



**CITY OF HOUSTON
PUBLIC WORKS & ENGINEERING
DEPARTMENT**
2010 Fire Hydrant Certification
NOTICE OF REQUEST FOR QUALIFICATIONS

**OFFICE OF CITY
ENGINEER**
18th floor, 611 Walker
Houston, Texas 77002

FIRE HYDRANTS

Q23523

The City of Houston Public Works & Engineering Department is soliciting applications from qualified suppliers capable of providing fire hydrants and parts in accordance with City of Houston Standard Specifications Section 02520 and 02520-S attached.

Please review the application for Certificate of Responsibility below. This application must be submitted by all potential bidders for fire hydrants and parts for approval and certification. This application must be completed, submitted in duplicate, and time stamped in **on or before 5:00 p.m. CST, Thursday, January 14, 2010** to the address listed below. Applications received after this date will not be considered in the certification or the bidding process. Faxed applications will not be accepted. If the application is mailed, the potential bidders are cautioned to ensure the application is received at the place, date and time established.

**City of Houston
Attention: Kathlie Jeng-Bulloch, P.E., D. WRE
Managing Engineer
Public Works and Engineering Department
Office of City Engineer
611 Walker, 1st Floor
Houston, TX 77002
C.O.B. 5:00 p.m. 01/14/10**

SCOPE OF WORK/SERVICES

1.0 Pre-Submittal Meeting:

There will be a follow up (non-mandatory) meeting held at **City of Houston Public Works Department, 611 Walker, Houston, TX, 77002, 18th Floor Conference Room at 2:30 p.m. to 5:30 p.m. Wednesday, January 6, 2010**. The purpose of this meeting is to explain both the application and subsequent certification processes. Only those questions submitted in writing prior to or during this meeting will be evaluated for clarification.

2.0 General:

- 2.1 Council Motion 84-77 establishes a "Certification" requirement for fire hydrant vendors pursuant to Article IV, Chapter 15 of the Code of Ordinances. Under this requirement, an unexpired and unrevoked Certificate of Responsibility must have been issued prior to the City's receiving bids for each type, style and manufacturer of fire hydrants to be considered



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for purchase by the City. Failure of an applicant to secure a Certificate of Responsibility will result in their bid not being considered in the award of the fire hydrants supply for the City of Houston.

- 2.2 In addition to its applicability with regards to the award of fire hydrants and parts to the City of Houston, a valid Certificate of Responsibility-as secured hereunder-shall be required to supply fire hydrants and parts for use on any project constructed for the City of Houston or within its extra-territorial jurisdiction.
- 2.3 This application for a Certificate of Responsibility must be submitted by all vendors of fire hydrants and parts as noted above or their authorized agent with written certification from the vendor. Applications must include all related test reports, engineering drawings, specifications, and other matters requested in the following documents. Submittal of incomplete information or failure to submit supporting reports and information may result in a denial of a Certificate by the City.
- 2.4 **Performance testing date should be current as of January 14, 2005 thru January 14, 2010.**

3.0 Administrative Review:

All incomplete applications for certifications will be returned and will not be considered for this certification cycle.

**CITY OF HOUSTON
APPLICATION FOR CERTIFICATE OF RESPONSIBILITY
FOR FIRE HYDRANTS AND PARTS**

PART A: GENERAL APPLICATION INFORMATION

Name (or assumed name) and mailing address of Applicant:

1. All names in which Applicant has done business in the preceding five (5) years:

a. If Applicant is a Partnership, the name and address for each Partner:

b. If Applicant or any Partner of the Applicant is a Corporation:

2. The name of the Corporation and State of Corporation:

3. The names and addresses of the three (3) principal officers of the Corporation:

4. The names and addresses of each person controlling 51% or more of the voting rights of the Corporation:

5. If no single person controls 51% or more, the names of each person who controls 20 % or more:

6. If another corporation controls 51% or more, the names of each person or other Corporation who controls 20% or more of the voting rights of such other corporations:



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PART B: BIDDER STANDARDS

The following bidder qualifications as established under the City's purchasing policy must be fulfilled. The Applicant must respond to the following items:

1. In order to receive Certificate of Responsibility consideration, an Applicant shall be a fire hydrant manufacturer or the authorized agent with appropriate written proof. The Applicant must have bid, contracted, supplied and provided fire hydrants and fire hydrant repair parts during its normal course of business.
2. The Applicant is an established supplier of fire hydrants. The Applicant has supplied fire hydrants under award(s) in amounts equal to or greater than four hundred and fifty (450) fire hydrants and has filled individual orders of one hundred (100) or more fire hydrants and fire hydrant repair kits.

Applicant signature below

Yes _____ No _____
Signature Signature

3. Financial capacity is part of the criteria for the certification of Applicants. Financial incapacity will be denoted by an affirmative (YES) answer to either of the following questions (i.e. 3.a, 3.b., 3.c., or 3.d.) and shall disqualify an Applicant from further consideration under this process.

- a. Has a voluntary petition for bankruptcy been filed by the Applicant within the last two years?

Yes _____ No _____
Signature Signature

- b. Has an adjudication of the Applicant as bankrupt for an assignment for the benefit of creditors that's been approved by a court of competent jurisdiction within the last two (2) years?

Yes _____ No _____
Signature Signature

- c. Has an arrangement for reorganization, adjustment or composition of, in respect to the Applicant been approved by a court of competent jurisdiction under the Federal Bankruptcy Act or any similar State or Federal Law within the last two (2) years?

Yes _____ No _____
Signature Signature

- d. Has a receiver, trustee or other similar official been appointed by a court of competent jurisdiction for a period greater than sixty (60) days during the last two (2) years?

Yes _____ No _____
Signature Signature



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4. Each Certificate holder or their local representatives subsequently awarded by the City to supply fire hydrants under the Step No. 2 process shall be required to maintain an adequate stock to fulfill normal City of Houston Requirements. An inspection may be made to determine if the bidder has in his stock those items which he has bid. The inventory must be available for inspection prior to the time of bid award.

The minimum local inventory shall be as follows:

MINIMUM INVENTORY

DESCRIPTION

10	3' Bury Depth Fire Hydrants
25	4' Bury Depth Fire Hydrants
25	5' Bury Depth Fire Hydrants
15	6' Bury Depth Fire Hydrants

PART C: FIRE HYDRANTS INFORMATION

Please provide separate information for each style or type of fire hydrant which you propose to supply. To obtain a certificate you must offer at least one style or type of fire hydrant which meets the criteria established herein.

1. Hydrant Manufacturer:

2. Place of Manufacturer:

3. Hydrant Name or Style:

4. Catalog Number (s)

5. Number of hydrants manufactured of same of similar design within the past year:

Within the last five (5) years: _____



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Engineering Control Drawings:

- Two (2) copies of detailed engineering drawings including parts list and material specifications for each hydrant offered shall be provided. The engineering drawings shall bear the seal or identification number of a registered professional engineer in responsible charge for the preparation of the engineering drawings and "in the employment of the manufacturer" under the engineering drawings. The engineering drawings shall include a unique drawing number and a descriptive legend identifying the fire hydrant as "Per City of Houston Specifications".
- Provide by separate attachment, the names and telephone numbers of key representatives of at least three (3) cities with population greater than 100,000 currently using the manufacturer's hydrant of substantially the same design with a minimum total usage of 1,000 in the last ten years. Failure to provide at least three (3) references may be cause for disqualification.

Test Reports:

- Submit and Affidavit of Compliance from the fire hydrant manufacturer, certifying that the proposed hydrant and an material used in the construction will conform to the applicable requirements of American Water Works Association (AWWA C502-05) and the City of Houston Specifications and that all tests specified therein (i.e. AWWA C502-05) will be performed and all test requirements will be met on each hydrant provided under this certificate.

PART D: ENGINEERING STANDARDS

[Note: Compliance with each requirement under this part (Part D) is to be clearly identified on the Engineering Control Drawings submitted under Part C.6 of the application.]

Certificated fire hydrants shall conform to the requirements and tests of AWWA Standard C502-05, or latest revision thereof, entitled, "AWWA Standard for Dry-Barrel Fire Hydrants" as to their design, component materials, construction, manufacture and testing except as modified or supplemented hereinafter. Note that the maximum lead content of any material exposed to potable water (under either closed or open hydrant conditions) is to be 8%; maximum zinc content shall be less than 15%; "Natural" rubbers are to be formulated to be resistant to microbiological attack.

1. Outlet Nozzles

Each hydrant shall be equipped with two (2), two and one-half inch (2-1/2") nominal inside diameter hose nozzles and one (1) four inch (4") nominal inside diameter pumper nozzle conforming to National (American) Standard Fire Hose Coupling Screw Threads (per NFPA No. 194 and ANSI B26-192S latest revision). Nozzles shall be securely fastened into the upper barrel by mechanical means, and shall be locked in place with a security device. Nozzle caps shall be furnished complete with "Natural" rubber or neoprene gasket and shall be securely attached to the hydrant barrel with chains of not less than one-eighth inch (1/8") diameter. The pumper nozzle shall be so situated as to allow an unobstructed radius of eighteen inches (18") from the threaded surface of the nozzle throughout the path of travel of a wrench or other device used to fasten a hose to the nozzle.

2. Traffic Breakable Features

Each hydrant shall be equipped with an effective breakable hydrant barrel feature with breakable valve and stem and operating mechanism on traffic impact with main valve to remain closed and tight against leaking.



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3. Operating and Hold Down Nuts

The operating and hold down nuts shall be fabricated of stainless steel or of cast or ductile iron with bronze inserts or, in the alternative, a security device shall be provided with each hydrant employing a bronze operating nut to protect this feature of the hydrant from malicious mischief or authorized removal. Any such security devices shall not require special tools for normal off/on operation of the hydrant. Hold down assemblies shall be fabricated of suitable metallic materials for the service intended.

4. Size of Hydrant/Inlet Connection

The inlet shall be designed for connection to nominal six inch (6") push-on, or mechanical joint assembly as specified in the bidding documents. The joints shall conform to ANSI/AWWA C111/A21.11 or AWWA C 110 standards.

5. Shut-off Design

Shut-off valve shall be of the "compression type" design (i.e. closing with the pressure) with center stem construction. The shut-off valve opening shall be circular and shall have a diameter of not less than five and one-quarter inches (5-1/4").

6. Opening Direction

The hydrant valve stem shall operate to open by turning to the left (counterclockwise).

7. Valve Mechanism

The valve seat ring shall be constructed of bronze and shall be threaded into a bronze drain ring to provide an all bronze drain way. The seat ring and main valve assembly shall be such that it can be removed from above ground through the upper barrel by means of a light-weight seat removal wrench. The valve seat facing shall be constructed of molded "Natural" rubber having a Shore "A" Scale Durometer rating of 90, + or - 5, and shall have a minimum thickness of one-half inch (1/2"). The valve stem shall be provided with a breakable stem **coupling and or/rod** coupling opposite the barrel breakaway feature. Connecting pins and locking devices shall be constructed of bronze or other corrosion-resistant material. The valve stem shall be provided with a bronze or copper sleeve, suitable O-Ring-seals, and a travel stop (Note: This may be designed either into the hydrant upper stem or inlet shoe.) Operating threads and bearing surfaces shall be fully lubricated when opening or closing the main valve and shall be contained in a lubricating reservoir which is sealed at top and bottom. The operating assembly shall be provided with a thrust bearing or lubricated thrust collar to minimize operating torque. (Note: All lubricants must be food grade. MSDS data sheet to be provided with submittal).

8. Hydrant Barrel

The hydrant barrel must be made of duct iron or gray iron and the lower hydrant barrel shall be fabricated as a single piece, and shall be connected to the upper hydrant barrel by means of a joint coupling that will provide three hundred-sixty degrees (360°) rotation of the upper barrel. If hydrants are made in two or more sections or other joint near the ground line the joint shall be located at least two (2) inches above the round line. The bury length shall be as specified and shall be clearly marked from the bottom of the inlet to the ground line. The ground line shall be clearly marked on the barrel. The inside diameter wall thickness (with tolerance) is to be indicated for the upper barrel, lower barrel and bonnet section. The requested dimensions are to be shown at minimum sections to demonstrate



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with Table 3 of AWWA C502-05.

9. Hydrant Barrel Drain Construction

A bronze or corrosion-resistant material lined drain opening shall be provided. Tapping of drain holes is not required.

10. Gaskets and Seals

All dynamic seals shall be of "O-Ring" type not requiring adjustment for water tight seal; shall be of buna "N" or other oil-resistant material; all moving parts in contact with the seal shall be bronze or other corrosion-resistant material. Static seals shall be (with the exception of nozzle cap seals) buna "N" or other approved synthetic rubber.

11. Extensions

The hydrant barrel shall be designed to permit the use of one or more standard extensions, which shall be available from the hydrant manufacturer, in lengths of from six inches (6") to sixty inches (60") Height) in six inches (6") increments.

12. Hydrant Painting

Hydrants shall be shop coated as follows:

a. Exterior above traffic flange:

Surface preparation in accordance with SSPC-SP10 (NACE2), near white blast cleaned surface, coated with a three coat alkyd/silicone alkyd system with a total dry film thickness (DFT) of 6-9 mils as follows:

i. Prime Coat - Oil modified Alkyd Primer, Acro Products No. 1118, heavy duty tank & steel primer, or approved equal, to be in general conformance with SSPC Paint specification no. 25 with a total DFT 2-3.

ii. Intermediate Coat – Heavy duty industrial Alkyd Enamel, Acro Products No. 2218 or approved equal, to be in general conformance with SSPC paint specification no. 104 with a total DFT of 2-3 mils.

iii. Finish Coat – Silicone Alkyd Resin Enamel, Acro products no. 2215, or approved equal, to be in conformance with SSPC paint specification no. 21 with a total DFT of 2-3 mils. Exception the hydrant bonnet shall not be finish shop coated, only intermediate coated. Finish coating shall be field applied and color coded when installed.

iv. Colors – Primer to be, manufacturer's standard color. The finish coat of hydrant body is to be blue (Acro 555 crystal blue or equal). The hose connection caps are to be finish coated white, and a white band of finish coat two inches in width shall be painted on the hydrant body approximately six inches above the traffic flange and parallel thereto. The intermediate coat is to be of a contrasting color to the blue finish coat, such as white.



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b. Exterior below traffic flange:

Surface preparation in accordance with SSPC-SP10 (NACE2), near white blast cleaned surface. Coat with a three (3) coat system as follows:

- i) Primer and Intermediate coat – coal tar epoxy, Acro product no. 4467, or approved equal to be in general conformance with SSPC Paint specification no. 16. Apply two (2) coats with a DFT of 8-10 mils each for a DFT of 16-20 mils.
- ii) Finish coat - water based vinyl acrylic mastic, Acro products no. 7782, or approved equal. Apply one (1) coat with a DFT of 6-8 mils. Color of finish coat is to be the same as the finish coat for the exterior above the traffic flange i.e. blue (Acro 555 crystal blue or equivalent).

c. Interior Surface above and below Main Valve

All material used for internal coating of hydrant interior ferrous surfaces below the main valve must be NSF 61 listed as suitable for contact with potable water as required by Chapter 290, Rules and Regulations for Public Water Systems, Texas Natural Resources Conservation Commission.

Coating shall be liquid or powder epoxy system and be in accordance with AWWA Standard C-550 (latest revision). Coating may be applied in two (2) or three (3) coats, according to manufacturer's recommendations, for a total dry film thickness of 12-18 mils.

d. General

All coatings shall be applied in strict accordance with manufacturer's recommendation. No requirement of this specification shall cancel or supersede the written directions and recommendations of the specific coating manufacturer so as to jeopardize the integrity of the applied system.

The hydrant supplier shall furnish an affidavit of compliance that all materials and work furnished comply with the requirements of this specification and applicable standards referenced herein.

PART E: PERFORMANCE STANDARDS

It is understood that each Applicant must submit all information, drawings and test reports on all fire hydrants in accordance with all requirements listed in this chapter.

Certificated fire hydrant shall comply with the performance standards as stated below. Compliance shall be determined through actual testing of each type or style of fire hydrant proposed for certification.

All fire hydrants shall be tested under normal operating conditions while undergoing Hydraulic Performance Testing and Traffic Impact Performance Testing. They are to be in an upright position, supplied with a minimum water pressure of 65 psi through a water supply pipe of size six inches (6") or larger to the fire hydrants.



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1. Hydraulic Performance

As a point of clarification, the Hydraulic Performance Testing (Part E, Item 1.2, Paragraph 1) and Traffic Impact Performance Testing (Part E, Item 2.2 Paragraph 2) are to be performed and witnessed by a third party of testing laboratory acceptable to the City for the purpose of this application process. The intent of the wording of acceptable to the City is to provide the City with the right to review and to reject laboratories either lacking the independence or expertise or to witness to perform the required work upon City request paid by the manufacturer. A pre-request for approval of an acceptable laboratory or to witness the testing is not required prior to proceeding with the required work.

The testing laboratory must have previous working experience in either hydraulic and/or impact testing performance with their staff Professional Engineer in the civil or mechanical field to design, to witness and to verify the testing to be true. If the testing will be performed by the fire hydrant manufacturer, the testing must be designed, witnessed and verified by a testing laboratory's staff Professional Engineer with experience in either hydraulic and/or impact testing performance.

1.1 Hydraulic Performance Standards:

Certified fire hydrant shall have a demonstrated capability:

- 1.1.1 To provide a free discharge of 1,500 gpm or greater from the single pumper nozzle at a hydrant inlet static pressure of not exceeding 20 psi as measured at or corrected to the hydrant inlet at its centerline elevation.
- 1.1.2. To provide a discharge of 1,500 gpm or greater from the single pumper nozzle at a maximum permissible head loss of 8.0 psig (when corrected for inlet an outlet velocity head) for an inlet operating pressure not exceeding of 37 psig as measured at or corrected to hydrant inlet at its centerline elevation.

1.2 Hydraulic Performance Testing:

A certified pressure loss and quantity of flow test shall be conducted by a qualified and independent testing laboratory acceptable to the City on an exact production models (five-foot bury length) of the hydrant proposed for certification. This testing shall be conducted in strict accordance with this standard. A certified test report shall be submitted, and shall contain the following information.

- 1.2.1 The date of test which shall be no more than five (5) years prior to the date of application for certification.
- 1.2.2 The name, catalog number place of manufacture, and date of production of the hydrants tested.
- 1.2.3 A schematic drawing of the testing apparatus, containing dimensions of all piping elements including:
 - a. Inside diameter and length of inlet piping.
 - b. Distance from flow measuring points to pressure measurement point.
 - c. Distance from flow and pressure monitoring points to hydrant inlet.
 - d. Distance from pressure monitoring point to nozzles.
 - e. Inside diameter and length of discharge tubing.



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- 1.2.4 Elevation of all points of measurement, inlet, and outlet.
- 1.2.5 Reports or certificates documenting accuracy of all measuring devices used in the test.
- 1.2.6 Raw test data.
- 1.2.7 Sample hand calculation demonstrating reduction of data and indicating relevant equation, fluids properties, conversion factors and assumptions a appropriate.
- 1.2.8 The Hydraulic Performance Testing (Part E, Item 1.2 Paragraph 1) and the Traffic Impact Testing (Part E, Item 2.2 Paragraph 2) are to be performed/performed or witnessed by parties acceptable to the City for the purpose of this application process, the intent of this wording (i.e. acceptable to the City is to provide the city with the right to review and reject laboratories or witnesses when either lack the independence or expertise to perform the required work. A separate request for approval of acceptable laboratory or witness is not require prior to proceeding with the required works. The test shall be conducted on at least three (3) separate hydrants fabricated in accordance with the Approved Engineering Control Drawing. Inlet water temperature shall be 70 \pm 5 degree Fahrenheit (70 \pm 5 F).

2. Traffic Impact Performance

2.1 Traffic Impact Performance Standards:

Certified fire hydrants shall be equipped with a breakable barrel feature and, breakable valve stem coupling such that a vehicular impact will result in a clean break of the barrel and the valve stem at the breakable feature. Upon impact, the hydrant shut-off valve to remain closed and tight against leakage. The failure of the barrel to cleanly and completely break upon impact shall be cause of rejection of the hydrant.

2.2 Hydrant Replacement Parts and Prices:

Applicants are to submit a replacement parts list along with prices for damage to the hydrant and appurtenances due to the Traffic Impact Performance Test. This replacement parts list along with its prices will be submitted at the same time as the Qualifications Submittal. These prices should not be more than \$250.00.

2.3. Traffic Impact Performance Testing:

A certified test report shall be provided which outlines the results of a traffic impact test involving standard production run models (not exceeding a 5-foot bury depth) of the fire hydrant with a breakable barrel of the same in design of that proposed for certification. These hydrants shall be installed in accordance with the requirements of this standard, and shall be struck at a point eighteen inches (18") +/- two inches (2") above the designated ground line. The proximate point of impact on the hydrant barrel shall be within two inches (2") of the line perpendicular to the base and equidistant from the pumper nozzle and one hose nozzle. The intent of the traffic impact test will be to fulfill the following impact scenario through a mechanical impact test procedure approved in writing by the City of Houston and performed or witnessed by an independent third party testing laboratory or registered professional engineer acceptable to the City.

Successive tests shall be conducted to simulate the impact by vehicles with gross weights of 3,500, 5,500 and 10,500 pounds. An impact speed of 35 mph is to be simulated for each vehicle weight.

The test shall be conducted on at least three (3) separate hydrants fabricated in accordance with the Approved Engineering Control Drawing. Inlet water temperature shall be 70 \pm 5 degree Fahrenheit (70 \pm 5 F).



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If a vehicle or vehicles with weights other than specified (i.e. 3,500, 5,500 and 10,500 pounds) are proposed for the impact testing, the minimum proposed impact speed is to be established on the basis of maintaining an equivalence of kinetic energy between the test conditions and the desired simulations (i.e. 3,500 pounds at 35 mph, etc.)

Test hydrant to have un-harnessed push-on or mechanical joint inlet shoes and are to be placed with bedding, backfill and thrust blocks simulating City of Houston installations (No surface inertia blocks allowed).

Upper body or nozzle section of each test hydrant to be assembled so that the centerline of the pumper nozzle is positioned 45 degree to the centerline of the inlet side of the hydrant shoe is to be 90 degrees-so that the impact is parallel to the hydrant thrust blocking.

The test report shall include the following elements:

3. Detailed schematic drawings of the test facility.
4. Complete description of mechanical impact testing equipment used.
5. Complete list of hydrant parts and materials damaged in each mechanical impact test and currently published price schedule.
6. Photographs, including scale references as appropriate, are to be provided to show hydrant thrust restraint, bedding and back fill lifts, fabricated impact bumper if used (Note that this is to be parallel to standard vehicle bumper), and to show condition of hydrant before and after impact test to document damage caused by each test. This photo requirement includes but not limited to all items to be verified for damaged as stipulated in Item 7 of this page (10).
7. The size and static pressure of the line to which the hydrant is attached (Note that minimum static pressure in the hydrant at the time of the impact is to be 65 psiq.)
8. An estimate of the amount of water discharged from the hydrant within the 30 minutes immediately following the collision.
9. Hydrants to be inspected and tested for damage after each impact test. The following represent minimum criteria for acceptance.
 - a. Perform visual inspection of hydrant assembly for normal operation that are listed.
 - b. Verify upper valve rod is straight and true and still meeting manufacturer's published assembly specification limitations (if no limits are available, verify run-out at hydrant shear coupling is less than .002 inches total indicator movement). If limitation is exceeded, part is considered "damaged" for purpose of this test.
 - c. Verify hydrant operating and nozzle cap nuts are still fully functional and will accept a standard 1 1/2" X 1 7/16" tapered pentagon operating wrench. If a nut will not completely accept the standard wrench, it will be considered "damaged".
 - d. Verify hydrant pumper and nozzle locking devices are functional and that threads will still fully accept a hose coupling meeting the minimum coupling dimensions indicated in table A.2 of Appendix A to AWWA Standard C502-95. If locking device in nonfunctional it will be considered "damaged". If nozzle will not fully accept the hose coupling, it will be considered "damaged".



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- e. Replace all "damaged" parts and reassemble hydrant on existing lower section. Perform standard Mechanical and Hydrostatic tests in accordance with section 5.1 of AWWA C502-05. Failure to pass either of both of the tests specified in 5.1 will be grounds for rejecting the result of the impact tests.
1. The Applicant desires that any and all notices provided under Article IV Chapter 15 of the Houston Code of Ordinances shall be sent to the person or persons authorized to act on its behalf in connection with the requested Certificate at the telephone number and the address designated below:

(Name of Authorized Person)

(Address)

(City, State & Zip Code)

(Telephone Number)

2. The Applicant has read and understands the provisions of Article IV Chapter 15 of the Houston Code of Ordinances and the provisions of Council Resolution 84-77 as enacted by the Houston City Council. Applicant has completed the foregoing application and has submitted all additional documents and information relating to the qualification as required in this application. All statements made by the Applicant contained in the foregoing are true and correct.

The Applicant understands and agrees that the City reserves the right to evaluate the qualifications of all Applicants on the basis of the application materials submitted and to disqualify one or more of all such Applicants if they have submitted incomplete information or if they fail to qualify. Applicant acknowledges the provisions of this section and so signifies by affixing his signature to this application.

(Name of Authorized Person)

(Address)

(City, State & Zip Code)

(Telephone Number)

Fire Hydrant Certification of Responsibility Detail Information Check List

Part D Engineering Standards

All items listed in Part D are clearly identified as required in the Engineering Control Drawings under Part C.5

1. Nozzles
 - a. Number(s) of hose nozzles _____; size _____
 - b. Number(s) of pumper nozzles _____; size _____
Nozzle hose coupling screw threads conform to NFPA 194 & ANSI B-26-
 - c. 192S standards
 - d. Nozzle fastening method _____
 - e. This section deleted.
 - f. Nozzles are locked in place by _____
Nozzle caps seal material, rubber gasket _____ or neoprene gasket
 - g. _____
 - h. Nozzle cap secured by a chain, min. one-eighth inch (1/8") diameter
 - i. Pumper Nozzle has an unobstructed clearance of **ten inches (10")**
2. Traffic Breakable Features on FAHD. barrel
3. Operating and Hold Down Nuts
 - a. Material
 - i. Operating Nut _____
 - ii. Hold Down Nut _____
 - b. Security Device _____
 - c. Special tool for normal F.H. operation _____
4. Size of Hydrant / Inlet Connection
 - a. 6" F.H. connection
 - b. MJ _____; Push-on _____ Flange _____
5. Shut-off Design
 - a. Compression Type
 - b. Closes with pressure
 - c. Center stem construction
 - d. Circular opening confirmed on control drawing
 - e. Minimum valve with 5-1/4" diameter opening
6. Opening Direction: Turn to left (counterclockwise)
7. Valve Mechanism
 - a. Seat Ring material is Bronze _____
 - b. Seat Ring to have a Bronze Drain Ring _____
 - c. Seat Ring / Main Valve Removable
 - i. From Ground above
 - ii. With light weight wrench
 - d. Molded (natural) rubber on main valve seat facing
 - e. Min Rubber Durometer Shore "A" test rating is _____
 - i. Copy of Durometer Shore "A" test report attached
 - f. Min valve seat rubber thickness is 1/2"
 - g. Breakable stem coupling opposite barrel breakaway feature
 - h. Connecting pins to be bronze or corrosion resistant material
 - i. Locking device to be bronze or corrosion resistant material
 - j. Valve stem
 - k. Pumper Nozzle has an unobstructed clearance of **ten inches (10")** turning
 - i. Bronze or copper sleeve material at dynamic seals
 - ii. Suitable "O-Ring seals
 - iii. Travel Stop
 - iv. Operating thread and bearing surface lubricated
 - v. Thrust bearing _____ or lubricating thrusting collar _____
 - vi. Lubricating reservoir, seal at top and bottom
 - vii. Lubricant is food grade
 - viii. Lubricant MSDA sheet is submitted

Fire Hydrant Certification of Responsibility Detail Information Check List

- 8. Hydrant Barrel
 - a. Lower barrel a single piece _____
 - b. Joint coupling connecting low barrel to upper barrel that rotates on 360° _____
 - c. Bury depth shall be specified from bottom of inlet to the ground line. _____
 - d. Inside wall thickness (with tolerance) _____
 - i. Upper Barrel _____ Tolerance _____
 - ii. Lower Barrel _____ Tolerance _____
 - iii. Bonnet _____ Tolerance _____
 - e. Barrel Material on wall thickness on AWWA C-502, Table 3 _____
 - i. Upper Barrel _____
 - ii. Lower Barrel _____
 - iii. Bonnet _____
- 9. Hydrant Barrel Drain Construction
 - a. bronze or corrosion resistant material to line the drain opening _____
- 10. Gaskets and Seals
 - a. All dynamic seals to be "O-Ring" type for watertight seal _____
 - b. All dynamic seals to be Buna "N" or oil resistant materials _____
 - c. All moving parts contact with seal to be bronze or corrosion-resistant material, if not bronze specify _____
 - d. All bronze parts contacting with O-Ring _____
- 11. Extensions
 - a. F.H. barrel is available on extensions from 6" to 60" in 6" increments _____
 - b. Hydrant Painting (Attached MSDS sheet for paints should comply with _____
- 12. City Specification)
 - a. Exterior above Traffic Flange _____
 - b. Exterior below Traffic Flange _____
 - c. Interior Surfaces Above or Below Main Valve _____

Part E Performance Standards

- 1. Hydraulic Performance
 - All testing information, drawings and testing reports are submitted _____
 - All fire hydrants were tested in upright position, _____
 - All fire hydrants were tested with min. water pressure of 65 psi _____
 - All fire hydrants were tested with water supply pipes of 6 inch or larger _____
 - a. Hydraulic Performance Standards
 - 1. Discharge 1500 GPM at inlet static pressure not to exceed 20 psig _____
 - Discharge 1500 GPM at Pumper Nozzle with a max head loss of 8 psig _____
 - 2. (with pressure not to exceed 37 psig) _____
 - Perform standard Hydrostatic testing on meeting Section 5.1 of AWWA _____
 - 3. C-502-05 _____
 - b. Hydraulic Performance Testing
 - Test by qualified and independent testing lab acceptable by the City _____
 - Testing Fire hydrant to be a five-foot length _____
 - A certified testing report is submitting with the followings _____
 - 1. The date of testing is less than 5 years from date to apply CR _____
 - 2. Fire hydrants tested _____
 - a. Fire hydrant's name _____
 - b. Catalogue number of fire hydrant _____
 - c. Fire Hydrant Date of production _____
 - 3. Schematic drawing of testing apparatus, dimension of piping element _____
 - a. Inside diameter and length of piping _____
 - Distance from flow measuring points to pressure measurement _____
 - b. point _____
 - c. Distance from flow and pressure monitoring points to hydrant inlet _____
 - d. Distance from flow and pressure measuring points to nozzles _____
 - e. Distance from flow measuring points to pressure measurement _____
 - f. Inside diameter and length of discharge tubing _____

Fire Hydrant Certification of Responsibility Detail Information Check List

- 4. Elevation of all points of measurement, inlet, and outlet
Reports or certificates documenting accuracy of all measuring devices _____
- 5. used in the test _____
- 6. Raw test data _____

Sample hand calculation demonstrating reduction of data and indicating

- 7. relevant equation, fluids properties, conversion factors and assumptions _____
Point of Clarification: Hydraulic Performance Testing and Traffic
- 8. a. Impact Testing to be witnessed by COH acceptable parties _____
The test must be conduct on at least 3 separate hydrants and inlet
- b. water temperature shall be 70 degree F +/- 5 _____

2. Traffic Impact Performance

- a. Traffic Impact Performance Standards
Certified fire hydrants tested shall be equipped with items for clean _____
- 1. break _____
- 2. Breakable barrel feature _____
- 3. Breakable valve stem coupling _____
- 4. After impactation, shut-off valve remain closed without leakage _____
- 5. Repairing cost for replacing damaged parts < \$250 _____

- b. Traffic Impact Performance Testing
- 1. Certified test report on impact test _____
- 2. F.H. to be installed per this standard for testing _____
- 3. F.H. to be struck at point of 18" ± 2" above ground line _____
Point of Impact on F.H. to be within 2" of line perpendicular to base and
- 4. middle between pump nozzle and one hose nozzle _____
- 5. Vehicle to hit F.H. within 6" of bumper midpoint _____

Traffic Impact Performance Testing Requirement

- Three successive tests by standard American made vehicles of 3500 ,
- 6. 5500 & 10500 lbs ± 500 lbs _____
- Testing on three (3) separate F.H. per Approved Engineering Control
- 7. Drawing _____
- 8. Impact speed of 35 mph for each vehicle weight _____
Speed equivalent to Kinetic Energy from calculation of different weight
vs. test speed 35 mph and their equivalent speeds are 3500 lb
- 9. (_____), 5500 lb (_____) & 10500 lb (_____) _____
- 10. Inlet water temperature to be 70± 5 degree Fahrenheit _____
Test F.H. was installed with un-harnessed push-on joint _____ or
- 11. with mechanical joint _____
Test F.H. was installed, backfilled with thrust blocking to City of Houston
- 12. standard _____
Test F.H. was installed with upper body or nozzle section to have
- 13. pumper nozzle positioned _____

3. Test Report

- 1. Detail schematic drawing of testing facility _____
- 2. Description of Mechanical equipment used in impact testing _____
- 3. List of damaged F.H. parts in each testing and their current price schedule _____
- 4. a. Photos on each F.H. before and after the impact testing _____
- b. Photos on F.H. installation and bedding before the impact testing _____
- c. Photos of a fabricated bumper used for the impact testing _____
- d. Photos on F.H. installation and bedding before the impact testing _____
- 5. Size of water main supplying water to F.H. _____
Static pressure of water main supplying water to F.H. _____

Section 02520

FIRE HYDRANTS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Fire hydrants.
- B. Adjustment of fire hydrants and gate valves.

1.02 MEASUREMENT AND PAYMENT

- A. Unit Prices.
 - 1. Payment is on a unit price basis for each fire hydrant assembly, including 6-inch gate valve and box, installed regardless of barrel depth.
 - 2. Payment for fire hydrant branches (leads) is on linear foot basis for each branch installed. Separate pay items are used for open-cut and augered branches.
 - 3. Payment for salvaged fire hydrants is on unit price basis for each fire hydrant removed and returned to City's Maintenance Quadrant Stock yard.
 - 4. Refer to Section 01270 - Measurement and Payment for unit price procedures.
- B. Stipulated Price (Lump Sum). If Contract is Stipulated Price Contract, payment for work in this Section is included in total Stipulated Price.

1.03 REFERENCES

- A. AWWA C 550 - Standard for Protective Epoxy Interior Coatings for Valves and Hydrants
- B. SSPC SP2 - Hand Tool Cleaning
- C. SSPC SP3 - Power Tool Cleaning
- D. SSPC SP10 - Near-White Blast Cleaning
- E. SSPC SP11 - Power Tool Cleaning to Bare Metal
- F. SSPC Paint Spec No.21

- G. SSPC-Paint 21 - White or Colored Silicone Alkyd Paint
- H. SSPC-Paint 25 - Zinc Oxide, Alkyd, Linseed Oil Primer for Use Over Hand Cleaned Steel, Type I and Type II
- I. SSPC-Paint 104 - White or Tinted Alkyd Paint
- J. Federal Standard A-A-2962A - Enamel, Alkyd, Solvent Based Low VOC

1.04 SUBMITTALS

- A. Conform to requirements of Section 01330 - Submittal Procedures.
- B. Submit name of hydrant manufacturer, type of bonnet paint, and engineering control drawing number for hydrant proposed for use.

PART 2 PRODUCTS

2.01 HYDRANTS

- A. Provide approved fire hydrants.
- B. The Project Manager may, at any time prior to or during installation of hydrants, randomly select furnished hydrant for disassembly and laboratory inspection, at City expense, to verify compliance with Specifications. When hydrant is found to be non-compliant, replace, at Contractor's expense, hydrants, with hydrants that comply with Specifications.
- C. Provide lower hydrant barrel fabricated from Ductile Iron Pipe as single piece, connected to upper hydrant barrel by means of joint coupling that will provide three hundred sixty degree (360) rotation of upper barrel.

2.02 LEADS

- A. Branches (Leads): Conform to requirements of Section 02501 - Ductile Iron Pipe and Fittings, Section 02502 - Steel Pipe and Fittings, and Section 02506 - Polyvinyl Chloride Pipe.

2.03 HYDRANT PAINTING

- A. New hydrants and refurbished hydrants shall be shop coated as specified herein.
- B. Exterior Above Traffic Flange (Including Bolts & Nuts).

1. Surface preparation to be in accordance with SSPC-SP 10 (MACE 2) near white blast cleaned surface.
 2. Coat with three coat alkyd/silicone alkyd system with total dry film thickness (DFT) of 6 - 9 mils as follows:
 - a. Prime Coat - Oil modified alkyd primer, to be in general conformance with SSPC Paint Specification No. 25. Total dry film thickness (DFT) 2 - 3 mils.
 - b. Intermediate Coat - Heavy Duty Industrial Alkyd Enamel to be in general conformance with SSPC Paint Specification No. 104, and Federal Standard A-A-2962A. Total dry film thickness (DFT) of 2 -3 mils.
 - c. Finish Coat - Silicone Alkyd Resin Enamel to be in general conformance with SSPC Paint Specification No. 21. Total dry film thickness (DFT) to be 2 - 3 mils. Exception - hydrant bonnet shall not be finished shop coated, only intermediate coated. Install color coded finish coating of bonnet in field.
 - d. Bonnet Paint - Field apply finish coat of Silicone Alkyd Resin Enamel to be in general conformance with SSPC Paint Specification No. 21. Dry film thickness of 2 - 3 mils. Bonnet colors are to be as specified in Paragraph 3.01 to designate the appropriate size of water supply line.
 3. Colors - Primer: Manufacturers standard color. Finish coat of hydrant body : Blue . Connection caps: Finished coated white. Paint white band of finish coat two (2) inches in width on hydrant body approximately six inches (6") above and parallel to traffic flange. Intermediate coat : Contrasting color to blue finish, such as white.
- C. Field Maintenance Painting (Exterior Above Traffic Flange)
1. Surface Preparation to be in accordance with SSPC - SP2, Hand Tool Cleaning, or SSPC - SP3, Power Tool Cleaning, depending on condition of existing paint and extent of corrosion. It is not necessary to remove tightly adhered mill scale, rust, and paint. Mill scale, rust and paint are considered tightly adherent when they cannot be removed with dull putty knife. In some severe cases where it is necessary to remove majority of existing paint, surface should be cleaned in accordance with SSPC -SP11, Power Tool Cleaning to Bare Metal.
 2. When surface is cleaned to bare metal (SSPC - SP11), coat hydrant with three coat Alkyd/Silicone Alkyd system in accordance with Paragraph 2.03.B.2 as for new hydrants. When surface is cleaned to SSPC - SP2 or SSPC - SP3, coat hydrant with Silicone Alkyd Resin Enamel in general conformance with SSPC Paint Specification No. 21. Total dry film thickness of 3 - 6 mils.
- D. Exterior Below Traffic Flange

1. Surface preparation in accordance with SSPC- SP10 (MACE 2) Near White Blast Cleaned Surface.
 2. Primer and intermediate coat: coal tar epoxy in general conformance with SSPC Paint Specification No. 16. Apply two (2) coats with dry film thickness (DFT) of 8 - 10 mils each for total DFT of 16 -20 mils.
 3. Finish coat: Water based vinyl acrylic mastic Apply one coat with dry film thickness of 6 - 8 mils. Color of finish coat to be same as finish coat for exterior above traffic flange, i.e., blue. (Acro 555 Crystal Blue, or equivalent.)
- E. Interior Surfaces Above and Below Water Line Valve
1. Material used for internal coating of hydrant interior ferrous surfaces below water line valve must be NSF certified as suitable for contact with potable water as required by Chapter 290, Rules and Regulations for Public Water Systems, Texas Natural Resources Conservation Commission.
 2. Coating shall be liquid or powder epoxy system in accordance with AWWA Standard C - 550 (latest revision). Coating may be applied in two or three coats, according to manufacturer's recommendations, for total dry film thickness of 12 -18 mils.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Set fire hydrant plumb and brace at locations and grades as shown on Drawings. When barrel of hydrant passes through concrete slab, place 1-inch-thick piece of standard sidewalk expansion joint material around section of barrel passing through concrete.
- B. Locate nozzle center line minimum 18 inches above finish grade.
- C. Place 12-inch by 12-inch yellow indicators (plastic, sheet metal, plywood, or other material approved by Project Manager) on pumper nozzles of new or relocated fire hydrants installed on new water lines not in service. Remove indicators after new water line is tested and approved by Project Manager.
- D. Do not cover drain ports when placing concrete thrust block.
- E. Obtain Project Manager's approval in writing prior to installation of hydrants which require changes in bury depth due to obstructions not shown on Drawings. Unit price adjustments will not be allowed for changes in water line flow line or fire hydrant barrel length caused by obstructions.

- F. Plug branch lines to valves and fire hydrants shown on Drawings to be removed. Deliver fire hydrants designated for salvage to nearest Utility Maintenance Quadrant Facility.
- G. Install branches (leads) in accordance with Section 02511 - Water Lines.
- H. Coating Requirements:
 - 1. Apply coatings in strict accordance with manufacturer's recommendations. No requirements of this specification shall cancel or supersede written directions and recommendations of specific manufacturer so as to jeopardize integrity of applied system.
 - 2. Furnish affidavit of compliance that coatings furnished complies with requirements of this specification and referenced standards, as applicable.
- I. Use following color code for field coating of hydrant bonnet to indicate size of water line supplying hydrant:

Supply Water Line Diameter (inches)	Bonnet Color
6	Yellow
8	White
12-20	Green
24 and larger	Orange

- J. Remove and dispose of unsuitable materials and debris in accordance with requirements of Section 01576 - Waste Material Disposal.

END OF SECTION

Section 02520S

FIRE HYDRANTS

The following supplement modifies Section 02520– Fire Hydrants Standard Specification. Where a portion of the Specification is modified or deleted by this Supplementary Specification, the unaltered portions of the Specification shall remain in effect.

1.03 REFERENCES: Add the following paragraph and re-letter remaining paragraphs accordingly:

“A. AWWA C502 – Standard for Dry Barrel Fire Hydrants (Latest Edition)”.

2.01 HYDRANTS: Delete Paragraph 2.01 A and replace with the following:

“A. Provide fire hydrants in conformance with AWWA C502, Standard for Dry Barrel Fire Hydrants (Latest Edition). Hydrants are approved by the City for issuance of a Certificate of Responsibility. Only hydrants with current Certification of Responsibility will be allowed in City of Houston projects. The following hydrants are currently approved. Alternate hydrants will not be considered.”

HYDRANT	ENGINEERING CONTROL DRAWING
U.S. Pipe and Foundry Co. M-94 Metropolitan 5-1/4” A495	DWG 960324 Rev. dated 2/06/02
Mueller Company Super Centurion 250 5-1/4” A423	DWG FH-70 Rev. B dated 7/2/08
American AVK Company AVK Series 2780 Nostalgic	DWG 2780-Houston-2 Rev. AAD3, dated 3/24/04

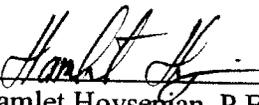
2.03 HYDRANT PAINTING: Replace Paragraphs under 2.03 B and 2.03 C and 2.03 C as shown below and replace Paragraphs 2.03 D, 2.03 E, and 2.03 E.1 with Paragraphs shown below:

“1. Surface preparation to be in accordance with SSPC-SP 10 (NACE 2) near white blast cleaned surface.

3. Colors - Primer: Manufacturer's standard color. Finish coat of hydrant body: ACRO 555 Crystal Blue or equivalent. Connection caps: Finish coated white. Paint white band of finish coat two inches in width on hydrant body approximately six inches above and parallel to traffic flange. Intermediate coat: Contrasting color to blue finish, such as white."
- C. Field Maintenance Painting (Exterior Above Traffic Flange): Delete Paragraph 2.03 C.2 and replace with the following:
 - "2. When surface is cleaned to bare metal (SSPC SP11) coat hydrant with three coat Alkyd/Silicone Alkyd system in accordance with Paragraph 2.03.B.2 as for new hydrants. When surface is cleaned to SSPC SP2 or SSPC SP3, coat hydrant with Silicone Alkyd Resin Enamel in general conformance with SSPC Paint Specification No. 21. Total dry film thickness of 3-6 mils."
- "D. Exterior Below Traffic Flange (including lower barrel extensions)"
- "E. Interior Surfaces Above and Below Water Line Valve (including lower barrel extensions)
 1. Material used for internal coating of hydrant interior ferrous surfaces must be NSF certified as suitable for contact with potable water as required by Chapter 290, Rules and Regulations for Public Water Systems, Texas Commission on Environmental Quality"

END OF SUPPLEMENT

Approved by:



Hamlet Hovsepian, P.E.
Interim Senior Assistant Director
Engineering and Construction Division

12/10/09

Date