



COMMERCIAL FIRE-FLOW WORKSHEET



For all buildings other than single family, duplex, private garage and agricultural buildings.

Permit Application # _____ Reviewed by: _____ Date: _____

Project Address: _____

Applicant Name: _____

EXEMPT Reason: _____

Substantial Alteration

1. Enter from the Alerts screen in PALS+ any percentage accumulative data regarding fire flow for the building. _____

Building Addition

- 2. Calculate valuation of the existing building using "PALS+" cost per square foot values: _____
- 3. Calculate valuation for area of addition using "PALS+" cost per square foot values or contract valuation whichever is greatest: _____
- 4. Divide line 3 by line 2 multiply by 100 = _____

Tenant Improvement of Interior Remodel

- 5. Calculate valuation of the existing building using "PALS+" cost per square foot values: _____
- 6. Determine the extent of alteration per the policy for remodel valuation: (Minor-20%, Medium-40%, Major-60%, Full-80%).
- 7. Calculate valuation for area of remodel using the percentage from line 6 times the "PALS+" cost per square foot values or contract valuation, whichever is greatest. _____
- 8. Divide line 7 by line 5 and multiply by 100 = _____

Total

9. Total accumulative percentage of substantial alteration is the sum of lines 1, 4 and 8. If greater than 40%, fire flow is required. _____

Note: 40% threshold is accumulative from November 2, 1992.

Required Fire Flow

- 1. Building area: _____
- 2. Type of Construction: _____
- 3. Fire flow from Table 17C.60-2 _____ gpm for _____ hours
- 4. Credits
 - Urban: Sprinklers: 75% 50% To Minimum
 - Rural: Monitored alarm - 250 gpm 1 Off-site water - 250 gpm 30' setbacks - 250 gpm
 - Limited Supply Sprinklers - 750 gpm 2
- 5. Required Fire Flow: _____ gpm for _____ hrs
- 6. Fire Flow available (from purveyor letter) must equal or exceed line 5. _____ gpm for _____ hrs
- 7. Hydrants: Existing Hydrants Adequate Additional Hydrants Required

¹ Monitored alarm must be used when using rural credits.

² Can only be used when starting fire flow is 1,250 gpm or less.

TABLE 17C.60-3								
Required Fire Flow for Buildings Other than One- and Two-Family Dwellings (Group R Division 3) and Private Garages and Agricultural Buildings (Group U)								
Urban Area Only		Construction Type (1)					Rural Area Only	
DURATION (HOURS)	REQUIRED FIRE FLOW (GPM)	IA and IB	IIA and IIIA	IV-H.T. VA	IIB IIIB	VB	REQUIRED FIRE FLOW (GPM)	DURATION (HOURS)
		WHEN TOTAL FIRE AREA IN SQUARE FEET (3) IS EQUAL TO OR LESS THAN THESE VALUES						
1	1,500	500	500	500	500	500	0 (4)	
1	1,500	5,500	3,700	2,600	2,100	1,600	500	¾
1	1,500	11,100	6,800	4,700	3,500	2,400	750	¾
1	1,500	15,900	9,300	6,200	4,500	2,900	1,000	1
1	1,500	22,700	12,700	8,200	5,900	3,600	1,250	1
1½	1,750	30,200	17,000	10,900	7,900	4,800	1,500	1
1½	2,000	38,700	21,800	12,900	9,800	6,200	1,750	1½
2	2,250	48,300	24,200	17,400	12,600	7,700	2,000	1½
2	2,500	59,000	33,200	21,300	15,400	9,400	2,250	2
2	2,750	70,900	39,700	25,500	18,400	11,300	2,500	2
2	3,000	83,700	47,100	30,100	21,800	13,400	2,750	2
3	3,250	97,700	54,900	35,200	25,900	15,600	3,000	2
3	3,500	112,700	63,400	40,600	29,300	18,000	3,250	3
3	3,750	128,700	72,400	46,400	33,500	20,600	3,500	3
4	4,000	145,900	82,100	52,500	37,900	23,300	3,750	3
4	4,250	164,200	92,400	59,100	42,700	26,300	4,000	4
4	4,500	184,400	103,100	66,000	47,700	29,300	4,250	4
4	4,750	203,700	114,600	73,300	53,000	32,600	4,500	4
4	5,000	225,200	126,700	81,100	58,600	36,000	4,750	4
4	5,250	247,700	139,400	89,200	65,400	39,600	5,000	4
4	5,500	271,200	152,600	97,700	70,600	43,400	5,250	4
4	5,750	295,900	166,500	106,500	77,000	47,400	5,500	4
4	6,000	GREATER	GREATER	115,800	83,700	51,500	5,750	4
4	6,250			125,500	90,600	55,700	6,000	4
4	6,500			135,500	97,900	60,200	6,250	4
4	6,750			145,800	106,800	64,800	6,500	4
4	7,000			156,700	113,200	69,600	6,750	4
4	7,250			167,900	121,300	74,600	7,000	4
4	7,500			179,400	129,600	79,800	7,250	4
4	7,750			191,400	138,300	85,100	7,500	4
4	8,000			GREATER	GREATER	GREATER	7,750	4

- (1) Types of construction are based upon IBC.
- (2) In Types I and II-FR construction, only the three largest successive floor areas shall be used.
- (3) Each portion of a building shall be considered as a separate fire area when separated by one or more four-hour area separation walls with no openings and a 30-inch parapet, constructed in accordance with the Building Code.
- (4) Shall not apply to IBC "H" occupancy classifications.