

19201 Installing Flexible Insulation

Objectives

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

1. Understand the basic characteristics of flexible foam insulation.
2. Identify and use the proper tools for applications.
3. Learn to install flexible foam pipe insulation.
4. Cut and install flexible foam insulation for fittings, valves, and flanges.
5. Cut and install flexible foam insulation for equipment and air ducts.

Performance Tasks

1. Identify the tools used to apply flexible foam insulation.
2. Cut and install flexible foam pipe insulation.
3. Cut and install flexible foam insulation for fittings, valves, and flanges.
4. Cut and install flexible foam insulation for equipment and air ducts.

A Note to the Instructor

Before teaching this Task Module, you should review the details in this Instructor's Guide for Equipment and Materials, Testing and the suggested Teaching Sequence. Be sure to allow ample time to prepare your own training plan or lesson plan and to gather all required equipment and materials.

Required Equipment and Materials

The following materials are required for instruction using this module:

Appropriate Personal Protective Equipment	Sheet metal
Overhead projector and screen	Wooden support blocks
Whiteboard / chalkboard	Trainee Task Module
Miter box	Transparencies
Knives	Markers / chalk
Sharpening stone	Paper / pencils
Paint roller	Flexible pipe and sheet foam adhesive
Adhesive brushes	Flexible pipe foam
Glue gun with brush tip	Flexible sheet foam
Tape measure(s)	MSDSs
Screwed fittings and pipe test rack	Tape
Copper tubing and fitting test rack	Protective finish
Pipe hanger mock-up	Module Examination
Duct mock-up	Performance Profile Sheets
Clamps	



Module Overview

This module introduces the Insulating trainee to the principles and procedures of installing flexible foam insulation to piping, fittings, and equipment in an industrial or commercial environments.

Prerequisites

Please see the Course Map. Prior to training with this Task Module it is recommended that the trainee shall have successfully completed the following: *Core Curriculum; Insulating Level One.*

Safety Considerations

Use adhesives in a well-ventilated area. Store adhesives with the lid tightly sealed in an open area away from open flames or heat. Ensure that the trainees are equipped with Appropriate Personal Protective Equipment.

Teaching Time for This Module

Approximately 32½ hours or thirteen sessions of training are suggested to cover Installing Flexible Foam Insulation. Each training class session is a suggested 2½ hour time period that includes one break. **You will need to adjust the time required for hands-on activities and testing based on your class size and resources.** All time periods for this module are suggested, and you will need to adapt the suggested lesson plan to meet your local conditions.

Suggested Teaching Sequence Thirteen 2½-Hour Sessions

Adjust your class times based on class size and resources.

Session	Topic	Trainee Module Section(s)
1.	Introduction – Trade Terms	1.0.0
2.	Using Adhesives on Flexible Foam Insulation	2.0.0
3.	Slip-on Installation Method	3.0.0
4.	Insulating Pipe Fittings – Insulating Screwed Fittings	3.1.0 - 3.1.2
5.	Slit-Snap Installation Method	4.0.0
6.	Creating Single Miter Fitting Covers	5.0.0
7.	Creating Single Miter Fitting Covers	5.0.0
8.	Creating Sheet-Fabricated Fitting Covers	6.0.0
9.	Creating Sheet-Fabricated Fitting Covers	6.0.0
10.	Creating Sheet-Fabricated Flange Valve Covers	6.1.0
11.	Creating Sheet-Fabricated Flange Valve Covers – Using Pipe Hangers with Flexible Foam	6.1.0 - 7.0.0
12.	Sheet Insulation for Ductwork & Equipment – Summary	8.0.0
13.	Module Examination – Performance Profile Test	

19202

Installing Blanket Insulation for Ducts

Objectives

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

1. Identify the fundamental characteristics of fiberglass blanket insulation.
2. Properly apply fiberglass blanket insulation to ducts and apparatus.
3. Vapor seal blanket insulation facings.
4. Recognize and better understand terminology used in the insulation industry.
5. Identify the tools needed to apply fiberglass blanket insulation.

Performance Tasks

1. Cut and install two pieces of flexible fiberglass blanket insulation on a duct mock-up using the staple-stitch method. Seal butt laps with tape.
2. Seal butt laps on flexible blanket insulation using the mastic method and the adhesive method.
3. Insulate a section of a duct mock-up that includes a run-out.

Note to the Instructor

Before teaching this Task Module, you should review the details in this Instructor's Guide for Equipment and Materials, Testing, and the suggested Teaching Sequence. Be sure to allow ample time to prepare your own training plan or lesson plan and to gather all required equipment and materials.

Required Equipment and Materials

The following are required for instruction using this module:

Equipment

Appropriate Personal Protective Equipment
Overhead projector and screen
Whiteboard / chalkboard
Knives
Shears
Flare-head staple gun
Duct section and equipment apparatus
Calculator
End-cutting nippers
Pointing trowel
Brushes
Tape measure(s)

Materials

Trainee Task Module
Transparencies
Markers / chalk
Paper / pencils
Fiberglass blanket
Mastic, tape, and adhesives
Staples
Pins and clips
Module Examination
Performance Profile Sheets



Module Overview

This module introduces the trainee to the methods and procedures for proper use and installation of fiberglass blanket insulation. The intended audience for this module includes all Insulating trainees.

Prerequisites

Please see the Course Map. Prior to training with this module, it is recommended that the trainee shall have successfully completed the following modules: *Core Curriculum; Insulating Level One; Insulating Level Two, Module 19201*

Safety Considerations

Ensure that the trainees are equipped with the Appropriate Personal Protective Equipment.

Teaching Time for This Module

Approximately 7½ hours or three sessions of training time is suggested to cover Installing Blanket Insulation for Ducts. The training class session is a suggested 2½ hour time period, which includes one break. **You will need to adjust the time required for hands-on activities and testing based on your class size and resources.** All time periods for this module are suggested, and you will need to adapt the suggested lesson plan to meet your local conditions.

Suggested Teaching Sequence – Three 2½-Hour Sessions

Adjust your class times based on class size and resources. It is suggested that one third of the sessions be devoted to the classroom and two thirds to demonstration and “hands-on” laboratory exercises.

Session	Topic	Trainee Module Section(s)
1	Introduction – What is Fiberglass Blanket Insulation? Duct Systems	1.0.0 - 3.0.0
2	Measuring and Cutting – How to Apply Blanket Insulation	4.0.0 - 5.3.0
3	How to Seal Blanket Insulation – Mechanical Fasteners Performance Profile Test – Module Examination	6.0.0 - 7.0.0

Optional References for Advanced Study

This module is intended to present thorough resources for task training. The following reference is suggested for both instructors and motivated trainees interested in further study. This is optional material for continued education rather for than task training.

Thermal Insulation Handbook, McGraw-Hill, Malabar: 1981.

19203

Installing Board Insulation for Ducts

Objectives

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

1. Recognize and define the terminology used in the insulation industry.
2. Identify the kerfing or v-groove tools needed to apply fiberglass board insulation.
3. Apply fiberglass board insulation to ducts and casings.
4. Accurately cut fiberglass board insulation to fit over standing seams and stiffeners on ductwork and casings.
5. Apply a vapor-tight seal to board insulation on ducts and casings.
6. Cut and install fiberglass board insulation to round/oval ducts.

Performance Tasks

1. Identify all tools needed to install fiberglass board insulation including attachments.
2. Apply insulation weld pins to ductwork.
3. Apply fiberglass board insulation to straight duct and seal all joints with tape.
4. "Vee" cut, lay out, and install board insulation for a 12-inch round lateral.

Note to the Instructor

Before teaching this Task Module, you should review the details in this Instructor's Guide for Equipment and Materials, Testing, and the suggested Teaching Sequence. Be sure to allow ample time to prepare your own training plan or lesson plan and to gather all required equipment and materials.

Required Equipment and Materials

The following are required for instruction using this module:

Equipment

Appropriate Personnel Protective Equipment
Overhead projector and screen
Whiteboard / chalkboard
Duct section and equipment apparatus
Knives
Kerfing tools
Calculator
Tape measure(s)
Straight edge
End-cutting nippers
Shears
Pointing trowel or putty knife
Squeegee
Pin welding machine

Materials

Trainee Task Module
Transparencies
Markers / chalk
Paper / pencils
Fiberglass board
Tape
Adhesives
Pins and clips
Module Examination
Performance Profile Sheets



Module Overview

This module introduces the trainee to the methods and procedures used in the installation of fiberglass board insulation. The intended audience for this Task Module includes all Insulating trainees.

Prerequisites

Please see the Course Map. Prior to training with this module, it is recommended that the trainee shall have successfully completed the following modules: *Core Curriculum; Insulating Level One; Insulating Level Two*, Modules 19201 and 19202

Safety Considerations

Ensure that the trainees are equipped with Appropriate Personal Protective Equipment.

Teaching Time for This Module

Approximately 20 hours or eight sessions of training time is suggested to cover Installing Board Insulation for Ducts. The training class session is a suggested 2½ hour time period, which includes one break. **You will need to adjust the time required for hands-on activities and testing based on your class size and resources.** All time periods for this module are suggested, and you will need to adapt the suggested lesson plan to meet your local conditions.

Suggested Teaching Sequence – Eight 2½-Hour Sessions

Adjust your class times based on class size and resources.

Session	Topic	Trainee Module Section(s)
1	Introduction – What is Fiberglass Board Insulation?	1.0.0-2.0.0
2	When to Use Board Insulation	3.0.0
3	Measuring and Cutting	4.0.0
4	How to Install Board Insulation	5.0.0-5.3.0
5	Round and Oval Ducts	6.0.0
6	Laterals	7.0.0
7	How to Seal Board Insulation	8.0.0-8.2.0
8	Performance Profile Test – Module Examination	

Optional References for Advanced Study

This module is intended to present thorough resources for task training. The following reference is suggested for both instructors and motivated trainees interested in further study. This is optional material for continued education rather than for task training.

Thermal Insulation Handbook, McGraw-Hill, Malabar: 1981.

19204 Installing Calcium Silicate/Expanded Perlite Pipe Insulation

Objectives

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

1. Describe the basic characteristics of calcium silicate/expanded perlite pipe insulation.
2. Handle and store calcium silicate/expanded perlite to avoid breakage and damage.
3. Identify and use the proper tools for application.
4. Make accurate cuts in calcium silicate/expanded perlite pipe insulation.
5. Install a single layer of calcium silicate/expanded perlite insulation on piping using wire or bands.
6. Install double layers of calcium silicate/expanded perlite pipe insulation.

Performance Tasks

1. Identify all tools needed to install calcium silicate/expanded perlite pipe insulation.
2. Cut and attach pipe insulation using the staggered-joint method of installation.
3. Install an outer layer over the layer of insulation applied in Task #2; stagger all joints; and band the outer layer in place using pistol grip banders.

Note to the Instructor

Before teaching this Task Module, you should review the details in this Instructor's Guide for Equipment and Materials, Testing, and the suggested Teaching Sequence. Be sure to allow ample time to prepare your own training plan or lesson plan and to gather all required equipment and materials.

Required Equipment and Materials

The following are required for instruction using this module:

Equipment

Appropriate Personnel Protective Equipment
Overhead projector and screen
Whiteboard / chalkboard
Keyhole saw
Coarse-tooth hand saw
Divider
Chipping hammer
Sheet metal snips
Pistol grip banders
Ratchet banders
Knives
Calculator
Tape measure(s)
Mallet
Straight edge
End-cutting nippers
Piping mock-up

Materials

Trainee Task Module
Transparencies
Markers / chalk
Paper / pencils
Wire
Bands
Insulation cement
Finish materials
Module Examination
Performance Profile Sheets



Module Overview

This module introduces the trainee to the methods and procedures for the proper use and installation of calcium silicate/expanded perlite insulation. The intended audience for this Task Module includes all Insulating trainees.

Prerequisites

Please see the Course Map. Prior to training with this Task Module, it is recommended that the trainee shall have successfully completed the following modules: *Core Curriculum; Insulating Level One; Insulating Level Two*, Modules 19201 through 19203

Safety Considerations

Ensure that the trainees are equipped with Appropriate Personal Protective Equipment. This module involves the use of power equipment. Be certain that all trainees are properly instructed before using this equipment.

Teaching Time for This Module

Approximately 15 hours or six sessions of training time is suggested to cover *Installing Calcium Silicate/Expanded Perlite Pipe Insulation*. The training class session is a suggested 2½ hour time period, which includes one break. **You will need to adjust the time required for hands-on activities and testing based on your class size and resources.** All time periods for this module are suggested, and you will need to adapt the suggested lesson plan to meet your local conditions.

Suggested Teaching Sequence – Six 2½ Hour Sessions

Adjust your class times based on class size and resources.

Session	Topic	Trainee Module Section(s)
1	What is Calcium Silicate/Expanded Perlite? Packaging and Storage	1.0.0 1.1.0
2	How to Install Calcium Silicate/Expanded Perlite Insulation General Application Considerations	2.0.0 2.1.0
3	Single-Layer Application	3.0.0
4	Pipe Hangers and Supports – Fittings and Valves	3.1.0 – 3.2.0
5	Double-Layer Application	4.0.0
6	Performance Profile Test – Module Examination	

Optional References for Advanced Study

This module is intended to present thorough resources for task training. The following reference work is suggested for both instructors and motivated trainees interested in further study. This is optional material for continued education rather than for task training.

Thermal Insulation Handbook, McGraw-Hill, Malabar: 1981.

19205 Installing Mineral Wool Insulation

Objectives

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

1. Identify and use specific tools for installing mineral wool insulation.
2. Recognize the various forms of mineral wool.
3. Measure mineral wool insulation.
4. Cut and score mineral wool insulation.
5. Identify various attachments that are used.
6. Install mineral wool insulation.
7. Seal mineral wool insulation.
8. Identify the characteristics of welded pins, stick pins, and clips.
9. Use and maintain pin welding equipment.

Performance Tasks

1. Set up a pin welder and gun to shoot 10 gauge, copper-coated pins, 12" O.C.
2. Demonstrate a knowledge of proper safety procedures and proper welding techniques.
3. Apply V-groove pipe insulation to a piping mock-up.
4. Apply metal mesh blankets to an equipment mock-up.

Note to the Instructor

Before teaching this Task Module, you should review the details in this Instructor's Guide for Equipment and Materials, Testing, and the suggested Teaching Sequence. Be sure to allow ample time to prepare your own training plan or lesson plan and to gather all required equipment and materials.

Required Equipment and Materials

The following are required for instruction using this module:

Equipment

Appropriate Personnel Protective Equipment
Overhead projector and screen
Whiteboard / chalkboard
Piping mock-up
Equipment mock-up
Pin welder / stud welder
Hand grinder
Knives
Pointing trowel or putty knife
End-cutting nippers
Ground fault circuit interrupter
Calculator
Tape measure(s)
Shears
Straight edge

Materials

Trainee Task Module
Transparencies
Markers / chalk
Paper / pencils
Wire
Bands
Mineral wool insulation
Insulation cement
Finish materials
Pins and clips
Module Examination
Performance Profile Sheets



Module Overview

This module introduces the trainee to the methods and procedures for proper use and installation of mineral wool insulation. The intended audience for this Task Module includes all Insulating trainees.

Prerequisites

Please see the Course Map. Prior to training with this module, it is recommended that the trainee shall have successfully completed the following modules: *Core Curriculum; Insulating Level One; Insulating Level Two*, Modules 19201 through 19204

Safety Considerations

Ensure that the trainees are equipped with Appropriate Personal Protective Equipment and have an understanding of:

- The proper use of a ground fault circuit interruptor (GFCI)
- Lockout/tagout procedures

This module involves the use of power equipment. Be certain that all trainees are properly instructed before using this equipment.

Teaching Time for This Task Module

Approximately 12½ hours or five sessions of training time is suggested to cover *Installing Mineral Wool Insulation*. The training class session is a suggested 2½ hour time period, which includes one break. **You will need to adjust the time required for hands-on activities and testing based on your class size and resources.** All time periods for this module are suggested, and you will need to adapt the suggested lesson plan to meet your local conditions.

Suggested Teaching Sequence — Five 2½-Hour Sessions

Adjust your class times based on class size and resources.

Session	Topic	Trainee Module Section(s)
1	Introduction – Installing Mineral Wool Insulation – Preformed Pipe Insulation – V-Grooved Pipe Insulation	1.0.0 - 2.20
2	Fasteners	3.0.0 - 3.1.0
3	Weld Pins – Other Types of Pins and Studs	3.2.0 - 3.3.0
4	Mineral Wool Board – Laminated Pipe and Tank Wrap	4.0.0 - 6.0.0
5	Double-Layer Application	5.0.0
6	Performance Profile Test – Module Examination	

Optional References for Advanced Study

This module is intended to present thorough resources for task training. The following reference is suggested for both instructors and motivated trainees interested in further study. This is optional material for continued education rather than for task training.

Thermal Insulation Handbook, McGraw-Hill, Malabar: 1981.

19206

Installing Rigid Foam And Cellular Glass Insulation

Objectives

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

1. Understand the basic characteristics of rigid foam plastic and cellular glass insulation.
2. Identify and use the proper tools for application.
3. Handle and store rigid foam insulation.
4. Measure and cut rigid foam plastic and cellular glass insulation.
5. Install and seal rigid foam plastic and cellular glass insulation.
6. Understand cryogenic installation methods.
7. Understand the roles of expansion joints, contraction joints, and vapor stops.

Performance Tasks

1. Insulate a piping mock-up with polystyrene insulation for cold service.
2. Insulate a piping mock-up with cellular glass pipe insulation for cryogenic service. Use all of the procedures required for this type of installation.

Note to the Instructor

Before teaching this Task Module, you should review the details in this Instructor's Guide for Equipment and Materials, Testing, and the suggested Teaching Sequence. Be sure to allow ample time to prepare your own training plan or lesson plan and to gather all required equipment and materials.

Required Equipment and Materials

The following are required for instruction using this module:

Equipment

Appropriate Personnel Protective Equipment
Overhead projector and screen
Whiteboard / chalkboard
Sharp 6" knife
Tape measure or 6' folding ruler
Staple gun (flare-head)
Nippers (end-cutting)
Hand saw
Pointing trowel
Cellular glass saw / power hack saw blade
Torch
Caulking gun
Keyhole saw
Grooving tool

Materials

Trainee Task Module
Transparencies
Markers / chalk
Wire
Bands
Insulation cement
Finish materials
Module Examination
Performance Profile Sheets



Module Overview

This module introduces the trainee to the methods and procedures for the proper use and installation of rigid foam and cellular glass insulation. The intended audience for this Task Module includes all Insulating trainees.

Prerequisites

Please see the Course Map. Prior to training with this module, it is recommended that the trainee shall have successfully completed the following modules: *Core Curriculum; Insulating Level One; Insulating Level Two*, Modules 19201 through 19205

Safety Considerations

Ensure that the trainees are equipped with Appropriate Personal Protective Equipment. This module involves the use of power equipment. Be certain that all trainees are properly instructed before using this equipment.

Teaching Time for This Module

Approximately 20 hours or eight sessions of training time is suggested to cover Installing Rigid Foam and Cellular Glass Insulation. The training class session is a suggested 2½ hour time period, which includes one break. **You will need to adjust the time required for hands-on activities and testing based on your class size and resources.** All time periods for this module are suggested, and you will need to adapt the suggested lesson plan to meet your local conditions.

Suggested Teaching Sequence — Five 2½-Hour Sessions

Adjust your class times based on class size and resources.

Session	Topic	Trainee Module Section(s)
1	What is Rigid Foam Plastic Insulation?	1.0.0
2	Installing Rigid Foam Plastic Insulation	2.0.0
3	What is Cellular Glass Insulation?	3.0.0
4	Installing Cellular Glass Insulation (Part 1)	4.0.0
5	Installing Cellular Glass Insulation (Part 2)	4.0.0
6	Cryogenic Applications of Cellular Glass and Rigid Foam (Part 1)	5.0.0
7	Cryogenic Applications of Cellular Glass and Rigid Foam (Part 2)	5.0.0
8	Module Examination — Performance Profile Test	

19207 Installing Board and Block Insulation

Objectives

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

1. Identify and use specific tools to install board and block insulation.
2. Recognize various forms of board and block insulation.
3. Measure board and block insulation.
4. Score, bevel, and cut board and block insulation.
5. Install board and block insulation.
6. Point board and block insulation.

Performance Tasks

1. Using a vessel mock-up, determine the number of courses of block, the number of lags, and the angle required on the lags. Assume an insulation thickness of 2 inches.
2. Insulate the sidewall of the vessel mock-up using lags calculated from Task 1.
Be sure to include the use of a choker for a manway cover tie-off.
3. Insulate the bottom head of the vessel mock-up.

Note to the Instructor

Before teaching this Task Module, you should review the details in this Instructor's Guide for Equipment and Materials, Testing, and the suggested Teaching Sequence. Be sure to allow ample time to prepare your own training plan or lesson plan and to gather all required equipment and materials.

Required Equipment and Materials

The following are required for instruction using this module:

Equipment

Appropriate Personal Protective Equipment
Overhead projector and screen
Whiteboard / chalkboard
Vessel mock-up
Boning knife
End-cutting nippers
Tape measure(s)
Keyhole saw
Cross-cut hand saw
Pointing trowel
Banding tool
Chipping hammer
Grooving tool

Materials

Trainee Task Module
Transparencies
Markers / chalk
Module Examination
Performance Profile Sheets



Module Overview

This module introduces the trainee to the methods and procedures used in installing board and block insulation. The intended audience for this Task Module includes all Insulating trainees.

Prerequisites

Please see the Course Map. Prior to training with this module, it is recommended that the trainee shall have successfully completed the following modules: *Core Curriculum; Insulating Level One; Insulating Level Two*, Modules 19201 through 19206

Safety Considerations

Ensure that the trainees are equipped with Appropriate Personal Protective Equipment.

Teaching Time for This Module

Approximately 17½ hours or seven sessions of training time is suggested to cover Installing Board and Block Insulation. The training class session is a suggested 2½ hour time period, which includes one break. **You will need to adjust the time required for hands-on activities and testing based on your class size and resources.** All time periods for this module are suggested, and you will need to adapt the suggested lesson plan to meet your local conditions.

Suggested Teaching Sequence — Seven 2½-Hour Sessions

Adjust your class times based on class size and resources.

Session	Topic	Trainee Module Section(s)
1.	Introduction	1.2.0
	Board Insulation	
	Block Insulation	
2.	Installing Board and Block Insulation on Flat Surfaces	2.1.0
3.	Installing Block on Curved Surfaces (Part 1)	2.2.0
4.	Installing Block on Curved Surfaces (Part 2)	2.2.0
5.	Installing Board on Large-Diameter Tanks	2.3.0
6.	Measuring and Cutting Lags	3.0.0
7.	Performance Profile Test – Module Examination	

19208 Cement And Fabric Finishes And Mastics

Objectives

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

1. Identify and use specific tools for cement and fabric finishes.
2. Identify types of cements.
3. Identify types of fabrics and mastics.
4. Understand the limitations of cements.
5. Understand the limitations of fabrics and mastics.
6. Install cement and fabric finishes and mastics.
7. Perform proper finishing techniques.
8. Perform cleanup and protection procedures for cement.

Performance Tasks

1. Insulate a screwed fitting with high-temperature insulation cement.
2. Insulate a calcium silicate 90-degree elbow with one coat of cement.
3. Apply a resin-based mastic and glass fab to the elbow in Task 2.
4. Apply a joint seal to pipe insulation to be used in cold service.

Note to the Instructor

Before teaching this Task Module, you should review the details in this Instructor's Guide for Equipment and Materials, Testing, and the suggested Teaching Sequence. Be sure to allow ample time to prepare your own training plan or lesson plan and to gather all required equipment and materials.

Required Equipment and Materials

The following are required for instruction using this module:

Equipment

Appropriate Personal Protective Equipment
Overhead projector and screen
Whiteboard / chalkboard
Calculator
Tape measure(s)
Brushes
Bull nose trowel
Pointing trowel
Palm
Plastering trowel
Sharp scissors / knife
Lacing hook
Heavy-duty rubber gloves
Sheet metal snips

Materials

Trainee Task Module
Transparencies
Markers / chalk
Insulation cements
Corner beads
Poultry mesh
Glass reinforcement cloth
Canvas
Mastics
Module Examination
Performance Profile Sheets



Module Overview

This module introduces the trainee to the methods and procedures for installing cement and fabric finishes and mastics. The intended audience for this Task Module includes all Insulating trainees.

Prerequisites

Please see the Course Map. Prior to training with this module, it is recommended that the trainee shall have successfully completed the following modules: *Core Curriculum; Insulating Level One; Insulating Level Two*, Modules 19201 through 19207

Safety Considerations

Ensure that the trainees are equipped with Appropriate Personal Protective Equipment.

Teaching Time for This Task Module

Approximately 10 hours or four sessions of training time is suggested to cover Cement and Fabric Finishes and Mastics. The training class session is a suggested 2½ hour time period, which includes one break. **You will need to adjust the time required for hands-on activities and testing based on your class size and resources.** All time periods for this module are suggested, and you will need to adapt the suggested lesson plan to meet your local conditions.

Suggested Teaching Sequence — Four 2½-Hour Sessions

Adjust your class times based on class size and resources.

Session	Topic	Trainee Module Section(s)
1	Introduction	
	High-temperature Insulating Cement – Hydraulic Setting Cemen Finishing Cement Reinforcements	1.0.0 - 2.0.0
2	Corner Bead – Fabrics	2.1.0 - 3.1.0
3	Mastics	3.2.0
4	Installing Mastic Reinforcements, Finishes and Bedding Module Examination – Performance Profile Test	3.3.0 - 3.5.0

19209

Plumbing Systems

Objectives

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

1. Identify the elements of a typical cold water plumbing system.
2. Identify the elements of a typical hot water plumbing system.
3. Discuss the various types of drainage systems in buildings.
4. Understand what type of insulation is required on plumbing systems and why.
5. Identify typical piping hook-ups.

Performance Tasks

1. Identify the parts of a distribution system.
2. Identify the steps that cold water goes through prior to being distributed in the pipe system.

Note to the Instructor

Before teaching this Task Module, you should review the details in this Instructor's Guide for Equipment and Materials, Testing, and the suggested Teaching Sequence. Be sure to allow ample time to prepare your own training plan or lesson plan and to gather all required equipment and materials.

Required Equipment and Materials

The following are required for instruction using this Task Module:

Equipment

Appropriate Personal Protective Equipment
Overhead projector and screen
Whiteboard / chalkboard
Calculator

Materials

Trainee Task Module
Transparencies
Markers / chalk
Module Examination
Performance Profile Sheets



Module Overview

This module introduces the trainee to the methods and procedures used in insulating plumbing systems. The intended audience for this Task Module includes all Insulating trainees.

Prerequisites

Please see the Course Map. Prior to training with this module, it is recommended that the trainee shall have successfully completed the following modules: *Core Curriculum; Insulating Level One; Insulating Level Two*, Modules 19201 through 19208

Safety Considerations

Ensure that the trainees are equipped with Appropriate Personal Protective Equipment.

Teaching Time for This Module

Approximately 7½ hours or three sessions of training time is suggested to cover Plumbing Systems. The training class session is a suggested 2½ hour time period, which includes one break. **You will need to adjust the time required for hands-on activities and testing based on your class size and resources.** All time periods for this module are suggested, and you will need to adapt the suggested lesson plan to meet your local conditions.

Suggested Teaching Sequence — Three 2½-Hour Sessions

Adjust your class times based on class size and resources.

Session	Topic	Trainee Module Section(s)
1	Introduction – Cold Water Piping	1.0.0 - 2.0.0
2	Hot Water Piping	3.0.0
3	Storm Drain Piping	4.0.0 - 6.0.0
	Condensate Drain Piping	
	Fire Protection Piping	
	Module Examination – Performance Profile Test	

19210 Chilled And Hot Water Heating Systems

Objectives

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

1. Identify the elements of chilled water systems.
2. Identify the elements of hot water heating systems.
3. Identify the elements of dual-temperature systems.
4. Recognize the types of pipes used in various systems.
5. Explain which systems require insulation.
6. Identify the equipment used in various systems.

Performance Task

1. Identify the systems that have been covered in this module in an actual equipment room.

Note to the Instructor

Before teaching this Task Module, you should review the details in this Instructor's Guide for Equipment and Materials, Testing, and the suggested Teaching Sequence. Be sure to allow ample time to prepare your own training plan or lesson plan and to gather all required equipment and materials.

Required Equipment and Materials

The following are required for instruction using this Task Module:

Equipment

Appropriate Personal Protective Equipment
Overhead projector and screen
Whiteboard / chalkboard

Materials

Trainee Task Module
Transparencies
Markers / chalk
Module Examination
Performance Profile Sheets



Module Overview

This module introduces the trainee to the methods and procedures used in insulating chilled water and hot water heating systems. The intended audience for this Task Module includes all Insulating trainees.

Prerequisites

Please see the Course Map. Prior to training with this module, it is recommended that the trainee shall have successfully completed the following modules: *Core Curriculum; Insulating Level One; Insulating Level Two*, modules 19201 through 19209

Safety Considerations

Ensure that the trainees are equipped with Appropriate Personal Protective Equipment.

Teaching Time for This Task Module

Approximately 5 hours or two sessions of training time is suggested to cover Chilled and Hot Water Heating Systems. The training class session is a suggested 2½ hour time period, which includes one break. **You will need to adjust the time required for hands-on activities and testing based on your class size and resources.** All time periods for this module are suggested, and you will need to adapt the suggested lesson plan to meet your local conditions.

Suggested Teaching Sequence — Two 2½-Hour Sessions

Adjust your class times based on class size and resources.

Session	Topic	Trainee Module Section(s)
1	Introduction	1.0.0 - 4.0.0
	Chilled Water Systems	
	Condenser Water Systems	
	Hot Water Heating Systems	
2	Hot Water Heating Systems	
	Dual-Temperature Systems	4.0.0 - 5.0.0
	Module Examination – Performance Profile Test	