

L1 SPRINKLER FITTING



LEVEL 1

Curriculum Notes

- 145 Hours (Includes 72.5 hours of Core Curriculum which is a prerequisite for Level 1 completion and must be purchased separately. See p. 14 for ordering information.)
- Revised: 2013, Third Edition to reflect *NFPA 13*
- Downloadable instructor resources that include module tests, PowerPoints®, and performance profile sheets are available at www.nccer.org/irc.

PAPERBACK

ISBN

Trainee Guide: \$67

978-0-13-380297-9

Instructor's Guide: \$67

978-0-13-380319-8

MODULES

All of the modules listed below are included in the Trainee Guide and the Instructor's Guide. The following ISBN and pricing information is for ordering individual modules only.

Orientation to the Trade (5 Hours)

Trainee \$20

ISBN 978-0-13-378229-5

Instructor \$20

ISBN 978-0-13-378249-3

(Module ID 18101-13) Identifies sprinkler fitter career opportunities and typical work environments. Examines trade-specific safety hazards and identifies shop plans specific to the sprinkler fitting industry. Introduces workplace safety, material handling, and the proper use of common tools.

Introduction to Components and Systems (7.5 Hours)

Trainee \$20

ISBN 978-0-13-378240-0

Instructor \$20

ISBN 978-0-13-378250-9

(Module ID 18102-13) Introduces testing laboratories and listing agencies. Provides an overview of the major types of sprinkler systems including wet pipe, dry pipe, preaction, and deluge systems. Defines sprinkler-head types, orifice size, and K-Factor. Underground and aboveground pipe and tubes are discussed, including hangers, bracing, and restraints. Also covers valves, alarms, and fire department connections.

Steel Pipe (22.5 Hours)

Trainee \$20

ISBN 978-0-13-378246-2

Instructor \$20

ISBN 978-0-13-378251-6

(Module ID 18103-13) Identifies steel piping materials along with tools used to cut and thread steel pipe. Describes methods for threading, cutting, and grooving pipe, including how to determine pipe length between fittings (takeouts). Discusses threaded, plain-end, and flanged fittings.

CPVC Pipe and Fittings (10 Hours)

Trainee \$20

ISBN 978-0-13-378247-9

Instructor \$20

ISBN 978-0-13-378252-3

(Module ID 18104-13) Describes handling and storage of CPVC pipe. Identifies CPVC safety concerns and cautions. Outlines methods and tools for cutting, chamfering, and cleaning CPVC pipe, including calculating takeouts. Joining techniques are described, particularly the solvent-cement (one-step) method. Rules for using plastic pipe hangers are explained.

Copper Tube Systems (10 Hours)

Trainee \$20

ISBN 978-0-13-378435-0

Instructor \$20

ISBN 978-0-13-378562-3

(Module ID 18105-13) Introduces copper tubing and fittings along with cutting and bending tools. Describes the soldering process and techniques for measuring, cutting, reaming, and cleaning. Brazing is described as are brazing metals, fluxes, and brazing equipment. Support bracing for copper tube and grooved couplings for copper pipe are also discussed.

Underground Pipe (17.5 Hours)

Trainee \$20

ISBN 978-0-13-378248-6

Instructor \$20

ISBN 978-0-13-378254-7

(Module ID 18106-13) Details underground piping installations for various types of pipe. Explains thrust blocks and restraints. In-building risers, hydrants, yard valves, and hydrant houses are discussed as are testing, inspection, flushing, and chlorinating. The underground test certificate is also covered.

L2 SPRINKLER FITTING

LEVEL 2

Curriculum Notes

- 152.5 Hours
- Revised: 2013, Third Edition to reflect *NFPA 13*
- Downloadable instructor resources that include module tests, PowerPoints®, and performance profile sheets are available at www.nccer.org/irc.

PAPERBACK

ISBN

Trainee Guide: \$90

978-0-13-380290-0

Instructor's Guide: \$90

978-0-13-380301-3

MODULES

All of the modules listed below are included in the Trainee Guide and the Instructor's Guide. The following ISBN and pricing information is for ordering individual modules only.

Hangers, Supports, Restraints, and Guides (15 Hours)

Trainee \$20

ISBN 978-0-13-378255-4

Instructor \$20

ISBN 978-0-13-378263-9

(Module ID 18201-13) Identifies strength/spacing requirements, types, and installation of pipe hangers, supports, restraints, and guides. Covers types and installation of earthquake bracing and explains sleeving and fire-stopping.

General Purpose Valves (15 Hours)

Trainee \$20

ISBN 978-0-13-378256-1

Instructor \$20

ISBN 978-0-13-378264-6

(Module ID 18202-13) Covers types of valves and valve applications, including service procedures for standard valves. Also covers installation of OS&Y valves, butterfly grooved valves, and tamper switches. Outlines procedures for disassembling, servicing, and reassembling check valves.

General Trade Math (20 Hours)

Trainee \$20

ISBN 978-0-13-378259-2

Instructor \$20

ISBN 978-0-13-378265-3

(Module ID 18203-13) Reviews math principles used to solve everyday problems, including unit conversion from the English system to the metric system and vice versa. Includes sprinkler fitting problems such as calculating 45-degree offsets and tank volume, centering sprinkler heads using geometric methods, and problems relating to hanger sizing.

Shop Drawings (32.5 Hours)

Trainee \$20

ISBN 978-0-13-378257-8

Instructor \$20

ISBN 978-0-13-378267-7

(Module ID 18204-13) Explains how to read drawings to identify materials, calculate square footage and number of sprinklers required, lay out sprinkler hanger locations, and identify sprinkler orifice sizes.

Standard Spray Fire Sprinklers (20 Hours)

Trainee \$20

ISBN 978-0-13-378260-8

Instructor \$20

ISBN 978-0-13-378268-4

(Module ID 18205-13) Discusses standard spray sprinklers relative to occupancies and to maximum coverage calculations. Explains how to identify sprinkler manufacturer and type using the Sprinkler Identification Number (SIN).

Wet Fire Sprinkler Systems (25 Hours)

Trainee \$20

ISBN 978-0-13-378261-5

Instructor \$20

ISBN 978-0-13-378269-1

(Module ID 18206-13) Explains the purpose, function, and operation of wet pipe system components. Describes riser check valves, alarm check valves, and trim; flow, tamper, and pressure switches; fire department connections and hose stations; antifreeze systems; faulty pressure gauges; inspector's test connections and auxiliary drains; and hydrostatic testing and test pumps.

Dry-Pipe Systems (25 Hours)

Trainee \$20

ISBN 978-0-13-378262-2

Instructor \$20

ISBN 978-0-13-378270-7

(Module ID 18207-13) Explains the purpose, function, and operation of components used in a dry-pipe system. Describes how to install pressure gauges on alarm valves and accelerators, how to set and adjust an air maintenance device, and how to reset and troubleshoot dry-pipe systems.

L3 SPRINKLER FITTING

LEVEL 3

Curriculum Notes

- 147.5 Hours
- Revised: 2013, Third Edition to reflect *NFPA 13*
- Downloadable instructor resources that include module tests, PowerPoints®, and performance profile sheets are available at www.nccer.org/irc.

PAPERBACK

ISBN

Trainee Guide: \$90

978-0-13-383079-8

Instructor's Guide: \$90

978-0-13-383923-4

MODULES

All of the modules listed below are included in the Trainee Guide and the Instructor's Guide. The following ISBN and pricing information is for ordering individual modules only.

Deluge/Preaction Systems (40 Hours)

Trainee \$20

ISBN 978-0-13-378871-6

Instructor \$20

ISBN 978-0-13-378876-1

(Module ID 18301-13) Describes deluge and preaction systems and explains installation techniques and troubleshooting. Covers hydraulic and pneumatic release mechanisms, non-interlocked and interlocked preaction systems and Firecycle® Systems.

Sprinkler Fitting Level 3 (continued)

Standpipes (25 Hours)

Trainee \$20 ISBN 978-0-13-378872-3
Instructor \$20 ISBN 978-0-13-378877-8
(Module ID 18302-13) Describes standpipe classifications and explains flow capabilities of each type. Covers requirements for sizing and installation of standpipes. Discusses pressure-reducing valves under flow and no-flow conditions. Also covers LINK-SEAL® installations.

Water Supplies (15 Hours)

Trainee \$20 ISBN 978-0-13-378873-0
Instructor \$20 ISBN 978-0-13-378879-2
(Module ID 18303-13) Covers basic water chemistry and properties. Discusses methods of determining water supply requirements and considerations for supply systems. Discusses infrastructure, measurement of water supply capability, water supply appurtenances, fire department connections, and typical city water pits.

Fire Pumps (40 Hours)

Trainee \$20 ISBN 978-0-13-378874-7
Instructor \$20 ISBN 978-0-13-378880-8
(Module ID 18304-13) Covers fire pump categories and components. Describes fire pump controller requirements and fire pump performance and alignment. Explains pump and driver characteristics and performance curves as well as controllers, sensing lines, supervision, and starting methods. Outlines project requirements, installation, maintenance, and troubleshooting.

Application-Specific Sprinklers and Nozzles

(27.5 Hours)

Trainee \$20 ISBN 978-0-13-378875-4
Instructor \$20 ISBN 978-0-13-378881-5
(Module ID 18305-13) Describes application-specific sprinkler types and requirements. Discusses area of coverage, positioning, and obstruction requirements and explains system selection.

L4 SPRINKLER FITTING

LEVEL 4

Curriculum Notes

- 145 Hours
- Revised: 2013, Third Edition to reflect *NFPA 13*
- Downloadable instructor resources that include module tests, PowerPoints®, and performance profile sheets are available at www.nccer.org/irc.

PAPERBACK

ISBN

Trainee Guide: \$90

978-0-13-383105-4

Instructor's Guide: \$90

978-0-13-383595-3

MODULES

All of the modules listed below are included in the Trainee Guide and the Instructor's Guide. The following ISBN and pricing information is for ordering individual modules only.

System Layout (45 Hours)

Trainee \$20 ISBN 978-0-13-378882-2
Instructor \$20 ISBN 978-0-13-378888-4
(Module ID 18401-13) Identifies basic hydraulic concepts and selection of hydraulic design methods. System configuration, design criteria, discharge characteristics, and types of pressure loss are explained. Explains how to perform fire sprinkler system hydraulic calculations.

Inspection, Testing, and Maintenance

(17.5 Hours)

Trainee \$20 ISBN 978-0-13-378883-9
Instructor \$20 ISBN 978-0-13-378889-1
(Module ID 18402-13) Describes initial and periodic testing and inspection requirements, as well as maintenance and repair of wet-pipe systems, dry-pipe systems, preaction/deluge systems, and special systems.

Special Extinguishing Systems (42.5 Hours)

Trainee \$20 ISBN 978-0-13-378884-6
Instructor \$20 ISBN 978-0-13-378890-7
(Module ID 18403-13) Identifies the following extinguishing exposure systems: water spray, foam, carbon dioxide, Halon, auxiliary and local alarm. Limited water systems, fire extinguishers, and water mist suppression systems are also covered.

Introductory Skills for the Foreman (20 Hours)

Trainee \$20 ISBN 978-0-13-378885-3
Instructor \$20 ISBN 978-0-13-378892-1
(Module ID 18404-13) Introduces the role of foremanship and covers responsibilities, leadership, and safety. Also explains project documentation and reports related to materials tracking and labor tracking.

Procedures and Documentation (20 Hours)

Trainee \$20 ISBN 978-0-13-378887-7
Instructor \$20 ISBN 978-0-13-378893-8
(Module ID 18405-13) Explains the importance of proper documentation to ensure correct installation and avoid future rework and possible unintentional releases. Emphasizes the need to properly document the actual installation using written reports and photographs. Includes causes of and responses to water damage, and provides a case history of an unintentional release.

