



**Occupational Safety and Health Division**

18 Havelock Road #03-02  
Singapore 059764  
Tel: 64385122  
www.mom.gov.sg  
mom\_oshd@mom.gov.sg



**Application for Approved (Overseas/Local) Third Party  
Inspection Agency for Lifting Equipment**

This form may take you 20 minutes to complete.  
You will need the following information to fill in the form:

- Narrative description and company's commitment to the services, including history of company, company's goal and policy, type of services, staff skills and training programme and countries where services can be rendered
- Personnel data sheet of all partners, directors and key inspection personnel
- ISO certificate for quality management supervision or quality assurance manual
- Relevant approval certificates, testimonials or letters from government authorities
- Sample copies of test reports, inspection reports and certificates and other technical reports published by company



**Occupational Safety and Health  
Division**  
18 Havelock Road #03-02  
Singapore 059764

## Application for Approved (Overseas/Local) Third Party Inspection Agency for (Lifting Equipment)

### APPLICATION FORM

Name of Company:	Type of organisation	Please tick	Date of Application:
Address of Head Office:	Partnership	<input type="checkbox"/>	Telephone Number:
	Private Company	<input type="checkbox"/>	Facsimile Number:
	Public Listed Company	<input type="checkbox"/>	Internet Address:
	Government Owned Company	<input type="checkbox"/>	
	Government Department	<input type="checkbox"/>	
	Others (Please state)	<input type="checkbox"/>	
<b>Scope of Work applying for:</b>			
Design Review and Prototype Testing			<input type="checkbox"/>
Remnant Life Survey			<input type="checkbox"/>

#### Particulars of Person making application

Name:	Designation:
<b>Declaration</b>	
I hereby declare that the information supplied in this application (including all the attachments) are true and correct to my best knowledge and belief, and the testimonials, certificates, letters of authorization and documents as given by the persons whose names appear on them and submitted with this application are true and genuine.	
_____	_____
Date	Signature

For Official Use	Approved/Not Approved	Signature/Date
------------------	-----------------------	----------------

**Partners, Directors and key inspection personnel.  
(Completed Personal Data Sheets for each of those listed below are to be appended to this list.)**

Name and Designation	Education (Degree/Diploma)	Working Languages	Number of years with Organisation	Year of birth and Age last birthday

**Projects and Services provided over the past 3 years.**

<b>Project/Equipment Inspected</b>	<b>Date when inspection was carried out</b>	<b>Codes Used</b>	<b>Country where inspection was made</b>	<b>Client</b>



## Personal Data Sheet

### I PERSONAL PARTICULARS

Name: \_\_\_\_\_ (Underline Surname)  
Date of Birth: \_\_\_\_\_  
Date joined organization: \_\_\_\_\_  
Current Appointment: \_\_\_\_\_

Please affix a  
recent passport  
sized  
photograph here.

### II EDUCATION & TRAINING

#### *Basic*

\_\_\_\_\_ Date \_\_\_\_\_ Training Received

#### *Specialist*

\_\_\_\_\_ Date \_\_\_\_\_ Training Received

### III SURVEY EXPERIENCE

#### *Assignments* (Previous and present employment, relevant to lifting equipment surveys)

\_\_\_\_\_ Date \_\_\_\_\_ Description \_\_\_\_\_ Code

#### *Familiarity with design codes*

(State the design codes title and the degree of familiarity in their use.)

### VI LANGUAGE PROFICIENCY

Written

Spoken

---

**V PUBLICATIONS**

Date

Title of Publication

---

---

**VI DECLARATION**

I hereby declare that the information given is true to the best of my knowledge and belief, and that any testimonials, documents and appendices that are submitted with this personal data sheet are true and genuine, given and signed by the persons whose name appear on them.

Date:

Signature:

---

**VII MARKINGS AND STAMPS USED BY APPROVED INSPECTOR**

--	--	--	--

Note : Please use separate sheet if spaces provided above is insufficient.



**Occupational Safety and Health  
Division**  
18 Havelock Road #03-02  
Singapore 059764

## **Application for Approved (Overseas/Local) Third Party Inspection Agency for Lifting Equipment**

### Table of Content

1. Guidelines for the application as an Approved (Overseas / Local) Third Party Inspection Agency for Lifting Equipment
2. Guide to the preparation of Quality Assurance Manual
3. Approval criteria for Inspector
4. Application form
5. Extension Criteria for the Service Life of Mobile Crane
6. Criteria for Type Approval

# **Guidelines for the Application as an Approved (Overseas / Local) Third Party Inspection Agency for Lifting Equipment**

## **GENERAL**

1. Two programmes have been instituted by the Occupational Safety and Health Division to enhance the safe integrity of lifting equipment. The programmes are the Type Approval of Lifting Equipment and the Limit of the Service Life of Mobile Cranes.
2. This two programmes require the appointment of Third Party Inspection Agencies to carry out:
  - a. Design review and prototype testing of the lifting equipment for the type approval scheme; and
  - b. Remaining service life assessment for the extension of the service life of mobile cranes beyond the stipulated period.
3. A Third Party Inspection Agency must be ***independent*** to the owner of the equipment under review or inspection.

## **TYPE APPROVAL OF LIFTING EQUIPMENT**

4. The objective of a ***design review*** is to ensure that the lifting equipment is designed to an acceptable code or standard.
5. The following codes and standards may be used:

ISO	BSI	ANSI
EN	DIN	ASME
SS	FEM	
6. At the end of this review, the Third Party Inspection Agency shall issue a ***Certificate of Compliance (Design Review)*** for the model of the equipment surveyed testifying that the design meets the relevant codes and standards.
7. The objective of ***prototype testing*** is to confirm that the equipment conforms to the design specifications and that it can perform as designed in a safe manner when used.
8. The prototype shall be tested:
  - a. By an accredited testing laboratory or organisation, accredited to a national accreditation authority in the country where the lifting equipment is manufactured (the accreditation authority shall have a



mutual recognition agreement with the Singapore Accreditation Council);

- b. In a suitable testing environment at the manufacturer works or a laboratory set up to test the lifting equipment.
9. At the end of the testing, the Third Party Inspection Agency shall issue a ***Certificate of Compliance (Prototype Testing)*** testifying that the prototype meets the code requirements and the test result meets the design parameters.
10. If the Agency carries out both the review and testing, he may issue a combine ***Certificate of Compliance (Design Review & Prototype Testing)*** for the purpose of obtaining the Type Approval.

### **EXTENSION OF THE SERVICE LIFE OF MOBILE CRANES**

11. The objective is to carry out a thorough assessment on a mobile crane for the purpose of extending its service life beyond the maximum stipulated service life for that class of cranes.
12. The scope of work includes:
  - a. Assessment of the Case Proposal; and the Inspection and Maintenance-Scheme prepared by the owner of the crane; and
  - b. Recommendation of an estimated remaining service life for the crane. (refer to "*Extension Criteria for the service Life of mobile cranes*" for more details)
13. At the end of the assessment, the Third Party Inspection Agency shall furnish a report to the Commissioner for Workplace Safety and Health submitted through the owner of the crane indicating the Case Proposal's compliance with the relevant codes and guidelines, and recommend the remaining service life. The report would then be used as supporting document by the owner to apply to the Ministry for the extension of the service life of the mobile crane.

### **CRITERIA FOR THE APPOINTMENT AS A THIRD PARTY INSPECTION AGENCY FOR LIFTING EQUIPMENT**

14. The criteria for the appointment as an Approved Third Party Inspection Agency for Lifting Equipment are as follows:
  - a) The organisation shall have at least 2 qualified inspectors under its direct employment. (see "Approval criteria for inspector")

- b) The organisation shall have instituted a quality management system such as the ISO 9000 certification scheme or equivalent to ensure the quality of the assessment being carried out.
- c) Overseas applicants shall be accredited to the national accreditation bodies as an Inspection Agency for the relevant scope of work.

## **APPLICATIONS**

- 15. Organization with the relevant competent personnel and experiences may apply to the Division as an approved Third Party Inspection Agency for lifting equipment.
- 16. The organization should make the application from the Office where the Company's policy is formulated, and where the operations are directed.
- 17. The organization shall ensure that the office must be staffed with sufficient number of competent inspectors and other supporting staff to carrying out the assessment.
- 18. The person making the application should be a person:
  - a. holding executive power in the Head Office,
  - b. charged with the responsibility of maintaining the Quality Assurance Manual,
  - c. who can act as liaison person between the company and the Commissioner for Workplace Safety and Health,
  - d. well versed with all facets of the organization's operation, and
  - e. with knowledge and experience in relevant work and activity.

## **FEES PAYABLE**

- 19. The fee for the approval of an organisation as an approved third party inspection agency is S\$180.00.

## **DOCUMENTS TO BE SUBMITTED**

- 20. The following documents must be submitted in the application:
  - a. Completed application form;
  - b. A narrative description of the Company's commitment to the services covering the following aspect:
    - i . History of the company since its formation;
    - ii . Company goal and policy;
    - iii . Types of services (please indicate the Codes and legislation used in the country);
    - iv . Countries in which services can be rendered; and

- v . Staff skill and training programs.
  - c. Personal Data Sheets of all partners, directors and key inspection personnel;
  - d. A copy of the ISO certificate testifying to the quality management system of the organization. If the organization is not ISO certified, a set of the Company's Quality Assurance Manual is to be submitted (refer to "Guide to the preparation of quality assurance manual"). The Commissioner for Workplace Safety and Health may in future required the approved organization to be ISO certified;
  - e. Copies of the approval certificates, testimonials or letters from government authorities.
  - f. Sample copies of:
    - i . Test reports;
    - ii . Inspection reports and certificates;
    - iii . Any technical reports or magazines published by your company or inspectors;
21. The documents submitted should be in English. Where this is not possible, an official translation from the appropriate foreign mission should accompany the document.
22. The Commissioner of Workplace Safety and Health will authorized the organization in writing, if he is satisfied based on the submission that the applicant is competent to carry out the relevant scope of work.
23. The Commissioner of Workplace Safety and Health would accept the certificates, reports that have been duly endorsed by the approved Third Party Inspection Agency for the purpose of the type approval of lifting equipment or for the extension of the service life of mobile cranes.

#### **GENERAL NOTE ON THE COMPLETION OF THE APPLICATION FORM**

24. All sections of the form are to be completed.
25. All relevant documents are to be submitted with this application. These should include document which are not specifically requested for but which are, in your opinion, helpful to us in assessing your Company's capability.
26. If the number of forms supplied is not sufficient, please make the necessary number of copies, and then complete them for submission.
27. If the space provided in the application form is not sufficient, please attach separate sheets for submission.

28. All documents submitted by the applicant will become the property of the Commissioner for Workplace Safety and Health. They will not be returned to the applicant in whatever form.
29. Any information provided by the applicant will be kept in strict confidence. They will not be released to any party without the written approval of the applicant.
30. Authorization, if granted, will be for the specific country applied for and the period stated in the letter of Authorization.
31. Failure to provide any or insufficient information required by the Commissioner for Workplace Safety and Health will be a cause for rejection.
32. As it takes time for the Division to process each application, the applicant is advise to make allowance for the processing of his application. Generally the processing times required for approval is 2-4 weeks. The above stated processing time is applicable if the application is complete (i.e. all required supporting documents and information are supplied) at the time of submission.

## **Guide to the Preparation of Quality Assurance Manual**

1. The inspection agency should assure the quality in all phases of inspection, even before work commences, through the Quality Assurance Manual. The Commissioner for Workplace Safety and Health views the Quality Assurance Manual from the inspection agency as a very important piece of document and reflects the commitment of the Authority to quality.
2. The inspection agency, through its management should define the agency's Corporate Policy and Objectives to quality in the Quality Assurance Manual. This commitment to quality should be signed by the chief executive in the organisation (which in most cases should be the President or Chairman of the Board of Directors).
3. The Manual should also describe the Quality System within the organisation:

- Definition – Quality System (BS 4778, or ISO9000)

"The organisation structure, responsibilities, activities, resources and events that together provide organised procedures and methods of implementation to ensure the capability of the organisation to meet quality requirements".

This Quality System should satisfy the Corporate Objective defined by its chief executive.

4. The representative submitting the application for approval should be designated the Quality Assurance Representative as well. The Quality Assurance Representative should

- Liaise with the Commissioner with regard to problems or queries on the Quality Assurance Manual.
  - Undertake internal audit independent of management on the organisation's Quality Assurance Manual.
  - Ensure that only authorised amendments can be included in the Quality Assurance Manual.
  - Ensure that the Quality system is properly documented into a Quality Programme in the Quality Assurance Manual.
5. The inspection agency should prepare a Quality Assurance Manual, keeping in mind the points raised in the foregoing paragraphs, and submit to the Commissioner for Workplace Safety and Health at the time of submission for approval as an Third Party Inspection Agency. The Appendix to this guide gives a suggested layout of a Quality Assurance Manual. The minimum information to be included in each section of the manual is as suggested in the Appendix; the inspection agency may wish to include additional information, if necessary.

## APPENDIX

### Suggested Make-up of the Quality Assurance Manual

- 1 **Facing Page** : (i) Company name and address  
(ii) Telephone telex, cables, and fax numbers  
(iii) Type of services
- 2 **Statement of Authority** : (i) Authority and responsibility of persons  
(Corporate Policy and Objective) accountable for enforcing QA Systems, their freedom to initiate, recommend and provide solutions to QA problems.  
(ii) Statement of support of management.  
(iii) Dated and signed by president or chairman.
- 3 **Glossary of terms** : (i) For abbreviated titles of personnel and control documents.  
(ii) Not mandatory.
- 4 **Organisation Charts** : (i) Contain job titles of key management personnel.  
(ii) By job titles controlling engineering  
(iii) purchase, QA etc, showing accesses to top  
(iv) management.  
(v) Additional departmental charts if necessary  
(vi) Branch office organisation charts  
Dated, with revision identification  
Job titles used in charts should be consistent with manual
- 5 **QA Responsibilities** : (i) Preparation, revision, distribution and implementation of QA manual and controls of the QA manual.  
(ii) Responsibility for performance of the staff.  
(iii) Other responsibilities assigned by management under the Quality Assurance System such as calibration of measuring and test equipment, receiving inspections, resolution of non-conformances, reporting etc
- 6 **Design Reviews** : (i) Responsibility for review of design.  
(ii) Control of job order etc.  
(iii) Distribution and disposal of design and reports

- |    |  |   |  |
|----|--|---|--|
| 7  | <b>Examination and Inspection Program</b>  | : | <ul style="list-style-type: none"> <li>(i) Describe operations from receipt of request for inspection through to final issue of report.</li> <li>(ii) Description of documents used to control the above functions, including a description of issuer and how they are used</li> <li>(iii) Who is responsible for preparation and correctness and completion of the reports? Is distribution and retention of reports provided for?</li> <li>(iv)</li> </ul> |
| 8  | <b>Correction of Non-conformities</b>      | : | <ul style="list-style-type: none"> <li>(i) Define non-conformities.</li> <li>(ii) Responsibilities for resolution.</li> <li>(iii) Documentation.</li> </ul>  |
| 9  | <b>Calibration of Inspection Equipment</b> | : | <ul style="list-style-type: none"> <li>(i) Who is responsible?</li> <li>(ii) Method of record keeping</li> <li>(iii) Frequency</li> </ul>  |
| 10 | <b>Records retention</b>                   | : | <ul style="list-style-type: none"> <li>(i) Distribution of reports</li> <li>(ii) Explain Company procedure regarding records generation and retention.</li> </ul>  |
| 11 | <b>Sample Forms</b>                        | : | <ul style="list-style-type: none"> <li>(i) Control forms, identified by number or letter and their use explained in the manual. They may be included with the relevant section in the manual or as an appendix. Forms shown should be marked: "Sample" or "Exhibit".</li> <li>(ii) Internal written procedure.</li> </ul>  |
| 12 | <b>Internal Audits</b>                     | : | Management audit system  |
| 13 | <b>Training</b>                            | : | <ul style="list-style-type: none"> <li>(i) Personnel to have appropriate experience.</li> <li>(ii) Regular training/upgrading programme or training.</li> <li>(iii) Demonstrate Competence.</li> <li>(iv) Records of personal training/experience/certification.</li> </ul>  |



## Third Party Inspection Agency for Lifting Equipment Approval Criteria for Inspectors

<u>Description</u>	<u>Approval Criteria</u>
1 Age	Above 21 years old and below 65 years old at last birthday.
2 Academic Qualifications	Basic degree in an engineering discipline from a university or college recognized by the Singapore Professional Engineers Board.
3 Professional Qualifications	Relevant qualifications in welding technology, welding inspection, lifting equipment inspection, non-destructive testing and other related technologies. Inspectors with knowledge on the design and manufacturing of mobile cranes would be advantaged.
4 Experience	Inspectors with a basic <b><i>degree in engineering</i></b> must have at least <b><i>5 years</i></b> relevant experience in welding technology and inspection, lifting equipment inspections, non-destructive testing and other related technologies.
5 Familiarity with Standards and Codes	Familiar with codes and standards related to lifting equipment and steel structures.

# Extension Criteria for the Service Life of Mobile Cranes

## 1. INTRODUCTION

1.1. With **effect from 1<sup>st</sup> Jun 2002**, the maximum service life of crawler, truck or wheel mounted mobile cranes (of a similar construction to that shown in the attached Appendix from SS CP 37) shall not exceed that as shown in Table A below.

**Table A**

<b>Design Safe Working Load (Maximum Capacity)</b>	<b>Maximum allowable years of service from the year of manufacture</b>
50 tons and below	20
Above 50 tons but not more than 100 tons	25
100 tons and above	30

1.2. The maximum service life of such a crane may be extended subject to the prior approval of the Commissioner for Workplace Safety and Health.

1.3. If the Commissioner is satisfied that the crane is safe for use during the period of extension, he may, subject to conditions, extend the service life of the crane to a period specified in the extension approval document.

## 2. EXTENSION CRITERIA FOR THE SERVICE LIFE OF A MOBILE CRANE

2.1. The owner of a mobile crane who wishes to extend the service life of his crane may apply for the extension by submitting to the Commissioner a ***Proposal for Extension of Service Life of a Crane***. This proposal shall comprise:

- (a) A **Case Proposal**;
- (b) An **Inspection and Testing Report**;
- (c) A **Final Assessment and Recommendation Report**.

2.2. The owner of the mobile crane shall prepare the Case Proposal. The owner shall engage an ***Approved Third Party Inspection Agency for lifting equipment*** to carry out the inspection, arranged for testing, conduct an assessment, recommends the estimated remaining service life and proposed an inspection / maintenance scheme.

2.3. The elements of the Assessment Procedures are outlined as follows:

<p style="text-align: center;"><b>Elements of the Assessment Procedures for Extension of Service Life of a Crane</b></p>	<p style="text-align: center;"><b>To be performed by</b></p>
<p><b>I) Case proposal:</b></p> <p><u>Part 1</u> of the Case Proposal is a <b>written record</b> of the crane detailing the following:</p> <ul style="list-style-type: none"> <li>(a) Usage patterns (e.g. number of operating cycles per hour at certain loading condition);</li> <li>(b) Records of any past accidents, failures, defects that could affect the structural integrity of the crane, and replacement carried out;</li> <li>(c) Records of maintenance carried out;</li> <li>(d) Possible modes of failure.</li> </ul> <p><u>Part 2</u> of the Case Proposal consist of a <b>proposed scheme</b> to evaluate the remaining service life of the crane and shall include the following:</p> <ul style="list-style-type: none"> <li>(e) The methodology and assessment employed including testing and inspection to be carried out <b>to address the potential fatigue stresses</b> experienced by the crane; and</li> <li>(f) The acceptance criteria adopted. The criteria shall be based on an acceptable code and standard such as <i>British Standards 7910: "Guide on the methods of assessing the acceptability of flaws in fusion welded structures"</i> and any other codes / standards acceptable to the Commissioner for Workplace Safety and Health.</li> </ul>	<p style="text-align: center;">Owner (can be assisted by the Third Party Inspection Agency)</p>
<p><b>II) Inspection of the mobile crane:</b></p> <p>The inspection of the mobile crane shall be carried out in a suitable testing environment and shall include but not limited to the following:</p> <ul style="list-style-type: none"> <li>(a) A <b>thorough visual inspection</b> shall be carried out on the mobile crane. Critical load bearing parts such as the boom section and areas that are not accessible during the annual inspection shall be dismantled so as to facilitate inspection.</li> <li>(b) Welding at critical load bearing parts (e.g. hinges) shall be inspected and any defects shall be recorded.</li> <li>(c) Direct a testing agency to conduct the necessary testing such as NDT or mechanical testing.</li> </ul>	<p style="text-align: center;">Third Party Inspection Agency</p>

<p align="center"><b>Elements of the Assessment Procedures for Extension of Service Life of a Crane</b></p>	<p align="center"><b>To be performed by</b></p>
<p><b>III) Non-Destructive Testing and Mechanical Testing:</b></p> <p>The following load bearing parts shall be tested using an appropriate testing method to ascertain its mechanical integrity:</p> <ul style="list-style-type: none"> <li>(a) Main Jib/Boom</li> <li>(b) Fly Jib and / or other attachments; and</li> <li>(c) Slew rings</li> <li>(d) Hook Blocks</li> <li>(e) Wire ropes, etc</li> </ul> <p>The Third Party Inspection Agency may <b>specify other parts of the cranes to be tested</b> if he has reason to believe that there are possible defects, which can only be detected by NDT.</p>	<p align="center">SAC- SINGLAS accredited testing laboratory</p>
<p><b>IV) Inspection and Testing Report</b></p> <p>At the end of the inspection and testing, a report shall be prepared and shall include the following details:</p> <ul style="list-style-type: none"> <li>(a) General condition of crane based on the visual inspection;</li> <li>(b) Location where visible defect/s was/were found;</li> <li>(c) Method/s of Non-Destructive Testing used;</li> <li>(d) Description of the types of flaws detected (with photographs attached)</li> <li>(e) Recommend any corrective actions to be carried out on the crane.</li> </ul>	<p align="center">Third Party Inspection Agency</p>
<p><b>V) Assessment</b></p> <p>The Third Party Inspection Agency shall thereafter review the results of the inspection and testing based on the proposed methodology and assessment carried out on the mobile crane and carry out, if his professional experience and judgement think it necessary, a stress analysis on critical locations of the crane.</p>	<p align="center">Third Party Inspection Agency</p>

<b><i>Elements of the Assessment Procedures for Extension of Service Life of a Crane</i></b>	<b><i>To be performed by</i></b>
<p><b>VI) Recommendations</b></p> <p>The Third Party Inspection Agency shall then <b>recommend an estimated remaining service life for the crane</b> based on his professional experience, and the possible failure mode and mechanism stipulated in the Case Proposal.</p> <p>The Third Party Inspection Agency shall also propose an <b>inspection / maintenance scheme</b> for the crane for the extended service life, so that any defects or deterioration in the crane can be detected and actions can be taken to remedy any unsafe situation before the mechanical integrity of the crane is affected.</p>	<p>Third Party Inspection Agency</p>
<p><b>VII) Final Report</b></p> <p>At the end of the assessment, the Third Party Inspection Agency shall furnish a report to the Commissioner, submitted through the owner of the crane. The report shall detailed the results of his <b>Assessment and Recommendations</b> as outlined above and shall be duly endorsed by the Third Party Inspection Agency.</p> <p>This final report would be used as supporting document by the owner to apply to the Commissioner for the extension of the service life of the mobile crane.</p>	<p>Third Party Inspection Agency</p>

### 3. IMPORTANT NOTES

- 3.1. The Third Party Inspection Agency and the testing agency appointed under Section III Non-Destructive Testing and Mechanical Testing **shall be independent** of each other.
- 3.2. The crane shall meet the requirements as stipulated in the *Workplace Safety And Health Act* and its subsidiary legislations. It shall also comply with the requirements of the *Singapore Standard Code of Practice 37: Safe Use of Mobile Cranes: 2000*.
- 3.3. **The extended service life of the mobile crane if granted will be for a period not exceeding 3 years.** Owner of cranes who wish to extend further the service life of his crane is required to carry out another assessment.



## Criteria for the Type Approval for Lifting Equipment

### 1. INTRODUCTION

With **effect from 1<sup>st</sup> April 2004**, all tower cranes used in Singapore shall be type approved for use.

### 2. CRITERIA FOR TYPE APPROVAL

In order for lifting equipment to be type approved by the department, the application must satisfy the Department in the following aspect:

#### a. Design Codes and Standards

- i. The lifting equipment shall be designed according to international codes and standards acceptable to the Commissioner for Workplace Safety and Health. The following codes and standards are currently acceptable for use:

- ISO      BSI      FEM
- ANSI    DIN      SS
- ASME    EN

- ii. Other National Codes may be used subject to the prior approval of the Commissioner for Workplace Safety and Health.

#### b. Verification of Design and Fabrication

- i. The verification involves a design review and a prototype testing by an approved party as outlined below.

	Design Review	Prototype Testing
<b>Purpose of verification</b>	To verify that the design conforms to the relevant design codes and standards	To verify that the equipment had been fabricated in accordance to the design specification and can perform its function as designed in a safe manner when used. <sup>(Note 2)</sup>
Party to conduct the verification in overseas	<b>Approved Overseas Third Party Inspection Agency</b>	

Party to conduct the verification locally	Approved Local Third Party Inspection Agency	
	Professional Engineer of the relevant discipline <sup>(Note 1)</sup>	Approved Person
Certification of equipment required	Certificate of Compliance (Design Review)	Certificate of Compliance (Prototype Testing)
<p><b>Note 1:</b></p> <p>a. This applies in the case where type approval is sought for a lifting equipment that is already in use in Singapore, but there is no documentation to establish the origin of the lifting equipment.</p> <p>b. The owner of the lifting equipment shall engaged a Singapore registered Professional Engineer (P.E.) (of the relevant engineering discipline) to carry out a design review. The P.E. shall use the latest and applicable version of the Singapore Standards in his design.</p> <p>c. Where the applicable Singapore Standards is not available, any of the following national codes may be used:</p> <ul style="list-style-type: none"> <li>• ISO                      BSI                      FEM</li> <li>• ANSI                  DIN</li> <li>• ASME                  EN</li> </ul> <p>d. Other National codes may be used subjected to the prior approval of the Commissioner for Workplace Safety and Health.</p>		
<p><b>Note 2:</b></p> <p>a. The prototype or a model of the lifting equipment shall be tested in a suitable testing environment at the premises of the manufacturer works or a laboratory set up to test the lifting equipment.</p>		

**c. Quality Assurance by the Manufacturer**

- i. The manufacturer of the equipment must satisfy the department that the equipment that they produced consistently meets the specifications of the crane that was type approved for used in Singapore.
- ii. The manufacturer must put in place a documented Quality Assurance System that is reviewed or audited periodically. A copy of the quality assurance manual shall be submitted to the department for review.

**d. Compliance to Legal Requirements**

- i. Every lifting equipment shall also meet all the legal and procedural requirements, such as:
  - Installation of various safety devices, e.g. limit switches;
  - Efficient braking or locking mechanism;
  - Assess to operator's cabin;

- Crane logbook detailing the identification/markings of parts/components and the records of inspections, maintenance, replacement, and etc.