

CITY OF ANN ARBOR  
REQUEST FOR PROPOSAL



ANN ARBOR FIRE DEPARTMENT  
ANNUAL FIRE HOSE TESTING SERVICES

RFP No. 805\_\_\_\_

Responses Due: Tuesday, September 23, 2011 by 10:00 am

Safety Services Area

CITY OF ANN ARBOR  
301 E. Huron Street  
Ann Arbor, Michigan 48104

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## Section 1

### General Information and Instructions

#### Objective

The City of Ann Arbor, Michigan is hereby soliciting sealed proposals and statements of qualifications for the provision of a comprehensive **Annual Fire Hose Testing, RFP 805**.

#### Issuing Office

Procurement Unit, Financial Services  
City of Ann Arbor  
301 E. Huron Street, P.O. Box 8647  
Ann Arbor, MI 48107-8647  
(734) 994-2719

#### Contract Administration

Following the signing of a contract, all communication concerning the contract must be directed to:

Ed Dziubinski, Assistant Chief  
Ann Arbor Fire Department  
City of Ann Arbor  
111 N. Fifth Ave.  
Ann Arbor, MI 48104  
(734) 794-6961 ext 49604

#### Proposals

Eight (8) copies of the proposal shall be submitted. The proposal shall be no more than 50 pages in length, printed in a double-sided format. The information included therein should be as concise as possible. Fee proposals must be submitted in a separate sealed envelope at the same time. All envelopes for proposals and/or separate fee proposals must be marked "**Ann Arbor Fire Department Annual Fire Hose Testing RFP 805**" in bold type. The proposals must be submitted to the Procurement Office.

To be considered, each firm must submit a complete response to this RFP using the Format found in Section 3 of this RFP. No other distribution of proposals is to be made by the submitter. Appendix A of this RFP, Legal Status of Proposer, Living Wage Compliance Form and the Contract Compliance Form must be completed and returned with the proposal. An official, authorized to bind the submitter to its proposal provisions, must sign each proposal copy in ink.

Each proposal must remain valid at least ninety (90) days from the due date of this RFP.

#### Selection Criteria

Responses to this RFP will be evaluated using a point system, described in Section 3. The evaluation will be completed by a selection committee composed of staff members from various units of the City.

The Selection Committee will initially evaluate responses to the RFP, based on criteria included in Section 3. For the initial evaluation, they will not consider the fee proposals. The fee proposal(s) of the Proposer(s) selected will be opened and reviewed before secondary evaluation of adherence to technical testing standards and technology utilized to inventory the department's fire hose inventory. To decide the most qualified, capable and cost-effective Proposer, the Selection Committee will evaluate the proposal(s) using the point system described in Section 3 of this RFP.

#### Changes in the RFP

Should any prospective Proposer be in doubt as to the true meaning of any portion of this RFP, or should the Proposer find any ambiguity, inconsistency, or omission therein, the Proposer shall make a written request for an official interpretation or correction. Such requests must be submitted to the issuing office not less than seven (7) days prior to the final date of submittal of the proposals. The person making the request shall be held responsible for its prompt delivery.

The City's staff will make such interpretation or correction, as well as any additional RFP provisions that the City may decide to include, only as an RFP addendum. Staff will mail or deliver addendums to each contractor recorded as having received a copy of the RFP. Any addendum issued by the City shall become a part of the RFP. Proposers should consider issued addendums in preparing his or her proposal. Only addendums duly issued by the City shall be binding.

#### Proposal Receipt

Proposals must be received by the City of Ann Arbor, Procurement Unit, 5<sup>th</sup> Floor, City Hall, 301 E. Huron Street, Ann Arbor, Michigan 48107 on or before 10:00 am on September 23, 2011. Prospective submitters are responsible for the timely receipt of their proposal. All proposals become the property of the City of Ann Arbor once reviewed, whether awarded or rejected. Late proposals will not be considered or accepted.

#### Disclosures

All information in a submitter's proposal is subject to disclosure under the provisions of Public Act No. 442 of 1976 known as the "Freedom of Information Act". This act also provides for the complete disclosure of contracts and attachments thereto.

#### Services Agreement

The contractor selected to do business with the City of Ann Arbor will be required to execute the standard Services Agreement with the City (a sample agreement is included with this RFP). The City will not entertain requests to revise, amend, or change the language of the standard Services Agreement. Proposal submitters must base their proposal on the assumption that, if selected, they will execute the Services Agreement.

#### Cost Liability

The City of Ann Arbor assumes no responsibility or liability for costs incurred by the contractor prior to the execution of a Contract.

#### Non-Discrimination by City Contractors

All contractors proposing to do business with the City of Ann Arbor, except those specifically exempted by regulations promulgated by the Administrator and approved by City Council, shall receive approval from the Procurement Unit prior to entering into a services agreement with the City. Said contractors shall take affirmative

action to ensure that applicants are employed and that employees are treated during employment in a manner which provides equal employment opportunity and tends to eliminate inequality based upon race, national origin or sex.

Each prospective contractor shall submit to the City data showing current total employment by occupational category, sex and minority group. If, after verifying this data, the Procurement Unit concludes that it indicates total minority and female employment commensurate with their availability within the contractor's labor recruitment area, i.e., the area from which the contractor can reasonably be expected to recruit, the prospective contractor shall be accepted by the Procurement Unit as having fulfilled affirmative action requirements for a period of six (6) months at which time the Procurement Unit will conduct another review. Other contractors shall develop an affirmative action program in conjunction with the City of Ann Arbor's Human Resources Director. The program shall include specific goals and timetables for the hiring and promotion of minorities and females. Said goals shall reflect the availability for minorities and females within the contractor's labor recruitment area.

### Living Wage

All contractors proposing to do business with the City of Ann Arbor, except those specifically exempted by regulations promulgated by the Administrator and approved by City Council, agree to comply with the living wage provisions of Chapter 23 of the Ann Arbor City Code and, if a "covered employer" as defined therein to pay those employees providing services to the City under this agreement a "living wage" as defined in Chapter 23 of the Ann Arbor City code; and, if requested by the City, provide documentation to verify compliance. The contractor agrees to comply with the provisions of Section 1:1815 of Chapter 23 of the Ann Arbor City Code, Exhibit D.

### Independent Fee Determination

1. By submission of a proposal, the submitter certifies, and in the case of joint proposal, each party thereto certifies as to its own organization, that in connection with this proposal:
  - a) They have arrived at the fees in the proposal independently, without consultation, communication, or agreement, for the purpose of restricting competition as to any matter relating to such fees with any other proposal submitter or with any competitor.
  - b) Unless otherwise required by law, the fees which have been quoted in the proposal have not been knowingly disclosed by the submitter and will not knowingly be disclosed by the submitter prior to award directly or indirectly to any other prospective submitter or to any competitor.
  - c) No attempt has been made or shall be made by the proposal submitter to induce any other person or contractor to submit or not submit a proposal for the purpose of restricting competition.
  - d) Each person signing the proposal certifies that she or he is the person in the proposal submitter's organization responsible within that organization for the decision as to the fees being offered in the proposal and has not participated (and will not participate) in any action contrary to 1.a), b), or c) above.
2. A proposal will not be considered for award if the sense of the statement required in the Fee Analysis portion of the proposal has been altered so as to delete or modify 1.a), c), or 2 above. If 1.b) has been modified or deleted, the proposal will not be considered for award unless the submitter furnishes with the proposal a signed statement which sets forth in detail the circumstances of the disclosure and the Issuing Office determines that such disclosure was not made for the purpose of restricting competition.

### Reservation of Rights

The City of Ann Arbor reserves the right to accept any proposal in whole or in part, to reject any or all proposals in whole or in part and to waive irregularity and/or informalities in any proposal and to make the award in any manner deemed in the best interest of the City.

The City reserves the right to request any additional information from a Proposer its deems necessary for evaluation of a Proposal.

#### Non-Disclosure Agreement

The consultant selected for this work will sign a Non-Disclosure Agreement. Attached is the Non-Disclosure Agreement form.

## Section 2

### Scope of Work

#### INTRODUCTION AND OVERVIEW

The City of Ann Arbor Fire Department would like to request proposals for annual testing of its fire hose (approximately 36,000 total feet) and publication of its fire fighting hose inventory via secure web based application. The period of this contract will be for a period of three years (3) with the option of the Fire Chief to extend the contract an additional one (1) year.

The department requires that all applicable testing will be accomplished according to the most current published National Fire Protection Association publications in effect including current amendments.

For the testing of the Ann Arbor Fire departments fire hose, the selected contractor must be able to provide proof that all applicable areas of the N.F.P.A testing guidelines are met or exceeded and have been met in past practice by providing documentation of test set-ups of prior fire service testing that the contractor has provided annual testing to. Additional photo documentation is requested to show proof of adherence to testing procedures. Contractor shall provide personnel on site to unload and reload fire hose from apparatus to the departments loading specifications. The department shall provide an appropriate area to the contractor that will allow the hose to lie flat in accordance with N.F.P.A guidelines. The fire department utilizes a bar code inventory system and contractors must be able to utilize and scan, add to and maintain the departments bar coding inventory system. Additionally contractor must be able to maintain a secure web based inventory system based on the departments bar coding in that the fire department may access and submit ongoing changes if fire hose is damaged, added to service or taken out of service.

#### GENERAL INFORMATION ON FIRE DEPARTMENT

The City of Ann Arbor Fire Department provides all hazards response services to a 27.7 square mile area encompassing the City of Ann Arbor, the University of Michigan main, north and athletic campuses. The Department is maintains a modern fleet of apparatus and firefighting equipment. The department utilizes computerized records keeping and under I.T. guidelines embraces modern inventory methods in the ongoing maintenance and testing of its fire hose inventory, fleet and professional equipment.

#### SCOPE OF SERVICES

The testing contractor will be responsible for conducting annual required testing of the department's fire hose, which includes unloading of hose from vehicles and reloading of the fire hose to department fire hose loading specifications.

The selected contractor will be expected to meet or exceed all specification listed in this Section. Any alternative to the City specifications for service delivery proposed by a Respondent must be listed in detail and documented in the same manner as the called for in the City specification.

#### Technical Specifications

##### **Primary Components**

- Testing shall be in accordance with National Fire Protection Associations (NFPA) 1962 2008 edition.
- Adherence to this standard is mandatory, no exceptions shall be granted.
- Maintain a website for both internal and external inventory use.
- Schedule and coordinate fire hose testing for the Ann Arbor Fire Department.

- Providing support, consulting, etc. for department staff when new fire hose is purchased or fire hose is damaged and needs to be taken out of service.
- Provide 3 written copies of the yearly testing results and complete department fire hose inventory with coordinating bar code tag numbers.
- Provide all project deliverables as required by contract.

**SECTION 3**  
**INFORMATION REQUIRED FROM ALL PROPOSAL SUBMITTERS**

Submitters should organize Proposals into the following Sections:

- A. Professional Qualifications
- B. Past Involvement with Similar Projects including documentation of adherence to testing standards.
- C. Proposed Work Plan
- D. Fee Proposal (include in a separate sealed envelope)
- E. Authorized Negotiator
- F. Appendices

The following Section describes the elements that should be included in each of these proposal sections and the weighted point system that will be used for evaluation of the proposals.

A. Professional Qualifications – 20 points

- 1. State the full name and address of your organization and, if applicable, the branch office or other subordinate element that will perform, or assist in performing, the work hereunder. Indicate whether it operates as an individual, partnership, or corporation. If as a corporation, include whether it is licensed to operate in the State of Michigan.
- 2. Include the name of executive and professional personnel by skill and qualification that will be employed in the work. Show where these personnel will be physically located during the time they are engaged in the work. Indicate which of these individuals you consider key to the successful completion of the project. Identify only individuals who will do the work on this project by name and title. Resumes and qualifications are required for all proposed project personnel.
- 3. State history of the organization, in terms of length of existence, types of services provided, etc. Identify the technical details which make the organization qualified for this work.

B. Past involvement with Similar Projects - 25 points

The written proposal must include a list of specific experiences by the proposed project team members within the past five (5) years in the following areas:

- 1. Experience in fire department annual hose testing.
- 2. Experience utilizing bar coding systems and past project implementation.
- 3. Experience in web hosting of client inventory databases.
- 4. Experience in Automated, digitally regulated testing.
- 5. Experience in utilization of technology to regulate testing adherence and documentation.

The proposal must also indicate proven ability to complete similar projects within the budgeted amounts. A summary of related projects with the original deadline and cost estimate versus the actual completion date and final cost of the design is to be included in this section. A discussion of five (5) related designs by the project team members completed within the past five (5) years is to be included.

A list of references for all projects described in this section must be included. Reference must include the information listed below:

Reference Name	
Reference Point of Contact	

POC Job Title POC Phone # and e-mail address	
Date of Service	
Type of Service	
Number of Users/Sites at which Service was provided for Reference	

The City reserves the right to contact any Company for which the Respondent has provided services, whether listed or not.

C. Proposed Work Plan - 35 points

A detailed work plan is to be presented which lists all tasks determined to be necessary to accomplish the work of this project. The work plan shall define resources needed for each task (title and person hours) and the contractor's staff person completing the project task. In addition, the work plan shall include a time line schedule depicting the sequence and duration of tasks showing how the work will be organized and executed.

1. The work plan shall be sufficiently detailed and clear to identify the progress milestones (i.e., project elements, measures, and deliverables are to be completed) and the extent and timing of the City personnel involvement. Additional project elements suggested by the Proposer are to be included in the work plan and identified as Proposer suggested elements.
2. The work plan must identify information the Proposer will need from City staff in order to complete the project. Include estimated time and resource commitment from City staff.
3. The work plan shall include any other information that the Proposer believes to be pertinent but not specifically asked for elsewhere.
4. Also include in the work plan proposed steps, if any, to expedite completion of the project. This will be given due consideration during evaluation of proposals.

D. Fee Proposal - 20 points

1. Fee quotations shall be submitted in a separate sealed envelope as part of the proposal. Fee quotations are to include the names, title, hourly rates, overhead factors, and any other details by which the overall and project element costs have been derived. The fee quotation is to relate in detail to each item of the proposed work plan. Testing contractor shall be capable of justifying the details of the fee proposal relative to personnel costs, overhead, how the overhead rate is derived, material and time.
2. The fee proposal shall be broken into two options:
  - Option 1: Master Plan, Essential component only
  - Option 2: Master Plan, Level of Service component only
3. The fee proposed must include the total estimated cost for the project when it is 100% complete. This total may be adjusted after negotiations with the City and prior to signing a formal contract, if justified. A sample of the required City Service Agreement form is included as Appendix C in Section 4 of this RFP

E. Authorized Negotiator

1. Include the name and phone number of persons(s) in your organization authorized to negotiate the Scope of Work with the City.

## F. Appendices

1. Appendix A (Legal Status of Proposer), Living Wage Compliance Form and the Contract Compliance Form must be completed and returned with the proposal. These elements should be included as attachments to the proposal submission.

## G. Proposal Evaluation

1. The Selection Committee may include representatives from the Fire Department, Public Services Department, and the City Attorney's Office. Members of the Selection Committee will evaluate each proposal by the above described criteria and point system (A through C) to select a short list of contractors for further consideration. The City reserves the right to not consider any proposal which it determines to be unresponsive and deficient in any of the information requested for evaluation. A proposal with all the requested information does not guarantee the proposing contractor to be a candidate for an interview. The Committee may contact references to verify material submitted by the Proposers. The City will determine whether the final scope of the project to be negotiated will be entirely as described in this RFP, a portion of the scope, or a revised scope.
2. The Committee, at the City's option may schedule interviews with the selected contractors or request further information to clarify any proposal submitted. If the City elects to conduct interviews, the selected contractors will be given the opportunity to discuss in more detail their qualifications, past experience, proposed work plan and fee proposal. The interview must include the project team members expected to complete a majority of work on the project, but no more than 5 members total. The interview shall consist of a presentation of approximately thirty (30) minutes by the Proposer, including the person who will be the project manager on this Contract, followed by approximately forty-five (45) minutes of questions and answers. Audiovisual aids may be used during the oral interviews. The oral interviews may be recorded on tape by the Evaluation Team.
3. Interviewed contractors will be re-evaluated by the above criteria (A through D) after the interview. After evaluation of the fee proposals, further negotiation with the selected candidate contractor will be pursued leading to the award of a contract by City Council.

## **SECTION 4**

### **APPENDICES**

Appendix A - Legal Status of Proposer

Appendix B - Example Service Agreement with Exhibits

Appendix C – National Fire Protection Association's Standard for the Inspection, Care, and Use of Fire Hose, Couplings, and Nozzles and the Service Testing of Fire Hose. Standard number 1962, 2008 edition.

**APPENDIX A**

**LEGAL STATUS OF PROPOSER**

(The Proposer shall fill out the appropriate form and strike out the other two.)

\* A corporation organized and doing business under the laws of the state of

\_\_\_\_\_, for whom \_\_\_\_\_

bearing the office title of \_\_\_\_\_, whose signature is affixed to this proposal, is authorized to execute contracts.

\* A partnership, list all members and the street and mailing address of each:

_____	_____
_____	_____
_____	_____
_____	_____

Also identify the County and State where partnership papers are filed:

County of \_\_\_\_\_, State of \_\_\_\_\_

\* An individual, whose signature with address, is affixed to this proposal: \_\_\_\_\_  
(Initial Here)

**APPENDIX B**

**STATEMENT of PROPOSER**

City of Ann Arbor  
Guy C. Larcom Municipal Building  
Ann Arbor, Michigan 48107

Ladies and Gentlemen:

The undersigned declares that this Proposal is made in good faith, without fraud or collusion with any person or persons submitting a bid on the same Contract; that the undersigned has carefully read and examined the "Request for Proposal" documents, including Information and Instructions, Scope of Work, Information Required, all Addenda (if any), and understands them. The undersigned declares that it is fully informed as to the nature of and the conditions relating to the services to be provided. Further, the undersigned declares that it has extensive experience in successfully providing the services required under the specifications of this Request for Proposal.

The undersigned acknowledges that it has not received or relied upon any representations or warrants of any nature whatsoever from the City of Ann Arbor, its agents or employees, and that this Proposal is based solely upon the undersigned's own independent business judgment. If the City accepts this Proposal and the undersigned fails to contract and furnish the required insurance documentation within the time specified, then the undersigned shall be considered to have abandoned the Contract. In submitting this Proposal, it is understood that the right is reserved by the City to accept any proposal, to reject any or all proposals, to waive irregularities and/or informalities in any proposal, and to make the award in any manner the City believes to be in its best interest.

COMPANY NAME\*: \_\_\_\_\_  
STREET/P. O. BOX: \_\_\_\_\_  
CITY, STATE, AND ZIP CODE: \_\_\_\_\_  
DATE: \_\_\_\_\_ TELEPHONE: \_\_\_\_\_  
FAX: \_\_\_\_\_  
AUTHORIZED SIGNATURE: \_\_\_\_\_  
PRINTED NAME OF SIGNER: \_\_\_\_\_  
TITLE OF SIGNER: \_\_\_\_\_

\* NOTE: If the Proposer is a corporation, the legal name of the corporation shall be set forth above together with the signature of authorized officer or agents. If Proposer is a partnership, the true name of the firm shall be set forth with the signature of the partners authorized to sign contracts on behalf of the partnership. If Proposer is an individual, his/her signature shall be placed above.

**APPENDIX C  
CITY OF ANN ARBOR STANDARD SERVICE AGREEMENT**

**The following attachment is a specimen contract agreement for the services identified in this Proposal. The Selected Proposer will be required to execute a contract containing the terms and conditions of the specimen contract except where noted in the proposal. No changes, modifications, alteration or deletions to the terms and conditions of the specimen contract will be accepted.**

**SERVICES AGREEMENT BETWEEN  
\_\_\_\_\_  
AND THE CITY OF ANN ARBOR**

The City of Ann Arbor, a Michigan municipal corporation, having its offices at 301 E. Huron St., Ann Arbor, Michigan 48104 ("City"), and \_\_\_\_\_ ("Contractor") a(n) \_\_\_\_\_

\_\_\_\_\_  
(State where organized) (Partnership, Sole Proprietorship, or Corporation)

with its address at \_\_\_\_\_ agree as follows  
on this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_.

The Contractor agrees to provide services to the City under the following terms and conditions:

**I. DEFINITIONS**

Administering Service Area/Unit means \_\_\_\_\_.

Contract Administrator means \_\_\_\_\_, acting personally or through any assistants authorized by the Administrator/Manager of the Administering Service Area/Unit.

Deliverables means all Plans, Specifications, Reports, Recommendations, and other materials developed for and delivered to City by Contractor under this Agreement

Project means \_\_\_\_\_.  
Project Name; File and Subfile No.

**II. DURATION**

This Agreement shall become effective on \_\_\_\_\_, 20\_\_, and terminate on \_\_\_\_\_, below unless terminated as provided for in this Agreement.

The City reserves the right to renew this Agreement on the same terms and conditions for one additional one-year period.

**III. SERVICES**

A. The Contractor agrees to provide \_\_\_\_\_ services ("Services") in  
Type of Services

connection with the Project as described in Exhibit A. The City retains the right to make changes to the quantities of service within the general scope of the Agreement at any time by a written order. If the changes add to or deduct from the extent of the services, the contract sum shall be adjusted accordingly. All such changes shall be executed under the conditions of the original Agreement.

- B. Quality of Services under this Agreement shall be of the level of quality performed by persons regularly rendering this type of service. Determination of acceptable quality shall be made solely by the Contract Administrator.
- C. The Contractor shall perform its Services for the Project in compliance with all statutory, regulatory and contractual requirements now or hereafter in effect as may be applicable to the rights and obligations set forth in the Agreement.
- D. The Contractor may rely upon the accuracy of reports and surveys provided to it by the City except when defects should have been apparent to a reasonably competent professional or when it has actual notice of any defects in the reports and surveys.

#### **IV. COMPENSATION OF CONTRACTOR**

- A. The Contractor shall be paid in the manner set forth in Exhibit B. Payment shall be made monthly, unless another payment term is specified in Exhibit B, following receipt of invoices submitted by the Contractor, and approved by the Contract Administrator.
- B. The Contractor will be compensated for Services performed in addition to the Services described in Section III, only when the scope of and compensation for those additional Services have received prior written approval of the Contract Administrator.
- C. The Contractor shall keep complete records of work performed (e.g. tasks performed/hours allocated) so that the City may verify invoices submitted by the Contractor. Such records shall be made available to the City upon request and submitted in summary form with each invoice.

#### **V. INSURANCE/INDEMNIFICATION**

- A. The Contractor shall procure and maintain during the life of this contract, such insurance policies, including those set forth in Exhibit C, as will protect itself and the City from all claims for bodily injuries, death or property damage which may arise under this contract; whether the acts were made by the Contractor or by any subcontractor or anyone employed by them directly or indirectly. In the case of all contracts involving on-site work, the Contractor shall provide to the City, before the commencement of any work under this contract, documentation demonstrating it has obtained the policies required by Exhibit C.
- B. Any insurance provider of Contractor shall be admitted and authorized to do business in the State of Michigan and shall carry and maintain a minimum rating assigned by A.M. Best & Company's Key Rating Guide of "A-" Overall and a minimum Financial Size Category of "V". Insurance policies and certificates issued by non-admitted insurance companies are not acceptable unless approved in writing by the City.

- C. To the fullest extent permitted by law, the Contractor shall indemnify, defend and hold the City, its officers, employees and agents harmless from all suits, claims, judgments and expenses including attorney's fees resulting or alleged to have resulted from any acts or omissions by the Contractor or its employees and agents occurring in the performance of or in breach of this Agreement.

## **VI. COMPLIANCE REQUIREMENTS**

- A. Nondiscrimination. The Contractor agrees to comply, and to require its subcontractor(s) to comply, with the nondiscrimination provisions of MCL 37.2209. The Contractor further agrees to comply with the nondiscrimination provisions of Chapter 112 of the Ann Arbor City Code and to assure that applicants are employed and that employees are treated during employment in a manner which provides equal employment opportunity.
- B. Living Wage. If the Contractor is a "covered employer" as defined in Chapter 23 of the Ann Arbor City Code, the Contractor agrees to comply with the living wage provisions of Chapter 23 of the Ann Arbor City Code. The Contractor agrees to pay those employees providing Services to the City under this Agreement a "living wage," as defined in Section 1:815 of the Ann Arbor City Code, as adjusted in accordance with Section 1:815(3); to post a notice approved by the City of the applicability of Chapter 23 in every location in which regular or contract employees providing services under this Agreement are working; to maintain records of compliance; if requested by the City, to provide documentation to verify compliance; to take no action that would reduce the compensation, wages, fringe benefits, or leave available to any employee or person contracted for employment in order to pay the living wage required by Section 1:815; and otherwise to comply with the requirements of Chapter 23.

## **VII. WARRANTIES BY THE CONTRACTOR**

- A. The Contractor warrants that the quality of its Services under this Agreement shall conform to the level of quality performed by persons regularly rendering this type of service.
- B. The Contractor warrants that it has all the skills, experience, and professional licenses necessary to perform the Services specified in this Agreement.
- C. The Contractor warrants that it has available, or will engage, at its own expense, sufficient trained employees to provide the Services specified in this Agreement.
- D. The Contractor warrants that it is not, and shall not become overdue or in default to the City for any contract, debt, or any other obligation to the City including real and personal property taxes.
- E. The Contractor warrants that its proposal for services was made in good faith, it arrived at the costs of its proposal independently, without consultation, communication or agreement with any competitor for these Services, for the purpose of restricting competition as to any matter relating to such fees; and no attempt has been made or shall be made by the Contractor to induce any other perform or firm to submit or not to submit a proposal for the purpose of restricting competition.

## **VIII. OBLIGATIONS OF THE CITY**

- A. The City agrees to give the Contractor access to the Project area and other City-owned properties as required to perform the necessary Services under this Agreement.
- B. The City shall notify the Contractor of any defects in the Services of which the Contract Administrator has actual notice.

## **IX. ASSIGNMENT**

- A. The Contractor shall not subcontract or assign any portion of any right or obligation under this Agreement without prior written consent from the City. Notwithstanding any consent by the City to any assignment, Contractor shall at all times remain bound to all warranties, certifications, indemnifications, promises and performances, however described, as are required of it under the Agreement unless specifically released from the requirement, in writing, by the City.
- B. The Contractor shall retain the right to pledge payment(s) due and payable under this Agreement to third parties.

## **X. TERMINATION OF AGREEMENT**

- A. If either party is in breach of this Agreement for a period of fifteen (15) days following receipt of notice from the non-breaching party with respect to a breach, the non-breaching party may pursue any remedies available to it against the breaching party under applicable law, including but not limited to, the right to terminate this Agreement without further notice.
- B. The City may terminate this Agreement if it decides not to proceed with the Project by notice pursuant to Article XII. If the Project is terminated for reasons other than the breach of the Agreement by the Contractor, the Contractor shall be compensated for work performed and authorized pursuant to this Agreement.
- C. Contractor acknowledges that, if this Agreement extends for several fiscal years, continuation of this Agreement is subject to appropriation of funds for this Project. If funds to enable the City to effect continued payment under this Agreement are not appropriated or otherwise made available, the City shall have the right to terminate this Agreement without penalty at the end of the last period for which funds have been appropriated or otherwise made available by giving written notice of termination to the Contractor. The Contract Administrator shall give the Contractor written notice of such non-appropriation within thirty (30) days after it receives notice of such non-appropriation.
- D. The remedies provided in this Agreement will be cumulative, and the assertion by a party of any right or remedy will not preclude the assertion by such party of any other rights or the seeking of any other remedies.

## **XI. REMEDIES**

- A. This Agreement does not, and is not intended to, impair, divest, delegate or contravene any constitutional, statutory and/or other legal right, privilege, power, obligation, duty or immunity of the Parties.
- B. Absent a written waiver, no act, failure, or delay by a Party to pursue or enforce any rights or remedies under this Agreement shall constitute a waiver of those rights with regard to any existing or subsequent breach of this Agreement. No waiver of any term, condition, or provision of this Agreement, whether by conduct or otherwise, in one or more instances, shall be deemed or construed as a continuing waiver of any term, condition, or provision of this Agreement. No waiver by either Party shall subsequently effect its right to require strict performance of this Agreement.
- C. The following provision(s) shall survive the termination of this Agreement: Article V.

## **XII. NOTICE**

All notices and submissions required under this Agreement shall be delivered to the respective party in the manner described herein to the address stated in this Agreement or such other address as either party may designate by prior written notice to the other.

Notices given under this Agreement shall be in writing and shall be personally delivered, sent by next day express delivery service, certified mail, or first class U.S. mail postage prepaid, and addressed to the person listed below. Notice will be deemed given on the date when one of the following first occur: (1) the date of actual receipt; (2) the next business day when notice is sent next day express delivery service or personal delivery; or (3) three days after mailing first class or certified U.S. mail.

If Notice is sent to the CONTRACTOR, it shall be addressed and sent to:

If Notice is sent to the CITY, it shall be addressed and sent to:

City of Ann Arbor  
301 E. Huron  
Ann Arbor, Michigan 48107  
Attn:

### **XIII. CHOICE OF LAW AND FORUM**

This Agreement will be governed and controlled in all respects by the laws of the State of Michigan, including interpretation, enforceability, validity and construction, excepting the principles of conflicts of law. The parties submit to the jurisdiction and venue of the Circuit Court for Washtenaw County, State of Michigan, or, if original jurisdiction can be established, the United States District Court for the Eastern District of Michigan, Southern Division, with respect to any action arising, directly or indirectly, out of this Agreement or the performance or breach of this Agreement. The parties stipulate that the venues referenced in this Agreement are convenient and waive any claim of non-convenience.

### **XIV. OWNERSHIP OF DOCUMENTS**

Upon completion or termination of this Agreement, all documents (i.e., Deliverables) prepared by or obtained by the Contractor as provided under the terms of this Agreement shall be delivered to and become the property of the City. Original basic survey notes, sketches, charts, drawings, partially completed drawings, computations, quantities and other data shall remain in the possession of the Contractor as instruments of service unless specifically incorporated in a

deliverable, but shall be made available, upon request, to the City without restriction or limitation on their use. The City acknowledges that the documents are prepared only for the Project. Prior to completion of the contracted Services the City shall have a recognized proprietary interest in the work product of the Contractor.

Unless otherwise stated in this Agreement, any intellectual property owned by Contractor prior to the effective date of this Agreement (i.e., Preexisting Information) shall remain the exclusive property of Contractor even if such Preexisting Information is embedded or otherwise incorporated in materials or products first produced as a result of this Agreement or used to develop Deliverables. The City's right under this provision shall not apply to any Preexisting Information or any component thereof regardless of form or media.

### **XV. CONFLICTS OF INTEREST OR REPRESENTATION**

Contractor certifies it has no financial interest in the Services to be provided under this Agreement other than the compensation specified herein. Contractor further certifies that it presently has no personal or financial interest, and shall not acquire any such interest, direct or indirect, which would conflict in any manner with its performance of the Services under this Agreement.

Contractor agrees to advise the City if Contractor has been or is retained to handle any matter in which its representation is adverse to the City. The City's prospective consent to the Contractor's representation of a client in matters adverse to the City, as identified above, will not apply in any instance where, as the result of Contractor's representation, the Contractor has obtained sensitive, proprietary or otherwise confidential information of a non-public nature that, if known to another client of the Contractor, could be used in any such other matter by the other client to the material disadvantage of the City. Each matter will be reviewed on a case by case basis.

**XVI. SEVERABILITY OF PROVISIONS**

Whenever possible, each provision of this Agreement will be interpreted in a manner as to be effective and valid under applicable law. However, if any provision of this Agreement or the application of any provision to any party or circumstance will be prohibited by or invalid under applicable law, that provision will be ineffective to the extent of the prohibition or invalidity without invalidating the remainder of the provisions of this Agreement or the application of the provision to other parties and circumstances.

**XVII. EXTENT OF AGREEMENT**

This Agreement, together with any affixed exhibits, schedules or other documentation, constitutes the entire understanding between the City and the Contractor with respect to the subject matter of the Agreement and it supersedes, unless otherwise incorporated by reference herein, all prior representations, negotiations, agreements or understandings whether written or oral. Neither party has relied on any prior representations, of any kind or nature, in entering into this Agreement. This Agreement may be altered, amended or modified only by written amendment signed by the Contractor and the City.

**FOR CONTRACTOR**

**FOR THE CITY OF ANN ARBOR**

By \_\_\_\_\_

By \_\_\_\_\_

Its:

By \_\_\_\_\_

**Approved as to substance**

By \_\_\_\_\_

**Approved as to form and content**

\_\_\_\_\_  
Stephen K. Postema, City Attorney

**EXHIBIT A**

**SCOPE OF SERVICES**

Specifics of Scope dependent on final negotiated services as proposed to and accepted by the City

**EXHIBIT B  
COMPENSATION**

Contractor shall be paid for those Services performed pursuant to this Agreement inclusive of all reimbursable expenses (if applicable), in accordance with the terms and conditions herein. The Compensation Schedule below states nature and amount of compensation the Contractor may charge the City:

- A. Fee Schedule. Contractor's Cost Proposal, dated \_\_\_\_\_, 20\_\_, which is incorporated here by reference (as stated OR with the following exceptions) establishes the payment amount and schedule for payment (e.g. monthly, quarterly, flat fee). Total compensation to be paid to Contractor for Services under this Agreement shall not exceed \_\_\_\_\_ dollars (\$\_\_\_\_\_)
  
- B. Reimbursable Expenses. Reimbursable Expenses are defined as those expenses necessary and authorized by the City to perform the Services at actual costs. The following expenses are authorized: (identify expenses OR if none are authorized or if fee is inclusive of expenses indicate here).

## EXHIBIT C INSURANCE REQUIREMENTS

Effective the date of this Agreement, and continuing without interruption during the term of this Agreement, Contractor shall provide certificates of insurance to the City on behalf of itself, and when requested any subcontractor(s). The certificates of insurance shall meet the following minimum requirements.

1. Professional Liability Insurance OR Errors and Omissions Insurance protecting the Contractor and its employees in an amount not less than \$1,000,000.
  2. Worker's Compensation Insurance in accordance with all applicable state and federal statutes. Further, Employers Liability Coverage shall be obtained in the following minimum amounts:  
  
Bodily Injury by Accident - \$500,000 each accident  
Bodily Injury by Disease - \$500,000 each employee  
Bodily Injury by Disease - \$500,000 each policy limit
  3. Commercial General Liability Insurance equivalent to, as a minimum, Insurance Services Office form CG 00 01 07 98 or current equivalent. The City of Ann Arbor shall be an additional insured. There shall be no added exclusions or limiting endorsements including, but not limited to: Products and Completed Operations, Explosion, Collapse and Underground Coverage or Pollution. Further, the following minimum limits of liability are required:  
  
\$1,000,000 Each occurrence as respect Bodily Injury Liability or  
Property Damage Liability, or both combined  
\$2,000,000 Per Job General Aggregate  
\$1,000,000 Personal and Advertising Injury
  4. Motor Vehicle Liability Insurance, including Michigan No-Fault Coverages, equivalent to, as a minimum, Insurance Services Office form CA 00 01 07 97 or current equivalent. The City of Ann Arbor shall be an additional insured. There shall be no added exclusions or limiting endorsements. Coverage shall include all owned vehicles, all non-owned vehicles and all hired vehicles. Further, the limits of liability shall be \$1,000,000 for each occurrence as respects Bodily Injury Liability or Property Damage Liability, or both combined.
  5. Umbrella/Excess Liability Insurance shall be provided to apply in excess of the Commercial General Liability, Employers Liability and the Motor Vehicle coverage enumerated above, for each occurrence and for aggregate in the amount of \$1,000,000.
- B. Insurance required under V.A.3 and V.A.4 of this contract shall be considered primary as respects any other valid or collectible insurance that the City may possess, including any self-insured retentions the City may have; and any other insurance the City does possess shall be considered excess insurance only and shall not be required to contribute with this insurance. Further, the Contractor agrees to waive any right of recovery by its insurer

against the City.

- C. Documentation must provide and demonstrate an unconditional 30 day written notice of cancellation in favor of the City of Ann Arbor. Further, the documentation must explicitly state the following: (a) the policy number; name of insurance company; name and address of the agent or authorized representative; name and address of insured; project name; policy expiration date; and specific coverage amounts; (b) any deductibles or self-insured retentions which shall be approved by the City, in its sole discretion; (c) that the policy conforms to the requirements specified. An original certificate of insurance may be provided as an initial indication of the required insurance, provided that no later than 21 calendar days after commencement of any work the Contractor supplies a copy of the endorsements required on the policies. Upon request, the Contractor shall provide within 30 days a copy of the policy(ies) to the City. If any of the above coverages expire by their terms during the term of this contract, the Contractor shall deliver proof of renewal and/or new policies to the Administering Service Area/Unit at least ten days prior to the expiration date.

## Appendix D

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# NFPA® 1962

# Standard for the Inspection, Care, and Use of Fire Hose, Couplings, and Nozzles and the Service Testing of Fire Hose

## 2008 Edition



NFPJ:r

NFPA, 1 Batterymarch Park, Quincy, MA 02169-7471 An International Codes and Standards Organization

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NFPA® 1962

Standard for the

## Inspection, Care, and Use of Fire Hose, Couplings, and Nozzles and the Service Testing of Fire Hose

2008 Edition

This edition of NFPA 1962, *Standard for the Inspection, Care, and Use of Fire Hose, Couplings, and Nozzles and the Service Testing of Fire Hose*, was prepared by the Technical Committee on Fire Hose. It was issued by the Standards Council on December 11, 2007, with an effective date of December 31, 2007, and supersedes all previous editions.

This edition of NFPA 1962 was approved as an American National Standard on December 31, 2007.

### Origin and Development of NFPA 1962

NFPA originally developed a Recommended Practice for the care, maintenance, and use of fire hose in 1936 through its Committee on Field Practices. This document was designated NFPA 198 and was revised extensively through the years. In 1954, the Fire Hose Committee assumed responsibility for the document.

In 1979, NFPA 1962 was issued as a new standard. The standard was completely rewritten but still contained portions of NFPA 198. The requirements were carefully developed to ensure a reasonable level of reliability for fire hose that is in service.

The 1993 edition recognized the increased use of hose testing machines in the test procedure section. The test requirements for booster and suction hose were revised by incorporating the information in the standard rather than referring to a different standard.

The 1998 edition defined a separate test procedure when using a hose testing machine from the procedure when using a stationary fire pump or pumper as the pressure source. It also required that unlined fire hose be replaced with lined fire hose when the unlined fire hose came due for testing.

In the 2003 edition, the title was changed to *Standard for the Inspection, Care, and Use of Fire Hose, Couplings, and Nozzles and the Service Testing of Fire Hose*. The requirements for service testing new hose for the first time were revised. Discussion about using supply hose was revised to remove the implication it can be used in certain attack applications, and the requirements related to the use of relief valves were more closely tied to the service test pressure of the hose. New requirements were added for inspection of the hose liner and attachment of shank-type couplings. Record-keeping requirements for occupant-use hose were revised to reflect that such hose is inspected and serviced similar to a fire extinguisher. The document was completely revised in accordance with the *Manual of Style for NFPA Technical Committee Documents*, and changes were made to improve understanding of the requirements.

This edition of NFPA 1962 includes a new chapter for use, inspection, and testing of fire hose connected appliances. Since the issuance of NFPA 1965, *Standard for Fire Hose Appliances*, which provides for minimum performance and operational requirements for new fire hose appliances, NFPA 1962 now provides testing criteria so that hose appliances can be tested and maintained in an equivalent manner.

1962-2

INSPECTION,  
CARE, AND  
USE OF FIRE  
HOSE,  
COUPLINGS,  
AND NOZZLES  
AND TESTING  
OF FIRE HOSE

Technical Committee on Fire Hose

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Laurence J. Stewart, NFPA Staff Liaison

*This list represents the membership at the time the Committee was balloted on the final text of this edition. Since that time, changes in the membership may have occurred. A list of these changes is found at the back of the document.*

NOTE: Membership on a committee shall not in and of itself constitute an endorsement of the Association or any document developed by the committee on which the member serves.

Committee Scope: This Committee shall have primary responsibility for documents on the size and design of fire hose connections, and the performance, maintenance, and selection of all types of fire hose, couplings, nozzles, and accessory equipment.

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INSPECTION.

CARE, AND USE OF FIRE HOSE, COUPLINGS, AND NOZZLES AND TESTING OF FIRE HOSE

NFPA 1962

Standard for the

## Inspection, Care, and Use of Fire Hose, Couplings, and Nozzles and the Service Testing of Fire Hose

2008 Edition

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**NOTICE:** An asterisk (\*) following the number or letter designating a paragraph indicates that explanatory material on the paragraph can be found in Annex A.

Changes other than editorial are indicated by a vertical rule beside the paragraph, table, or figure in which the change occurred. These rules are included as an aid to the user in identifying changes from the previous edition. Where one or more complete paragraphs have been deleted, the deletion is indicated by a bullet (e) between the paragraphs that remain.

A reference in brackets [ ] following a section or paragraph indicates material that has been extracted from another NFPA document. As an aid to the user, the complete title and edition of the source documents for extracts in mandatory sections of the document are given in Chapter 2 and those for extracts in informational sections are given in Annex B. Editorial changes to extracted material consist of revising references to an appropriate division in this document or the inclusion of the document number with the division number when the reference is to the original document. Requests for interpretations or revisions of extracted text shall be sent to the technical committee responsible for the source document.

Information on referenced publications can be found in Chapter 2 and Annex B.

### Chapter 1 Administration

1.1 Scope. This standard shall apply to the inspection, care, and use of fire hose, fire hose couplings, fire-fighting nozzles, and fire hose appliances; the service testing of fire hose and appliances; and the associated record keeping.

1.2 Purpose. The purpose of this standard is to provide requirements for the inspection, care, and use of fire hose, couplings, nozzles, and appliances and the testing of fire hose so that the reliability of fire hose, nozzles, and appliances is increased when they are used at an incident.

1.2.1 The purpose of this standard is also to establish that safety is a primary concern for the continued in-service use of fire hose, couplings, nozzles, and appliances and that safety is the ultimate decision to retire fire hose, couplings, nozzles, and appliances.

1.3 Application. Unless otherwise noted, this standard shall apply to fire hose, coupling assemblies, nozzles, and appli-

W 2008 Edition

ances, regardless of year of manufacture, while they are in storage, in service, in use, and after use.

1.4 Equivalency. Nothing in this standard shall prevent the use of systems, methods, or devices of equivalent or superior quality, strength, fire resistance, effectiveness, durability, and safety over those prescribed by this standard. Technical documentation shall be submitted to the authority having jurisdiction to demonstrate equivalency. The system, method, or device shall be approved for the intended purpose by the authority having jurisdiction.

1.5\* Units of Measurement. In this standard, inch-pound units for measurement are followed by an equivalent in metric units, but only the value that first appears shall be considered as the requirement since the value in metric units could be approximate.

### Chapter 2 Referenced Publications

2.1 General. The documents or portions thereof listed in this chapter are referenced within this standard and shall be considered part of the requirements of this document.

2.2 NFPA Publications. National Fire Protection Association, 1 Batterymarch Park, Quincy, MA 02169-7471.

NFPA 24, *Standard for the Installation of Private Fire Service Mains and Their Appurtenances*, 2007 edition.

NFPA 1961, *Standard on Fire Hose*, 2007 edition.

NFPA 1963, *Standard for Fire Hose Connections*, 2003 edition.

2.3 Other Publications.

*Merriam-Webster's Collegiate Dictionary*, 11th edition, Merriam-Webster, Inc., Springfield, MA, 2003.

2.4 References for Extracts in Mandatory Sections.

NFPA 1901, *Standard for Automotive Fire Apparatus*, 2003 edition.

NFPA 1961, *Standard on Fire Hose*, 2007 edition.

### Chapter 3 Definitions

3.1 General. The definitions contained in this chapter shall apply to the terms used in this standard. Where terms are not defined in this chapter or within another chapter, they shall be defined using their ordinarily accepted meanings within the context in which they are used. *Merriam-Webster's Collegiate Dictionary*, 11th edition, shall be the source for the ordinarily accepted meaning.

3.2 NFPA Official Definitions.

3.2.1 \* Approved. Acceptable to the authority having jurisdiction.

3.2.2\* Authority Having Jurisdiction (AHJ). An organization, office, or individual responsible for enforcing the requirements of a code or standard, or for approving equipment, materials, an installation, or a procedure.

3.2.3 Shall. Indicates a mandatory requirement.

3.2.4 Should. Indicates a recommendation or that which is advised but not required.

### 3.3 General Definitions.

3.3.1 Braided Reinforcement. A hose reinforcement consisting of one or more layers of interlaced spiraled strands of yarn or wire, with a layer of rubber between each braid.

3.3.2\* Coating. A protective material impregnated, saturated, or coated on the outside reinforcement layer of the hose to provide additional reinforcement or protection for the hose. [1961,2007]

3.3.3 Delamination. The separation of the cover or liner from the textile reinforcement.

3.3.4 Fire Hose Appliance. A piece of hardware (excluding nozzles) generally intended for connection to fire hose to control or convey water.

3.3.5 Fold. A transverse bend (fold) occurring where the hose is lengthwise doubled over on itself, as on a pin rack.

3.3.6 Hose.

3.3.6.1 \* *Attack Hose*. I-hose designed to be used by trained fire fighters and fire brigade members to combat fires beyond the incipient stage. [1961,2007]

3.3.6.2\* *Booster Hose*. A non-collapsible hose used under positive pressure having an elastomeric or thermoplastic tube, a braided or spiraled reinforcement, and an outer protective cover.

3.3.6.3 *Covered Hose*. A hose with a jacket covered and lined with a continuous synthetic rubber or plastic. The cover is usually thicker than a coating.

3.3.6.4 *Fire Hose*. A flexible conduit used to convey water. [1961,2007]

3.3.6.5\* *Forestry Fire Hose*. A hose designed to meet specialized requirements for fighting wildland fires. [1961,2007]

3.3.6.6 *Large-Diameter Hose*. A hose of 3½ in. (90 mm) or larger size. [1961,2007]

3.3.6.7 *Occupant Use Hose*. Fire hose designed to be used by the building's occupants to fight incipient fires prior to the arrival of trained fire fighters or fire brigade members. [1961,2007]

3.3.6.8 *Relay-Supply Hose*. A single-jacket fire hose of 3½ in. (90 mm) diameter or larger used to move large volumes of water at low pressure and manufactured prior to January 1987 to meet the requirements of the 1979 and previous editions of NFPA 1961, *Standard on Fire Hose*.

3.3.6.9\* *Soft Suction Hose*. See Supply Hose.

3.3.6.10 *Suction Hose*. A hose that is designed to prevent collapse under vacuum conditions so that it can be used for drafting water from below the pump (lakes, rivers, wells, etc.). [1961,2007]

3.3.6.11 \* *Supply Hose*. Hose designed for the purpose of moving water between a pressurized water source and a pump that is supplying attack lines. [1961,2007]

3.3.6.12 *Unlined Hose*. A hose consisting of only a woven jacket that is usually of linen yarns and is of such quality that the yarn swells when wet, tending to seal the hose.

3.3.7 Hose Size. An expression of the internal diameter of the hose. [1961,2007]

3.3.8\* In Service. The status of hose stored in a hose house, on a rack or reel, or on a fire apparatus that is available and ready for immediate use at an incident.

3.3.9 In Storage. The status of hose not readily available for use because it is not at the scene of an incident and not loaded on a vehicle that can transport it to the scene.

3.3.10 In Use. The status of hose that has actually been deployed at an incident or during training whether or not water is running through the hose.

3.3.11 Multiple Jacket. A construction consisting of a combination of two separately woven reinforcements (double jacket) or two or more reinforcements interwoven.

3.3.12 Service Test. Hydrostatic test conducted by users on in-service hose, couplings, nozzles, or appliances to determine suitability for continued service.

3.3.13 Single Jacket. A construction consisting of one woven jacket.

3.3.14 Slow-Operating Valve. A valve that has a mechanism to prevent movement of the flow-regulating element from the fully closed position to the fully opened position or vice versa in less than 3 seconds. [1901,2003]

3.3.15 Spiral Reinforcement. A hose reinforcement consisting of pairs of layers of yarn spiraled with no interlacing between the individual layers. The layers of yarn in each pair are spirally wound in opposite directions. A layer of rubber separates each pair of spiraled layers.

3.3.16\* *Water Hammer*. The surge of pressure caused when a high-velocity flow of water is abruptly shut off. The pressure exerted by the flowing water against the closed system can be seven or more times that of the static pressure.

## Chapter 4 Care and Use of Fire Hose

### 4.1 Attack Hose, Supply Hose, and Forestry Hose.

4.1.1 Hose shall be inspected in accordance with Section 4.6 when it is placed in service.

4.1.2\* I-hose that is in service shall be service-tested as specified in Chapter 7 at least annually.

4.1.3 Hose shall be service-tested in accordance with Chapter 7 the later of 1 year after its date of manufacture or before it is placed in service for the first time.

4.1.4 I-hose held in storage for longer than 1 year shall be service-tested in accordance with Chapter 7 before it is placed in service.

4.1.5\* Only clean, dry hose shall be placed into service. 4.1.6\* Hose carried on fire apparatus shall be loaded in such a way that air can circulate under the hose load to eliminate or reduce the growth of mildew in the hose jackets and rust and corrosion in the hose compartment.

4.1.7\* Hose shall be removed from the apparatus and reloaded so that the folds occur at different positions with sufficient frequency to prevent damage and the setting of permanent folds in the rubber lining.

4.1.8 Large-diameter hose used to supply a pump from a hydrant shall be protected from chafing with chafing blocks or

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similar protection where it comes in contact with pavement or curbing.

4.1.9 When connecting a pump to a hydrant, the hose shall be bent slightly to avoid kinks when the water is turned on.

4.1.10 Supply Hose.

4.1.10.1\* Hose marked SUPPLY HOSE shall not be used at operating pressures exceeding 185 psi (12.8 bar or 1275 kPa).

4.1.10.2\* Discharge Relief Devices.

4.1.10.2.1 A relief device that discharges to atmosphere shall be used on the discharge side of the pump when pumping into supply hose.

4.1.10.2.2 The relief device shall be set so that the discharge pressure does not exceed the service test pressure of the hose being used.

4.1.10.2.3 The relief device shall be capable of dumping enough water to atmosphere to prevent the pressure in the discharge hose from exceeding the service test pressure of the hose if the flow is shut off downstream of the device.

4.1.10.3 Only slow-operating valves shall be used with supply hose.

4.1.10.4 Relay Operations.

4.1.10.4.1 Where supply hose is used in relay operations between pumps on fire department apparatus, the intake of each receiving pump shall be equipped with a relief valve.

4.1.10.4.2 The maximum pressure setting of the relief valve(s) shall be not more than 10 psi (0.7 bar or 69 kPa) over the static pressure of the water source to which it is connected or not more than 10 psi (0.7 bar or 69 kPa) over the discharge pressure of the supply pump in the relay.

4.1.10.4.3 In no event shall the relief valve be set to relieve at a pressure that exceeds 90 percent of the service test pressure of the hose used with the system.

4.1.11 Damage Prevention.

4.1.11.1\* Hose, while in use, shall be positioned to minimize mechanical damage and heat exposure.

4.1.11.2\* Vehicles shall not be driven over charged or uncharged fire hose unless the hose is bridged and the vehicle has sufficient ground clearance to cross the bridged hose.

4.1.11.3\* Nozzles and valves shall be opened and closed slowly to prevent pressure surges and water hammer that can burst the hose and in turn cause injury to people or damage to the pump.

4.1.11.4 Care shall be taken to prevent the hose from chafing. Care shall be taken to avoid dragging large-diameter fire hose, but if the hose must be dragged, it shall be dragged when flat.

4.1.11.6\* When hose is in use during subfreezing weather, care shall be taken to prevent water from freezing inside the hose.

4.1.11.6.1 To help prevent freezing once the water is turned on, some water shall be left running through the hose.

4.1.11.6.2 When the hose line is no longer needed, it shall be uncoupled and drained before the water freezes.

4.1.12\* Hose that has frozen during use shall be thawed and service tested as specified in Chapter 7 before being put back in service or in storage.

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4.1.13\* After each use and before being placed in storage or back in

service, the hose shall be drained, cleaned, dried, and inspected as specified in Sections 4.6 and 4.7.

4.2\* Relay-Supply Hose. This section shall apply only to relay-supply hose manufactured to the requirements of the 1979 and prior editions of NFPA 1961, *Standard on Fire Hose*.

4.2.1 Hose that is in service shall be service tested as specified in Chapter 7 at least annually.

4.2.2 Only clean, dry hose shall be placed into service.

4.2.3 Hose carried on fire apparatus shall be loaded in such a way that air can circulate under the hose load to eliminate or reduce the growth of mildew in the hose jackets and rust and corrosion in the hose compartment.

4.2.4 Wet hose accelerates mildew growth and rusting and shall be thoroughly dried before being placed in service.

4.2.5 Hose shall be removed from the apparatus and reloaded so that the folds occur at different positions with sufficient frequency to prevent damage and the setting of permanent folds in the rubber lining.

4.2.6 Relay-supply hose used to supply a pump from a hydrant shall be repacked in a different position after each use to avoid folds and strains occurring at the same location.

4.2.7 Relay-supply hose used to supply a pump from a hydrant shall be protected from chafing with chafing blocks or similar protection where it comes in contact with pavement or curbing.

4.2.8 When connecting a pump to a hydrant, the hose shall be bent slightly to avoid kinks when the water is turned on.

4.2.9 Relay-supply hose shall be used within the following operating parameters.

(A) If the hose is less than 6 in. (150 mm), it shall not be used at operating pressures exceeding 185 psi (12.8 bar or 1275 kPa).

(B) If the hose is 6 in. (150 mm), it shall not be used at operating pressures exceeding 135 psi (9.3 bar or 930 kPa).

4.2.10 Fire departments shall establish operational procedures for relay-supply operations.

4.2.10.1\* Special precautions shall be used when relaying water from a pump at a water source to a pump near the tire ground or to other pumps in a relay in order to control pressure surges and water hammer.

4.2.10.2\* The pump receiving the relay shall be provided with a relay-relief valve on the inlet (suction) to which the relay-supply hose is attached.

4.2.10.3 The maximum pressure setting of the relief valve (s) shall be not more than 10 psi (0.7 bar or 69 kPa) over the static pressure of the water source to which it is connected, and in no event shall it exceed 90 percent of the service test pressure of the hose used within the system.

4.2.11 Care shall be taken to avoid dragging relay supply hose, but if the hose must be dragged, it shall be dragged when flat.

4.2.12\* Vehicles shall not be driven over relay-supply hose lines unless the hose is bridged.

4.2.13 When hose is in use during subfreezing weather, care shall be taken to prevent water from freezing inside the hose.

4.2.13.1 To help prevent freezing once the water is turned on, some water shall be left running through the hose.

4.2.13.2 When the hose line is no longer needed, it shall be uncoupled and drained before the water freezes.

4.2.14 Hose that has frozen during use shall be thawed and service-tested as specified in Chapter 7 before being put back in service or in storage.

4.2.15 After each use and before being placed in storage or back in service, the hose shall be drained, cleaned, dried, and inspected as specified in Sections 4.6 and 4.7.

4.3\* Occupant-Use Hose.

4.3.1 Occupant-use hose shall be inspected in accordance with Section 4.6 when it is placed in service.

4.3.2 In-service hose designed for occupant use only shall be removed and service-tested as specified in Chapter 7 at intervals not exceeding 5 years after the date of manufacturer and every 3 years thereafter.

4.3.3 When hose is taken out of service for testing, replacement hose shall be installed on the rack, reel, or storage area until the tested hose is returned to service.

4.3.4 In-service hose shall be unracked, unreeled, or unrolled and physically inspected as specified in Section 4.6 at least annually. The hose shall be racked, reeled, or rolled so that any folds do not occur at the same position on the hose.

4.3.5 Damage Prevention.

4.3.5.1 \* Hose stored on racks or reels shall be protected from the weather and any local environmental condition potentially harmful to the hose.

4.3.5.2 I-hose shall be protected from mechanical damage and exposure to heat.

4.3.5.3\* Enclosures for occupant-use hose shall be constructed and the hose stored in accordance with NFPA 24, *Standard for the Installation of Private Fire Service Mains and Their Appurtenances*.

4.3.6 In areas where rodents can pose a problem, the hose shall be visually inspected more frequently for rodent damage.

4.3.7 After each use and before being placed back in service, the hose shall be inspected as specified in Section 4.6, service-tested as specified in Chapter 7, and cleaned and dried as specified in Section 4.7.

4.4 Booster Hose.

4.4.1 Booster hose shall be inspected in accordance with Section 4.6 when it is placed in service.

4.4.2 Booster hose that is in service shall be service-tested as specified in Chapter 7 at least annually.

4.4.3 Booster hose shall be service-tested in accordance with Chapter 7 the later of 1 year after its date of manufacture or before it is placed in service for the first time.

4.4.4 Booster hose held in storage for longer than 1 year shall be service-tested in accordance with Chapter 7 before it is placed in service.

4.4.5\* I-hose shall be stored out of direct sunlight and as recommended by the manufacturer.

4.4.6 Hose shall not be stored kinked and, if stored on a reel, care shall be taken to avoid twisting the hose when rolling it onto the reel.

4.4.7 Covered hose that has exposed reinforcement shall be removed from service, repaired, and service-tested or condemned.

#### 4.5 Suction Hose.

4.5.1 Suction hose shall be inspected in accordance with Section 4.6 when it is placed in service.

4.5.2 Suction hose that is in service shall be service-tested as specified in Chapter 7 at least annually.

4.5.3\* Hose shall be stored out of direct sunlight and as recommended by the manufacturer.

4.5.4 Hose that has exposed or damaged reinforcement shall be removed from service, have the damage repaired, and be service-tested or condemned.

4.5.5 Foreign objects of any kind, including items of equipment, shall not be carried inside the hose.

#### 4.6 Hose Inspection.

4.6.1 Physical inspection shall determine that the hose, couplings, and any nozzle have not been vandalized, are free of debris, and exhibit no evidence of mildew, rot, or damage by chemicals, burns, cuts, abrasion, and vermin.

4.6.2 During the inspection, a check shall be made to determine if the service test of the hose is current.

#### 4.6.3 Liner Inspection.

4.6.3.1 The interior of the hose at each end shall be visually inspected for any physical signs of liner delamination.

4.6.3.2\* If the liner shows signs of delamination, the hose shall be condemned.

4.6.4 If the hose fails the physical inspection (see 4.6.1), it shall be removed from service and either repaired as necessary and service-tested as specified in Chapter 7 or condemned.

4.6.5 The couplings shall be inspected as specified in 6.2.3 and 6.2.4.

4.6.6 Where nozzles are required on occupant-use hose, they shall be inspected as specified in 6.1.1 through 6.1.4.

#### 4.7 Cleaning and Drying.

4.7.1 \* After each use, all hose shall be cleaned.

4.7.2 If dirt or grime be thoroughly brushed from the hose or if the hose has come in contact with harmful materials, the hose shall be washed.

4.7.3 If, during use, the hose has been exposed to hazardous materials, it shall be decontaminated by the method approved for the contaminant.

4.7.4 Covered hose shall be permitted to be wind-dried. 4.7.5\* Hose shall not be dried on hot pavements or under intense sunlight.

#### 4.8 Storage.

4.8.1 \* Hose shall be kept out of direct sunlight and in a well-ventilated location.

4.8.2 All hose shall be drained and thoroughly dried before being placed in storage,

4.8.3 Hose shall be stored only after it has been inspected in accordance with Section 4.6 and has been cleaned and dried,

4.8.4 Hose that is out of service for repair shall be tagged as specified in 5.1.6 and 5.3.G and kept separated from any hose in storage that is ready for service,

## Chapter 5 Hose Records

### 5.1 Attack Hose and Supply Hose.

5.1.1 \* Accurate hose records shall be established and maintained.

5.1.2\* Each length of hose shall be assigned an identification number for use in recording its history throughout its service life.

5.1.2.1 \* The identification number shall be stenciled on the jacket or cover using an ink or paint that is not harmful to the hose.

5.1.2.2\* The identification number shall be permitted to be stamped on the bowl or swivel of the female coupling in a manner that prevents damage to the coupling.

5.1.3\* Records of hose used by fire departments shall be kept as part of the department's or individual company's complete equipment inventory.

5.1.4 Records for hose on racks or reels or in enclosures shall be kept at the hose location or at a control location on the premises where the hose is located.

5.1.5\* The following information, if applicable, shall be included for each length of hose:

- (1) Assigned identification number
- (2) Manufacturer and part number
- (3) Contractor
- (4) Size (internal diameter of waterway)
- (5) Length
- (6) Type of hose
- (7) Construction
- (8) Date received and date put in service
- (9) Date of each service test and the service test pressure
- (10) Repairs and new length if shortened
- (11) Actual damage
- (12) Exposure to possible damage
- (13) Reason removed from service
- (14) Reason condemned
- (15) Indication that the hose has been removed from service or condemned within the warranty period because of an in-warranty failure

5.1.6\* Hose removed from service for repair because it has been condemned shall be tagged with a distinctive tag with the reason for removal from service noted on the tag.

5.1.7 Personnel responsible for the repair and maintenance of fire hose shall ensure that a report of the work performed to repair each length is recorded on the permanent hose record.

5.2\* Forestry Hose. The authority having jurisdiction shall determine the records necessary to achieve an effective hose management program for forestry hose and implement such a record-keeping system.

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### 5.3 Occupant-Use Hose.

5.3.1 A record for each length of occupant-use hose, whether on a rack or reel or in an enclosure, shall be kept on a tag attached near the female end of the hose.

5.3.2 The tag shall be fastened in a manner that does not restrict the hose from deploying properly and will not damage the hose.

5.3.3\* The tag shall contain at least the following information for each length of hose:

- (1) Manufacturer and part number
- (2) Date put in service
- (3) Date of each inspection and person/agency performing inspection
- (4) Date of each service test and person/agency performing service test

5.3.4\* An inspection checklist maintained on file or in an electronic method (e.g., bar coding) that provides a permanent record shall be permitted to be used in place of a tag to track inspection and service test data provided each length of hose is assigned a unique identification number that is fastened to or recorded on the hose or female coupling and the information required by 5.3.3 is recorded.

5.3.5\* Where records are kept electronically, the electronic record shall be available at the facility where the hose is in service.

5.3.6\* Hose removed from service for repair or because it has been condemned shall be tagged with a distinctive tag, with the reason for removal from service noted on the tag.

## Chapter 6 Nozzles, Couplings, and Gaskets

### 6.1 Nozzles.

6.1.1 Nozzle valves attached to in-service hose shall be kept in the closed position.

6.1.2 All nozzles shall be inspected after each use and at least annually,

6.1.3\* The nozzle inspection shall verify the following:

- (1) The waterway is clear of obstructions.
- (2) There is no damage to the tip.
- (3) All controls and adjustments operate as designed.
- (4) The shutoff valve, if so equipped, operates as designed and closes off the flow completely.
- (5) There are no missing or broken parts.
- (6) The thread gasket is in good condition in accordance with Section 6.3.

6.1.4 If the nozzle fails the inspection for any reason, it shall be removed from service, repaired and service-tested, or replaced.

6.1.5 If, during use, there is an obstruction that cannot be removed by flushing the nozzle, the nozzle shall be taken from the hose line and the obstruction removed through the connection end as soon as is practicable, since any further attempt to force the obstruction out through the tip can damage the nozzle.

6.1.6 Care shall be taken to avoid dents or nicks in nozzle tips, as these can seriously affect the reach of the stream,

6.1.7 To prevent mechanical damage, nozzles shall not be dropped or thrown.

6.1.8 Nozzle control valves shall be opened and closed slowly to eliminate unnecessary strain on the hose and couplings and reduce pressure surges.

6.1.9\* After each use, all nozzles shall be thoroughly washed and inspected in accordance with 6.1.3 before being placed back in service.

6.1.10 All nozzles shall be maintained in accordance with the respective nozzle manufacturer's instructions.

## 6.2 Couplings.

6.2.1 Couplings shall be kept in serviceable condition.

6.2.2 A lubricant specified by the coupling manufacturer shall be permitted to be used on coupling swivels and threads.

6.2.3\* After each use, and during each hose service test, couplings shall be visually inspected for the following defects:

- (1) Damaged threads
- (2) Corrosion
- (3) Slippage on the hose
- (4) Out-of-round
- (5) Connections not rotating freely
- (6) Missing lugs
- (7) Loose external collar
- (8) Internal gasket in accordance with Section 6.3
- (9) Other defects that impair operation

6.2.4 Hose with defective couplings shall be removed from service and the couplings repaired or replaced.

6.2.5\* Care shall be taken not to drop the couplings on pavement or other hard surfaces that can cause damage to the swivel section or exposed threads.

6.2.6 Care shall be taken to prevent vehicles from driving over couplings.

6.2.7 Special care shall be taken where couplings of dissimilar metals are connected, as corrosion can occur due to this difference and moisture tends to accelerate this corrosion.

6.2.7.1 Where couplings of dissimilar metals are left connected, they shall be disconnected and inspected at least quarterly.

6.2.7.2 If corrosion exists, the couplings shall be cleaned and an anticorrosive lubricant specified by the coupling manufacturer shall be applied to the threads.

6.2.7.3 Anticorrosive lubricant shall be applied at the time of each service test.

6.2.8 When attaching new or used bowl couplings, care shall be taken to have the hose fit correctly in the bowl.

6.2.8.1 \* The outside diameter of the hose shall fit snugly in the internal diameter of the bowl of the coupling.

6.2.8.2\* The expansion ring shall be of the correct size and length for the coupling used.

6.2.8.3\* A new tail gasket shall be used.

6.2.9\* When attaching new or used shank-type couplings, care shall be taken to have the hose fit properly on the shank.

6.2.9.1 The inside diameter of the hose shall fit snugly on the external diameter of the shank of the coupling.

6.2.9.2 The collar shall be compatible with the shank and shall be sized for the hose used.

6.2.9.3 The socket head cap screws on shank-type couplings shall be torqued to the manufacturer's specified tolerance.

6.2.10\* When couplings are attached or reattached to hose, the hose shall

be tested at its service test pressure in accordance with Chapter 7.

WARNING: Because there is a potential for catastrophic failure during these tests, it is vital that safety precautions be taken to prevent exposure of anyone to this danger. Do not deviate from the procedures prescribed in Sections 7.6 and 7.7.

6.2.11 The date and nature of the repair or recoupling and the identity of the person performing the repair shall be recorded for each length of hose as specified in 5.1.5.

6.2.12 The socket head cap screws on shank-type couplings shall be checked at least annually to ensure they are torqued to the manufacturer's specified tolerance and shall be replaced at any sign of wear.

## 6.3 Gaskets.

6.3.1\* The thread gasket in couplings and nozzles shall be inspected for presence, tight fit, and lack of deterioration.

6.3.2\* Gaskets shall not protrude into the waterway.

6.3.3 Any gasket that is defective or misfits shall be replaced with a new gasket that meets the requirements of NFPA 1963, *Standard for Fire Hose Connections*.

## Chapter 7 Service Testing

### 7.1 \* Service Test Pressure.

#### 7.1.1 Hose Manufactured Prior to July 1987.

7.1.1.1 The service test pressure for hose manufactured prior to July 1987 to meet the requirements of the 1979 and previous editions of NFPA 1961, *Standard on Fire Hose*, shall be determined from Table 7.1.1.1 based on the type of hose and the acceptance or proof test pressure that is stenciled on each length of hose and reads "Tested to \_ psi."

7.1.1.2 The acceptance or proof test pressure that is stenciled on hose manufactured prior to July 1987 shall not be used for the service test pressure.

#### 7.1.2 Hose Manufactured July 1987 and After.

7.1.2.1 The service test pressure for hose manufactured in July 1987 and after to meet the requirements of the 1987 and subsequent editions of NFPA 1961, *Standard on Fire Hose*, is stenciled on each length of hose and reads "Service Test to \_ psi per NFPA 1962" or "Service Test to \_ bar per NFPA 1962."

7.1.2.2 New proof pressure tests for hoses shall only be conducted at the point of manufacture or at a facility equipped to perform these tests.

7.1.2.3 Tests in the field shall not subject the hose to its proof test pressure.

7.1.3\* After the correct service test pressure has been determined for each length of hose to be tested, the service test shall be conducted as specified in Section 7.2.

### 7.2 Service Test Procedure.

7.2.1 Each length of hose to be service-tested shall be inspected as specified in Section 4.6.



1962-10 CARE, AND USE OF FIRE I-HOSE, COUPLINGS, AND NOZZLES AND TESTING OF FIRE I-HOSE INSPECTION,

Table 7.1.1.1 Service Test Pressures for Hose Manufactured Prior to July 1987

Trade Size			New Hose Rated Acceptance Test Pressure		Service Test Pressure	
in.	mm	Jackets	psi	kPa	psi	kPa
Lined industrial, standpipe, and fire department						
1 1/2-2 1/2	38-65	Single	300	2070	150	1030
1 1/2-4 1/2	38-114	Single	400	2760	250	1720
1 1/2-2 1/2	38-65	Single	500	3450	250	1720
1 1/2-4	38-100	Multiple	400	2760	250	1720
1 1/2-4	38-100	Multiple	600	4140	250	1720
Lined forestry						
1 1/2 and 2 1/2	25 and 38	Single	450	3100	250	1720
Relay supply						
3 1/2-5	90-125	Single	400	2760	200	1380
5-6	125-150	Single	300	2070	150	1030
Pump supply (soft suction)						
4-6	100-150	Multiple	400	2760	200	1380

7.2.2 Any length of hose that fails the inspection shall be removed from the service test area and repaired as necessary or condemned.

7.2.3 Lengths of hose to be tested simultaneously shall be of the same service test pressure and shall be considered the hose test layout.

7.2.4\* The total length of any hose line in the hose test layout to be service-tested shall not exceed 300 ft (91 m).

7.2.5 The hose test layout shall be straight, without kinks or twists.

7.2.6 All 3 1/2 in. (89 mm) and larger diameter hose shall be service-tested while lying flat with a short length of smaller diameter hose with the same or higher proof pressure used to connect the pressure source to the hose being tested.

7.2.7\* A test location shall be selected that allows connection of the hose testing apparatus (pressure source) to a water source.

7.2.8\* A hose testing machine, a stationary pump, or a pump on a fire department apparatus shall be used as a pressure source.

7.2.8.1 If a hose testing machine is used, the procedure defined in Section 7.6 shall be used.

7.2.8.2 If a stationary pump or a pump on a fire department apparatus is used, the procedure defined in Section 7.7 shall be used.

7.2.9 At the conclusion of the test, the hose records specified in Chapter 5 shall be updated to indicate the results of the service test for each length of hose tested.

7.2.10\* Any hose that fails the inspection defined in Section 4.6, bursts or leaks during the service test, or has couplings that leak or are otherwise found defective as defined in 6.2.3 shall be tagged as required in 5.1.6 or 5.3.6 and removed from service.

7.2.10.1 If the hose leaks or the hose jacket fails inspection, a distinguishing mark noting the location of the defect(s) shall be placed on the hose.

7.2.10.2 If the couplings fail or are defective, they shall be repaired or replaced.

2.10.3\* If the hose cannot be repaired, the couplings shall be removed from both ends.

7.2.11 If the hose is repaired, or the couplings are repaired or replaced, the hose shall be service tested in accordance with Chapter 7 before being placed back in service.

7.2.12 After testing, all hose shall be thoroughly cleaned, drained, and dried as specified in Section 4.7 before being placed in service or storage.

7.3 Unlined Hose. Unlined fire hose shall be replaced with an approved lined fire hose when service testing is required.

7.4 Booster Hose.

7.4.1 \* Booster hose shall be tested in accordance with Section 7.2 to 110 percent of its maximum working pressure.

7.4.2 If a maximum working pressure cannot be determined for the hose, it shall be tested to 110 percent of the normal highest working pressure as used in the system.

7.5\* Suction Hose.

7.5.1 Suction hose shall be dry-vacuum tested using the following procedure.

(A) The hose shall be attached to a suction source.

(B) The free end shall be sealed with a transparent disk and connected to an accurate vacuum measuring instrument.

(C) A 22 in. mercury (0.75 bar or 74.5 kPa) vacuum shall be developed.

(D) While holding the vacuum for 10 minutes, the interior of the hose shall be inspected through the transparent disk.

(E) There shall be no signs of physical damage or collapse of the lining into the waterway.

7.6 Service Test Using a Hose Testing Machine. The procedure defined in this section shall be used when hose is service tested using a hose testing machine.

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**WARNING:** Because there is a potential for catastrophic failure during the service testing of fire hose, it is vital that safety precautions be taken to prevent exposure of anyone to this danger. Do not deviate from the procedures prescribed in this section.

7.6.1 Hose Testing Machine Integrity. The condition of the hose testing machine shall be thoroughly checked daily before each testing session and before the machine is used after being transported to a new testing site.

7.6.1.1 The hose testing machine shall be carefully examined for damaged components that might fail during the test.

7.6.1.2 If any damage is discovered, the hose testing machine shall not be used until the damaged component(s) is repaired or replaced.

7.6.1.3 A pressure leak integrity test shall be performed on the machine to determine whether the pressurized outlet side of the machine and its related components are leak-free.

7.6.1.3.1 The fire hose outlet connection(s) of the machine shall be capped or otherwise closed.

7.6.1.3.2 Pressure shall be applied through the machine using the integral pump to a level that is 10 percent higher than the highest service test pressure needed for the hose to be tested.

7.6.1.3.3 The pressure shall be held for 3 minutes with the pump turned off.

7.6.1.3.4 If leaks are detected, the testing machine shall not be used until the leaking component(s) is repaired or replaced.

7.6.1.4 The test gauge that is used to read the test pressure shall have been calibrated within the previous 12 months.

7.6.2 Conducting the Test.

7.6.2.1 The test layout shall be connected to the outlet side of the water supply valve on the hose testing machine.

7.6.2.2 A test cap with a bleeder valve shall be attached to the free end of each hose line in the test layout. If a test cap is not available, a nozzle with a nontwist shutoff shall be permitted to be used.

7.6.2.3 With the test cap valve or the nozzle open, the pressure shall be raised gradually to 45 psi  $\pm$  5 psi (3.1 bar  $\pm$  0.35 bar or 310 kPa  $\pm$  35 kPa).

7.6.2.4\* After the hose test layout is full of water, all the air in each hose line shall be exhausted by raising the discharge end of each hose line above the highest point in the system.

**WARNING:** Take care to remove all air from the hose before the valve in the test cap or the nozzle is closed and the pressure raised. The development of test pressures introduces a serious accident potential if air remains in the system.

7.6.2.5 The nozzle or test cap valve shall be closed slowly, and then the outlet water supply valve shall be closed.

7.6.2.6\* The hose directly in back of the test cap or the nozzle shall be secured to avoid possible whipping or other uncontrolled reactions in the event of a hose burst.

7.6.2.7 With the hose at 45 psi  $\pm$  5 psi (3.1 bar  $\pm$  0.35 bar or 310 kPa  $\pm$  35 kPa), it shall be checked for leakage at each coupling and the couplings tightened with a spanner wrench where necessary.

7.6.2.8 Each hose shall then be marked at the end or back of each coupling to determine, after the hose has been drained, if the coupling has slipped during the test.

7.6.2.9 All personnel other than those persons required to perform the remainder of the procedure shall clear the area.

7.6.2.10 The pressure shall be raised slowly at a rate not greater than 15 psi (1 bar or 103 kPa) per second until the service test pressure is attained and then maintained, by pressure boosts if necessary, for the duration of the stabilization period.

7.6.2.11 The stabilization period shall be not less than 1 min per 100ft (30 m) of hose in the test layout.

7.6.2.12 After the stabilization period, the hose layout shall hold the service test pressure for 3 minutes without further pressure boosts.

7.6.2.13 While the hose test layout is at the service test pressure, it shall be inspected for leaks.

7.6.2.13.1 If the inspecting personnel walk the test layout to inspect for leaks, they shall be at least 15 ft (4.5 m) to the left side of the nearest hose line in the test layout. The left side of the hose line shall be defined as that side that is to the left when facing the free end from the pressure source.

7.6.2.13.2 Personnel shall never stand in front of the free end of the hose, on the right side of the hose, or closer than 15 ft (4.5 m) on the left side of the hose, or straddle a hose in the test layout during the test.

7.6.2.14 If the hose test layout does not hold the service test pressure for the 3-minute duration, the service test shall be terminated.

7.6.2.14.1 The length(s) of hose that leaked shall have failed the test.

7.6.2.14.2 The test layout shall be drained and the defective hose removed from the test layout.

7.6.2.14.3 The service test shall be restarted beginning with the procedures required in 7.6.2.1.

7.6.2.15 After 3 minutes at the service test pressure, each test cap or nozzle shall be opened to drain the test layout.

7.6.2.16 Coupling Slippage.

7.6.2.16.1 The marks placed on the hose at the back of the couplings shall be observed for coupling slippage.

7.6.2.16.2 If the coupling has slipped, the hose shall have failed the test.

7.7 Service Test Using a Stationary Pump or a Pump on a Fire Department Apparatus. The following procedure shall be used when hose is to be service-tested using a stationary pump or a pump on a fire department apparatus.

**WARNING:** Because there is a potential for catastrophic failure during the service testing of fire hose, it is vital that safety precautions be taken to prevent exposure of anyone to this danger. Do not deviate from the procedures prescribed in this section.

7.7.1 The test gauge that is used to read the test pressure shall have been calibrated within the previous 12 months.

7.7.2\* A hose test valve consisting of a fire department gate valve with a 1/2 in. (6.4 mm) opening drilled through the gate and designed to withstand the service test pressures shall be used between the pump and the hose test layout.

7.7.3 The test layout shall be connected to the hose test valve. 7.7.3.1 If a pump on a fire apparatus is used, the hose test valve shall not be attached to any discharge outlet at or adjacent to the pump operator's position.

7.7.3.2 The hose test valve end of the hose line shall be secured with a belt tie-in or rope hose tool at a point 10 in. to 15 in. (250 mm to 400 mm) from the coupling.

7.7.4 A test cap with a bleeder valve shall be attached to the hn' end of each hose line in the test layout. If a test cap is not available, a nozzle with a non twist shutolf shall be permitted to be used.

7.7.5 With the hose test valve open and the test cap valve or nozzle open, the pressure shall be gradually raised to 45 psi  $\pm$ 5psi (3.1 bar $\pm$ 0.35baror310kPa $\pm$ 35kPa).

7.7.6\* After the hose test layout is full of water, all air in each hose line shall be exhausted by raising the discharge end of each hose line above the highest point in the system.

WARNING: Take care to remove all air from the hose before the valve in the test cap or the nozzle is dosed and the pressure raised. The development oftest pressures introduces a serious accident potential if air remains in the system •.

7.7.7 The nozzle or test cap valve shall be closed slowly, and then the hose test valve shall be closed.

7.7.8\* The hose directly in back of the test cap or the nozzle shall be secured to avoid possible whipping or other uncontrolled leactions in the event of a hose burst.

7.7.9 With the hose at 45 psi  $\pm$  5 psi (3.1 bar  $\pm$  0.35 bar or 310 kPa  $\pm$  35 kPa), it shall be checked for leakage at each coupling and the couplings tightened with a spanner wrench where necessary.

7.7.10 Each hose shall then be marked at the end or back of each coupling to determine, after the hose has been drained, if the coupling has slipped during the test.

7.7.11 All personnel other than those persons required to perform the remainder of the procedure shall clear the area.

7.7.12 The pressure shall be raised slowly at a rate not greater than 15 psi (1 bar or 103 kPa) per second until the selvice test pressure is attained and then maintained for 3 minutes.

7.7.13 While the test layout is at the selvice test pressure, the hose shall be inspected for leaks.

7.7.13.1 If the inspecting personnel walk the test layout to inspect for leaks, they shall be at least 15 ft (4.5 m) from either side of the nearest hose line in the test layout.

7.7.13.2 Personnel shall never stand in front of the free end of the hose, or closer than 15 ft (4.5 m) on either side of the hose, or straddle a hose in the test layout during the test.

7.7.14 If, during the test, a section of hose is leaking or a section bursts, the service test shall be terminated.

7.7.14.1 The length(s) of hose that leaked or burst shall have failed the test.

7.7.14.2 The test layout shall be drained and the defective hose removed from the test layout.

7.7.14.3 The service test shall be \estarted beginning with the procedures required in 7.7.3.

7.7.15 After 3 minutes at the service test pressure, the pump shall be shut down, the hose test valve opened, the pressure allowed to equalize with the source, the pump discharge gates closed, and each test cap valve or nozzle opened to drain the test layout.

7.7.16 Coupling Slippage.

7.7.16.1 The marks placed on the hose at the back of the couplings shall be observed for coupling slippage.

7.7.16.2 If the coupling has slipped, the hose shall have h\iled the test.

## Chapter 8 Use, Inspection, and Testing of Fire Hose Connected Appliances

### 8.1 Use of Appliances.

8.1.1 All appliances shall be used only for their designed purpose.

8.1.2\* No appliance shall be operated at a pressure above its maximum operating pressure as marked on the appliance by the manufacturer.

8.1.2.1\* Where an operating pressure is not marked on the appliance and the manufacturer cannot be located, the appliance shall be selvice-tested to 300 psi (2070 kPa).

8.1.2.2 If the appliance passes the selvice test, it shall be penna- nently marked "Max operating pressure 200 psi (1380 kPa)."

8.1.3 All appliances shall be operated as recommended by the manufacturer.

8.1.4 To prevent mechanical damage, appliances shall not be dropped or dragged.

8.1.5 Valves shall be opened and closed slowly to eliminate unnecessary strain on connecting hose and couplings and to reduce pressure surges (water hammer).

8.1.6 If the appliance is not continuously connected to the fire apparatus, the appliance shall be rinsed with clear water and visually inspected for obvious damage in accordance with 8.2.1 (1) through 8.2.1 (5) after each use.

8.1.7\* Where appliances are left continuously connected to the tire apparatus or other devices or are used where standing water is trapped inside the appliance, i.e., inlet elbows and valves, the appliance shall be flushed to the extent possible with fresh water following each use and visually inspected for obvious damage in accordance with 8.2.1 (1) through 8.2.1 (5).

### 8.2 Inspection of Appliances.

8.2.1 All appliances shall be visually inspected at least quarterly to verify the following:

- (1) All valves open and close smoothly and fully. (2) The waterway is clear of obstructions.
- (3) There is no damage to any thread or other type connection.
- (4) The pressure setting of the relief valve, if any, is set correctly.
- (5) All locks and hold-down devices work properly.
- (6) Internal gaskets are in accordance with Section 6.4.
- (7) There is no damage to the appliance, e.g., dents, cracks, or other defects that impair operation.
- (8) All swiveling connections rotate freely

- (9) There are no missing parts (components). (10) There is no corrosion on any surface.
- (11) The marking for maximum operating pressure is visible. (12) There are no missing, broken, or worn lugs on couplings.

8.2.2\* If the appliance fails an inspection for any reason, the appliance shall be removed from service and the problem corrected or repaired in accordance with the manufacturer's instructions and service-tested in accordance with Section 8.3 before it is placed back in service.

8.2.2.1 If the appliance requires repair to correct a problem identified in 8.2.1 (7) through 8.2.1(9), the appliance shall be service-tested in accordance with Section 8.3 before it is placed back in service.

8.2.2.2 If the appliance fails inspection because corrosion is found, the appliance shall be cleaned to remove all corrosion, service-tested in accordance with Section 8.3, and lubricated with an anticorrosive lubricant, acceptable to the appliance manufacturer, on all surfaces that showed corrosion.

8.3 Service-Testing of Appliances.

8.3.1 Hydrostatic Test.

8.3.1.1 The appliance being tested shall be mounted in a device capable of holding the appliance and tested to a hydrostatic pressure of 300 psi (2070 kPa) or 1.5 times the manufacturer's defined maximum operating pressure, whichever is higher.

8.3.1.2 Test caps capable of withstanding the required hydrostatic pressure shall be attached to openings and a device capable of exerting the required hydrostatic pressure shall be attached to the appliance.

8.3.1.2.1 Appliances with relief valves shall have the relief valve outlet blanked off or otherwise closed during the test.

8.3.1.2.2 All air shall be bled from the system.

8.3.1.3 The gauge pressure shall be increased by 50 psi (345 kPa) increments and held for 30 seconds at each pressure up to the maximum pressure for which the appliance is being tested and held for 1 minute without leakage.

8.3.2 Relief Valve Test.

8.3.2.1 Hydrostatic testing shall be conducted prior to testing the relief valve.

8.3.2.2 If the appliance is equipped with a relief valve, the operation of the relief valve shall be tested by raising the pressure to that required to open the valve.

8.3.2.3 After successful completion of the relief valve test, the relief valve shall be reset to the pressure in accordance with the AHJ ..

8.3.2.4 The final setting of the relief valve shall be confirmed by pressure testing.

8.3.3 Shutoff Valve Test.

8.3.3.1 If the appliance has a shutoff valve, the intake side of the shutoff valve shall be hydrostatically pressurized to the maximum working pressure of the appliance with the valve in the shutoff position.

8.3.3.2 There shall be no leakage through the valve.

8.3.4 Check Valve Test.

8.3.4.1 If the appliance has a check valve, and the check valve can be pressurized by valves being closed downstream of the check valve, the output side of the check valve shall be hydrostatically pressurized to the maximum working pressure of the appliance.

8.3.4.2 There shall be no leakage through the check valve. 8.4

Records. A record shall be kept of the service-testing of fire hose-connected appliances.

8.5 Maintenance. All appliances shall be maintained in accordance with the respective appliance manufacturer's instructions.

Annex A Explanatory Material

Annex A is not a part of the requirements of this NFPA document but is included for informational purposes only. This annex contains explanatory material, numbered to correspond with the applicable text paragraphs.

A.1.5 Metric units of measurement shown in this standard are in accordance with the modernized metric system known as the International System of Units (SI). The liter unit is outside of but recognized by SI and commonly is used in international fire protection. Table A. 1.5 (a) provides the conversion factors to be used if more precision is desired. IEEE/ ASTM SI-10, *Standard for Use of the International System of Units (SI): 77th Modern Metric System*, provides additional information. Table A. 1.5 (b) provides a list of abbreviations for units of measure.

Table A.1.5(a) Conversion Factors

Metric to inch-pound	Inch-pound to metric
1 bar = 14.492 psi	1 psi = 0.0690 bar
1 kPa = 0.145 psi	1 psi = 6.895 kPa
kg = 2.205 lb	1 lb = 0.454 kg
1 mm = 0.039 in.	1 in. = 25.40 mm
1 m = 3.281 ft	1 ft = 0.305 m
1 m <sup>2</sup> = 10.764 ft <sup>2</sup>	1 ft <sup>2</sup> = 0.0929 m <sup>2</sup>
1 m <sup>3</sup> = 35.32 ft <sup>3</sup>	1 ft <sup>3</sup> = 0.028 m <sup>3</sup>
1 slug = 14.594 kg	1 kg = 0.0685 slugs

Table A.1.5(b) Abbreviations for Units of Measure

Abbreviation	Unit
ft <sup>2</sup>	square foot cu bic
ft	foot inch kilogram
in.	kilopascal pound
kg	meter millimeter square
kPa	meter cubic meter pound
lb	per square inch
m	
m	
mm	
m <sup>2</sup>	
psi	

A.3.2.1 Approved. The National Fire Protection Association does not approve, inspect, or certify any installations, procedures, equipment, or materials; nor does it approve or evaluate testing laboratories. In determining the acceptability of installations, procedures, equipment, or materials, the authority having jurisdiction may base acceptance on compliance with NFPA or other appropriate standards. In the absence of such standards, said authority may require evidence of proper installation, procedure, or use. The authority having jurisdiction may also refer to the listings or labeling practices of an organization that is concerned with product evaluations and is thus in a position to determine compliance with appropriate standards for the current production of listed items.

A.3.2.2 Authority Having Jurisdiction (AHJ). The phrase "authority having jurisdiction," or its acronym AHJ, is used in NFPA documents in a broad manner, since jurisdictions and approval agencies vary, as do their responsibilities. Where public safety is primary, the authority having jurisdiction may be a federal, state, local, or other regional department or individual such as a fire chief; fire marshal; chief of a fire prevention bureau, labor department, or health department; building official; electrical inspector; or others having statutory authority. For insurance purposes, an insurance inspection department, rating bureau, or other insurance company representative may be the authority having jurisdiction. In many circumstances, the property owner or his or her designated agent assumes the role of the authority having jurisdiction; at government installations, the commanding officer or departmental official may be the authority having jurisdiction.

A.3.3.2 Coating. Color can be added to the coating for the purpose of identification.

A.3.3.6.1 Attack Hose. Attack hose is designed to convey water to handline nozzles, distributor nozzles, master stream appliances, portable hydrants, manifolds, standpipe and sprinkler systems, and pumps used by fire departments. It is designed with a minimum service test pressure of 300 psi (20.7 bar or 2070 kPa) for a normal highest operating pressure of 275 psi (19 bar or 1895 kPa).

A.3.3.6.2 Booster Hose. Booster hose is manufactured in sizes up to 1 1/2 in. (38 mm).

A.3.3.6.5 Forestry Fire Hose. Forestry fire hose is designed with a minimum design service test pressure of 300 psi (2070 kPa) for a normal highest operating pressure of 250 psi (17.25 bar or 1723 kPa).

A.3.3.6.9 Soft Suction Hose. Hose used to connect between a fire hydrant and a pump intake is sometimes called soft suction hose. In reality this is generally a short length of supply hose with female couplings on both ends, one end with the local fire hydrant connection size and thread, the other end with the pump intake size and thread.

A.3.3.6.11 Supply Hose. Supply hose is designed with a minimum acceptance test pressure of 200 psi (13.8 bar or 1380 kPa) to provide a normal highest operating pressure of 185 psi (12.75 bar or 1275 kPa).

A.3.3.8 In Service. Hose in storage, where it is not readily available to be put into service at an incident, is not considered as in service.

A.3.3.16 Water Hammer. The formula for water hammer is as follows:

GJ 2008 Edition

$$\delta P = cd\delta v$$

where:

$\delta J$  = change in pressure lb/ft<sup>2</sup> (kg/m<sup>2</sup>)

$c$  = velocity of pressure wave traveling back toward the water sources [ft/sec (m/sec)]

$d$  = mass density of water [1.9 slugs/ft<sup>3</sup> (979.2 kg/m<sup>3</sup>)]

$\delta v$  = change in water velocity [ft/sec (m/sec)]

Note: For 2 1/2 in. (65 mm) double-jacket rubber-lined hose,  $c$  is approximately 800 to 1000 ft/sec (240 to 300 m/sec). (See *Fire Fighting Hydraulics* by R. G. Purington.)

A.4.1.2 Attack-grade hose can be used in applications designed for occupant-use hose. It is not the intent of this standard to require the testing of attack-grade hose used in an occupant-use hose application any more frequently than is required by Section 4.3. It is the intent of this standard that attack-grade hose installed on racks or reels or in hose houses and designed to be used by a fire department or fire brigade be tested in conformance with Section 4.1.

A.4.1.5 Wet hose accelerates mildew growth and rusting. A.4.1.6 The use of 100 percent synthetic yarn reinforced hose has increased very rapidly. However, this hose should be thoroughly drained and dried before reloading on the apparatus, because if loaded on the apparatus hose bed damp or wet, such hose will still form mildew. Although this will not affect the hose itself, it does cause undue rusting of the apparatus body and increases the potential of dry rot in the wood flooring under the hose.

The use of a protective hose bed cover is recommended to protect the hose load from weather damage, unintentional deployment, and other physical damage. Where covers are provided, care needs to be taken to permit free circulation of air under the cover to reduce mildew growth. Covers should be made from flame-resistant materials and secured to the apparatus in a manner that prevents them from blowing off while the apparatus is in motion.

Where the humidity is 70 percent or greater or where hose is for municipal use, jackets with cotton yarns should be treated with water repellents and against mildew.

A.4.1.7 Excessive edge wear can occur when 100 percent synthetic yarn reinforced hose is loaded on the apparatus in the conventional manner (horseshoe V-load, accordion, or skid loads). To prevent this edge wear, hose manufacturers recommend that if 100 percent synthetic yarn reinforced hose is used, it should be loaded on the apparatus in the flat load manner.

The best fire department and forestry practice is to remove the hose from the apparatus at least once a month. Water should be run through the hose once quarterly and the hose thoroughly dried before being replaced on the apparatus.

The user should contact the manufacturer of the hose for advice on how often the hose should be removed from the hose bed and repacked.

Failures in short lengths of supply hose, also called soft suction hose, generally occur when this hose is carried on the apparatus folded and either tied down or placed in a small compartment. Where hose is constantly folded at the same points, the folds place considerable stress on the warp threads. If space limitations prevent varying folding positions, the hose should be carried in a coil on a step or running board. Many fire departments keep one end of the hose preconnected to

1.  
the suction side of the pump, which decreases the time for hydrant hookup.

A.4.1.10.1 Supply hose should not be used to directly supply attack lines, master stream appliances, portable hydrants, manifolds, and standpipe and sprinkler systems as the operating pressures often exceed 185 psi (12.8 bar or 1275 kPa). Furthermore, many of these applications have valves in the line that could be closed rapidly, creating water hammer.

Since 1987, all hose built to the requirements in NFPA 1961, *Standard on Fire Hose*, for supply hose has been required to be at least 200 psi (13.8 bar or 1380 kPa) sClvice test [185 psi (12.8 bar or 1276 kPa) operating pressure]. Some 6 in. (150 mm) and larger hose might not be built to that standard and, therefore, might have a lower maximum operating pressure.

A.4.1.10.2 Relief valves normally installed on fire department pumps to control discharge pressures are not adequate to perform this function.

A.4.1.11.1 When hoisting attack hose, damage can be avoided and the task made easier by use of hose rollers. Synthetic yarn-reinforced hose is more susceptible than cotton yarn-reinforced hose to damage ti"om hot embers and radiant heat.

A.4.1.11.2 If hose must be crossed, vehicles should have sufficient clearance to cross without contacting the hose.

A.4.1.11.3 To control water hammer when opening a water supply controlled by a quick-acting valve, such as a ball valve, "crack" the valve and allow water to fill the system before opening the valve completely.

A.4.1.11.6 During freezing weather, it is common practice to place the nozzle out a window and, by "cracking" the valve, keep water moving through the hose while overhaul is in process.

A.4.1.12 Avoid sharply bending hose in or on which ice has formed, as frozen hose can easily be damaged by a sharp bend. Use care in removing hose from ice after a fire. Steam is useful in removing ice from hose.

A.4.1.13 At structural fires, fire hose is exposed not only to heat ii"om tires but to burning embers and broken glass, nails, and other sharp objects.

A.4.2 General recommendations for care and use of relaysupply hose are as follows:

- (1) I-lose should be loaded flat in the hose bed and layered across the bed. All couplings should be loaded so as to pull off the load without flipping over.
- (2) Hose should be cleaned of all grit and foreign materials before being reloaded into apparatus bed. For hose used to supply a pump fi"om a hydrant, dlying after washing is not a requirement; however, hose should be rinsed off and dried with a clean rag or towel and then reloaded. Wet and dirty hose should not be reloaded for in-selvice use until thoroughly cleaned and dried.
- (3) Couplings should be lubricated occasionally with a liquid silicone or light silicone base lubricant or a (hy graphite powde r.

A.4.2.10.1 A typical relay operation with relay-supply hose is shown in Figure A.4.2.1 0.1. When shutting down the relay operation, always disengage the pump nearest the fire first and allow the water to run free, then shut down the relay from the water source. This will prevent the pump nearest the fire from pumping dly.

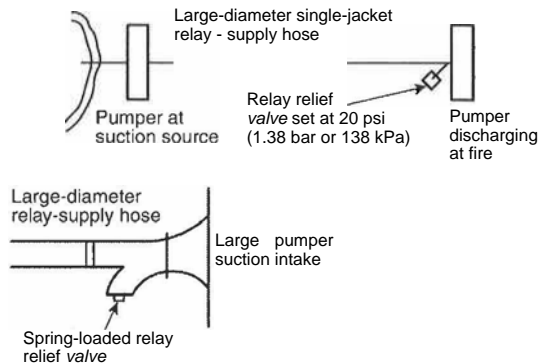


FIGURE A.4.2.10.1 Schematic Showing Relay Relief Valve.

A.4.2.10.2 The automatic pressure governor or the discharge relief valve on the fire apparatus pump does not provide protection to the suction side of the pump. The lower" the setting of the I"elay reliefvalve, the greater the protection to the hose. A manual air bleeder valve (petcock) should be provided on the relay relief valve to control the buildup of air pressure.

A.4.2.12 If relay-supply hose must be crossed, hose bridges should be used and vehicles should have sufficient clearance to cross without contacting the hose.

A.4.3 Figure A.4.3 shows a Class II standpipe system with I 1/2 in. (38 mm) occupant-use hose.

A.4.3.5.1 When the humidity is 70 percent or greater, hose jackets with cotton yarns should be treated with water repellents and against mildew growth.

A.4.3.5.3 Typical hose houses are shown in Figure A.4.3.5.3(a) and Figure A.4.3.5.3(b). The hose house in Figure A.4.3.5.3(b) is shown closed. The top lifts up and the doors on the ti"out open for complete accessibility.

A.4.4.5 To maximize the life of hose, it should be stored in a ventilated area at temperatures between 32°F and 100°F (0°C and 38°C).

A.4.5.3 To maximize the life of hose, it should be stored in a ventilated area at temperatures between 32°F and 100°F (0°C and 38°C).

A.4.6.3.2 Liner delamination and degradation can occur as fire hose ages. Delaminated liners can cause plugged nozzles or cutof water supply to pumps. These arc potentially serious fireground problems.

Evell though a hose passes the annual service test, liner delamination may be present. Some signs of possible liner delamination may include the following: hose leaks without obvious exterior hose damage, hose leaks throughout an ex'tended portion of the hose length, the appearance of water droplets on the outer surface of a pressurized hose, and lumps or irregularities in a drained hose. To verify attack and supply hose liner integrity, reach inside each end of the hose and tiY to pinch the liner. If it can be pinched, delamination has begun. To iilrther confirm liner delamination, cut through the hose a few inches from the couplings and examine the liner's adhesion to the hose jacket. Remove the hose from service if there is any sign of delamination. When liner delamination is found, it is highly probable that all other hose of the same age

INSPECTION.

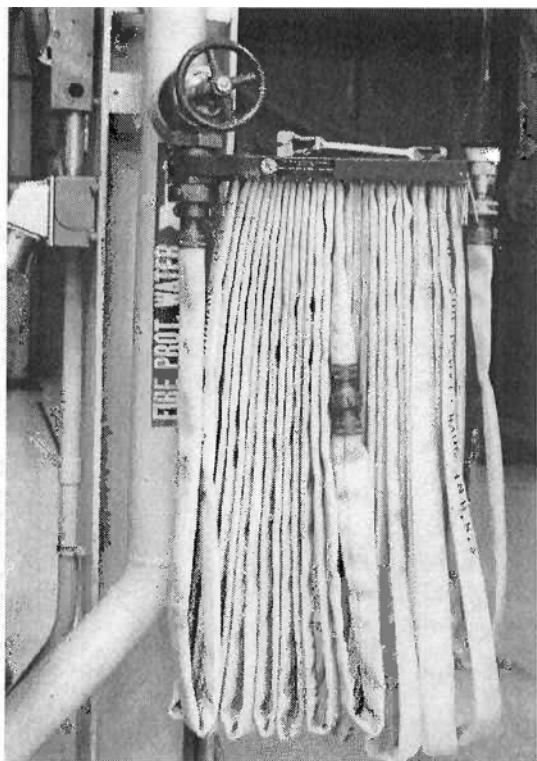


FIGURE AA.3 Typical Standpipe and Fire Hose Rack Arrangement. (Courtesy of National Aeronautics and Space Administration.)

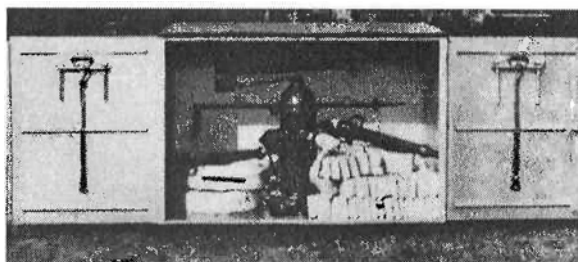


FIGURE AA.3.5.3(a) Hose House of Compact Dimensions for Installation over a Yard Hydrant. Construction can be steel or aluminum.

and from the same lot will also have liner delamination. If so, the entire lot of such hose should be removed from service and inspected.

AA.7.1 For washing, use a scrub brush, mild soap or detergent, and water. A mechanical washer can be used where hose is used frequently or a large number of hose lengths need to be washed. Avoid constant washing of cotton jacket hose treated for mildew resistance, as this will remove the treatment. There are several commercial hose washers available, although many fire departments have constructed their own.

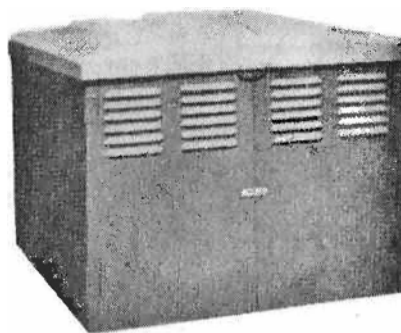


FIGURE AA.3.5.3(b) Steel House of Compact Dimensions for Installation over a Yard Hydrant.

AA.7.5 There are a number of ways to dry hose. Tower drying has proved successful. However, care should be taken to properly ventilate and control the temperature of the tower so the hose will not be damaged by excessive heat. It is poor practice to suspend hose from couplings.

The design of hose towers should meet all applicable building, electrical, and safety codes and requirements. Fire fighters should be made aware of the hazards associated with hose-drying towers, the protective equipment they should wear while working in a hose tower, and the correct method for raising and hanging wet fire hose, as well as retrieving dry hose.

Commercial hose dryers that force warm air through a cabinet in which hose is loosely coiled on wire racks are also available. However, while this process dries the outside jacket, it might not allow for thorough draining of the inside of the hose.

Inclined hose racks are often useful, as most existing stations can accommodate such racks. The racks should be located where the sun or excessive heat will not damage the hose. The rack has the advantage of allowing the hose to drain internally while providing a drying area from which fire fighters can easily load and unload hose.

AA.8.1 Storage racks are commercially available, but many users have built their own to fit their particular needs.

A.5.1.1 Records are essential and necessary data to determine hose performance and ensure safe use in tire tightening. Cost-effectiveness can also be determined. This recorded information should be used for effective hose management.

A.5.1.2 Where hose repairs are frequent, couplings and hose lengths can become intermingled; therefore, either stenciling the hose or changing the couplings should be employed.

A.5.1.2.1 Paints with a petroleum solvent base can cause the bond between the liner and jacket to fail. Water-based latex paint is not harmful to hose.

Some tire departments color-code couplings as well as various tools to identify the company to which the equipment is assigned. This enables each company to readily identify and pick up its hose and equipment at a tire. Where mutual aid operations are frequent, each length of hose should be appropriately stenciled or marked to identify the tire department owning it.

A.5.1.2.2 Coupling bowls can be damaged by improper stamping. The proper procedure is to insert a special steel plug with round edges into the end of the expansion ring.

ANNEX A

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One sharp blow from a steel numbering die will then clearly stamp the coupling. Aluminum couplings should be stamped before they are hardcoated.

A.5.1.3 Because the safe use of hose requires continuous, accurate, up-to-date records, records should be maintained and stored at the company level in addition to being part of a central file. Conditions, repairs, changes, problems, and so on, should be recorded immediately for each length of hose. (See *Figure A.5.1.3*.)

**Hose Record Card**

10 No.--City- \_\_\_\_\_ Engine Co. \_\_\_\_\_ ~  
 Type \_\_\_\_\_  
 Size (dia.) -- Length -- hose----- Canst. ---Cost \_\_\_\_\_  
 Mfg. -- ..... -- no ..... Part ..... Date rcd ..... Date in service .....  
 Contractor \_\_\_\_\_ Cpl'g. \_\_\_\_\_ Type \_\_\_\_\_  
 Repairs =====  
 Date Kind Cost New length New ID no.

REMARKS: \_\_\_\_\_

**Service test to ps Test Record**

Date	Service test to psi	Test OK	Reason	Date	Service	Test OK	Reason
---	---				---		
---	---				---		
---	---				---		
---	---				---		
---	---				---		
Date	Exposed to possible damage			Date	Reason		
---				---	Removed from service		
---				---	Condemned		
---				---	Sold		
---				---	Wmnty. failure		

FIGURE A.5.1.3 Example Showing Front and Back of a Hose Record Card. (Courtesy of Scandia Industries, Inc.)

A.5.1.5 Other information recorded might include coupling threads, manufacturer of coupling and part number, length of guarantee, label number, and cost

A.5.1.6 This tag might also include information required for inclusion on the permanent hose record. (See *Figure A.5.1.6*.)

A.5.2 Forestry hose is often moved from one location to another in large quantities. Many times forestry fire apparatus leaves the scene of a fire with a different complement of hose from that with which it arrived. Therefore, maintaining individual records of each length of hose can be impractical. As a minimum, records on stored hose should be kept at stations and fire warehouses to ensure proper inventory rotation.

**Hose Repair Tag**

Hose to be repaired must be tagged

10 number: <::> Company number

Picked up by: <::> Date picked up

Delivered by: <::> Date delivered

**Repairs Needed:**

**Repairs Made:**

Repaired by: <::> Date repaired

Service tested \_\_\_\_\_ Date tested \_\_\_\_\_  
 psi

**O** Hose is not repairable.  
 ID no. of replacement hose \_\_\_\_\_

Note: This tag must be filled out and returned with hose.

•• Enter repairs on hose record card.

\*\*\*\*\* , \* : \*\*\*\*\* , \*\*\*\*\*

FIGURE A.5.1.6 An Example of a Hose Repair Tag. (Courtesy of Memphis Fire Department.)

A.5.3.3 The owner of the hose might wish to keep some or all of the following information as a separate record to assist in tracking the performance of the hose:

- (1) Assigned identification number
- (2) Manufacturer and part number
- (3) Contractor from which hose was purchased
- (4) Size (internal diameter of waterway)
- (5) Length
- (6) Type of hose
- (7) Construction
- (8) Date received
- (9) Repairs and new length if shortened
- (10) Actual damage
- (11) Exposure to possible damage
- (12) Reason removed from service
- (13) Reason condemned
- (14) Indication that the hose has been removed from service or condemned within the warranty period because of an in-warranty failure

A.5.3.4 Because occupant-use hose does not get the same type of use as other fire hose, methods of recording the identification number can include using bar coded labels on the

coupling, fastening metal tags to the hose, stamping couplings, or painting on the hose.

In stamping couplings, the proper procedure is to insert a special steel plug with round edges into the end of the expansion ring. One sharp blow from a steel numbering die will then clearly stamp the coupling. Coupling bowls can be damaged by improper stamping. Aluminum couplings should be stamped before they are hardcoated.

A water-based latex paint is not harmful to hose. Paints with a petroleum solvent base can cause the bond between the liner and jacket to fail.

A.5.3.5 It is important that a fire inspector have ready access to records of hose inspection and tests.

A.5.3.6 It is important that hose that has been damaged not become intermixed with hose in storage such that the damaged hose could accidentally be put in service.

A.6.1.3 It should never be necessary to hammer a shutoff valve to make it operate.

A.6.1.9 Nozzles should be washed in a solution of soap and warm water. The nozzle should be submerged and the adjustable controls operated until there is free movement. The nozzle should then be rinsed in water. The nozzle should be lubricated in accordance with the manufacturer's instructions. Cracked rubber-covered handles on nozzles can cause accidents and should be replaced.

A.6.2.3 In most cases, a machine shop with the proper facilities can repair damaged threads. One way to detect any slippage of the coupling on the hose is to inspect the area where the expansion ring is located for any appreciable gap between the expansion ring and the coupling watertightness. Ordinarily, the swivels can be freed satisfactorily by immersion in warm, soapy water.

A.6.2.5 On some couplings such abuse can cause the hose bowl and swivel to go "out-of-round"; as a result, the swivel will not turn.

A.6.2.8.1 Usually, an improper fit between the internal bowl diameter and the outside diameter of the hose of more than  $\pm 0.1$  in. ( $\pm 0.79$  mm) will require the use of special hose attachment techniques and should be avoided.

A.6.2.8.2 The length of the expansion ring needs to be consistent with the length of the coupling bowl. (See Figure A.6.2.8.2.)

A.6.2.8.3 The tail gasket is the gasket placed in the coupling at the end of the hose to prevent leakage and to keep the fabric of the hose jacket dry. When ordering couplings and tail gaskets for recoupling hose with expansion ring couplings, it is important that the appropriate tail gasket be provided. The coupling manufacturer needs to know the outside diameter of the hose and the wall thickness of the hose to provide the proper coupling and gasket.

A.6.2.9 Multiple-piece collars or compression-type hose couplings attached with a shank and external binding method might not be interchangeable from manufacturer to manufacturer and among different

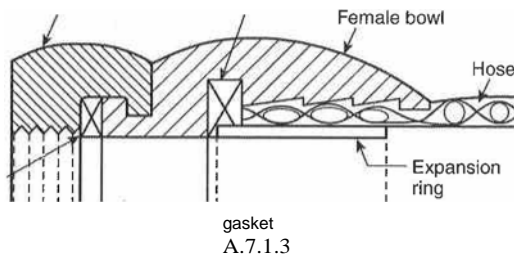


FIGURE A.6.2.8.2 Female Coupling Assembly.

Swivel

Tail

I-hose

hose constructions. The user should verify that the binding is designed for the hose and shank with which it is being used. Check with the coupling or hose manufacturer for proper assembly instructions and bolt torque settings where necessary).

A.6.2.10 A degree of skill and experience is required to properly attach couplings to hose. It is necessary to have good equipment and a mechanic skilled and experienced in attaching couplings. If not, this work should be done by the hose manufacturer. Testing of repaired or recoupled fire hose is undertaken to confirm its suitability for continued use.

A.6.3.1 A high-quality synthetic gasket with antioxidants or neoprene should be used, as natural rubber gaskets can deteriorate with age and will harden and break away from the gasket seat.

A thread gasket with a smaller diameter than that of the recess can cause a leaky connection when pressure is applied. (See NFPA 1963, *Standard for Fire Hose Connections*.)

A.6.3.2 If the gasket protrudes at the nozzle connection, it can cause a ragged stream, reducing the effective reach of the nozzle; at a coupling, it can cause increased friction loss.

A.7.1 All fire hose has an expected service life. That life will depend on a number of factors, such as the initial quality of the hose, the type of service to which it is subjected, and the care it receives during its life. Users should develop a fire hose inspection and care program based on this standard. That program should also address the retirement of fire hose.

One of the reasons for keeping good records of fire hose as required by this standard is to evaluate how different fire hoses perform over time. This will provide the experience the users need to help them determine what a useful service life is for different types of hose and make decisions on when fire hose should be retired.

Limited testing of in-service fire hose by the Fire Equipment Manufacturers Association indicated an increased risk of failure after a 10-year time period. The testing looked at the reduction in burst pressure, ozone degradation, liner adhesion and degradation, hose strength, normal wear patterns, and UV degradation of fibers.

While all users should establish their own retirement schedule, fire departments should give careful consideration to a 10-year maximum service life under normal operating conditions.

meeting the requirements of NFPA 1961, *Standard on Fire Hose*, 1987 or subsequent editions, will probably have different service test pressures than hose meeting the requirements of earlier editions.

A.7.2.4 Hose is tested in lengths not exceeding 300 ft (91 m) to allow the hose to untwist and be straightened out. As the pressure rises, the shorter length will allow the hose to assume a natural elongation, creating less warp in the hose.

It is also important that all the air in the hose be removed. If any point in the hose layout is elevated, air will be trapped at that point. Excessive lengths make it difficult to exhaust all the air. The ideal hose test area will have a slight upward incline from the pressure source to the capped end. This allows the



air to flow to the capped end and be bled off. There should be no humps or valleys in the hose between the ends, as these will trap air.

A.7.2.7 The surface on which the hose is laid out should be as smooth as possible. Rough surfaces will accelerate abrasion and hinder proper movement of the hose line.

A.7.2.8 Stationary pumps and pumps on fire apparatus are designed for pumping substantial flow volumes at moderate pressures. The use of such pumps when testing hose at moderate to high pressures with very little flow, or possibly no flow, may cause overheating of the water in these pumps as well as recirculation cavitation operating conditions. Both the overheating and recirculation cavitation operating conditions are known to cause permanent damage to the pumps. In addition, the hot water inside the pumps (which is possibly even superheated steam) creates a safety hazard to personnel operating the pump or testing the fire hose.

A.7.2.10 Damaged fire hose should not be patched unless such repair is recommended by the manufacturer of the hose and is performed by properly trained and equipped personnel.

A.7.2.10.3 Removing the couplings from the hose will ensure that damaged hose that has been condemned does not accidentally get intermixed with serviceable hose.

A.7.4.1 If booster hose is manufactured in accordance with ANSI J19.2, *Fire Extinguisher and Booster Hose*, the maximum working pressure will be shown on the cover of the hose.

A.7.5 The suction hose vacuum test can be run in conjunction with the annual pump suction test. In Figure A.7.5, one line runs to the pump vacuum and the other to a test gauge. A clear plastic disk at the other end used with a light makes it possible to observe if the internal lining is drawn into the waterway.

If the suction hose is designed for use under positive pressure, it might be marked with the positive service test pressure.

Positive suction hose is not designed for use under positive pressure. If unmarked suction hose is to be used under positive pressure, the user should check with the manufacturer to be sure the hose is designed for such applications and should be tested in accordance with the manufacturer's recommended service test pressure.

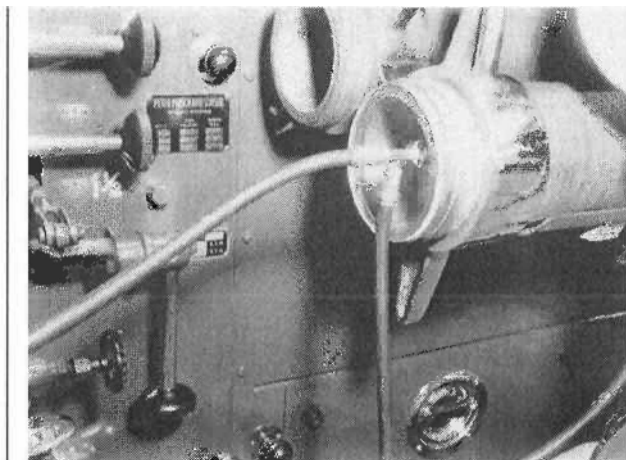


FIGURE A.7.5 Plastic Test Disk for Pump Suction Hose. (Courtesy of San Diego Fire Department.)

A.7.6.2.4 Air under pressure becomes greatly compressed, and the hose

can whip violently if the pressure is suddenly released by a hose burst. A blown-off coupling propelled by the compressed air will act like a high-velocity missile.

A.7.6.2.6 Hose can be expected to stretch when the pressure is increased to the test pressure. Allowance should be made for this stretch when the hose is secured.

A.7.7.2 The use of the hose test valve prevents a volume of air from the pump in the event of a hose bursting during the test. The 1/4 in. (6.4 mm) opening drilled through the gate permits the pressure to be raised to the test pressure after the hose has been filled, the air completely removed, and the hose test valve closed.

A.7.7.6 Air under pressure becomes greatly compressed, and the hose can whip violently if the pressure is suddenly released by a hose burst. A blown-off coupling propelled by the compressed air will act like a high-velocity missile.

A.7.7.8 Hose can be expected to stretch when the pressure is increased to the test pressure. Allowance should be made for this stretch when the hose is secured.

A.8.1.2 Many large-diameter appliances are designed for use with large-diameter supply hose, which typically has a service test pressure of 200 psi (1380 kPa). Such appliances should not be used in attack hose layouts that will require pressures above the design operating pressure of the appliance. Hose layouts supplying elevated master streams from aerial ladders, elevated platforms, or water towers will generally be operated at pressures exceeding 250 psi (1725 kPa).

A.8.1.2.1 Extreme care should be taken the first time an appliance is service-tested, particularly when the original operating pressure is unknown, as the appliance could fail catastrophically and cause serious injury. It is recommended that adequate shielding be provided between the appliance and the tester to prevent injury in the event of failure.

A.8.1.7 All appliances that meet the requirements of NFPA 1965, *Standard for Fire Hose Appliances*, have been subjected to a corrosion exposure test. The purpose of this test is to ensure the appliance will perform under normal exposure to corrosive conditions, such as those found in the atmosphere near oceans or caused by chemicals used to treat road surfaces in icy conditions. When the appliance is exposed to corrosive conditions on a long-term basis, or is to be used where strong corrosives are present, the user should ensure the appliance is designed for such exposure. Hard-coated aluminum is recommended to help prevent corrosion. Chrome-plated aluminum does not offer the same protection.

A.8.2.2 Repairs to appliances should be performed by the manufacturer or a person qualified by the manufacturer.

## Annex B Informational References

B.1 Referenced Publications. The documents or portions thereof listed in this annex are referenced within the informational sections of this standard and are not part of the requirements of this document unless also listed in Chapter 2 for other reasons.

1962-20 CARE, AND USE OF FIRE HOSE, COUPLINGS, AND NOZZLES AND TESTING OF FIRE HOSE INSPECTION,

B.1.1 NFPA Publications. National Fire Protection Association, 1 Battelymarch Park, Quincy, MA 02169-7471.  
NFPA 1961, *Standard on Fire Hose*, 2007 edition.  
NFPA 1963, *Standard for Fire Hose Connections*, 2003 edition. NFPA 1965, *Standard for Fire Hose Appliances*, 2003 edition.

B.1.2 Other Publications.

B.1.2.1 ANSI/UL Publications. Underwriters Laboratories Inc., 333 Pfingsten Road, Northbrook, IL 60062-2096.  
ANSI/UL 92, *Fire Extinguisher and Booster Hose*, 1993.

B.1.2.2 ASTM Publications. ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959.  
IEEE/ASTM SI-10, *Standard for Abbreviations of the International System of Units (SI): The Modern Metric System*, 2002.

B.1.2.3 Other Publications.  
Purinton, R. G., *Fire Fighting Hydraulics*, 1st edition, McGraw-Hill, New York, 1974, pp. 371-373.

B.2 Informational References. (Reserved)

B.3 References for Extracts in Informational Sections. (Reserved)

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## APPENDIX E

### NON-DISCLOSURE AGREEMENT BETWEEN ( Contractor ) AND THE CITY OF ANN ARBOR

Whereas, the City of Ann Arbor, with municipal offices at 100 N. Fifth Avenue, Ann Arbor 48107 ("City") is the owner of information relating to its fire fighting hose inventory and components thereof, which is or may be classified as exempt or restricted information under the Michigan Freedom of Information Act and federal bioterrorism and homeland security laws (collectively referred to as "Confidential Information").

Whereas, (Testing Contractor) (referred to as "Receiver") is desirous of receiving, reviewing, and/or evaluating the Confidential Information for the sole and exclusive purpose of annual fire fighting fire hose testing and fire fighting hose inventory management.

It is hereby agreed:

That, the City shall, in its sole discretion, disclose to Receiver some or all of the Confidential Information, based on Receiver's request for the fire departments fire fighting hose inventory:

(details of information to be given to the Contractor)

It is understood that Receiver will secure at its sole cost any and all licenses, authorizations or other intellectual property rights necessary for the transfer of Confidential Information in the format requested by Receiver. Receiver will be required to provide documentation of it has all necessary licenses, authorizations or rights prior to transfer of the Confidential Information in the requested format.

That, Receiver shall hold and use Confidential Information only for the above-stated purpose of this Agreement and shall restrict disclosure of such Confidential Information to its employees with a need to know. Each employee of Receiver identified as "need to know" in connection with the receipt, review or evaluation of the Confidential Information shall be required to execute a Non-disclosure Agreement under the same terms as stated herein. The City shall be provided with a copy of the executed employee Non-disclosure Agreements and a master list of the employees, their respective jobs, and the reason for their classification as "need to know."

That, Receiver will hold the Confidential Information or any part thereof in strict confidence and will not permit any disclosure thereof to any person or persons outside its organization and not use or derive any direct or indirect benefit from the Confidential Information or any part thereof without the prior written consent of the City. Receiver agrees that it will not disseminate in any manner any part of the Confidential Information.

That, Receiver will not make or authorize to be made any copies of any reports, or electronic data files supplied by the City and showing or describing or embodying the Confidential Information unless authorized by the City in writing. At any time and for any reason, prior to the completion of the work performed by the Receiver, the City may request and Receiver agrees it will return all of the said reports, or electronic data files together with any reports, or electronic data files, including any independent notations of the Confidential Information, made by Receiver showing or describing or embodying the Confidential Information or any part thereof to the City immediately. After completion of the work, the Receiver shall return to the City any other documentation comprising the Confidential Information, in whatever format or media, including any independent notations of the Confidential Information made by Receiver showing or describing or embodying the Confidential Information or any part thereof. In addition, access shall be controlled by the Receiver to all Confidential Information generated as part of the work performed by the Receiver. Although the Receiver is permitted to maintain copies of their work, dissemination of this Confidential Information is not permitted without written authorization from the City.

That, the restrictions on the use or disclosure of Confidential Information by Receiver shall not include any information which:

1. at the time of disclosure to Receiver was known to Receiver free of restriction and such previous knowledge is evidenced by documentation in the possession of Receiver. A copy of which documentation will be provided to the City if requested by the City; or
2. is publicly known or later made publicly known by the City; or
3. is evidenced by documentation in the possession of Receiver as being received from a third party to this Agreement who: (a) has the legal right to so furnish such information to Receiver, and (b) is not obligated to the City to keep such information confidential; or
4. is approved for release in writing by the City.

That, nothing in this Agreement shall be construed as conferring to Receiver any right of ownership in the Confidential Information or license to use any, patents, industrial designs, copyrights or other intellectual property rights owned or licensed by the City.

That, nothing in this Agreement shall be construed as restricting the City's right to restrain use or dissemination of the Confidential Information in accordance with applicable federal, state or local law and regulation or at common law.

Receiver acknowledges that a breach by him/her of the provisions of this Agreement will cause the City irreparable damage for which the City cannot be reasonably or adequately compensated in damages. The City shall therefore be entitled, in addition to

all other remedies available to it including, but not limited to, attorney fees and costs, to injunctive and/or other equitable relief to prevent a breach of this Agreement, or any part of it, and to secure its enforcement.

This Agreement shall be construed in accordance with the laws of the State of Michigan.

This Agreement and any amendments hereto may be executed by facsimile signature and in any number of counterparts, all of which taken together shall constitute one and the same instrument.

CITY OF ANN ARBOR

(Consultant)

By: \_\_\_\_\_  
Date

Its: City Administrator

By: \_\_\_\_\_  
Date

Print Name: \_\_\_\_\_

Its:

Approved as to substance:

\_\_\_\_\_  
Ollice Hubbard  
Fire Chief

Approved as to form:

\_\_\_\_\_  
Stephen K. Postema  
City Attorney



**City of Ann Arbor  
LIVING WAGE ORDINANCE  
DECLARATION OF COMPLIANCE**

The Ann Arbor Living Wage Ordinance (Section 1:811-1:821 of Chapter 23 of Title I of the Code) requires that employers providing services to the City or recipients of grants for financial assistance (in amounts greater than \$10,000 in a twelve-month period of time) pay their employees who are working on the City project or grant, a minimum level of compensation known as the **Living Wage**. This wage must be paid to the employees for the length of the contract/project.

*Companies employing fewer than 5 persons and non-profits employing fewer than 10 persons are exempt from the Ordinance. If this exemption applies to your firm, please check below:*

- \_\_\_\_\_ This company is exempt due to the fact that we employ or contract with fewer than 5 individuals.
- \_\_\_\_\_ This non-profit agency is exempt due to the fact that we employ or contract with fewer than 10 employees.

The Ordinance requires that all contractors/vendors and/or grantees agree to the following terms:

a) To pay each of its employees performing work on any covered contract or grant with the City, no less than the living wage, which is defined as \$11.83/hour when health care is provided, or no less than \$13.19/hour for those employers that do *not* provide health care. It is understood that the Living Wage will be adjusted upward each year on April 30, and covered employers will be required to pay the adjusted amount thereafter. The rates stated above include the adjustment for 2011/12.

b) Please check the boxes below which apply to your workforce:

Employees who are assigned to *any covered* City project or grant will be paid at or above the applicable living wage without health benefits Yes \_\_\_\_\_ No \_\_\_\_\_

**OR**

Employees who are assigned to *any covered* City project or grant will be paid at or above the applicable living wage with health benefits Yes \_\_\_\_\_ No \_\_\_\_\_

- c) To post a notice approved by the City regarding the Living Wage Ordinance in every work place or other location in which employees or other persons contracting for employment are working.
- d) To provide the City payroll records or other documentation as requested; and,
- e) To permit access to work sites to City representatives for the purposes of monitoring compliance, investigating complaints or non-compliance.

The undersigned authorized representative hereby obligates the contractor/vendor or grantee to the above stated conditions under penalty of perjury and violation of the Ordinance.

\_\_\_\_\_  
Company Name

\_\_\_\_\_  
Address City State Zip

\_\_\_\_\_  
Signature of Authorized Representative

\_\_\_\_\_  
Phone (area code)

\_\_\_\_\_  
Type or Print Name and Title

\_\_\_\_\_  
Email address

\_\_\_\_\_  
Date signed

**Questions about this form? Please contact:**  
Procurement Office City of Ann Arbor - 734/794-6500 fax: 734/994-1795

→ ***New rate effective April 30, 2011*** ←

**\$11.83** per hour

if the employer provides health care benefits\*

**\$13.19** per hour

if the employer does **NOT** provide health care benefits\*

Employers providing services to or for the City of Ann Arbor or recipients of grants or financial assistance from the City of Ann Arbor for a value of more than \$10,000 in a twelve-month period of time ***must pay those employees performing work on a City of Ann Arbor contract or grant, the above living wage.***

### ***ENFORCEMENT***

The City of Ann Arbor may recover back wages either administratively or through court action for the employees that have been underpaid in violation of the law. Persons denied payment of the living wage have the right to bring a civil action for damages in addition to any action taken by the City.

Violations of this Ordinance is punishable by fines of not more than \$500/violation plus costs, with each day being considered a separate violation. Additionally, the City of Ann Arbor has the right to modify, terminate, cancel or suspend a contract in the event of a violation of the Ordinance.

***For Additional Information or to File a Complaint  
Contact:***

**Dee Lumpkin, Procurement Assistant**

**734/794-6576 or [dlumpkin@a2gov.org](mailto:dlumpkin@a2gov.org)**

*Health Care benefits includes those paid for by the employer or making an employer contribution toward the purchase of health care. The employee contribution must not exceed \$.50 an hour for an average work week; and the employer cost or contribution must equal no less than \$1/hr for the average work week.*

**The law requires employers to display this poster where employees can readily see it.**

**CITY OF ANN ARBOR PROCUREMENT OFFICE  
CONTRACT COMPLIANCE FORM**

**Form #2**

*Local Office (Only those employees that will do local or on-site work, if applicable)*

Name of Company/Organization \_\_\_\_\_ Date Form Completed \_\_\_\_\_

Name and Title of Person Completing this Form \_\_\_\_\_

Fax# \_\_\_\_\_ Email Address \_\_\_\_\_  
(Area Code)

**EMPLOYMENT DATA**

Job Categories	Number of Employees										TOTAL COLUMNS A-M				
	Male					Female									
	White A	Black or African American B	Asian C	Hispanic or Latino D	Native Hawaiian or Other Pacific F	American Indian or Alaska Native G	White H	Black or African American I	Asian J	Hispanic or Latino K		Native Hawaiian or Other Pacific L	American Indian or Alaska Native M		
Exec/Sr. Level Officials Supervisors															
Professionals															
Technicians															
Sales															
Admin. Support															
Craftspeople															
Operatives															
Service Workers															
Laborers/Helper															
Apprentices															
Other															
<b>TOTAL</b>															
PREVIOUS YEAR TOTAL															

Questions about this form? Call 734/794-6576

**CITY OF ANN ARBOR PROCUREMENT OFFICE  
CONTRACT COMPLIANCE FORM**  
*Entire Organization (Totals for All Locations where applicable)*

Name of Company/Organization \_\_\_\_\_ Date Form Completed \_\_\_\_\_

Name and Title of Person Completing this Form \_\_\_\_\_ Name of President \_\_\_\_\_

Address \_\_\_\_\_ (Street address) \_\_\_\_\_ County \_\_\_\_\_ Phone # \_\_\_\_\_  
 (Area Code) \_\_\_\_\_ (Zip) \_\_\_\_\_ (Area Code) \_\_\_\_\_

Fax# \_\_\_\_\_ (City) \_\_\_\_\_ (State) \_\_\_\_\_ Email Address \_\_\_\_\_

**EMPLOYMENT DATA**

Job Categories	Number of Employees										TOTAL COLUMNS A-M												
	Male					Female																	
	A	B	C	D	F	G	H	I	J	K		L	M										
Exec/Sr. Level Officials Supervisors																							
Professionals																							
Technicians																							
Sales																							
Admin. Support																							
Craftspeople																							
Operatives																							
Service Workers																							
Laborers/Helper Apprentices																							
Other																							
<b>TOTAL</b>																							
<b>PREVIOUS YEAR TOTAL</b>																							

Questions about this form? Call 734/794-6576