**TSC Category**
Rail Systems Maintenance

**TSC**
Civil Structure Maintenance

**TSC Description**
Implement preventive and corrective maintenance of civil structures

<table>
<thead>
<tr>
<th>TSC Proficiency Description</th>
<th>Level 1</th>
<th>Level 2</th>
<th>Level 3</th>
<th>Level 4</th>
<th>Level 5</th>
<th>Level 6</th>
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<tr>
<td></td>
<td>PTP-RSM-1004-1.1</td>
<td>PTP-RSM-2004-1.1</td>
<td>PTP-RSM-3004-1.1</td>
<td>PTP-RSM-4004-1.1</td>
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<tr>
<td>Carry out visual inspection on civil structures to perform repair work or report faults</td>
<td>Carry out corrective maintenance and supervision work on civil structures, buildings and fittings</td>
<td>Provide technical support in conducting testing and maintenance of probable and actual defects identified on civil structures and buildings</td>
<td>Implement preventive maintenance regime and corrective action plans for civil structures and buildings and fittings</td>
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**Knowledge**
- Visual techniques for identifying structural defects
- Types of recognisable defects on civil structures, buildings and fittings
- Severity levels of defects on civil structures, buildings and fittings
- Organisational procedures and Work Instructions (WI) for civil structures inspection
- Safety guidelines for civil structure inspection
- Organisational maintenance documentation and fault reporting procedures
- Types of recognisable and latent structural defects
- Work instructions for repair and replacement work
- Procedures for performing repair and replacement work and corrective maintenance on civil structures, buildings and fittings
- Types of tools and equipment for performing repair and replacement work and corrective maintenance on civil structures, buildings and fittings
- Safety guidelines on use of tools and equipment for performing repair and replacement work and corrective maintenance
- Principles of civil structural integrity
- Methods of mechanical, structural and piping testing
- Non-destructive testing (NDT) methods
- Properties of construction materials and susceptibility to damage and wear
- Effect of damage and wear on the integrity of civil structures
- Resource planning techniques for maintenance needs
- Hazards and safety precautions associated with testing
- Methods of civil structures fault rectification
- Principles of civil structural integrity
- Engineering solutions to rectify structural faults
- Defect characterisation
- Factors affecting system-wide structural integrity, structural tests and measurements
- Factors affecting priority level and completion schedule of maintenance activities
- Methods of developing structural maintenance plans and method statements
- Civil structures fault investigation and prevention methods
- Methods and tools for diagnostic analysis
- Principle of sustainable construction
- Functional relationships between civil structures and the overall rail systems
<table>
<thead>
<tr>
<th>Abilities</th>
<th>Interpret work instructions to carry out repair and replacement works on civil structures, buildings and fittings</th>
<th>Supervise external contractors in conducting testing on civil structures</th>
<th>Review organisational civil structures maintenance procedures</th>
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<tbody>
<tr>
<td>Perform preparation work to conduct visual checks on civil structures</td>
<td>Verify adherence to work specifications carried out by external contractors</td>
<td>Examine structural drawings to ascertain impact of faults</td>
<td>Recommend the priority levels and completion schedule of civil structures maintenance considering factors such as safety, cost, effectiveness and contract service level requirements</td>
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<td>Conduct visual inspection in accordance to organisational procedure and WI</td>
<td>Demarcate and set up safety boundaries for areas of structural repair, replacement and corrective maintenance work</td>
<td>Identify and escalate safety hazards resulting from identified faults</td>
<td>Facilitate civil structures fault investigation</td>
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<td>Identify types of structural defects from visual inspections</td>
<td>Apply operating and safety measures in operating tools and equipment during repair, replacement and corrective maintenance work</td>
<td>Recommend corrective actions for identified faults based on external contractor’s input</td>
<td>Propose new and/or enhanced preventive maintenance procedures</td>
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<td>Compare identified structural defects against past records to identify new defects and determine type and severity of defect</td>
<td>Provide feedback to improve civil structures maintenance work activities</td>
<td>Analyse maintenance work documented to identify possible workflow improvements</td>
<td>Monitor overall maintenance progress to ascertain effectiveness of maintenance procedures</td>
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<td>Record civil structures, buildings and fittings inspection and report occurrences of potential faults identified</td>
<td>Review documentation of inspection activities</td>
<td>Inspect completed structural repairs for integrity issues</td>
<td>Coordinate civil structures maintenance with other rail systems maintenance needs</td>
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<td>Record and collate documentation of structure maintenance work</td>
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<td>Review data affecting current and potential civil structures maintenance to determine maintenance requirements</td>
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