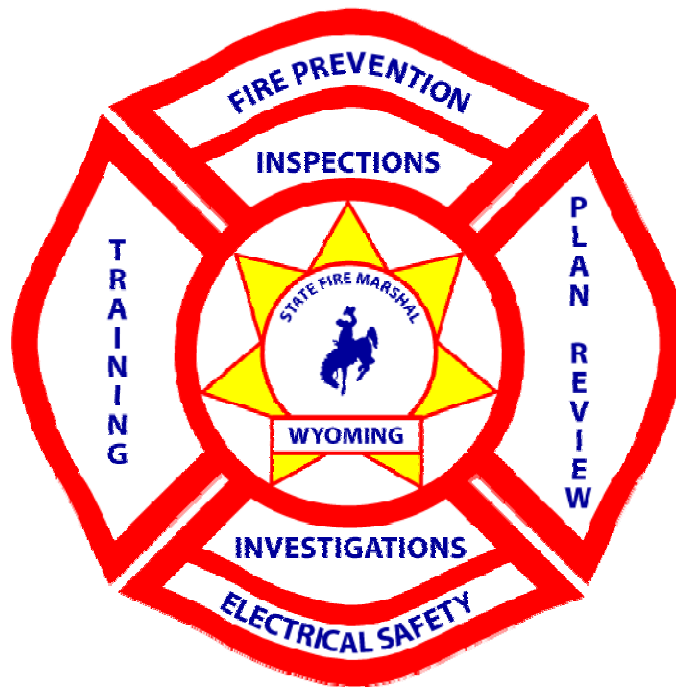


WYOMING FIREFIGHTERS CERTIFICATION SYSTEM



**WYOMING
APPARATUS DRIVER OPERATOR - AERIAL
STANDARD**

**NFPA 1002
2009 Edition**

**WYOMING DEPARTMENT OF FIRE PREVENTION
AND ELECTRICAL SAFETY**



www.EveryoneGoesHome.com

EVERYONE GOES HOME®
FIREFIGHTER LIFE SAFETY INITIATIVES

16 Firefighter Life Safety Initiatives

1. Define and advocate the need for a cultural change within the fire service relating to safety; incorporating leadership, management, supervision, accountability and personal responsibility. ***From top to bottom the culture of the fire service must change. You can change your behavior today. Lead by example and make a difference – be an agent of change.**
2. Enhance the personal and organizational accountability for health and safety throughout the fire service. *** Each fire service organization must promote safe practices; each individual must have the tools to be safe and adhere to safe practices at ALL TIMES.**
3. Focus greater attention on the integration of risk management with incident management at all levels, including strategic, tactical, and planning responsibilities. *** Learn the concept of “Risk Management,” ensure everyone understands the difference between acceptable risk and an unacceptable risk. Develop and implement a system to pre-identify unacceptable risk. GO and NO GO.**
4. All firefighters must be empowered to stop unsafe practices. *** Firefighters must be allowed to indentify and report unsafe practices. Be aware of safe practices and look for unsafe ones.**
5. Develop and implement national standards for training, qualifications, and certification (including regular recertification) that are equally applicable to all firefighters based on the duties they are expected to perform. *** Seek state and national certifications at all levels available to your department. Support refresher training, promote teaching new methods and improve skills which are used infrequently.**
6. Develop and implement national medical and physical fitness standards that are equally applicable to all firefighters, based on the duties they are expected to perform. ***Departments should establish and enforce SOP”s which support wellness. Adopt a “heart healthy” life style.**
7. Create a national research agenda and data collection system that relates to the initiatives. *** Encourage your department to participate in WFIRS. Support data gathering at your department.**
8. ***Utilize available technology wherever it can produce higher levels of health and safety.**
9. Thoroughly investigate all firefighter fatalities, injuries, and near misses. ***Implement investigation without delay.**
10. *** Grant programs should support the implementation of safe practices and/or mandate safe practices as an eligibility requirement.**
11. National standards for emergency response policies and procedures should be developed and championed. *** National standard for emergency response policy and procedures should be developed. At the local level – help adopt safe driving rules and enforce them – “arrive alive.”**
12. National protocols for response to violent incidents should be developed and championed. *** Fire and EMS workers deserve to have policies which will reduce their exposure to all threats of violence.**
13. Firefighters and their families must have access to counseling and psychological support. *** Firefighting is a high risk occupation, which can put firefighters and their families under extreme stress. They deserve access to mental health care.**
14. Public education must receive more resources and be championed as a critical fire and life safety program. *** Public education is a responsibility of all fire service personnel. It should not be reserved for one week in October. Make communicating the fire prevention message to the community a priority.**
15. Advocacy must be strengthened for the enforcement of fire code. *** Make sure all firefighters understand how sprinkler systems operate and the value they bring to reducing Line of Duty Death.**
16. Safety must be a primary consideration in the design of apparatus and equipment. *** Encourage your department to make safety the highest priority in equipment and apparatus purchases – as high as design and price.**



16 Firefighter Life Safety Initiatives

The 16 initiatives, listed on the preceding page, address the 6 root causes of firefighter injuries, close calls, and Line of Duty Death.

1. Ineffective policies and procedures.
2. Ineffective decision making.
3. Lack of preparedness.
4. Ineffective leadership.
5. Lack of personal responsibility.
6. Extraordinary and unpredictable circumstances.

For more information on the

Courage to be safe So everyone goes home program

Contact the Department of Fire Prevention

Training Division

At 307-777-7288

Or

View the Courage to be Safe Drills on our website at:

<http://wyofire.state.wy.us>

Wyoming Firefighters Certification Committee

The WFCC is an 11 member board, which consists of 8- members from the fire service; 1- member from the State Forestry Rural Training Officer, 1- member representing the State Fire Marshals Office, 1- member representing a college with an emergency services program. The committee members function as liaison between the fire service and the Wyoming State Fire Marshal. The committee also serves in an advisory capacity to consider needs and plans of the DFPES.

**Please visit the SFMO website at <http://wyofire.state.wy.us>
For a current list of the members of the
Wyoming Firefighters Certification Committee**

Wyoming State Fire Marshal Department of Fire Prevention and Electrical Safety

Please direct Wyoming Firefighter certification questions and comments to:
Certification Coordinator
DFPES-Training Division
Herschler Building 1 West
122 W. 25th Street
Cheyenne, Wyoming 82002

PH: (307) 777-7288 FAX: (307) 777-7119
Please visit our Web site at: <http://wyofire.state.wy.us>

TABLE OF CONTENTS

INTRODUCTION.....	1
CERTIFICATION REQUIREMENTS.....	2
Entrance Requirements	2
Physical Fitness Requirements	2
Additional Requirements	3
Department Training Officers.....	3
DEPARTMENT TRAINING.....	3
Written Objectives	4
Manipulative Objectives	4
Department Training Records.....	4
Department "In House" Manipulative Skills Examination.....	5
CERTIFICATION EXAMINATIONS.....	5
Written Examinations	5
Manipulative Skills "Spot Check" Examination.....	6
ADO-AERIAL APPARATUS CERTIFICATION.....	7
ADO/Aerial Certification Checklist	8
ADO-Aerial Apparatus Manipulative Skill Objectives	9
Preventive Maintenance.....	9
Driving Operations.....	11
Aerial Operations	16
APPENDIX A	19
Training Records.....	19
APPENDIX B	22
Weekly Vehicle Report.....	22
Weekly Emergency Vehicle Report.....	23
Repairs And Maintenance Log	24
Weekly Emergency Vehicle Report.....	25
Repairs And Maintenance Log	26
APPENDIX C	27
Alley Dock.....	28
Station Parking Procedure Drill	29
Serpentine	30
Diminishing Clearance.....	31
Confined Space Turnaround	32
APPENDIX – D.....	33
Tester’s Instructions for “In-House”	34
Comprehensive Examination	34
Examination Request / Certification Request Form	35
Friction Loss and Nozzle Flow Reference.....	37

INTRODUCTION

The world we live in is changing so fast, and the many phases of the fire service are becoming so technical and complex that fire service training must be utilized to its maximum potential. Any overlap, fragmentation, and lack of basic structure must be eliminated. Standardization is the natural complement and necessity.

The fire service in Wyoming, through a state certification program, can meet the needs of future growth and establish uniformity by certification. We will then have more effective and efficient utilization of resources so as to provide the best possible fire protection service for all the citizens throughout the state of Wyoming.

The following certification requirements are based on the objectives listed in the National Fire Protection Association (NFPA) 1002, *Standard for Fire Department Vehicle Driver/Operator*, as verified and adopted by the Wyoming Department of Fire Prevention and Electrical Safety (DFPES) and the Wyoming Firefighters Certification Committee (WFCC).

Through these national standards and certifications, firefighters and fire departments have a tool to measure specific levels of skills, abilities and knowledge. The DFPES believes by participating in the certification program firefighters and fire departments will be better prepared to provide quality life safety and fire protection for their communities.

CERTIFICATION REQUIREMENTS

In order to certify within the Wyoming Apparatus Driver Operator (ADO) – Aerial program, departments/firefighters must fulfill the following requirements:

1. Certified to the level of Firefighter I or meet the requirements of Advanced Exterior Industrial Fire Brigade Member or Interior Structural Fire Brigade Member as specified in [NFPA 1081](#). Note: Wyoming does not currently certify to NFPA 1081. Candidates meeting the NFPA 1081 requirement must provide proof of a certificate identifying completion of a course based on the NFPA 1081 standard, dated within the past five (5) years.
2. Complete fire department entrance requirements.
3. Set up and maintain department records.
4. Train on the required written and practical objectives.
5. Pass a department "In-House" practical skills examination.
6. Meet any other training requirements/prerequisites as defined by the DFPES.
7. Pass written and practical skills examination administered by the DFPES.
8. Request ADO-Aerial certification.
9. Complete ICS-100: Introduction to ICS.
10. Complete ICS-200: Basic ICS.
11. Complete IS-700: NIMS, An Introduction.

Entrance Requirements

The DFPES acknowledges the importance of and need for entrance requirements as listed in the NFPA 1001 *Standard on Firefighter Professional Qualifications*. Many agencies and departments have existing policies, regulations, etc. already in place regarding these requirements. The handling of entrance requirements is a **LOCAL MATTER**, outside the authority and jurisdiction of the DFPES. The DFPES will not check, test, evaluate or determine how individual agencies meet these requirements. Some departments have found it necessary to waive any type of entrance requirements due to their own special needs. Since this is a local decision, this is permitted. However, due to the amount of physical, mental and emotional stress inherent in this profession, the DFPES strongly recommends very careful evaluation before altering or doing away with any entrance requirements.

Physical Fitness Requirements

The requirements listed in NFPA 1001, Chapter 4 are:

1. Meet the minimum educational requirements established by the authority having jurisdiction.
2. Meet the medical requirements of NFPA 1582, *Standard on Comprehensive Occupational Medical Program for Fire Departments*.
3. Physical fitness requirements for entry-level personnel shall be developed and validated by the authority having jurisdiction. Physical fitness requirements shall be in compliance with applicable Equal Employment Opportunity regulations and other legal requirements.

Additional Requirements

In addition, NFPA 1002 *Standard for Fire Department Vehicle Driver/Operator Professional Qualifications*, lists the following general requirements:

1. The fire department vehicle drive/operators shall be licensed to drive all vehicles they are expected to operate in accordance with Wyoming Traffic Code: Title 31 – Motor Vehicles - 31-5-101 and 31-7-303.
2. The fire department vehicle driver/operator shall be subject to periodic medical evaluations, as required by NFPA 1500 *Standard on Fire Department Occupational Safety and Health Program*, Section 8.1, medical requirements, to determine that the driver/operator is medically fit to perform the duties of a fire department vehicle driver/operator (NFPA 1002, 1.3.2).

Department Training Officers

For departments to enroll in their certification process, it is necessary for the department to assign training officers. It is recommended departments assign **at least two** personnel as training officers to coordinate and provide certification training.

Department training officers shall be state certified at the level they are teaching. In addition, the DFPEs strongly recommends training officers be state certified at the Instructor I level.

Department training officers will be responsible for certification training. Their primary responsibility will be to teach, evaluate, and in-house test department personnel on the manipulative skill requirements for each level of certification training.

Departments who **do not** have certified personnel to act as training officers for certification training should contact the DFPEs – Certification Coordinator at (307) 777-7288 for assistance in setting up and monitoring certification training.

DEPARTMENT TRAINING

The position of an Apparatus/Driver for an Aerial device is one which requires a high level of skill and knowledge. The training given to and received by ADO candidates should be of the highest quality and degree. All training received must meet the requirements of NFPA 1002, Chapters 6, and the skills as approved by the DFPEs contained within the Wyoming standard. All training received must be documented and recorded on a training record (Appendix A).

Training for ADO-Aerial is conducted at the department level or could be received through a joint training agreement between departments on a regional level. Regardless of where the training is received, it must prepare the candidate to be a competent and effective Aerial Apparatus Operator.

The driver/operator shall remain current with apparatus technology, driving/operating practices, and applicable laws and standards by attending workshops and seminars, undergoing certification testing, and accessing professional publications.

Written Objectives

The course material should be referenced in the following textbooks to prepare the candidate to successfully pass the state certification examination. A comprehensive list of fire flow formulas is found in Appendix D of this standard.

Written objectives for ADO-Aerial Apparatus are covered in the following text:

1. NFPA 1002, Standard on Fire Apparatus Drive/Operator Professional Qualifications, 2009 Edition NFPA 1002
2. IFSTA, *Aerial Apparatus Driver/Operator Handbook, 2nd Edition*
3. IFSTA, *Pumping Apparatus Driver/Operator Handbook, 2nd Edition*

The textbook is available from various fire service bookstores. A current list of textbook sources is available by calling the DFPES at (307) 777-7288 or 307-857-6820. The Wyoming Fire Service Library catalog is available at <http://wyofire.state.wy.us>.

There are numerous methods departments have used to help prepare their personnel for the written examination. Considering the high level of skill and knowledge required of an Apparatus Driver Operator, the DFPES recommends candidates participate in a comprehensive class and receive instruction on both manipulative and written requirements.

Manipulative Objectives

Each candidate **must** be trained and evaluated in the performance of **all** manipulative skill objectives. Each of the manipulative skill objectives shall be completed swiftly, safely and with competence as defined below:

- **Swiftly** – Each manipulative skill objective must be completed within the allotted time.
- **Safely** – Each manipulative skill objective must be completed safely. Actions that could injure an individual or damage equipment are unacceptable. Equipment should be checked prior to skill testing or training to see that it is safe and functional.
- **Competence** – Each manipulative skill objective is performed in accordance with the Wyoming Standard. This includes performing the proper steps in sequence. Competence will be measured in accordance with the DFPES manipulative skill objectives.

Department Training Records

Each candidate shall have a training record on file with the department, which indicates whether he/she has trained on all manipulative skill objectives. This record shall be signed off or initialed by a department training officer. Training records must indicate the date, instructor, and total number of hours trained for each manipulative skill objective; departments shall use the form provided in Appendix A (In – House Training Record).

Department "In House" Manipulative Skills Examination

At the completion of the department's manipulative skills training, the department is required to hold an "in-house" skills examination for the level being trained. This is a comprehensive "In-House" skills test conducted by department training officers. This test is to ensure that skill mastery has been obtained from the beginning to the end of the training process, and to prepare participants for the state examination. Training officers may utilize other personnel to assist in administering the exam; however, all personnel assisting with the testing should be certified at the level they are in-house testing.

Proctor instructions for the examination are in Appendix C. In-house testers shall follow the Proctor Instruction sheet to provide for uniformity and fairness during the exam. It is recommended that candidates be given two attempts at any skill. **If they fail on the second try, then they have failed the evaluation and are required to go through additional training by the department trainer.** No training, teaching, or coaching is allowed during the test. After the evaluation, using the test to teach and train is recommended.

If manipulative skill weaknesses are evident, the department shall conduct additional training and hold a new department "in house" manipulative skills examination. Only those candidates who successfully pass the department's skills "in house" test will be allowed to participate in the state certification examination. Department training records must show all candidates have successfully passed the "in house" examination.

CERTIFICATION EXAMINATIONS

After completion of the training process, the Chief/Head of Department can request testing for the department. Using the "Request for Examination" form in Appendix D, the Chief/ Head of Department may request a written examination and manipulative test for certification. There may be a testing fee charged at the time of certification. The entire examination process must be completed within 2 years of the first exam date.

Written Examinations

The written examination is a randomly generated 50 – question test covering the written objectives of the ADO-Aerial Apparatus standard. This is a closed book test. Standard calculators will be allowed for use on the written examination. Coefficients may be used and are available as part of the written examination. A minimum score of 80% is required to pass the certification exam. Firefighters failing the first attempt of the written exam will be permitted to retest no sooner than 30 days from the date of the last exam. Exam results are forwarded to the Chief/ Head of Department within **72 hours** following the receipt of the completed exam.

SAMPLE WRITTEN EXAMINATION QUESTIONS:

Being aware of all that is happening at the sides and to the rear of the apparatus are techniques of:

- a. aggressive driving
- b. offensive driving
- c. **defensive driving**
- d. responsive driving

Large scale fire attack operations often require the use of:

- a. elevated master streams.
- b. large diameter hose.
- c. large fire streams.
- d. **all of the above.**

Manipulative Skills "Spot Check" Examination

This is a two-step examination. A department record check and the manipulative skills "spot check" examination. A DFPES certification tester conducts the examination.

Training records are checked. If records are inadequate, corrective action must be taken before proceeding to the next step. The records must meet minimum requirements and are checked for the following:

1. Candidate has been trained in each manipulative skill for the level being evaluated.
2. A department training officer has signed off each manipulative skill.
3. The total number of hours trained on each manipulative skill is listed.
4. Each trainee has passed a department "In-House" manipulative skills examination.

The manipulative skill "spot check" examination is graded on a 100% pass/fail basis. The test is graded in the following three areas:

- **Swiftly** – Each manipulative skill objective must be completed within the allotted time.
- **Safely** – Each manipulative skill objective must be completed safely. Actions that could injure individual or damage equipment are unacceptable. Equipment should be checked prior to skill testing or training to see that it is safe and functional.
- **Competence** – Each manipulative skill objective is performed in accordance with the Wyoming standard. This includes performing the proper steps in sequence. Competence will be measured in accordance with the DFPES manipulative skill objectives.

Firefighters are "spot checked" on **THREE** (3) manipulative skills. No prior notification of the skills being tested will be given. Firefighters are given two attempts if necessary to perform each skill. If they fail on the second try, then they have failed the examination. Firefighters must wait 30 days before the third and final attempt. Firefighters taking third attempts will test on the skill(s) they failed plus **ONE** additional skill from the section of the standard they failed in the previous two attempts. **No training, teaching, or coaching is allowed during this state test.**

During the manipulative examination a **SPOTTER** will be used. The purpose of having a spotter assist while backing an apparatus is to protect life and property. The spotter should alert the driver if property damage could occur or damage the apparatus. The spotter will be allowed to assist in directing the driver when to stop the apparatus during the test.

Candidates who have failed the third attempt of the manipulative skill examination they have failed the certification process and must wait **1 year** from the date of the failed third attempt to re-enter state testing.

ADO-AERIAL APPARATUS CERTIFICATION

When all requirements for certification have been met, applicants are eligible to be certified. The Chief/Head of Department may apply to the DFPES for certification for those candidates who have successfully completed the certification training/testing process. Request for state certification will be submitted to the DFPES using the "Request for Certification" form provided in Appendix D. The names are then checked against the official state records to ensure each individual listed has met all requirements and prerequisites.

Those candidates who have met the requirements are issued a certificate and patch. These are sent to the Fire Chief/Head of the Department for disbursement.

For more information on Apparatus Driver Operator-Aerial certification contact the: DFPES Certification Coordinator, Herschler Building 1 West, 122 W. 25th Street, Cheyenne, WY 82002, 307-777-7288.

ADO/AERIAL CERTIFICATION CHECKLIST

ENTRANCE REQUIREMENTS:

- Certified to the level of Firefighter I or meet the requirements of Advanced Exterior Industrial Fire Brigade Member or Interior Structural Fire Brigade Member as specified in [NFPA 1081](#). **Note:** The Wyoming Firefighters Certification Program does not currently certify to NFPA 1081. Candidates meeting the NFPA 1081 requirement must provide proof of a certificate identifying completion of a course based on the NFPA 1081 standard, dated within the past five (5) years.
- Each candidate has met the additional requirements as required by NFPA 1002.**
 1. Valid driver license.
 2. Medical evaluation as required by NFPA 1500, Section 8-1.

DEPARTMENT TRAINING RECORDS:

Each candidate has a training record on file with the department that shows:

1. A learning experience in each manipulative skill objective.
2. Dates of training.
3. Initials of instructors.
4. Total number of hours trained in each manipulative skill objective.

DEPARTMENT "IN HOUSE" MANIPULATIVE SKILLS EXAMINATION:

- Each candidate has successfully completed an "In House" manipulative skills examination.
- Results of exam are documented in department training records.

ADDITIONAL TRAINING/PREREQUISITE REQUIREMENTS:

- Complete ICS-100: Introduction to ICS.
- Complete ICS-200: Basic ICS.
- Complete IS-700: NIMS, An Introduction.

CERTIFICATION EXAMINATIONS:

- Each candidate has passed the DFPES written examination.
- Completion of required Training Record/In - House skills evaluation. – request state certification.
- Completion of required Training Record/In - House skills evaluation, an a “Spot Check” skills evaluation, (3 skills) conducted by DFPES Certification Testers – request state accredited certification.

ADO – AERIAL CERTIFICATION:

- Chief/Head of the Department request certification for participants using the Request for Certification form.

ADO-AERIAL APPARATUS MANIPULATIVE SKILL OBJECTIVES

The Courage to be Safe Drills can be found online at <http://wyofire.state.wy.us>

PREVENTIVE MAINTENANCE

NFPA 1002, 4.2.1 (A) (B), 4.2.2 (A) (B), 4.3.7 (A) (B).

Courage to be Safe Drill, 1-6, 7, 8, 9, 11, 13-16

Skill 1: Perform and document routine tests, inspections, and servicing on specified systems and components.

A. For a fire department apparatus.

CONDITION: Given a fire department aerial apparatus (with manufacturer specification), inspection form or check-off sheet (sample check-off sheet provided in Appendix B).

TIME: 20:00 minutes

APPLICANT PERFORMED THE FOLLOWING COMPETENCIES:

	<u>1st Att.</u>	<u>2nd Att.</u>
	Y N	Y N
1. Check batteries for fluid level and corrosion (if maintenance free, check indicator for correct color).	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
2. Check braking system for fluid level/drain air tanks of water.	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
3. Check coolant system for fluid level, leaks, and cleanliness.	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
4. Check electrical system for corrosion and tight connections.	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
-Siren and other warning devices.	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
-Headlights, running lights, and turn signal flashers.	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
-Emergency warning lights.	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
5. Check fuel level.	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
6. Check hydraulic fluids for fluid level and leaks.	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
7. Check engine oil for fluid level and leaks.	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
8. Check transmission fluid level (if applicable).	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
9. Check other fluid levels as appropriate.	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
10. Check tires for pressure and wear.	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
11. Check steering system for range of motion and looseness.	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
12. Check engine belts for tightness and wear.	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
13. Check tools, appliances, and equipment, fixed equipment, and lighting.	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
14. Check windshield wiper blades/fluid level.	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
15. Start apparatus and monitor gauges and other control devices.	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
16. Check all items off on check-off sheet (see Appendix B).	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
17. Correct, document and report deficiencies found.	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>

PERFORMANCE RATING ON THIS SKILL:

	<u>PASS</u>	<u>FAIL</u>
First Attempt	<input type="checkbox"/>	<input type="checkbox"/>
Second Attempt	<input type="checkbox"/>	<input type="checkbox"/>

NFPA 1002, 6.1.1 (A) (B)
Courage to be Safe Drill, 1-6, 7, 8, 9, 11, 13-16

B. Fire department Aerial Device system.

CONDITION: **Given a fire department aerial apparatus (with manufacturer’s specifications) determine readiness of aerial device on an aerial apparatus.**

TIME: 20:00 minutes

APPLICANT PERFORMED THE FOLLOWING COMPETENCIES:

	<u>1st Att.</u>	<u>2nd Att.</u>
	Y N	Y N
1. Check cable system (if applicable).	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
2. Check aerial device hydraulic system(s).	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
3. Check hydraulic fluid level.	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
4. Operate PTO shift.	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
5. Check slides and/or rollers.	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
6. Check stabilizing system(s).	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
7. Check aerial device safety systems/interlocks.	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
8. Check leveling gauges.	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
9. Check breathing air system (if applicable).	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
10. Check communication system.	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
11. Check nozzle/waterway.	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
12. Check tools, appliances and equipment, fixed equipment lighting.	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
13. Identify, document and report deficiencies found.	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>

PERFORMANCE RATING ON THIS SKILL:

	<u>PASS</u>	<u>FAIL</u>
First Attempt	<input type="checkbox"/>	<input type="checkbox"/>
Second Attempt	<input type="checkbox"/>	<input type="checkbox"/>

DRIVING OPERATIONS

NOTICE: The driving skills in this standard are used to determine candidate's qualifications to become certified by the DFPEs at the level of ADO-Aerial Apparatus. The passing of these skills does not qualify a candidate for any other certification or licenser, such as a Commercial Drivers License (CDL) and is not intended to certify, verify or approve an individual's ability to drive fire apparatus on state or federal highways. The responsibility to determine who will drive fire apparatus resides with the local fire department or the authority having jurisdiction.

SPOTTER INSTRUCTIONS: The purpose of having a spotter assist while backing an apparatus is to protect life and property. The spotter should alert the driver if property damage could occur or damage the apparatus.

NFPA 1002, 4.3.1 (A) (B), 4.3.6 (A)(B), 6.2.1 (A)(B)

Courage to be Safe Drill, 1-6, 7, 8, 9, 11, 13-16

NFPA 1500, 4-2

Wyoming Traffic Code: Title 31 –Motor Vehicles - 31-5-101 and 31-7-303.

Skill 2: **Operate a fire department aerial apparatus so that the vehicle is safely operated in compliance with all applicable state and local laws, departmental rules and regulations.**

CONDITION: Given a fire department aerial apparatus (with manufacturer's specifications) and a predetermined route on a public way that incorporates the maneuvers and features specified below, and that the driver/operator is expected to encounter during normal operations:

NFPA 1002 4.3.1

4.2.1(1) Four left turns and four right turns.

4.3.1(2) A straight section of urban business street or a two-lane rural road at least 1.6 km (1 mile) in length.

4.3.1(3) One through-intersection and two intersections where a stop has to be made.

4.3.1(4) One railroad crossing.

4.3.1(5) One curve, either left or right.

4.3.1(6) A section of limited-access highway that includes a conventional ramp entrance and exit and a section of road long enough to allow two lane changes.

4.3.1(7) A downgrade steep enough and long enough to require down-shifting and braking.

4.3.1(8) An upgrade steep enough and long enough to require gear changing to maintain speed.

4.3.1(9) One underpass or a low clearance or bridge.

TIME: Not to exceed 30:00 minutes

APPLICANT PERFORMED THE FOLLOWING COMPETENCIES:

	<u>1st Att.</u>	<u>2nd Att.</u>
	Y N	Y N
1. Adjust and use mirrors.	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
2. Use seat belts for all occupants.	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
3. Observe all posted speed limits.	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
4. Maintain safe following distances.	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
5. Maintain control of the vehicle while accelerating, decelerating, and turning.	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
6. Stop fully at all stop signs or stop lights.	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
7. Use turn signals.	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
8. Keep apparatus in correct lane of travel.	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
9. Monitor all gauges so vehicle is operated within manufacturers specifications.	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>

PERFORMANCE RATING ON THIS SKILL:

	<u>PASS</u>	<u>FAIL</u>
First Attempt	<input type="checkbox"/>	<input type="checkbox"/>
Second Attempt	<input type="checkbox"/>	<input type="checkbox"/>

NFPA 1002, 4.3.2(A) (B), 6.2.1 (A) (B)
Courage to be Safe Drill, 1-6, 7, 8, 9, 11, 13-16

Skill 3: Alley Dock: Back a vehicle from a roadway into restricted spaces on both the right and left sides of the vehicle.

* See Appendix A.1.4.3.2 for diagram of course and instructions.

CONDITION: Given a fire department pumping apparatus (with manufacturers specifications), spotter (used as a guide and safety to direct the apparatus when backing **only**). A dock or stall can be simulated by arranging barricades 12.2 m (40 ft) from a boundary line. These barricades should be 3.7 m (12 ft) apart, and the length should be approximately 6.1 m (20 ft). The driver should pass the barricades with the dock on the left and then back the apparatus, using a left turn, into the stall. The exercise should then be repeated with the dock on the right side, using a right turn. A marker should be placed on the ground, on the left side of the apparatus, to mark where the front left tire should be spotted, by the operator, to know where to stop the apparatus and park.

TIME: 5:00 minutes

APPLICANT PERFORMED THE FOLLOWING COMPETENCIES:

	<u>1st Att.</u>	<u>2nd Att.</u>
	Y N	Y N
1. Adjust and use mirrors for backing.	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
2. Driver/passengers wearing seat belts.	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
3. Spotter used to back apparatus, for safety only.	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
4. Stop apparatus by aligning center of left tire within 6 "of the center of the mark on the ground indicating where the apparatus should be stopped and parked.	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
5. Completed skill correctly without striking cones.	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>

PERFORMANCE RATING ON THIS SKILL:

	<u>PASS</u>	<u>FAIL</u>
First Attempt	<input type="checkbox"/>	<input type="checkbox"/>
Second Attempt	<input type="checkbox"/>	<input type="checkbox"/>

NFPA 1002, 4.3.3 (A)(B), 6.2.1(A)(B)
Courage to be Safe Drill, 1-6, 7, 8, 9, 11, 13-16

Skill 5: **Serpentine: Maneuver vehicle around obstructions on a roadway while moving forward and in reverse.**

***See Appendix A.4.3.3 for diagram of course and instructions.**

CONDITION: Given a fire department aerial apparatus (with manufacturers specifications), spotter (used as a guide and safety to direct the apparatus when backing **only**), cones, a roadway with obstructions, so that the vehicle is maneuvered through the obstructions without stopping and without striking cones.

TIME: 5:00 minutes

APPLICANT PERFORMED THE FOLLOWING COMPETENCIES:

	<u>1st Att.</u>		<u>2nd Att.</u>	
	Y	N	Y	N
1. Adjust and use mirrors for backing.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Driver/passengers wearing seat belts.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Spotter used to back apparatus, for safety only.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Completed skill correctly without striking cones.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

PERFORMANCE RATING ON THIS SKILL:

	<u>PASS</u>	<u>FAIL</u>
First Attempt	<input type="checkbox"/>	<input type="checkbox"/>
Second Attempt	<input type="checkbox"/>	<input type="checkbox"/>

NFPA 1002, 4.3.4 (A) (B), 6.2.1 (A) (B). Courage to be Safe Drill, 1-6, 7, 8, 9, 11, 13-16

Skill 6: **Confined Space Turnaround: Turn a vehicle around 180 degrees within a confined space.**

***See Appendix A.4.3.4 for diagram of course and instructions.**

CONDITION: Given a fire department pumping apparatus (with manufacturers specifications), spotter (used as a guide and safety to direct the apparatus when backing only), cones, area where vehicle cannot make a U-turn without stopping and backing up, so that the vehicle is turned 180 degrees without passing over or striking cones.

TIME: 5:00 minutes

APPLICANT PERFORMED THE FOLLOWING COMPETENCIES:

	<u>1st Att.</u>		<u>2nd Att.</u>	
	Y	N	Y	N
1. Adjust and use mirrors for backing.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Driver/passengers wearing seat belts.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Spotter used to back apparatus, for safety only.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Completed skill correctly without striking cones.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

PERFORMANCE RATING ON THIS SKILL:

	<u>PASS</u>	<u>FAIL</u>
First Attempt	<input type="checkbox"/>	<input type="checkbox"/>
Second Attempt	<input type="checkbox"/>	<input type="checkbox"/>

**NFPA 1002, 4.3.5(A) (B), 4.3.6(A) (B), 6.2.1(A) (b)
 Courage to be Safe Drill, 1-6, 7, 8, 9, 11, 13-16**

Skill 7: Diminishing Clearance: Maneuver a vehicle in restricted horizontal and vertical clearances.

***See Appendix A.4.3.5 for diagram of course and instructions.**

CONDITION: Given a fire department pumping apparatus (with manufacturers specifications), spotter (used as a guide and safety to direct the apparatus when backing only), cones, course that requires the operator to move through areas of restricted horizontal clearances, so that the operator accurately judges the ability of the vehicle to pass through the openings without passing over or striking cones.

*Width measurements for this skill may be modified due to the varying widths of apparatus. Modifications should be based on the track width of the apparatus being used for training. To obtain a final width, measure the apparatus being used and add 2 inches on each side of the track width and that will be the final width for training and testing purposes.

TIME: 5:00 minutes

APPLICANT PERFORMED THE FOLLOWING COMPETENCIES:

	<u>1st Att.</u>	<u>2nd Att.</u>
	Y N	Y N
1. Adjust and use mirrors.	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
2. Driver/passengers wearing seat belts.	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
3. Completed skill correctly without stopping or striking cones.	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
4. Place the apparatus bumper within 18 inches of the cone at the finish line without crossing over it.	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>

PERFORMANCE RATING ON THIS SKILL:	<u>PASS</u>	<u>FAIL</u>
First Attempt	<input type="checkbox"/>	<input type="checkbox"/>
Second Attempt	<input type="checkbox"/>	<input type="checkbox"/>

AERIAL OPERATIONS

NFPA 1002, 6.2.1 (A) (B), 6.2.2(A) (B), 6.2.3(A) (B)
Courage to be Safe Drill, 1-6, 7, 8, 9, 11, 13-16

Skill 8: **Maneuver and position an aerial apparatus so that the apparatus is properly positioned for safe aerial device (PLATFORM or LADDER) deployment for rescue and ventilation activities. The operator will be able to successfully position an aerial device to a:**

A. Window.

CONDITION: Given an aerial apparatus, an incident location, an assignment, and 2-firefighter team (Operator and Spotter).

TIME: 7:00 minutes

APPLICANT PERFORMED THE FOLLOWING COMPETENCIES:

	<u>1st Att.</u>	<u>2nd Att.</u>
	Y N	Y N
1. Position aerial apparatus for operation, (upwind, out of collapse zone, correct position for grade/terrain).	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
2. Assess overhead hazards for deployment of aerial device, (overhead wires, power lines, and trees) – must verbalize.	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
3. Set park brake, engage PTO, (chock wheels if applicable).		
4. Verbalize assessment of surface conditions for stabilization purposes.	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
5. Stabilize apparatus using devices, use leveling gauge.	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
6. Switch selector value to aerial device if not automatic.	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
7. Verbalize weight restrictions while operating aerial device.	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
8. Elevate, rotate, extend and lower aerial device (AERIAL LADDER OR PLATFORM device) level with windowsill for RESCUE OPERATIONS.	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
9. Elevate, rotate, extend and lower aerial device (AERIAL LADDER OR PLATFORM) to side of window frame for VENTILATION operations.	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>

PERFORMANCE RATING ON THIS SKILL:

	<u>PASS</u>	<u>FAIL</u>
First Attempt	<input type="checkbox"/>	<input type="checkbox"/>
Second Attempt	<input type="checkbox"/>	<input type="checkbox"/>

NFPA 1002, 6.2.1(A)(B), 6.2.2(A)(B), 6.2.3 (A)(B)
 Courage to be Safe Drill, 1-6, 7, 8, 9, 11, 13-16

B. Roof.

CONDITION: Given an aerial apparatus, an incident location, an assignment, and a 2-firefighter team (Operator and Spotter).

TIME: 7:00 minutes

APPLICANT PERFORMED THE FOLLOWING COMPETENCIES:

	<u>1st Att.</u>	<u>2nd Att.</u>
	Y N	Y N
1. Position aerial apparatus for operation, (upwind, out of collapse zone, correct position for grade/terrain).	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
2. Assess overhead hazards for deployment of aerial device, i.e. overhead wires, powerlines, and trees (must verbalize).	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
3. Set park brake, engage PTO, (chock wheels if applicable).	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
4. Verbalize assessment of surface conditions for stabilization purposes.	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
5. Stabilize apparatus using stabilizing devices, use leveling device.	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
6. Switch selector valve to aerial device – if not automatic.	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
7. Verbalize weight restrictions while operating aerial device.	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
8. AERIAL LADDER: elevate, rotate, extend device and lower to target area, extended 6 feet above roof (ladder should be within 4-6 inches of edge of roof), for RESCUE or VENTILATION operations.	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
9. PLATFORM: elevate, rotate, extend and lower platform level with roof for RESCUE or VENTILATION operations.	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>

PERFORMANCE RATING ON THIS SKILL:

	<u>PASS</u>	<u>FAIL</u>
First Attempt	<input type="checkbox"/>	<input type="checkbox"/>
Second Attempt	<input type="checkbox"/>	<input type="checkbox"/>

NFPA 1002, 6.2.1(A)(B), 6.2.2(A)(B), 6.2.3(A)(B), 6.2.5(A)(B)
Courage to be Safe Drill, 1-6, 7, 8, 9, 11, 13-16

C. Elevated Master Stream

CONDITION: Given an aerial apparatus, an incident location, an assignment, and a 2-firefighter team (Operator and Spotter).

TIME: 7:00 minutes

APPLICANT PERFORMED THE FOLLOWING COMPETENCIES:

	<u>1st Att.</u>	<u>2nd Att.</u>
	Y N	Y N
1. Position aerial apparatus for operation, (upwind, out of collapse zone, correct position for grade/terrain).	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
2. Assess overhead hazards for deployment of aerial device, i.e. Overhead wires, powerlines, and trees (must verbalize).	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
3. Set park brake, engage PTO, (chock wheels if applicable).	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
4. Assess surface conditions for stabilization purposes.	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
5. Stabilize apparatus using stabilizing devices, use leveling device.	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
6. Switch selector valve to aerial device- if not automatic.	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
7. Verbalize weight restrictions while operating aerial device.	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
8. Establish water supply to apparatus – spotter may assist.	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
9. Activate water flow to nozzle.	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
10. Establish and verbalize correct PDP (within +/- 10psi) and the method used to determine PDP (if equipped with a pump).	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
11. Flow effective water stream for 1 minute, adjust nozzle.	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
12. Verbalize correct intake pressure required (within +/- 10 psi) and method used to determine intake pressure (if equipped with a pump).	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>

PERFORMANCE RATING ON THIS SKILL:

	<u>PASS</u>	<u>FAIL</u>
First Attempt	<input type="checkbox"/>	<input type="checkbox"/>
Second Attempt	<input type="checkbox"/>	<input type="checkbox"/>

NFPA 1002, 6.2.4 (A) (B)

Courage to be Safe Drill, 1-6, 7, 8, 9, 11, 13-16

Skill 9: Lower an aerial device using the emergency operation system so that the aerial device is safely lowered to its bedded position.

CONDITION: Given an aerial apparatus and a situation requiring emergency action (i.e., loss of power, engine failure), and a 2-firefighter team (operator and assistant).

TIME: 15:00 minutes

APPLICANT PERFORMED THE FOLLOWING COMPETENCIES:

	<u>1st Att.</u>	<u>2nd Att.</u>
	Y N	Y N
1. Notify Incident Command of situation, loss of apparatus.	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
2. Demonstrate activation of auxiliary system as per manufacture recommendations.	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
3. Verbalize procedure to raise, retract, rotate, and lower aerial device to bedded position using auxiliary system.	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
4. Verbalize procedure to lift outriggers using auxiliary system.	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>

PERFORMANCE RATING ON THIS SKILL:

	<u>PASS</u>	<u>FAIL</u>
First Attempt	<input type="checkbox"/>	<input type="checkbox"/>
Second Attempt	<input type="checkbox"/>	<input type="checkbox"/>

APPENDIX A
TRAINING RECORDS

**APPARATUS DRIVER OPERATOR - AERIAL APPARATUS
TRAINING RECORD / IN – HOUSE COMPREHENSIVE EXAM**

2009 Edition

NAME: _____

DEPARTMENT: _____

SECTION	TRAINING RECORD			IN-HOUSE COMP. EXAM			MANIPULATIVE SKILL - DEMONSTRATE
	DATE	INST	HRS	DATE	INST	P/F	
PREVENTIVE MAINTENANCE							1A- Perform and document routine tests, inspections, and servicing functions for a fire department apparatus.
							1B - Perform and document routine tests, inspections, and servicing functions for the Aerial Device of apparatus.
DRIVING OPERATIONS							2- Operate a fire department pumper so that the vehicle is safely operated in compliance with all state and local laws, department rules and regulations.
							3- Back a vehicle from a roadway into restricted spaced on both right and left sides of the vehicle. (Alley Dock)
							4 - Ability to back the apparatus into a fire station to park or to back the apparatus down a street to reverse the direction of travel. (Station Parking Procedure Drill)
							5- Maneuver vehicle around obstructions on a roadway while moving forward and in reverse. (Serpentine)
							6- Turn a vehicle around 180 degrees within a confined space. (Confined Space Turnaround)
							7- Maneuver a vehicle in restricted horizontal clearances (Diminishing Clearance)

**APPARATUS DRIVER OPERATOR - AERIAL APPARATUS
TRAINING RECORD / IN – HOUSE COMPREHENSIVE EXAM**

AERIAL OPERATIONS							8A- Positioning aerial device at Window for rescue or ventilation activities.
							8B- Positioning aerial device at Roof for rescue or ventilation activities.
							8C- Positioning aerial device for Elevated Master Stream activities.
							9- Lower aerial device using Emergency Operations system.

APPENDIX B
WEEKLY VEHICLE REPORT

Repairs and Maintenance Log
APPARATUS

Remarks: please itemize procedure taken on unsatisfactory inspection items noted on opposite side.

INSPECTION DATE:	REPAIR DATE:	COMMENTS:	REPAIRS COMPLETED BY:	DATE COMPLETED:

WEEKLY EMERGENCY VEHICLE REPORT

AERIAL DEVICE

DEPARTMENT NAME: _____

ADDRESS: _____ **CITY:** _____ **STATE:** _____

EMERGENCY VEHICLE MANUFACTURE: _____

YEAR: _____ **SERIAL NUMBER:** _____ **TYPE:** _____

Date Inspection	Inspected By:	Cable System	Aerial Device Hydraulic Tank Level	Operate PTO shift	Slides and Rollers	Stabilizing System	Aerial Device Safety System	Tires: Wear, pressure	Leveling device	Breathing Air System	Communications System	Master Stream/Waterway	Tools, Lighting Appliances	Start Apparatus

APPENDIX C
DRIVING SKILLS
DIAGRAMS/INSTRUCTIONS

Notice: The maneuvers and features specified for this job performance requirement include driving situations that the NFPA technical committee has determined to be essential. The NFPA technical committee recognizes that each of these situations might not exist in all areas. Where this occurs, those specific requirements can be omitted.

ALLEY DOCK

A.4.3.1 The maneuvers and features specified for this job performance requirement include driving situations that the NFPA technical committee has determined to be essential. The NFPA technical committee recognizes that each of these situations might not exist in all areas. Where this occurs, those specific requirements can be omitted.

A.4.3.2 The alley dock exercise can be used as practice for meeting or in the evaluation of this requirement. This exercise measures a driver's ability to drive past a simulated dock or stall, back the apparatus into the space provided, and stop smoothly. A dock or stall can be simulated by arranging barricades 12.2 m (40 ft) from a boundary line. These barricades should be 3.7 m (12 ft) apart, and the length should be approximately 6.1 m (20 ft). The driver should pass the barricades with the dock on the left and then back the apparatus, using a left turn, into the stall. The exercise should then be repeated with the dock on the right side, using a right turn. [See [Figure A.4.3.2\(a\)](#).]

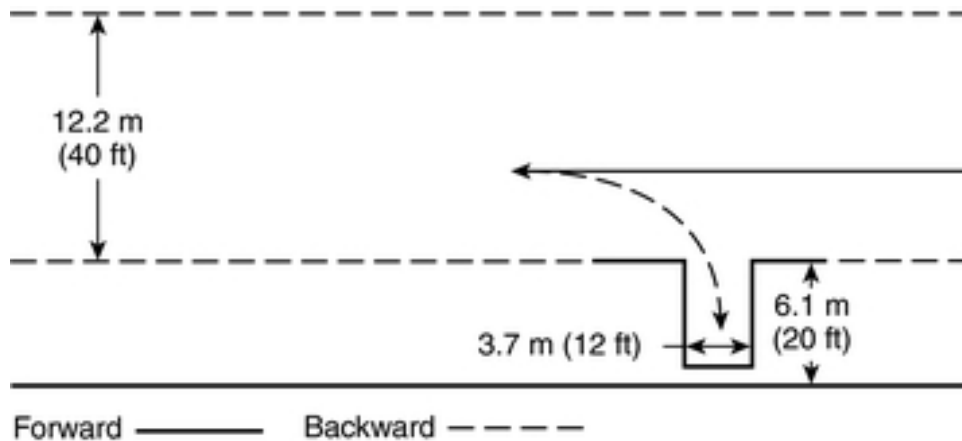


FIGURE A.4.3.2(a) Alley Dock Exercise.

Notice: The maneuvers and features specified for this job performance requirement include driving situations that the NFPA technical committee has determined to be essential. The NFPA technical committee recognizes that each of these situations might not exist in all areas. Where this occurs, those specific requirements can be omitted.

Station Parking Procedure Drill

The apparatus station parking maneuver can also be used as practice for meeting or in the evaluation of this requirement. This exercise measures the driver’s ability to back the apparatus into a fire station to park or to back the apparatus down a street to reverse the direction of travel. An engine bay can be simulated by allowing for a 6.1 m (20 ft) minimum setback from a street 9 m (30 ft) wide, with a set of barricades at the end of the setback, spaced 3.7 m (12 ft) apart to simulate the garage door. The setback from the street should be determined by the testing agency to ensure that the distances reflect those encountered by the apparatus driver during the normal course of duties. A marker placed on the ground should indicate to the operator the proper position of the left front tire of the vehicle once stopped and parked. A straight line can be provided to assist the operator while backing the apparatus, facilitating the use of vehicle mirrors. The minimum depth distance is determined by the total length of the vehicle. [See [Figure A.4.3.2\(b\).](#)]

Note that for large vehicles, such as ARFF apparatus, this course might need to be modified.

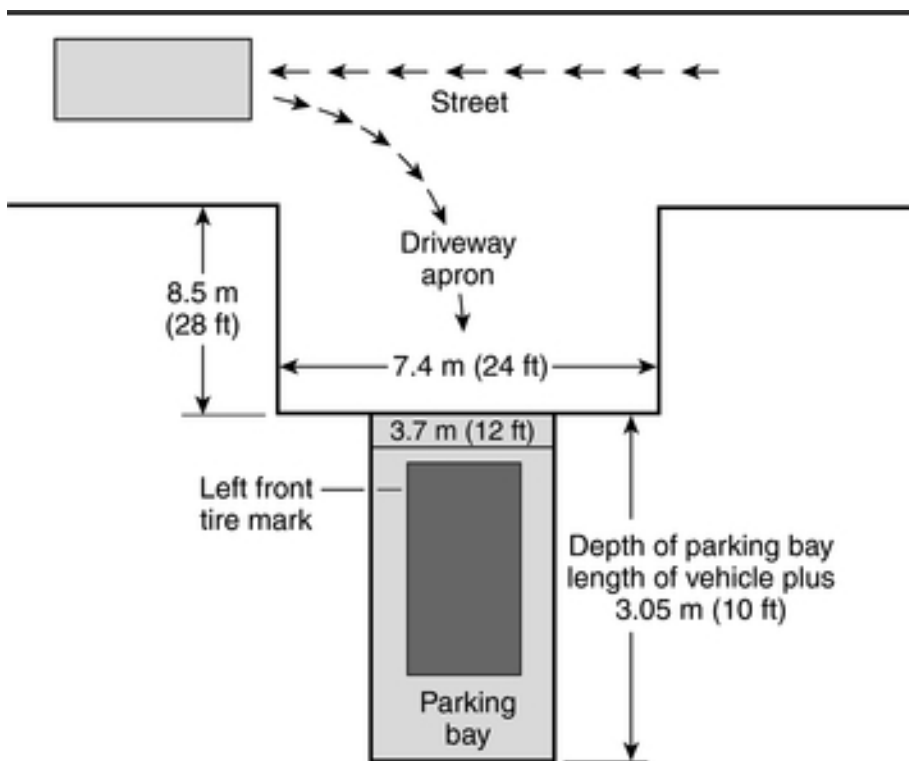


FIGURE A.4.3.2(b) Station Parking Procedure Drill.

Notice: The maneuvers and features specified for this job performance requirement include driving situations that the NFPA technical committee has determined to be essential. The NFPA technical committee recognizes that each of these situations might not exist in all areas. Where this occurs, those specific requirements can be omitted.

SERPENTINE

A.4.3.3 The serpentine exercise can be used as practice for meeting or in the evaluation of this requirement. This exercise measures a driver's ability to steer the apparatus in close limits without stopping. The exercise should be conducted with the apparatus moving first backward, then forward. The course or path of travel for this exercise can be established by placing a minimum of three markers, each spaced between 9 m (30 ft) and 12 m (38 ft) apart, in a line. The spacing of the markers should be based on the wheel base of the vehicle used. Adequate space must be provided on each side of the markers for the apparatus to move freely. The driver should drive the apparatus along the left side of the markers in a straight line and stop just beyond the last marker. The driver then should begin the exercise by backing the apparatus between the markers by passing to the left of marker No. 1, to the right of marker No. 2, and to the left of marker No. 3. At this point, the driver should stop the vehicle and then drive it forward between the markers by passing to the right of marker No. 3, to the left of marker No. 2, and to the right of marker No. 1. (See [Figure A.4.3.3.](#))

Note that for large vehicles, such as ARFF apparatus, this course might need to be modified.

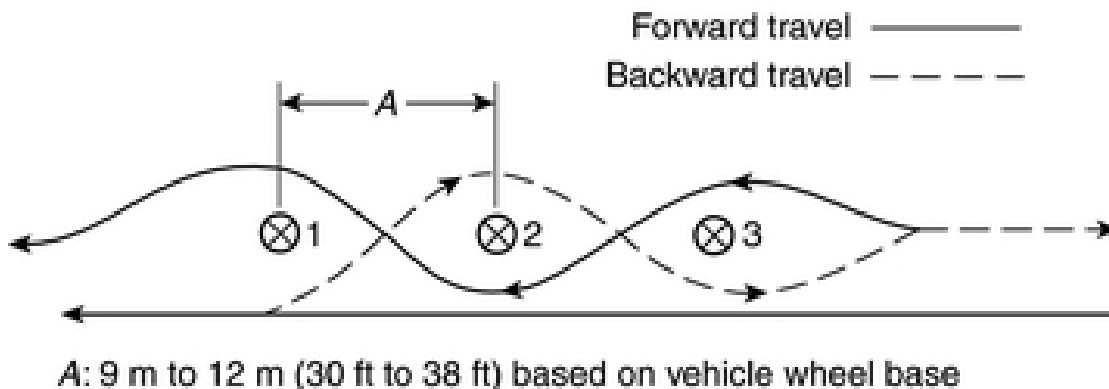


FIGURE A.4.3.3 Serpentine Exercise.

Notice: The maneuvers and features specified for this job performance requirement include driving situations that the NFPA technical committee has determined to be essential. The NFPA technical committee recognizes that each of these situations might not exist in all areas. Where this occurs, those specific requirements can be omitted.

DIMINISHING CLEARANCE

A.4.3.5 The diminishing clearance exercise can be used as practice for meeting or in the evaluation of this requirement. This exercise measures a driver's ability to steer the apparatus in a straight line, to judge distances from wheel to object, and to stop at a finish line. The speed at which a driver should operate the apparatus is optional, but it should be great enough to necessitate quick judgment. This exercise is to be performed both forward and in reverse with a spotter. The course for this exercise is created by arranging two rows of markers to form a lane 22.9 m (75 ft) long. The lane varies in width from 2.9 m (9 ft 6 in.) to a diminishing clearance of 2.5 m (8 ft 2 in.). The driver should maneuver the apparatus through this lane without touching the markers. The vehicle should be stopped at a finish line 15.24 m (50 ft) beyond the last marker. No portion of the vehicle should protrude beyond this line. Vertical clearance judgment should be evaluated using a prop with a crossbar that is adjustable, based on the vehicle height. During the evaluation, the driver should drive forward and back through the prop with the crossbar at several differing heights, including one that is lower than the top of the vehicle. The prop should not be struck. The intent of the vertical clearance judgment is for proper identification of the furthestmost point in the form of the apparatus. In situations where the apparatus is gaining entry to roadways or limited-height areas, the driver/operator must allow appropriate space ahead of the apparatus in order to avoid striking objects or to avoid extending apparatus into traffic lanes. (See [Figure A.4.3.5.](#))

Note that for large vehicles, such as ARFF apparatus, this course might need to be modified.

NOTE: Always use a spotter/safety when backing fire apparatus. Spotter may only direct apparatus when backing. When apparatus is moving forward, the spotter must be either properly seated in the apparatus with all safety restraints fastened or outside of the coned area.

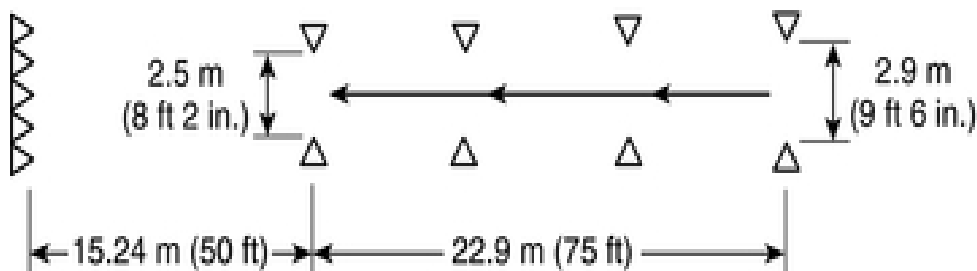


FIGURE A.4.3.5 Diminishing Clearance Exercise.

Notice: The maneuvers and features specified for this job performance requirement include driving situations that the NFPA technical committee has determined to be essential. The NFPA technical committee recognizes that each of these situations might not exist in all areas. Where this occurs, those specific requirements can be omitted.

CONFINED SPACE TURNAROUND

A.4.3.4 The confined space turnaround can be used as practice for meeting or in the evaluation of this requirement. This exercise measures the driver's ability to turn the vehicle around in a confined space without striking obstacles. The turn is accomplished within an area 15.24 m \times 30.5 m (50 ft \times 100 ft). The driver moves into the area from a 3.7 m (12 ft) opening in the center of one of the 15.24 m (50 ft) legs, turns the vehicle 180 degrees, and returns through the opening. There is no limitation on the number of times the driver has to maneuver the vehicle to accomplish this exercise, but no portion of the vehicle should extend over the boundary lines of the space. (See [Figure A.4.3.4.](#))

Note that for large vehicles, such as ARFF apparatus, this course might need to be modified.

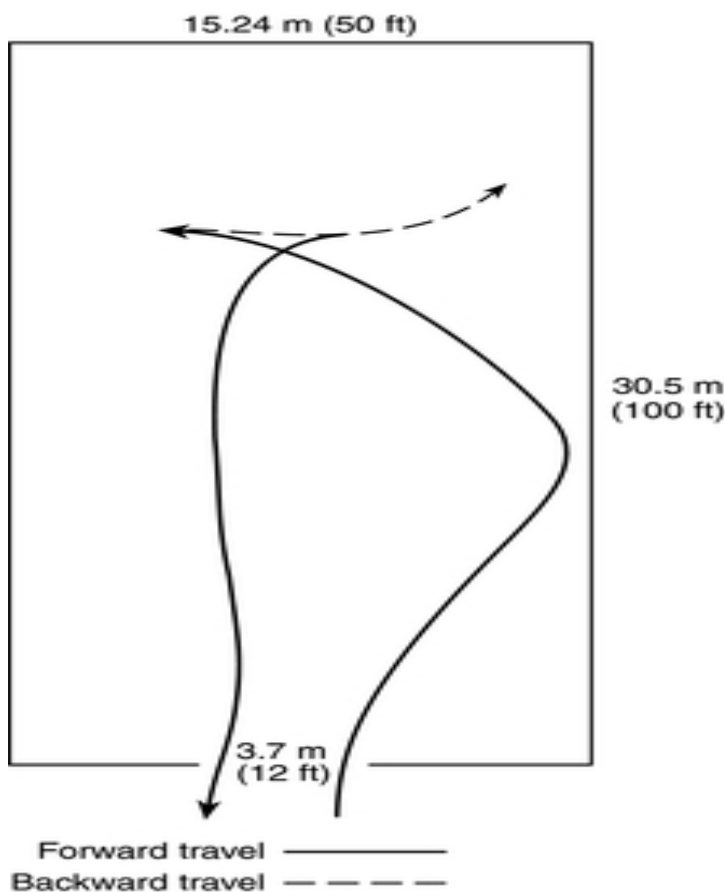


FIGURE A.4.3.4 Confined Space Turnaround.

APPENDIX – D

IN – HOUSE TESTER INSTRUCTIONS

CERTIFICATION REQUEST FORM

FRICITION LOSS AND NOZZLE, HOSE FLOW REFERENCE

Tester's Instructions for "In-House" Comprehensive Examination

As the training officers for your department you are authorized by the DFPES to conduct the 100% skills test for this level of certification. You must be certified to the level that you are testing, i.e., if you're FF2 you can test FF1 and FF2, Awareness and HM Operations.

***PRIOR TO CONDUCTING TEST, REVIEW TRAINING RECORDS**

It is important that before doing this "In-House" exam that the candidate has completed training in all areas for the level being tested.

***SAFETY OFFICER SELECTED AND BRIEFED**

Select a Safety Officer to assist you during the test. This person, if possible, should not be taking the same test that is being given. The Safety Officer will not assist with the testing process. The Safety Officer is there to protect the CANDIDATES from injury during the testing process. The Safety Officer shall be in a position to observe all students and ensure their safety at all times during the testing procedure.

By using the following instructions you will be able to evaluate the skill being tested and determine the candidate's readiness for the State "Spot Check" exam.

1. Keep in mind this is a **test** and there should be **no coaching or training** during the testing process. If a candidate fails to perform a skill, it will count as a first attempt failure and they will be given a second attempt. If they fail a second time they need to be retrained on that skill and test again. Only **qualified** candidates that have passed with **100%** should be allowed to take the State SPOT CHECK exam.
2. Before beginning the testing process meet with all candidates and review the testing process. Explain that this is a **test** and that the same process being used for the "In-House" will be used during the state exam.
3. Designate a secure location for the candidates to remain in while the "In-House" exam is conducted. This location should be away from the area where the exam is being conducted.
4. If possible, separate your testing stations so that candidates cannot observe each other during the test.
5. To evaluate a candidate's performance, use the following as a guide.
 - a. the skill is completed in the allotted time,
 - b. competence is shown by completing all performance criteria,
 - c. safety is shown while completing the skill.
6. At each test station the tester will read the **SKILL** to be demonstrated, the **CONDITIONS** to be met and the **TIME** limit to complete each skill. This information is contained in the skill section of each standards packet. Do this with each student as they come to each testing station. Ask for any questions. As each skill is tested and completed sign it off in the section provided on the candidates training record. By conducting the "In-House" test in this manner, you will prepare your candidates to successfully pass the state "spot check" exam. This will also assure training records are current and that only those who are truly prepared take the state certification examination.

Wyoming Department of Fire Prevention & Electrical Safety

EXAMINATION REQUEST / CERTIFICATION REQUEST FORM

Please complete all information on BOTH sides of this form and return to the DFPES at least **30 days prior** to the requested examination date. A separate request **MUST** be made for each level of certification exam desired and for each exam date. Phone Number: 307-777-7288. FAX: 307-777-7119

Department Information

Department Name: _____

Examination Request for Written / Skills – Circle the appropriate level

WRITTEN Examination: FF I FF II HMA HMO ADO –Aerial ADO –Pumper Fire Officer I Fire Instructor I Fire Officer II Fire Investigator

MANIPULATIVE Examination: FF I FF II HMO ADO –Aerial ADO – Pumper Fire Officer I Fire Instructor I

Requested Date and Time: _____

Number taking Written Examination: _____ Number taking Manipulative exam: _____

Examination Location: _____

Street Address: _____ City/State: _____ Zip: _____

By your signature below we acknowledge that training records exist to support that each individual who will attend the exam has received a learning experience in each subject area required for testing and has met all other requirements for the level being examined for as specified in the Certification Policy and Procedures. Department requesting the above exam, will have appropriate space and safe accommodations and equipment for all written and manipulative skills.

Fire Chief/Head of Department (Signature) Training Officer (Signature)

Fire Chief/Head of Department (typed/printed) Training Officer (type/printed)

Department Mailing Address Daytime Phone Number Second contact number

Certification Request

The following department or agency requests that the Department of Fire Prevention & Electrical Safety certify the individuals listed on reverse side of this form. **NOTE: The original” Training Record” of the individuals must be sent with this form - if the “Training Record” has not been presented to the DFPES during a “Spot Check Skills” testing event. Please keep a copy of the “Training Record” for your files.**

Department Name _____

By my signature below, I attest that the individuals listed on the reverse side of this form have completed all requirements for certification as defined in the Wyoming Firefighters Policy and Procedures Manual.

Fire Chief/Head of Department (Signature) Fire Chief/Head of Department (typed/Printed)

Department Mailing Address Daytime Phone Number Second contact number

Department Name: _____ Date: _____

Type or print names of candidates who will be taking the examination or requesting certification.

<u>APPLICANT NAME</u>	<u>LEVEL REQUESTED</u>
1. _____	_____
2. _____	_____
3. _____	_____
4. _____	_____
5. _____	_____
6. _____	_____
7. _____	_____
8. _____	_____
9. _____	_____
10. _____	_____
11. _____	_____
12. _____	_____
13. _____	_____
14. _____	_____
15. _____	_____
16. _____	_____
17. _____	_____
18. _____	_____
19. _____	_____
20. _____	_____
21. _____	_____
22. _____	_____
23. _____	_____

Send Request form to:
 Department of Fire Prevention And Electrical Safety
 122 W. 25th Street, Herschler 1 West,
 Cheyenne, WY 82002
 Attention: Certification Coordinator

Friction Loss and Nozzle Flow Reference

Friction Loss per 100' Fire Hose
 $FL = CQ^2$

GPM	1 1/2" hose	1 3/4" hose	2 1/2" hose	3" hose w/ 2 1/2" coups	4' hose	5' hose	6' hose
100	24.0	15.5	2.0				
125	37.5	24.2	3.1	1.2			
200		54.0	8.0	3.2			
250		84.4	12.5	5.0			
300			18.0	7.2	1.8		
350			24.5	9.8	2.4		
400			32.0	12.8	3.2	1.3	
450				16.2	4.1	1.6	
500				20.0	5.0	2.0	1.2
600				28.8	7.2	2.9	1.8
700				39.2	9.8	3.9	2.4
800				51.2	12.8	5.1	3.2
900				64.8	16.2	6.5	4.0
1000					20.0	8.0	5.0
1100					24.2	9.7	6.0
1200					28.8	11.5	7.2
1300					33.8	13.5	8.4
1400					39.2	15.7	9.8
1500					45.0	18.0	11.2

Solid Stream Nozzle Flow Rates
 $GPM = 29.7 d^2 \sqrt{NP}$

Tip Size	Handline Flow @ 50 psi	For Field use Round too	Master Stream @ 80 psi	For field use Round too
1/2	52	50		
5/8	82	80		
3/4	118	120		
7/8	161	160		
1	210	200		
1 1/8	266	250		
1 1/4	328	300	415	400
1 3/8			502	500
1 1/2			597	600
1 5/8			701	700
1 3/4			814	800
1 7/8			933	900
2			1,063	1,000

Fire Hose Friction Loss Coefficients – Single Line

<u>Hose diameter and type</u>	<u>coefficient (C)</u>
3/4" booster	1,100
1" booster	150
1 1/4" booster	80
1 1/2" rubber lined	24
1 3/4" with 1 1/2" couplings	15.5
2" with 1 1/2" couplings	8
2 1/2" rubber lined	2
2 3/4" with 3" couplings	1.5
3" with 2 1/2" couplings	0.8
3" with 3" couplings	0.677
3 1/2"	0.34
4" hose	0.2
4 1/2" hose	0.1
5" hose	0.08
6" hose	0.05

Standpipe Friction Loss Coefficients

4" pipe	0.374
5" pipe	0.126
6" pipe	0.052

Nozzle Pressures

Solid stream nozzles – hand line	50 psi
Solid stream nozzles – master streams	80 psi
Fog nozzles – all types	100 psi

Friction Loss Allowances – Appliances, Apparatus, Systems

Master stream appliances flowing at capacity	25 psi
Aerial devices	25 psi
Wye and manifold appliances flowing > 350 GPM	10 psi
Standpipe system	25 psi
Three 2 3/4" with 3" couplings	0.17
Two 3" with 2 1/2" couplings	0.2
One 3" with 2 1/2" couplings, One 2 1/2"	0.3
One 3" with 3" couplings, One 2 1/2"	0.27
One 3" with 3" couplings, one 2 3/4" with 3" couplings	0.24
Two 2 1/2", one 3" with 2 1/2" couplings	0.16

Wyoming ADO Aerial Certification Standard
Approved January 2011

Fire Hose Friction Loss Coefficients – Siamesed Lines of Equal Length

<u>Hose diameter and type</u>	<u>coefficient (C)</u>
Two 2 1/2"	0.5
Three 2 1/2"	0.22
Two 2 3/4" with 3" couplings	0.38
Two 2 3/4" with 3" couplings, One 3" with 3" couplings	0.12
Two 3" with 2 1/2" couplings, one 2 1/2"	0.12
Two 3" with 3" couplings, Two 2 3/4" with 3" couplings	0.1

Additional Water Available from Hydrant

Percent drop = $\frac{(\text{static pressure} - \text{residual pressure}) \times 100}{\text{Static pressure}}$

**Percent decrease of
pump intake pressure****Additional Water
available**

0 – 10%	3 times amount being delivered
11 – 15%	2 times amount being delivered
16 – 25%	same amount is being delivered
25% +	less than the amount being delivered

Area, Volume and Weight

Capacity = 7.5 gallons x cubic feet

Capacity = volume in gallons

7.5 = number of gallons per cubic foot

cubic feet = area filled with water

Capacity = L x W x D x 7.5

Capacity = volume in gallons of rectangular storage

L = length in feet

W = width in feet

D = depth in feet

7.5 = number of gallons per cubic foot

Capacity = $\pi \times r^2 \times D \times 7.5$

Capacity = volume in gallons of cylindrical storage

r = radius in feet

D = average depth in feet (or length of horizontal tank)

7.5 = number of gallons per cubic foot

Weight = 62.5 lbs. x cubic feet

Weight = total weight of water

62.5 = pounds per cubic foot of water

cubic feet = area filled with water

Flow = A x V

Flow = discharge in cubic feet per second

A = area of orifice in square feet

V = velocity in feet per second

 $A = \pi d^2 / 4$

A = area of circle in square inches

d = diameter of circle in inches

 π = the constant pi = 3.1416 $A = \pi r^2$

A = area of circle in square inches

r = radius of circle in inches

 π = the constant pi = 3.1416**Velocity, Flow and Friction loss** $V = 12.1 \sqrt{NP}$

V = flow velocity in feet per second

12.1 = a constant

NP = nozzle pressure in pounds per square inch

 $GPM = 29.7 \times d^2 \times \sqrt{NP}$

GPM = discharge in gallons per minute

Wyoming ADO Aerial Certification Standard

Approved January 2011

29.7 = a constant for fire protection nozzles

d = nozzle diameter in inches

NP = nozzle pressure in pounds per square inch

 $FL = CQ^2 L$

FL = friction loss in pounds per square inch

C = friction loss coefficient for type and size of hose(s)

Q = flow rate in hundreds of gallons per minute

L = hose length in hundred of feet

 $Q = GPM / 100$

Q = flow rate in hundreds of gallons per minute

GPM = actual flow through hose

100 = a constant

 $L = \text{hose length} / 100$

L = hose length in hundred of feet

Hose length = actual length of hose

100 = a constant

 $C = FL / Q^2$

C = friction loss coefficient for hose

FL = friction loss in pounds per square inch

Q = flow rate in hundreds of gallons per minute

L = hose length in hundred of feet

Elevation Pressure = 0.5 H

Elev. Press. = Elevation pressure in psi

0.5 = a constant

H = height in feet

Elevation Pressure = 5 psi x (number of stories – 1)

PDP = NP + TPL

PDP = Pump discharge pressure in psi

NP = Nozzle pressure in psi

TPL = Total pressure loss in psi (appliance, friction and elevation losses)

 $NR = 1.57 d^2 NP$

NR = solid stream nozzle reaction in pounds

1.57 = a constant for solid stream nozzles

d = nozzle diameter in inches

NP = nozzle pressure in pounds per square inch

$$NR = 0.0505 Q \sqrt{NP}$$

NR = fog nozzle reaction in pounds

0.0505 = a constant for fog nozzles

Q = actual flow in gallons per minute

NP = nozzle pressure in pounds per square inch

$$L = 1.13 Hg$$

L = height of lift in feet

1.13 = a constant

HG = inches of mercury

$$NPDP_{HYD} = PDP - \text{pump intake pressure}$$

NPDP_{HYD} = net pump discharge pressure at hydrant

PDP = pump discharge pressure

Pump intake pressure = pump intake gauge reading

$$\text{Pressure correction} = \frac{\text{lift} + \text{total intake friction loss}}{2.3}$$

$$NPDP_{Draft} = PDP + \text{pressure correction}$$

NPDP_{Draft} = net pump discharge pressure at draft

PDP = pump discharge pressure

Pressure correction = pressure correction for draft

$$FL \text{ per } 100 \text{ feet} = Q^2$$

FL = friction loss in 100 feet of 3" hose

Q = flow in hundreds of gallons per minute

$$FL \text{ per } 100 \text{ feet} = Q^2 / 5$$

FL = friction loss in 100 feet of 4" hose

Q = flow in hundreds of gallons per minute

$$FL \text{ per } 100 \text{ feet} = Q^2 / 15$$

FL = friction loss in 100 feet of 5" hose

Q = flow in hundreds of gallons per minute