

# Mechanical Insulating

## L1 MECHANICAL INSULATING

LEVEL 1



Mechanical Insulating

### Curriculum Notes

- 170 Hours (includes Core)
- Revised: 2018, Second Edition
- Downloadable instructor resources are available.

### PAPERBACK

Trainee Guide: \$74.99

ISBN

978-0-13-413099-6

### MODULES

The modules listed below are included in the Trainee Guide. The following ISBNs are for ordering individual modules only.

#### Orientation to the Trade (5 Hours)

ISBN 978-0-13-448313-9

(Module ID 19101-18) Provides an overview of the insulation industry, including how and why insulation is used, safety factors related to insulation, and common insulation-specific tools.

#### Material Handling, Storage, and Distribution (2.5 Hours)

(2.5 Hours)

ISBN 978-0-13-448314-6

(Module ID 19104-18) Covers receiving, stacking, and storage of insulation materials, as well as material movement on the jobsite.

#### Characteristics of Pipe (5 Hours)

ISBN 978-0-13-448318-4

(Module ID 19105-18) Provides an overview of different pipe types and their uses, pipe sizing methodology, and the relationship between pipe sizes and insulation sizes.

#### Plumbing Systems (7.5 Hours)

ISBN 978-0-13-448319-1

(Module ID 19209-18) Covers cold and hot water plumbing systems and insulation requirements for different types of plumbing systems.

#### Chilled and Hot Water Heating Systems (5 Hours)

(5 Hours)

ISBN 978-0-13-448321-4

(Module ID 19210-18) Covers chilled and hot water heating and dual temperature systems, including the types of pipe and equipment common to each type of system. Explains the types of insulation required by each type of system.

#### Installing Fiberglass Pipe Insulation (30 Hours)

ISBN 978-0-13-448323-8

(Module ID 19106-18) Describes the characteristics of fiberglass pipe insulation and the characteristics of ASJ jacketing.

#### Insulating Pipe Fittings, Valves, and Flanges (40 Hours)

(40 Hours)

ISBN 978-0-13-448326-9

(Module ID 19107-18) Explains insulation requirements for fittings, valves, and flanges. Provides tips for professional and economical installation.

## L2 MECHANICAL INSULATING

LEVEL 2

### Curriculum Notes

- 170 Hours
- Updated in 2018.

### PAPERBACK

Trainee Guide: \$99.99

ISBN

978-0-13-416315-4

#### Flexible Foam Insulation (25 Hours)

ISBN 978-0-13-489680-9

(Module ID 19201) Covers proper tool use and procedures for installing flexible foam insulation, including how to cut and install flexible foam insulation on pipe fittings, valves, flanges, equipment, and air ducts.

#### Air Duct Systems (7.5 Hours)

ISBN 978-0-13-489678-6

(Module ID 19302) Covers the identification of various duct systems and their associated components.

#### Blanket Insulation for Ducts (7.5 Hours)

ISBN 978-0-13-498777-4

(Module ID 19202) Covers fiberglass blanket installation to ducts and apparatus and discusses vapor-sealed blanket insulation facings.

#### Board Insulation for Ducts (20 Hours)

ISBN 978-0-13-498775-0

(Module ID 19203) Covers fiberglass board insulation applications, such as cutting fiberglass board insulation to fit over standing seams and stiffeners, vapor-seal applications, and cutting and installing fiberglass board insulation on round or oval ducts.

#### Cements and Fabric Finishes (10 Hours)

ISBN 978-0-13-498772-9

(Module ID 19208) Covers the proper use of finishing tools, cleanup and protection procedures, and the limitations of cements, fabric finishes, and mastics.

#### Insulation Adhesives (5 Hours)

ISBN 978-0-13-498770-5

(Module ID 19304) Covers the identification, application, and use of adhesives.

#### Vapor Retarders and Insulation Coatings (10 Hours)

(10 Hours)

ISBN 978-0-13-498767-5

(Module ID 19211) Addresses the need to avoid the intrusion of water vapor into porous insulation and vapor retardant materials available to mechanical insulators. Trainees will also learn how to apply vapor-retardant mastics and membranes for common insulating scenarios.

#### Steam and Process Water Systems (10 Hours)

ISBN 978-0-13-498764-4

(Module ID 19305) Covers the identification of steam and condensate piping and describes steam and process water systems and their components.

#### Calcium Silicate/Expanded Perlite Pipe Insulation (20 Hours)

(20 Hours)

ISBN 978-0-13-498762-0

(Module ID 19204) Discusses the safe handling and storage of calcium silicate pipe insulation, how to make accurate cuts, and how to install single- and double-layers of calcium silicate pipe insulation.

#### Rigid Foam and Cellular Glass Insulation (12.5 Hours)

(12.5 Hours)

ISBN 978-0-13-498760-6

(Module ID 19206) Covers the proper use of tools; handling and storage of rigid foam insulation; measuring, cutting, installing, and sealing rigid foam plastic and cellular glass insulation; cryogenic installation; expansion joints; contraction joints; and vapor stops.

### MODULES

The modules listed below are included in the Trainee Guide. The following ISBNs are for ordering individual modules only.

#### Construction Drawings and Specifications (12.5 Hours)

(12.5 Hours)

ISBN 978-0-13-498783-5

(Module ID 19309) Describes how to determine the insulation requirements of a project by interpreting construction drawings.

#### Trade Math and Layout (7.5 Hours)

ISBN 978-0-13-498780-4

(Module ID 19212) Reviews some basic arithmetic and geometric concepts applicable to the mechanical insulating craft. Building on these basic skills, trainees then learn drafting and layout methods that they will frequently use throughout their careers.

#### Heat Transfer (2.5 Hours)

ISBN 978-0-13-489682-3

(Module ID 19303) Describes methods of heat transfer and moisture migration and discusses the application of various types of insulation to slow or prevent these processes.

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## Mechanical Insulating Level 2 (continued)

### Industrial Boiler Systems (7.5 Hours)

ISBN 978-0-13-498757-6

(Module ID 19306) Describes boilers and related equipment, and their insulation requirements.

### Mineral Wool Insulation (12.5 Hours)

ISBN 978-0-13-498755-2

(Module ID 19205) Describes how to measure, cut, and score mineral wool insulation. Discusses attachments used on mineral wool, installation methods, sealing requirements, and how to use pin welding equipment.

## L3 MECHANICAL INSULATING

### LEVEL 3

#### Curriculum Notes

- 152.5 Hours
- Updated in 2018.

#### PAPERBACK

Trainee Guide: \$99.99

#### ISBN

978-0-13-483379-8

### MODULES

The modules listed below are included in the Trainee Guide. The following ISBNs are for ordering individual modules only.

#### Board and Block Insulation (17.5 Hours)

ISBN 978-0-13-498753-8

(Module ID 19207) Covers the measuring requirements of board and block insulation; scoring, beveling, and cutting methods; and how to install board and block insulation on flat or curved surfaces and on large diameter tanks.

#### Sheet-Metal Lagging (15 Hours)

ISBN 978-0-13-498752-1

(Module ID 19312) Describes the identification and application of common sheet metal tools, discusses fabrication and installation methods, and covers flashing and sealing techniques.

#### Jacketing Systems (12.5 Hours)

ISBN 978-0-13-498749-1

(Module ID 19313) Describes the purposes and the types of insulation jacketing available for mechanical systems. This module also explains how to work with various kinds of organic, polymeric, and other types of jacket not made from rigid sheet metal.

#### Jacketing Fabrication – Pipe and Fittings

(42.5 Hours)

ISBN 978-0-13-498747-7

(Module ID 19310) Covers the identification and applications of pipes and pipe fittings and describes types of pipe and fitting jacketing, along with layout installation procedures and securements.

#### Jacketing Fabrication – Vessels and Equipment (25

Hours)

ISBN 978-0-13-498743-9

(Module ID 19311) Covers the identification of vessel and equipment jacketing, along with layout, fabrication, installation procedures, and securements.

#### Removable and Reusable Flexible Insulation

Covers (12.5 Hours)

ISBN 978-0-13-498740-8

(Module ID 19314) Provides a detailed introduction to removable and reusable flexible insulation covers, and explains the construction and installation of commercially-fabricated and kit insulation covers.

#### Specialized Insulation Systems (5 Hours)

ISBN 978-0-13-498739-2

(Module ID 19308) Describes special-application insulation systems, including low-temperature and prefabricated panels; refractory insulation; soft pads and pre-shaped removable covers; preinsulated systems; spray, foam, and pour-in-place insulation; fire stops; noise and sound control systems; and cryogenic applications.

#### Fundamentals of Crew Leadership (22.5 Hours)

ISBN 978-0-13-487188-2

(Module ID 46101) The course covers basic leadership skills and explains different leadership styles, communication, delegating, and problem solving. Jobsite safety and the crew leader's role in safety are discussed, as well as project planning, scheduling, and estimating.