

# Insulator (Heat and Frost) Level 3

## Insulator (Heat and Frost)

**Unit:** C1 Blueprints and Specifications II

**Level:** Three

**Duration:** 35 hours

Theory: 21 hours

Practical: 14 hours

### Overview:

This unit, which builds on *B1 – Blueprints and Specifications I*, is designed to provide the apprentice with additional knowledge about blueprints and specifications. The unit covers commercial blueprints and specifications.

<b>Objectives and Content:</b>	<b><u>Percent of Unit Mark (%)</u></b>
<b>1. Review unit <i>B1 – Blueprints and Specifications I</i>.</b>	<b>15%</b>
a. Interpret blueprints	
b. Interpret specifications	
<b>2. Read commercial blueprints and specifications.</b>	<b>85%</b>
a. Importance of accurate and precise interpretation	
b. Identify factors	
• Line numbers	
• Number of fittings	
• Thickness of insulation	
c. Identify symbols and abbreviations	
• Elbows	
• Tees	
• Valves	
• Welds	
d. Determine actual dimensions	

\*\*\*

## Insulator (Heat and Frost)

**Unit:** C2 Routine Trade Practices III

**Level:** Three

**Duration:** 56 hours

Theory: 56 hours

Practical: 0 hours

### Overview:

This unit, which builds on *A5 – Routine Trade Practices I* and *B2 – Routine Trade Practices II*, is designed to provide the apprentice with additional knowledge about routine trade practices. The unit includes a review of trade-related math concepts. Part of the unit covers layouts. Finally, the unit covers cladding, jacketing and finishes.

<b>Objectives and Content:</b>	<b><u>Percent of Unit Mark (%)</u></b>
<p><b>1. Review unit <i>B2 – Routine Trade Practices II</i>.</b></p> <p>a. Trade-related math</p> <ul style="list-style-type: none"> <li>• Lateral and total area</li> <li>• Volume</li> </ul> <p>b. Layouts</p> <ul style="list-style-type: none"> <li>• Radial line pattern development</li> </ul>	<b>20%</b>
<p><b>2. Review trade-related math.</b></p> <p>a. Area and volume of frustums</p> <ul style="list-style-type: none"> <li>• Square-based</li> <li>• Rectangular-based</li> <li>• Conical-based</li> </ul> <p>b. Applying math concepts in the trade</p>	<b>35%</b>
<p><b>3. Describe and perform layouts.</b></p> <p>a. Parallel line development</p> <ul style="list-style-type: none"> <li>• Measurements and calculations</li> <li>• Elbow gore</li> <li>• Elbow butterfly</li> </ul> <p>b. Panout</p> <p>c. Tank head</p>	<b>25%</b>
<p><b>4. Describe cladding, jacketing and finishes.</b></p> <p>a. Piping and fitting insulation</p> <ul style="list-style-type: none"> <li>• Types of materials</li> <li>• Application procedures</li> <li>• Allowances</li> <li>• Fastening methods</li> </ul>	<b>20%</b>

- Sealing methods
- b. Tanks, vessels and equipment
  - Types of materials
  - Application procedures
  - Allowances
  - Fastening methods
  - Sealing methods
- c. Mechanical ducting
  - Types of materials
  - Application procedures
  - Allowances
  - Fastening methods
  - Sealing methods
- d. Mechanical equipment
  - Types of materials
  - Application procedures
  - Allowances
  - Fastening methods
  - Sealing methods

\*\*\*

## Insulator (Heat and Frost)

**Unit:** C3 Industrial and Commercial Applications III

**Level:** Three

**Duration:** 63 hours

Theory: 0 hours

Practical: 63 hours

### Overview:

This unit, which builds on *A6 – Industrial and Commercial Applications I* and *B3 – Industrial and Commercial Applications II*, is designed to provide the apprentice with additional knowledge about industrial and commercial applications. The unit includes installation of cladding, jacketing and finishes for piping and fittings. Part of the unit covers installation of cladding, jacketing and finishes for tanks, vessels and equipment. Finally, the unit covers installation of cladding, jacketing and finishes for mechanical ducting and mechanical equipment.

<b>Objectives and Content:</b>	<b><u>Percent of Unit Mark (%)</u></b>
<b>1. Perform installation of cladding, jacketing and finishes for piping and fittings.</b>	<b>20%</b>
a. Application	
b. Measurements and calculations	
c. Allowances	
d. Fastening methods	
e. Sealing methods	
<b>2. Perform installation of cladding, jacketing and finishes for tanks, vessels and equipment.</b>	<b>30%</b>
a. Application	
b. Measurements and calculations	
c. Allowances	
d. Fastening methods	
e. Sealing methods	
<b>3. Perform installation of cladding, jacketing and finishes for mechanical ducting.</b>	<b>20%</b>
a. Application	
b. Measurements and calculations	
c. Allowances	
d. Fastening methods	
e. Sealing methods	
<b>4. Perform installation of cladding, jacketing and finishes for mechanical equipment.</b>	<b>30%</b>
a. Application	
b. Measurements and calculations	

- c. Allowances
- d. Fastening methods
- e. Sealing methods

\*\*\*

## Insulator (Heat and Frost)

**Unit:** C4 Removable Covers I

**Level:** Three

**Duration:** 21 hours

Theory: 7 hours

Practical: 14 hours

### Overview:

This unit is designed to provide the apprentice with introductory knowledge about removable covers. The unit covers fabrication and installation of soft removable covers.

<b>Objectives and Content:</b>	<b><u>Percent of Unit Mark (%)</u></b>
<b>1. Describe fabrication and fastening of soft removable covers.</b>	<b>10%</b>
a. Types of material	
b. Measurements and calculations	
c. Fabrication procedures	
• Allowances	
d. Application procedures	
e. Fastening methods	
<b>2. Perform fabrication of soft removable covers.</b>	<b>70%</b>
a. Measurements and calculations	
b. Fabrication procedures	
• Allowances	
<b>3. Perform installation of soft removable covers.</b>	<b>20%</b>
a. Application procedures	
b. Fastening methods	

\*\*\*