ROLE PROFILE: THERMAL INSULATION TECHNICIAN

Occupational Area:	Asset/Site – Thermal Insulation
Job Role Examples:	Thermal Insulator, Thermal Insulation Technician, Industrial Thermal Insulation Technician, Sheet Metal Worker

Role Overview:

Thermal insulation engineers in the engineering construction industry apply specialized insulation systems to pipework, ductwork, tanks, critical equipment, and structures. Depending on the required specifications, these systems may include high-performance insulation materials, cold conservation, and cryogenic vapor barrier systems, often protected with cladding and sealant. For inspection and maintenance, engineers may need to remove cladding and insulation so that a third party can assess the condition of the underlying substrate coating.

Before installation, engineers use technical drawing tools and specialist equipment to create templates and fabricate components such as various bends, T-pieces, and valve boxes. These components are then applied over the insulation to provide weatherproofing and prevent mechanical damage. In addition to thermal insulation, these engineers may also be skilled in other insulation systems, such as acoustic insulation, personnel protection, and passive fire protection, which can complement or replace thermal insulation.

Knowledge & Skills:

The thermal insulation technician will:

- Possess the necessary competencies to develop, fabricate, and apply specialist insulation systems, cladding, and sealant to pipework, meeting required standards while adhering to health, safety, and environmental regulations and practices.
- Understand relevant legislative, regulatory, and local requirements, including responsibilities regarding reporting lines and procedures.
- Be aware of preparation and reinstatement requirements for work areas, materials, and equipment, understanding the potential consequences of errors in these areas.
- Be able to read and interpret engineering drawings, specifications, quality standards, and equipment manuals, following work instructions, plans, and schedules.
- Know which tools, consumables and equipment to use, following relevant training, methods, techniques, and quality control and safety procedures.
- Understand their responsibilities for the care and security of tools, consumables, and equipment used.
- Be able to handle a range of digital information, technology and equipment to support work related tasks and to communicate information.

Technical Competencies:

- **TTI01 - Application of insulation and non-metallic cladding to pipework** - Apply insulation and cladding to pipework using the correct materials and techniques to the specified tolerances, in compliance with current regulations and recognised industry practices. Develop and fabricate material templates for bends, T-pieces, and boxes, demonstrating the engineer's knowledge of measuring and producing patterns according to required specifications.
- **TTI02 – Fabrication and application of metallic cladding to pipework** – Develop, fabricate and apply insulation and metallic cladding materials to various types of pipework layouts to the specified tolerances, in compliance with current regulations and recognised industry practices

Behaviours:
• Establish and maintain effective working relationships, communicate effectively, and work inclusively to deliver work within given specifications. • Demonstrate team working skills and interact with team members in a positive and professional manner. • Work within an overall risk control strategy which has been developed by safety specialists and includes detailed criteria for identifying risks, together with clearly defined procedures for action which must be followed. • Take personal ownership of, and responsibility for, completing tasks and procedures. • Follow procedures and relevant codes of conduct with integrity and rigour and complete appropriate actions and documents accurately and honestly. • Identifying and report instances where procedures or work instructions cannot be met or where a variation in them is required. • Deal promptly and effectively with problems within their control and report those that have been, and those that cannot be, solved. • Demonstrate the ability to coordinate work scopes and simops effectively within a wider team, as required. • Demonstrate effective handover of responsibility and equipment at the end of a task. • Take responsibility and ownership of personal development, set targets to plan on how these will be achieved. • Support operational requirements, achieve targets and maintain records as required, thereby minimising backlog and downtime. • Maintain compliance with legislative requirements and company policies, procedures and standards. • Maintain and demonstrate ongoing technical competence and skill set to current standards and updates. • Support innovation and development for improvements.

SUPPORTING NOTES: THERMAL INSULATION ENGINEER

The Connected Competence standard role profile for a Thermal Insulation Engineer sets out the knowledge, skills, technical competencies and behaviours that are expected from a fully competent Thermal Insulation Engineer in any sector of the Engineering Construction Industry. Once competence is first achieved through training and subsequent qualification, **regular testing** ensures that **ongoing** competence is maintained, against a recognised standard.

This supporting document highlights transferable qualifications and any additional technical requirements that maybe specific to a certain sector to support standardisation of skills and workforce transferability. It does not reference any site-specific or sector specific safety training.

Sector Specific Qualifications

Prior to embarking on the formal technical test assessment cycle, an individual would be expected to have core trade qualifications as a minimum requirement:

Key
Accepted - Applicable qualification for the role with no gap analysis required
Recognised - Applicable technical content, however a gap analysis maybe required for appropriate unit completion
Dependant on Employer - May or may not be recognised

Qualification Details	Offshore Oil & Gas	Onshore Oil & Gas	Wind	Nuclear
TICA Indentured Apprenticeship OR L3 Apprenticeship Industrial Thermal Insulation				
L2 NVQ / Diploma in Thermal Insulation				
L2 / L3 NVQ in Sheet Metal Work				

Additional Technical Competence requirements

Given the hazardous nature of some Engineering Construction working environments, the overall risk control strategy for the organisation will usually require Thermal Insulation Engineers to be familiar with, and work within, a formal Permit to Work system. Compliance with a specific company or site safety management system (SMS) will also usually be required and additional 'site-specific' technical competence will be developed on top of basic technical competence assurance. Specialist safety training may also be required as a prerequisite in addition to role specific training.

Oil & Gas	Wind	Nuclear	CCUS	Hydrogen
• No additional technical competencies	• Common skills maybe applied in the fabrication of large turbine components	• No additional technical competencies	• No additional technical competencies	• No additional technical competencies