



## INVITATION FOR SEALED BID

**BID #00-604**

Description: FIRE HOSE  
Department: FIRE

NIGP Commodity Code(s): 340-56-00-000-0

Total pages including this page is 21

**FAXING OF BID WILL NOT BE ACCEPTED**

**Important Instruction – Read Carefully:**

If you have obtained these bid specifications from either of:  
City of Tulsa's Fax-on-Demand (918-596-1171) or  
City of Tulsa's Website : [www.cityoftulsapurchasing.org](http://www.cityoftulsapurchasing.org)

you must notify the buyer Laura Blades of your intent to bid by e-mail [lblades@ci.tulsa.ok.us](mailto:lblades@ci.tulsa.ok.us) in order to receive addenda. The buyer will always acknowledge your e-mail for your records. All addenda will be posted on fax-on-demand and the website.

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**Pay special attention to those pages with a reference to the following notes:**

**Note #1: Signature of authorized agent required**

**Note #2: Signature of an authorized agent and notarized required**

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**Your bid response should follow the same format listed above plus any additional format requested in the body of the bid invitation.**

**INVITATION FOR SEALED BIDS  
TO  
City of Tulsa**

200 CIVIC CENTER, ROOM 109, TULSA, OKLAHOMA 74103

Bid number and date of bid opening must appear on the lower left outside corner of bid envelopes and all related containers.

**DATE OF OPENING:**    March 22, 2001

**BID NUMBER:**    00-604

**BID MUST BE IN THE CITY CLERK'S OFFICE AT THE ABOVE ADDRESS BY 5:00 P.M. THE DAY PRECEDING THE "DATE OF OPENING" SHOWN ABOVE.**

**BIDS WILL BE OPENED AT 8:30 A.M. IN THE CITY COUNCIL ROOM ON THE DAY SPECIFIED UNDER "DATE OF OPENING."**

**PUBLISHED IN THE TULSA DAILY COMMERCE AND LEGAL NEWS:**    March 12, 13, 14, 15, 16, 2001

Bid must be accompanied by bidder's bond, cashier's check or certified check in the amount of:    NONE

PLEASE READ TERMS AND CONDITIONS ON THE NEXT PAGE BEFORE COMPLETING BID DOCUMENTS

\*\*\*\*\*

**THE FOLLOWING SECTION MUST BE COMPLETED BY BIDDER**

\*\*\*\*\*

Delivery will be made in not more than \_\_\_\_\_ days after receipt of order.

Payment terms \_\_\_\_\_ % \_\_\_\_\_ days.

City of Tulsa may increase quantity of order at the unit price bid for \_\_\_\_\_ days. (Bidder to Specify Days) I have examined the terms and specifications and the instructions to bidders herein and agree, provided I am awarded a contract, to provide the above described items for the sum shown in accordance with the terms and specifications stated herein. All deviations are in writing and attached hereto.

Enclosed is a  BID BOND ;  CASHIER'S CHECK;  Certified Check in the amount of \$ \_\_\_\_\_, which I agree the City of Tulsa may retain as liquidated damages in the event of my failure to comply with the terms of this bid.

**MUST BE SIGNED BY AUTHORIZED AGENT TO BE VALID**

FIRM NAME \_\_\_\_\_ by \_\_\_\_\_

STREET \_\_\_\_\_ TITLE \_\_\_\_\_

CITY STATE \_\_\_\_\_ ZIP CODE \_\_\_\_\_ PHONE NUMBER \_\_\_\_\_ DATE \_\_\_\_\_

## GENERAL TERMS AND CONDITIONS OF BIDS

THESE ITEMS APPLY TO AND BECOME A PART OF THE BID.

### NO EXCEPTIONS TO THESE TERMS & CONDITIONS WILL BE CONSIDERED.

1. **BIDS MUST BE SUBMITTED ON THIS FORM ONLY INCLUDING A SIGNATURE OF AN AUTHORIZED AGENT.** Each bid shall be placed in a separate envelope. Be sure envelope is completely and properly identified and sealed, showing the bid number and date in the lower left hand corner. Bids must be time stamped in the office of the City Clerk by 5:00 P.M. on the day before date of opening.
2. No bidder may withdraw his proposal for a period of thirty (30) days after the date and hour set for the opening of bids.
3. All prices shall be quoted F.O.B. Tulsa, Oklahoma, and delivery to City of Tulsa location shall be without additional charge.
4. The bidder shall attach the manufacturer's name of the equipment or material to be furnished, type, model numbers, manufacturer's descriptive bulletins and specifications. All guarantees and warranties should be clearly stated. This data shall be in sufficient detail to describe accurately the equipment or material to be furnished. Manufacturer's specifications, in respect to the successful bidder, shall be considered as part of his contract with the City of Tulsa.
5. The bidder shall show in the proposal both the unit prices and total amount, where required, of each item listed. In the event of error or discrepancy in the mathematics, the unit prices shall prevail.
6. Any exceptions or deviations from written specifications shall be shown in writing and attached to the bid form.
7. Each bidder agrees to comply with the terms of Title 5, Chapter 1, of Tulsa, Oklahoma Charter and revised ordinances relating to equal employment opportunity.
8. **THE ENCLOSED FORMS REGARDING NON-COLLUSION AND FINANCIAL INTEREST MUST BE SIGNED, NOTARIZED, AND RETURNED WITH THE BID.**
9. The City of Tulsa reserves the right to reject any and all bids, to waive any technicalities in the bidding, and to award each item to different bidders or all items to a single bidder.
10. All bids must be accompanied by bidders bond, cash, certified or cashier's check in the amount shown on the face of the bid form. This amount shall be retained by the City of Tulsa as liquidated damages in the event the successful bidder (or bidders) fails to execute a contract, if required. The bidder agrees that said amount is presumed to be the damages sustained by the City due to the impracticability and extreme difficulty in fixing the actual damages. The office of the City Clerk will return the bid deposits to the unsuccessful bidders, after a contract has been awarded or all bids have been rejected.
11. In the event cash discounts are offered by the bidder, the discount date shall begin with the date of invoice, the date of receipt of all material covered by the purchase order, or the date of receipt by the City of Tulsa of the original copy of the purchase order with properly executed Affidavit of Claimant, whichever is the later date.
12. Direct purchase of certain items of equipment or material by the City of Tulsa are exempt from Federal Excise Tax and Oklahoma Sales Tax. In such cases the bidder shall quote prices which do not include Federal Excise Tax and Oklahoma Sales Tax. The City of Tulsa will furnish executed exemption certificates upon presentation by the bidder at the time of purchase.
13. Bid must show number of days required for delivery under normal conditions. Failure to state delivery time obligates bidder to complete delivery in fourteen (14) calendar days. Unrealistically short or long delivery promises may cause bid to be disregarded. Contractor must keep Purchasing Department advised at all times of status of order. Default in promised delivery or failure to meet specifications authorizes the Purchasing Agent to purchase supplies elsewhere and charge full increase of cost and handling to defaulting contractor. Consistent failure to meet delivery promises without valid reason may cause removal from bid list.
14. Bidder agrees to defend and save City of Tulsa from and against all demands, claims, suits, costs, expenses, damages and judgments based upon infringement of any patent relating to goods specified in this order or the ordinary use or operation of such goods by City or use or operation of such goods in accordance with bidders direction.
15. If the bid requires a written contract, the successful bidder shall execute a written contract with the City of Tulsa and return the required bonds and insurance certificates within ten (10) days after submission of contracts to said bidder by the City.

**INTEREST AFFIDAVIT**

STATE OF \_\_\_\_\_ }  
  } ss  
COUNTY OF \_\_\_\_\_ }

\_\_\_\_\_, of lawful age, being first duly sworn, states that s(he) is the agent authorized by the bidder to submit the attached bid. Affiant further states that no officer or employee of the City of Tulsa either directly or indirectly, owns a twenty-five percent (25%) interest in the bidder's business or such a percentage which constitutes a controlling interest. Affiant further states that the following officers and/or employees of the City of Tulsa have some direct or indirect interest in the bidder's business:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

By \_\_\_\_\_  
(Signature)

\_\_\_\_\_  
(Title)

Subscribed and sworn to before me this \_\_\_\_\_ day of \_\_\_\_\_, 19\_\_\_\_\_.

\_\_\_\_\_  
NOTARY PUBLIC SIGNATURE

My Commission Expires:  
\_\_\_\_\_

**The Interest Affidavit must be completed, signed by an authorized agent, and notarized.**

# BIDDER AFFIDAVIT - TITLE 74 O.S. (1974 SUPP.) 85.22-85.25

STATE OF \_\_\_\_\_ COUNTY OF \_\_\_\_\_

\_\_\_\_\_, of lawful age, being first duly sworn on oath says  
**Authorized Agent**

1. (s)he is the duly authorized agent of \_\_\_\_\_, the bidder submitting the competitive bid which is attached to this statement, for the purpose of certifying the facts pertaining to the existence of collusion among bidders and between bidders and municipal officials or employees, as well as facts pertaining to the giving or offering of things of value to government personnel in return for special consideration in the letting of any contract pursuant to the bid to which this statement is attached.
2. (s)he is fully aware of the facts and circumstances surrounding the making of the bid to which this statement is attached and has been personally and directly involved in the proceedings leading to the submission of such bid; and
3. neither the bidder nor anyone subject to the bidder's direction or control has been a party;
  - a. to any collusion among bidders in restraint of freedom of competition by agreement to bid at a fixed price or to refrain from bidding,
  - b. to any collusion with any municipal official or employee as to quantity, quality or price in the prospective contract, or as to any other terms of such prospective contract, nor
  - c. in any discussions between bidders and any municipal official concerning exchange of money or other thing of value for special consideration in the letting of a contract.

\_\_\_\_\_  
SIGNATURE OF AUTHORIZED AGENT

Subscribed and sworn to before me this \_\_\_\_\_ day of \_\_\_\_\_, 19\_\_\_\_\_.

\_\_\_\_\_  
Signature of Notary Public

\_\_\_\_\_  
MY COMMISSION EXPIRES

**The Bidder Affidavit must be completed, signed by an authorized agent, and notarized.**

# CONTRACTOR/BIDDER INFORMATION SHEET

To be completed by all Bidders  
For Contracts with the City of Tulsa  
(Please print or type)

Project No. or Description \_\_\_\_\_  
\_\_\_\_\_

Full Name of Bidder \_\_\_\_\_

Legal Identity  
(Corporation, Partnership,  
Individual, etc.) \_\_\_\_\_

Address \_\_\_\_\_  
\_\_\_\_\_

Telephone No. \_\_\_\_\_

FAX No. \_\_\_\_\_

Taxpayer Identification Number \_\_\_\_\_

Contact Person \_\_\_\_\_

Phone No. \_\_\_\_\_

Fax No. \_\_\_\_\_

E-mail address \_\_\_\_\_

Webpage Address \_\_\_\_\_

## Price Sheet Summary

Vendor Name: \_\_\_\_\_ Signature: \_\_\_\_\_  
 Date: \_\_\_\_\_

**You will be able to obtain a copy of the Bid Summary on the City of Tulsa's Purchase-Net Fax-on-Demand and Website shortly after bid opening.**

# BID #00-604

| <u>ITEM</u> | <u>QTY.</u> | <u>DESCRIPTION</u>  | <u>UNIT COST</u>     | <u>TOTAL COST</u> |
|-------------|-------------|---|----------------------|-------------------|
| 1.          | 4,250 feet  | Hose, 1-3/4" Diameter, Double jacket, yellow Hypalon N-fused 50' length coupled sections, NST thread couplings.<br>Brand Quoting _____                  | \$ _____<br>Per Feet | \$ _____          |
| 2.          | 2,500       | Manufacture _____<br>3" diameter, double jacket, yellow Hypalon N-fused, 50' foot length coupled sections, NST thread couplings.<br>Brand Quoting _____ | \$ _____<br>Per Feet | \$ _____          |
| 3.          | 2,000       | Manufacture _____<br>5" diameter, 100' sections, Stortz couplings, light weight synthetic jacket.<br>Brand Quoting _____<br>Manufacture _____           | \$ _____<br>Per Feet | \$ _____          |

# **BID #00-604**

## **FIRE HOSE**

### **FIRE DEPARTMENT**

#### **INTENT:**

It is the intent of this bid to secure, on a competitive basis, a source of supply for furnishing **Fire Hose** to the City of Tulsa Fire Department.

(Prices must be held constant for the term).

#### **GENERAL SPECIFICATIONS:**

All material/equipment bid shall be new and the latest product model. Brochures and/or specification literature clearly describing the units and verifying that the units meet or exceed the requirements of this specification shall accompany each bid proposal. Warranty and delivery information shall also be provided with the bid proposal.

Any manufactures name and model called out in this bid is to set the quality and design of equipment desired and is not meant to limit bidding on products of equal quality.

Any exceptions to or deviations from the specifications set forth in this bid shall be clearly described in the bidder's proposal.

#### **DELIVERY:**

All prices shall be quoted F.O.B. Destination.

#### **BIDDER'S AFFIDAVIT:**

Each bidder shall accompany their bid with a fully executed and notarized copy of the attached **Non-Collusion Affidavit** and the **Interest Affidavit**. Failure to do so may be cause for rejection of the bid.

#### **ADDENDA AND INTERPRETATIONS:**

If it becomes necessary to revise any part of this bid, a written addendum will be provided to all the bidders. The City of Tulsa is not bound by any oral representations, clarifications or changes made in the written specifications by City of Tulsa employees unless such clarification or change is provided to bidders in written addendum form from the Purchasing Division.

## **AWARD OF BID:**

The bid shall be awarded to the firm whose proposal is responsive to the bid and is most advantageous to the City, considering the factors identified in the bid and Section 406E of Title 6, The Purchasing Ordinance set forth below:

### **406E. AWARD OF CONTRACT**

1. Authority in the Mayor. The Mayor shall have the authority to award contracts within the purview of this chapter.
2. Lowest Secure Bidder. Contracts shall be awarded to the lowest secure bidder meeting specifications. Bid Specifications may include a point system for evaluating the lowest secure bid. In determining "lowest secure bidder", in addition to price, the following factors shall be considered:
  - a. The ability, capacity and skill of the bidder to perform the contract or provide the service required;
  - b. whether the bidder can perform the contract or provide the service promptly or within the time specified, without delay or interference;
  - c. the character, integrity, reputation, judgment, experience and efficiency of the bidder;
  - d. the quality of performance of previous contracts or services;
  - e. the previous and existing compliance by the bidder with laws and ordinances relating to the contract or service;
  - f. the sufficiency of the financial resources and ability of the bidder to perform the contract or provide the service;
  - g. the quality, availability and adaptability of the supplies or contractual services to the particular use required;
  - h. the ability of the bidder to provide future maintenance and service for the use of the subject of the contract;
  - i. where an earlier delivery date would be of great benefit to the requisitioning agency, the date and terms of delivery may be considered in the bid award, and
  - j. the number and scope of conditions attached to the bid.
  - k. if a point system has been utilized in the bid specifications, the number of points earned by the bidder.

**Terms and conditions shown on page 4 apply to this transaction.**

**The City reserves the right to determine which products bid meet specifications in the award process.**

# CITY OF TULA

## BID SPECIFICATION B 1-3/4" DOUBLE JACKET FIRE HOSE YELLOW HYPALON N-FUSED

### SCOPE:

QUALITY: The Fire Hose to be supplied under this specification shall be a premium quality, abrasion resistant, double jacket, lightweight municipal fire hose designed for ease of handling and use.

### TECHNICAL INFORMATION

### QUALITY CONTROL:

Total quality control must be managed by the hose manufacturer, including weaving of the jackets, manufacturing of linings, physical and laboratory testing of all raw materials and finished products. NO EXCEPTIONS.

A system of accurate documentation will be maintained on hydrostatic tests. The documentation will include a standard hydrostatic test form listing date of tests, inspector's name and all test results.

Physical tests shall be made to determine lining tensile, elongation, gauge, adhesion rate, set, hardness, accelerated aging and ozone resistance.

The results of these tests shall be readily available upon request of the purchaser.

Complete detailed specifications must accompany bids. Advertising matter will not be accepted as specification material.

### JACKETS:

The warp yarn in both jackets shall be a high strength, low stretch filament polyamide six (6) staple high bulked yarn comprising an entangled convoluted mass of continuous filaments. The yarn shall allow total saturation of a Hypalon compound. To determine the warp yarn construction, the purchasing authority reserves the right to have warp yarn samples from the delivered hose and/or samples from the yarn manufacturer's original package tested in accordance with ASM D276 Section 16 "Fiber Identification Using Solubility Relationships."

If after testing the results are positive for polyamide, the sample will then be subjected to ASM D276, Section 26 "Fiber Melting Point." A positive test for the presence of the condensation product of hexamethylenediamine and adipic acid

or polyamide (six) 6-6 (six) shall be if the fiber specimens do not melt at less than 254 C + 2.

Types of yarns such as spun polyester that will not accept total saturation of hypalon compound are not acceptable. The jacket construction must practically eliminate moisture absorption and problems that make hose difficult to handle in freezing weather. The number of warp ends must be adequate to provide complete coverage and protection of the filler yarn.

All materials must be domestically produced. Vendor will be required to submit yarn samples in the yarn manufacturer's original packaging, along with a letter certifying all materials are domestically produced.

A certified statement of compliance to the above may be required from the hose manufacturer.

The inside jacket shall have 234 warp ends with not less than 30 lbs. tensile strength. The filler yarns for both jackets shall have a tensile strength of not less than 140 lbs.

#### **HYPALON N-FUSION:**

Prior to the jackets and liner being combined, each outside jacket must be completely N-Fused by a mechanical process to provide complete coverage of a Hypalon compound. N-Fusion shall be a total heat set of chlorosulfonated polyethylene. The heat applied shall be a minimum 450 F. Impregnation or coating types cured with natural ventilation are not acceptable.

Hypalon applied to finished hose and allowing varied absorption to the inside jacket is not acceptable. At the option of the Purchasing Department, Hypalon N-Fused outside jacket samples may be required.

#### **DIAMETER:**

The hose has an internal diameter of not less than the trade size of the hose.

#### **MARKINGS:**

Beginning at a point not less than 4-feet from the end, each length will be stenciled in indelible letters at least 1" in height with the trade name of the manufacturer and all other requirements of the current NFPA Standard 1961, using ink of contrasting color.

**METHOD OF TESTING:**

- (A) All measurements and test necessary to determine compliance of the fire hose with specified requirements will be made in accordance with the Methods of Testing Rubber Hose (ASTM Designation: D380), except as otherwise specified.
- (B) Tests: All tests will be conducted at the point of manufacture, or a laboratory equipped for such testing. All tests will be conducted under controlled conditions employing equipment capable of supplying a uniform pressure, and will follow procedures as specified in NFPA Pamphlet 1961.

**COUPLINGS:**

Each length of hose must have one complete set of Extruded aluminum coupling with National Standard Threads installed. Each set to include three Neoprene gaskets of good quality. One gasket to accurately fit the coupling swivel; one gasket will be placed under the end of each expansion ring. When the coupling is made up snugly, as in service, the swivel gasket will not be compressed to project beyond the coupling's inside surface.

**PLACE OF DELIVERY:**

The hose supplied under the terms of this proposal will be delivered to the City of Tulsa without any change for deliver. Hose must be manufactured after receipt of order. Stock hose is not acceptable.

**LINING:**

The rubber lining shall be a single ply extrusion having a uniform wall thickness free from pitting and imperfections. Surface must be smooth and free from corrugations.

Compound must provide positive protection from the action of oxidation and will be ozone resistant.

- Thickness - .040' to .052'
- Shore Hardness – 50, plus or minus 5
- Tensile Strength – 1600# PSI minimum
- Elongation – 400% (2" to 10").

**OZONE RESISTANCE REQUIREMENTS:**

Lining specimens shall be subjected to ASTM-D 1149-64 (latest revision) "Tentative Method of Test for Accelerated Ozone Grading of Vulcanized Rubber."

Specimen shall be made in accordance with ASTM-D518 procedure "C" and shall be elongated 15%. Ozone concentration shall be 100 plus or minus 5 parts

per hundred million by volume. Temperature shall be 100 F (37.8 C). Time shall be 100 hours.

There shall be no appearance of cracking or crazing when viewed under a 7-power magnifying glass at any time during or at the end of the 100 hour period.

**ACCELERATED AGING:**

The tensile strength and ultimate elongation of the rubber lining after aging will be less than 70% of the original tensile and elongation. Lining specimens will be exposed to 70 plus or minus 1 C temperature for a duration of 166 hours plus or minus 2 hours and will be allowed to relax for 24 hours plus or minus 1 hour before testing ASTM-D673-67.

Adhesion: The adhesion will be such that the rate of separation of a one and one-half inch strip of rubber, transversely cut, will not be greater than one inch per minute under a weight of 12 lbs.

The City of Tulsa Fire Department reserves the right to forward 3-foot samples cut from lengths of delivered hose to a nationally recognized laboratory for testing. The tests will cover the physical requirements of the linings as well as the jackets as outlined in these specifications. If the hose passes, the cost will be paid by the City of Tulsa Fire Department. If the hose fails, the cost shall be paid by the supplier. Failure to comply with these specifications will be cause for all hose to be rejected.

The City of Tulsa reserves the right to request one sample cut from each 1,000' of delivered hose. The sample will be minimum length necessary to conduct ozone resistance, accelerated aging, adhesion and liner tensile strength tests by the manufacturer. The results of these tests, along with the samples, are to be forwarded to the City of Tulsa Fire Department.

**HYDROSTATIC TEST:**

- (A) Each length of hose is subjected to a hydrostatic pressure of 600 PSI for fifteen seconds.
- (B) Elongation: The elongation of the hose at 600 PSI will not exceed 8 percent when measured from an initial pressure of 10 PSI.
- (C) Twist: The hose will not twist more than 29 degrees per foot.
- (D) Warp: The hose will not warp more than 20" from a straight line drawn from center to center of the fittings at the end of the hose.

**BURST TEST:**

A 36" random sample of hose shall stand without failure a hydrostatic pressure of 900 PSI while lying straight or curved on a 27" radius.

The inside jacket must stand without failure a hydrostatic pressure of 585 PSI.

**KINK TEST:**

A full length will stand without failure while kinked, a hydrostatic pressure of 500 PSI.

TULSA FIRE DEPARTMENT  
FIRE HOSE BID SPECIFICATIONS  
THREE INCH HOSE

Double jacketed (polyester) lined fire hose as specified:

1. Scope: This specification applies to 3" (76.2mm) size of Double Jacket Fire Hose suitable for a test pressure upon delivery of 800 PSIG.
2. Material and Workmanship: All materials used in the fabrication of the Fire Hose will be of the best quality normally used for the purpose in good commercial practice for the type designated. The workmanship will be of the highest quality.
3. Jacket Construction
  - A. The jackets shall be well, evenly and firmly woven with polyester in warp ends; and will be free from unsightly defects, dirt, knots, lumps and irregularities of twist that might affect the serviceability of the finished product.
  - B. Each jacket will be seamless and shall have polyester filter yarns woven around the hose throughout the length, with the warp ends interwoven with and covering the filler yarns. The Polyester filler yarns shall be of the tensile strength adequate to meet the physical tests requirements hereinafter detailed.
  - C. The warp ends in all sizes shall be high quality spun polyester, with sufficient ends to completely cover the filler yarns. The filler yarns shall be polyester. There shall be a minimum of 10 filler yarns per inch in both the inner and outer jackets.
4. Hypalon N-Fusion: Prior to the jackets and the liner being combined, each outside jacket must be completely N-fused by a mechanical process to provide complete coverage of a Hypalon compound. N-Fusion will be a total heat set of chlorosulfonated polyethylene. The heat applied will be a minimum 450 degrees F. Impregnation or coating types cured with natural ventilation are not acceptable. Hypalon applied to finished host and allowing varied absorption to the inside jacket is not acceptable. At the option of the Purchasing Department, Hypalon N-Fused outside jacket samples may be required.

5. Lining

- A. The lining will be of synthetic material comparable to the latest advances in polymer technology. S.B.R. (Styrene Butadilene) or similar type synthetic rubber liner will not be considered as meeting this specification. The lining will be highly resistant to ozone and oxidation, compounded and processed to give long life under good maintenance practice.
- B. The lining will be extruded of uniform thickness throughout its length. The waterway of the tube will be smooth and free from imperfections.
- C. The thickness of the lining will be .015 inch.
- D. The adhesion between lining and jacket will be such that the rate of separation of a 1-1/2" wide strip of lining from the jacket will not be greater than 1" per minute under a weight of 12 pounds.

6. Hydrostatic Pressure Tests

- A. Proof Pressure: Each length of hose will withstand a hydrostatic pressure of 800 PSIG for 15 seconds without leaking or breaking any thread in the jackets.
- B. Elongation: The elongation of the hose while under an 800 PSIG hydrostatic pressure will not exceed 10% of the length from an initial measurement taken at a pressure of 10 PSIG.
- C. Twist: The hose, under 800 PSIG hydrostatic pressure, will not twist more than 2 turns per 50 feet. Direction will be that which will tighten the couplings, except a maximum of 2 degrees per foot in direction to loosen the couplings will be permitted while pressure is being raised from 0 to 800 PSIG provided that the final twist will be in direction to tighten couplings.
- D. Warp and Rise: The hose, under 800 PSIG hydrostatic pressure will not warp more than 20 inches from a straight line drawn from center to center of the fittings on the ends of the hose . No rise from the level of the test table will be permitted.
- E. Kink: A full length of hose, when pressurized to 450 PSIG then immediately dropped, will not rupture or show any signs of broken threads in the jacket.
- F. Straight Burst: A 3 foot specimen of the hose, while lying straight, will have the pressure increased until burst occurs. The pressure at which the burst occurs will not be less than 1200 PSIG.

- G. Curved Burst: A 3 foot specimen of the hose, while curved to a radius of 27 inches, will have the pressure increased until burst occurs. The pressure at which the burst occurs will not be less than 1200 PSIG.

7. Dimensions

- A. The internal diameter of the hose will not be less than 3-5/16". The outside diameter will be 3-9/16".
- B. The hose will be in lengths of 50 feet when measured from the back end of the male coupling to the back end of the female coupling at 10 PSIG.
- C. A 50 foot length of hose, uncoupled, will weigh 23 pounds.

8. Couplings

- A. All couplings will be Red Head Style 77 with NST threads, properly attached and tested by the manufacturer.
- B. The hose will have three part 3" x 2-1/2" reducing couplings, NST.
- C. All 3" hose female swivels will have ball bearing connections.
- D. The manufacturer will furnish washers and gaskets with all couplings.

9. Marking

Beginning approximately 4 feet from each end, each 50 foot length will be stenciled in letters at least  $\frac{3}{4}$  of an inch in height with the name or trademark of the manufacturer, the month and year of manufacture, and the words "Service Test to 400 PSIG."

All measurements and tests will be made in accordance with the methods of testing rubber hose, ASTM D-296 and D-380, except as otherwise prescribed in these specifications.

- 10. Guarantee: The manufacturer guarantees that the equipment offered is standard new equipment, latest model of regular stock product with all parts regularly used with the type of equipment offered; also, that no attachment or part has been substituted or applied contrary to manufacturers recommendations and standard practice. Every unit delivered must be guaranteed against faulty material and workmanship for a period of 10 years or for the period per the manufacturer's standard guarantee whichever is greater. If, during this period, such faults develop, the unit or part affected is to be replaced without cost to the City of Tulsa.

The Tulsa Fire Department reserves the right to forward a 3-foot piece as a sample cut from lengths of delivered hose to a nationally recognized laboratory for testing. The tests will cover the physical requirements of lining as well as the jackets as outlined in these specifications. If the hose passes, the cost will be paid by the Fire Department. If the hose fails, the cost will be paid by the manufacturer. Failure to comply with these specifications will be cause for all hose to be rejected.

TULSA FIRE DEPARTMENT  
SPECIFICATIONS FOR A  
FIVE (5) INCH FIRE HOSE  
3-15-97

INTENT:

This specification applies to five (5) inch fire hose. The hose is intended to be used for delivering water during fire suppression activities. The hose is to be fully compliant with the current edition of NFPA 1961 standard on Fire Hose.

MATERIAL & WORKMANSHIP:

All materials used in the fabrication of the fire hose will be the best quality normally used for the purpose in good commercial practice for the type designated. The workmanship will be of the highest quality.

The hose is to be fully compliant with the current edition of NFPA 1961 standard on Fire Hose.

GUARANTEE:

In addition to the standard guarantee, the manufacturer guarantees that each length of hose to be free against faulty materials and workmanship for a period of ten years. If during this period, such faults develop, the unit or part affected is to be replaced at no cost to the City of Tulsa.

CONSTRUCTION:

The hose will be 100% mildew resistant.

The hose will be made from 100 percent high tenacity synthetic yarn, circularly woven and completely protected and locked-in by highly resistant synthetic nitrile rubber forming a single homogeneous construction without the use of glues or adhesives.

COUPLINGS:

The couplings to be five inch light weight aluminum locking storz couplings with protected collar bolts to reduce the potential of damage during use.

DIMENSIONS:

The internal dimension of the fire hose will not be less than five (5) inches. Each length of hose will be one-hundred (100) feet in length when measured from the back end of one coupling to the back end of the other coupling.

HYDROSTATIC PRESSURE TEST:

The hose is to have a straight burst pressure rating of no less than 600 psig and a hydrostatic test pressure of no less than 400 psig.

FRICTION LOSS:

The friction loss within the hose is not to exceed 7 psi in 100 feet while flowing 1,000 gallons per minute.

WEIGHT WITH COUPLINGS:

The weight of one-hundred (100) feet of hose is not to exceed 110 pounds without couplings.

MANUFACTURER SPECIFICATIONS:

The hose is to be provided with a complete set of detailed specifications. Advertising materials will not be accepted as specification material.

COLOR:

Yellow