

FAIRFIELD FIRE DEPARTMENT

STANDARD 93-42

FIRE FLOW ESTIMATES FOR EXISTING BUILDINGS

This standard shall be used to determine if automatic sprinkler protection is necessary when existing buildings are added to, or altered, or if the occupancy classification is changed.

AUTHORITY: Chapter 8, Section 8.1 City Ordinance, California Fire Code (C.F.C.), and Section 101.4.

DEFINITIONS:

APPROVED refers to approval by the fire chief as the result of investigation and tests conducted by the fire chief or by reason of accepted principles or tests by national authorities, or technical or scientific organization.

AUTHORITY HAVING JURISDICTION is any state, county, city or town, or district or other political subdivision adopting this code for use in its jurisdictional area.

P.C. # _____

Date: _____

OCCUPANCY TYPE _____

ADDRESS _____

FIRE AREA CONSIDERED

Ground Floor Area _____ X Number of Stories _____ = _____

1. Basic Fire Flow: $F = C \times \sqrt{A}$ _____ gpm (1)

F = Basic Fire Flow in gpm

C = Coefficient Related to Type of Construction

Type _____	C =	Type _____	C =
I.F.R., II F.R.	10.8	IIIN	18.0
II-1 hr.	12.6	IV H.T.	16.2
IIN	14.4	V-1 hr.	22.5
III-1 hr.	16.2	VN	27.0

A = Area of Three Largest Successive Stories

Type of I.F.R. and II F.R. Construction

Gross Area of All Stories -

Type II - 1 hr., INN, III-1 hr., IIIN,
IV H.T., V-1 hr., VN Construction

- 2. Occupancy Factor:
 Light Hazard - Subtract 25% of (1)
 Extra Hazard - Add 25% of (1)

Subtotal_____ gpm (2)

- 3. Automatic Sprinkler Credit -
 Subtract 25% of (2)
 If Light Hazard Occupancy and Type 1 F.R.,
 II F.R., II-1 hr. IIN Construction
 Subtract 50% of (2)

Subtotal_____ gpm (3)

- 4. Exposures:

0-10 ft. 25% max	1. (N) _____	add _____ %	
11-30 ft. 20% max			
31-60 ft. 15% max	2. (E) _____	add _____ %	
61-100 ft. 10% max.			
101-150 ft. 5% max.	3. (S) _____	add _____ %	
151 ft. or 0%			
4 - hr. wall	4. (W) _____	add _____ %	

Total (not to exceed 75% of (2)) _____ % _____ gpm (4)

- 5. If Wood Roof Covering - Add 500 gpm _____ gpm (5)
 EXCEPTION: Fire Retardant Wood Roof Coverings

FIRE FLOW (3) + (4) + (5) REQUIRED _____ gpm

NOTES:

LIGHT HAZARD OCCUPANCIES:

Apartments
Asylums
Churches
Clubs
Colleges and Universities
Dormitories
Dwellings
Hospitals
Hotels
Institutions
Libraries, Except Large Stack Room Areas
Museums
Nursing, Convalescent and Care Homes
Office Buildings
Prisons
Public Buildings
Rooming Houses
Schools
Tenements

EXTRA HAZARD OCCUPANCIES:

Aircraft Hangers
Chemical Works – Extra Hazard
Cotton Picker and Opening Operations
Explosives and Pyrotechnics Manufacturing
High Piled Combustible Storage in Excess of 21’ high
Linoleum and Oilcloth Manufacturing
Linseed Oil Mills
Oil Refineries
Paint Shops
Pyroxylin Plastic Manufacturing and Processing
Shade Cloth Manufacturing
Solvent Extracting
Varnish Works
Woodworking with Flammable Finish
(and other occupancies involving processing, mixing, storage and dispensing flammable and/or combustible liquids)

Guide to Construction Types

Type I F.R.	Exterior and interior walls, floors, roof – all
Type II F.R.	Same
Type II 1 hr.	Protected (one hour) steel construction
Type II N	Unprotected metal
Type III	Masonry exterior walls, wood frame interior walls, roof, etc.
Type IV H.T.	Masonry exterior walls, heavy timber structural members
Type V	Wood frame construction

Administrative Interpretation

When fire-rated walls, complying with the specifications of C.B.C., Section 503(c) are provided, the exposure penalties required by Item 4 shall be reduced by the following percentages:

One-hour	-	5%
Two-hour	-	10%
Three-hour	-	15%

(e.g. 10’ clearance with non-rated wall - 20%
10’ clearance with one-hour wall - 15%)