgpm		<u>7.00</u>	psi							
Two Head Flow					K = 4.9	Coverage:(ftxft):		16x16								
Calculations			Hazen Williams C=150													
To		From		Domestic (usgpm)	Piping	Fittings			Pressure Loss (psi)							
Ref. Pt.	Elev (ft)	Ref. Pt.	Elev (ft)	Flow (usgpm)	Pipe ID (inch)	Pipe Mat.	Elbow 90	Tee Bran.	Ball Valve	Total eq. ft	Elev.	Fric. Ref.	Fric.	dual check & water meter	Total (psi)	
6	18	4	18	13.00	1.109	cpvc	1	1	0	12	22	0.00	0.65		7.65	
5	18	4	18	13.44	1.109	cpvc	0	1	0	1	4	0.00	0.13		7.65	
4	18	3	4	26.44	1.109	cpvc	5	6	0	28	93	6.09		10.24		23.98
3	4	2	4	26.44	5.0	1.025 copper L	2	0	0	5	10	0.00	1.62	8.0		33.59
2	4	1	0	31.44	1.263	polytube	0	1	1	115	119	1.74		9.58		44.91
				31.44					7.83			22.09			44.91	

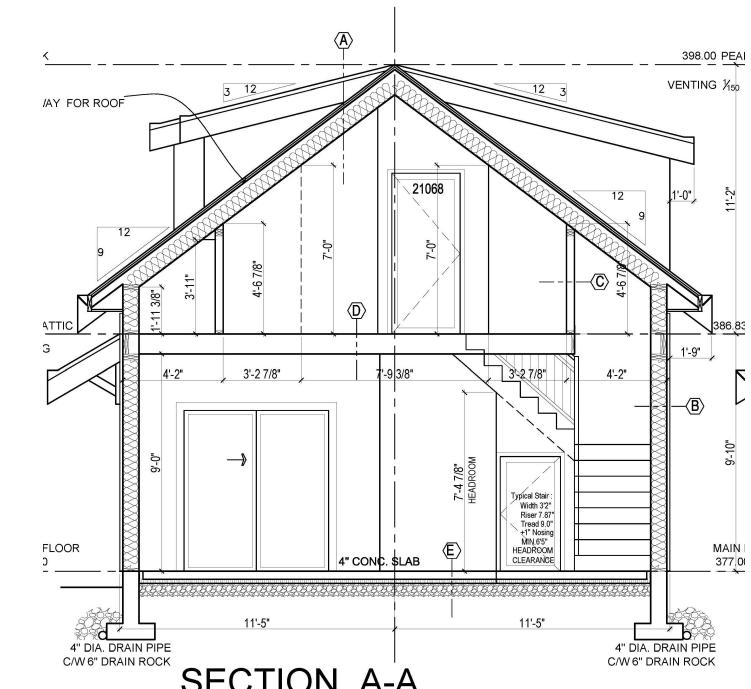
System Design Summary

Ref. Pt.	K	Elev. (ft)	Flow (usgpm)	Pressure (psi)	Coverage (ft x ft)
6	4.9	18	13.00	7.00	16x16
5	4.9	18	13.44	7.53	16x16
The sprinkler system flow is			26.44 usgpm		
The total system flow is			31.44 usgpm at 44.91 psi		
Static Pressure			72 psi		
Residual Pressure			63 psi at 36.00 usgpm		
Available Pressure			64.99 psi at 31.44 usgpm		
Operating Pressure			44.91 psi at 31.44 usgpm		
Pressure Remaining			20.08 psi		



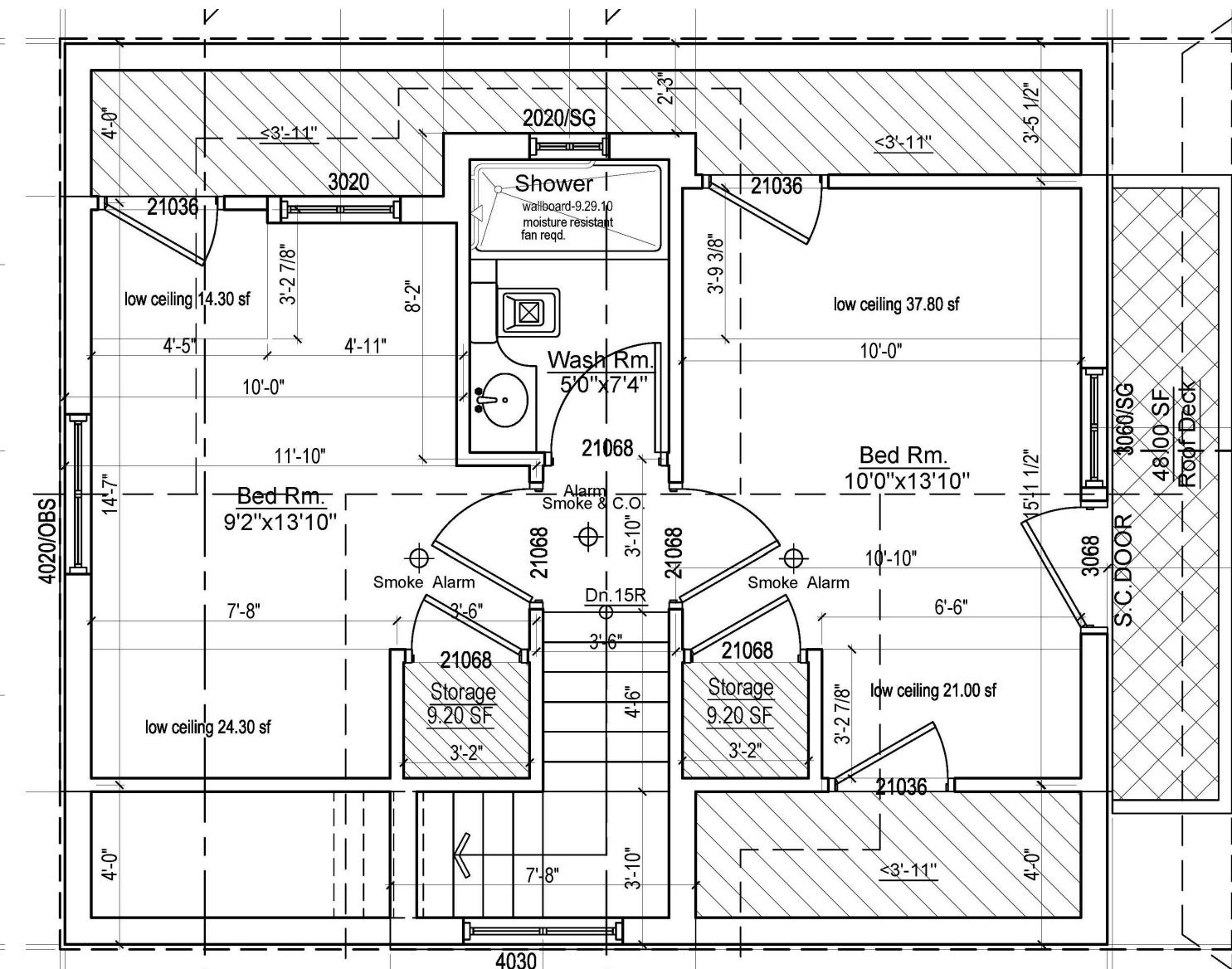
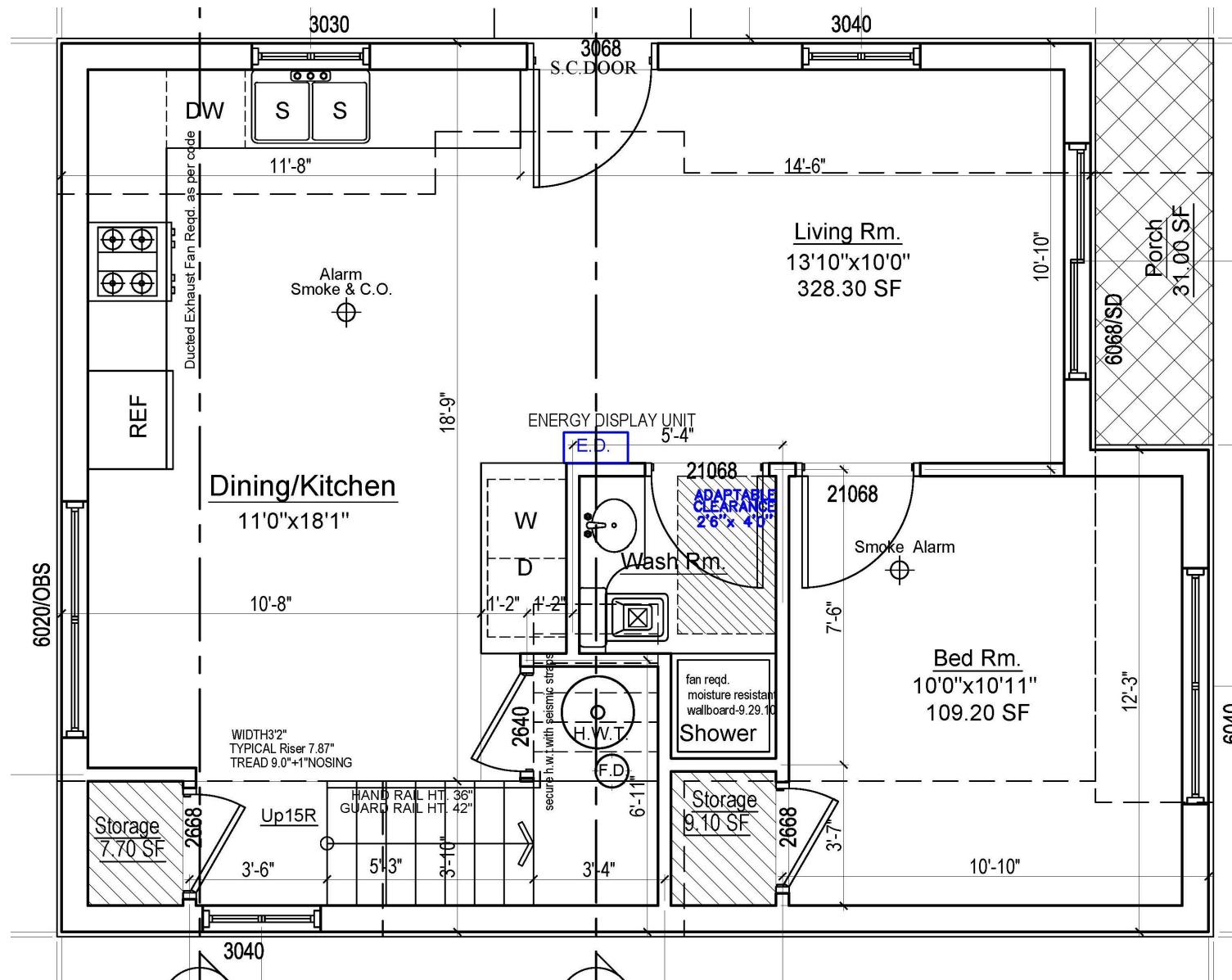


Site Plan (scale: 1/16"=1'-0")



Section (scale: 1/8"=1'-0")

FKL ENGINEERING <small>CONSULTANTS LTD</small>	DRAWING	FIRE SPRINKLER INSTALLATION CONTRACTOR			PROFESSIONAL SEAL	
	Fire Protection	General Fire Sprinklers, 778-858-3050				
	ADDRESS	3419 E 48th Ave., LWH		CITY		Vancouver
	DATE	August 9th, 2019		PAGE		1 / 2
	phone: 604-618-0438	NOTES				
	email: fred@leemail.ca					



HEAD MODEL ● Globe GL4906	HEAD TYPE Concealed Pendant	SPECIFICATIONS 155F, k=4.9	COVERAGE 16' x 16'	PROFESSIONAL SEAL
FKL ENGINEERING CONSULTANTS LTD	DRAWING Fire Protection	ADDRESS 3419 E 48th Ave., LWH	FIRE SPRINKLER INSTALLATION CONTRACTOR General Fire Sprinklers, 778-858-3050	<p>PROFESSIONAL FIRE SPRINKLER F. K. LEE # 16918 BRITISH COLUMBIA ENGINEER 2019-08-09</p>
phone: 604-618-0438 email: fred@leemail.ca	DATE August 9th, 2019	CITY Vancouver	PAGE 2 / 2	
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