

FIBERBUILT UMBRELLA

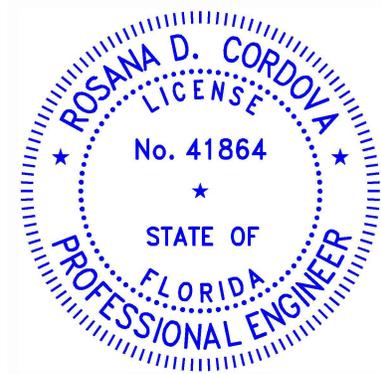
FIRE FLOW CALCULATIONS
CORDOVA RODRIGUEZ & ASSOC., INC.
6941 SW 196 Ave, Suite 28
Pembroke Pines, FL 33332

Prepared By:
Cordova Rodriguez & Assoc., Inc.
Prepared: July 23, 2024



Digitally signed
by Rosana D
Cordova
Date:
2024.08.09
16:26:32-04'00'

Rosana D Cordova



08/09/2024

Rosana D. Cordova, P.E.

Project Manager

Date: 08/09/2024

THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY ROSANA D. CORDOVA ON THE DATE ADJACENT TO THE SEAL. PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.



Fire Flow Test Results

Date of Test: 7/06/2023

PZ21-12000052

11/06/2024

Desirable residual pressure	20	PSI
Flow Hydrant		
Flow Pressure		psi
Flow Rate	1130	gpm

Static/Residual Hydrant

Residual Pressure	75	psi
Static Pressure	80	psi

Qr :	Flow available at the desirable residual pressure, in gpm	
Qf:	The sum of the flows from all hydrants, in gpm	1130
hr:	The difference in pressure between the static measured at the residual hydrant and the desired residual pressure, in psi	60
hf:	The difference between the static pressure and the residual pressure measured at the residual hydrant, in psi	5

Available Fire Flow Test

$Q_r = Q_f \times ((hr^{0.54}) / (hf^{0.54}))$

Qr = 4324 gpm

Per the following documentation the required fire flow is **1750 gpm**.

4324 gpm > 1750 gpm

Required Fire Flow Calculations

Fire flow is calculated based on the fire flow area of the building. The flow area is the total floor area of all floor levels of a building, except for Type I (443), Type I (332), and Type II (222), in which case the fire flow area is the largest three successive floors. The fire flow area should be determined based on the area between the surrounding exterior walls of each floor and the fire separation walls used to create separate buildings.

The minimum fire flow and flow duration for buildings other than one- and two-family dwellings shall be as specified in table 18.4.5.2.1.

Required fire flow shall be reduced by 75 percent when the building is protected throughout by an approved automatic sprinkler system. The resulting fire flow shall not be less than 1000 gpm (3785 L/min).

Required fire flow be reduced by 75 percent when the building is protected throughout by an approved automatic sprinkler system, which utilizes quick response sprinklers throughout. The resulting fire flow shall not be less than 600 gpm (2270 L/min).

Required fire flow for buildings protected by an approved automatic sprinkler system shall not exceed 2000 gpm (7571 L/min) for 2 hours.

Required fire flow for open parking structures that are not protected throughout by an approved automatic sprinkler system shall be reduced by 75 percent where all of the following conditions are met:

- (1) The structure complies with the building code.
- (2) The structure is of Type I or Type II construction.
- (3) The structure is provided with a Class I standpipe system in accordance with NFPA 14. Class I standpipe systems of the manual dry type shall be permitted.

Existing Ground Floor Area	=	71,417 sq. ft.
Existing Second Floor Area	=	18,739 sq. ft.
New Commercial Addition	=	21,492 sq. ft.
A	=	total floor area
A	=	111,648 sq. ft.
Required Fire Flow	=	7,000 gpm
Required Fire Flow Reduced by 75 percent	=	1,750 gpm

Table 18.4.5.2.1 Minimum Required Fire Flow and Flow Duration for Buildings

Fire Flow Area ft ² (× 0.0929 for m ²)					Fire Flow gpm [†] (× 3.785 for L/min)	Flow Duration (hours)
I(443), I(332), II(222)*	II(111), III(211)*	IV(2HH), V(111)*	II(000), III(200)*	V(000)*		
0-22,700	0-12,700	0-8200	0-5900	0-3600	1500	2
22,701-30,200	12,701-17,000	8201-10,900	5901-7900	3601-4800	1750	
30,201-38,700	17,001-21,800	10,901-12,900	7901-9800	4801-6200	2000	
38,701-48,300	21,801-24,200	12,901-17,400	9801-12,600	6201-7700	2250	
48,301-59,000	24,201-33,200	17,401-21,300	12,601-15,400	7701-9400	2500	
59,001-70,900	33,201-39,700	21,301-25,500	15,401-18,400	9401-11,300	2750	3
70,901-83,700	39,701-47,100	25,501-30,100	18,401-21,800	11,301-13,400	3000	
83,701-97,700	47,101-54,900	30,101-35,200	21,801-25,900	13,401-15,600	3250	
97,701-112,700	54,901-63,400	35,201-40,600	25,901-29,300	15,601-18,000	3500	
112,701-128,700	63,401-72,400	40,601-46,400	29,301-33,500	18,001-20,600	3750	
128,701-145,900	72,401-82,100	46,401-52,500	33,501-37,900	20,601-23,300	4000	4
145,901-164,200	82,101-92,400	52,501-59,100	37,901-42,700	23,301-26,300	4250	
164,201-183,400	92,401-103,100	59,101-66,000	42,701-47,700	26,301-29,300	4500	
183,401-203,700	103,101-114,600	66,001-73,300	47,701-53,000	29,301-32,600	4750	
203,701-225,200	114,601-126,700	73,301-81,100	53,001-58,600	32,601-36,000	5000	
225,201-247,700	126,701-139,400	81,101-89,200	58,601-65,400	36,001-39,600	5250	4
247,701-271,200	139,401-152,600	89,201-97,700	65,401-70,600	39,601-43,400	5500	
271,201-295,900	152,601-166,500	97,701-106,500	70,601-77,000	43,401-47,400	5750	
Greater than 295,900	Greater than 166,500	106,501-115,800	77,001-83,700	47,401-51,500	6000	
		115,801-125,500	83,701-90,600	51,501-55,700	6250	
		125,501-135,500	90,601-97,900	55,701-60,200	6500	4
		135,501-145,800	97,901-106,800	60,201-64,800	6750	
		145,801-156,700	106,801-113,200	64,801-69,600	7000	
		156,701-167,900	113,201-121,300	69,601-74,600	7250	
		167,901-179,400	121,301-129,600	74,601-79,800	7500	
		179,401-191,400	129,601-138,300	79,801-85,100	7750	4
		Greater than 191,400	Greater than 138,300	Greater than 85,100	8000	

*Types of construction are based on NFPA 220.

†Measured at 20 psi (139.9 kPa).



PZ21-12000052
11/06/2024

Fire Prevention Fire Hydrant Flow Test



City of Pompano Beach • Bureau of Fire Prevention
100 West Atlantic Boulevard, Room 220 Pompano Beach, FL 33060
Phone: (954) 786-4695

City of Pompano Beach Fire Prevention will WITNESS all fire hydrant flow test that are required for fire flow purposes.

- City of Pompano Beach Code of Ordinances Title IX Chapter 95 Section 95.14(G). Fire hydrant flow tests.
 - The Fire Department shall witness all hydrant flow tests as required for fire protection systems.
 - All fire flow tests shall be in accordance with NFPA 291 and Broward County Amendments F-112.
 - Broward County Amendments F-112(e) - The static pressure at the water main shall be determined by a recorded method for a minimum twenty-four (24) hour period.
 - Morning of fire Hydrant static/residue connection contractor to provide documents of test equipment certification.

Information:

Date:	JULY 6, 2023
Company Requesting Flow Test:	GALLO HERBERT ARCHITECTS
Contact Name:	VICTOR JOHNSON
Contact Phone Number:	(954) 914-9280
Email Address:	VICTOR.JOHNSON4006@YAHOO.COM
Associated Application Number:	
Associated Project Name:	FIBERBUILT UMBRELLA

Proposed Date/Time for Fire Hydrant Flow Test: (8am - 9am)

- Request Hydrant Flow Test minimum 72 hours in advance.
- Connection of Fire Hydrant for 24 hour static/residual must be between 0730hrs and 0830hrs.

Requested Date:	JULY 11	Time:	9:00AM
Alternate Date:		Time:	

Fire Hydrant Flow Test Location:

Hydrant Location - Static/Residual:	SE CORNER OF NW 23 RD AVE. & NW 2 ND ST.
Hydrant Location - Flow:	NW 23 RD AVE. JUST N OF ATLANTIC BLVD.

Fire Hydrant Flow Test Witness Fee:

There is a \$150.00 fee for performing each flow test. All tests will be completed within 5 business days. Please include map/sketch showing streets/cross streets & locations of flow and residual fire hydrants. Return flow test application to the Bureau of Fire Prevention with form of payment for \$150.00.

Make check and money orders payable to "CITY OF POMPANO BEACH"
If mailing in application with payment send to the address listed below.

Pompano Beach Fire Prevention
100 W. Atlantic Blvd. - Room 220
Pompano Beach, FL 33060

NOTE TO TREASURY: Post to 001-0000-367.30-00

Flow Test Equipment Certification:	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Date:	7/6/23
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Fire Hydrant Id	Flow Pitot PSI	Flow GPM	Static Pressure 24 hr. Low PSI	Static Pressure Before Flow	Residual PSI During Flow	Tip Size
	45	1130				
			52	80	75	
Total Hydrant Flow:						

- Fire Flow Data to be completed and entered on site.
- Fire flow data provided to Fire Prevention at a later date, must be signed/sealed by the Engineer of Record.

VICTOR JOHNSON
Person Conducting Flow Test:

JASON CONGER
Fire Inspector Witnessing Flow Test:

S R F PRESSURE @ 20 PSI
 80 75 1130 4323.51
 80 52 1130 1705.36

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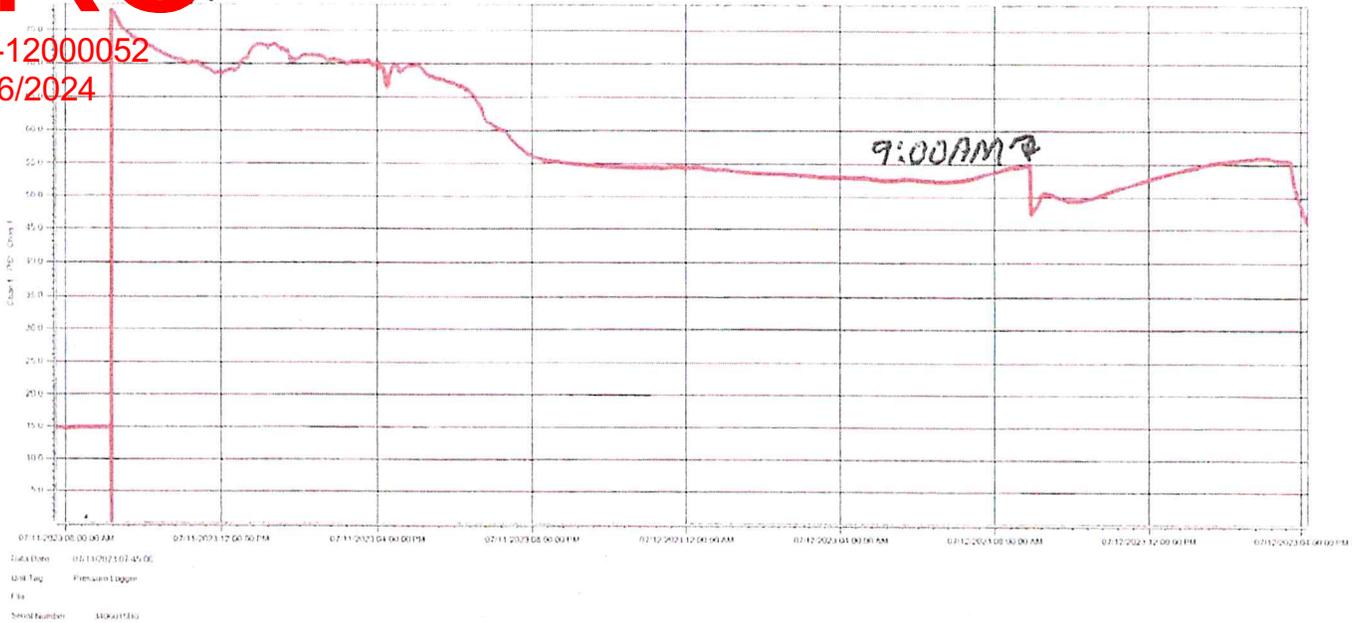


Table A.7.2.1.1 Cross-Reference of Building Construction Types

NFPA 5000	I(442)	I(332)	II(222)	II(111)	II(000)	III(211)	III(200)	IV(2HH)	V(111)	V(000)
UBC	—	I FR	II FR	II 1 hr	II N	III 1 hr	III N	IV HT	V 1 hr	V N
B/NBC	1A	1B	2A	2B	2C	3A	3B	4	5A	5B
SBC	I	II	—	IV 1 hr	IV UNP	V 1 hr	V UNP	III	VI 1 hr	VI UNP
IBC	—	IA	IB	IIA	IIB	IIIA	IIIB	IV	VA	VB

UBC: *Uniform Building Code.*

FR: Fire rated.

N: Nonsprinklered.

HT: Heavy timber.

B/NBC: *National Building Code.*

SBC: *Standard Building Code.*

UNP: Unprotected.

IBC: *International Building Code.*

Shaded text = Revisions. Δ = Text deletions and figure/table revisions. • = Section deletions. N = New material.