

**Fire Flow Calculations
For a Sprinkled Building
Palm Aire Tennis Courts
3100 W. Atlantic Boulevard
Pompano Beach, FL 33069**

These calculations are for a two story building, with a total square footage of 57,646 SF. The entire building is non-combustible construction.

Fire Flow Area = 57,646 SF

Based on Type II (000) Construction. Per NFPA 18.4 Fire Flow Requirements, the fire flow requirement is 5,000 gpm for 4 hours. See attached Table 18.4.5.2.1 Minimum Required Fire Flow and Flow Duration for Buildings.

NFPA 18.4 states that the required fire flow can be reduced by 75% if the building has automatic sprinklers.

5,000 gpm X 75% = 3,750 gpm (Fire Flow Credit)

5,000 gpm - 3,750 gpm = 1,250 gpm

Calculated Fire Flow Required = 1,250 gpm

Hydrant Flow Test Calculations:

The Hazen-Williams Formula is used to determine available flow at 25 psi of the a fire hydrant.

$$Q_R = (Q_F) (H_R)^{0.54} / (H_F)^{0.54}$$

Q_R = Discharge at 25 PSI, Residual Pressure
 Q_F = Measure Discharge
 H_R = Drop from Original Pressure to Specified Residual Pressure
 H_F = Measured Pressure Drop During Test

Using the test results performed by City of Pompano Beach provided from A-Team Fire Sprinklers the available flow was calculated. A copy of the test result has been included at the end of this report.

Q_F = 1,318 GPM

H_R = Test Residual Pressure - Specified Residual Pressure
= 75 PSI - 20 PSI
= 55 PSI

H_F = Static Pressure - Residual Pressure
= 80 PSI - 75 PSI
= 5 PSI

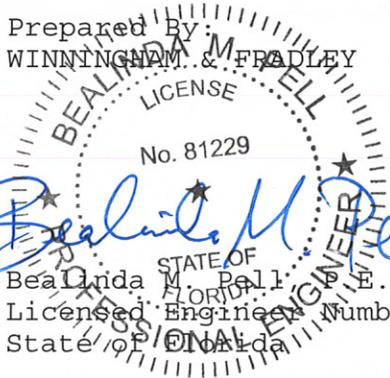
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$Q_R = (1318 \text{ GPM}) (55 \text{ PSI})^{0.54} / (5 \text{ PSI})^{0.54}$
10/02/2024

$Q_R \text{ at } 20 \text{ PSI} = 4,250 \text{ GPM}$

Results indicate that the required fire flow of 1,250 GPM can be provided at a minimum pressure of 20 PSI.

Prepared By:
WINNINGHAM & FRADLEY



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State of Florida

cc: Juan Linares

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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:	11/20/23
Company Requesting Flow Test:	A Team Fire Sprinklers
Contact Name:	Jeff Fleurinord
Contact Phone Number:	(305) 948-3473
Email Address:	jeff@ateamfire.com
Associated Application Number:	
Associated Project Name:	Palm Aire

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:	11/20	Time:	800
Alternate Date:	11/21	Time:	800

Fire Hydrant Flow Test Location:

Hydrant Location - Static/Residual:	NW 30 Av / Atlantic
Hydrant Location - Flow:	west on Atlantic

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 addressed 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	No	Date:	9/04/23
	/			

Fire Hydrant Id	Flow Pitot PSI	Flow GPM	Static Pressure 24 hr. Low PSI	Static Pressure Before Flow	Residual PSI During Flow	Tip Size
	50	1318				2 1/2
	50	1318				2 1/2
Total Hydrant Flow:			74	80 psi	75 psi	2 1/2
		2636				

- 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.

Person Conducting Flow Test:

Fire Inspector Witnessing Flow Test:



Fire Flow Report

City of Pompano Beach • Bureau of Fire Prevention
100 West Atlantic Boulevard, Room 220 Pompano Beach, FL 33060
Phone: (954) 786-4978



Date: 11/20/23 P.R.A. Number: _____

Project Name: Palm Aire

Project Address: 3100 W. Atlantic Blvd

Contact Name: Jeff Fleurinord

Company Name: A Team Fire Sprinklers

Mailing Address: 2338 NW 151st Street

City: Opa Locka State: FL Zip Code: 33054

Phone Number: (305) 948-3473 Fax Number: (888) 637-7504

Email Address: jeff@ateamfire.com

Proposed Building Information:

- ❖ Fire hydrant flow test must have been completed within a 12 month period for the address or project.
- ❖ Fire Flow. The flow rate of a water supply, measured at 20 psi residual pressure that is available for firefighting.
- ❖ Fire Flow Area. The floor area, in square feet, used to determine the required fire flow.
- ❖ A reduction in required fire flow of 75 percent shall be permitted when the building is protected throughout by an approved automatic sprinkler system. The resulting fire flow shall not be less than **1000 gpm**.

Building Type and Size – As per NFPA Building Type Classifications (Refer to NFPA 1 chapter 18, Table 18.4.5.1.2 and Annex I)

Building Construction Type:	<u>Non-Combustible</u>
Gross Square Footage (Fire Flow Area):	<u>57,646</u>
Construction Type I(442), I(332), II(222) Square Footage of three largest floors:	<u>II (000)</u>
Building Sprinkled: Yes: <input checked="" type="checkbox"/> No: <input type="checkbox"/>	
Required Fire Flow (GPM):	<u>5000</u>
Fire Flow 75% Reduction (GPM):	<u>1250</u>
Number of Hydrant Required:	<u>2</u>

Construction Cross Reference:	
I(442)	
I(322)	IA
II(222)	IB
II(111)	IIA
II(000)	IIB
III(211)	IIIA
III(200)	IIIB
IV(2HH)	IV
V(111)	VA
V(000)	VB

New Site Development:

- Label all existing/proposed water main sizes and location.
- Point of connections to public water.
 - Minimum two connections (looped system) for projects with a combination of multiple fire hydrants or systems that supply hydrants, fire sprinklers and domestic water supply.
- Fire hydrants and fire sprinkler supplies must have a separate taps on a looped supply.
- Location of minimum required fire hydrants.
 - Private hydrants painted silver.
 - Blue road marker in center of road lane.
- Location/size of fire sprinkler undergrounds.
- Location of fire sprinkler fire department connection.
 - Red road marker in center of road lane.