## TSC Category
Quality Management

## TSC
Structural Testing

## TSC Description
Execute non-destructive structural tests to ensure integrity and reliability of structural components against standards and product specifications based on determined test methods, criteria, equipment, and timeframes

<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>
</tr>
</thead>
<tbody>
<tr>
<td>MAR-QUA-2006-1.1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MAR-QUA-3006-1.1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MAR-QUA-4006-1.1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prepare inspection areas for structural testing</td>
<td>Conduct structural testing on equipment and systems according to test plans and procedures</td>
<td>Analyse structural testing results and determine nature and extent of defects and follow-up actions required</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Knowledge
- Methods of mechanical, structural, piping and heat, ventilation and air conditioning (HVAC) testing
- Types of structural testing techniques
- Types of structural testing instruments and their applications
- Types of cleaning and preparation methods and processes
- Visual assessment techniques relevant to structural tests
- Types of discontinuities and their consequences
- Relevant workplace safety and health (WSH) regulations and requirements
- Methods of non-destructive testing
- Physical properties of materials
- Electrical conductivity
- Magnetic permeability
- Procedures for carrying out testing
- Tools, equipment, techniques and system verification checks necessary to carry out testing
- Basic maintenance and storage procedures for testing equipment
- Hazards and safety precautions associated with testing
- Defect characterisation
- Influence of various parameters on different tests and measurements
- Marine and offshore industry, national and international standards, regulatory codes and practices
- Methods and procedures for reporting test results
- Effect of damage in relation to the integrity of components or ships to withstand stresses encountered at sea
- Repair methods and material characteristics for timber, fibre reinforced plastics and metal surfaces and structures
- Techniques for reinforcement and support
- Methods of testing to re-establish integrity
- Pre-delivery procedures

### Abilities
- Identify inspection areas for testing using appropriate procedures and tools
- Select appropriate tests and methodologies to be used
- Detect defects to assess and classify them in accordance with national
<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Prepare inspection areas for structural tests in accordance with relevant legal and safety requirements.</td>
<td>Select testing equipment in accordance with quality standards and procedures.</td>
<td>and international codes and standards.</td>
</tr>
<tr>
<td>Visually assess inspection areas for obvious discontinuities.</td>
<td>Carry out structural and piping testing in accordance with legal and safety requirements.</td>
<td>Confirm defects in accordance with organisational procedures and industry practices.</td>
</tr>
<tr>
<td>Adhere to relevant WSH risk control measures when conducting structural tests.</td>
<td>Check structural testing equipment for defects, then maintain and store equipment in accordance with quality standards and manufacturer's instructions.</td>
<td>Report test results to relevant stakeholders in accordance with organisational procedures and customer service requirements.</td>
</tr>
<tr>
<td>Check equipment for defects, then maintain and store equipment in accordance with quality standards and manufacturer's instructions.</td>
<td>Suggest potential safety hazards resulting from identified faults.</td>
<td>Analyse the structural and piping defects to determine next actions.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Determine specifications for repair and replacement work in accordance with delivery requirements.</td>
</tr>
</tbody>
</table>