NFPA

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TRAINING STANDARD ON

INITIAL FIRE ATTACK 1979

NATIONAL FIRE PROTECTION ASSOCIATION, INC.

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See Official NFPA Definitions at the back of this pamphlet.

SC-FM-79

A Training Standard on
Initial Fire Attack

NFPA 1410 — 1979

1979 Edition of NFPA 1410

This 1979 edition of NFPA 1410, *A Training Standard on Initial Fire Attack,* was prepared by the Committee on Fire Service Training and was adopted by the National Fire Protection Association, Inc. on November 13, 1979, at its Fall Meeting in Phoenix, Arizona. It was released by the Standards Council for publication on December 3, 1979.

Origin and Development of NFPA 1410

The first edition of this training standard on Initial Fire Attack was officially adopted as NFPA Standard Number 197, at the 1966 NFPA Annual Meeting held in Chicago, Illinois, May 16-20. It was prepared by the Committee on Fire Service Training and was tentatively adopted at the 1964 Annual Meeting.

This text incorporates the latest recommendations of the Association.

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This list represents the membership at the time the Committee was balloted on the text of this edition. Since that time, changes in the membership may have occurred.

Contents

A Training Standard on

Initial Fire Attack

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NOTICE: An asterisk (*) following the number or letter designating a paragraph indicates explanatory material on that paragraph in Appendix A.

Chapter 1 Introduction

1-1 Scope. This standard deals with the evaluation of procedures and personnel training of fire departments engaged in principally structural fire fighting efforts. It suggests a basic evolution that can be adapted to local conditions while still serving as a standard mechanism of evaluation. It is not intended to advocate an initial attack procedure for all fire departments.

1-2 Purpose. This standard is designed to provide the fire chief and officers of the fire department with a method of measuring the relative effectiveness of fire department tactical evolutions. It also serves to evaluate how well the department trains its fire fighters to make an effective fire attack. The standard will also provide a mechanism to check the abilities of the individual fire companies in carrying out standard evolutions following the methods prescribed in the local department and will suggest areas in which additional training is needed.

1-3 General.

1-3.1* Individual fire fighting evolutions involving the placement of hose, making connections, operating hose streams, and operating pumpers are part of a good fire department training program. The fire chief and department officers need a method of measuring the effectiveness of evolutions and how well they qualify the fire fighters to make an effective attack on a fire.

1-3.2* For purposes of this standard the minimum fire fighting capability provided by the first two pumpers to arrive at a fire shall be an immediate application of two effective streams from 1½- or 1¾-in. fire hose (two-position attack) backed up with reasonable promptness by a 2½-in. or larger line under correct pressure, supplied by a pumper.

1-4 Definitions. Unless expressly stated elsewhere, the following terms will, for the purpose of this standard, have the meanings indicated below.

Back-up Line. A fire service hose line capable of flowing a minimum of 200 gpm (US) for fire stream use.

Company. The basic working unit of a fire department is a fire company which may include one or more pieces of fire apparatus and the number of personnel required to put the apparatus into service on the fireground.

Effective Operation. Accomplishing or able to accomplish the task for which it is intended.

Effective Stream. A fire stream that has achieved and sustained the proper flow.

Evolution. A set of prescribed actions that results in an effective fireground activity.

Initial Attack Line. A fire service hose line preconnected to a pumper outlet, supplied by a wye from another hose line, or connected to a pumper outlet at the scene, and capable of flowing a minimum of 100 gpm (US) for fire stream use.

Line. One or more sections of fire hose connected to a water supply for the purpose of conveying water from a source to a fire hose nozzle.

May. This term is used to state a permissive use or an alternative method to a specified requirement.

Residual Pressure. The pressure remaining in a water system with a given amount of water flowing. Residual pressure is indicated by reading the pumper intake gage when water is flowing out of the pumper at a desired rate.

Shall. This term indicates a mandatory requirement.

Should. Is intended to indicate recommendations or that which is advised but not required.

Chapter 2 Methods Which May Be Employed

2-1 Standard Evolution.

2-1.1* This operation is designed to measure the initial attack capability of a local fire department. All evolutions employed shall be those which the department normally uses in its regular operations.

2-1.2 The hose layouts and hydrant connections employed shall provide the flow required to adequately supply the three streams. Adequate hose connections shall be made between the hydrants or intake sources and the pumpers.

2-2 Hose Loads and Layouts.

2-2.1 Hose shall be loaded in the normal manner utilized by the fire department.

2-2.2 The initial attack lines shall be carried preconnected to a pumper outlet, supplied by a wye from another line, or connected to a pumper outlet at the scene.

2-2.3 Hose lays or carries used shall be those normally employed by the department.

2-2.4* Direct hydrant streams shall not be employed in this evolution.

Exception: Direct hydrant streams may be used if the desired flow is available at the hydrant with a residual pressure of 100 psi or greater.

2-2.5 The water supply pumper shall be positioned as near as possible to the hydrant or intake supply.

2-2.6 The largest diameter hose available to the department shall be used between the water source and the pumper.

Chapter 3 Facilities Needed

3-1 Location.

3-1.1 This evolution shall be conducted in an area where hose can be laid for a distance of 300 ft to or from a hydrant or hydrants, or from a pumper intake location, laying out hose with the apparatus.

3-2 Equipment and Personnel.

3-2.1 One or two pumper companies with their normal complement of personnel shall report to the training officer at the assigned area. In volunteer or call departments, personnel utilized shall be limited to the average strength normally responding.

3-2.2 Apparatus to be employed shall consist of not more than that normally assigned to the pumper company(s). This may be one or two combination pumpers. Where companies are equipped with two pieces of apparatus, they shall operate in the normal manner with both. If a department responds with a pumper and tanker, the evolution shall be performed with such apparatus.

3-2.3 Nozzles employed should be those provided on the apparatus. Normally this would be combination spray-straight stream nozzles for the initial attack lines. The nozzle for the back-up line may be either solid stream (1⅛-in. tip at 50 psi nozzle pressure equals 265 gpm [US] or a combination spray-straight stream nozzle capable of the required flow of not over 100 psi nozzle pressure.

3-3 Water Supply.

3-3.1 The water supply shall consist of one or more fire hydrants capable of giving the required flow at effective residual pressures needed for the operation. In general, this requires not less than one hydrant capable of 500 gpm (US) at 20 psi residual pressure. In areas not served by hydrants a pumper drafting location shall be used for water supply. This should be a location presenting no unusual difficulties for drafting water.

Chapter 4 Required Performance

4-1 General.

4-1.1 The required performance shall consist of placing two initial attack lines in service and immediately backing these up with another line.

4-1.2 This evolution shall be performed by the first pumper company(s) to arrive with the average number of personnel ordinarily responding.

4-1.3* In evolutions employing two companies, there shall be a 30-second delay before the second company starts to work.

4-2 Required Flow.

4-2.1 The total flow of the required streams shall be judged on a required minimum rate of flow of 400 gpm (US).

4-2.2 The flow from two initial attack lines shall be on the basis of a minimum of 200 gpm (US) or an average of 100 gpm (US) for each nozzle.

4-2.3 The required flow from the back-up lines shall be a minimum of 200 gpm (US).

4-2.4* The training officer shall see that effective pressures/flows are provided on each nozzle. When using solid stream nozzles, pressure shall be 50 psi. When using spray nozzles, pressure shall be 100 psi. Pressures shall be within the range of ± 10 percent.

4-3 Hose Evolutions.

4-3.1 The 2½-in. or larger hose shall be laid by pumper a distance of 300 ft from the hydrant or intake location.

4-3.2* All of the working lines shall be advanced by hand a distance of 200 ft before streams are operated.

Chapter 5 Method of Evaluation

5-1 Overall Criteria.

5-1.1 Evaluation shall be based upon the following considerations:

5-1.1.1 The ability to deliver at least 400 gpm (US) through handlines producing effective streams.

5-1.1.2* The ability to get two initial attack lines in service quickly, and to back these up with another line without delay.

5-2 Fire Streams.

5-2.1 The flow shall consist of a minimum of 200 gpm (US) total from the two initial attack lines and 200 gpm (US) from the backup handline.

5-2.2 When the initial order is given to lay hose, two initial attack lines shall be advanced and placed in effective operation at the required pressures/flows within 60 seconds or less.

5-2.3 From the time the initial order is given, the backup line shall be advanced to the desired operating position and placed in effective operation at the required pressure/flow within 180 seconds or less.

5-2.4 The evolution shall not be concluded until the company officer responsible for the stream considers that an effective stream has been obtained.

5-2.5 Streams once placed in service shall remain in operation until the evaluation is complete.

5-2.6* Failure to maintain water pressure in any line until all three lines are properly operating shall be considered an undesirable interruption of the attack. Interruptions of less than 10 seconds shall not be counted.

5-3 Water Supply.

5-3.1* Failure to supply a pumper adequately shall be considered as a serious deficiency in operations.

5-4 Evaluation.

5-4.1* Performance shall be evaluated as follows:

	Satisfactory	Unsatisfactory
5-4.1.1 Was a minimum of 400 gpm (US) actually delivered?	☐	☐
5-4.1.2 Were nozzle pressures/flows correct?	☐	☐
5-4.1.3 Were effective streams in service within recommended time?	☐	☐
5-4.1.4 Were the hose layouts from the water source adequate to supply pumpers?	☐	☐
5-4.1.5 Were streams operated without major interruption?	☐	☐

Appendix A

This Appendix is not a part of the requirements of the NFPA document . . . but is included for information purposes only.

A-1-3.1 With the exception of very small communities and isolated rural areas, standard response to structural fires is generally a minimum of two pumper companies on initial alarm. There are several reasons for this practice. In the first place, one pumper company ordinarily cannot be expected to promptly operate the proper streams for fast attack and also provide the necessary larger "backup" stream(s). Experience has frequently shown that small streams prove inadequate. Secondly, fires commonly call for prompt application of hose streams from at least two positions. Thirdly, there is always the possibility that an accident or mechanical failure may delay the arrival of one company.

A-1-3.2 In high value areas or for response to "target hazards," twice this initial fire attack capability may be needed.

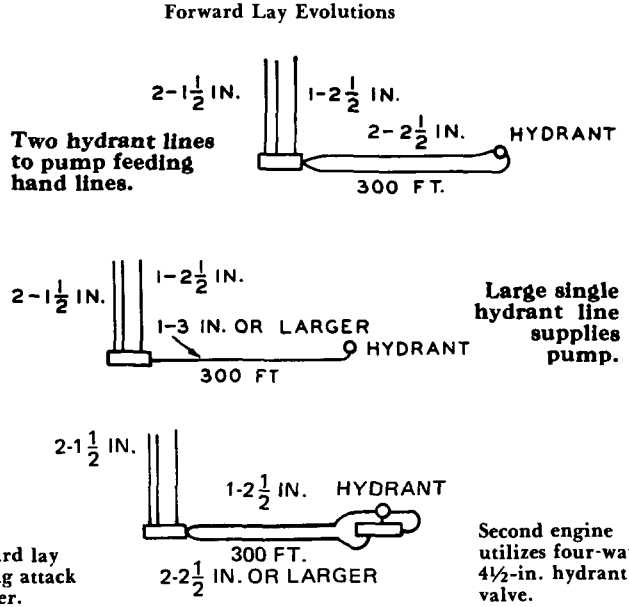
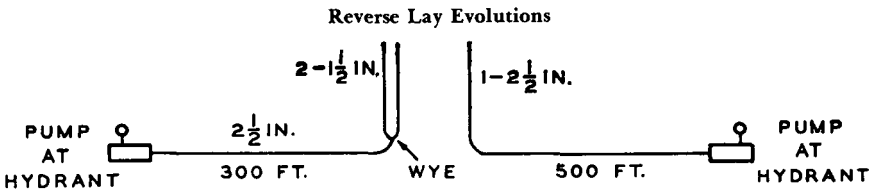
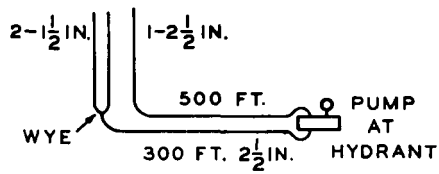


Figure A-2-1.1 Illustrations of some of the hose layouts that may be used in performing this evolution. (Continued on next page.)

Figure A-2-1.1 (Continued)

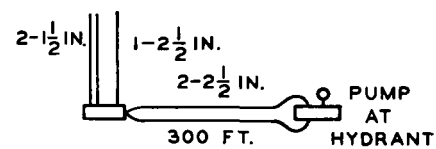


Two pumps spotted at hydrants feed line to wye and a 2½-in. handline.



Pump at hydrant feeds line to wye, and a 2½-inch line.

Two-pump evolution.



A-2-2.4 The purpose of this evolution is to test the department's ability to get pumper streams in service promptly with correct flows and nozzle pressures. Direct streams from low pressure hydrants usually do not provide the proper flows and nozzle pressures. Where this practice is employed, serious delays are often encountered before effective streams are in service. However, if a department commonly employs direct hose streams it may wish to apply the suggested scoring to determine the relative efficiency of this method against the proper employment of pumpers.

A-4.1.3 This delay in putting the second pumper into service recognizes the fact that in many cases the two companies do not arrive simultaneously due to such factors as volunteer response and traffic conditions. It also provides the evaluator with a greater opportunity to check the operations of the two companies. This is merely to suggest a standard procedure for the purposes of the test. The evaluator may desire to increase the time interval to simulate conditions where responding companies are widely spaced.

A-4-2.4 Pressure/flow may be determined either by Pitot gage measurement, piezometer gage readings, flow meter readings, or by pump discharge gage readings based upon known pressure requirements for the particular nozzles. A 1-in. nozzle tip will flow about 200 gpm (US). A 1⅛-in. tip will flow about 250 gpm (US). If a 1¼-in. nozzle tip is used, the flow will be about 300 gpm (US). Spray nozzles may be estimated at their rated delivery if the proper pump pressure is provided.

A-4-3.2 This is to show ability to advance the lines to necessary positions of operation. The evaluator may designate the positions where streams will be operated.

A-5-1.1.2 This evolution should not be considered as a race against time and no credit should be given for speed. However, failure to get the required hose streams in service in a reasonable time may indicate the need for additional training in fire attack evolutions. Undue delay due to faulty procedures could result in failure to control a fire.

A-5-2.6 Up to 10 seconds of interruption may be permitted to take care of situations such as transfer of water supply from tank to pump or shifting of lines from hydrants to pumps. Failure to obtain water from a hydrant before the booster tank is empty or inability to maintain flow when changing from tank to hydrant supply would be unsatisfactory.

A-5-3.1 Failure to promptly make adequate connections to utilize the available water supply is one of the most serious errors in making an initial attack on a fire. Getting streams into service quickly when lacking adequate volume and pressure cannot be considered as furnishing a standard initial fire attack. The most common cause of failure is to depend upon a single 2½-in. line to provide the required flow. At least two 2½-in. lines or a large pumper supply hose would be required to carry the needed 400 gpm (US) at pressures normally available.

A-5-4.1 The evaluation obtained should be useful to the training officer in determining areas where additional training is needed to provide a standard initial fire attack capability. It should not be considered surprising if, upon the first trial with this evolution, performance is not fully satisfactory. The concept of teamwork between companies for effective initial attack requires special training.