INFORMATION TO BID

The Utilities Commission, City of New Smyrna Beach, Florida (COMMISSION) is seeking bids from qualified vendors to:

1. Perform Hydrant Flow testing and prepare report in accordance with the AWWA, M-17, Chapter 6
2. Submit Inspection reports to the COMMISSION’S director of engineering, director of water resources and to the City of New Smyrna Beach’s fire marshal or other designated officer(s).
3. In conjunction with Section 2, Inspection Reports, Vendors shall perform Painting and Minor Maintenance of Fire Hydrants in accordance with AWWA, M-17, Chapter 5
4. Make recommendations of Major Maintenance or Replacement of Fire Hydrants as assessed by the COMMISSION’S director of engineering

A more detailed description of the above listed items can be found in the Bid Scope of Work. This detailed description should be read and understood by any bidder submitting bids.

Notice is hereby given that sealed bids will be received at 200 Canal Street, New Smyrna Beach, FL 32168, until 2:30 P.M. on February 19, 2019 at which time they will be publicly opened in the 3rd floor DeBerry Room.

Submit Bids To: Maureen Crossman, CPPB
Materials Manager
Utilities Commission,
City of New Smyrna Beach
(386) 424.3046 Voice
(386) 424.2748 Fax
MCROSSMAN@UCNSB.ORG

Mailing Address: 200 Canal Street
New Smyrna Beach, FL 32168

Walk In Delivery: 200 Canal Street
New Smyrna Beach, FL 32168

Bidders must indicate on the sealed envelope the following:

A. Invitation To Bid Number
B. Hour and Date of Opening
C. Name of Bidder
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## ATTACHMENTS

- Zone Maps 1, 2, 3, 4, and 5
- Fire Hydrant Standard Details PW-01 and PW-02
- ISO Fire Suppression Rating Schedule (Sections 300, 600, 700, and 2200)
## UTILITIES COMMISSION
CITY OF NEW SMYRNA BEACH, FLORIDA

**ITB# 05-19**
FIRE HYDRANT INSPECTION AND FLOW TESTING (ZONE 1)

## BID SCHEDULE

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
</tr>
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<tbody>
<tr>
<td><strong>January 14, 2019</strong></td>
<td>DISTRIBUTION OF THE INVITATION TO BID</td>
</tr>
<tr>
<td><strong>January 24, 2019</strong></td>
<td>PRE-BID MEETING (NON-MANDATORY)</td>
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<tr>
<td></td>
<td>TIME: <strong>2:00 P.M.</strong></td>
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<tr>
<td></td>
<td>LOCATION: DEBERRY ROOM, 3RD FLOOR</td>
</tr>
<tr>
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<td>UTILITIES COMMISSION</td>
</tr>
<tr>
<td></td>
<td>200 CANAL STREET</td>
</tr>
<tr>
<td></td>
<td>NEW SMYRNA BEACH, FL 32169</td>
</tr>
<tr>
<td><strong>February 1, 2019</strong></td>
<td>DEADLINE FOR FINAL QUESTIONS BY 2:30 P.M.</td>
</tr>
<tr>
<td></td>
<td>E-MAIL: <strong><a href="mailto:mcrossman@ucnsb.org">mcrossman@ucnsb.org</a></strong></td>
</tr>
<tr>
<td><strong>February 8, 2019</strong></td>
<td>ADDENDUM PUBLISHED BY 5:00 P.M.</td>
</tr>
<tr>
<td><strong>February 19, 2019</strong></td>
<td>BID RETURN DEADLINE BY 2:30 P.M.</td>
</tr>
<tr>
<td></td>
<td>LOCATION: UTILITIES COMMISSION RECEPTION</td>
</tr>
<tr>
<td></td>
<td>200 CANAL STREET</td>
</tr>
<tr>
<td></td>
<td>NEW SMYRNA BEACH, FL 32169</td>
</tr>
</tbody>
</table>
GENERAL TERMS AND CONDITIONS

1. **INSTRUCTIONS TO BIDDERS:** To insure consideration of your bid, please follow these instructions. Bids not in compliance with conditions specified herein are subject to rejection.

2. **SEALED BIDS:** **AN ORIGINAL BID AND 1 COPY plus a USB Flash Drive or a CD** must be in the Finance Department by the date and time specified. The Bid Reply, Certification of Drug-Free Workplace Form, Public Entity Crimes Form, Non-Collusion Affidavit of Prime Bidder Form, Evaluation Factors, Questionnaire, and any addenda issued must be included. Proposals must be sealed and clearly labeled with the following information:
   a. Name and address of Bidder
   b. Bid number
   c. Date and time of Bid Opening

3. **COMMISSION:** The term **COMMISSION** used herein refers to the Utilities Commission, City of New Smyrna Beach, Florida, or its duly authorized representative.

4. **BIDDER:** The term **BIDDER** used herein refers to the dealer/manufacturer or business organization submitting a bid to the **COMMISSION** in response to this solicitation.

5. **BID EXAMINATION:** BIDDERS are expected to examine, when applicable, the drawings, specifications, delivery requirements, performance sites and all instructions to satisfy themselves of conditions affecting cost of performing this contract.

6. **FURNISHED ITEMS:** No material, labor or facilities will be furnished by the **COMMISSION** unless specifically stated.

7. **COLLUSION:** The **BIDDER** hereby attests that the prices in this offer have been arrived at independently without consultation, communication or agreement with any competitor for the purpose of restricting competition.

8. **PRICE WARRANTY:** The **BIDDER** warrants that the prices of the items set forth herein do not exceed the prices charged by the **BIDDER** under a contract with the State of Florida.

9. **COMMERCIAL WARRANTY:** The **BIDDER** agrees that the supplies and services furnished under this award shall be covered by the most favorable commercial warranties the **BIDDER** gives any customers for comparable quantities of such supplies or services and that the rights and remedies provided herein are in addition to and do not limit any rights afforded to the **COMMISSION** by any other provision of this award.

10. **INSPECTION AND ACCEPTANCE:** A duly authorized representative of the **COMMISSION** will accomplish inspection and acceptance of the supplies/services purchased herein at the designated delivery point.
11. **QUESTIONS REGARDING BID:** COMMISSION has made every effort to provide prospective vendors with the information needed to appropriately respond to this bid. COMMISSION realizes that some clarification, interpretation, or additional information may be required.

Questions regarding any portion of this bid shall be directed, in writing, to:
Utilities Commission, City of New Smyrna Beach
Maureen Crossman, Materials Manager
mcrossman@ucnsb.org
or
P.O. Box 100
New Smyrna Beach, FL  32170-0100

All such requests must be received no later than 2:30 PM, Eastern Standard Time, **February 1, 2019**. Responses to all requests for more information will be included in any addenda and will be made available to all BIDDERS on **February 8, 2019**.

Requests for additional information received after the **February 1, 2019** deadline will not receive a response. Responses will not be made orally.

Any additional information pertaining to this Bid or to the services being sought hereunder obtained in a manner other than as described in the preceding paragraph should be regarded as unofficial. COMMISSION will not be bound in any way by information so obtained, or by a Bidder’s reliance thereon.

12. **COMMUNICATIONS:** Any communication between any potential vendor, service provider, bidder, lobbyist or consultant and any U.C. Commission Member, staff member, or consultant of the U.C. regarding this procurement is strictly prohibited from the date on which the solicitation advertisement appears on the U.C.’s website, Demandstar, or newspaper through the date of contract award. Also from the date of the filing of any notice of protest of award through resolution for the parties involved in the protest or contract award, whichever is longer. The only exceptions to this are communications with the U.C.’s Material Manager or the U.C.’s designated point of contact. Any violation shall constitute grounds for immediate and permanent disqualification of the offending firm and possible debarment or suspension. At the U.C.’s General Manager/CEO and Director of Finance (CFO)’s sole discretion, it may also serve as grounds for the voiding of any Contract with the violator and/or to temporarily or permanently debarring the violator from future work with the U.C. This process will safeguard the integrity of the U.C.’s procurement and protest process and also provide an ethical, equitable, and transparent procurement process.

13. **INVOICES:** All invoices resulting from the award of this bid will be paid within 30 days of receipt of invoice or receipt of goods or acceptance of work performed.

14. **BID FORM:** A Bid Form is provided and a completed original and one duplicate copy shall be returned in a **sealed envelope properly marked with Bid number and acknowledgment of receipt of addenda where applicable**. It is incumbent upon each bidder to ensure that they have received all addenda before submitting their bid.
15. **BID OPENING**: Bids will be publicly opened, read aloud and recorded, on the date and time indicated, at the location specified in the request for bid. It is the BIDDER's sole responsibility to assure his/her bid is delivered at the proper time and place of the bid. The **COMMISSION** will not be responsible for late deliveries or delayed mail. Bids delivered after the time specified shall not be considered; such bids shall remain **unopened**.

16. **QUOTING PRICES**: Carelessness in quoting prices or in preparation of bid otherwise will not relieve the BIDDER. BIDDERS are expected to examine specifications, delivery schedule, extensions, and all terms and conditions in the bid documents. Bids having erasures or corrections must be initialed in ink by the BIDDER. In the event of an extension error(s), the unit price will prevail.

17. **AMENDED OR WITHDRAWN BIDS**: Bids may be amended or withdrawn only by written notice prior to the bid opening. Amendments will only be accepted in the form of a new bid package. The bidder must pick up the original bid package and submit an amended sealed bid prior to the bids closing date and time. Amendments or withdrawals received after the bid opening will not be effective, and the original bid submitted will be considered.

18. **PUBLIC ENTITY CRIMES**: UNDER SECTION 287.133(2)(a), FLORIDA STATUTES, a person or affiliate who has been placed on the convicted vendor list following a conviction for a public entity crime may not submit a bid on a contract to provide any goods or services to a public entity, may not submit a bid on a contract with a public entity for the construction or repair of a public building or public work, may not submit bids on leases of real property to a public entity, may not be awarded or perform work as a contractor, supplier, subcontractor, or consultant under a contract with any public entity, and may not transact business with any public entity in excess of the threshold amount provided in Section 287.017, for Category two for a period of 36 months from the date of being placed on the convicted vendor list. See attachment “A”.

19. **CONSIDERATION OF BIDS**: The **COMMISSION** reserves the right to award the contract to the Bidder(s) that the **COMMISSION** deems to offer the best overall bid. The **COMMISSION** is therefore not bound to accept a bid on the basis of lowest price. In addition, the **COMMISSION** at its sole discretion, reserves the right to cancel this Bid, to reject any and all bids, to waive any and all informalities and/or irregularities, to re-advertise with either the identical or revised specifications, or not award a contract at all if it is deemed to be in the best interest of the **COMMISSION** to do so. The **COMMISSION** also reserves the right to make multiple or split awards if it is deemed to be in the **COMMISSION’S** best interest. The **COMMISSION** shall not be responsible for any cost or expense incurred by the Bidder in preparing or submitting a bid or any cost prior to the execution of a contract agreement.

20. **TIE BID**: In the event of a tie bid where quality and service are equal; a preference is given to vendors submitting, with the proposal, a certification of a drug free work place in accordance with Section 287.087 Florida Statutes. Where tie bids are between bidders, one of which is located in Volusia County and the other bidder is not, the recommended award shall be to the local bidder. Past Performance-Consideration will be given to a vendor based
on previous history and performance on similar Utilities Commission projects or requirements. Delivery availability or completion period. Capacity to perform in terms of service availability, facilities, personnel or financial availability. Closeness to delivery point. If all conditions are equal, a flip of a coin, with two witnesses present, shall be the deciding factor.

21. **SUBMITTING BIDS:** Bids shall be addressed and mailed or delivered as specified on page one (1) to 200 Canal St. New Smyrna Beach, Florida 32168.

22. **NO BID:** In the event an Invitation to Bid is returned as a no bid, "NO BID" shall be properly marked on the outside of the envelope with the bid number.

23. **REJECTED BIDS:** The COMMISSION reserves the right to reject bids containing any additional terms or conditions not specifically requested in the original conditions and specifications.

24. **FAILURE OF THE CONTRACTOR TO DELIVER:** Failure of the contractor to deliver within the time specified, or within a reasonable time as interpreted by the COMMISSION or failure to make replacements of rejected articles as directed, shall permit the COMMISSION to purchase on the open market articles of comparable grade to take the place of those rejected or not delivered. On all such purchases, the contractor shall reimburse the COMMISSION, within a reasonable time specified by the Purchasing Authority, for any expenses incurred in excess of the defaulted price. Payments due the contractor by the COMMISSION may be withheld until reimbursement is received.

25. **BRAND OR TRADE NAMES:** When brand or trade names are used in the bid invitation, it is for the purpose of item identification and to establish standards for quality; style and features. Bids on equivalent items will be considered unless items are noted as no substitutes. Equivalent bids must be accompanied by descriptive literature and/or specifications to receive consideration. Demonstrations and/or samples may be required and shall be at no charge to the COMMISSION. The COMMISSION reserves the right to determine if bid goods are equivalent to specified goods.

26. **AWARDS:** Awards shall be made as required for the best interest of the COMMISSION. The right is reserved to make award(s) by individual items, group of items, all or none, or any combination thereof, with one or more suppliers.

27. **INDEPENDENT CONTRACTORS:** Contractor is an independent contractor, and all persons employed by Contractor in connection herewith shall be its employees and not employees of COMMISSION in any respect.
28. **INSURANCE**: The Contractor shall, at its sole expense, maintain in effect at all times during the performance of the services insurance coverage with limits not less than those set forth below and with insurers and under forms of policies satisfactory to **COMMISSION**.

<table>
<thead>
<tr>
<th>Coverage</th>
<th>Minimum Amounts and Limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) Worker's Compensation</td>
<td><strong>Statutory requirements at location of work</strong></td>
</tr>
<tr>
<td>Employer's Liability</td>
<td>$100,000 Each occurrence</td>
</tr>
<tr>
<td></td>
<td>$300,000 Disease, aggregate</td>
</tr>
<tr>
<td></td>
<td>$100,000 Disease, each employee</td>
</tr>
<tr>
<td>(b) General Liability</td>
<td>$1,000,000 General Aggregate</td>
</tr>
<tr>
<td></td>
<td>$1,000,000 Products - Comp Ops Agg</td>
</tr>
<tr>
<td></td>
<td>$500,000 Each Occurrence</td>
</tr>
<tr>
<td></td>
<td>$50,000 Fire Damage</td>
</tr>
<tr>
<td></td>
<td>$5,000 Medical Expense</td>
</tr>
<tr>
<td>(c) Automobile Liability</td>
<td>$1,000,000 Combined Single Limit</td>
</tr>
<tr>
<td>(owned, hired and non-owned)</td>
<td></td>
</tr>
<tr>
<td>Option of Split Limits:</td>
<td></td>
</tr>
<tr>
<td>(1.) Bodily Injury</td>
<td>$500,000 Per Person</td>
</tr>
<tr>
<td></td>
<td>$1,000,000 Per Accident</td>
</tr>
<tr>
<td>(2.) Property Damage</td>
<td>$500,000</td>
</tr>
</tbody>
</table>

Coverage shall apply to the indemnity agreement and shall include the **COMMISSION** their officers and employees, each as additional insured’s but only as regards to their liability arising out of Contractor's performance of the work or out of operations performed by others on behalf of Contractor under this Contract. The insurance as afforded to such additional insured’s shall state that it is primary insurance and shall provide for a severability of interest or cross-liability clause. Prior to commencing performance of any work or site mobilization, Contractor shall furnish **COMMISSION** with Certificates of Insurance (identifying on the face thereof the Project name and Contract number) as evidence of the above required insurance and such Certificates shall provide for thirty (30) days written notice to **COMMISSION** prior to cancellation thereof.

**COMMISSION** is not maintaining any insurance on behalf of Contractor covering loss or damage to the work or to any other property of Contractor unless otherwise specifically set forth herein.

None of the requirements contained herein as to types, limits and approval of insurance coverage to be maintained by Contractor are intended to and shall not in any manner limit or qualify the liabilities and obligations assumed by Contractor under this contract.
Contractor shall deliver the original Certificate of Insurance and one copy to the agent of the COMMISSION.

Notices, in original and one copy, of cancellation, termination and alternation of such policies shall also be provided to the agent of the COMMISSION.

29. **WARRANTY AND ACCEPTANCE**: All material shall be new and workmanship shall be first class in every respect. The work shall be subject to inspection and acceptance by COMMISSION. Contractor guarantees its work hereunder for a period of twelve (12) months after completion and acceptance of the work unless otherwise set forth herein. In the event COMMISSION discovers defects in material or workmanship at any time before the expiration of the specified warranty period, Contractor shall, upon written notice from COMMISSION, repair or replace at its sole expense any such defects. COMMISSION may perform such repairs or replacements by other reasonable means and Contractor agrees to pay for such corrective measures. Neither acceptance of the work by COMMISSION nor payment shall relieve Contractor from liability under the indemnity clause or any of the guarantees or warranties contained or implied herein.

30. **LAWS, REGULATIONS, PERMITS AND TAXES**: Contractor must comply with COMMISSION’s jobsite procedures and regulations and with all applicable local, state and federal laws, rules and regulations and must obtain all permits required for any of the work performed hereunder. Contractor must procure and pay for all permits and inspections required for any of the work performed hereunder and must furnish any bonds, security or deposits required to permit performance of the work. Contractor must, to the extent permissible under applicable law, comply with the jobsite provisions which validly and lawfully apply to work on the specific jobsite being performed under this Contract.

31. **WORK RULES, SECURITY**: For work performed on COMMISSION premises, Contractor shall strictly observe COMMISSION work rules and security requirements. All work shall be carried out during normal COMMISSION working hours unless specifically agreed to in writing by COMMISSION. Contractor shall, at COMMISSION’s request remove from site any employee whom COMMISSION deems to be incompetent, dishonest or uncooperative.

32. **CHANGES**: COMMISSION may, at any time, direct in writing additions, deletions or changes to all or any part of the work. If any such changes cause an increase or decrease in the cost of or in the time required to perform such work, Contractor shall submit detail information substantiating such claims and an equitable adjustment shall be made to the price or time of performance.

33. **RELEASE AGAINST LIENS OR CLAIMS**: Contractor shall promptly pay all claims of persons or firms furnishing labor, equipment or materials used in performing the work hereunder. COMMISSION may require Contractor to submit satisfactory evidence of payment and releases of all such claims. If there is any evidence of any such unpaid claim, the COMMISSION may withhold any payment until Contractor has furnished such evidence of payment and release.
34. **ASSIGNMENT**: Any assignment by Contractor of this Contract or of any rights hereunder or hypothecation thereof in any manner, in whole or in part, by operation of law or otherwise, without the prior written consent of the COMMISSION shall be voided.

35. **SAFETY AND FIRE PREVENTION**: Contractor shall at all times conduct all operations under the Contract in a manner to avoid risks of bodily harm to persons, damage to any property and fire. Contractor shall be responsible to take all precautions necessary and continuously inspect all work, materials and equipment to discover, determine and correct any such conditions which may result in any of the aforementioned risks.

36. **SUSPENSION OF WORK AND TERMINATION**: COMMISSION May Suspend Work - The COMMISSION may at any time and without cause suspend the Work or any portion thereof by notice in writing to the Contractor. The Project Manager shall fix the date on which Work shall be resumed and the Contractor will resume the Work on the date so fixed. The Contractor will be allowed an extension of the Contract Time, if directly attributable to any suspension. However, no change to the contract price will be allowed on claims for suspended work or delays, whatever the Cause or reason.

COMMISSION May Terminate for Cause - If the Contractor is adjudged bankrupt or insolvent; if he makes a general assignment for the benefit of his creditors without COMMISSION approval; if a trustee or receiver is appointed for the Contractor or for any of his property; if he files a petition to take advantage of any debtor's act or to reorganize under the bankruptcy or similar laws; if he fails to prosecute and complete the Work in accordance with the established Project Schedule or within the Contract Time allowed; if he repeatedly fails to supply sufficient skilled workers or suitable materials or equipment; if he repeatedly fails to make prompt payment to subcontractors for labor, materials or equipment; if he disregards laws, ordinances, rules, regulations or orders of any public body having jurisdiction; if he disregards the authority of the Project Manager; or if he otherwise substantially violates any provisions of the Contract Documents, then the COMMISSION may, without prejudice to any other right or remedy and after giving the Contractor and his Surety seven (7) days written notice, terminate the services of the Contractor and take possession of the Work and of all materials, equipment, tools, construction equipment and machinery thereon owned by the Contractor and assign the completion of the Work to the Surety, or finish the Work by whatever method it may deem expedient. In such case, the Contractor shall not be entitled to receive any further payment until the Work is finished. If the unpaid balance of the Contract Amount exceeds the direct and indirect cost of completing the Work, including compensation for additional professional services, such excess shall be paid to the Contractor. If such cost exceeds such unpaid balance, the Contractor will pay the difference to the COMMISSION. Such cost incurred by the COMMISSION will be determined by the COMMISSION and incorporated in a Change Order.

Where the Contractor's services have been so terminated by the COMMISSION, said termination shall not affect any rights of the COMMISSION against the Contractor then existing or which may thereafter accrue. Any retention or payment of moneys by the COMMISSION due the Contractor will not release the Contractor from liability.
Upon Termination for Cause, the Contractor shall not be entitled to payment for any anticipated supplemental costs, administrative expenses and/or profit for uncompleted Work. If after notice of termination of the services of the Contractor for cause, it is determined that the Contractor was not in default, the termination shall be deemed to have been for the convenience of the COMMISSION. In such event the Contractor may recover from the COMMISSION payment for Work completed and reasonable termination costs as provided in the following paragraph.

Termination for Convenience: Upon seven (7) days written notice to the Contractor and the Surety, or sooner if reasonable under the circumstances, the COMMISSION may, without cause and without prejudice to any other right or remedy, elect to terminate any part of the Work, or the Contract in whole or in part, as the COMMISSION may deem appropriate. In any termination for convenience, the Contractor shall be paid for work completed, and costs incurred, materials delivered or ordered by the Contractor and subcontractors at the time of termination provided, however, that the payment to the Contractor will exclude any and all anticipated supplemental costs, administrative expenses and profit for uncompleted Work. Upon termination for convenience, the COMMISSION shall have full power and authority to take possession of the Work, assume any sub-agreements with Subcontractors and suppliers which the COMMISSION selects, and prosecute the Work to completion by contract or as the COMMISSION may deem expedient.

Removal of Contractor Employee: The COMMISSION retains the right to require immediate removal of any contractor employee, including the foreman or superintendent if in the COMMISSION’s sole determination it is in the interest of the COMMISSION or the project. Such removal should be immediate and not subject to approval or discussion.

37. **MAINTENANCE OF RECORDS:** The Contractor will keep adequate records and supporting documents applicable to this contract. Said records and documentation will be retained by the Contractor for a minimum of five (5) years from the date of final payment on this Contract. The COMMISSION and its authorized agents shall have the right to audit, inspect and copy records and documentation as often as the COMMISSION deems necessary during the period of this contract and a period of five (5) years after completion of contract performance; provided however, such activity shall be conducted only during normal business hours. The COMMISSION, during the period of time defined by the preceding sentence, shall also have the right to obtain a copy of and otherwise inspect any audit made at the direction of the Contractor as concerns the aforesaid records and documentation.

38. **CONFLICT OF INTEREST OF OFFICERS OR EMPLOYEES OF THE CONTRACTING ENTITY/LOCAL JURISDICTION, MEMBERS OF THE LOCAL GOVERNING BODY, OR OTHER ELECTED OFFICIALS:** No member or employee of the contracting entity/local jurisdiction or its designees or agents; no member of the governing body; and no other public official of the COMMISSION who exercises any function or responsibility with respect to this contract, during his/her tenure or for one year thereafter, shall have any interest, direct or indirect, in any contract or subcontract, or the proceeds thereof, for work to be performed. Further, the Contractor shall cause to be incorporated in all subcontracts, the language set forth in this paragraph prohibiting conflict of interest.
39. **EMPLOYEE CONFLICT OF INTEREST:** It shall be unethical for any COMMISSION employee to participate directly or indirectly in a procurement contract when the COMMISSION employee knows that:

(1) The COMMISSION employee or any member of the COMMISSION employee's immediate family has a financial interest in the procurement contract; or

(2) Any other person, business, or organization with whom the COMMISSION employee or any member of a COMMISSION employee's immediate family is negotiating or has an arrangement concerning prospective employment is involved in the procurement contract.

A COMMISSION employee or any member of a COMMISSION employee's immediate family who holds a financial interest in a disclosed blind trust shall not be deemed to have a conflict of interest with regard to matters pertaining to that financial interest.

40. **GRATUITIES AND KICKBACKS:**

(1) Gratuities. It shall be unethical for any person to offer, give, or agree to give any COMMISSION employee or former COMMISSION employee, or for any COMMISSION employee or former COMMISSION employee to solicit, demand, accept, or agree to accept from another person, a gratuity or an offer of employment in connection with any decision, approval, disapproval, recommendation, or preparation of any part of a program requirement or a purchase request, influencing the content of any specification or procurement standard, rendering of advice, investigation, auditing, or in any other advisory capacity COMMISSION in any proceeding or application, request for ruling, determination, claim or controversy, or other particular matter, pertaining to any program requirement or a contract or subcontract, or to any solicitation or proposal therefore.

(2) Kickbacks. It shall be unethical for any payment, gratuity, or offer of employment to be made by or on behalf of a subcontractor under a contract to the prime contractor or higher tier sub-contractor or any person associated therewith, as an inducement for the award of a subcontract or order.

(3) Contract Clause. The prohibition against gratuities and kickbacks prescribed in this Section shall be conspicuously set forth in every contract and solicitation therefore.
41. **USE OF PREMISES:** The Contractor will confine his equipment, the storage of materials and equipment, and the operations of his workers to the areas permitted by law, ordinances, permits or the requirements of the Contract Documents and shall not unreasonably encumber the premises with materials or equipment.

The Contractor shall confine the operation of workmen and equipment, and the storage of materials and equipment to the COMMISSION’s property or to other non-COMMISSION property or in public right-of-way areas indicated on the Contract Drawings as including work to be done pursuant to the Contract documents. In the event the Contractor desires to have access to the project site, or perform work or operations pertaining to the contract on, over or from non-COMMISSION property adjacent to the project site, the Contractor shall obtain written authorization to do so from the respective adjacent property owner(s) prior to using such property. Such written authorization shall include a provision whereby the property owner agrees to hold the COMMISSION harmless, and to defend the Utilities Commission, in the event of any liability, loss, injury, or claim incurred as a result of the Contractors work or operations involving the use of the adjacent non-COMMISSION property. The COMMISSION shall be provided with a notarized, certified copy of such written authorization(s) before the Contractor commences work or operations or use of such property in connection with work or operations pursuant to this contract.

42. **EMERGENCIES:** In emergencies affecting the safety of persons, the Work or property at the site or adjacent thereto, the Contractor, without special instruction or authorization from the Project Manager, is obligated to act at his discretion to prevent threatened damage, injury or loss. He will give the Engineer and or Project Manager prompt written notice of any significant changes in the Work or deviations from the Contract Documents caused thereby, and a Change Order shall thereupon be issued covering the changes and deviations involved. If the Contractor believes that additional Work done by him in an emergency which arose from causes beyond his control entitles him to an increase in the Contract Amount or an extension of the Contract Time, he may make a claim.

43. **CHANGES IN THE WORK:** Without invalidating the Agreement, the COMMISSION may, at any time or from time to time, order additions, deletions or revisions in the Work authorized by written Change Orders or directive. Upon receipt of a Change Order, the Contractor will proceed with the work involved. All such work shall be executed under the applicable conditions of the Contract Documents. If any Change Order causes an increase or decrease in the Contract Amount or any extension or shortening of the Contract Time, an equitable adjustment will be made.

Additional Work performed by the Contractor without authorization of a Change Order will not entitle him to an increase in the Contract Amount or any extension of the Contract Time, except in the case of an emergency.
It is the Contractor's responsibility to notify his Surety of any changes affecting the general scope of the Work or change of the Contract Amount and the amount of the applicable bonds shall be adjusted accordingly, and an amended bond document furnished to the COMMISSION.

In the event the COMMISSION directs the Contractor to make a change in the Work, and if the COMMISSION and the Contractor do not arrive at a mutually acceptable increase of decrease in the Contract Amount, the Contractor shall not use any such lack of mutual acceptance as a basis or cause to stop or otherwise delay the progress or the execution and completion of any of the work ordered, directed or required pursuant to the Contract Documents.

44. PERFORMANCE AND PAYMENT BONDS: In the event the Contract is awarded to the Bidder, he will thereafter enter into a written contract with the Owner and furnish a Payment and Performance Bond in an amount equal to the contract price, in strict accordance with Section 255.05 of Florida Statutes. Payment and Performance Bonds shall be secured from or countersigned by an agency or surety company recognized in good standing and authorized to do business in the State of Florida.

45. BID BOND: Bids shall be accompanied by a security deposit as follows: Bid Bond in the amount of a sum no less than 10 percent of the Bid Price/Sum. Endorse the Bid Bond in the name of the COMMISSION as the obligee, signed and sealed by the principal (Contractor) and surety.

46. HURRICANE OR TROPICAL STORM SUSPENSIONS: During official hurricane season (June 1 to Nov. 30) this provision will be effective. If a hurricane or tropical storm watch or warning is issued for any part of the COMMISSION service area contractors will be required to take the following actions at no added cost to COMMISSION.

1. Cease all work except to secure the completed work and protect any stored materials from storm damage, or from being caught into motion by storm forces that may damage other property.
2. Fill any excavations and secure from erosion and traffic.
3. Collect and remove or secure any loose material or packing from work or storage areas.
4. Remove all materials or equipment from any street or roadway.
5. Remove equipment from the barrier islands.
6. Evacuate all personnel from work areas upon issue of order by emergency services agency.

Contractors may return to work upon lifting of watches and warnings and restoration of public access. Allowance will be made to contract time for storm warning/watch & preparation plus reasonable time (not more than 5 days unless special circumstances warrant) after access is restored if it has been interrupted by official order. No adjustments will be made to the contract prices.
47. **LIQUIDATED DAMAGES:**

If awarded this construction contract, the Bidder agrees to complete the work covered by this contract as follows:

1. Substantially Complete in **NINETY ONE (91)** consecutive calendar days.
2. Final Completion in **THIRTY (30)** consecutive calendar days from substantial completion.

For the purposes of this project, Substantial Completion shall be when the COMMISSION deems that the:

1. Flow tests for Zone 1 are complete
2. The inspection reports have been submitted, reviewed, and accepted by the COMMISSION and the City’s Fire Marshal.
3. Painting and Minor Maintenance of the fire hydrants is complete for Zone 1

For any Major Maintenance or Replacement, costs and contract days will be coordinated separately.

Should the Contractor fail to substantially complete work under this Contract on or before the date stipulated for Substantial Completion (or such later date as may result from extensions of time granted by Owner), he shall pay Owner, as liquidated damages, the sum of **$200.00 (TWO HUNDRED DOLLARS)** for each consecutive calendar day that terms of the Contract remain unfulfilled beyond date allowed by the contract, which sum is agreed upon as a reasonable and proper measure of damages which Owner will sustain per deim by failure of Contractor to complete work within time as stipulated; it being recognized by Owner and Contractor to complete on schedule is uncertain and cannot be computed exactly. In no way shall costs for liquidated damages be construed as a penalty on the Contractor.

For each consecutive calendar day that the work remains incomplete after the date established for Final Completion, the Owner will retain from the compensation otherwise to be paid to the Contractor the sum of **$50.00 (FIFTY DOLLARS)**. This amount is the minimum measure of damages the Owner will sustain by Failure of the Contractor to complete all remedial work, correct deficient work, clean up the project and other miscellaneous tasks as required to complete all work specified. This amount is in addition to the liquidated damages prescribed above for Substantial Completion.

47. **INDEMNIFICATION FOR TORT ACTIONS/LIMITATION OF LIABILITY:**

The provisions of Florida Statute 768.28 applicable to the Utilities Commission, City of New Smyrna Beach apply in full to this contract. Any legal actions to recover monetary damages in tort for injury or loss of property, personal injury, or death caused by the negligent or wrongful act or omission of any employee of the Utilities Commission acting within the scope of his/her office or employment are subject to the limitations specified in this statute.

No officer, employee or agent of the Utilities Commission acting within the scope of his/her employment or function shall be held personally liable in tort or named as a defendant in any action for injury or damage suffered as a result of any act, event or failure to act.
The Utilities Commission shall not be liable in tort for the acts or omissions of an officer, employee or agent committed while acting outside the course and scope of his/her employment. This exclusion includes actions committed in bad faith or with malicious purpose, or in a manner exhibiting wanton and willful disregard of human rights, safety, or property.

To the fullest extent permitted by law, the vendor shall defend, indemnify, and hold harmless the Utilities Commission, its officials, agents, and employees from and against any and all claims, suits, judgments, demands, liabilities, damages, cost and expenses (including attorney’s fees) of any kind or nature whatsoever arising directly or indirectly out of or caused in whole or in part by any act or omission of the vendor or its subcontractors (if any), anyone directly or indirectly employed by them, or anyone for whose acts any of them may be liable; excepting those acts or omissions arising out of the sole negligence of the Utilities Commission.

Provided, however, if the contract between the Utilities Commission and the Contractor is deemed by a court of competent jurisdiction to be a construction contract for purposes of Section 725.06, Florida Statutes, any obligation of the Contractor to defend, indemnify or hold harmless the Utilities Commission, shall be limited to an obligation to indemnify or hold harmless the Utilities Commission, its officers and employees from liability damages, losses, and costs, including but not limited to reasonable attorney’s fees, to the extent caused by the negligence, recklessness or intentionally wrongful conduct of the contractor and persons employed or utilized by the Contractor in the performance of the contract.
CERTIFICATION OF DRUG-FREE WORKPLACE FORM

IDENTICAL TIE BIDS - Preference shall be given to businesses with drug-free workplace programs. Whenever two or more bids which are equal with respect to price, quality, and service are received by the State or by any political subdivision for the procurement of commodities or contractual services, a bid received from a business that certifies that it has implemented a drug-free workplace program shall be given preference in the award process. Established procedures for processing tie bids will be followed if none of the tied vendors have a drug-free workplace program. In order to have a drug-free workplace program, a business shall:

1. Publish a statement notifying employees that the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance is prohibited in the workplace and specifying the actions that will be taken against employees for violations of such prohibition.

2. Inform employees about the dangers of drug abuse in the workplace, the business's policy of maintaining a drug-free workplace, any available drug counseling, rehabilitation, and employee assistance programs, and the penalties that may be imposed upon employees for drug abuse violations.

3. Give each employee engaged in providing the commodities or contractual services that are under bid a copy of the statement specified in subsection (1).

4. In the statement specified in subsection (1), notify the employees that, as a condition of working on the commodities or contractual services that are under bid, the employee will abide by the terms of the statement and will notify the employer of any conviction of, or plea of guilty or nolo contendere to, any violation of chapter 893 or of any controlled substance law of the United States or any state, for a violation occurring in the workplace no later than five (5) days after such conviction.

5. Imose a sanction on, or require the satisfactory participation in a drug abuse assistance or rehabilitation program if such is available in the employee's community, by any employee who is so convicted.

6. Make a good faith effort to continue to maintain a drug-free workplace through implementation of this section.

As the person authorized to sign the statement, I certify that this firm complies fully with the above requirements.

VENDOR SIGNATURE
PUBLIC ENTITY CRIMES FORM
SWORN STATEMENT UNDER SECTION 287.133(3) (1) FLORIDA STATUTES

THIS FORM MUST BE SIGNED IN THE PRESENCE OF A NOTARY PUBLIC OR OTHER OFFICER AUTHORIZED TO ADMINISTER OATHS.

1. This sworn statement is submitted Bid, Bid or Contract for Fire Hydrant Inspection and Flow Testing.

2. This sworn statement is submitted by ____________________________________________ whose business address is: ____________________________________________ and (if applicable) its Federal Employer Identification Number (FEIN) is ______________________.

   If entity has no FEIN, include the Social Security Number of the individual signing this sworn statement: ____________________________.

3. My name is ______________________________ and my relationship to the entity named above is ____________________________________________.

4. I understand that a “public entity crime” as defined in Paragraph 287.133 (1) (g), Florida Statutes, means a violation of any state of federal law by a person with respect to and directly related to the transaction of business with any public entity or with an agency or political subdivision of any other state or with the United States, including, but not limited to, any bid or contract for goods or services to be provided to any public entity or an agency or political subdivision of any other state, or of the United States and involving antitrust, fraud, theft, bribery, collusion, racketeering, conspiracy, or material misrepresentation.

5. I understand that “convicted” or “conviction” as defined in Paragraph 287.133 (91) (b), Florida Statutes means a finding of guilt or a conviction of a public entity crime, with or without adjudication of guilt, in any federal or state trial court or recording, relating to charges brought by federal or state trial court or recording, relating to charges brought by federal or state trial court or recording, relating to charged brought by indictment or information after July 1, 1989, as a result of just verdict, non-jury trial, or entity of a plea of guilty or nolo contendere.

6. I understand the “affiliate” as defined in Paragraph 287.133(1)(a), Florida Statutes, means: (1) A Predecessor or Successor of a person convicted of public crime: or (2) An entity under the control of any natural person who is active in the management of the entity and who has been convicted of a public entity crime. The term “affiliate” includes those officers, directors, executives, partners, shareholder, employees, members, and agents who are active in the management of an affiliate. The ownership by one person of shares constituting a controlling interest in another person, or a pooling of equipment or income among persons when not for fair market value under an arm’s length agreement, shall be a prima facie case that one person controls another person. A person who knowingly enters into a joint venture with a person who has been convicted of public crime in Florida during the preceding 36 months shall be considered an affiliate.
7. I understand that a “person” as defined in Paragraph 287.133(1) (e), Florida Statutes, means any natural person or entity organized under the laws of any state or of the United States with the legal power to enter into a binding contract and which bids or applies to bid on contracts for the provisions of goods or services let by a public entity, or which otherwise transacts or applies to transact business with a public entity. The term “person” includes those officers, directors, executives, partners, shareholders, employees, members and agents who are active in management of an entity.

8. Based on information and belief, that statement which I have marked below is true in relation to the entity submitting this sworn statement. [Please indicate which statement applies]

   _____ Neither the entity submitting this sworn statement, or one or more of the officers, directors, executives, partners, shareholders, employees, members or agents who are active in the management of the entity, nor any affiliate or the entity, has been charged with and convicted of a public entity subsequent to July 1, 1989, AND [Please indicate which additional statement applies.]

   _____ There has been a proceeding concerning the conviction before a hearing officer of the State of Florida, Division of Administrative Hearings. The final order entered by the hearing officer did not place the person or affiliate on the convicted vendor list. [Please attach a copy of the final order.]

   _____ The person or affiliate was placed on the convicted vendor list. There has been a subsequent proceeding before a hearing officer of the State of Florida, Division of Administrative Hearings. The final order entered by the hearing officer determined that it was in the public interest to remove the person or affiliate from the convicted vendor list. [Please attach a copy of the final order.]

   _____ The person or affiliate has not been placed on the convicted vendor list. [Please describe any action taken by or pending with the Department of General Services.]

Date         Signature

STATE OF: _________________ COUNTY OF: _________________

PERSONALLY APPEARED BEFORE ME, the undersigned authority, _________________
[name of individual signing] who after first sworn by me affixed his/her signature in the space provided above on this____ day of______________, 20____.

My commission expires: Personally known to me, or
Produced Identification:

_________________________ Print, Type or Notary Stamp
Notary Public Type of I.D.
NON-COLLUSION AFFIDAVIT OF PRIME BIDDER FORM

State of ________________

County of ________________

__________________________________________, being first duly sworn, deposes and says that:

He/she is ________________ of ____________________, Bidder that has submitted the attached Bid;

He/she is fully informed respecting the preparation and contents of the attached Bid and of all pertinent circumstances respecting such Bid;

Neither the said Bidder nor any of its officers, partners, owners, agent representatives, employees, or parties in interest, including this affiant, has in any way colluded, conspired, connived or agreed, directly or indirectly, sought by agreement or collusion or communication or conference with any other Bidder, firm or person, to fix the price or prices in the attached Bid or of any other Bidder, or to fix any overhead, profit or cost element of the Bid price or the Bid price of any other Bidder, or to secure through any collusion, conspiracy, connivance or unlawful agreement any advantage against the COMMISSION.

The price or prices quoted in the attached Bid are fair and proper and are not tainted by any collusion, conspiracy, connivance or unlawful agreement on the part of the Bidder or any of its agents, representatives, owners, employees, or parties in interest, including this affiant.

_______________________________
Signed

_______________________________
Title

Subscribed and sworn to before me this _____ day of ________, 20__.

_______________________________
Title

My Commission Expires: ___________
AUTHORIZED SIGNATURES/NEGOTIATORS

The BIDDER or proposer represents that the following persons are authorized to sign and/or negotiate contracts and related documents to which the BIDDER or proposer will be duly bound:

<table>
<thead>
<tr>
<th>Name</th>
<th>Title</th>
<th>Phone #</th>
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</tbody>
</table>

(Signature)

________________________

(Title)

________________________

(Name of Business)

The BIDDER/offeror shall complete and submit the following information with the bid or proposal:

Type of Organization

_____ Sole Proprietorship  _____ Partnership

_____ Joint Venture  _____ Corporation

State of Incorporation: ____________________________________________

Federal I.D. or Social Security number is: ____________________________
Request for Taxpayer Identification Number and Certification

Go to www.irs.gov/FormW9 for instructions and the latest information.

Give Form to the requester. Do not send to the IRS.

1. Name (as shown on your income tax return). Name is required on this line; do not leave this line blank.

2. Business name/deregarded entity name, if different from above.

3. Check appropriate box for federal tax classification of the person whose name is entered on line 1. Check only one of the following seven boxes.

   □ Individual/sole proprietor or single-member LLC
   □ Corporation
   □ Partnership
   □ Trust/estate

   □ Limited liability company. Enter the tax classification: C=corporation, S=corporation, P=Partnership
   □ Other (see instructions) ▶

4. Exemptions (codes apply only to certain entities, not individuals; see instructions on page 9):

   □ Exempt payee code (if any) ▶
   □ Exemption from FATCA reporting code (if any) ▶

   Applies to accounts maintained outside the U.S.

5. Address (number, street, and apt. or suite no.) See instructions.

6. City, state, and ZIP code

   Requester's name and address (optional)

7. List account number(s) here (optional)

Part I Taxpayer Identification Number (TIN)

Enter your TIN in the appropriate box. The TIN provided must match the name given on line 1 to avoid backup withholding. For individuals, this is generally your social security number (SSN). However, for a resident alien, sole proprietor, or disregarded entity, see the instructions for Part I, later. For other entities, it is your employer identification number (EIN). If you do not have a number, see How to get a TIN, later.

Note: If the account is in more than one name, see the Instructions for line 1. Also see What Name and Number To Give the Requester for guidelines on whose number to enter.

Social security number ▶

or

Employer identification number ▶

Part II Certification

Under penalties of perjury, I certify that:

1. The number shown on this form is my correct taxpayer identification number (or I am waiting for a number to be issued to me); and

2. I am not subject to backup withholding because: (a) I am exempt from backup withholding, or (b) I have not been notified by the Internal Revenue Service (IRS) that I am subject to backup withholding as a result of a failure to report all interest or dividends, or (c) the IRS has notified me that I am no longer subject to backup withholding; and

3. I am a U.S. citizen or other U.S. person (defined below); and

4. The FATCA code(s) entered on this form (if any) indicating that I am exempt from FATCA reporting is correct.

Certification instructions. You must cross out item 2 above if you have been notified by the IRS that you are currently subject to backup withholding because you have failed to report all interest and dividends on your tax return. For real estate transactions, item 2 does not apply. For mortgage interest paid, acquisition or abandonment of secured property, contributions to an individual retirement arrangement (IRA), and generally, payments other than interest and dividends, you are not required to sign the certification, but you must provide your correct TIN. See the instructions for Part II, later.

General Instructions

Section references are to the Internal Revenue Code unless otherwise noted.

Future developments. For the latest information about developments related to Form W-9 and its instructions, such as legislation enacted after they were published, go to www.irs.gov/FormW9.

Purpose of Form

An individual or entity (Form W-9 requester) who is required to file an information return with the IRS must obtain your correct taxpayer identification number (TIN), which may be your social security number (SSN), individual taxpayer identification number (ITIN), adoption taxpayer identification number (ATIN), or employer identification number (EIN), to report on an information return the amount paid to you, or other amount reportable on an information return. Examples of information returns include, but are not limited to, the following.

• Form 1099-INT (interest earned or paid)
• Form 1099-DIV (dividends, including those from stocks or mutual funds)
• Form 1099-MISC (various types of income, prizes, awards, or gross proceeds)
• Form 1098 (stock or mutual fund sales and certain other transactions by brokers)
• Form 1099-B (proceeds from real estate transactions)
• Form 1099-K (merchant card and third party network transactions)
• Form 1098 (home mortgage interest), 1098-E (student loan interest), 1098-T (tuition)
• Form 1099-C (canceled debt)
• Form 1099-A (acquisition or abandonment of secured property)

Use Form W-9 only if you are a U.S. person (including a resident alien), to provide your correct TIN.

If you do not return Form W-9 to the requester with a TIN, you might be subject to backup withholding. See What is backup withholding, later.
VENDOR APPLICATION

In addition to General conditions, your **BID** may be disqualified if the following vendor information is not returned with your **BID**.

Vendor is:
( ) Corporation
( ) Partnership
( ) Sole Proprietorship
( ) Other ________________________________ (Explain)

Federal Employer Identification Number or Social Security Number: ________________________________

Do you collect Florida State Sales Tax? ( ) Yes ( ) No

Firm Name: ____________________________________________________________

Mailing Address: _______________________________________________________

Telephone No. ___________________ Fax No. _______________________

Email Address: ___________________ Web Address: _____________________

Commodity or Service Supply: __________________________________________

If vendor is quoting, as a manufacturer’s representative and the purchase order should be addressed to the manufacturer in care of the vendor, so indicate.

If remittance address is different from the mailing address so indicate below.

Firm Name: __________________________________________________________

Mailing Address: _____________________________________________________

___________________________________________________

___________________________________________________

Submitted by: _______________________________________________________

Name & Title Printed: _________________________________________________
Additional space may be required. Please answer questions in the order presented. All questions must be answered or contractor may be disqualified.

1. Has your company ever been denied insurance or had insurance canceled?

2. Is your company bondable? Has your company ever been denied bond? If yes, explain.

3. Can your insurance company produce a certificate of insurance stating your limits and naming UCNSB as an Additional Insured?

4. Since January 1, 2010, has your company been a defendant in any lawsuits?

5. Is your company a subsidiary or otherwise legally affiliated with any other company?

6. Is your company rated by Dunn & Bradstreet or any other rating agency? If yes, what is the name of the agency and rating?

7. Is your company in any stage of bankruptcy, including initial filing?

8. Has your company been disbarred by the Federal Government or any State Government?

9. How many employees does your company have?

Staff Employees: Full Time__________ Part Time__________

Contract Employees: Full Time__________ Part Time__________
UTILITIES COMMISSION
CITY OF NEW SMYRNA BEACH, FLORIDA

ITB# 05-19
FIRE HYDRANT INSPECTION AND FLOW TESTING (ZONE 1)

REQUIRED DISCLOSURE

At its sole discretion, the COMMISSION may reject any bidder the COMMISSION finds to lack, or whose present or former executive employees, officers, directors, stockholders, partners or owners are found by the COMMISSION to lack honesty, integrity, or moral responsibility. The discretion of the COMMISSION may be exercised based on the COMMISSION’S own investigation, public records, or any other reliable sources of information. By submitting a bid, bidder recognizes and accepts that the COMMISSION may reject the bid based upon the exercise of its sole discretion and bidder waives any claim it might have for damages or other relief resulting from the rejection of its bid based on these grounds.
BID SUBMITTAL REQUIREMENTS

Bids shall include all of the information solicited in this ITB, and any additional information that the BIDDER deems pertinent to the understanding and evaluating of the bid. Bids shall be organized and sections tabbed in the following order. The BIDDER should not withhold any information from the written response in anticipation of presenting the information orally or in a demonstration, since oral presentations or demonstrations may not be solicited. All bids shall include, at a minimum, the following information. Failure to supply all of the information requested shall result in the bid being excluded from consideration. The COMMISSION reserves the right to request information or clarification from bidders following the bid opening if omissions are deemed curable.

TAB #1  Experience: Provide a profile showing company history, business structure, and a list of principals. A minimum of five (5) years in business is required.

TAB #2  References: Submit a detailed list of clients receiving similar services within the last two (2) years. Please include a brief description of the scope of work performed and the name, phone number and email address of the contact person.

TAB #3  Pricing: Complete, sign and submit the Bid Tabulation and Bid Form.

TAB #4  License and Insurance  Submit a current Occupational License, from an authorizing government agency, and a current Certificate of Insurance. The COMMISSION does not need to be named as an Additional Insured at this time but this is a requirement when work commences.

TAB #5  Other Required Forms: Complete, sign, notarize (if required) and submit the following:
   A. Certification of Drug-Free Workplace
   B. Public Entity Crimes
   C. Non Collusion Affidavit of Prime Bidder
   D. Authorized Signatures/Negotiators
   E. Taxpayer Identification Number and Certification W-9
   F. Vendor Application
   G. Questionnaire
   H. Compliance with the Florida Trench Safety Act

TAB #6  Addenda Acknowledgement: Complete, sign and submit all addenda (if any).

TAB #7  Other Information: Provide any information / samples that will provide insight to the evaluators about the qualifications, fitness and abilities of the BIDDER. This information should be succinct.
BIDDER hereby acknowledges that all costs for complying with the Florida Trench Safety Act (553.60-553.64 inclusive Florida Statutes) are included in the various items of the proposal and in the total bid price. For informational purposes only, the BIDDER is required to further identify these costs to be summarized below:

<table>
<thead>
<tr>
<th>Trench Safety Measure (Description)</th>
<th>Unit of Measure (LF, SY)</th>
<th>Unit (Quantity)</th>
<th>Extended Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. ________________</td>
<td>________________</td>
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<td>B. ________________</td>
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<td>C. ________________</td>
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<tr>
<td>D. ________________</td>
<td>________________</td>
<td>_______</td>
<td>___________</td>
</tr>
</tbody>
</table>

**THIS IS NOT A PAY ITEM.** The purpose of this form is to disclose information on the costs associated with trench safety measures and to insure that the BIDDER has considered these costs and has included them in the bid price. Contractor will not receive additional payment if actual quantities differ from those estimated above or if the contractor uses a safety measure different than those listed.

Failure to complete the above form, if applies to BID, may result in the BID being declared non-responsive.
The COMMISSION is seeking a Qualified Vendors Certified Underground Utility and Excavation Contractor licensed in the State of Florida to complete the following scope of work.

1. Perform Hydrant Flow testing and prepare report in accordance with the AWWA, M-17, Chapter 6
   a. No more than two (2) crews shall flow test at a time and shall perform testing in different sections of the Service Territory, (i.e. pump stations).
      i. Prior to performing flow tests, Contractor shall contact the UCNSB’s Water Treatment Plant (GWTP) to notify the plant operators of the location of each test.
   b. Submittal of flow tests shall be made to the UCNSB Engineering Department’s Director, Water Resources Department’s Director and to the City of New Smyrna Beach’s Fire Marshal or other designated officer(s). Submittals at a minimum shall include: (Vendors shall submit a sample of their Flow Test report forms for evaluation)
      i. Electronic (PDF) and Hard copies.
      ii. Fire Hydrant Number (“FH#”)
      iii. Manufacturer of FH
      iv. Fire hydrant nozzle size used for each test.
      v. Pitot reading in (PSI)
      vi. Residual Pressure (in PSI) and location (FH #) of reading (Vendor shall notify the UCNSB if Residual pressure readings are below 20 PSI).
      vii. Static Pressure (PSI) and location (FH #) of reading.
      viii. Flow rate in gallons per minute (gpm).
          1. The amount of time it takes to flush each fire hydrant. (minutes)
          2. The Total volume of water (gallons)
      ix. The date tested.
      x. Names and Certifications of the AWWA certified technicians operating the fire hydrants.
      xi. Vendor shall use Flush elbows or diffusers.
          1. Directed away from
             a. Buildings
             b. Ornamental vegetation
             c. Hardscape
             d. Landscape
             e. Private property
      c. Flow testing will be coordinated with the UCNSB’s Water Resources Department(s)
         i. Field Operations
         ii. Glencoe Water Treatment Plant
      d. Whenever operating hydrant valves, the Vendor shall open and close the valves at a speed suitable to the UCNSB’s Water Resources Department. (E.g. slowly) If Vendor
causes water hammer on the distribution system, Vendor will be responsible for fees and costs for repair to the system.

e. Areas where the Fire Hydrants are connected to Asbestos Cement pipe shall be operated with additional care

2. Inspection Reports

a. Submit Inspection reports to the UCNSB Engineering Department’s Director, Water Resources Department’s Director and to the City of New Smyrna Beach’s Fire Marshal or other designated officer(s). Reports shall include the following: *(Vendors shall submit a sample Inspection Report for evaluation, (spreadsheet preferred)*

i. The FH number

ii. Date of Inspections

iii. Name of Inspector(s)

iv. The X and Y coordinates of the FY. Coordinates must be in GIS Shape Files with sub 5’ accuracy in

1. Projected Coordinate System: NAD 1983 HARN State Plane Florida East FIPS 0901 Feet


v. The X and Y coordinates of the FY isolation valve. Coordinates must be in GIS Shape Files with sub 5’ accuracy in

1. Projected Coordinate System: NAD 1983 HARN State Plane Florida East FIPS 0901 Feet


vi. The make, model, nozzle size and year of hydrant manufacture.

vii. Condition of the FH. Ranked 1 through 5, 5 being “like new”.

viii. Proximity of the FH to the closest lane line (or edge of pavement if no lane line is present).

1. Alert if closer than 4 feet

2. List any existing protections (e.g. bollards)

3. Recommend any proposed protections

ix. Document any operational deficiencies and/or miscellaneous findings.

x. The maintenance performed (See Scope Section 3 for Painting and Minor Maintenance requirements)

xi. If hydrants are in need of replacement, inspection report will state clearly the specific defect and need. Contractor will install as part of the inspection an “Out of Service Hydrant Disk” (Pollard water or equal) (See Section 4, Major Maintenance and Replacement of Fire Hydrants)

1. Contractor shall notify the UCNSB’s Field Operations Department immediately (386-424-3188)

2. UCNSB will schedule replacement after invoicing to City and remittance of payment by City.
3. In conjunction with Section 2, Inspection Reports, Vendors shall perform Painting and Minor Maintenance of Fire Hydrants in accordance with AWWA, M-17, Chapter 5, to include:
   a. Before and after photos
   b. Ensure that all caps are in place.
      i. Provide and replace missing caps.
   c. Notice of broken or inoperable valves.
   d. Check the FH nozzle height for correct ground clearance (nozzle between 18 and 24 inches of final grade)
   e. Lubricate operating nut (if appropriate for Hydrant Make/Model) and all nozzle outlets with non-corrosive FDA approved lubricant.
   f. Open Hydrant with nozzle caps in place to check for seal leakage.
   g. Verify that hydrant main bottom valve completely closes.
   h. Flush the hydrant for a minimum of five (5) minutes. Additional flush time may be required to obtain clear water. Record working pressure, calculate flow rate, and estimate gallons flushed.
   i. Close FH completely. Back off the opening nut (1/4 turns) to take the pressure off the packing.
   j. Remove all outlet nozzle caps, clean the threads, and check the condition of the gaskets. Provide and replace the gaskets as required and lubricate the threads. Note any difficulty in operating caps.
   k. Confirm that each nozzle chain operates and moves freely.
   l. Record the Static Pressure and re-attach all nozzles.
   m. Removal of weed or wild plant growth meeting detail dimensions.
   n. Notice to fire marshal and homeowners of intent to remove ornamental plant growth, or other obstructions within the clear operating range.
   o. Installation or Replacement of the blue reflective pavement marker in pavement perpendicular to FH.
   p. Removal of loose paint. (Contractor to submit with proposal, method of paint removal and to what degree)
   q. New paint of body and bonnet
      i. Paint the body and bonnet of each FH with Coronado Paint, Rust Scat Polyurethane Enamel, 151 OSHA Yellow or approve equal. Minimum of two (2) coats. A primer may be used for the first coat.
      ii. Bonnet color will be color-coded based on flow test in accordance with the below table.
         1. 1500 gpm or greater        137 OSHA Blue
         2. 1000 gpm – 1500 gpm       149 OSHA Green
         3. 500 gpm – 1000 gpm        139 OSHA Orange
         4. Less than 500 gpm         136 OSHA Red
   r. Install or replace a FH ID tag. Shall include FH #. Tags shall be Pollard Water Small Brass Tags with FH # stamped from the Manufacture (item P69243) (or Equal).
s. Locate and assess each Valve
   i. Raise Valve Box to grade.
   ii. Align valve box to vertical, centered position
   iii. Remove debris from valve and valve box
   iv. Paint Valve Box blue (per specifications above)
   v. Verify a “V” mark for valve in curb or pavement
      1. Sawcut “V” if missing
      2. Paint “V” marker
   vi. Provide and install valve box if missing.

4. Major Maintenance and Replacement of Fire Hydrants
   a. Shall be considered on a case-by-case basis. UCNSB and City to agree upon priority of replacement and Major Maintenance.
   b. Additional permits may be required for work in the City’s Right of way.
   c. The Vendor must submit a unit cost for fire hydrant replacement along with a shop drawing of the materials (e.g. hydrant, valve, restraints). The Unit cost per hydrant must include materials, installation, tools, labor, equipment, insurance, and supervision to complete removal and installation of new replacement hydrants.

Contractor shall provide insurance, materials, tools, labor, equipment and supervision to perform all work necessary to complete this scope of work. Contractor shall reference plans and specifications attached for further detail.

**Contractor shall submit warranties and a construction schedule with bid submittal.**

The COMMISSION will pay for completed tests and inspections reports only.

Contractor is responsible for all Maintenance of Traffic Devices, including obtaining an approved Maintenance of Traffic Plan from FDOT, the County of Volusia, and the City of New Smyrna Beach.


All construction is subject to the COMMISSION’s inspection.
## BID TABULATION

**BIDDER NAME:**

<table>
<thead>
<tr>
<th>Item No.</th>
<th>Description</th>
<th>Est. Quantity</th>
<th>Unit</th>
<th>Unit Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Mobilization/Demobilization</td>
<td>1</td>
<td>LS</td>
<td>$2,500.00</td>
</tr>
<tr>
<td>2</td>
<td>Flow Testing Fire Hydrants</td>
<td>1</td>
<td>EA</td>
<td>$</td>
</tr>
<tr>
<td>3</td>
<td>Inspection Report (see 2.a)</td>
<td>1</td>
<td>EA</td>
<td>$</td>
</tr>
<tr>
<td>4</td>
<td>Minor Maintenance</td>
<td>1</td>
<td>EA</td>
<td>$</td>
</tr>
<tr>
<td>5</td>
<td>Color Coded Painting</td>
<td>1</td>
<td>EA</td>
<td>$</td>
</tr>
</tbody>
</table>

**Total Bid Cost:** $70,000.00

**Total Written Base Bid Cost:** Seventy Thousand Dollars

Insert Contractor & Manufacturer warranties and Qualification documents after this page.

The COMMISSION’s not to exceed budget for this project is $70,000.00.

The BIDDER agrees to limit Line Item 1 to $2,500.00.

The Bid will be awarded to the BIDDER with the combination of unit prices for line items 2, 3, 4, and 5 that the COMMISSION deems will provide completion of the most hydrants possible.

**BIDDERS must sign BID FORM.**
Pursuant to, and in compliance with, COMMISSION’S ADVERTISEMENT FOR BID dated January 14, 2018 and the INFORMATION FOR BIDDERS AND OTHER CONTRACT DOCUMENTS relating hereto, the undersigned hereby proposes to furnish all tools, labor, equipment and materials to perform all the work necessary for the Fire Hydrant Inspection and Flow Testing for the UTILITIES COMMISSION, CITY OF NEW SMYRNA BEACH, VOLUSIA COUNTY, FLORIDA, all as required by and in strict accordance with the Contract Documents, Schedules, Scope of Work and Construction Plan, at the prices listed in the Bid Tabulation enclosed.

The undersigned BIDDER agrees to commence work within FOURTEEN (14) CALENDAR DAYS after the date of the Notice-to-Proceed letter, and shall complete the Work described in the Bid Scope of Work and the Bid Tabulation (Substantial Completion) within NINETY ONE (91) CONSECUTIVE CALENDAR DAYS thereafter.

The undersigned BIDDER hereby represents that the Drawings and the Contract, including all Contract Documents, have been carefully examined and the BIDDER will execute the Contract and perform all its items, covenants and conditions, all in strict compliance with the requirements of the specifications and drawings. The BIDDER, by and through the submission of his bid, agrees that he has examined and that he shall be held responsible for having heretofore examined the site, the location and route of all proposed work and for having satisfied himself as to the character of the route, the location, surface and underground obstruction, the nature of the groundwater conditions, and all other physical characteristics of the Work, in order that he may include in the prices which he bid, all costs pertaining to the Work and thereby provide for the satisfactory completion thereof, including the removal, relocation or replacement of any objects or obstructions which will be encountered in doing the proposed Work.

BIDDERS must sign BID FORM.
The undersigned hereby declares that the following list states any and all variations from, and exceptions to, the requirements of the instruction and specifications.

These Prices are valid for orders placed within ninety (90) days from date of fully executed Contract Documents.

Submitted By:

Company  

Name and Title  Signature  

Telephone No.  e-mail  

The COMMISSION reserves the right to award the contract to the Bidder(s) that the COMMISSION deems to offer the best overall bid. The COMMISSION is therefore not bound to accept a bid on the basis of lowest price. In addition, the COMMISSION at its sole discretion, reserves the right to cancel this Bid, to reject any and all bids, to waive any and all informalities and/or irregularities, to re-advertise with either the identical or revised specifications, or not award a contract at all if it is deemed to be in the best interest of the COMMISSION to do so. The COMMISSION also reserves the right to make multiple or split awards if it is deemed to be in the COMMISSION’S best interest. The COMMISSION shall not be responsible for any cost or expense incurred by the Bidder in preparing or submitting a bid or any cost prior to the execution of a contract agreement.

As representative for the PROPOSER, I have read and understand this statement.

Name and Title  Signature  

BIDDERS MUST SIGN BID FORM.
If you do NOT intend to bid on this requirement/project, please return this form immediately. Thank you, Utilities Commission, City of New Smyrna Beach, Florida

We, the undersigned have declined to submit a bid due to the following reason(s):

☐ Specifications too “tight”, i.e. geared toward one brand/manufacturer service only (explain below).
☐ Unable to meet time period for responding to bid.
☐ We do not offer this product or service.
☐ Our schedule would not permit us to perform.
☐ Unable to meet specifications.
☐ Unable to meet Bond/Insurance requirement(s).
☐ Specifications unclear (explain below).
☐ Unable to meet insurance requirements.
☐ Please remove us from your “bidder’s list”.
☐ Other (specify below).

REMARKS: __________________________________________________________
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We understand that if the “No Bid” letter is not executed and returned our name may be deleted from the bidder’s list of the Utilities Commission, City of New Smyrna Beach, FL.

Company Name: __________________________ E-mail: __________________________
Bid Number: ___________________________ Date: ___________________________
Signature: ___________________________ Fax: ___________________________
Telephone: ___________________________
BID BOND – SECTION 00410

KNOW ALL MEN BY THESE PRESENTS, That we, the undersigned,
_________________________________________ as Principal, and __________________________
_________________________________________ as Surety, are hereby held and firmly bound unto
the Utilities Commission, City of New Smyrna Beach, Florida as Owner in the penal sum of, (ten
percent (10%) of the Contract Bid) _______________________________________________________
for the payment of which, well and truly to be made, we hereby jointly and severally bind
ourselves, successors and assigns to pay Owner upon default of Bidder the penal sum set forth on
the face of this Bond.

Signed, this ___________________________ day of ____________________, 20______

The condition of the above obligation is such that whereas the Principal has submitted to the
Utilities Commission, City of New Smyrna Beach, Florida a certain Bid, attached hereto and
hereby made a part hereof, to enter into a contract in writing, for the Project Name Project.

NOW THEREFORE,

1. Default of Bidder shall occur upon failure of Bidder to deliver within the time
required by the Bidding Documents the executed Agreement required by the
Bidding Documents and any performance and payment bonds required by the
bidding documents and Contract Documents.

2. This obligation shall be null and void if:

   2.1 Owner accepts Bidder’s bid and Bidder delivers within the time required by
       the Bidding Documents (or any extension thereof agreed to in writing by
       Bidder and, if applicable, consented to by Surety when required by
       paragraph 5 hereof).

   2.2 All bids are rejected by the Owner, or
2.3 Owner fails to issue a notice of award to bidder within the time specified in the Bidding Documents (or any extension thereof agreed to in writing by Bidder and, if applicable, consented to by Surety when required by paragraph 5 hereof).

3. Payment under this bond will be due and payable upon default of Bidder and within thirty (30) calendar days after receipt of Bidder and Surety of written notice of default from Owner which notice will be given with reasonable promptness, identifying this Bond and the Project and including a statement of the amount due.

4. Surety waives notice of any and all defenses based on or arising out of any time extension to issue notice of award agreed to in writing by Owner and Bidder, provided that the time for issuing notice of award including extensions shall not in the aggregate exceed one hundred twenty (120) days from Bid Due without Surety’s written consent.

5. No suit or action shall be commenced under this Bond prior to thirty (30) calendar days after the notice of default required in paragraph 3 above is received by Bidder and Surety, and in no case later than one year after Bid Due Date.

6. Any suit or action under this Bond shall be commenced only in a court of competent jurisdiction located in Volusia County, Florida.

7. Notice required hereunder shall be in writing and sent to Bidder and Surety at their respective addresses shown on the face of this Bond. Such notices may be sent by personal delivery, commercial courier or by United States Registered or Certified Mail, return receipt requested, postage pre-paid, and shall be deemed to be effective upon receipt by the party concerned.

8. Surety shall cause to be attached to this Bond a current and effective Power of Attorney evidencing the authority of the officer, agent or representative who executed this Bond on behalf of Surety to execute, seal and deliver such Bond and bind the Surety thereby.
9. This Bond is intended to conform to all applicable statutory requirements. Any applicable requirement of any applicable statute that has been omitted from this Bond shall be deemed to be included herein as if set forth at length. If any provision of the Bond conflicts with any applicable provision of any applicable statute, then the provisions of said statute shall govern and the remainder of the Bond that is not in conflict therewith shall continue in full force and effect.

10. The term “bid” as used herein includes a bid, offer or proposal as applicable.

IN WITNESS WHEREOF, the Principal and the Surety have hereunto set their hands and seals, and such of them as are corporations have caused their corporate seals to be hereunto affixed and these presents to be signed by their proper officers, the day and year first set forth above.

Principal (Print Full Name)  Surety (Print Full Name)
__________________________________________  ______________________________

By: _____________________________(L. S.)  By: ______________________________
Signature (attach power of attorney)

Title: ____________________________  Title: ____________________________

Attest: ____________________________  Attest: ____________________________
Signature and Title  Signature and Title

IMPORTANT – Surety companies executing bonds must appear on the Treasury Department’s most current list (Circular 570 as amended) and be authorized to transact business in the State of Florida.

END OF SECTION
This Agreement is by and between the Utilities Commission, City of New Smyrna Beach, Florida (herein called Owner) and LOW BIDDER NAME Contractors, Inc. (herein called Contractor).

Owner and Contractor, in consideration of the mutual covenants herein set forth, agree as follows:

ARTICLE 1 – WORK

1.01. Contractor shall complete all Work as specified or indicated in the Contract Documents based on the acceptance by Owner of Contractor's Bid.

The Work is generally described as follows:

1. Perform Hydrant Flow testing and prepare report in accordance with the AWWA, M-17, Chapter 6
2. Submit Inspection reports to the COMMISSION'S director of engineering, director of water resources and to the City of New Smyrna Beach’s fire marshal or other designated officer(s).
3. In conjunction with Section 2, Inspection Reports, Vendors shall perform Painting and Minor Maintenance of Fire Hydrants in accordance with AWWA, M-17, Chapter 5
4. Make recommendations of Major Maintenance or Replacement of Fire Hydrants as assessed by the COMMISSION’S director of engineering

A more detailed description of the above listed items can be found in the Bid Scope of Work. This detailed description should be read and understood by any bidder submitting bids.

ARTICLE 2 – CONTRACT PRICE

2.01. Owner shall pay Contractor for completion of the Work designated in Article 1 in accordance with the Contract Documents, based on Unit Prices as indicated in Contractors Bid Tabulation for ITB XX-XX with a guaranteed maximum price amount of: Seventy Thousand Dollars ($70,000.00).

ARTICLE 3 – PAYMENT PROCEDURES

3.01. Submittal and Processing of Payments
A. Contractor shall submit Applications for Payment in accordance with Article 9 of the General Terms and Conditions. Applications for Payment will be processed by Owner as provided in the General Terms and Conditions.

3.02. Progress Payments
A. Owner shall make progress payments on account of the Contract Price on the basis of Contractor's Applications for Payment. All progress payments will be on the basis of the progress of the Work measured established in the General Terms and Conditions.
B. Consent of the Surety shall be obtained before final payment is paid by Owner. Consent of the Surety, signed by an agent, must be accompanied by a certified copy of such agent's authority to act for the Surety.

3.03. Final Payment
A. Upon completion and acceptance of the Work in accordance with the General Terms and Conditions, Owner shall pay the remainder of the Contract Price as provided in the General Terms and Conditions.

ARTICLE 4 – CONTRACTOR'S REPRESENTATIONS

4.01. In order to induce Owner to enter into this Agreement, Contractor makes the following representations:

A. Contractor has examined and carefully studied the Contract Documents and the other related data identified in the Bidding Documents.

B. Contractor has visited the Site and become familiar with and is satisfied as to the general, local, and site conditions that may affect cost, progress, and performance of the Work.

C. Contractor is familiar with and is satisfied as to all Federal, state, and local Laws and Regulations that may affect cost, progress, and performance of the Work.

D. Contractor has obtained and carefully studied (or assumes responsibility for having done so) all additional or supplementary examinations, investigations, explorations, tests, studies, and data concerning conditions (surface, subsurface, and Underground Facilities) at or contiguous to the Site which may affect cost, progress, or performance of the Work or which relate to any aspect of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, including application of the specific means, methods, techniques, sequences, and procedures of construction, if any, expressly required by the Contract Documents to be employed by Contractor, and safety precautions and programs incident thereto.

E. Contractor does not consider that any further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract Documents.

F. Contractor is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Contract Documents.

G. Contractor has correlated the information known to Contractor, information and observations obtained from visits to the Site, reports and drawings identified in the Contract Drawings, and all additional examinations, investigations, explorations, tests, studies, and data with the Contract Documents.

H. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.
ARTICLE 5 – CONTRACT DOCUMENTS

5.01. The Contract Documents which comprise the entire agreement between Owner and Contractor concerning the Work consist of the following:

1. Section 00500 – Agreement.
2. Contractor Submitted Bid Document.
3. ITB #05-19.
4. Performance and Payment Bond.
7. Notice of Award.
8. Notice to Proceed.

5.02. The Contract Documents may be amended, modified, or supplemented only as provided in General Terms and Conditions.

ARTICLE 6 – MISCELLANEOUS

6.01. Term.

A. Terms used in this Agreement will have the meanings indicated in the General Terms and Conditions

6.02. Assignment of Contract.

A. No assignment by a party hereto of any rights under or interests in the Contract will be binding on another party hereto without the written consent of the party sought to be bound; and specifically, but without limitation, moneys that may become due and moneys that are due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law); and unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the assignor from any duty or responsibility under the Contract Documents.

6.03. Successors and Assigns.

A. Owner and Contractor each binds itself, its partners, successors, assigns, and legal representatives to the other party hereto, its partners, successors, assigns, and legal representatives in respect to all covenants, agreements, and obligations contained in the Contract Documents.
Contractor shall allow public access to all documents, papers, letters, or other material subject to
the provisions of Chapter 119, Florida Statutes, made or received by the Contractor in conjunction
with this project. Specifically, the Contractor must:

(1) Keep and maintain public records that ordinarily and necessarily would be required by the
Owner in order to perform the services being performed by the Contractor.

(2) Provide the public with access to public records on the same terms and conditions that the
Owner would provide the records and at a cost that does not exceed the cost provided in Chapter
119, Florida Statutes, or as otherwise provided by law.

(3) Ensure that public records that are exempt or confidential and exempt from public records
disclosure requirements are not disclosed except as authorized by law.

(4) Meet all requirements for retaining public records and transfer, at no cost, to the Owner all
public records in possession of the Contractor upon termination of the contract and destroy any
duplicate public records that are exempt or confidential and exempt from public records disclosure
requirements. All records stored electronically must be provided to the Owner in a format that is
compatible with the information technology systems of the Owner.

The Contractor shall promptly provide the Owner with a copy of any request to inspect or copy
public records in possession of the Contractor and shall promptly provide the Owner a copy of the
Contractor’s response to each such request. Failure to grant such public access will be grounds
for immediate termination of this contract by the Owner.

6.04. Severability.
A. Any provision or part of the Contract Documents held to be void or unenforceable under any
Law or Regulation shall be deemed stricken, and all remaining provisions shall continue to be
valid and binding upon Owner and Contractor, who agree that the Contract Documents shall be
reformed to replace such stricken provision or part thereof with a valid and enforceable provision
that comes as close as possible to expressing the intention of the stricken provision.

6.05. Business Addresses.
A. The business address of Contractor given herein is hereby designated as the place to which all
notices, letters, and other communication to Contractor will be mailed or delivered. The address
of Owner appearing herein is hereby designated as the place to which all notices, letters, and other
communication to Owner shall be mailed or delivered. Either party may change its address at any
time by an instrument in writing delivered to the other party.
IN WITNESS WHEREOF, Owner and Contractor have signed this Agreement. One counterpart each has been delivered to Owner and Contractor.

This Agreement will be effective on ______________________, 2019.

Owner: Utilities Commission, City of New Smyrna Beach, FL

Contractor: __________________________

By: ________________________________
Title: General Manager/CEO
Address for giving notices:
Derek M. Wainscott, P.E.
P.O. Box 100
New Smyrna Beach, FL 32170-0100

Physical Address: 200 Canal Street
New Smyrna Beach, FL 32168

Approved as to Form: __________________________

Contractor’s License No. __________________________

Expiration Date: __________________________

Thomas A. Cloud, Attorney for Owner

END OF SECTION
PUBLIC CONSTRUCTION BOND

Bond No. (enter bond number)

BY THIS BOND, We ________________________________ , as Principal and ________________________________, a corporation, as Surety, are bound to UTILITIES COMMISSION, CITY OF NEW SMYRNA BEACH, FL., herein called Owner, in the sum of ________________________________, for payment of which we bind ourselves, our heirs, personal representatives, successors, and assigns, jointly and severally.

THE CONDITION OF THIS BOND is that if Principal:

1. Performs the contract dated ________________, 2019, between Principal and Owner for construction of ___________Fire Hydrant Inspection and Flow Testing__________, the contract being made a part of this bond by reference, at the times and in the manner prescribed in the contract; and

2. Promptly makes payments to all claimants, as defined in Section 255.05(1), Florida Statutes, supplying Principal with labor, materials, or supplies, used directly or indirectly by Principal in the prosecution of the work provided for in the contract; and

3. Pays Owner all losses, damages, expenses, costs, and attorney’s fees, including appellate proceedings, that Owner sustains because of a default by Principal under the contract; and

4. Performs the guarantee of all work and materials furnished under the contract for the time specified in the contract, then this bond is void; otherwise it remains in full force.

Any action instituted by a claimant under this bond for payment must be in accordance with the notice and time limitation provisions in Section 255.05(2), Florida Statutes.

Any changes in or under the contract documents and compliance or noncompliance with any formalities connected with the contract or the changes does not affect Surety’s obligation under this bond.

DATED ON _____________________, 2019.

(Name of Principal)
By: ________________________________

(Name of Surety)
By: ________________________________

Attorney in Fact
PART 1 - GENERAL

1.00 DESCRIPTION

A. This Section includes:
   1. Protection and Restoration of Property.
   2. Change Orders.
   4. Traffic Control.
   5. Survey Work.
   6. Existing Utilities.
   7. Special Conditions.
   8. Coordination.
   9. Abbreviations and Symbols.

B. Related work specified elsewhere includes:
   Application for Payment - Section 01027.

1.01 PROTECTION AND RESTORATION OF PROPERTY

A. The Contractor shall not enter upon private property for any purpose without first obtaining permission and he shall use every precaution necessary to prevent damage or injury to any public or private property, trees, fences, monuments, and underground structures, etc., on and adjacent to the site of the work.

B. The Contractor shall not do any work that would affect any pipeline, telephone, telegraph, or electric transmission line, or other structure. The Contractor shall not enter upon the right-of-way or other lands appurtenant thereto, until authority therefore has been secured from the proper persons.

C. The Contractor shall be responsible for all damage or injury to property of any person or entity resulting from any act, omission, neglect or misconduct in his manner or method of executing said work, from his non-execution of said work, or from defective work or materials. The Contractor shall not be released from said responsibility until the work shall have been completed and accepted and the contract requirements fulfilled.

D. When or where any direct or indirect damage or injury is done to public or private property by or on account of any act, omission, neglect, or misconduct in the execution of the work, or in consequence of the non-execution thereof on the part of the Contractor, or any act in the proper completion of work, the Contractor shall restore such property, at his own expense, to a condition equal or better to that existing before such damage or injury was done by repairing, rebuilding, or otherwise restoring, as may be directed. If not possible, the Contractor shall make good such damage or injury in a manner acceptable to the damaged or injured party.
1.02 CHANGE ORDERS
A. The Owner or Engineer may at any time make changes within the general scope of the project, issue additional instructions, require additional work or direct the omission of portions of the work; provided, however, that the Contractor shall not proceed with any change involving an increase or decrease in contract sum, without prior written authorization from the Owner or Engineer in accordance with the procedure outlined hereunder.

B. The Owner or Engineer shall order changes in the project by giving the Contractor a written change order request (“Change Order Request”), setting forth in detail the nature of the requested change. Within ten (10) days of receipt of a Change Order Request, the Contractor shall furnish to the Owner or Engineer a statement setting forth in detail, with a suitable break-down by quantity and unit price the Contractor’s estimate of the changes in the contract sum. If the Owner approves in writing such estimate by the contractor, such Change Order Request and such estimate shall constitute a Change Order, and the contract sum shall be adjusted as set forth in the Contractor’s estimate. This procedure shall apply to both additive and deductive change orders.

C. The Owner or Engineer may make minor changes to the work not involving a change in the contract sum without the use of a Change Order.

D. Additional work performed by the Contractor without authorization of a Change Order is done at its own risk and will not entitle it to an increase in the Contract Price or an extension of the Contract Time.

1.03 PUBLIC ACCESS AND CONVENIENCE
A. At all points in the work where public access to any building, house, place of business, public road, or sidewalk would be obstructed by any section of the Contractor in executing the work required by this Contract, the Contractor shall provide such temporary structure, bridges or roadway as may be necessary to maintain public access at all times. At least one lane for vehicular traffic shall be maintained in streets on which the Contractor is working unless otherwise authorized by the Engineer in writing.

B. Prior to temporarily cutting off access to driveways and garages, the Contractor shall give 24 hours notice to affected property owners. Interruptions to use of private property shall be kept to a minimum. The Contractor is responsible for and may make other suitable arrangements with owners of private driveways in lieu of the requirement of this Section.

C. Materials stored at the site of the work shall be so placed and the work shall at all times be so conducted as to cause minimum obstruction to vehicular or pedestrian traffic. No roadway shall be closed or opened except by express permission of the City, County or such other authorized public agency having jurisdiction.

D. The Contractor shall exercise precaution at all times for the protection of persons and property. The safety provisions of applicable laws, building codes and construction codes shall be observed.
1.04 TRAFFIC CONTROL
A. It shall be the responsibility of the Contractor in performance of the work elements of the Contract to furnish all traffic control equipment and personnel.

B. The Contractor shall provide bypasses, crossings, and other means for the maintenance of one-way traffic in all streets, and two-way traffic wherever possible, in all streets where work is in progress. The Contractor shall plan and schedule his operations to impose the least possible interference with normal traffic flow. Any such interference shall be cleared with the applicable local, County or State agency prior to beginning construction.

C. The Contractor shall provide, erect, and maintain effective barricades, danger signals, and signs on all intercepted streets or highways and in other locations where required for the protection of the work and the safety of the public. Barricades or obstructions which encroach on, or are adjacent to public rights-of-way shall be provided with lights which shall be kept burning at all times between sunset and sunrise. Conformity with State, County and local laws and regulations is required in the use of streets and highways. The Contractor shall be responsible for all damages resulting from any neglect or failure to meet these requirements. Watchmen shall be provided as required by local regulations or as necessary to fulfill the requirements stated herein.

D. The State of Florida Department of Transportation "Utility Accommodation Guide Procedure 616-400" and its "Uniform Manual for Traffic Control Devices" shall be followed as applicable. Additionally, traffic control requirements shall meet all local, State and Federal requirements.

1.05 SURVEY WORK
A. Prior to commencing work, the Contractor shall satisfy himself as to the accuracy of all survey or existing site information as indicated in the Drawings or Specifications. Should the Contractor discover any errors, inaccuracies or omissions in the survey data, he shall immediately notify the Engineer. The commencing of any of the work by the Contractor shall be held as the Contractor's acceptance that all survey or existing site information is correct and accurate, without any reasonably inferable errors, inaccuracies or omissions.

B. The Contractor shall carefully preserve all control stakes, benchmarks, reference points and property corner and will be responsible for any mistake or loss of time caused by their unnecessary loss or disturbance. If the loss or disturbance of the stakes or marks cause a delay in the Work, the Contractor shall have no claim for damages or extension of time. Control stakes, benchmarks, reference points and property corners disturbed by the Contractor's work shall be replaced by a Florida Registered Land Surveyor and Mapper, at the Contractor's expense. In the event the Owner must provide the services of the Florida Registered Surveyor and Mapper to perform this replacement work, the cost of the surveying services will be deducted from any sums due the Contractor for the work performed under this Contract.
C. All survey work shall be performed under the guidance and direction of a Florida Registered Surveyor and Mapper.

D. All survey work for Record Drawings shall be performed by a Florida Registered Surveyor and Mapper.

1.06 EXISTING UTILITIES

A. All existing utilities shown on the Drawings are located according to the information available to the Engineer at the time the Drawings were prepared and have not been independently verified by the Owner or the Engineer. Guarantee is not made that all existing underground utilities are shown or that the locations of those shown are accurate. The locations shown are for bidding purposes only. Finding the actual location of any existing utilities is the Contractor's responsibility and shall be done before he commences any work in the vicinity. Furthermore, the Contractor shall be fully responsible for any and all damages which might be occasioned by the Contractor's failure to exactly locate and preserve any and all underground utilities. The Owner or Engineer will assume no liability for any damages sustained or costs incurred because of the Contractor's operations in the vicinity of existing utilities or structures, nor for temporary bracing and shoring of same. If it is necessary to shore, brace, or swing a utility, the utility company or department affected shall be contacted and their permission obtained regarding the method to use for such work.

B. It is the Contractor's responsibility to locate all underground utilities before beginning work.

C. The Contractor shall schedule and execute all work involving existing utilities in order to minimize necessary interruption of services. Whenever such interruption is necessary for completion of the work the Contractor is responsible for notifying the Engineer and the appropriate utility at least 48 hours in advance. All work to repair/restore utility service shall be performed to the satisfaction of the appropriate utility. All costs related to service maintenance, interruption, and restoration shall be included in the appropriate line item in the Contract, and will not be paid as an additional item.
1.07 SPECIAL CONDITIONS

A. Visits to the construction site may be made by representatives of local regulatory agencies. The Contractor shall submit details of all instructions from the above to the Engineer immediately. The Work will not be accepted by the Owner until final acceptance has been received from the various departments of the Regulatory Agencies having jurisdiction.

B. The Contractor shall furnish sufficient labor, construction equipment and materials, and shall work such hours, including night shifts and overtime operations, as may be necessary to insure the prosecution of the work in accordance with the approved progress schedule. If, in the opinion of the Engineer, the Contractor falls behind the progress schedule, the Contractor shall take such steps as may be necessary to improve his progress and the Engineer may require him to increase the number of shifts and/or overtime operation, days of work and/or the amount of construction equipment and materials, all without additional cost to the Owner. The Contractor shall be responsible for any additional costs incurred by the Owner or Engineer due to the overtime work. The failure of the Contractor to comply with the requirements of the Engineer under this provision shall be grounds for determination of the Engineer that the Contractor is not prosecuting the work with such diligence as will insure completion within the time specified. Upon such determination, the Engineer may recommend to the Owner to seek such legal remedy as is deemed necessary to protect the Owner's interest.

C. In addition to these Specifications all work must comply with the requirements of the local governing agency, Department of Transportation, Water Management District, Department of Environmental Protection, and all other applicable State or Federal agencies' Specifications and Permits. In the event of a conflict the more stringent specification or requirement shall govern.

D. The items of work on this project are to proceed in the sequence of work items listed hereinafter and shall be operable within the time frame stated from the date of the Notice to Proceed. No work is to start that involves the modification to existing facilities without prior approval and authorization from the Owner or his designated representative. An advance notice of 48 hours is required to the Owner prior to start of any work that involves modifications to existing structures, piping or appurtenances.

E. The Contractor is responsible for notifying all permitting agencies of his intentions to begin construction. Proper notification to each agency shall be given within the time frame required by that agency.

F. The Contractor shall give the Engineer 10 days minimum notice before beginning work on the Project.

G. Before performing tests, the Contractor shall provide the Engineer with a minimum of 48 hours notice.

H. Before performing any work outside the designated limits of the work site, the Contractor shall secure any necessary permits and/or authorization from the applicable Owner, or verify that such has been previously obtained. All requirements of any said permits or authorization shall be followed.
I. Contractor shall not work overtime unless authorized to do so by Owner. If overtime is required, Contractor shall provide seven (7) days minimum notice to Engineer and Owner.

1.08 COORDINATION
The Contractor shall be fully responsible for the coordination of his work and the work of his employees, subcontractors, and suppliers and to assure compliance with schedules.

1.09 ABBREVIATIONS AND SYMBOLS
A. Referenced Standards
   1. Any reference to published specifications or standards of any organization or association shall comply with the requirements of the specification or standard which is current on the date of Advertisement for Bids. In case of a conflict between the referenced specifications or standards, the one having the more stringent requirements shall govern.
   2. In case of conflict between the referenced specifications or standards and the Contract Documents, the Contract Documents shall govern.

END OF SECTION
PART 1 - GENERAL

1.01 RELATED DOCUMENTS
   A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division-I Specification Sections, apply to this Section.

1.02 SUMMARY
   A. This section specifies administrative and procedural requirements necessary to prepare and process the Contractor’s Applications for Payment.
      1. Coordinate the Schedule of Values and Applications for Payment with the Contractor’s Construction Schedule, List of Subcontracts, and Submittal Schedule.
   B. The Contractor’s Construction Schedule and Submittal Schedule are included in section “Submittals”.

1.03 SCHEDULE OF VALUES
   A. Coordinate preparation of the Schedule of Values with preparation of the Contractor’s Construction Schedule.
      1. Correlate line items in the Schedule of Values with other required administrative schedules and forms, including:
         a. Application for Payment form
         b. List of subcontractors
         c. Schedule of submittals.
      2. Submit the Schedule of Values to the Owner at the earliest feasible date, but in no case later than 7 days before the date scheduled for submittal of the initial Application for Payment.
      3. Where work is separated into phases, provide sub-schedules showing values correlated with each phase of payment.
   B. Format and Content: Use the Project Manual Table of Contents as a guide to establish the line items for the Schedule of Values. Provide at least one line item for each specification section.
      1. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Provide several line items for principal subcontract amounts, when appropriate.
      2. Schedule Updating: Update and resubmit the Schedule of Values when Change Orders or Construction Change Directives result in a change in the Contract Sum.
1.04 APPLICATIONS FOR PAYMENT

A. Each Application for Payment shall be consistent with previous applications and payments as certified by the Engineer and paid for by the Owner.
   1. The initial Application for Payment, the Application for Payment at time of Substantial Completion, and the final Application for payment involve additional requirements.

B. Payment Application Times: The date for each progress payment is indicated in the Agreement between Owner and Contractor. The period of construction Work covered by each Application for Payment is the period indicated in the Agreement.

C. Payment Application Forms: Use AIA forms for Applications for Payment.

D. Application Preparation: Complete every entry on the form, including notarization and execution by person authorized to sign legal documents on behalf of the Owner. Incomplete applications will be returned without action.
   1. Entries shall match data on the Schedule of Values and Contractor’s Construction Schedule. Use updated schedules if revisions have been made.
   2. Include amounts of Change Orders and construction Change Directives issued prior to the last day of the construction period covered by the application.

E. Transmittal: Submit 5 signed and notarized copies of each Application for Payment to the Engineer by means ensuring receipt within 24 hours; one copy shall be complete, including waivers of lien and similar attachments, if required.
   1. Transmit each copy with a transmittal form listing attachments, and recording appropriate information related to the application.

F. Waivers of Mechanics Lien: When required by the Owner, submit waivers of mechanics liens from subcontractors or sub-subcontractors and suppliers for the construction period covered by the previous application with each Application for Payment.
   1. Submit partial waivers on each item for the amount requested, prior to deduction for retainage, on each item.
   2. When an application shows completion of an item, submit final or full waivers.
   3. Waiver Delays: Submit each Application for Payment with the Contractor’s waiver of mechanics lien for the period of construction covered by the application.
      a. Submit final Application for Payment with or preceded by final waivers from every entity involved with performance of Work covered by the application who could lawfully be entitled to a lien.
   4. Waiver Forms: Submit waivers of lien on forms, and executed in a manner, acceptable to Owner.
G. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of the first Application for Payment include the following:
   1. List of subcontractors.
   2. Schedule of Values.
   3. Contractor’s Construction Schedule.
   4. Submittal Schedule.
   5. Certificates of insurance and insurance policies.
   7. Copy of Building Permit.

H. Application for Payment at Substantial Completion: Following issuance of the Certificate of Substantial Completion, submit an Application for Payment; Administrative actions and submittals that shall proceed or coincide with this application include:
   1. Warranties (guarantees) and maintenance agreements.
   3. Start-up performance reports.
   4. Change-over information related to Owner’s occupancy, use, operation and maintenance.
   5. Final cleaning.
   6. List of incomplete Work, recognized as exceptions to Engineer’s Certificate of Substantial Completion.

I. Final Payment Application: Administrative actions and submittals which must precede or coincide with submittal of the final payment Application for Payment include the following:
   1. Evidence of completion of project closeout requirements.
   2. Evidence of completion of items specified for completion after Substantial Completion.
   3. AIA Document G706, “Contractor’s Affidavit of Payment of Debts and Claims”: or other evidence acceptable to the Owner.
   5. AIA Document G707, “Consent of Surety to Final Payment”.
   6. Assurance that work not complete and accepted will be completed without undue delay.
   7. Transmittal of required project construction records to Owner.
   8. Removal of temporary facilities and services.
   10. Change of door locks to Owner’s access.

PART 2 - PRODUCTS (Not Applicable)
PART 3 - EXECUTION (Not Applicable)

END OF SECTION
PART 1 - GENERAL

1.01 RELATED DOCUMENTS

Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division-1 Specification Sections, apply to this Section.

1.02 SUMMARY

A. This Section specifies requirements of photographic documentation of the project conditions before construction. The video tape and photographs will serve as record of existing conditions for disputes arising from restoration, and should therefore be taken along the lines of construction at such frequency as necessary to depict details of existing conditions.

B. Payment: All cost for photographs and video tapes including processing, indexing and cataloging shall be on a lump sum basis, and shall be paid for by the Contractor, excepting photographs taken by the Engineer or the Owner.

1.03 SUBMITTALS

A. Photographs and Digital Video Disks: capable of being viewed in Windows XP Based Software.

B. Provide full-size narrated DVD with label to identify subject areas.

C. Provide photographs, as necessary, to supplement DVD to clearly depict existing conditions.

1.04 QUALITY ASSURANCE

A. Video narration shall completely (location, orientation, etc.) identify each scene.

B. Index and catalog photographs in such a manner that each scene is readily identifiable.

C. Photographs shall indicate the orientation of view and shall indicate date and time the photograph was made.

PART 2 - PRODUCTS (NOT APPLICABLE)
PART 3 - EXECUTION

3.01 CONSTRUCTION DOCUMENTATION

A. Pre-Construction Conditions: Take photographs and video tape all areas where construction is to take place within two weeks prior to the start of construction. Submit processed photographs to the Engineer before construction commences.

B. During construction or when major equipment is installed or where problems occur, the Contractor shall take pictures and videotape.

C. Post-Construction Conditions: Upon completion of construction work and before final payment, the contractor shall take photographs and video tapes of all completed construction and of all areas disturbed or restored by construction activities.

D. Unusual Conditions encountered during construction shall be photographed and video taped if not already a matter of photographic record.

END OF SECTION
PART 1 - GENERAL

1.01 RELATED DOCUMENTS

Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division-1 Specification Sections, apply to this Section.

1.02 SUMMARY

A. This Section specifies administrative and procedural requirements for project closeout, including but not limited to:
   1. Field review procedures.
   2. Project record document submittal.
   3. Operating and maintenance manual submittal.
   4. Submittal of warranties.
   5. Final cleaning.

B. Closeout requirements for specific construction activities are included in the appropriate specifications.

1.03 SUBSTANTIAL COMPLETION

A. Preliminary Procedures: Before requesting a Substantial Completion meeting, Contractor shall complete the following.
   1. Submit specific warranties, workmanship bonds, maintenance agreements, final certifications and similar documents.
   2. Obtain and submit releases enabling the Owner unrestricted use of the Work and access to services and utilities; include occupancy permits, operating certificates and similar releases.

B. Field Review Procedures: On receipt of a notice that the facilities are substantially complete, the Engineer will proceed with field review meeting with the Contractor and Owner or Owner’s representative present. The Engineer will review documentation provided by the Contractor and the Owner’s representative. From field observations and the documentation provided, the Engineer will prepare a “punch list” of items that must be completed or corrected before the work can be considered complete and the final payment is made. The work which is substantially complete will be considered cleared for partial utilization and turned over to the Owner. These items may be put into service by the Owner and shall not be altered by the Contractor.
1.04 FINAL COMPLETION

A. Preliminary Procedures: Before requesting final inspection for certification of final acceptance and final payment, Contractor shall complete the following.
1. Submit the final payment request with releases and supporting documentation not previously submitted and accepted. Include certificates of insurance for products and completed operations where required.
2. Submit an updated final statement, accounting for final additional changes to the Contract Sum.
3. Submit a copy of the Engineer's final inspection list of items to be completed or corrected, stating that each item has been completed or otherwise resolved for acceptance.
4. Submit final meter readings for utilities, a measured record of stored fuel, and similar data as of the date of Substantial Completion, or when the Owner took possession of and responsibility for corresponding elements of the Work.
5. Submit consent of surety to final payment.
6. Submit a final liquidated damages settlement statement.
7. Submit evidence of final, continuing insurance coverage complying with insurance requirements.

B. Re-inspection Procedure: The Engineer will schedule a final completion meeting to review the work identified in the punch list upon receipt of notice from the Contractor that the work has been completed.
1. Upon completion of Final Completion review, the Engineer will prepare a notification for the Contractor and Owner of final completion, or advise the Contractor of work that is incomplete or of obligations that have not been fulfilled but are required for final acceptance. This notification of final completion only implies that through examination of records and visual inspection the work appears to meet the requirements of the drawings and specifications as all construction activities are not observed by the Engineer. If the Engineer must perform another review of any work identified on the punch list because the Contractor failed to complete all work before the final completion inspection, the Contractor will be responsible for paying all of the Engineer’s cost for another field review.

1.05 RECORD DOCUMENT SUBMITTALS

A. General: Do not use record documents for construction purposes; protect from deterioration and loss in a secure, fire-resistive location; provide access to record documents for the Engineer's reference during normal working hours.

B. Record Drawings: Maintain a clean, undamaged set of blue or black line white-prints of Contract Drawings and Shop Drawings. Mark the set to show the actual installation where the installation varies substantially from the Work as originally shown. Mark whichever drawing is most capable of showing conditions fully and accurately; where Shop Drawings are used, record a cross-reference at the corresponding location on the Contract Drawings. Give particular attention to concealed elements that would be difficult to measure and record at a later date. An independent Florida licensed land
surveyor must be retained to locate all subsurface and surface improvements including potable water mains and fittings, reclaimed water mains and fittings, force mains and fittings, extent of any paving, and all pipe inverts and structure top elevations for sanitary sewer and stormwater improvements. All record and as-built drawings must meet the COMMISSION’s “Potable Water Rules, Design, and Construction Specifications”, “Reclaimed Water Rules, Design, and Construction Specifications”, and “Wastewater Rules, Design, and Construction Specifications”, Final Acceptance Section. Section 7, Section 7 and Section 8 respectively. All files shall be submitted to the COMMISSION digitally in both Adobe PDF and AutoDesk DWG format (meeting AutoDesk 2014 edition or later.)

1. Mark record sets with red erasable pencil; use other colors to distinguish between variations in separate categories of the Work.
2. Mark new information that is important to the Owner, but was not shown on Contract Drawings or Shop Drawings.
3. Note related Change Order numbers where applicable.
4. Organize record drawing sheets into manageable sets, bind with durable paper cover sheets, and print suitable titles, dates and other identification on the cover of each set.

C. Record Specifications: Maintain one complete copy of the Project Manual, including addenda, and one copy of other written construction documents such as Change Orders and modifications issued in printed form during construction. Mark these documents to show substantial variations in actual Work performed in comparison with the text of the Specifications and modifications. Give particular attention to substitutions, selection of options and similar information on elements that are concealed or cannot otherwise be readily discerned later by direct observation. Note related record drawing information and Product Data. Upon completion of the Work, submit record Specifications to the Engineer for the Owner's records.

D. Record Product Data: Maintain one copy of each Product Data submittal. Mark these documents to show significant variations in actual Work performed in comparison with information submitted. Include variations in products delivered to the site, and from the manufacturer's installation instructions and recommendations. Give particular attention to concealed products and portions of the Work which cannot otherwise be readily discerned later by direct observation. Note related Change Orders and mark-up of record drawings and Specifications. Upon completion of mark-up, submit complete set of record Product Data to the Engineer for the Owner's records.

E. Record Sample Submitted: Immediately prior to the date or dates of Substantial Completion, the Contractor will meet at the site with the Engineer and the Owner's personnel to determine which of the submitted Samples that have been maintained during progress of the Work are to be transmitted to the Owner for record purposes. Comply with delivery to the Owner's Sample storage area.

F. Miscellaneous Record Submittals: Refer to other Specification Sections for requirements of miscellaneous record-keeping and submittals in connection with actual performance of the Work. Immediately prior to the date or dates of Substantial Completion, complete miscellaneous records and place in good order, properly identified and bound or filed, ready for continued use and reference. Submit to the Engineer for the Owner's records.
G. Maintenance Manuals: Organize operating and maintenance data into suitable sets of manageable size. Bind properly indexed data in individual heavy-duty 2-inch, 3-ring vinyl-covered binders, with pocket folders for folded sheet information. Mark appropriate identification on front and spine of each binder. Include the following types of information:

1. Emergency instructions.
2. Spare parts list.
4. Wiring diagrams.
5. Recommended "turn around" cycles.
6. Inspection procedures.
7. Shop Drawings and Product Data.
8. Fixture lamping schedule.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.01 CLOSEOUT PROCEDURES

A. Operating and Maintenance Instructions: Arrange for each installer of equipment that requires regular maintenance to meet with the Owner's personnel to provide instruction in proper operation and maintenance. If installers are not experienced in procedures, provide instruction by manufacturer's representatives. Include a detailed review of the following items:

1. Maintenance manuals.
2. Record documents.
3. Spare parts and materials.
4. Tools.
5. Lubricants.
6. Fuels.
7. Identification systems.
8. Control sequences.
9. Hazards.
10. Cleaning.
11. Warranties and bonds.
12. Maintenance agreements and similar continuing commitments.
B. As part of instruction for operating equipment, demonstrate the following procedures:
1. Start-up.
2. Shutdown.
3. Emergency operations.
5. Safety procedures.
7. Effective energy utilization.

3.02 FINAL CLEANING

A. General: General cleaning during construction is required by the General Conditions and included in Section "Temporary Facilities".

B. Before the completion of the project, the Contractor shall, unless otherwise especially directed or permitted in writing:
1. Tear down and remove all temporary buildings and structures which he built;
2. Remove all temporary works, tools, and machinery or other construction equipment furnished by him;
3. Remove, acceptably disinfect, and cover all organic matter and material containing organic matter in, under, and around privies, houses, and other buildings used by him;
4. Remove all rubbish from any grounds which he has occupied; and
5. Leave the roads, all parts of the premises and adjacent property affected by his operations, in a neat and satisfactory condition.

C. The Contractor shall restore or replace any public or private property damaged by his work, equipment, or employees, to a condition at least equal to that existing immediately prior to the beginning of the operations. To this end, the Contractor shall restore all highway, roadside and landscaping work within any right-of-way, platted or prescriptive. Acceptable materials, equipment, and methods shall be used for such restoration.

D. The Contractor shall thoroughly clean all materials and equipment installed by him and his subcontractors and on completion of the work shall deliver the facilities undamaged and in fresh and new-appearing condition.

E. It is the intent of the Specifications to place the responsibility on the Contractor to restore to their original condition all items disturbed, destroyed or damaged during construction.

F. When finished surfaces require cleaning with cleaning materials the Contractor shall use only those cleaning materials which will not create hazards to health or property and which will not damage the surfaces. Cleaning materials shall be used only on those surfaces recommended by the manufacturer. The manufacturer’s directions and recommendations shall be followed at all times.

G. The Contractor shall do everything in his power to keep the amount of dust produced during his construction activities to a minimum. If required by the Engineer, the Contractor, at his expense, shall spray water or other dust control agents over the areas which are producing the dust. Construction operations shall be scheduled so that dust and other contaminants will not fall on wet or newly-coated surfaces.
H. Compliance: Comply with regulations of authorities having jurisdiction and safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on the Owner's property. Do not discharge volatile, harmful or dangerous materials into drainage systems. Remove waste materials from the site and dispose of in a lawful manner. Where extra materials of value remaining after completion of associated Work have become the Owner's property, arrange for disposition of these materials as directed.

I. Inspection
Prior to final completion, the Owner, Engineer and Contractor shall review the site with regards to site cleanup, restoration and maintenance of the system. The Contractor shall clean and/or restore all items determined to be unsatisfactory by the Owner or Engineer, at his expense.

END OF SECTION
NOTES:
1. HYDRANT MUST BE LOCATED ON THE SAME SIDE OF THE ROAD OR PARKING LOT AS THE WATER MAIN, OUTSIDE THE CLEAR RECOVERY ZONE OF THE TRAVEL WAY, AND A MINIMUM OF 2' FROM SIDEWALK EDGE.
2. HYDRANT MUST HAVE A CLOSED WEEP HOLE.
Fire Suppression Rating Schedule
FIRE SUPPRESSION RATING SCHEDULE

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INTRODUCTION

100 PURPOSE:
The purpose of this Schedule is to outline the criteria for evaluating the fire prevention and fire suppression capabilities of individual communities — or fire protection areas. The purpose of such an evaluation is to develop a Public Protection Classification (PPC) for property insurance rating.

101 SCOPE:
The Schedule measures the major elements of a fire protection area’s fire prevention and fire suppression systems. The fire suppression component evaluates how those systems address reported structure fires. The Schedule gives procedures and formulas for developing the measurements into a Public Protection Classification number on a relative scale from 1 to 10, with 10 representing less than the minimum recognized protection.

The Schedule is a property insurance rating tool, and is not intended to analyze all aspects of a comprehensive public fire protection program.

102 PUBLIC PROTECTION CLASSIFICATION:
A Public Protection Classification developed by this Schedule is only one of several elements used to develop the property insurance loss cost and underwriting information for an individual property. Other features specifically relating to the individual property — such as construction, occupancy and hazards, exposures and private fire protection — are also important in the evaluation of property insurance loss costs and underwriting.

103 FIRE PROTECTION AREA:
The term “fire protection area,” as used in this Schedule may include cities, towns, villages, districts, counties, or other civil jurisdictions responsible for providing fire prevention and fire suppression services.

For the purposes of the Schedule, a fire protection area must have legally defined boundaries for fire suppression services. For example, community limit boundaries, fire district boundaries, contractual agreements defining areas of responsibility, and the like may define the boundaries of a fire protection area. If a fire protection area has no legally defined boundaries, a governmental authority must affirm the boundaries in writing to ISO.

For purposes of making such an affirmation, the governmental authority should be the chief administrative official of the governing body responsible for the public safety and welfare of the residents within the fire protection area. The individual must be outside the direct chain of command of the fire protection authority. The governmental authority should preferably be an elected official, such as the mayor, the county executive, a judge, or some similar official.
104 FORMAT:
This Schedule consists of two major chapters:

I Public Fire Prevention and Suppression:

Chapter I (Sections 200 through 1312) gives procedures and formulas for developing Public Protection Classifications for properties with Needed Fire Flows of 3,500 gpm or less.

II Individual Property Fire Suppression:

Chapter II (Sections 2000 through 2311) gives procedures and formulas for developing Public Protection Classifications for specifically rated properties with Needed Fire Flow greater than 3,500 gpm.

105 CALCULATIONS:
To prorate credits or to make any calculation using a fraction of a whole number or point, round the final calculation or credit to two decimal places.

To receive full credit for any section within this Schedule, the authority having jurisdiction must produce complete records substantiating the item under review. When only partial documentation is available, prorate the credit up to a maximum of 75% of the available credit unless otherwise stated specifically in this Schedule.

When no records exist for an item under review, give no credit unless otherwise stated specifically in this Schedule.

106 REFERENCE STANDARDS:
This Schedule recognizes various voluntary consensus standards addressing fire prevention and fire suppression. The standards, approved by the American National Standards Institute (ANSI), include publications by the National Fire Protection Association (NFPA), the American Water Works Association (AWWA), and the Association of Public-Safety Communications Officials – International (APCO).

Whenever this Schedule refers to a consensus standard, the latest edition applies.

107 MINIMUM FACILITIES FOR APPLYING THIS SCHEDULE:
To receive a Public Protection Classification other than Class 10, a fire protection area must meet the following minimum requirements:

A. Organization:
The fire department must be organized under applicable state or local laws. The organization must include one person responsible for operation of the department, usually with the title of chief.

The fire department must serve an area with definite boundaries. (See Section 103.)
If a fire protection area does not have a fire department operated solely by or for the
governing body of that fire protection area, the fire department providing such service
must do so under a legal contract or resolution or must demonstrate documented
performance for a minimum of one year. When a fire department’s service area includes
two or more fire protection areas, the department should execute a contract with each
area served.

Governmental authorities may use NFPA 1201, *Standard for Providing Fire and
Emergency Services to the Public*, as a guide to the organization and development of a
fire department.

B. **Firefighter Response to Alarms:**
The fire department must demonstrate that a minimum number of firefighters — as
defined in Section 201 — respond on the initial alarm to all reported structure fires. The
chief officer may be one of the responding firefighters.

C. **Training:**
The fire department must provide training related to suppression of structure fires for
active members for at least 3 hours every 3 months.

D. **Emergency Communications:**
Communications facilities and arrangements must provide for receipt of alarms and
dispatch of firefighters and apparatus with no delay.

E. **Apparatus:**
The fire department must have at least one apparatus meeting the general criteria of
NFPA 1901, *Standard for Automotive Fire Apparatus*. All apparatus must be registered
and insured as emergency vehicles according to applicable state laws.

F. **Housing:**
Apparatus must be housed to provide protection from the weather and the deteriorating
effects of all climatic conditions. In areas subject to freezing conditions, the structure
must have provisions for providing heat.
Chapter I

PUBLIC FIRE PREVENTION AND SUPPRESSION

SCHEDULE APPLICATION

200 GENERAL:
Chapter I of this Schedule gives procedures and formulas for developing a Public Protection Classification that applies to properties with a Needed Fire Flow of 3,500 gpm or less as determined in Section 300.

201 APPLICATION:
The method of applying Chapter I of this Schedule depends upon the minimum facilities available for the fire department and the adequacy and duration of the water system as outlined below:

A. Sections 300 through 1101 (Class 1 - 8) shall be applied if the fire protection area has all of the following:

1. An apparatus that has a permanently mounted pump with a rated capacity of 750 gpm or more at 150 psi and a water tank in accordance with the general criteria of NFPA 1901, Standard for Automotive Fire Apparatus, “Pumper Fire Apparatus.”

2. A minimum of 4 firefighters responding on the initial alarm to all reported structure fires. The chief officer may be 1 of the 4 responding firefighters.

3. One or both of the following:
   a. A water system capable of delivering 250 gpm or more for a period of 2 hours plus consumption at the maximum daily rate at a fire location.
   b. Fire department supply capable of delivering 250 gpm or more for a period of 2 hours at a fire location beginning within 5 minutes of arrival of the first-due engine.

B. Sections 1200 through 1202 (Class 8B) apply if the fire protection area does not have the features outlined in A but does have all of the following:

1. An apparatus that has a permanently mounted pump with a rated capacity of 750 gpm or more at 150 psi in accordance with the general criteria of NFPA 1901, Standard for Automotive Fire Apparatus, “Pumper Fire Apparatus.”

2. There shall be a minimum of 6 firefighters responding on the initial alarm to all reported structure fires. Two of the 6 may be automatic-aid firefighters (see Sections 507 and 511C). The chief officer may be 1 of the 6 responding firefighters.
3. The ability to deliver a minimum of 200 gpm for 20 minutes (4,000 gallons of water) on the initial alarm to all reported structure fires beginning within 5 minutes of arrival of the first-due engine.

C. Sections 1300 through 1312 (Class 9) apply if the fire protection area does not have the facilities outlined in either A or B but does have all of the following:

1. An apparatus that has a permanently mounted pump with a rated capacity of 250 gpm or more at 150 psi and a permanently mounted water tank of at least 200 gallons in accordance with the general criteria of NFPA 1901, *Standard for Automotive Fire Apparatus*, “Initial Attack Fire Apparatus.”

2. A minimum of 4 firefighters responding to all reported first-alarm structure fires. (See NFPA 1720, *Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations and Special Operations by Volunteer Fire Departments.*) The chief officer may be 1 of the 4 responding firefighters.

3. The ability to deliver a minimum of 500 gallons of water to all reported first-alarm structure fires.

D. If the fire protection area does not have the facilities outlined in A, B, or C, apply Public Protection Class 10 to the fire protection area.

E. If the fire protection area has a combination of A, B, C, and D, multiple Public Protection Classifications apply.

NEEDED FIRE FLOW

300 GENERAL:
This section provides procedures and formulas for developing Needed Fire Flows for selected locations throughout a fire protection area. The Schedule uses those Needed Fire Flows for other calculations. The calculation of a Needed Fire Flow (NFF) in gallons per minute (gpm) considers factors such as the type of building construction (C), occupancy (O), exposure (X), and communication (P) of each subject building or fire division.

For more information, including help with determining the factors, see *Guide for Determination of Needed Fire Flow*, available online at www.isomitigation.com/nff.

301 AUTOMATIC FIRE SPRINKLER SYSTEMS
In calculating the Needed Fire Flow for a commercial building protected by an automatic fire sprinkler system, consider the demand at the base of the automatic sprinkler riser plus additional allowances for inside and/or outside hose streams for a duration of 2 hours. This procedure applies to buildings rated and classified as sprinklered under ISO’s Specific Commercial Property Evaluation Schedule (SCOPES).
The procedure also applies to a building not rated and not classified as sprinklered under ISO's SCOPES if a party responsible for the building has provided evidence that the automatic fire sprinkler system has been installed in accordance with the general criteria of NFPA 13, *Standard for Installation of Sprinkler Systems*, and is maintained in accordance with the general criteria of NFPA 25, *Standard for the Inspections, Testing and Maintenance of Water-Based Fire Protection Systems*.

310 CONSTRUCTION FACTOR (C):
The construction factor (C) is the portion of the Needed Fire Flow attributed to the construction and area of the subject building. To calculate the construction factor (C), use this formula:

\[
C = 18F\sqrt{A}
\]

Where:
A = Effective Area
F = Coefficient related to the class of construction:
F = 1.5 for Construction Class 1 (Frame)*
F = 1.0 for Construction Class 2 (Joisted Masonry)*
F = 0.8 for Construction Class 3 (Non-Combustible)*
F = 0.8 for Construction Class 4 (Masonry Non-Combustible)*
F = 0.6 for Construction Class 5 (Modified Fire Resistive)*
F = 0.6 for Construction Class 6 (Fire Resistive)*

* See the Specific Commercial Property Evaluation Schedule (SCOPES) for a detailed definition of the construction classes.

Effective Area
Effective area is a modification of the total building area measured in square feet. The modification considers construction class, building height, fire protection features, division walls, and other factors that contribute to the spread of fire in a building. (See the Specific Commercial Property Evaluation Schedule (SCOPES) for detailed information on calculating effective area).

Mixed Construction
For buildings with two or more construction classes, see SCOPES, “Classification of Mixed Construction”, for instructions on determining a single construction class for use in the construction factor (C) formula.

Minimum and Maximum Values
The minimum value of the construction factor (C) is 500 gpm.
The maximum value of the construction factor (C) is:
8,000 gpm for Construction Classes 1 and 2
6,000 gpm for Construction Classes 3, 4, 5 and 6
6,000 gpm for a 1-story building of any class of construction.
Rounding
Round the calculated value of the construction factor (C) to the nearest 250 gpm.

320 OCCUPANCY FACTOR (O):
The occupancy factor (O) reflects the influence of the occupancy on the Needed Fire Flow. Select the occupancy factor (O) from the following table.

<table>
<thead>
<tr>
<th>OCCUPANCY COMBUSTIBILITY CLASS</th>
<th>OCCUPANCY FACTOR (O)</th>
</tr>
</thead>
<tbody>
<tr>
<td>C-1 (Noncombustible)</td>
<td>0.75</td>
</tr>
<tr>
<td>C-2 (Limited Combustibility)</td>
<td>0.85</td>
</tr>
<tr>
<td>C-3 (Combustible)</td>
<td>1.00</td>
</tr>
<tr>
<td>C-4 (Free Burning)</td>
<td>1.15</td>
</tr>
<tr>
<td>C-5 (Rapid Burning or Flash Burning)</td>
<td>1.25</td>
</tr>
</tbody>
</table>

Multiple Occupancies
For buildings that contain multiple occupancies, see SCOPES, Item 440, “Combustibility Classification Applicable to Buildings,” for instructions on determining a single-occupancy combustibility class for use in selecting the occupancy factor (O).

330 EXPOSURE (X) AND COMMUNICATION (P) FACTORS:
A building’s exposure to and communication with adjacent buildings influence the subject building’s Needed Fire Flow. Where applicable, select an exposure factor (X) from Table 330A. If applicable, also select a communication factor (P) selected from Table 330B. Select the factors for the same side of the building. Use the side of the building for which the sum of the factors has the largest value, represented as:

\[(X_i + P_i)_{\text{max}}\]

Limit the value of \[(X_i + P_i)_{\text{max}}\] to a maximum of 0.60.

A. The exposure factor (X) of the subject building depends upon the construction and length-height value\(^*\) (length of wall in feet, times height in stories) of the exposed building and the distance between facing walls of the subject building and the exposed building. Select the exposure factor (X) from Table 330A(1-3).

\(^*\) See the Specific Commercial Property Evaluation Schedule (SCOPES) for more information on the length-height value.
## Table 330A(1)

The table below shows the fire suppression rating schedule for various construction types and exposure distances. The ratings are based on the construction of the facing wall of the subject building, the length-height of the facing wall of exposure, and the frame (except masonry and fire resistive).

<table>
<thead>
<tr>
<th>Distance in Feet to the Exposure</th>
<th>Length-Height of Facing Wall of Exposure</th>
<th>Frame</th>
<th>Masonry Unprotected Openings</th>
<th>Masonry Semiprotected Openings (or Blank)</th>
<th>Noncombustible Walls and Noncombustible Roof</th>
<th>Masonry or Fire Resistive Unprotected Openings</th>
<th>Masonry or Fire Resistive Semiprotected Openings</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - 10</td>
<td>80 - 100</td>
<td>0.126</td>
<td>0.0882</td>
<td>0.0000</td>
<td>0.1093</td>
<td>0.0252</td>
<td>0.0000</td>
</tr>
<tr>
<td>101 - 200</td>
<td>101 - 200</td>
<td>0.140</td>
<td>0.0980</td>
<td>0.0000</td>
<td>0.1120</td>
<td>0.0280</td>
<td>0.0000</td>
</tr>
<tr>
<td>201 - 300</td>
<td>201 - 300</td>
<td>0.140</td>
<td>0.0980</td>
<td>0.0000</td>
<td>0.1120</td>
<td>0.0280</td>
<td>0.0000</td>
</tr>
<tr>
<td>301 - 400</td>
<td>301 - 400</td>
<td>0.140</td>
<td>0.0980</td>
<td>0.0000</td>
<td>0.1120</td>
<td>0.0280</td>
<td>0.0000</td>
</tr>
<tr>
<td>Over 400</td>
<td>Over 400</td>
<td>0.140</td>
<td>0.0980</td>
<td>0.0000</td>
<td>0.1120</td>
<td>0.0280</td>
<td>0.0000</td>
</tr>
<tr>
<td>11 - 20</td>
<td>80 - 100</td>
<td>0.098</td>
<td>0.0686</td>
<td>0.0000</td>
<td>0.0784</td>
<td>0.0196</td>
<td>0.0000</td>
</tr>
<tr>
<td>101 - 200</td>
<td>101 - 200</td>
<td>0.126</td>
<td>0.0882</td>
<td>0.0000</td>
<td>0.1093</td>
<td>0.0252</td>
<td>0.0000</td>
</tr>
<tr>
<td>201 - 300</td>
<td>201 - 300</td>
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<td>0.0980</td>
<td>0.0000</td>
<td>0.1120</td>
<td>0.0280</td>
<td>0.0000</td>
</tr>
<tr>
<td>301 - 400</td>
<td>301 - 400</td>
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<td>0.0980</td>
<td>0.0000</td>
<td>0.1120</td>
<td>0.0280</td>
<td>0.0000</td>
</tr>
<tr>
<td>Over 400</td>
<td>Over 400</td>
<td>0.140</td>
<td>0.0980</td>
<td>0.0000</td>
<td>0.1120</td>
<td>0.0280</td>
<td>0.0000</td>
</tr>
<tr>
<td>21 - 30</td>
<td>80 - 100</td>
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<td>0.0302</td>
<td>0.0000</td>
<td>0.0448</td>
<td>0.0112</td>
<td>0.0000</td>
</tr>
<tr>
<td>101 - 200</td>
<td>101 - 200</td>
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<td>0.0686</td>
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<td>0.0784</td>
<td>0.0196</td>
<td>0.0000</td>
</tr>
<tr>
<td>201 - 300</td>
<td>201 - 300</td>
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<td>0.0882</td>
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<td>0.1093</td>
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<tr>
<td>301 - 400</td>
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<tr>
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<td>Over 400</td>
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<td>0.0280</td>
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<tr>
<td>31 - 40</td>
<td>80 - 100</td>
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### Table 330A(2)

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<th>Length-Height of FACING Wall of Exposure</th>
<th>Frame</th>
<th>Masonry Unprotected Openings</th>
<th>Masonry Semiprotected Openings (or Blank)</th>
<th>Noncombustible Walls and Noncombustible Roof</th>
<th>Masonry or Fire Resistive Unprotected Openings</th>
<th>Masonry or Fire Resistive Semiprotected Openings</th>
<th>Class 5 or 6</th>
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<td>0.0441</td>
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<td>0.0280</td>
<td>0.0000</td>
<td>0.0000</td>
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</tr>
<tr>
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<td>0.0000</td>
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<td>0.0196</td>
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</tr>
<tr>
<td></td>
<td>301 - 400</td>
<td>0.0392</td>
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<tr>
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<td>Over 400</td>
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<td>0.0252</td>
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<td></td>
</tr>
</tbody>
</table>
# FIRE SUPPRESSION RATING SCHEDULE

## Table 330A(3)

<table>
<thead>
<tr>
<th>Distance in Feet to the Exposure</th>
<th>Length-Height of Facing Wall of Exposure</th>
<th>Frame</th>
<th>Masonry Unprotected Openings</th>
<th>Masonry Semiprotected Openings (or Blank)</th>
<th>Noncombustible Walls and Noncombustible Roof</th>
<th>Masonry or Fire Resistive Unprotected Openings</th>
<th>Masonry or Fire Resistive Semiprotected Openings</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - 10</td>
<td>80 - 150</td>
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<td>0.0000</td>
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</tr>
<tr>
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<td>151 - 200</td>
<td>0.0210</td>
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</tr>
<tr>
<td></td>
<td>201 - 300</td>
<td>0.0210</td>
<td>0.0140</td>
<td>0.0000</td>
<td>0.0140</td>
<td>0.0000</td>
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</tr>
<tr>
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<td>301 - 400</td>
<td>0.0210</td>
<td>0.0140</td>
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</tr>
<tr>
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<td>Over 400</td>
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</tr>
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</tr>
<tr>
<td></td>
<td>201 - 300</td>
<td>0.0189</td>
<td>0.0112</td>
<td>0.0000</td>
<td>0.0112</td>
<td>0.0000</td>
<td>0.0000</td>
</tr>
<tr>
<td></td>
<td>301 - 400</td>
<td>0.0189</td>
<td>0.0126</td>
<td>0.0000</td>
<td>0.0126</td>
<td>0.0000</td>
<td>0.0000</td>
</tr>
<tr>
<td></td>
<td>Over 400</td>
<td>0.0210</td>
<td>0.0140</td>
<td>0.0000</td>
<td>0.0140</td>
<td>0.0000</td>
<td>0.0000</td>
</tr>
<tr>
<td>31 - 40</td>
<td>80 - 150</td>
<td>0.0042</td>
<td>0.0028</td>
<td>0.0000</td>
<td>0.0028</td>
<td>0.0000</td>
<td>0.0000</td>
</tr>
<tr>
<td></td>
<td>151 - 200</td>
<td>0.0125</td>
<td>0.0070</td>
<td>0.0000</td>
<td>0.0070</td>
<td>0.0000</td>
<td>0.0000</td>
</tr>
<tr>
<td></td>
<td>201 - 300</td>
<td>0.0147</td>
<td>0.0098</td>
<td>0.0000</td>
<td>0.0098</td>
<td>0.0000</td>
<td>0.0000</td>
</tr>
<tr>
<td></td>
<td>301 - 400</td>
<td>0.0189</td>
<td>0.0112</td>
<td>0.0000</td>
<td>0.0112</td>
<td>0.0000</td>
<td>0.0000</td>
</tr>
<tr>
<td></td>
<td>Over 400</td>
<td>0.0189</td>
<td>0.0126</td>
<td>0.0000</td>
<td>0.0126</td>
<td>0.0000</td>
<td>0.0000</td>
</tr>
</tbody>
</table>
330 EXPOSURE (X) AND COMMUNICATION (P) FACTORS: (Continued)

B. Factor for Communications (P):
The factor for Communication (P) depends upon the protection for communicating party wall* openings and the length and construction of communications between fire divisions* and shall be selected from Table 330B. When more than one communication type exists in any one side wall, apply only the largest factor for Communication (P).

Table 330B

<table>
<thead>
<tr>
<th>Description of Protection of Passageways Openings</th>
<th>Fire Resistive, Noncombustible, or Limited Combustible Passageways</th>
<th>Passageways with Combustible Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Open</td>
<td>Enclosed</td>
</tr>
<tr>
<td></td>
<td>Any Length</td>
<td>10 ft to 11 ft</td>
</tr>
<tr>
<td></td>
<td>less 20 ft</td>
<td>20 ft to 50 ft</td>
</tr>
</tbody>
</table>

1. Unprotected
- Length-Height 20-150
  - 0
  - 0.0252
  - 0.0189
  - 0.0126
  - 0.0126
  - 0.0063
  - 0.0315
  - 0.0252
  - 0.0139
- Length-Height >150
  - 0
  - 0.0280
  - 0.0210
  - 0.0140
  - 0.0210
  - 0.0140
  - 0.0070
  - 0.0350
  - 0.0280
  - 0.0210

2. Single Fire Door at One End of Passageway
- Length-Height 20-150
  - 0
  - 0.0126
  - 0.0063
  - 0.0000
  - 0.0126
  - 0.00945
  - 0.0000
  - 0.0189
  - 0.0126
  - 0.0063
- Length-Height >150
  - 0
  - 0.0140
  - 0.0070
  - 0.0000
  - 0.0140
  - 0.01050
  - 0.0000
  - 0.0210
  - 0.0140
  - 0.0070

3. Single Fire Doors at Each End or Double Fire Doors at One End of Passageway
- Length-Height 20-150
  - 0
  - 0
  - 0
  - 0
  - 0
  - 0
  - 0
  - 0
  - 0
- Length-Height >150
  - 0
  - 0
  - 0
  - 0
  - 0
  - 0
  - 0
  - 0
  - 0

**FACTORS FOR COMMUNICATIONS THROUGH A PARTY WALL**

<table>
<thead>
<tr>
<th>Single Fire Doors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length-Height 20-150</td>
</tr>
<tr>
<td>Length-Height &gt;150</td>
</tr>
</tbody>
</table>

**FACTORS FOR COMMUNICATIONS ACROSS PARTY WALLS**

<table>
<thead>
<tr>
<th>All cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.0175</td>
</tr>
</tbody>
</table>
Table 330B (cont.)

Other Than Masonry Facing Wall (Exposure)

<table>
<thead>
<tr>
<th>Description of Protection of Passageways Openings</th>
<th>Fire Resistive, Noncombustible, or Limited Combustible Passageways</th>
<th>Passageways with Combustible Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Open 10 ft 11 ft 21 ft</td>
<td>Enclosed 10 ft 11 ft 21 ft</td>
</tr>
<tr>
<td>1. Unprotected</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Length-Height 20-100</td>
<td>0.0504 0.0378 0.0252</td>
<td>0.0378 0.0252 0.0126</td>
</tr>
<tr>
<td>Length-Height &gt;100</td>
<td>0.0560 0.0420 0.0280</td>
<td>0.0420 0.0280 0.0140</td>
</tr>
</tbody>
</table>

2. Single Fire Door at One End of Passageway

| Length-Height 20-100                             | 0.0252 0.0126 0.0000 | 0.0252 0.0189 0.0000 | 0.0378 0.0252 0.0126 |
| Length-Height >100                               | 0.0280 0.0140 0.0000 | 0.0280 0.0210 0.0000 | 0.0420 0.0280 0.0140 |

3. Single Fire Doors at Each End or Double Fire Doors at One End of Passageway

| Length-Height 20-100                             | 0 0 0 0 0 0 0 0 0 |
| Length-Height >100                               | 0 0 0 0 0 0 0 0 0 |

**Note** When a party wall has communicating openings protected by a single automatic or self-closing Class A fire door, it qualifies as a division wall* for reduction of area.

**Note** Where communications are protected by a recognized water curtain*, the value of P is zero (0).

*The term is defined in greater detail in the Specific Commercial Property Evaluation Schedule (SCOPES).
CALCULATION OF NEEDED FIRE FLOW (NFF):

Use the following formula to determine the Needed Fire Flow (NFF):

\[
NFF_i = (C_i)(O_i)(1.0 + (X + P)_i)
\]

When a wood shingle roof covering on the subject building, or on exposed buildings, can contribute to spreading fires, add 500 gpm to the Needed Fire Flow.

The minimum Needed Fire Flow is 500 gpm, and the maximum is 12,000 gpm.

Round the calculated Needed Fire Flow to the nearest 250 gpm if less than 2,500 gpm and to the nearest 500 gpm if greater than 2,500 gpm.

For residential occupancies protected with an automatic fire sprinkler system installed in accordance with the general criteria of NFPA 13R, **Standard for the Installation of Sprinkler Systems in Residential Occupancies up to and including Four Stories in Height**, the Needed Fire Flow is either the demand at the base of the automatic sprinkler riser or 1,000 gpm at 20 psi for a duration of 2 hours, whichever is greater.

For 1- and 2-family dwellings not exceeding 2 stories in height, the following Needed Fire Flows at a duration of 1 hour shall be used:

<table>
<thead>
<tr>
<th>DISTANCE BETWEEN BUILDINGS</th>
<th>NEEDED FIRE FLOW</th>
</tr>
</thead>
<tbody>
<tr>
<td>More than 30 feet</td>
<td>500 gpm</td>
</tr>
<tr>
<td>21-30 feet</td>
<td>750 gpm</td>
</tr>
<tr>
<td>11-20 feet</td>
<td>1,000 gpm</td>
</tr>
<tr>
<td>0–10 feet</td>
<td>1,500 gpm</td>
</tr>
</tbody>
</table>

**Exception 1:** For a 1- or 2-family dwelling protected with an automatic fire sprinkler system installed in accordance with the general criteria of NFPA 13D, **Installation of Sprinkler Systems for One- and Two-Family Dwellings and Manufactured Homes**, the Needed Fire Flow is either the demand at the base of the automatic sprinkler riser or 500 gpm at 20 psi for a duration of 1 hour, whichever is greater.

**Exception 2:** For a 1- or 2-family dwelling with an Effective Area greater than 4,800 square feet, calculate the Needed Fire Flow using the Needed Fire Flow formula in this Section. Use the duration as specified in Section 604.

** Residential occupancies specified in the scope of this standard include: apartment buildings; lodging and rooming houses; board and care facilities; and hotels, motels, and dormitories.
Emergency Communications

400 GENERAL:
This section gives procedures and formulas for evaluating:

- communications facilities provided for the general public to report structure fires
- Enhanced 9-1-1 Telephone Service including wireless
- computer-aided dispatch (CAD) facilities
- alarm receipt and processing at the communication center
- training and certification of telecommunicators
- facilities used to dispatch fire department companies to reported structure fires

410 EMERGENCY REPORTING (ER):
For information about emergency reporting for fire alarms, see NFPA 1221, Standard for the Installation, Maintenance, and Use of Emergency Services Communications Systems.

Assign points for emergency reporting (ER) according to the following:

Apply either A or B below

<table>
<thead>
<tr>
<th>Emergency Reporting System (ERS)</th>
<th>Maximum Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Emergency Reporting System (ERS₁)</td>
<td>10</td>
</tr>
<tr>
<td>Basic 9-1-1 or no 9-1-1 (BSC)</td>
<td>Public Safety Answering Point (PSAP) does not have customer-premises equipment (CPE) to enable the receipt of Enhanced 9-1-1 calls. Basic 9-1-1 systems do not have provisions for selective routing and may have automatic number identification (ANI) and/or automatic location identification (ALI)</td>
</tr>
<tr>
<td>B. Emergency Reporting System (ERS₂)</td>
<td>20</td>
</tr>
<tr>
<td>Enhanced 9-1-1 (ES)</td>
<td>Public Safety Answering Point (PSAP) has customer-premises equipment (CPE) to enable the receipt of Enhanced 9-1-1 calls with associated automatic number identification (ANI) and automatic location identification (ALI) from callers in the PSAP's jurisdiction, including selective routing</td>
</tr>
</tbody>
</table>
1. **E9-1-1 Wireless (EW)**
   a. **Wireless Phase I using Static ALI Functionality (WP1)**
      The PSAP is Phase 1 wireless-capable for at least one wireless service provider (WSP) in the jurisdiction or has made a valid formal request for Phase 1 wireless service with the WSPs doing business in its jurisdiction
      
   b. **Wireless Phase II using Dynamic ALI Functionality (WP2)**
      The PSAP is Phase 2 wireless-capable for at least one WSP in the jurisdiction or has made a valid formal request for Phase 2 wireless service with the WSPs doing business in its jurisdiction

2. **E9-1-1 Voice over Internet Protocol (EI)**
   a. **Static Voice over Internet Protocol using Static ALI Functionality (SVoIP)**
      The PSAP is capable of receiving and processing static VoIP calls with associated call back number and caller location information
   b. **Nomadic Voice Over Internet Protocol using Dynamic ALI Functionality (NVoIP)**
      The PSAP is capable of receiving and processing VoIP calls utilizing dynamic ALI updates (callback number and caller location information)

3. **Computer-Aided Dispatch (CAD)**
   a. **Basic CAD (BC)**
      The PSAP provides its telecommunicators with software to assist in initiating calls for service, dispatching, and maintaining the status of responding resources in the field
   b. **CAD with Management Information System (MIS)**
      The PSAP has the ability to automatically accept, display and plot caller location data on an electronic map display (GIS) and access historical incident information
   c. **CAD with Interoperability (CAI)**
      The PSAP can transmit call information directly to responders, alternate PSAPs, and others. PSAP has the ability to provide data and interoperate electronically with other agencies and communications centers

4. **Geographic Information System (GIS/AVL)**
   The PSAP uses a fully integrated CAD/GIS management system with automatic vehicle location (AVL) integrated with a CAD system providing dispatch assignments.

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>E9-1-1 Wireless (EW)</td>
<td>Wireless Phase I using Static ALI Functionality (WP1)</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>Wireless Phase II using Dynamic ALI Functionality (WP2)</td>
<td>15</td>
</tr>
<tr>
<td>E9-1-1 Voice over Internet Protocol (EI)</td>
<td>Static Voice over Internet Protocol using Static ALI Functionality (SVoIP)</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>Nomadic Voice Over Internet Protocol using Dynamic ALI Functionality (NVoIP)</td>
<td>15</td>
</tr>
<tr>
<td>Computer-Aided Dispatch (CAD)</td>
<td>Basic CAD (BC)</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>CAD with Management Information System (MIS)</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>CAD with Interoperability (CAI)</td>
<td>5</td>
</tr>
<tr>
<td>Geographic Information System (GIS/AVL)</td>
<td></td>
<td>15</td>
</tr>
</tbody>
</table>

ERS₂ = Total, Maximum 100
CREDIT FOR EMERGENCY REPORTING (CER):  
Calculate the credit for emergency reporting (CER) as follows:

\[ \text{CER} = \left( \frac{ER}{100} \right) \times 3 \]

Where:

\[ ER = ERS_1 \text{ or } ERS_2 \]

\[ ERS_1 = \text{BSC} \]
\[ ERS_2 = (\text{ES}+\text{EW}+\text{EI}+\text{CAD}+\text{GIS}) \]

TELECOMMUNICATORS (TC):
Assign points for telecommunicators (TC) according to the following:

A. Telecommunicator Performance (TCP):
Handling of fire calls should be in accordance with the general criteria of NFPA 1221,
*Standard for the Installation, Maintenance, and Use of Emergency Services Communications Systems.*

1. Alarm Receipt (AR):
Receipt of alarms shall meet the requirements in accordance with the criteria of NFPA 1221..............................................................20 points

2. Alarm Processing (AP):
Processing of alarms shall meet the requirements in accordance with the criteria of NFPA 1221..............................................................20 points

B. Emergency Dispatch Protocols for Fire Service (EDP):
Telecommunicators have emergency dispatch protocols (EDP) containing questions and a decision-support process to facilitate correct call categorization and prioritization. Telecommunicators use those protocols to provide prearrival instructions to emergency responders and callers..............................................................20 points

C. Telecommunicator Training and Certification (TTC):
Telecommunicators meet the qualification requirements referenced in NFPA 1061,
*Standard for Professional Qualifications for Public Safety Telecommunicator,* and/or the Association of Public-Safety Communications Officials - International (APCO) *Project 33. Telecommunicators are certified in the knowledge, skills, and abilities corresponding to their job functions..............................................................20 points
D. Telecommunicator Continuing Education/Quality Assurance (TQA):
Telecommunicators participate in continuing education and/or in-service training and quality-assurance programs as appropriate for their positions..........................20 points

422 CREDIT FOR TELECOMMUNICATORS (CTC):
Calculate the credit for telecommunicators (CTC) as follows:

\[ CTC = \frac{TC}{100} \times 4 \]

Where

\[ TC = (AR + AP) + EDP + TTC + TQA \]

430 DISPATCH CIRCUITS (DC):
For information about the number and type of dispatch circuits needed to transmit alarms to fire department members, see NFPA 1221, Standard for the Installation, Maintenance, and Use of Emergency Services Communications Systems. If all responding firefighters are in the same building as the communication center and if the communications center personnel alert them, no dispatch circuit is needed. Do not give credit for facilities that are installed but not used or tested according to the general criteria of NFPA 1221.

431 REVIEW OF DISPATCH CIRCUITS (RDC):
Assign points for review of dispatch circuits (RDC) according to the following:
<table>
<thead>
<tr>
<th>A. Dispatch Circuit(s) Provided:</th>
<th>1</th>
<th>2</th>
<th>Max Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Circuit to fire station where personnel are on duty:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. The circuit consists of voice radio (trunked or nontrunked), microwave carrier channel, polling or self-interrogating digital radio, dedicated telephone circuit, wired circuit (including Internet Protocol [IP]) dedicated to public safety or governmental use.</td>
<td>40</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>b. The circuit indicates only the box number or street intersection. With this type of circuit, there must be a telephone circuit or other means of transmitting detailed information to the fire station.</td>
<td>20</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>2 Radio Receivers Carried by Members:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The circuit consists of a radio transmitter and receivers carried by members.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Voice receivers under the direct control of the authority having jurisdiction (AHJ).</td>
<td>40</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>b. Alphanumeric receivers with or without two-way paging capability under the direct control of the AHJ.</td>
<td>40</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>3 Circuit to Outside Coded Sounding Device:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The circuit activates a coded siren, air horn, or other outside sounding device that notifies members. With this type of circuit, there must also be a telephone circuit or other means of transmitting detailed information to the fire station.</td>
<td>20</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>4 Circuit to Outside Noncoded Sounding Device:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The circuit activates a noncoded siren, air horn, or other outside sounding device that notifies members. With this type of circuit, there must also be a telephone circuit or other means of transmitting detailed information to the fire station.</td>
<td>10</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>5 No Circuit Provided:</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

**Maximum Value 431A**

40
## Number of Needed Circuits

<table>
<thead>
<tr>
<th>B. Monitoring for Integrity of Circuit:</th>
<th>1</th>
<th>2</th>
<th>Max Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Maximum Value 431B</strong></td>
<td>Primary</td>
<td>Secondary</td>
<td>Value</td>
</tr>
<tr>
<td>C. Emergency Power Supply System:</td>
<td></td>
<td></td>
<td>30</td>
</tr>
<tr>
<td>When a dispatch circuit is dependent upon a power source at both transmitting and receiving facilities, credit the emergency power arrangement with the least points.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Credit for emergency power is dependent upon a testing program in accordance with the general criteria of NFPA 1221 and if applicable, remote annunciation based on NFPA 110, <em>Standard for Emergency and Stand-by Power Systems</em> and NFPA 111, <em>Standard on Stored Electrical Energy Emergency and Stand-by Power Systems</em>.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Apply only one of the following for each needed dispatch circuit.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 Automatically started generator:</td>
<td>20</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>When used in combination with an uninterruptible power supply (UPS) add:</td>
<td>10</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>2 Manually started generator:</td>
<td>20</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>When used in combination with an uninterruptible power supply (UPS) add:</td>
<td>10</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>3 Central battery system plus manually started generator:</td>
<td>30</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td>4 Central battery system only:</td>
<td>10</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>When strength and duration of the system meets the requirements in accordance with the general criteria of NFPA 1221, add:</td>
<td>20</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>5 No emergency power provided:</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Maximum credit for this subsection is 30 points.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Maximum Value 431C

<table>
<thead>
<tr>
<th>D. When no circuit is needed:</th>
<th>100</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum Total Credit</td>
<td>65</td>
</tr>
</tbody>
</table>

**Note**: If some companies and members receive notification by one method and others by another method, prorate the points by the number members alerted by each method.
432 CREDIT FOR DISPATCH CIRCUITS (CDC):
Calculate the credit for dispatch circuits (CDC) as follows:

\[ \text{CDC} = \frac{\text{RDC}}{100} \times 3 \]

Where

\[ \text{RDC} = (A + B + C + D) \]

440 CREDIT FOR EMERGENCY COMMUNICATIONS (CEC):
Calculate the credit for emergency communications (CEC) as follows:

\[ \text{CEC} = (\text{CER} + \text{CTC} + \text{CDC}) \]

FIRE DEPARTMENT

500 GENERAL:
This section gives procedures and formulas for evaluating fire departments, including:

- engine, ladder, and/or service companies
- equipment carried
- response to reported structure fires
- deployment analysis of companies
- available firefighters
- training

501 BASIC FIRE FLOW (BFF):
The Basic Fire Flow for a fire protection area is the fifth highest of Needed Fire Flows determined in Section 340. The maximum Basic Fire Flow is 3,500 gpm.

507 AUTOMATIC AID (AAi):
This section defines the credits available for automatic aid meeting the needs of the fire protection area under evaluation. Credit is available for engine companies and/or ladder/service companies from outside the fire protection area boundaries and within 5 road miles of the boundaries. The automatic-aid companies must respond under a legal contract or resolution or must demonstrate documented performance for a minimum of one year. The aiding fire departments must operate under a predetermined response plan for initial alarms.

AAi is a factor used in other calculations in this Schedule.
Assign points for AA\textsubscript{i} arrangements according to the following:

<table>
<thead>
<tr>
<th>Maximum Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.20</td>
</tr>
<tr>
<td>0.15</td>
</tr>
<tr>
<td>0.10</td>
</tr>
<tr>
<td>0.35</td>
</tr>
<tr>
<td>0.20</td>
</tr>
<tr>
<td>0.10</td>
</tr>
<tr>
<td>0.10</td>
</tr>
<tr>
<td>0.10</td>
</tr>
</tbody>
</table>

1. **Communication Facilities**
   Review the dispatch facilities of the automatic-aid fire department according to Section 431. Multiply the number of points developed by application of Section 431 by 0.002:

2. **Communication Facilities (continued)**
   The communications center receives and dispatches all alarms, or there is no delay between communications centers in receipt and dispatch of alarms:

3. **Dispatch Plan**
   The communications center uses computer-aided dispatch (CAD) to dispatch companies:

4. **Interdepartment Training**
   a. Quarterly 3-hour training exercises with automatic-aid companies:
      or
   b. Semiannual 3-hour training with automatic-aid companies:
      or
   c. Annual 3-hour training with automatic-aid companies:

5. **Radio Communications Interoperability**
   a. Common dispatch and tactical radio frequency capability:
      or
   b. Common dispatch or tactical radio frequency capability:

6. **Standard Operating Procedures**
   The fire departments have common standard operating procedures that outline the expectations and responsibilities for a first-alarm response:

\[
\text{AA}_i = \text{Total, maximum}
\]

Note: If the developed factor is less than 0.40, no credit applies.

510 **ENGINE COMPANIES (NE):**
The number of needed engine companies is the largest number determined by applying Section 510A, 510B, or 510C.
A. Engine Company Locations:
A fire protection area needs an engine company for each engine location credited under Section 560, Deployment Analysis.

As an alternative to determining the number of needed engine companies through the road-mile analysis used in Section 560, the authority having jurisdiction may provide the results of a systematic performance evaluation. This type of evaluation analyzes computer-aided dispatch (CAD) history to demonstrate that, with its current deployment of companies, each fire department meets the time constraints for initial arriving engine in accordance with the general criteria of in NFPA 1710, Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments.

B. Engine Companies by Basic Fire Flow (BFF):

<table>
<thead>
<tr>
<th>Basic Fire Flow, gpm</th>
<th>Number of Needed Engine Companies</th>
</tr>
</thead>
<tbody>
<tr>
<td>500 - 1,000</td>
<td>1</td>
</tr>
<tr>
<td>1,250 - 2,500</td>
<td>2</td>
</tr>
<tr>
<td>3,000 - 3,500</td>
<td>3</td>
</tr>
</tbody>
</table>

C. Number of Needed Engine Companies for Method of Operation:
The standard response on the initial alarm to fires in structures consists of a minimum of 2 engine companies. The responding fire departments must provide enough engine companies to ensure the response of at least 2 engine companies to all alarms for structure fires.

Exception: Minimum response for fire protection areas with a Basic Fire Flow of less than 1250 gpm is 1 engine company.

511 NUMBER OF EXISTING ENGINE COMPANIES (EE):

A. Engine Companies
Credit pumpers staffed on the initial alarm to all reported structure fires as existing engine companies. At least 1 apparatus must have a permanently mounted pump rated at 750 gpm or more at 150 psi. (See Section 201A1.)

Credit all other apparatus with a permanently mounted pump rated at 250 gpm or more at 150 psi in this section.

B. Engine-Ladder or Engine-Service Companies
Credit an apparatus that carries both pumper and ladder-service equipment that is staffed on the initial alarm to all reported structure fires as an existing engine company, if needed according to Section 510.
C. Automatic-Aid Engine Companies:

Basic Fire Flow
Credit engine companies from outside the fire protection area and within 5 road miles of the fire protection area boundaries if needed to meet the requirements of Basic Fire Flow.

Deployment Analysis
Credit an automatic-aid engine company that serves 50% or more of an engine response district not within 1½ road miles of other engine companies. An engine response district is a built-upon area with a creditable water supply (as defined in Section 201A3) within a response distance of 1½ road miles.

Section 507 shows the credits available for automatic-aid engine companies.

512 EQUIPMENT ON EXISTING ENGINE COMPANIES (EC_i):
For each company meeting the criteria of Section 511, evaluate the following:

A. Pump Capacity (PC_i):
Evaluate the actual pump capacity for each existing pumper at a rated pump pressure of 150 psi. Calculate the credit for pump capacity (PC_i) as follows:

\[ PC_i = \frac{\text{Pump Capacity, Up to 1000 gpm}}{1000 \, \text{gpm}} \]

B. Hose Carried (HC_i):
Calculate the credit for hose carried (HC_i) as follows:

\[ HC_i = \frac{\text{SC}_i + \text{AC}_i}{1200 \, \text{feet}} \]

Where:

\[ \text{SC}_i = \text{length of supply line hose, comprising up to 1,000 feet in accordance with the general criteria of NFPA 1901, Standard for Automotive Fire Apparatus} \]

\[ \text{AC}_i = \text{length of attack hose, comprising up to 200 feet of 2-inch, or 2\frac{1}{2}-inch hose} \]

C. Equipment (E_i):
Evaluate pumper equipment and hose carried for fighting structure fires by referring to NFPA 1901, Standard for Automotive Fire Apparatus, “Pumper Fire Apparatus.” Determine the points credited for each existing in-service pumper by referring to the current equipment lists in Table 512A, Pumper Equipment and Hose; Table 512B,
Pumper Service Test Program; and Table 512C, Hose Service Test Program. Please see tables located in Appendix A of this document.

Calculate the credit for equipment \((E_i)\) as follows:

\[
E_i = \text{Sum of applicable points from Table 512A, including points from Tables 512B, and 512C.}
\]

D. Value of Existing Engine Companies \((EC_i)\):

Calculate the credit for the value of each existing engine company \((EC_i)\) as follows:

\[
EC_i = (PC_i)(HC_i)(E_i)
\]

**Note:** When an automatic-aid company offsets the lack of a needed engine company, multiply the value of \(EC_i\) by the \(AA_i\) factor developed for each credited automatic-aid engine company. See Section 507 for development of the \(AA_i\) factor.

513 CREDIT FOR ENGINE COMPANIES (CEC):

Calculate the credit for engine companies (CEC) as follows:

\[
CEC = \frac{(EC)}{600(NE)} [I + 0.5(I')] \times 6
\]

Where:

\[
EC = \sum_{i=1}^{n} EC_i
\]

\(n = \text{the number of existing engine companies (EE)}\)

If \(NE < EE\), then \(NE = EE\)

\(I = \text{percent of built-upon area of the fire protection area with the initial response of at least 2 engine companies to reported fires in buildings}\)

\(I' = \text{percent of built-upon area of the fire protection area with the initial response of only 1 engine company to reported fires in buildings, except in fire protection areas where only 1 engine company is needed}\)

**Note:** In fire protection areas where only 1 engine company is needed by Basic Fire Flow, \(I = 100\%\), and \(I' = 0\).

520 NUMBER OF NEEDED RESERVE PUMPERS (NRP):

The number of needed reserve pumpers is 1 for each 8 needed engine companies or any fraction thereof.
521  **EQUIPMENT ON EXISTING RESERVE PUMPERS (RPC$_i$):**
Evaluate reserve pumpers for pump capacity (PC$_i$), hose carried (HC$_i$) and equipment (E$_i$) in the same manner as described in Section 512. The number of reserve pumpers evaluated in this section shall not exceed the number of needed reserve pumpers.

For each reserve pumper, calculate the credit for equipment on existing reserve pumpers (RCP$_i$) as follows:

$$RCP_i = (PC_i)(HC_i)(E_i)$$

Where:

PC$_i$ = pump capacity credit as developed in Section 512A ÷ 1,000 gpm
HC$_i$ = hose credit as developed in Section 512B
E$_i$ = equipment credit as developed in Section 512C

523  **CREDIT FOR RESERVE PUMPERS (CRP):**
Calculate the credit for reserve pumpers (CRP) as follows:

$$CRP = \frac{RCP}{600 \times (NRP)} \times 0.5$$

Where:

$$RCP = \sum_{j=1}^{n} RCP_j$$

n = the number of needed reserve engine companies (NRP)

530  **PUMP CAPACITY (PC):**
The total available pump capacity should be sufficient for the Basic Fire Flow in the fire protection area. Credit the pump capacity obtained by test at the rated pump pressure, not to exceed rated capacity. Limit the credit to a maximum of 75% of the rated capacity if partial test data is available and to a maximum of 50% of the rated capacity if no test data is available.

531  **REVIEW OF PUMP CAPACITY:**
   **A. Existing Pump Capacity (EP):**
   In this section, credit the pump capacity of in-service pumpers, pumper-ladder trucks, and pumper-service trucks credited in Section 513.

   **B. Reserve Pump Capacity (RP):**
   In this section, credit the pump capacity of reserve pumpers credited in Section 523.
C. Other Pump Capacity (OP):  
In this section, credit 50% of the capacity of permanently mounted pumps on other responding apparatus not credited in Section 513 or Section 523. The pumps must be capable of delivering at least 250 gpm at 150 psi.

D. Automatic-Aid Pumper Capacity (AAP):  
In this section, credit the capacity of pumpers credited as automatic aid in Section 513. Use the value of the AA, developed in Section 507 multiplied by the creditable pump capacity for each credited automatic-aid pumper.

532 CREDIT FOR PUMP CAPACITY (CPC):  
Calculate the credit for pump capacity (CPC) as follows:

\[
CPC = \frac{(EP + RP + OP + AAP) \text{Up to BFF}}{\text{BFF}} \times 3
\]

Where:

\[EP = \sum_{i=1}^{n} EP_i\]

**Note:** In this formula, \(n\) = number of in-service apparatus from Section 513.

\[RP = \sum_{i=1}^{n} RP_i\]

**Note:** In this formula, \(n\) = number of reserve apparatus from Section 523.

\[OP = \sum_{i=1}^{n} OP_i \times 0.5\]

\(n = \) number of other apparatus

\[AAP = \sum_{i=1}^{n} [(AAP_i)/(AA_i)]\]

**Note:** In this formula, \(n\) = number of automatic-aid pumpers. The value AA, is from Section 507.

540 LADDER/SERVICE COMPANIES (NL/NS):  
The standard response on the initial alarm to fires in structures consists of a minimum of 1 ladder or service company. The responding fire departments must provide enough ladder and/or service companies to ensure the response of at least 1 ladder or service company to all alarms for structure fires.
A fire protection area needs a ladder/service company for each ladder/service location credited under Section 560, Deployment Analysis.

Also, a fire protection area needs a ladder/service company in an existing fire station when that station serves 50% or more of a standard response district not within 2½ road miles of other ladder/service companies. A standard response district is a built-upon area with a creditable water supply (as defined in Section 201A3) within a response distance of 2½ road miles.

The additional needed ladder/service locations must be fire stations identified as needed in Section 510A.

As an alternative to determining the number of needed ladder/service companies through the road-mile analysis used in Section 560, the authority having jurisdiction may provide the results of a systematic performance evaluation. Such an evaluation analyzes computer-aided dispatch (CAD) history to demonstrate that, with its current deployment of companies, each fire department meets the time constraints for initial full-alarm assignment in accordance with the general criteria of NFPA 1710, Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments.

A. NUMBER OF NEEDED LADDER COMPANIES (NL):
Individual ladder/service response areas with at least 5 buildings of 3 stories or 32 feet or more in height (ground to eaves) or with at least 5 buildings that have a Needed Fire Flow greater than 3,500 gpm or with at least 5 buildings meeting any combination of those criteria must have a ladder company.

When no individual response area needs a ladder company, the fire protection area needs at least 1 ladder company if buildings in the fire protection area meet the criteria above.

B. NUMBER OF NEEDED SERVICE COMPANIES (NS):
Ladder/service response areas not needing a ladder company according to Section 540A must have a service company.

541 NUMBER OF EXISTING LADDER/SERVICE COMPANIES (EL/SC):

A. NUMBER OF EXISTING LADDER COMPANIES (EL):
For a company serving in the capacity of a ladder company, on the initial alarm to all reported structure fires, and equipped according to NFPA 1901, Standard for Automotive Fire Apparatus, give credit as an existing ladder company if a ladder company is needed according to Section 540A.

For an apparatus serving in the capacity of a ladder company, equipped according to NFPA 1901, and considered as an existing engine company in Section 511, give 50% credit as a ladder company (engine-ladder) in this section if a ladder company is needed according to Section 540A.
B. NUMBER OF EXISTING SERVICE COMPANIES (ES):
For a company serving in the capacity of a service company, on the initial alarm to all reported structure fires, and equipped according to NFPA 1901, *Standard for Automotive Fire Apparatus*, give credit as an existing service company if a service company is needed according to Section 540B.

For an apparatus serving in the capacity of a service company, equipped according to NFPA 1901, and considered as an existing engine company in Section 511, give 50% credit as a service company (engine-service) in this section if a service company is needed according to Section 540B.

C. AUTOMATIC AID LADDER/SERVICE (AAL):
Credit ladder/service companies from outside the fire protection area and within 2½ road miles of the fire protection area boundaries if they cover areas beyond the standard 2½-mile response distance of existing ladder/service company locations. The automatic-aid credit will reflect the percentage of the area covered. Determine the type of company credited according to Sections 540A and 540B.

542 EQUIPMENT ON EXISTING LADDER, ENGINE-LADDER, SERVICE, ENGINE-SERVICE COMPANIES

A. LADDER COMPANY EQUIPMENT (LCE):
Evaluate ladder company equipment carried for fighting structure fires by referring to NFPA 1901, *Standard for Automotive Fire Apparatus*, “Aerial Fire Apparatus.” Determine the points credited for each existing in-service ladder company by referring to the current equipment lists in Table 542A, Equipment for a Service Company; Table 542B, Additional Equipment for a Ladder Company; and Table 542C, Aerial Ladder/Elevating Platform Test Program. Please see tables located in Appendix B of this document.

B. ENGINE-LADDER COMPANY EQUIPMENT (ELCE):
For an existing engine-ladder truck considered in Sections 511 and 542A, equipped according to NFPA 1901, *Standard for Automotive Fire Apparatus*, serving in the capacity of an engine-ladder company, and considered as an existing engine company in Section 511, give 50% credit in this section if a ladder company is needed according to Section 540A.

Evaluate ladder company equipment carried for fighting structure fires by referring to NFPA 1901, *Standard for Automotive Fire Apparatus*, “Aerial Fire Apparatus.” Determine the points credited for each existing in-service ladder company by referring to the current equipment lists in Table 542A, Equipment for a Service Company; Table 542B, Additional Equipment for a Ladder Company; and Table 542C, Aerial Ladder/Elevating Platform Test Program. Please see tables located in Appendix B of this document.

C. SERVICE COMPANY EQUIPMENT (SCE):
Determine the points credited for each existing in-service service company by referring to the current equipment list in Table 542A, Equipment for a Service Company. Please see tables located in Appendix B of this document.
D. ENGINE-SERVICE COMPANY EQUIPMENT (ESCEi):  
For an existing engine-service truck considered in Sections 511 and 541B, equipped according to NFPA 1901, *Standard for Automotive Fire Apparatus*, serving in the capacity of an engine-service company, and considered as an existing engine company in Section 511, give 50% credit in this section if a service company is needed according to Section 540B.

Determine the points credited for each in-service engine-service company by referring to the current equipment list in Table 542A, Equipment for a Service Company. Please see tables located in Appendix B of this document.

548 AUTOMATIC AID:  
In this section, credit the value of an automatic-aid ladder, service, engine-ladder, or engine-service company. Use the value of the company as determined by Sections 542A through 542D multiplied by AAi factor developed in Section 507.

549 CREDIT FOR LADDER SERVICE (CLS): Calculate the credit for ladder service (CLS) as follows:

\[
CLS = \left( \frac{LCE + SCE + 0.5(ELCE) + 0.5(ESCE)}{772(NL) + 356(NS)} \right)(A) \times 4
\]

A = percentage of built-upon area of the fire protection area with initial response (first alarm) of a ladder, service, engine-ladder or engine-service company to reported fires in buildings.

Where:

\[
LEC = \sum_{i=1}^{n} LEC_i
\]

\[
ELCE = \sum_{i=1}^{n} ELCE_i
\]

\[
SCE = \sum_{i=1}^{n} SCE_i
\]

\[
ESCE = \sum_{i=1}^{n} ESCE_i
\]

n = number of apparatus
550 NUMBER OF NEEDED RESERVE LADDER SERVICE TRUCKS (NRLS):  
The number of needed reserve ladder (NRL) and needed reserve service (NRS) trucks is 1 for each 8 existing ladder and service companies (ELS) or any fraction thereof.

When a pumper-ladder truck has been credited in Sections 513 and 541A, consider it in this section as 1 existing ladder company.

When a pumper-service truck has been credited in Sections 513 and 541B, consider it in this section as 1 existing service company.

Calculate the number of needed reserve ladder service trucks (NRLS) as follows:

\[
\text{NRLS} = \frac{\text{EL} + \text{ES}}{8} \quad \text{(raise to the next highest integer)}
\]

Calculate the number of needed reserve ladder trucks (NRL) as follows:

\[
\text{NRL} = \frac{\text{EL}}{8} \quad \text{(raise to the next highest integer)}
\]

Calculate the number of needed reserve service trucks (NRS) as follows:

\[
\text{NRS} = \text{NRLS} - \text{NRL}
\]

551 EQUIPMENT ON RESERVE LADDER AND SERVICE TRUCKS (RLSC):  
Evaluate the equipment carried on reserve ladder and service trucks in the same manner as described in Section 542.

The number of reserve ladder and service trucks credited in this section shall not exceed the number of needed reserve ladder and service trucks. A reserve pumper-ladder or reserve pumper-service truck may be credited in this section as a reserve ladder or service truck or in Section 523 as a reserve pumper, but not both.

553 CREDIT FOR RESERVE LADDER AND SERVICE TRUCKS (CRLS):  
Calculate the credit for reserve ladder and service trucks (CRLS) as follows:

\[
\text{CRLS} = \frac{\text{RLSC}}{\text{NRL}(772) + \text{NRS}(356)} \times 0.5
\]

Where:

\[
\text{RLSC} = \sum_{i=1}^{n} \text{RLSC}_i
\]

\[n = \text{the number of creditable reserve ladder and service trucks from Section 550}\]
560 DEPLOYMENT ANALYSIS (DA):
The built-upon area of the fire protection area should have a first-due engine company within 1½ road miles and a ladder-service company within 2½ road miles.

As an alternative to determining the number of needed engine and ladder/service companies through the road-mile analysis, a fire protection area may use the results of a systematic performance evaluation. This type of evaluation analyzes computer-aided dispatch (CAD) history to demonstrate that, with its current deployment of companies, the fire department meets the time constraints for initial arriving engine and initial full-alarm assignment in accordance with the general criteria of in NFPA 1710, Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments.

561 CREDIT FOR DEPLOYMENT ANALYSIS (CDA):
Calculate the credit for deployment analysis (CDA) as follows:

\[
CDA = \left[ \frac{EC}{600(EE)} \times 0.6(AE) + \left( \frac{LCE + SCE + 0.5(ELCE) + 0.5(ESCE)}{772(EL) + 356(ES)} \times 0.4(AL) \right) \right] \times 10
\]

Where:

AE = the percent of built-upon area within 1½ road miles of a first-due engine, engine-ladder, or engine-service company

AL = the percent of the built-upon area within 2½ road miles of a first-due ladder, service, engine-ladder, or engine-service company

570 EXISTING COMPANY PERSONNEL (ECP):
“Existing company personnel” means the average number of active firefighters and company officers available for existing companies. The number includes firefighters assigned to an initial rapid intervention crew (IRIC). Do not include the incident commander in existing company personnel.

Each person credited must, while on the fireground, have available a protective clothing ensemble in accordance with the general criteria of NFPA 1001, Standard for Fire Fighter Professional Qualifications.

Limit the credit for company personnel to the firefighters meeting the general criteria in Section 580. Evaluate company personnel as follows:
FIRE SUPPRESSION RATING SCHEDULE

A. On-Duty Firefighters at Fire Stations (ODF):
To evaluate the total number of firefighters on duty with companies at the fire station, take an average over an entire year, considering vacations, holidays, sick leave, and other absences.

If a fire department has a funded hire-back program or equivalent program that will maintain minimum staffing levels, consider all staff as part of the annual average.

Include chiefs’ aides in company strength if they participate in firefighting operations. Also include chief officers and fire department administrative personnel if they respond on the initial alarm to all reported structure fires and perform company duties.

In this section, include in company strength firefighters on apparatus not credited under Sections 513 and 549 if they regularly respond on the initial alarm to all reported structure fires to aid engine, ladder, and service companies.

Credit fire department personnel staffing ambulances or fire department apparatus responding on medical calls if those personnel participate in fighting structure fires. Prorate the credit to reflect the extent to which such personnel are available, respond on the initial alarm to all reported structure fires and perform company duties.

Each person credited in the section must, while on the fireground, have available a protective clothing ensemble in accordance with the general criteria of NFPA 1001, Standard for Fire Fighter Professional Qualifications.

B. Public Safety Officers (PSO):
Credit public safety officers employed to perform law enforcement or other municipal duties as well as firefighter duties on the basis of the average number of firefighters responding to structure fires on the initial alarm to all reported structure fires.

Each person credited must have a two-way portable radio on the fire frequency. Each person credited must receive notification of initial alarms for structure fires and must respond when the company to which he or she is assigned responds. While on duty, each person credited must remain within the company first-due assignment district, except that public safety officers may receive credit when the police patrol district and the first-due fire company response district overlap. Each person credited must have a vehicle equipped with emergency lights and a siren. Each person credited must, while on the fireground, have available a protective clothing ensemble in accordance with the general criteria of NFPA 1001, Standard for Fire Fighter Professional Qualifications.

Each position credited must have a written schedule including days of the month and times of day when the persons are available. The municipality must maintain records of the response of the persons to each initial report of a structure fire. Do not give credit for persons who experience unusual delays. To recognize that public safety officers may be unavailable because of assigned law enforcement and/or other responsibilities, credit each such officer as one-half of an on-duty firefighter.
C. **On-Call and Off-Duty Firefighters (OCF):**
Credit on-call, and off-duty firefighters based on the average number of firefighters who staff apparatus and respond on the initial alarm to all reported structure fires. In this section, include chief officers and fire department administrative personnel responding on the initial alarm to all reported structure fires and performing company duties. Credit off-duty firefighters responding on the initial alarm to all reported structure fires on the same basis as on-call firefighters. To account for the time needed for notification, travel, and assembly on the fireground, credit each on-call and off-duty firefighter as one-third of an on-duty firefighter.

Volunteer firefighters who are on duty at fire stations according to a predetermined assignment are credited as on-duty firefighters (ODF) for the time they are on duty; otherwise, volunteer firefighters are considered on-call.

D. **Automatic-Aid Response:**
In determining the credit for 570A, B, and C, consider the average number of firefighters responding with companies credited as automatic aid under Sections 513 and 549. To ODF, PSO, and OCF, add the average number of such firefighters responding multiplied by the AA factor developed in Section 507.

In determining the credit for 570A, B, and C, consider firefighters responding with companies located within 5 road miles of the fire protection area boundary and qualifying within Section 507 but not needed according to Section 513 and/or Section 549. Credit such firefighters only if they respond on the initial alarm to all reported structure fires to augment responding firefighters from the department under evaluation. To ODF, PSO, and OCF, add the average number of firefighters responding multiplied by the AA factor developed in Section 507.

E. **Special Apparatus:**
In determining the credit for 570A, B, C, and D, consider firefighters responding on the initial alarm to all reported structure fires on special fire department apparatus. Firefighters may be members of units such as rescue squads, personnel squads, or air units.

F. **Service, Engine-Service, and Engine-Ladder Trucks:**
If a service truck receives credit in Section 549, consider it as 1 existing service company in Section 571.

If an engine-service truck receives credit in Sections 513 and 549, consider it as 1 existing engine company and as 1 existing service company in Section 571.

If an engine-ladder truck receives credit in Sections 513 and 549, consider it as 1 existing engine company and as one existing ladder company in Section 571.

G. **Additional Personnel (AP):**
If the number of responding companies exceeds the number of needed companies for a response to structure fires as part of a standard initial response to all locations in the fire protection area, credit the personnel arriving with such companies in 570A, B, or C.
H. Personnel:
The maximum credit for any response by on-duty, firefighters, public safety officers, on-call and off-duty firefighters, and automatic-aid firefighters is 12, including company officers, for each existing engine and existing ladder company and 6 for each existing service company.

I. Alternative Water Supply Apparatus:
In Section 570, do not credit firefighters responding on apparatus with the primary responsibility of establishing and maintaining the water supply.

571 CREDIT FOR COMPANY PERSONNEL (CCP):
Calculate the credit for company personnel (CCP) as follows:

\[
CCP = \frac{ODF + \left(PSO/2\right) + \left(OCF/3\right)}{EE + EL + 0.5(ES) - AP} \times 2.5
\]

Note 1: If necessary, adjust the number of existing companies to conform with Section 570G.

Note 2: If satisfactory records are not available, divide the credit for OCF by 6 instead of by 3.

580 TRAINING (T):
Fire departments must keep training records in accordance with the general criteria of NFPA 1401, *Recommended Practice for Fire Service Training Reports and Records*.

Construction of a fire service training center must be in accordance with the general criteria of NFPA 1402, *Guide to Building Fire Service Training Centers*.

All personnel engaged in fire suppression activities must receive training in subjects related to fighting structure fires. Evaluate training as follows:

A. Training Facilities and Use (T₁):
Training conducted at a live fire training facility.

Up to........................................................................................................................................35 points

1. Facilities (FA):

<table>
<thead>
<tr>
<th>Facilities</th>
<th>Maximum Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Live fire training structure including smoke room</td>
<td>17</td>
</tr>
<tr>
<td>Drill tower at least 3 stories in height</td>
<td>10</td>
</tr>
<tr>
<td>Training area at least 2.0 acres in size</td>
<td>8</td>
</tr>
</tbody>
</table>

Maximum (FA) = 35

2. Use of Facilities (U):

For full credit under this item, each member of the department should attend 18 hours of training at the facilities credited in Section 580A1.
Multiply the points credit for facilities (FA) by the factor (U) for use of the facilities by all company members:

Maximum 18 hours per member;
(U) = number of hours per member ÷ 18
Maximum for factor (U) = 1.00

Training at the facilities credited in this section must be in accordance with the general criteria of NFPA 1403, *Standard on Live Fire Training Evolutions* and NFPA 1410, *Standard on Training for Initial Emergency Scene Operations*.

\[ T_1 = (FA)(U) \]

**B. Company Training Program (T_2):**

Company training at fire stations including training using streets, buildings, and open areas, 16 hours per company member per month.

Up to………………………………………………………………………………25 points

Firefighter training should be in accordance with the general criteria of NFPA 1001, *Standard for Fire Fighter Professional Qualifications*.

Calculate the points for company training (T_2) as follows

\[ T_2 = \frac{\sum \text{(Company Training Hours)}}{16 \times \text{(Number of Members)}} \times 25 \]

Limit credit for company training hours to 16 hours per member per month.

**C. Officer Training and Certification Program (T_3):**

1. **Officer Certification (OC):**
   
   Certification of each current officer with responsibilities in fire suppression in accordance with the general criteria of NFPA 1021, *Standard for Fire Officer Professional Qualifications*.

   Up to:………………………………………………………………………………6 points

2. **Officer Continuing Education (OE):**
   
   Continuing education for officer training on- or off-site, 12 hours per year for all officers.

   Up to:………………………………………………………………………………6 points

   Officer training should be in accordance with the general criteria of NFPA 1021, *Standard for Fire Officer Professional Qualifications*; NFPA 1521, *Standard for Fire Department Safety Officer*; NFPA 1561, *Standard on Emergency Services Incident Management System*.

   Calculate the points for officer training and certification (T_3) as follows:

   \[ T_3 = T_{3OC} + T_{3OE} \]
Where:

\[ T_{30C} = \left( \frac{\text{Number of Certified Officers}}{\text{Number of Officers}} \right) \times 6 \]

\[ T_{30E} = \frac{\sum (\text{Officer Continuing Education Hours})}{12 \times (\text{Number of Officers})} \times 6 \]

Limit credit for officer continuing education to 12 hours per officer per year.

D. **New Driver/Operator Training Program (T₄):**

60 hours (or certification) in accordance with the general criteria of NFPA 1002, *Standard for Fire Apparatus Driver/Operator Professional Qualifications*.

Up to………………………………………………………………………………………5 points


Calculate the points for The New Driver/Operator Training Program (T₄) as follows:

\[ T_4 = \frac{\sum (\text{New Driver Operator Training Hours})}{60 \times (\text{Number of New Driver Operators})} \times 5 \]

Limit credit for new driver/operator training hours to 60 hours per new driver/operator.

E. **Existing Driver/Operator Training Program (T₅):**

12 hours per year.

Up to………………………………………………………………………………………5 points


Calculate the points for the Existing Driver/Operator Training Program (T₅) as follows:

\[ T_5 = \frac{\sum (\text{Existing Driver Operator Training Hours})}{12 \times (\text{Number of Existing Driver Operators})} \times 5 \]

Limit credit for existing driver/operator training hours to 12 hours per existing driver/operator per year.

F. **Hazardous Materials Training Program (T₆):**

6 hours per member per year…………………………………………………………………1 point

Hazardous materials training should be at a minimum awareness level in accordance with the general criteria of NFPA 472, *Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents*. 
Calculate the points for the Hazardous Materials Training Program (T₆) as follows:

\[ T₆ = \frac{\sum (\text{Hazardous Materials Training Hours})}{6 \text{ Hours} \times (\text{Number of Members})} \times 1 \]

Limit credit for hazardous materials training hours to 6 hours per member per year.

G. Recruit Training Program (T₇):
240 hours per recruit within the first year of employment or tenure (or certification) in accordance with the general criteria of NFPA 1001, *Standard for Fire Fighter Professional Qualifications*.

Up to……………………………………………………………………………………………………5 points

Firefighter training should be in accordance with the general criteria of NFPA 1001, *Standard for Fire Fighter Professional Qualifications*. Give credit for class hours spent towards the completion of Firefighter I and Firefighter II training (in accordance with the general criteria of NFPA 1001). Firefighters who obtain the Firefighter I and Firefighter II designation (in accordance with the general criteria of NFPA 1001) before employment or within the first year of employment or tenure meet the intent of Section 580G.

Calculate the points for the Recruit Training Program (T₇) as follows:

\[ T₇ = \frac{\sum (\text{Recruit Training Hours})}{240 \text{ Hours} \times (\text{Number of Recruits})} \times 5 \]

Limit credit for recruit training hours to 240 hours per recruit.

H. Building Familiarization for Pre-Incident Planning Program (T₈):
Annual pre-incident planning.

Up to……………………………………………………………………………………………………12 points

The fire department should make building familiarization and pre-incident planning tours of each commercial, industrial, institutional, and other similar building at least annually. Records of the inspections (whether in electronic or other formats) should include complete and up-to-date notes and sketches, which must be available to the responding incident commander.

Building familiarization and pre-incident planning should be in accordance with the general criteria of NFPA 1620, *Standard for Pre-Incident Planning*.

<table>
<thead>
<tr>
<th>Frequency of Inspections</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 year</td>
<td>1.00</td>
</tr>
<tr>
<td>2 years</td>
<td>0.83</td>
</tr>
<tr>
<td>3 years</td>
<td>0.67</td>
</tr>
<tr>
<td>4 years</td>
<td>0.58</td>
</tr>
<tr>
<td>5 years</td>
<td>0.42</td>
</tr>
<tr>
<td>More than 5 years</td>
<td>0.00</td>
</tr>
</tbody>
</table>
Calculate the points for building familiarization for pre-incident planning ($T_8$) as follows:

$$T_8 = \text{Frequency} \times \left( \frac{\text{Number of Pre-Planned Buildings}}{\text{Number of Buildings}} \right) \times 12$$

I. TRAINING RECORDS:
Reduce the sum of points credited in Sections 580A through H as specified in Section 105.

581 CREDIT FOR TRAINING (CT):
Calculate the credit for training (CT) as follows:

$$CT \approx \frac{\sum(T)}{100} \times 9$$

590 CREDIT FOR FIRE DEPARTMENT (CFD):
Calculate the credit for fire department (CFD) as follows:

$$CFD = CEC + CRP + CPC + CLS + CRLS + CDA + CCP + CT$$
### TABLE 512A PUMPER EQUIPMENT AND HOSE

<table>
<thead>
<tr>
<th>Equipment and Hose</th>
<th>Points Needed</th>
<th>Credit/Unit</th>
<th>Total Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Booster tank 300 gal. or larger</td>
<td></td>
<td>1/10 gal.</td>
<td>30</td>
</tr>
<tr>
<td>Hose:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15’ soft-suction or 20’ hard-suction hose</td>
<td>1</td>
<td>12</td>
<td>12</td>
</tr>
<tr>
<td>1½”, 1¾”, or 2” hose carried</td>
<td>400’</td>
<td>3/50</td>
<td>24</td>
</tr>
<tr>
<td>Master stream appliance (1,000 gpm)</td>
<td>1</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Nozzles:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2½” playpipe with shutoff and 1”, 1¼”, and 1¼” tips</td>
<td>1</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>2½” combination spray with shutoff</td>
<td>1</td>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td>1½” or 1¾” combination spray with shutoff</td>
<td>2</td>
<td>10</td>
<td>20</td>
</tr>
<tr>
<td>SCBA (30-minute minimum)</td>
<td>4</td>
<td>24</td>
<td>96</td>
</tr>
<tr>
<td>Extra cylinders (carried)</td>
<td>4</td>
<td>6</td>
<td>24</td>
</tr>
<tr>
<td>Salvage covers (minimum size of 12’ x 14’)</td>
<td>2</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Electric handlights</td>
<td>2</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Hose clamp</td>
<td>1</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Hydrant hose gate (2½”)</td>
<td>1</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Gated wye (2½” x 1½” x 1½”)</td>
<td>1</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Radio:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mounted</td>
<td>1</td>
<td>32</td>
<td>32</td>
</tr>
<tr>
<td>Portable</td>
<td>1</td>
<td>16</td>
<td>16</td>
</tr>
<tr>
<td>Ladders:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12’ to 16’ roof</td>
<td>1</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>24’ extension or larger</td>
<td>1</td>
<td>16</td>
<td>16</td>
</tr>
<tr>
<td>Annual tests:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pumper (see Table 512B)</td>
<td>1</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Hose (see Table 512C)</td>
<td>1</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>500</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### TABLE 512B PUMPER SERVICE TEST PROGRAM

<table>
<thead>
<tr>
<th>Average Interval between 3 Most Recent Tests</th>
<th>Maximum Points Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 year</td>
<td>100</td>
</tr>
<tr>
<td>2 years</td>
<td>75</td>
</tr>
<tr>
<td>3 years</td>
<td>50</td>
</tr>
<tr>
<td>4 years</td>
<td>25</td>
</tr>
<tr>
<td>5 years or more</td>
<td>0</td>
</tr>
</tbody>
</table>

The Pumper Service Test Program shall be in accordance with the general criteria of NFPA Standard 1911, *Standard for the Inspection, Maintenance, Testing, and Retirement of In-Service Automotive Fire Apparatus.*
### TABLE 512C HOSE SERVICE TEST PROGRAM

<table>
<thead>
<tr>
<th>Average Interval between 3 Most Recent Tests</th>
<th>Maximum Points Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 year</td>
<td>50</td>
</tr>
<tr>
<td>2 years</td>
<td>37</td>
</tr>
<tr>
<td>3 years</td>
<td>25</td>
</tr>
<tr>
<td>4 years</td>
<td>12</td>
</tr>
<tr>
<td>5 years or more</td>
<td>0</td>
</tr>
</tbody>
</table>

The Hose Service Test Program shall be in accordance with the general criteria of NFPA 1962, *Standard for the Inspection, Care, and Use of Fire Hose, Couplings, and Nozzles and the Service Testing of Fire Hose*.

When the hose test frequency varies, proportion the credit based upon the percent of all hose tested for each frequency.

Note: If partial records of tests exist, reduce the credit for testing by 25% for Tables 512B and/or 512C; if no records of tests exist, reduce the credit by 100% for Tables 512B and/or 512C as applicable.
### TABLE 542A EQUIPMENT FOR A SERVICE COMPANY

<table>
<thead>
<tr>
<th>Equipment</th>
<th>Needed</th>
<th>Points</th>
<th>Total Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>SCBA (30-minute minimum)</td>
<td>4</td>
<td>24</td>
<td>96</td>
</tr>
<tr>
<td>Extra cylinders (carried)</td>
<td>4</td>
<td>6</td>
<td>24</td>
</tr>
<tr>
<td>Salvage covers (minimum size of 12’ x 14’)</td>
<td>6</td>
<td>2</td>
<td>12</td>
</tr>
<tr>
<td>Electric generator (3,000 watt)</td>
<td>1</td>
<td>25</td>
<td>25</td>
</tr>
<tr>
<td>Portable floodlight (500 watt)</td>
<td>3</td>
<td>4</td>
<td>12</td>
</tr>
<tr>
<td>Smoke ejector (5,000 cfm)</td>
<td>1</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>Portable thermal cutting unit</td>
<td>1</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>Saw – power (chain or heavy-duty rotary type)</td>
<td>1</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>Electric handlights</td>
<td>4</td>
<td>2</td>
<td>8</td>
</tr>
<tr>
<td>Pike pole (plaster hook):</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3’ or 4’</td>
<td>2</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>6’ or longer</td>
<td>4</td>
<td>2</td>
<td>8</td>
</tr>
<tr>
<td>Radio:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mounted</td>
<td>1</td>
<td>32</td>
<td>32</td>
</tr>
<tr>
<td>Portable</td>
<td>1</td>
<td>16</td>
<td>16</td>
</tr>
<tr>
<td>Ladder:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>24’ extension or longer</td>
<td>1</td>
<td>25</td>
<td>25</td>
</tr>
<tr>
<td>16’ roof or longer</td>
<td>1</td>
<td>25</td>
<td>25</td>
</tr>
<tr>
<td>10’ attic or longer</td>
<td>1</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>14’ combination or longer</td>
<td>1</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td>356</td>
</tr>
</tbody>
</table>

### TABLE 542B ADDITIONAL EQUIPMENT FOR A LADDER COMPANY

<table>
<thead>
<tr>
<th>Equipment</th>
<th>Needed</th>
<th>Points</th>
<th>Total Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ladder:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16’ or longer roof</td>
<td>1</td>
<td>25</td>
<td>25</td>
</tr>
<tr>
<td>35’ or longer extension</td>
<td>1</td>
<td>25</td>
<td>25</td>
</tr>
<tr>
<td>Elevated stream device*</td>
<td>1</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Large spray nozzle (1,000 gpm)</td>
<td>1</td>
<td>16</td>
<td>16</td>
</tr>
<tr>
<td>Aerial ladder/elevating platform*</td>
<td>1</td>
<td>200</td>
<td>200</td>
</tr>
<tr>
<td>Annual tests (aerial/platform, see Table 542C)</td>
<td>1</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td>416</td>
</tr>
</tbody>
</table>

*Of sufficient height to reach the roof of any building, or 100 feet, whichever is less. The credit shall be prorated if existing equipment has insufficient reach.
TABLE 542C AERIAL LADDER/ELEVATING PLATFORM TEST PROGRAM

<table>
<thead>
<tr>
<th>Average Interval between 3 Most Recent Tests</th>
<th>Maximum Points Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 year</td>
<td>50</td>
</tr>
<tr>
<td>2 years</td>
<td>37</td>
</tr>
<tr>
<td>3 years</td>
<td>25</td>
</tr>
<tr>
<td>4 years</td>
<td>12</td>
</tr>
<tr>
<td>5 years or more</td>
<td>0</td>
</tr>
</tbody>
</table>

Aerial Ladder/Elevating Platform Test Program shall be in accordance with the general criteria of NFPA 1911, Standard for the Inspection, Maintenance, Testing, and Retirement of In-Service Automotive Fire Apparatus.

Note: If partial records of testing exist, reduce the credit for testing in Section 542C by 25%; and if no records of testing exist, reduce the credit in Section 542C by 100%.
WATER SUPPLY

600 GENERAL: This section gives procedures and formulas for evaluating the water supply system and/or fire department supply available for fire suppression in the fire protection area.

601 PART OF FIRE PROTECTION AREA WITHOUT A RECOGNIZED WATER SYSTEM: If any portion of the fire protection area is not within 1,000 feet of a recognized water system, such area may receive a Class 8B (see Sections 1200–1202) or a Class 9 (see Sections 1300–1312). See Section 201A3 for the criteria for a recognized water system.

602 MAXIMUM DAILY CONSUMPTION RATE (MDC): The maximum daily consumption rate is the rate of consumption on the maximum day. The maximum day is the 24-hour period during which the highest consumption total is recorded in the latest three-year period. High consumption that will not occur again because of changes in the system or that was caused by unusual operations will not be considered.

When a system has 2 or more service levels in series, the total maximum daily consumption rate that must pass through the service level being reviewed will be considered.

603 MINIMUM PRESSURE: Evaluate the water system at a residual water pressure of 20 psi.

604 NEEDED FIRE FLOW (NFF) DURATION: The fire-flow duration for commercial properties is 2 hours for Needed Fire Flows (NFF) up to 2,500 gpm and 3 hours for Needed Fire Flows of 3,000 and 3,500 gpm.

The fire-flow duration for 1- and 2-family dwellings with an Effective Area in excess of 4,800 square feet is 2 hours for Needed Fire Flows (NFF) up to 2,500 gpm and 3 hours for Needed Fire Flows of 3,000 and 3,500 gpm.

The fire-flow duration for 1- and 2-family dwellings with an Effective Area of 4,800 square feet or less is 1 hour.

The fire-flow duration for any 1- or 2-family dwelling protected with an automatic fire sprinkler system installed in accordance with the general criteria of NFPA 13D, Installation of Sprinkler Systems for One- and Two-Family Dwellings and Manufactured Homes, is 1 hour, in accordance with the general criteria of NFPA 1, Fire Code.

The fire-flow duration for a residential occupancy (in accordance with the general criteria of NFPA 101, Life Safety Code) up to and including 4 stories in height protected with an automatic fire sprinkler system installed in accordance with the general criteria of NFPA 13R, Standard for the Installation of Sprinkler Systems in Residential Occupancies up to and including Four Stories in Height, is 2 hours, in accordance with the general criteria of NFPA 1, Fire Code.
FIRE SUPPRESSION RATING SCHEDULE

SERVICE LEVEL:
A service level is a water distribution system or part of a system separated by closed valves, check valves, pressure-regulating equipment, or other means of separation. Evaluate each system or service level separately.

When a system or service level is supplied from 2 or more sources or supply works, the credit shall be based upon the combined water supply.

REVIEW OF SUPPLY SYSTEM:
Sections 611 through 616 give procedures and formulas for evaluating the ability of the water supply system to deliver the Needed Fire Flow (NFF) at representative locations throughout the fire protection area. For each representative location, separately evaluate the supply works, main capacity, and hydrant distribution.

SUPPLY WORKS:
Use the normal sustained flow as the normal capacity of the source. If conditions or operations regularly reduce the supply for a period exceeding 1 month per year, prorate the available supply accordingly. Do not take the absolute minimum supply available from water sources under extreme dry-weather conditions as the measure of the normal ability of the source of supply.

A. Minimum Storage (MS):
Credit no more than the average daily minimum water storage maintained.

For storage floating on the distribution system, credit only the portion of average daily minimum storage that the system can deliver at the required residual pressure and for the fire duration at the point of use. Minimum storage (MS) is the sum of all storages (MS) available at the test location for the fire duration, expressed in gpm.

For ground or below-ground storage where the average daily minimum storage must be repumped, limit credit for the storage to the capacity of the pumping facility for the fire duration.

When a fire protection area experiences large seasonal fluctuations of population and therefore wide variations in consumption, evaluate the average daily minimum storage at the time when consumption is average for the maximum population.

B. Delivery Rate (DR):
The total delivery rate for each service level is the effective capacity of all involved components. Components may include water treatment facilities, pumps, pipes, and other flow-restricting devices.

Consider each component of a water treatment facility (FL), including filters, storage, and pumps, for the limiting factor. Consider filters as capable of operating at a reasonable overload capacity based on records and/or the authority having jurisdiction. When treated water is pumped to a service level, the storage, filter, or pump capacity may limit the total delivery rate.
Credit pumps \((PU\_i)\) at their effective capacities when delivering at normal pressures. Suction or discharge lines or the average minimum daily storage may limit pumps that supply a service level from storage. Water treatment components may limit the effective capacity.

When 2 or more pumps lift in series, the effective pump capacity is the capacity of the lift with the lowest total capacity. When the same pumps can operate in 2 or more lifts, evaluate them in each lift to determine the lift with the lowest total capacity.

Discharge lines, pressure-regulating devices, or other flow-control devices may limit the effective capacity of gravity supply from a water treatment facility to a service level or from one service level to a different service level. The total capacity available in the service level supplying water may limit the effective capacity of pumped supply from one service level to a different service level.

The total delivery rate \((DR)\) for a service level is the sum of all supplies as limited by water treatment, pumps, and other devices, including flow-restricting devices in gravity supply systems.

**C. Emergency Supply \((EM\_i)\):**
Evaluate the system’s ability to use emergency supplies through connections from other systems or from separate sources, storage, or equipment not normally used. Credit emergency supplies that come in automatically.

Also credit other emergency supplies adjusted for the time that would elapse before delivery is possible from the emergency supplies.

The total emergency supply capacity \((EM)\) is the sum of all emergency supplies available at the test location, expressed in gpm.

Calculate the emergency supply \((EM)\) as follows:

\[
EM = \sum_{i=1}^{n} EM\_i
\]

Where:
\(n\) = number of emergency supplies available at the test location

**D. Suction Supply \((SS\_i)\):**
Where bays, rivers, canals, streams, ponds, wells, cisterns, or other similar sources are available as suction supply for fire department pumpers, evaluate the suction supply with respect to its ability to satisfy the Needed Fire Flow \((NFF\_i)\) at test locations. Consider accessibility and availability during freezing weather, floods, droughts, or other adverse conditions. The total suction supply \((SS)\) credited is the sum of suction supplies \((SS\_i)\) at the test location for the fire duration or the capacity of the fire department pumping equipment, whichever is less, expressed in gpm.

Calculate the suction supply (SS) as follows:

$$SS = \sum_{i=1}^{n} SS_i$$

Where:

- \( n \) = number of suction supplies available at the test location


**E. Fire Department Supply (FDS):**

Credit supply delivered at a rate of 250 gpm or more by fire department apparatus either carrying and/or relaying water to the fire. The fire department must be able to achieve that application rate within 5 minutes of the initial arrival of the pumper apparatus at the fire site, and must continue for the fire-flow duration. If the fire department can increase the rate of flow within 15 minutes of arrival at the fire site and can continue the higher flow for the fire-flow duration, credit the higher rate.

Calculate the travel time of apparatus as follows:

$$T = 0.65 + 1.7D$$

Where:

- \( T \) = minutes
- \( D \) = miles

The formula assumes an average speed of 35 mph. Assume slower speeds in cases of adverse road conditions or apparatus laying hose lines.

The fire department supply (FDS) is the capacity of the supply for the fire duration, the capacity of the source pumping equipment, the capacity of the delivery equipment (mobile water supply apparatus and/or hose lines), or the capacity of the final delivery pumping equipment, whichever is least, at the test location, expressed in gpm.

See NFPA 1142, *Standard on Water Supplies for Suburban and Rural Firefighting*, for criteria for establishment of a fire department supply.

**612 SUPPLY WORKS CAPACITY (SWC):**

Calculate the supply works capacity in gpm, considering the fire-flow duration, for each representative test location.
For each supply at a test location, calculate the supply works capacity (SWC) as follows:

\[ SWC_i = \sum_{a=1}^{n} SWC_{ak} \]

Where:

- \( SWC_{ak} = [(MS + DR + EM) - MDC] + SS + FDS \)
- \( k \) represents the flow duration (Section 604)
- \( n \) is the number of supplies available at a test location
- \( a \) is the supply under consideration

613 MAIN CAPACITY (MC):
Evaluate the normal ability of the distribution system to deliver Needed Fire Flows (NFF) at the test locations considered in Section 612. The results of a standard flow test or the results of a properly balanced and tested hydraulic water system model at a representative test location will indicate the ability of mains to carry water to that location.

If the testing includes standard flow tests on 2 or more systems or service levels at the same location, give credit for the sum of the test results on each system or service level, up to the limit of supply, for the fire-flow duration at that location.

\( MC_i = \text{tested or hydraulically modeled gpm at 20-psi residual pressure.} \)


614 HYDRANT DISTRIBUTION (HD):
Evaluate the distribution of hydrants and water suction points within 1,000 feet (as apparatus can lay hose) of the Needed Fire Flow test locations considered in Sections 612 and 613. Evaluate each hydrant. Also evaluate each water suction point (with or without a dry hydrant) that meets the criteria in Section 611D.

Credit up to 1,500 gpm for each hydrant or water suction point within 1,000 feet of the Needed Fire Flow location.

If 2 or more systems or service levels distribute water at the same location, give credit based on the hydrant protection provided by all systems and service levels available.

A. Consider substandard hydrants if they have at least 1 fire department outlet, and can deliver at least 250 gpm.

B. Consider cisterns or other suction points if they can supply at least 250 gpm for at least 2 hours.
C. Limit the credit for a hydrant based on the number and size of outlets as follows:

**Maximum Credit**

<table>
<thead>
<tr>
<th>Maximum Credit</th>
<th>Credit Value (gpm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>At least one pumper outlet</td>
<td>1,500 gpm*</td>
</tr>
<tr>
<td>Two or more hose outlets, no pumper outlet</td>
<td>750 gpm*</td>
</tr>
<tr>
<td>One hose outlet only</td>
<td>500 gpm</td>
</tr>
</tbody>
</table>


HD_i is the creditable capacity, expressed in gpm, for each hydrant within 1,000 feet of the Needed Fire Flow test location.

\[
HD_i = \sum_{a=1}^{n} HD_a
\]

Where:
- \(n\) = the number of hydrants within 1,000 feet of the test location
- \(a\) = the hydrant under consideration

**615 CAPABILITY OF WATER SYSTEM AT NEEDED FIRE FLOW TEST LOCATION (TLC_i):**

The creditable rate of flow at each Needed Fire Flow test location is the lowest of Needed Fire Flow (NFF_i), supply works capacity (SWC_i), main capacity (MC_i), or hydrant distribution (HD_i).

**616 CREDIT FOR SUPPLY SYSTEM (CSS):**

\[
CSS = \frac{TLC}{NFF} \times 30
\]

Where:

\[
TLC = \sum_{i=1}^{n} TLC_i
\]

\[
NFF = \sum_{i=1}^{n} NFF_i
\]

n = number of test locations
HYDRANTS - SIZE, TYPE AND INSTALLATION (PH):
Fire hydrants should be designed and installed in accordance with AWWA Standard C502, *Dry-Barrel Fire Hydrants*, or AWWA Standard C503, *Wet-Barrel Fire Hydrants*. Dry hydrants should be designed and installed in accordance with the general criteria of NFPA 1142, *Standard on Water Supplies for Suburban and Rural Fire Fighting*.

Assign points for hydrants, dry hydrants, cisterns, and/or suction points according to the following. Prorate the points according to the number of hydrants of each type compared with the total number.

<table>
<thead>
<tr>
<th>Hydrants</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. With 6-inch or larger branch and a pumper outlet; with or without 2½-inch outlets; or with 6-inch or larger dry hydrant installed in accordance with the general criteria of the applicable Standards</td>
<td>100</td>
</tr>
<tr>
<td>B. With 6-inch or larger branch, no pumper outlet but 2 or more 2½-inch outlets, or with small barrel less than 5 inches</td>
<td>75</td>
</tr>
<tr>
<td>C. With only one 2½-inch outlet</td>
<td>25</td>
</tr>
<tr>
<td>D. With less than 6-inch branch</td>
<td>25</td>
</tr>
<tr>
<td>E. Flush type (flush or ground level)</td>
<td>25</td>
</tr>
<tr>
<td>F. Cistern or suction point</td>
<td>25</td>
</tr>
</tbody>
</table>

CREDIT FOR HYDRANTS (CH):
Calculate the credit for hydrants (CH) as follows:

\[
CH = \frac{PH}{100} \times 3
\]

INSPECTION AND FIRE FLOW TESTING OF HYDRANTS:

A. Inspection (HI):
Inspection of hydrants should be in accordance with AWWA manual M17, *Installation, Field Testing, and Maintenance of Fire Hydrants*. The frequency of inspection is the average time interval between the 3 most recent inspections.

Assign points for frequency of inspection (FI) according to the following:

<table>
<thead>
<tr>
<th>Frequency of Inspection (FI)</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 year</td>
<td>30</td>
</tr>
<tr>
<td>2 years</td>
<td>20</td>
</tr>
<tr>
<td>3 years</td>
<td>10</td>
</tr>
<tr>
<td>4 years</td>
<td>5</td>
</tr>
<tr>
<td>5 years or more</td>
<td>No credit</td>
</tr>
</tbody>
</table>

Adjust the points for frequency of inspection (FI) to reflect the following, if applicable:

1. Hydrant inspections include a flushing program: +10 points
2. Inspections include a pressure test: +10 points
3. Inspection of cisterns or suction points includes drafting with a pumper and back-flushing for dry hydrants: +20 points

After application of subsections 1–3, reduce the total points for frequency of inspection (FI) by 25% if partial records of inspections exist. If no records of inspections exist, no credit applies.

Calculate the credit for inspection (HI) as follows:

$$HI = \frac{FI}{50} \times 4$$

B. Fire-Flow Testing (FT):
Fire-flow testing of hydrants should be in accordance with the general criteria of AWWA manual M17, *Installation, Field Testing, and Maintenance of Fire Hydrants*, and NFPA 291, *Recommended Practice for Fire Flow Testing and Marking of Hydrants*. For full credit in this section, fire-flow tests should be conducted on all parts of the distribution system every 5 years.

Assign points for frequency of fire-flow testing (FF) according to the following:

<table>
<thead>
<tr>
<th>Frequency of Fire-Flow Testing (FF)</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 years</td>
<td>40</td>
</tr>
<tr>
<td>6 years</td>
<td>30</td>
</tr>
<tr>
<td>7 years</td>
<td>20</td>
</tr>
<tr>
<td>8 years</td>
<td>10</td>
</tr>
<tr>
<td>9 years</td>
<td>5</td>
</tr>
<tr>
<td>10 years or more</td>
<td>No credit</td>
</tr>
</tbody>
</table>

If there is a hydrant marking program in accordance with the general criteria of NFPA 291 or AWWA manual M17, increase the points for frequency of fire-flow testing (FF) by 25%.

Reduce the total points for frequency of fire-flow testing (FF) by 25% if partial records of tests exist. If no records of tests exist, no credit applies.

Calculate the credit for fire-flow testing (FT) as follows:

$$FT = \frac{FF}{50} \times 3$$

In lieu of a comprehensive fire-flow testing program, credit the results of a current, properly installed and calibrated hydraulic water distribution system computer model that can produce static pressure and flow predictions at 20-psi residual pressure. For more information, see AWWA manual M32, *Computer Modeling of Water Distribution Systems*. 
FIRE SUPPRESSION RATING SCHEDULE

631 CREDIT FOR INSPECTION AND FIRE-FLOW TESTING OF HYDRANTS (CIT):
Calculate the credit for inspection and fire-flow testing of hydrants (CIT) as follows:

\[ \text{CIT} = \text{HI} + \text{FT} \]

640 CREDIT FOR WATER SUPPLY (CWS):
Calculate the credit for water supply (CWS) as follows:

\[ \text{CWS} = \text{CSS} + \text{CH} + \text{CIT} \]

OPERATIONAL CONSIDERATIONS (OC)

700 GENERAL
This section gives procedures and formulas for evaluating fire department standard operating procedures (SOP) and incident management systems (IMS) for emergency operations involving structure fires.

710 CREDIT FOR STANDARD OPERATING PROCEDURES (SOP):
Evaluate established SOPs for fire department general emergency operations, including response of apparatus, operation of emergency vehicles, safety at emergency incidents, communications, apparatus inspection and maintenance, fire suppression, company operations, automatic-aid/mutual-aid operations, training, and personnel response. SOPs should be in accordance with NFPA 1500, Standard on Fire Department Occupational Safety and Health Program, and/or NFPA 1201, Standard for Providing Emergency Services to the Public. ………………………………………………….50 points

720 CREDIT FOR INCIDENT MANAGEMENT SYSTEM (IMS):
Evaluate an established incident management system (IMS) in accordance with the general criteria of the National Incident Management System (NIMS) and NFPA 1561, Standard on Emergency Services Incident Management System…………………50 points

730 CREDIT FOR OPERATIONAL CONSIDERATIONS (COC):
Calculate the credit for operational considerations (COC) as follows:

\[ \text{COC} = \frac{\text{SOP} + \text{IMS}}{100} \times 2 \]

800 RESERVED FOR FUTURE USE

900 RESERVED FOR FUTURE USE
COMMUNITY RISK REDUCTION

1000 GENERAL:
This section gives procedures and formulas for evaluating:

- adoption and enforcement of fire prevention codes
- public fire safety education
- fire investigation programs

1010 Reserved for future use

1020 FIRE PREVENTION CODE ADOPTION AND ENFORCEMENT (PCE)
Fire prevention code adoption and enforcement.
Up to..................................................................................................................40 points

1021 FIRE PREVENTION CODE REGULATIONS (PCR)
Evaluate the fire prevention code regulations in effect.
Up to..................................................................................................................10 points

Consider whether the jurisdiction adopts and enforces the latest edition of one of the following model codes:

- NFPA 1, *Fire Code*, promulgated by the National Fire Protection Association
- ICC International Fire Code, promulgated by the International Code Council

For full credit in this section, a jurisdiction must adopt and enforce the latest edition of one of the nationally recognized fire prevention codes.

If a jurisdiction adopts and enforces state or local amendments that modify or delete provisions for fire hazard mitigation within a nationally recognized fire prevention code, the points available in this section are subject to proration.

If a jurisdiction adopts and enforces a local code or regulations not developed by a nationally recognized code organization, the points available in this section are subject to proration.

1. If the published date of the adopted codes is within 5 years of the date of the grading, fire prevention code(s) addressing commercial and/or residential properties.................................................................10.0 points

2. If the published date of the adopted codes is within 6 years of the date of the grading, fire prevention code(s) addressing commercial and/or residential construction.................................................................8.6 points
3. If the published date of the adopted codes is within 10 years of the date of the grading, fire prevention code(s) addressing commercial and/or residential construction………………………………………………………………………………………………2.76 points

4. If an earlier edition of the adopted codes is enforced, fire prevention code(s) addressing commercial and/or residential construction……………………………………1.06 points

1022 FIRE PREVENTION STAFFING (PS):
Evaluate staffing for fire prevention activities.
Up to………………………………………………………………………………………8 points

A. Frequency of Fire Prevention Inspections:
The jurisdiction must provide adequate personnel to perform fire prevention inspections on all nonresidential structures at least once a year.

For the purposes of this section, pre-incident planning inspections — with no component for fire prevention code enforcement — are not fire prevention inspections.

B. Fire Prevention Inspectors:
The following types of personnel may conduct fire prevention inspections:

1. Certified fire inspectors — full-time and equivalent part-time fire inspectors certified in accordance with the general criteria of NFPA 1031, Standard for Professional Qualifications for Fire Inspector and Plans Examiner, or equivalent ICC certification

2. State or county fire prevention inspectors or fire marshals with authority for fire prevention code enforcement

3. Fire suppression personnel who perform in-service fire prevention inspections

Reduce the credit for fire prevention staffing (PS) by 25% if partial records exist. If no records exist, no credit applies.

Calculate the credit for fire prevention staffing (PS) as follows:

\[ PS = \frac{\text{Number of Non-Residential Structures Inspected Annually}}{\text{Number of Non-Residential Structures}} \times 8 \]

1023 FIRE PREVENTION CERTIFICATION AND TRAINING (PCT):
Evaluate the certification and training of fire prevention code enforcement personnel.
Up to……………………………………………………………………………………6 points

A. Fire Inspector Certification (PIC):
Up to……………………………………………………………………………………3 points

All personnel assigned to perform fire prevention inspections shall be certified as fire inspector in accordance with the general criteria of NFPA 1031, Standard for Professional Qualifications for Fire Inspector and Plan Examiner, or equivalent ICC certification.
Calculate the credit for fire prevention fire inspector certification (PIC) as follows:

\[ \text{PIC} = \frac{\text{Total Number of Existing Certified Inspectors}}{\text{Total Number of Fire Inspectors}} \times 3 \]

**B. Fire Inspector Continuing Education (PIE),**

Up to……………………………………………………………………………………………………..3 points

All fire prevention inspection personnel must receive at least 24 hours of additional fire prevention inspection continuing education every year.

Calculate the credit for fire inspector continuing education (PIE) as follows:

\[ \text{PIE} = \frac{\text{The Required Number of Hours of Continuing Education per Year per Inspector}}{24} \times 3 \]

**C. Credit for Fire Prevention Certification and Training (PCT)**

Calculate the credit for fire prevention certification and training (PCT) as follows:

\[ \text{PCT} = \text{PIC} + \text{PIE} \]

**1024 FIRE PREVENTION PROGRAMS (PCP):**

Evaluate the fire prevention programs.

Up to……………………………………………………………………………………………………..16 points

Fire prevention programs include:
- plan review
- certificate of occupancy inspections
- quality control
- code compliance
- inspection of private fire protection equipment
- fire prevention ordinances
- coordination of fire department training and pre-incident planning

**A. Plan Review (PPR):**

Up to……………………………………………………………………………………………………..6 points

All construction plans for new nonresidential construction, additions, remodeling, and the like shall be reviewed for compliance with adopted fire prevention codes.

**B. Inspections for Certificates of Occupancy (PCO):**

Up to……………………………………………………………………………………………………..4 points

The jurisdiction must perform inspections for certificates of occupancy (or certificates of compliance) as specified by the code in effect.
1. The jurisdiction must perform a fire prevention inspection of all new residential construction before issuing the certificate of occupancy ...........................................2 points

2. The jurisdiction must perform a fire prevention inspection of all new nonresidential construction before issuing the certificate of occupancy ...........................................2 points

C. Quality-Assurance Program for Enforcement and Inspection Programs (PQC):
   Up to ..............................................................................................................1 point

   The jurisdiction must have a quality-assurance program that applies to all fire prevention code inspectors as appropriate for their position.

D. Code Compliance Follow-Up (PCF):
   Up to ..............................................................................................................1 point

   The jurisdiction must perform follow-up inspections to verify correction of all violations.

E. Inspections of Private Fire Protection Equipment (PPP):
   Up to ..............................................................................................................1 point

   The jurisdiction must perform routine inspections of all private fire protection equipment. The frequency of such inspections depends on the type of equipment. The schedule must comply with the adopted codes and/or be in accordance with the general criteria of NFPA standards.

F. Fire Prevention Ordinances (PPO):
   Up to ..............................................................................................................2 points

   The jurisdiction must adopt ordinances governing fire lanes, fireworks, hazardous material routes, barbecue grills, and the wildland-urban interface (WUI) or weeds and trash.

G. Coordination with Fire Department Training and Pre-incident Planning (PTP):
   Up to ..............................................................................................................1 point

   Personnel administering fire prevention activities must follow a defined procedure to share information and coordinate with training and pre-incident planning programs.

H. Credit for Fire Prevention Programs (PCP):
   Calculate the credit for fire prevention programs (PCP) as follows:

   \[ \text{PCP} = \text{PPR} + \text{PCO} + \text{PQC} + \text{PCF} + \text{PPP} + \text{PPO} + \text{PTP} \]

1025 CREDIT FOR FIRE PREVENTION CODE AND ENFORCEMENT (CPCE):
   Calculate the credit for fire prevention code and enforcement (CPCE) as follows:

   \[ \text{CPCE} = \frac{\text{PCR} + \text{PS} + \text{PCT} + \text{PCF}}{40} \times 2.2 \]
1030 PUBLIC FIRE SAFETY EDUCATION (FSE):
Evaluate public fire safety education.
Up to ............................................................................................................. 40 points

1031 PUBLIC FIRE SAFETY EDUCATORS QUALIFICATIONS AND TRAINING (FSQT):
Up to ............................................................................................................. 10 points

All public fire safety education personnel must be trained in methods of teaching as specified by the authority having jurisdiction.

A. Fire Safety Education Course (FSEC):
Up to ............................................................................................................. 5 points

All public fire safety education personnel must be trained in methods of teaching as specified by the authority having jurisdiction, in accordance with the general criteria of NFPA 1035, Standard for Professional Qualifications for Fire and Life Safety Educator, Public Information Officer, and Juvenile Firesetter Intervention Specialist.

B. Fire Safety Education Continuing Education (FSCE):
Up to ............................................................................................................. 5 points

All public fire safety education personnel must participate in continuing education in public fire safety education techniques and processes. They must receive at least 10 hours of additional work-related training each year.

Calculate the credit for fire safety continuing education (FSCE) as follows:

$$FSCE = \frac{\text{The Required Number of Hours of Continuing Education per Year per Educator}}{10} \times 5$$

C. Credit for Public Fire Safety Educators’ Qualifications and Training (FSQT):
Calculate the credit for public fire safety educators’ qualifications and training (FSQT) as follows:

$$FSQT = FSEC + FSCE$$

1032 PUBLIC FIRE SAFETY EDUCATION PROGRAMS (FSP):
Evaluate programs for public fire safety education.
Up to ............................................................................................................. 30 points

A. Residential Fire Safety Program (FSPR):
Evaluate the residential fire safety program.
Up to ............................................................................................................. 10 points

Base the evaluation of the effectiveness of the residential fire safety program on the percentage of the entire community population reached annually.

For more information, see NFPA 1452, Guide for Training Fire Service Personnel to Conduct Dwelling Fire Safety Surveys.
B. Fire Safety Education in Schools (Private and Public, Early Childhood Education through Grade 12) (FSPS):
Evaluate fire safety education in the schools.
Up to…………………………………………………………………………..…………10 points

1. Each school must conduct 1 fire exit drill, in accordance with the general criteria of NFPA 101, Life Safety Code, or the ICC International Fire Code each month that the campus is in session.
Up to…………………………………………………………………………..…………5 points

2. Each school must present developmentally appropriate classroom instruction on fire safety to all students in early childhood education.
Up to…………………………………………………………………………..…………5 points

C. Juvenile Firesetter Intervention Program (FSPJ):
Evaluate the juvenile firesetter intervention program.
Up to…………………………………………………………………………..…………5 points

The program should refer all juveniles identified as involved in fire-play or firesetting behavior for educational intervention and/or other intervention services.

D. Fire Safety Education Program for Occupancies Having Large Loss Potential or Hazardous Conditions (FSPL):
Evaluate the fire safety education in occupancies that have large loss potential or hazardous conditions as identified by the authority having jurisdiction.

Prorate the credit based on the percentage of the occupancies reached each year.

1033 CREDIT FOR PUBLIC FIRE SAFETY EDUCATION PROGRAMS (CFSE):
Calculate the credit for public fire safety education programs (CFSE) as follows:

$$\text{CFSE} = \frac{(\text{FSP} + \text{FSQT})}{40} \times 2.2$$

Where:

FSP = FSPR + FSPS + FSPJ + FSPL

1040 FIRE INVESTIGATION (IF):
Evaluate the fire investigation programs.
Up to…………………………………………………………………………..…………20 points
1041  FIRE INVESTIGATION ORGANIZATION AND STAFFING (IOS):
Evaluate organization and staffing for fire investigations.
Up to ........................................................................................................8 points

A. Fire Investigation Organization (IO):
Up to ........................................................................................................4 points

There must be — within or outside the civil jurisdiction(s) under evaluation — an office
with responsibility to conduct investigations of the causes and origins of fires.

B. Fire Investigation Staffing (IS):
Up to ........................................................................................................4 points

The jurisdiction must have enough fire investigators to investigate all structure fires.

Fire investigators may be paid or volunteer. Consider additional fire investigators with
authority from the state fire marshal’s office or the county or other civil jurisdiction.

Calculate the credit for fire investigation staffing (IS) as follows:

\[
IS = \frac{\text{Structure Fire Receiving Cause and Origin Investigation}}{\text{Total Structural Fires}} \times 4
\]

C. Credit for Fire Investigation Organization and Staffing (IOS):
Calculate the credit for fire investigation organization and staffing (IOS) as follows:

\[
IOS = IO + IS
\]

1042  FIRE INVESTIGATOR CERTIFICATION AND TRAINING (IQT):
Evaluate fire investigator certification and training.
Up to ........................................................................................................6 points

A. Fire Investigator Certification (IQTC):
Up to ........................................................................................................3 points

All personnel assigned to perform investigation of the causes and origins of fires must
be certified, in accordance with the general criteria of NFPA 1033, *Standard for
Professional Qualifications for Fire Investigator*.

Calculate the credit for fire investigator certification (IQTC) as follows:

\[
IQTC = \frac{\text{Total Number of Existing Certified Fire Investigators}}{\text{Total Number of Existing Fire Investigators}} \times 3
\]

B. Fire Investigator Continuing Education Training (IQTE):
Up to ........................................................................................................3 points

All personnel assigned to perform investigation of the causes and origins of fires must
receive at least 40 hours of additional fire investigation training each year.
Calculate the credit for fire investigator certification (IQTC) as follows:

\[ IQTE = \frac{\text{The Required Number of Hours of Continuing Education per Year Per Investigator}}{40} \times 3 \]

C. Credit for Fire Investigator Certification and Training (IQT):

Calculate the credit for fire investigator certification and training (IQT) as follows:

\[ IQT = IQTC + IQTE \]

1043 USE OF THE NATIONAL FIRE INCIDENT REPORTING SYSTEM (IRS):

Give credit for satisfactory reporting using the National Fire Incident Reporting System (NFIRS) for the 3 years before the evaluation.

Up to……………………………………………………………………………………….6 points

1044 CREDIT FOR FIRE INVESTIGATION PROGRAMS (CIP):

Calculate the credit for fire investigation programs (CIP) as follows:

\[ CIP = \frac{(|OS + |QT + |RS)}{20} \times 1.1 \]

1050 CREDIT FOR COMMUNITY RISK REDUCTION (CCRR):

Calculate the credit for community risk reduction (CCRR) as follows:

\[ CCRR = CPCE + CPSE + CIP \]

TOTAL CREDIT AND CLASSIFICATION

1100 GENERAL:

This section develops the Public Protection Classification number by summarizing the credits developed in sections 400 through 730. The calculation also includes an adjustment to reflect any difference between the evaluations developed for the fire department and the water supply.

1101 PUBLIC PROTECTION CLASSIFICATION (PPC):

Calculate the Public Protection Classification (PPC) as follows:

\[ PPC = \frac{[100 - \{(CEC + CFD + CWS + COC + CCRR) - 0.5[(CWS) - 0.8(CFD + COC)]\}]}{10} \]

Note 1: Raise any decimal to the next higher whole number. For example, raise 5.2 to 6.

Note 2: The numerator shall not be less than 0.01.
CLASS 8B PROTECTION

1200 GENERAL:
To be eligible for a Public Protection Classification of 8B, a fire protection area must meet the requirements listed in Section 107. In addition, the fire protection area must have at least one piece of apparatus with a permanently mounted pump with a rated capacity of 750 gpm or more at 150 psi. The fire protection area must also have fire suppression features meeting the criteria listed in Section 1201.

1201 CLASS 8B PROTECTION CRITERIA:
A. Emergency Communications
To be eligible for a Class 8B, a fire protection area must have an emergency communications system that receives a minimum credit of 4 points in Section 440, Credit for Emergency Communications (CEC).

B. Fire Department
To be eligible for a Class 8B, a fire protection area must have a fire department that meets the following requirements:

1. The engine(s) must be at least 40% adequate according to Section 512, Equipment on Existing Engine Companies (EC$_i$), which evaluates pumping capacity, hose quantity, and major equipment.

2. The fire department must respond with a minimum of 6 firefighters on the initial alarm to all reported structure fires. Each credited firefighter must, while on the fireground, have available a protective clothing ensemble in accordance with the general criteria of NFPA 1001, Standard for Fire Fighter Professional Qualifications.

3. For each active firefighter, the fire department must conduct a minimum of 24 hours per year of training in fighting structure fires.

C. Water Supply
To be eligible for a Class 8B, a fire protection area must have a fire department capable of delivering an uninterrupted fire flow of 200 gpm for 20 minutes beginning within 5 minutes of the first arriving engine.

1. The fire department must be able to deliver the minimum fire flow with only the primary responding fire department and automatic-aid fire department(s).

2. The fire department must be able to deliver the minimum fire flow to the buildable areas of the fire protection area within 5 road miles of the responding fire station.

1202 CLASS 8B CLASSIFICATION:
Assign Class 8B when a fire protection area meets the criteria of Sections 1200 and 1201.
CLASS 9 PROTECTION

1300 GENERAL:
   To be eligible for a Public Protection Classification of 9, a fire protection area must meet the requirements listed in Section 107 and Section 201C. The fire protection area must also have fire protection features meeting the criteria listed in Section 1310 but must not be eligible for Class 8B (Sections 1200–1202).

1310 CLASS 9 PROTECTION CRITERIA:
   To be eligible for a Class 9, a fire protection area must also have a fire department that meets the following requirements:

A. Personal Protective Clothing:
   Each credited firefighter must, while on the fireground, have available a protective clothing ensemble in accordance with the general criteria of NFPA 1001, Standard for Fire Fighter Professional Qualifications.

B. Records Credit:
   Records should indicate date, time, and location of structure fires; the number of responding members; meetings; training sessions; and maintenance of apparatus and equipment. A roster of fire department members should be kept up to date for active members. 10 points

C. Equipment:
   Evaluate the fire service equipment in accordance with the general criteria of NFPA 1901, Standard for Automotive Fire Apparatus. Assign points for equipment carried according to the following:

   1. 400 feet of 1½", 1¾" or 2" hose .................................................................16 points
   2. Two handline nozzles, 95 gpm minimum .............................................16 points
   3. Two portable fire extinguishers suitable for use on Class A, B, and C fires. The minimum size should be 80 B:C rating dry chemical extinguisher, and a 2½-gallon water extinguisher ..............................................4 points
   4. One 24’ or longer extension ground ladder.............................................14 points
   5. One 12’ straight ladder with roof hooks..................................................8 points
   6. Four self-contained breathing appratus (SCBA) in accordance with the general criteria of NFPA 1981, Standard on Open Circuit Self-Contained Breathing Apparatus (SCBA) for Emergency Services .................................................16 points
   7. One spare SCBA cylinder for each SCBA carried (up to 4) .......................4 points
   8. One pick-head axe and 1 flat-head axe.....................................................2 points
   9. Two portable hand lights........................................................................4 points
10. One pike pole or plaster hook………………………………………………………2 points
11. One forcible-entry tool ……………………………………………………………..2 points
12. One two-way radio assigned to the apparatus ……………………………………16 points

The criteria, specifications, and tools listed above are important in establishing Class 9 protection. However, the specific size and nomenclature of each individual subsection may be subject to local conditions in the fire protection area evaluated. Credit equipment having other names or different dimensions than indicated according to the ability of such equipment to perform similar fireground tasks.

1312 CLASS 9 CLASSIFICATION:
Assign Class 9 if the fire protection area meets the criteria of Sections 107, 201C, 1310 A, and a total of 100 or more points in Section 1310 B & C. Otherwise, assign Class 10.
Chapter II

INDIVIDUAL PROPERTY FIRE SUPPRESSION

GENERAL

2000 GENERAL:
This chapter of the schedule develops a Public Protection Classification that applies to specifically rated properties that have a Needed Fire Flow (NFFi) greater than 3,500 gpm.

FIRE DEPARTMENT COMPANIES

2100 FIRE DEPARTMENT COMPANIES (FC):
For each building with Needed Fire Flow (NFFi) greater than 3,500 gpm, determine the number of needed engine companies (NE) and the number of needed ladder companies (NL) according to the following:

<table>
<thead>
<tr>
<th>Needed Fire Flow (NFFi) gpm</th>
<th>Number of Engine Companies Needed (NE)</th>
<th>Number of Ladder Companies Needed (NL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>4,000 - 4,500</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>5,000 - 5,500</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>6,000 - 6,500</td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td>7,000 - 7,500</td>
<td>7</td>
<td>3</td>
</tr>
<tr>
<td>8,000 - 8,500</td>
<td>8</td>
<td>3</td>
</tr>
<tr>
<td>9,000 - 9,500</td>
<td>9</td>
<td>4</td>
</tr>
<tr>
<td>10,000 - 10,500</td>
<td>10</td>
<td>4</td>
</tr>
<tr>
<td>11,000 - 11,500</td>
<td>11</td>
<td>4</td>
</tr>
<tr>
<td>12,000</td>
<td>12</td>
<td>5</td>
</tr>
</tbody>
</table>

2101 MINIMUM EQUIPMENT:
Each pumper credited shall be at least 40% adequate according to Section 512 Equipment on Existing Engine Companies (ECi) which takes into consideration pumping capacity, hose, and major equipment.

Each ladder truck credited shall be at least 40% adequate in equipment and ladders, according to Section 542A, Ladder Company Equipment (LCEi).

Each engine-ladder truck credited shall be at least 40% adequate according to Sections 512, Equipment on Existing Engine Companies (ECi), and 542B, Engine-Ladder Company Equipment (ELCEi).

2102 EVALUATION OF FIRE DEPARTMENT COMPANIES (FDC):
Evaluate engine and ladder companies.
A. For each creditable engine and ladder company in service in the fire protection area and responding on initial alarm or multiple alarms, assign 100 points. The maximum credit for an engine-ladder company is 150 points.

B. Credit is available for automatic-aid engine and ladder companies within 5 road miles of the fire protection area boundaries. The automatic-aid companies must respond to first or multiple alarms within the fire protection area and must operate under a predetermined response plan. Calculate the points for an automatic-aid engine or ladder company by multiplying the automatic-aid plan factor (AA_i) determined in Item 507 by 100. Calculate the points for an automatic-aid engine-ladder company by multiplying the automatic-aid plan factor (AA_i) determined in Section 507 by 150.

C. For each pumper and ladder truck in reserve in the fire protection area, if the truck is creditable under Section 2101 and if the truck has provision for staffing on multiple alarms, assign 50 points.

Note: A reserve pumper-ladder truck may be credited as a reserve pumper or as a reserve ladder truck, but not both.

D. Credit is available for outside-aid engine and ladder companies within 15 road miles of the fire protection area boundaries. The outside-aid companies must respond to the fire protection area when called. For each such company, assign 30 points. The maximum credit for an outside-aid engine-ladder company is 45 points.

\[ FDC = A + B + C + D \]

Note: The number of pumpers credited shall not exceed the number specified in Table 2100 for the Needed Fire Flow at the property considered. The number of ladder trucks credited shall not exceed the number specified in Table 2100 for the Needed Fire Flow at the property considered.

2103 CREDIT FOR FIRE DEPARTMENT COMPANIES (CFC)

\[ CFC = \frac{FDC}{NE + NL} \times 100 \]
WATER SUPPLY SYSTEM

2200 WATER SUPPLY SYSTEM (W):
This section gives procedures and formulas for evaluating the flow from the water supply system at or near a subject building that has a Needed Fire Flow (NFF_i) greater than 3,500 gpm. The fire flow duration for such buildings is 4 hours.

A. Supply works capacity (SWC_i) as developed in Section 612.
B. Main capacity (MC_i) as developed in Section 613.
C. Hydrant distribution (HD_i) as developed in Section 614.

The capability of the water supply system for each subject building in this section is the lowest of the NFF_i, SWC_i, MC_i, or HD_i.

2201 CREDIT FOR WATER SUPPLY SYSTEM (CW):

\[ CW = \frac{TLC_i}{NFF_i} \times 100 \]

\( TLC_i \) = capability of water system at test location, from Section 2200.

CREDIT AND CLASSIFICATION

2300 GENERAL:
The protection class of an individual property is the lower of two credits, the credit for fire department companies or the credit for water supply system.

2310 CREDIT FOR INDIVIDUAL PROPERTY (CIP):
If CFC \( \leq \) CW, then CIP = CFC
If CFC > CW, then CIP = CW

2311 PUBLIC PROTECTION CLASSIFICATION (PPC) FOR AN INDIVIDUAL PROPERTY:
Calculate the Public Protection Classification (PPC) for an individual building as follows:

\[ PPC^* = \frac{100 - CIP}{10} \]

If the PPC calculated in this section for an individual building is better than that calculated in Section 1101 for the fire protection area, use the PPC calculated in Section 1101.
If the PPC calculated in this section for an individual building is worse than that calculated in Section 1101 for the fire protection area, use the PPC calculated in this section. However, do not use a PPC worse than Class 9.

If the PPC calculated in Section 1101 for the fire protection area is Class 8B, use Class 9 for the individual building.

*Raise any decimal to the next higher whole number.
“EXHIBIT C”

CITY FIRE HYDRANT ZONES – ZONES 1 THROUGH 5
CITY FIRE HYDRANTS - ZONE 2

UTILITIES COMMISSION, CITY OF NEW SMYRNA BEACH

Legend
- HYDRANTS IN ZONE 2 (259)
- UCNSB SERVICE BOUNDARY
- WATER
- ZONE 2

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CITY FIRE HYDRANTS - ZONE 5

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