

STANDARDS  
FOR  
HEAT AND FROST  
INSULATORS AND  
ASBESTOS WORKERS  
NORTHERN AND SOUTHERN  
CALIFORNIA

*DOT 863.381 OIC*

CONDENSED AND REVISED DEC 2003



**CALIFORNIA APPRENTICESHIP COUNCIL  
HEAT & FROST INSULATORS  
& ASBESTOS WORKERS INDUSTRY  
Insulator & Asbestos Worker  
Advisory Committee**

---

**Enclosed you will find the names, address and positions of our committee.**

George Gonzales  
Chairman/Employer Trustee  
1375 South Acacia Ave., Ste. A  
Fullerton, CA 92831

Jim Watkins, Union Trustee  
670 E. Foothill Blvd., #2  
Azusa, CA 91702

Richard Chislock, Employer Trustee  
1270 Hancock Street  
Anaheim, CA 92807

Alfred Montoya, Union Trustee  
670 E. Foothill Blvd., #2  
Azusa, CA 91702

David Grisez, Employer Trustee  
2015 Main Street  
San Diego, CA 92113

Tom Lemmon, Union Trustee  
670 E. Foothill Blvd., #2  
Azusa, CA 91702

Howard Rosen, Attorney  
3600 Wilshire Blvd., Ste. 1800  
Los Angeles, CA 90010

Graham Brown  
341 Bonnie Circle Drive, Ste. 100  
Corona, CA 92880-2895

Tom Gutierrez, Coordinator and JAC Secretary  
670 E. Foothill Blvd., #3  
Azusa, CA 91702

Scott Strawbridge, Employer Trustee  
P.O. Box 159  
Benicia, CA 94510

Dave Papini, Employer Trustee  
7775 Los Positas Road  
Livermore, CA 94550

Mike Caylor, Employer Trustee  
4045A Nelson Ave.  
Concord, CA 94520

Steve Steele, Union Trustee/Chairman  
1320 Harbor Bay Parkway Ste., 220  
Alameda, CA 94502

Mike Cooper, Union Trustee  
1320 Harbor Bay Parkway Ste. 220  
Alameda, CA 94502

Dale Hudec, Union President/Union Trustee  
6935 Brooks Lane  
Loomis, CA 95650

Isaiah Roter, Attorney  
120 Howard St., Ste. 520  
San Francisco, CA 94105

Everet Terminello, Employer Trustee Alternate  
P.O. Box 159  
Benicia, CA 94510

David Feere, Coordinator/Administrator  
1320 Harbor Bay Parkway, Suite 222  
Alameda, CA 94502

# Heat and Frost Insulators and Asbestos Workers

## Occupation Code – 863.381 OIC

1. **Length of Training**

The Length of Apprentice Training is 4 years for an Insulator and Asbestos Worker which shall consist of a minimum of 6,000 hours OJT and 576 hours of Related and Supplemental Instruction.

2. **Related and Supplemental Instruction**

The Related and Supplemental Instruction is detailed in the curriculum outlines in APPENDIX A.

3. **On The Job Training**

On- The-Job Work processes are listed in APPENDIX B.

4. **Competency Testing**

Competency Testing is defined as:

A competency exam must be passed prior to advancement to the next step and wage rate.

A favorable Journeyperson evaluation for OJT must be met prior to the next step in wage rate.

5. **Completion Percentages**

Apprenticeship Completion percentages:

The program must have a 75% completion of all apprentices that satisfactorily complete the program's probationary period.

6. **Revisions**

There shall be a review once every three years or at the call of the Chairman of the Industry Training Committee as issues arise.

# HEAT AND FROST INSULATORS AND ASBESTOS WORKERS TRAINING CRITERIA – APPENDIX A

## WORK PROCESSES

		Hours	
		Min	Max
1.	Introduction to Insulation and Hazardous Materials	250	750
	a. Material Methods overview		
	b. General Insulating methods		
	c. Insulation Materials		
2.	Coverings, Finishing's, Sealants, Installing Underground System (slab/foundation)	500	750
3.	Safety Certification	150	150
	a. Asbestos Awareness		
	b. Lead Awareness		
	c. OSHA Training		
	d. Hazardous Material		
	e. Refinery Training		
4.	Rough Ins	500	500
	a. Tanks		
	b. Piping		
	c. Vessels		
	d. Ducts		
5.	Finishes	250	250
	a. Tanks		
	b. Piping		
	c. Vessels		
	d. Fixtures and fittings		
6.	Blue Print Reading	100	500

# HEAT AND FROST INSULATORS AND ASBESTOS WORKER – APPENDIX B

## CURRICULUM

### SAFETY

- A. General job site safety awareness
- B. Emergency procedures
- C. Compliance with OSHA and EPA regulations
- D. Substance abuse
- E. Sexual harassment

### TOOLS, MATERIALS AND HANDLING

- A. Proper tool management
- B. Proper tools and material
- C. Proper use of material
- D. Proper use of motorized equipment under OSHA Standards
- E. Proper material management

### MATH

- A. Appropriate mathematical calculations to solve for unknowns

### INSULATION THEORY

- A. Basic Insulation
- B. Cold water systems
- C. Parallel piping for hot water systems
- D. Combination system for chill water piping
- E. Characteristics in steam piping
- F. Operation and characteristics of oil refinery's
- G. Theory of nuclear power plants
- H. Operation and characteristics of power plants
- I. Operation and characteristics of refrigeration systems
- J. Insulation theory
- K. Use of insulation

### CODE REQUIREMENTS

- A. National Building Code and local codes

# HEAT AND FROST INSULATORS AND ASBESTOS WORKER

## FIRESTOPPING

- A. Various types of firestopping materials
- B. Installation techniques
- C. Methods for selecting products

## SHIPYARD WORK

- A. Shipyard nomenclature
- B. Duct and Heating Systems
- C. Piping Systems
- D. Bulkhead Requirements
- E. Specification of Materials and proper insulation of these materials
- F. Marine Safety Requirements

## HOT AND STEAM WATER

- A. High Temperature and Refractory Theory
- B. Understanding of most appropriate materials
- C. Understanding Thermal conductivity, convection, and radiation
- D. Installation requirements and techniques
- E. Finishes for proper insulation for controlling heat loss

## COLD AND CHILL WATER SYSTEMS

- A. Lower Temperature and Cryogenic Theory
- B. Specification of Materials
- C. Vapor barriers, sealants, adhesives and the proper usages
- D. Installation requirements and techniques
- E. Hand-cutting methods for tees, laterals, 90's and equipment heads and bodies

## LAYOUT AND DEVELOPMENT

- A. Layout methods for sheetmetal finishes
- B. Use of paper developments
- C. Develop skills to hand-cut tees, elbows, gores, laterals cones, reducers, end caps  
Square to rounds and lunes

## **UNDER GROUND PIPING**

- A. Functions, operation and characteristics of underground systems
- B. Layout and installation of under ground systems
- C. Difference between insulation, isolation and elevation
- D. Special circumstances

## **PRINTS AND SPECIFICATIONS**

- A. Creation of blueprints, plans and specifications
- B. Symbols used in insulation and related trades
- C. Use of blueprints, plans and specifications

## **BOILERS AND CHILLERS**

- A. Functions and operations of various types of Boilers and Chillers
- B. Proper techniques for insulation of Boilers
- C. Proper techniques for insulation of Chillers
- D. Theory of a refrigeration cycle
- E. Theory of a generic heat engine

## **HEATING, VENTING AND AIR CONDITIONING**

- A. Principles of supply and return air
- B. Principles of exhaust air
- C. Types and configurations of ducts and air plenums
- D. Types and configurations of heat exchanges

## **SUCTION LINES**

- A. Function and characteristics of suction lines
- B. Insulation requirements of suction lines

## **PERSONAL DEVELOPMENT AND SUPERVISION**

- A. Orientation
- B. Methods of working with others
- C. Economic considerations

# HEAT AND FROST INSULATORS AND ASBESTOS WORKER

## JOBSITE MANAGEMENT

- A. Coordinating tool needs with office of other jobs
- B. Coordinating schedule with other crafts
- C. Developing timetables and progress charts
- D. Completing time sheets, logs and other necessary documentation
- E. Clearances or permits if necessary
- F. Inventory and order necessary equipment according to job needs
- G. Developing alternative solutions and choose the best alternative
- H. Planning and organizing tasks to meet deadlines
- I. Supervising and monitoring others
- J. Picturing the way the project will appear when completed

## TESTING

- A. Steps used for various testing processes
- B. Monthly testing results used to evaluate apprentice's progress
- C. Final test for overall evaluation