Module Overview

This module covers different types of preaction and deluge systems. It discusses deluge valves, auxiliary detection systems, release systems, and hydraulic and pneumatic activation. It also covers installation and troubleshooting techniques.

Prerequisites

Prior to training with this module, it is recommended that the trainee shall have successfully completed Core Curriculum; Sprinkler Fitting Level One; and Sprinkler Fitting Level Two.

Objectives

Upon completion of this module, the trainee will be able to do the following:

1. Identify and explain differences between deluge and preaction systems.
2. Identify the critical components of a deluge system and a preaction system.
3. Explain where preaction systems and deluge systems are generally installed.
4. Trip and reset a deluge valve.
5. Identify the three types of discharge nozzles used with a deluge system.
6. Identify and explain various methods of activating electrical release and electrical supervision.
7. Demonstrate the procedures to place a Firecycle® system in service.
8. Identify and explain non-, single-, and double-interlocked preaction systems.
9. Explain the main precautions that must be observed when placing non-, single-, and double-interlocked systems into service and describe activation.

Performance Tasks

Under the supervision of the instructor, the trainee should be able to do the following:

1. Trip and reset a deluge valve.
2. Demonstrate the procedures to place a Firecycle® system in service.
3. Using charts provided by your instructor, identify the differences between double-air-locked, single air-locked, pneumatic, and electric preaction systems.
4. Perform a hydrostatic test.

Materials and Equipment

Multimedia projector and screen
Sprinkler Fitting Level Three PowerPoint® Presentation Slides (ISBN 978-0-13-272926-0)
Computer
Whiteboard/chalkboard
Markers/chalk
Pencils and scratch paper
Appropriate personal protective equipment
Basic trainee tools
Measuring tape
Calculator
Deluge valves
Deluge valve with a pneumatic release system
Manufacturers’ literature on hydraulic release mechanisms

Standard sprinkler heads and associated manufacturers’ literature
Fixed-temperature releases and associated manufacturers’ literature
Rate-of-rise releases and associated manufacturers’ literature
Electric release mechanisms and associated manufacturers’ literature
Protectowire®, accessories, and manufacturer’s literature
Electrical thermostats
Infrared detectors and manufacturers’ literature
Manufacturers’ installation literature on preaction systems***
Discharge nozzles

continued
Located at the back of this module

Single-module AIG purchases include the printed exam and performance task sheet. If you have purchased the perfect-bound version of this title, download these materials from the IRC using your access code.

Training graphics and posters are available from major manufacturers. For example, Viking corporation produces system posters that are available by making a Viking literature request, or by contacting the local sales office. Posters that are available include:

- Deluge system
- Preaction system
- Surefire™ single-interlock system
- Firecycle® III system
- Foam/water deluge sprinkler system

Safety Considerations

Ensure that trainees are equipped with appropriate personal protective equipment and know how to use it properly. This module may require that trainees visit job sites. Ensure that trainees are briefed on site safety policies prior to any site visits. This module requires trainees to work with sprinkler systems and perform hydrostatic testing. Ensure all trainees are briefed on appropriate safety procedures.

Additional Resources

This module presents thorough resources for task training. The following resource material is suggested for further study.


Teaching Time For This Module

An outline for use in developing your lesson plan is presented below. Note that each Roman numeral in the outline equates to one session of instruction. Each session has a suggested time period of 2½ hours. This includes 10 minutes at the beginning of each session for administrative tasks and one 10-minute break during the session. Approximately 40 hours are suggested to cover Deluge/Preaction Systems. You will need to adjust the time required for hands-on activity and testing based on your class size and resources. Because laboratories often correspond to Performance Tasks, the proficiency of trainees may be noted during these exercises for Performance Testing purposes.

### Topic Planned Time

#### Sessions I through III. Introduction; Deluge Systems

A. Introduction

B. Deluge Systems

C. Deluge System Components Using a Fixed Piping Network

D. Deluge Valves

E. Release Mechanisms for Deluge Systems

F. Hanger Connecting Units and Attachments

G. Detection Systems for Electric Release Mechanisms

H. Laboratory

Have trainees practice tripping and resetting a deluge valve. This laboratory corresponds to Performance Task 1.
Sessions IV through VI. Preaction Systems
A. Preaction Systems
B. Non-Interlocked Preaction Systems
C. Single-Interlocked Preaction Systems
D. Double-Interlocked Preaction Systems
E. Laboratory
   Have trainees practice identifying the differences between different types of preaction systems. This laboratory corresponds to Performance Task 3.

Sessions VII through X. Firecyle® Systems
A. Firecyle® Systems
B. Core System Components
C. System Components
D. Maintenance
E. Firecyle® III
F. Laboratory
   Have trainees practice demonstrating the procedures to put a Firecyle® system in service. This laboratory corresponds to Performance Task 2.

Sessions XI through XV. Trim; Installation Techniques; Troubleshooting
A. Packaged Trim and Packaged Systems
B. Installation Precautions
C. Preparation for Hydrostatic Testing
D. Hydrostatic Test Demonstration
E. Laboratory
   Have trainees practice performing a hydrostatic test. This laboratory corresponds to Performance Task 4.
F. Troubleshooting Auxiliary Detection Systems

Session XVI. Review and Testing
A. Module Review
B. Module Examination
   1. Trainees must score 70% or higher to receive recognition from NCCER.
   2. Record the testing results on Training Report Form 200, and submit the results to the Training Program Sponsor.
C. Performance Testing
   1. Trainees must perform each task to the satisfaction of the instructor to receive recognition from NCCER. If applicable, proficiency noted during laboratory exercises can be used to satisfy the Performance Testing requirements.
   2. Record the testing results on Training Report Form 200, and submit the results to the Training Program Sponsor.
Module Overview

This module identifies and explains wet and dry standpipes; describes standpipe sizing, classification, and building codes; and reviews standards that must be followed for installation. It explains fire department connections, sleeves, bracing, and fire stopping.

Prerequisites

Prior to training with this module, it is recommended that the trainee shall have successfully completed Core Curriculum; Sprinkler Fitting Level One; Sprinkler Fitting Level Two; and Sprinkler Fitting Level Three, Module 18301-13.

Objectives

Upon completion of this module, the trainee will be able to do the following:

1. Identify the different types and classifications of standpipes.
2. Explain the requirements for standpipes for buildings under construction.
3. Explain the basic requirements for sizing standpipes hydraulically and by schedule.
4. Describe a hose rack assembly and how it works.
5. Describe roof manifolds.
6. Identify and explain fire department connections.
7. Identify types of hose valves and adapters.
8. Demonstrate flow test procedures used to validate minimum pressure and flow capability.
9. Identify, test, and adjust a pressure-reducing valve (PRV).
10. Demonstrate LINK-SEAL® installation procedures.

Performance Tasks

Under the supervision of the instructor, the trainee should be able to do the following:

1. Identify differences in valve size between Class I, II, and III standpipes.
2. Demonstrate flow test procedures used to validate minimum pressure and flow capability.
3. Identify standpipe components from schematics.
4. Pull hoses out of a cabinet and reassemble.
5. Identify different types of valves.
6. Adjust a PRV.

Materials and Equipment

Multimedia projector and screen
Sprinkler Fitting Level Three PowerPoint® Presentation Slides (ISBN 978-0-13-272926-0)
Computer
Whiteboard/chalkboard
Markers/chalk
Pencils and scratch paper
Appropriate personal protective equipment
Basic trainee tools
Measuring tape
Calculator

Standpipe schematics
NFPA 14
Building and fire codes
Hose racks
Cabinets
Roof manifolds
Fire department connections
Various styles of hose valves
Pressure-reducing valves and manufacturers’ literature
Sleeves

continued
Safety Considerations

Ensure that trainees are equipped with appropriate personal protective equipment and know how to use it properly. This module may require that trainees visit job sites. Ensure that trainees are briefed on site safety policies prior to any site visits. This module requires trainees to work with sprinkler systems and pressure reducing valves. Ensure all trainees are briefed on appropriate safety procedures.

Additional Resources

This module presents thorough resources for task training. The following resource material is suggested for further study.


Teaching Time For This Module

An outline for use in developing your lesson plan is presented below. Note that each Roman numeral in the outline equates to one session of instruction. Each session has a suggested time period of 2½ hours. This includes 10 minutes at the beginning of each session for administrative tasks and one 10-minute break during the session. Approximately 25 hours are suggested to cover Standpipes. You will need to adjust the time required for hands-on activity and testing based on your class size and resources. Because laboratories often correspond to Performance Tasks, the proficiency of trainees may be noted during these exercises for Performance Testing purposes.

<table>
<thead>
<tr>
<th>Topic</th>
<th>Planned Time</th>
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<tbody>
<tr>
<td>Sessions I and II. Introduction and Standpipe Classification</td>
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</tr>
<tr>
<td>A. Introduction</td>
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<tr>
<td>B. Standpipes</td>
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<tr>
<td>C. Standpipe Classification</td>
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<tr>
<td>D. Laboratory</td>
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<tr>
<td>- Have trainees practice identifying standpipe components from schematics.</td>
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<tr>
<td>- This laboratory corresponds to Performance Task 3.</td>
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<tr>
<td>E. Standpipe System Types</td>
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<tr>
<td>F. Standpipe Sizing</td>
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<tr>
<td>G. Laboratory</td>
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<tr>
<td>- Have trainees practice identifying differences in valve sizes between Class I, II, and III standpipes.</td>
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<tr>
<td>- This laboratory corresponds to Performance Task 1.</td>
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<tr>
<td>Sessions III and IV. Testing</td>
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<tr>
<td>A. Test Risers, Drains, and Main Drain Test Connections</td>
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<tr>
<td>B. Hydrostatic Tests</td>
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<tr>
<td>C. Flow Tests</td>
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<td>D. Laboratory</td>
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<tr>
<td>Have trainees practice demonstrating flow test procedures. This laboratory corresponds to Performance Task 2.</td>
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<tr>
<td>E. Minimum Flow Capability</td>
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<table>
<thead>
<tr>
<th>Session V. Standpipe Requirements</th>
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<tbody>
<tr>
<td>A. Standpipe Requirement Sources</td>
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<tr>
<td>B. Standpipe Requirements</td>
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<tr>
<td>C. Standpipe Installation</td>
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<thead>
<tr>
<th>Session VI. Standpipe Appurtenances, Part One</th>
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<tbody>
<tr>
<td>A. Hose Racks</td>
<td></td>
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<tr>
<td>B. Cabinets</td>
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<tr>
<td>C. Laboratory</td>
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<tr>
<td>Have trainees practice pulling hoses out of cabinets and reassembling them. This laboratory corresponds to Performance Task 4.</td>
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<tr>
<td>D. Roof Manifold</td>
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<tr>
<td>E. Fire Department Connections</td>
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<thead>
<tr>
<th>Sessions VII and VIII. Standpipe Appurtenances, Part Two</th>
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<tbody>
<tr>
<td>A. Valves</td>
<td></td>
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<tr>
<td>B. Laboratory</td>
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<tr>
<td>Have trainees practice identifying different types of valves. This laboratory corresponds to Performance Task 5.</td>
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<tr>
<td>C. Pressure-Reducing Valves</td>
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<tr>
<td>D. Laboratory</td>
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<tr>
<td>Have trainees practice adjusting a PRV. This laboratory corresponds to Performance Task 6.</td>
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</tbody>
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<thead>
<tr>
<th>Session IX. Sleeves, Clamps, Sway Bracing, and Link-Seal®</th>
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</thead>
<tbody>
<tr>
<td>A. Sleeves</td>
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<td>B. Clamps</td>
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<td>C. Earthquake Protection</td>
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<tr>
<td>D. Link-Seal®</td>
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<table>
<thead>
<tr>
<th>Session X. Review and Testing</th>
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<tbody>
<tr>
<td>A. Module Review</td>
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<tr>
<td>B. Module Examination</td>
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</tr>
<tr>
<td>1. Trainees must score 70% or higher to receive recognition from NCCER.</td>
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<tr>
<td>2. Record the testing results on Training Report Form 200, and submit the results to the Training Program Sponsor.</td>
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<tr>
<td>C. Performance Testing</td>
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<tr>
<td>1. Trainees must perform each task to the satisfaction of the instructor to receive recognition from NCCER. If applicable, proficiency noted during laboratory exercises can be used to satisfy the Performance Testing requirements.</td>
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</tr>
<tr>
<td>2. Record the testing results on Training Report Form 200, and submit the results to the Training Program Sponsor.</td>
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</tbody>
</table>
Module Overview

This module identifies the chemical and physical properties of water and covers the different water supplies available for automatic sprinkler systems. It describes the types of tanks, water main configurations, flow test procedures, system meters, fire department connections, and split pit requirements.

Prerequisites

Prior to training with this module, it is recommended that the trainee shall have successfully completed Core Curriculum; Sprinkler Fitting Level One; Sprinkler Fitting Level Two; and Sprinkler Fitting Level Three, Modules 18301-13 and 18302-13.

Objectives

Upon completion of this module, the trainee will be able to do the following:

1. Recognize federal, state, and jurisdictional requirements for supply and disposal of fire sprinkler system water.
2. Identify different water supplies for automatic sprinkler systems.
3. Explain the three qualities that are critical to the water supply for fire sprinkler systems.
4. Identify types of water storage and explain their usage.
5. Describe different water main configurations.
6. Perform flow test procedures.
7. Plot residual and static pressure on a graph.
8. Read a flow test results sheet and determine the number of outlets flowed, hydrant outlet size, and static and residual pressure.
10. Identify and describe backflow preventers and methods of installation.
11. Identify and describe meters used in fire sprinkler systems.

Performance Tasks

Under the supervision of the instructor, the trainee should be able to do the following:

1. Perform flow test procedures.
2. Plot residual and static pressure on a graph.
3. Read a flow test results sheet and determine the number of outlets flowed, hydrant outlet size, and static and residual pressure.
4. Fill out a flow test summary sheet.

Materials and Equipment

Multimedia projector and screen
Sprinkler Fitting Level Three PowerPoint® Presentation Slides (ISBN 978-0-13-272926-0)
Computer
Whiteboard/chalkboard
Markers/chalk
Pencils and scratch paper
Appropriate personal protective equipment
Basic trainee tools

Measuring tape
Calculator
Standpipe schematics
Hydrant wrenches
Tapped hydrant caps
Air chambers
Detector check valves
Backflow preventers
Check valve assembly

continued
Safety Considerations

Ensure that trainees are equipped with appropriate personal protective equipment and know how to use it properly. This module may require that trainees visit job sites. Ensure that trainees are briefed on site safety policies prior to any site visits. This module requires trainees to work with sprinkler systems. Ensure all trainees are briefed on appropriate safety procedures.

Additional Resources

This module presents thorough resources for task training. The following resource material is suggested for further study.


Teaching Time For This Module

An outline for use in developing your lesson plan is presented below. Note that each Roman numeral in the outline equates to one session of instruction. Each session has a suggested time period of 2½ hours. This includes 10 minutes at the beginning of each session for administrative tasks and one 10-minute break during the session. Approximately 15 hours are suggested to cover Water Supplies. You will need to adjust the time required for hands-on activity and testing based on your class size and resources. Because laboratories often correspond to Performance Tasks, the proficiency of trainees may be noted during these exercises for Performance Testing purposes.

<table>
<thead>
<tr>
<th>Topic</th>
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<tbody>
<tr>
<td>Sessions I and II. Introduction to Water Supplies</td>
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<tr>
<td>A. Introduction</td>
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<td>B. Water Chemistry</td>
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<td>C. Water Supplies</td>
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<td>D. Tank Types</td>
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<td>E. Infrastructure</td>
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</tbody>
</table>
Sessions III and IV. Testing

A. Measuring Water Supply Capability

B. Flow Tests

C. Laboratory
   Have trainees practice performing flow test procedures. This laboratory corresponds to Performance Task 1.

D. Plotting Information

E. Laboratory
   Have trainees practice plotting residual and static pressure on a graph. This laboratory corresponds to Performance Task 2.

F. Laboratory
   Have trainees practice reading a flow test results sheet, determining the number of outlets flowed, hydrant outlet size, and static and residual pressure. This laboratory corresponds to Performance Task 3.

G. Laboratory
   Have trainees practice filling out a flow test summary sheet. This laboratory corresponds to Performance Task 4.

Session V. Water Supply Appurtenances

A. Water Purveyor

B. Meters

C. Detector Check Valves

D. Backflow Preventers

E. Fire Department Connections

F. Pits

Session VI. Review and Testing

A. Module Review

B. Module Examination
   1. Trainees must score 70% or higher to receive recognition from NCCER.
   2. Record the testing results on Training Report Form 200, and submit the results to the Training Program Sponsor.

C. Performance Testing
   1. Trainees must perform each task to the satisfaction of the instructor to receive recognition from NCCER. If applicable, proficiency noted during laboratory exercises can be used to satisfy the Performance Testing requirements.
   2. Record the testing results on Training Report Form 200, and submit the results to the Training Program Sponsor.
Module Overview

This module identifies and explains various fire pump systems, pumps, and drivers, controllers, and sensing lines. It describes supervision and project requirement checklists. Testing, maintenance, and troubleshooting are discussed, as well as inspection and maintenance in existing pump rooms and frequently encountered problems.

Prerequisites

Prior to training with this module, it is recommended that the trainee shall have successfully completed Core Curriculum; Sprinkler Fitting Level One; Sprinkler Fitting Level Two; and Sprinkler Fitting Level Three, Modules 18301-13 through 18303-13.

Objectives

Upon completion of this module, the trainee will be able to do the following:

1. Explain the basic components and types that make up a fire pump system.
2. Identify the NFPA standard that covers the installation of fire pumps.
3. Explain the minimum residual pressure in pounds per square inch (psi) that can be used when pumping from a municipal water supply.
4. Convert pressure ratings from psi to feet of head and vice versa.
5. Explain how to set and align a pump.
6. Discuss the different types of and requirements for fire pump controllers.
7. Discuss monitoring requirements for fire pumps.
8. Describe acceptance testing of fire pumps.
9. Perform a mechanical check of a fire pump system.
10. Measure the flow of a system.
11. Identify potential causes for a malfunctioning fire pump.

Performance Tasks

Under the supervision of the instructor, the trainee should be able to do the following:

1. Identify different fire pump elements such as pumps, drivers, strainers, pump controllers, bypasses, test headers, and flow meters.
2. Identify potential causes for a malfunctioning fire pump.
3. Perform a mechanical check of a fire pump system.
4. Measure the flow of a system.
5. Troubleshoot the cause and give corrective action for a malfunctioning fire pump.

Materials and Equipment

- Multimedia projector and screen
- Sprinkler Fitting Level Three PowerPoint® Presentation Slides (ISBN 978-0-13-272926-0)
- Computer
- Whiteboard/chalkboard
- Markers/chalk
- Pencils and scratch paper
- Appropriate personal protective equipment
- Basic trainee tools
- Measuring tape
- Calculator
- Standpipe schematics
- Hydrant wrenches
- Alignment tools
- Pumps
- Drivers
- Meters
- Nozzles
- Mercoid switches
- Controllers

continued
Safety Considerations

Ensure that trainees are equipped with appropriate personal protective equipment and know how to use it properly. This module may require that trainees visit job sites. Ensure that trainees are briefed on site safety policies prior to any site visits. This module requires trainees to work with fire pumps. Ensure all trainees are briefed on appropriate safety procedures.

Additional Resources

This module presents thorough resources for task training. The following resource material is suggested for further study.


Teaching Time For This Module

An outline for use in developing your lesson plan is presented below. Note that each Roman numeral in the outline equates to one session of instruction. Each session has a suggested time period of 2½ hours. This includes 10 minutes at the beginning of each session for administrative tasks and one 10-minute break during the session. Approximately 40 hours are suggested to cover Fire Pumps. You will need to adjust the time required for hands-on activity and testing based on your class size and resources. Because laboratories often correspond to Performance Tasks, the proficiency of trainees may be noted during these exercises for Performance Testing purposes.

<table>
<thead>
<tr>
<th>Topic</th>
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<tbody>
<tr>
<td>Sessions I and II. Introduction to Fire Pump Systems</td>
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<tr>
<td>A. Introduction</td>
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<tr>
<td>B. Fire Pump Categories and System Functions</td>
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<tr>
<td>C. Rated Enclosure</td>
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<tr>
<td>D. Fire Pump System Elements</td>
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<td>E. Fire Pump Performance Requirements</td>
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<tr>
<td>F. Fire Pump Alignment</td>
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</tbody>
</table>
Sessions III through V. Pumps and Drivers

A. Centrifugal Pumps
B. Pump Types
C. Driver History
D. Driver Types (Electric, Gas, Diesel, Steam)
E. Laboratory
   Have trainees practice identifying different fire pump elements. This laboratory corresponds to Performance Task 1.
F. Pump Performance Curves

Sessions VI and VII. Controllers, Sensing Lines, and Supervision

A. Controller Functions
B. Cabinet Styles
C. Controllers
D. Starting Mechanisms
E. Transfer Switches
F. Sensing Controls
G. Supervision

Session VIII. Project Checklists, Installation, and Startup

A. Civil Checklist
B. Mechanical and Electrical Checklists
C. Environmental Issues
D. Introduction to Pump Room Equipment

Sessions IX and X. Installation and Testing

A. The Test Header
B. Flow Meters
C. Pre-Startup Procedures
D. Electric Fire Pump Checklist
E. Laboratory
   Have trainees practice measuring the flow of a system. This laboratory corresponds to Performance Task 4.
F. Diesel Fire Pump Installation Checklist
G. Laboratory
   Have trainees practice performing a mechanical check of a fire pump system. This laboratory corresponds to Performance Task 3.

Sessions XI and XII. Periodic Maintenance and Troubleshooting

A. Weekly Test Procedures
B. Six-Month Preventive Maintenance
C. Troubleshooting
D. Laboratory
   Have trainees practice troubleshooting a system. This laboratory corresponds to Performance Task 5.

Sessions XIII through XV. Existing Pump Rooms

A. Inspection of Existing Pump Rooms
B. Frequently Encountered Problems
C. Laboratory
   Have trainees practice identifying potential causes for a malfunctioning fire pump. This laboratory corresponds to Performance Task 2.
Session XVI. Review and Testing

A. Module Review
   ____________

B. Module Examination
   1. Trainees must score 70% or higher to receive recognition from NCCER.
   2. Record the testing results on Training Report Form 200, and submit the results to the Training Program Sponsor.

C. Performance Testing
   1. Trainees must perform each task to the satisfaction of the instructor to receive recognition from NCCER. If applicable, proficiency noted during laboratory exercises can be used to satisfy the Performance Testing requirements.
   2. Record the testing results on Training Report Form 200, and submit the results to the Training Program Sponsor.
Module Overview

This module introduces special sprinklers and nozzles. It covers various types of sprinklers and nozzles and the area of coverage, positioning, and obstruction requirements.

Prerequisites

Prior to training with this module, it is recommended that the trainee shall have successfully completed the Core Curriculum; Sprinkler Fitting Level One; Sprinkler Fitting Level Two; and Sprinkler Fitting Level Three, Modules 18301-13 through 18304-13.

Objectives

Upon completion of this module, the trainee will be able to do the following:

1. Identify, describe, and explain application-specific sprinklers.
2. Explain areas of coverage, positioning, and obstruction requirements.
3. Select correct types of sprinklers based on occupancy and obstruction requirements.
4. Select proper escutcheon for recess sprinklers.
5. Identify and explain nozzles.
6. Describe different types of nozzles.
7. Size and install dry sprinklers.
8. Size and install an attic sprinkler.

Performance Tasks

Under the supervision of the instructor, the trainee should be able to do the following:

1. Select correct types of sprinklers based on occupancy and obstruction requirements.
2. Select the proper escutcheon for recess sprinklers.
3. Size and install dry sprinklers.
4. Install an attic sprinkler on a swing joist so as to align with the pitch of the roof.

Materials and Equipment

Multimedia projector and screen
Sprinkler Fitting Level Three PowerPoint® Presentation Slides (ISBN 978-0-13-272926-0)
Computer
Whiteboard/chalkboard
Markers/chalk
Pencils and scratch paper
Appropriate personal protective equipment
Basic trainee tools
Measuring tape
Calculator
Extended coverage upright and pendent sprinklers
Extended coverage sidewall sprinklers
Residential sprinklers and manufacturers’ literature
Control mode specific application (CMSA) sprinklers
Early suppression fast response (ESFR) sprinklers
Intermediate level sprinklers
Dry sprinklers
Hangers and supports
Pipe
Tools and supplies for installing sprinklers
Institutional sprinklers
On-off sprinklers
Attic sprinklers
Combustible concealed space sprinklers
Nozzles
Copies of the Quick Quiz*
Module Examinations**
Performance Profile Sheets**

* Located at the back of this module.
** Single-module AIG purchases include the printed exam and performance task sheet. If you have purchased the perfect-bound version of this title, download these materials from the IRC using your access code.
Safety Considerations

Ensure that trainees are equipped with appropriate personal protective equipment and know how to use it properly. This module may require that trainees visit job sites. Ensure that trainees are briefed on site safety policies prior to any site visits. This module requires trainees to work with sprinkler systems. Ensure all trainees are briefed on appropriate safety procedures.

Additional Resources

This module presents thorough resources for task training. The following resource material is suggested for further study.


Teaching Time For This Module

An outline for use in developing your lesson plan is presented below. Note that each Roman numeral in the outline equates to one session of instruction. Each session has a suggested time period of 2½ hours. This includes 10 minutes at the beginning of each session for administrative tasks and one 10-minute break during the session. Approximately 27 ½ hours are suggested to cover *Application-Specific Sprinklers and Nozzles*. You will need to adjust the time required for hands-on activity and testing based on your class size and resources. Because laboratories often correspond to Performance Tasks, the proficiency of trainees may be noted during these exercises for Performance Testing purposes.

<table>
<thead>
<tr>
<th>Topic</th>
<th>Planned Time</th>
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<tbody>
<tr>
<td>Sessions I through IV. Introduction; Special Sprinklers</td>
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<tr>
<td>A. Introduction</td>
<td>_______</td>
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<tr>
<td>B. Extended Coverage Upright and Pendent Sprinklers</td>
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<td>C. Extended Coverage Sidewall Sprinklers</td>
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<td>D. Residential Sprinklers</td>
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<td>E. CMSA Sprinklers</td>
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<tr>
<td>F. Early Suppression Fast Response Sprinklers</td>
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<td>G. Intermediate Level Sprinklers</td>
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<td>H. Laboratory</td>
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<tr>
<td>Have trainees practice selecting the correct type of sprinklers based on occupancy and obstruction requirements. This laboratory corresponds to Performance Task 1.</td>
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<tr>
<td>I. Laboratory</td>
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<tr>
<td>Have trainees practice selecting proper escutcheon for recess sprinklers. This laboratory corresponds Performance Task 2.</td>
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Sessions V and VI. Dry and Institutional Sprinklers
A. Dry Sprinklers

B. Dry Sprinklers in Freezers

C. Laboratory
   Have trainees practice sizing and installing dry sprinklers. This laboratory corresponds to Performance Task 3.

D. Institutional Sprinklers

Sessions VII through IX. Periodic Maintenance and Troubleshooting
A. On-Off Sprinklers

B. Special Sprinklers

C. Attic Sprinklers

D. Laboratory
   Have trainees practice installing an attic sprinkler. This laboratory corresponds to Performance Task 4.

Session X. Nozzles and Coatings
A. Nozzles

B. Corrosion-Resistant Coatings

Session XI. Review and Testing
A. Module Review

B. Module Examination
   1. Trainees must score 70% or higher to receive recognition from NCCER.
   2. Record the testing results on Training Report Form 200, and submit the results to the Training Program Sponsor.

C. Performance Testing
   1. Trainees must perform each task to the satisfaction of the instructor to receive recognition from NCCER. If applicable, proficiency noted during laboratory exercises can be used to satisfy the Performance Testing requirements.
   2. Record the testing results on Training Report Form 200, and submit the results to the Training Program Sponsor.