



Australian Government

MSMPMC337 Prestress concrete in precast elements

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Modification History

Release	Comments
1	This unit of competency was first released in MSM Manufacturing Training Package Release 9.0.

Application

This unit describes the skills and knowledge required to determine pre-stressing requirements, set up equipment and follow processes for prestressing, including release of the final concrete element.

The unit applies to individuals who work in accordance with pre-determined instructions and established standard operating procedures (SOPs). They work in a team, but take responsibility for their own work using discretion and judgement to monitor work processes and solve both routine and non-routine problems.

The manufacture of precast concrete products is subject to various statutory and industry requirements, and the relevant legislation, industry standards and codes of practice within Australia must be applied. Requirements may vary across states and territories.

Licensing/Regulatory Information

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite unit(s)

No prerequisite units.

Competency field(s)

N/A

Unit sector(s)

N/A

Elements and Performance Criteria

Elements	Performance Criteria
Elements describe the essential outcomes.	Performance criteria describe the performance needed to demonstrate achievement of the element.

1. Plan work requirements	1.1 Identify prestressing requirements from work instructions 1.2 Identify and select the correct type of pre-stressing system based on work instructions 1.3 Identify required work process, equipment and materials to meet requirements 1.4 Identify upstream and downstream processes that impact prestressing work and organise tasks accordingly 1.5 Identify hazards associated with prestressing process and follow risk control procedures
2. Prepare for prestressing process	2.1 Apply safety measures in accordance with SOPs 2.2 Check and set up prestressing equipment in accordance with SOPs 2.3 Select and confirm materials are to specification 2.4 Position and secure tendons (strand or wire or bar) using required anchors according to job requirements
3. Apply and monitor prestressing process	3.1 Apply initial and final tension to prestressing tendons in accordance with SOPs and job requirements 3.2 Monitor tensioning and measure elongation to ensure compliance with design requirements 3.3 Make adjustments within scope of own job role, identifying and reporting issues requiring input from others in accordance with SOPs
4. Release tension	4.1 Confirm required safety measures are in place prior to release of concrete 4.2 Follow processes to ensure concrete compressive strengths have been achieved in accordance with SOPs 4.3 Release tension in accordance with workplace safety procedures 4.4 Check for strand slippage or damage due to release process and refer those outside of tolerance to relevant individuals 4.5 Complete workplace documentation in accordance with SOPs

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance.

- Numeracy skills to:

- locate and interpret explicit information about dimension
 - estimate material quantities.
- Reading skills to locate and interpret explicit information in visual and text-based workplace instructions and procedures.
- Writing skills to complete familiar workplace documentation.
- Oral communication skills to share information with team members during work processes.
- Teamwork skills to work cooperatively with others during processes involving multiple people.

Other foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of conditions

No conditions apply to this unit of competency at the time of publication.

Unit Mapping Information

Current Code and Title	Previous Code and Title	Comments	Equivalence
MSMPMC337 Prestress concrete in precast elements		This unit has been created to address a skill or task required by industry that is not covered by an existing unit of competency	Newly created

Assessment Requirements for MSMPMC337 Prestress concrete in precast elements

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Performance Evidence

There must be evidence the candidate has completed the tasks outlined in the elements and performance criteria of this unit, and demonstrated the ability to:

- prestress concrete in precast elements on two occasions.

Knowledge Evidence

There must be evidence the candidate has knowledge of:

- key features of prestressing work instructions, including:
 - types of information included and how the information is used
 - main requirements of the Australian Standards that apply to prestressing
- scope and limitations of different worker roles in the prestressing process and when issues need to be referred to others for decision
- materials used in prestressed concrete and their basic properties
- basic properties and behaviour of prestressed concrete under different loads
- standards, regulations and codes related to prestressing
- different types of stressing, including:
 - single strand
 - multi-strand
- casting and moulding methods for prestressed elements
- features and operating principles of equipment and tools required for the complete prestressing process
- types of checks and tasks to be undertaken when preparing for prestressing, including those related to barrels and wedges strand, coils, calibration and traceability
- typical prestressing process and product problems, including early warning signs, possible causes, and corrective actions
- hazards associated with the prestressing process in precast concrete manufacturing, including:

- their possible causes
- potential consequences
- workplace risk controls.

Assessment Conditions

Skills must have been demonstrated in the workplace or in a simulated environment that reflects workplace conditions and contingencies. The following conditions must be met for this unit:

- use of suitable facilities, equipment and resources, including:
 - operational concrete manufacturing facility, equipped with tools, machinery and materials for prestressing concrete
 - safety and personal protective equipment
 - work instructions
 - standard operating procedures.

Assessors must satisfy the NVR/AQTF mandatory competency requirements for assessors.

Link

Companion volumes, including implementation guides, are found on the national training register - <https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=d1287d36-dff4-4e9f-ad2c-9d6270054027>.