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

O-NET CODE: 47-2132.00

CONDENSED AND REVISED 10.01.2010

Heat & Frost Insulators and Asbestos Workers

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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 of Related and Supplemental Instruction

2. Related and Supplemental Instruction

The Related and Supplemental Instruction is detailed in the curriculum outlines in **APPENDIX A**
***Greening the Apprentice also included in APPENDIX B**

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 the 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 **57%** 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.
*Green work process included

TRAINING CRITERA- APPENDIX A

WORK PROCESSES

MIN	MAX
250	750
500	750
150	150
500	500
250	250
100	100

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

Green Construction-Greening the Apprentice*

***implemented in all sections of training**

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HEAT AND FROST INSULATORS AND ASBESTOS WORKER-APPENDIX B

CURRICULUM

Related and Supplemental Instruction Greening the Apprentice

Green building (also known as **green construction** or **sustainable building**) is the practice of creating structures and using processes that are environmentally responsible and resource-efficient throughout a building's life-cycle: from siting to design, construction, operation, maintenance, renovation, and deconstruction. This practice expands and complements the classical building design concerns of economy, utility, durability, and comfort.

Although new technologies are constantly being developed to complement current practices in creating greener structures, the common objective is that green buildings are designed to reduce the overall impact of the built environment on human health and the natural environment by:

- Efficiently using energy, materials, water, and other resources
- Protecting occupant health through indoor quality enhancement and improving employee productivity
- Reducing waste, pollution and environmental degradation[1]
- Cost

What is included to make the MITC green?

A. Length of Training.
B. Related Classroom Instruction.
    a. Include overview of green construction
    b. Apprentice's personal responsibility on the job site
C. Work Processes of the On-the-Job training including:
    a. Recycling
    b. Reuse
    c. Preservation of resources such as water
    d. Processes unique to individual trades
D. Competency testing.
E. Completion Percentages

RELATED AND SUPPLEMENTAL INSTRUCTION-

"GREENING THE APPRENTICE"

A. **Describe the major challenges to the green environment that are caused directly or indirectly by the built environment.**
B. **Identify decisions and actions in your personal and work life that impact the green environment.**
C. **Prioritize your actions in terms of which ones matter most for the green environment.**
D. **Describe the life cycle phases of a building and the impacts on the green environment over its life cycle.**
E. **Identify green alternatives to conventional building practices and describe the pros and cons of those alternatives.**
F. **Identify specific practices you can implement at work to improve your impacts on the green environment.**
G. **Describe the Leadership in Energy and Environmental Design (LEED) rating process.**
H. **Identify construction activities that contribute to a project's LEED rating.**
I. **Identify common construction pitfalls that may affect a project's LEED rating.**
    1. ***Recycling, reuse, preservation of resources on the construction site***
    2. ***Practices unique to trade****

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

FIRESTOPPING

A. Various types of firestopping materials
B. Insulation techniques
C. Methods for selecting procedures

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. 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.

UNDERGROUND PIPING

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

PRINTS AND SPECFICIATIONS

A. Creation of blueprints, plans and specifications
B. Symbols used in insulation and related trades
C. Use of blue prints, 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 timesheets, 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 apprentices progress
C. Final test for overall evaluation