

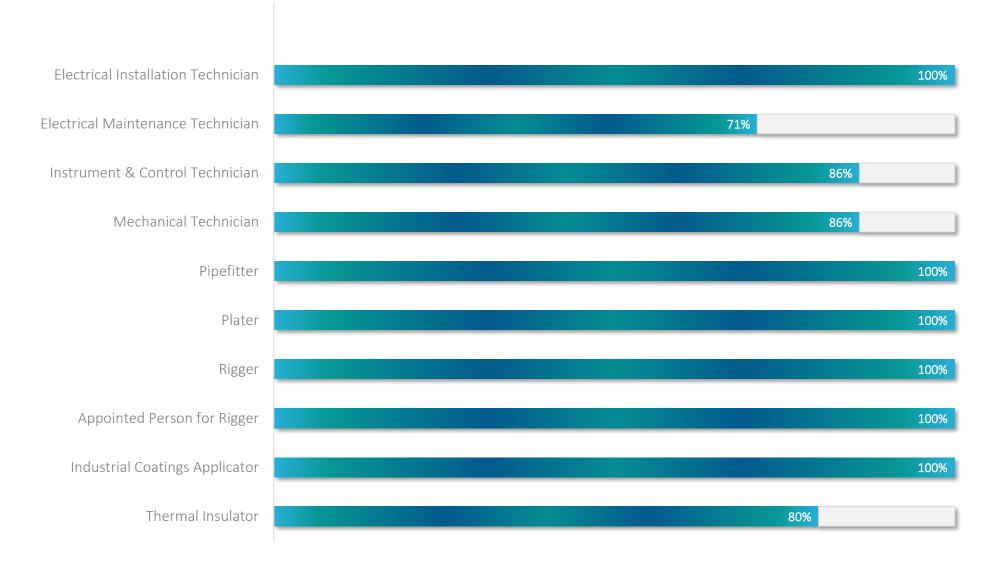
### **Connected Competence Analysis**

Against Nuclear Craft and Technician Role Requirements

December 2022

# Common skills transfer from Engineering Construction Industry across the Nuclear Sector







Electrical Installation

Isolate a three-phase distribution board, install final circuits, carry out dead tests using appropriate materials, equipment, tools and techniques.

Install cables, terminate, and test a three-phase motor using appropriate materials, equipment, tools and techniques.

Measure, cut, shape, construct, and install a cable support system using appropriate materials, equipment, tools and techniques.

Gland and terminate industrial type cable into an intrinsically safe installation using appropriate materials, equipment, tools and techniques.

Select, dress, gland and terminate cables, into a suitable component using appropriate materials, equipment, tools and techniques.

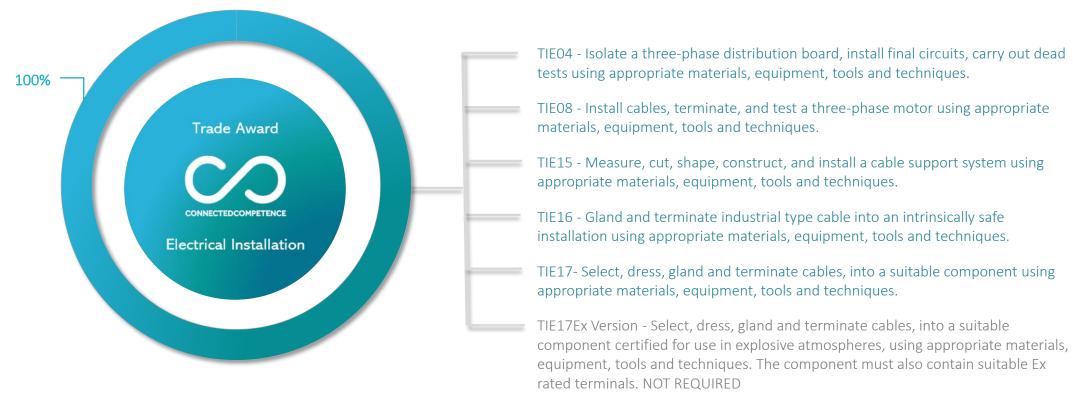
'Ex D' - Select, dress, gland and terminate cables, into a suitable component certified for use in explosive atmospheres, using appropriate materials, equipment, tools and techniques. The component must also contain suitable Ex rated terminals. Nuclear Requirement – what else is needed?

No additional base technical requirements

Nuclear Requirement – what's not needed?

Explosive Atmospheres (Ex D)





Nuclear Electrical Installation Technician Competence Profile matches Connected Competence Base Standard – 100%

**Electrical Maintenance** 

Inspect and test portable electrical equipment using appropriate tools, equipment and techniques.

Check the condition of battery cells, take voltage readings making comparison to the manufacturers recommendations and check the functionality of the battery-supported UPS equipment.

Prepare the equipment and reinstate after the work has been completed safely.

Inspect, test and maintain industrial circuit protective equipment using appropriate materials, equipment, tools and techniques.

Visual, close and detailed inspection of electrical equipment in a defined hazardous area, recording of results and recommendation of any remedial action.

Periodic inspection and testing of the 3-phase plant using appropriate materials, equipment, tools and techniques.



Nuclear Requirement – what else is needed?

Variable Speed Drives

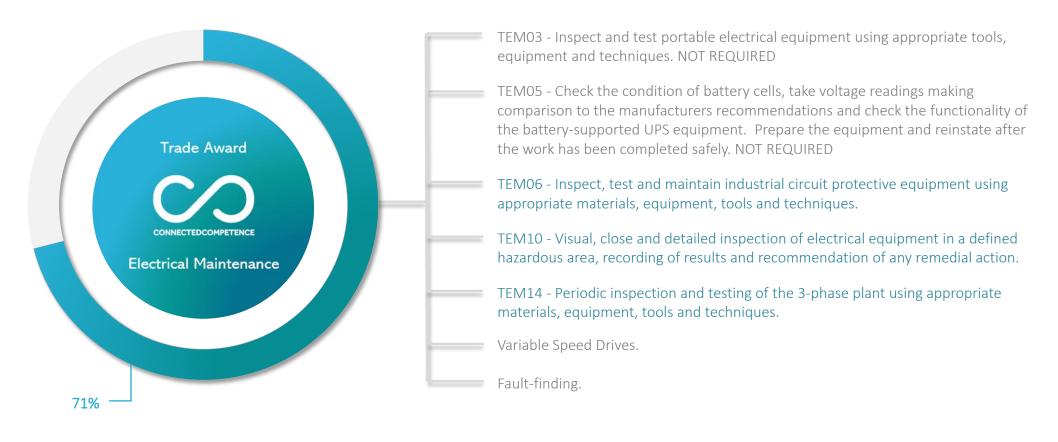
**Fault-finding** 

Nuclear Requirement – what's not needed?

**PAT requirements** 

Battery Operated UPS Systems





Nuclear Electrical Maintenance Technician Competence Profile matches Connected Competence Base Standard – 71%

#### Instrument and Control Maintenance

Range check a pressure gauge. Change settings on a pressure switch. Recalibrate a SMART pressure transmitter.

Re-range a level transmitter. Calculate range required to measure level in a tank or vessel using hydro-static head formula and apply the range values to a SMART level transmitter.

Commission a temperature detector (RTD or thermocouple) and a SMART temperature transmitter including a range change from current settings, recalibration and full loop check from heat source to transmitter output.

Commission an orifice-plate differential pressure flow SMART transmitter to a specified range. Connect the transmitter manifold assembly and perform a calibration check.

Remove a pneumatic valve positioner. Replace the valve stem gland packing. Reassemble and body pressure test the valve. Stroke test the valve assembly to operate open/closed and complete a full loop calibration instrument test record.

Identify faults and defects with SBT assemblies, disassemble SBT assemblies, rectify faults and defects and reinstall SBT assemblies by selecting and using correct materials, tools, fittings, clamps and supports.



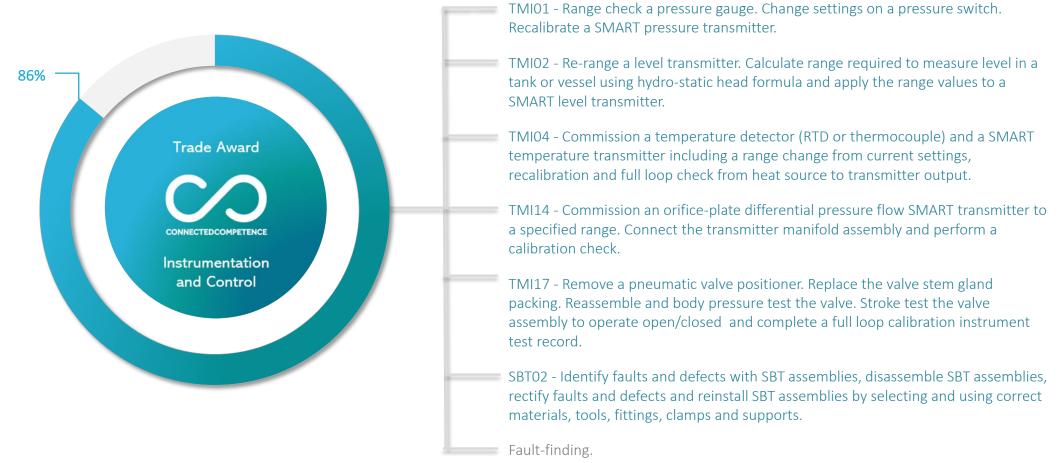
Nuclear Requirement – what else is needed?

Fault-finding.

Nuclear Requirement – what's not needed?

No overspecification against CC Standard





Nuclear Instrumentation & Control Technician Competence Profile matches Connected Competence Base Standard – **86%** 



Mechanical Maintenance

Measure a range of test components with micrometers, verniers and DTIs and record the results.

Accurately check and rectify the horizontal and vertical shaft alignment of rotating equipment.

Disassemble, clean, inspect and repair/replace a hydraulic gear pump or its component parts as per manufacturers specification.

Disassemble, clean, inspect and repair/replace a pneumatic cylinder or its component parts as per manufacturers specification.

Strip down, check dimensions, repair/replace components and seals to rebuild a centrifugal pump.

Dismantle, inspect, prepare, assemble and secure 4 bolt and 8 bolt flanged joints to within the stated tolerances.

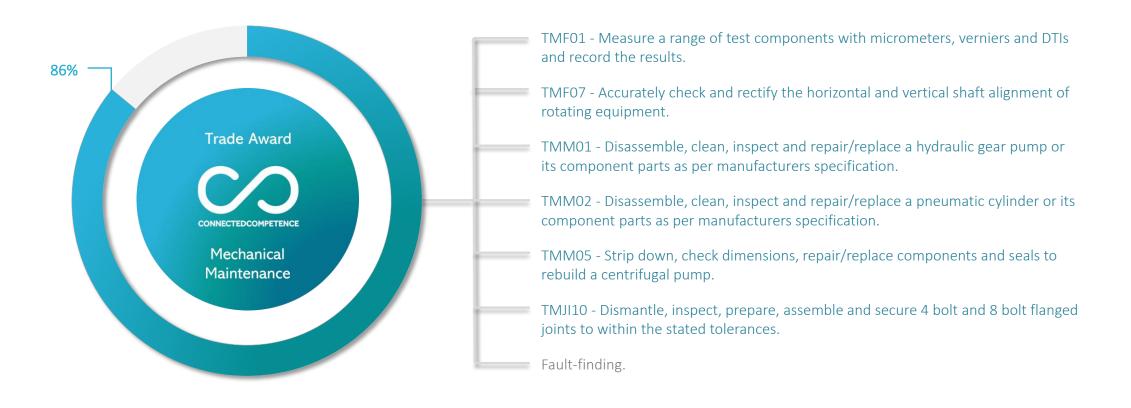
Nuclear Requirement – what's not needed?

No overspecification against CC Standard

Nuclear
Requirement – what else is needed?

**Fault-finding** 





Nuclear Mechanical Maintenance Competence Profile matches Connected Competence Base Standard – **86%** 



CONNECTEDCOMPETENCE

Nuclear Requirement What's not needed?

No overspecification against CC Standard

Fabricate pipework spools, assemble and secure pipework for welding as per specification drawing using cutting and grinding techniques.

Fabricate and install pipework supports using bolting and clamping systems including bending techniques.

Prepare and hydrostatically test pipework systems, and then drain the systems.

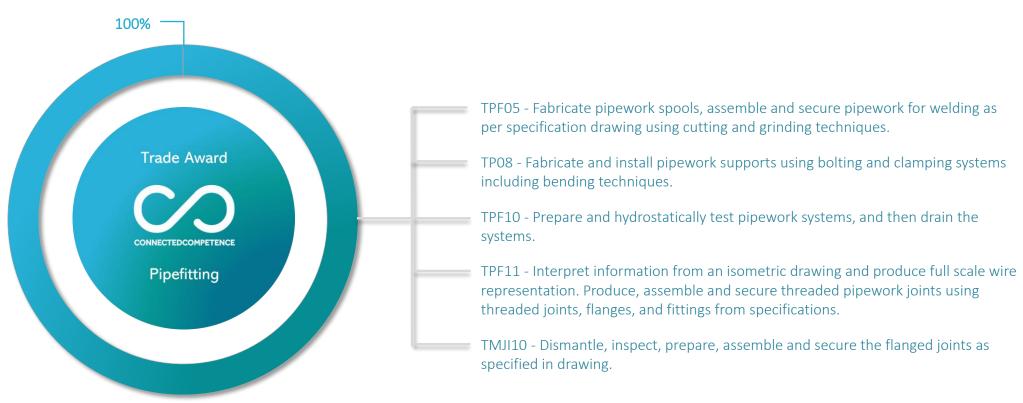
Interpret information from an isometric drawing and produce full scale wire representation. Produce, assemble and secure threaded pipework joints using threaded joints, flanges, and fittings from specifications.

Dismantle, inspect, prepare, assemble and secure the flanged joints as specified in drawing.

Nuclear Requirement What else is needed?

No additional requirements





Nuclear Pipefitting Competence Profile matches Connected Competence Base Standard – **100%** 



### CC BASE STANDARD Plating

Measure and mark out from drawings

Set out platework and rolled steel section. Reading and extracting information from engineering drawings and specifications to correctly mark out plates and structural steelwork.

Cut, drill, prepare, tack weld and secure connections from specifications. Extracting information from engineering drawings to fabricate, inspect and bolt steelwork connections.

Fabricate and install pipework supports using bolting and clamping systems including bending techniques.

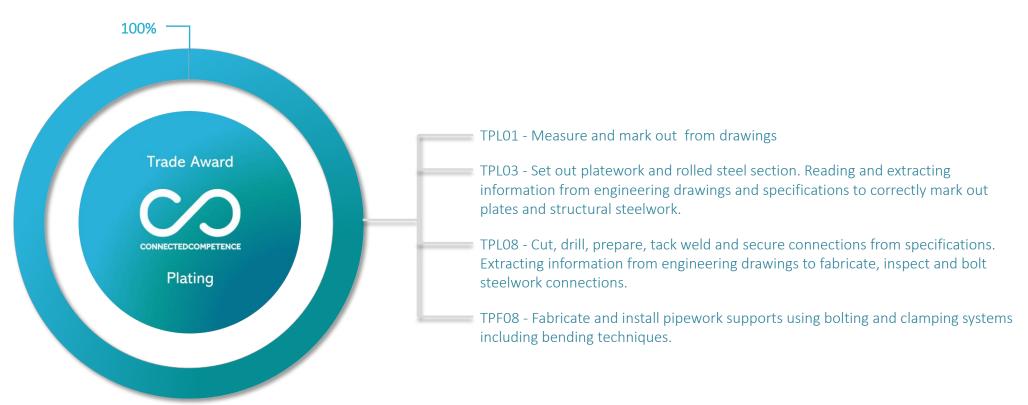
Nuclear Requirement What else is needed?

No additional requirements

Nuclear Requirement What's not needed?

No overspecification against CC Standard





Nuclear Plating Competence Profile matches Connected Competence Base Standard – 100%



## CC BASE STANDARD Rigging

Move an uneven load safely through an obstructed area using a lift plan.

Interpret and carry out a lift plan using appropriate materials, equipment, tools, and techniques.

Nuclear Requirement What's not needed?

No overspecification against CC Standard

## CC BASE STANDARD Appointed Person for Rigging

Generate clear and concise lift plans, risk assessments and toolbox talks necessary to support a complex rigging operation in accordance with recognised industry regulations and procedures.

Nuclear Requirement What's else is needed?

No additional requirements

TML 03
Technical Test
Moving Loads



#### Rigging

TML03 - Move an uneven load safely through an obstructed area using a lift plan. Interpret and carry out a lift plan using appropriate materials, equipment, tools, and techniques.

#### Appointed Person for Rigging

TAPO1 - Generate clear and concise lift plans, risk assessments and toolbox talks necessary to support a complex rigging operation in accordance with recognised industry regulations and procedures.



100%

Rigger and Appointed Persons For Rigging Competence Profile matches Connected Competence Base Standard – **100%** 



Nuclear Requirement What's not needed?

Read and interpret relevant engineering drawings, related specifications, quality standards and equipment manuals

### CC BASE STANDARD Industrial Coatings

Airless Spray Application - prepare equipment and apply a two part industrial coating to a specific dry film thickness.

Brush application - apply an industrial coating to a specific dry film thickness

Abrasive Blast Cleaning - pre-clean and prepare a mild steel plate to specification in preparation for industrial coating using abrasive blast cleaning equipment, needle gun and bristle blaster

Nuclear Requirement What's else is needed?

No additional requirements





Nuclear Industrial Coatings Competence Profile matches Connected Competence Base Standard – 100%



### CC BASE STANDARD Thermal Insulation

Nuclear Requirement What's not needed?

No overspecification against CC Standard

Apply insulation and non-metallic cladding to pipework using the correct materials and techniques to the specified tolerances and in compliance with current regulations and recognised industry practices.

The use of sheet metal fabrication techniques should be applied to develop templates for the production of bends, t-pieces, and boxes.

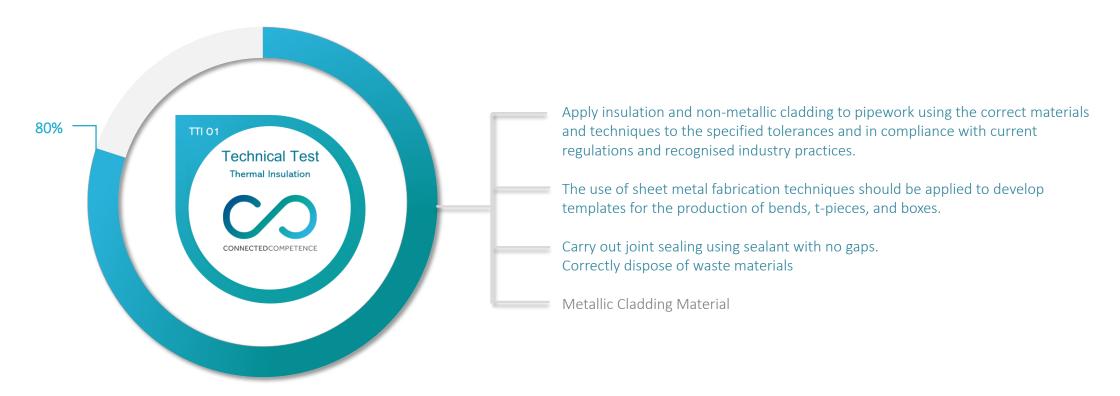
Carry out joint sealing using sealant with no gaps.

Correctly dispose of waste materials.

Nuclear Requirement What's else is needed?

Similar test using metallic cladding material





Nuclear Thermal Insulator Competence Profile matches Connected Competence Base Standard – 80%