

**INSULATING: Level One**

**19101 Orientation (5 Hours)**

Provides an overview of the insulation industry, factors to consider when choosing a vocation in the insulation industry, and why insulation is used.

**19102 Trade Relations (7.5 Hours)**

Provides an understanding of contracts, relationship with other members of the construction team, and the importance of communication.

**19103 Tools of the Trade (7.5 Hours)**

Identifies tools of the insulation trade, their proper use and care, and safety procedures for each.

**19104 Material Handling, Storage, and Distribution (2.5 Hours)**

Covers receiving, stacking, and storage of insulation materials, as well as material movement.

**19105 Characteristics of Pipe Insulation (5 Hours)**

Covers identification of types, sizes, and uses of pipe and insulation thickness and the relationship between pipe size and insulation size.

**19106 Installing Fiberglass Pipe Insulation (30 Hours)**

Describes characteristics of fiberglass pipe insulation and sizing requirements, as well as characteristics as ASJ jacketing.

**19107 Installing Pipe Fittings, Valves, and Flanges (40 Hours)**

Explains insulation requirements for basic types of fittings, valves, and flanges; cutting and installing mitered segments to pipe elbows; cutting for application to flanged pipe valves and insulating pipe flanges; and cutting and installing plug 90-degree ells.

**INSULATING: Level Two**

**19201            Installing Flexible Foam Insulation (32.5 Hours)**

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.

**19202            Installing Blanket Insulation for Ducts (7.5 Hours)**

Covers fiberglass blanket installation to ducts and apparatus and discusses vapor-sealed blanket insulation facings.

**19203            Installing Board Insulation for Ducts (20 Hours)**

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.

**19204            Installing Calcium Silicate/Expanded Perlite Pipe Insulation (15 Hours)**

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.

**19205            Installing Mineral Wool Insulation (12.5 Hours)**

Describes the measuring requirements for mineral wool insulation and how to cut and score mineral wool insulation. Also discusses the various attachments used on mineral wool, installation methods, sealing requirements, and how to use pin welding equipment.

**19206            Installing Rigid Foam Insulation (20 Hours)**

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.

**19207            Installing Board and Block Insulation (17.5 Hours)**

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.

**19208            Cement and Fabric Finishes & Mastics (10 Hours)**

Covers the proper use of finishing tools, cleanup, and protection procedures, and the limitations of cements, fabric finishes, and mastics.

**19209            Plumbing Systems (7.5 Hours)**

Covers cold and hot water plumbing systems, drainage systems in buildings, insulation requirements on plumbing systems, and piping hook-ups.

**19210            Chilled and Hot Water Heating Systems (5 Hours)**

Covers chilled and hot water heating and dual-temperature systems, including the types of pipes and equipment used in various systems. Explains which systems require insulation and why.

**INSULATING: Level Three**

**19301 Trade Math (7.5 Hours)**

Covers the use of measuring tools and scale rulers; describes how to make decimal, dimensional, and temperature conversions; and explains the use of formulas for calculating insulation surface areas of various objects.

**19302 Air Duct Systems (5 Hours)**

Covers the identification of various duct systems and their associated components.

**19303 Theory of Heat Transfer and Moisture Effects (2.5Hours)**

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

**19304 Adhesives and Their Uses (2.5 Hours)**

Covers the identification, application, and use of various types of adhesives.

**19305 Steam, Condensate, and Process Water Systems (5 Hours)**

Covers the identification of steam and condensate piping in buildings and describes various steam and process water systems and their components.

**19306 Large Boilers, Breechings, Precipitators, and Apparatus (10 Hours)**

Describes various types of boilers and related equipment, and their insulation requirements.

**19307 Refrigeration and Cryogenic Systems (2.5 Hours)**

Covers the fundamentals of air conditioning and refrigeration systems and their insulation requirements. Also describes the special insulation requirements of extremely low-temperature cryogenic systems.

**19308 Specialized Insulation Systems (5 Hours)**

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

**19309 Blueprints and Specifications (12.5 Hours)**

Describes how to determine the insulation requirements of a project by interpreting construction drawings. Includes a set of blueprints with the Trainee module.

**19310 Jacketing Fabrication – Piping and Fittings (42.5 Hours)**

Covers the identification and applications of pipes and pipe fittings and describes the various types of pipe and fitting jacketing, along with layout installation procedures and securements.

**19311 Jacketing Fabrication – Vessels and Equipments (40 Hours)**

Covers the identification of various types of vessel and equipment jacketing, along with layout, fabrication, installation procedures, and securements.

**19312 Sheet Metal Lagging (12.5 Hours)**

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