

	ADMINISTRATIVE METHODOLOGY AND PRACTICE FOR RIGGING			Page 1 of 8
	Company Doc. No. HSE DOCS-ELE-00-000	Contractor Ref. No. HSE-DOCS-MST-0000	Date 00-00-0000	Revision 00

ADMINISTRATIVE METHODOLOGY AND PRACTICE FOR RIGGING

Project No:

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PREPARED BY:	REVIEWED & APPROVED BY:
QA QC ENGINEER	PROJECT ENGINEER

	ADMINISTRATIVE METHODOLOGY AND PRACTICE FOR RIGGING			Page 2 of 8
	Company Doc. No. HSE DOCS-ELE-00-000	Contractor Ref. No. HSE-DOCS-MST-0000	Date 00-00-0000	Revision 00

Table of Contents

- 1.0. PURPOSE..... 3
- 2.0. SCOPE..... 3
- 3.0. APPLICATION..... 3
- 4.0. GENERAL..... 3
 - 4.1. Introduction/Preuse Requirements..... 3
 - 4.2. Operational/Site-Specific Requirements..... 3
- 5.0. RIGGING POINTS OF CONTACT..... 4
- 6.0. LIFTING LUGS..... 4
- 7.0. CATEGORIES OF LIFTS..... 4
 - 7.1. Noncritical Lifts..... 5
 - A. *Type 1 Noncritical Lifts*..... 5
 - B. *Type 2 Noncritical Lifts*..... 5
 - 7.2. Critical Lifts..... 5
 - A. *Type “A” Critical Lifts*..... 5
 - B. *Type “B” Critical Lifts*..... 6
 - A. *Type “C” Critical Lifts*..... 7
 - B. *Special Circumstances with Lifts*..... 7
- 8.0. OPERATIONS — SITE-SPECIFIC PROCEDURE..... 8
- 9.0. VARIANCES FROM PRACTICES..... 8
- 10.0. REFERENCES..... 8
- 11.0. ATTACHMENTS..... 8

	ADMINISTRATIVE METHODOLOGY AND PRACTICE FOR RIGGING			Page 3 of 8
	Company Doc. No. HSE DOCS-ELE-00-000	Contractor Ref. No. HSE-DOCS-MST-0000	Date 00-00-0000	Revision 00

1.0. PURPOSE

This methodology categorizes rigging lifts for [Company Name] projects and establishes responsibility for the design, engineering, and approval of the transportation and rigging of all equipment and modules.

2.0. SCOPE

This methodology includes the following major sections:

- General
- Rigging Points of Contact
- Lifting Lugs
- Categories of Lifts
- Operations – Site-Specific Procedure
- Variance from Practices

3.0. APPLICATION

This methodology applies to work activities and employees under the control of [Company Name] and its contractors.

4.0. GENERAL

In addition to the requirements in this methodology about lifts, all legal and contractual requirements must be adhered to in planning and carrying out all lifts of any size or reach on all projects.

4.1. Introduction/Preuse Requirements

This methodology covers the following topics:

- Responsibilities
- Training and Licensing (crane operators, riggers, signal persons)
- Drivers
- Procurement and Hire
- Assembly/Disassembly, Inspection, and Maintenance
- Modifications
- Riggers/Rigging (training/inspection)
- Air Tugger Operations
- Gin Wheels
- Powered Industrial Trucks (Forklifts).
- Elevating Work Platforms, Aerial Lifts, and Material/Personnel Hoists.

4.2. Operational/Site-Specific Requirements

The following topics:

- General Requirements
- Submittals
- Cranes
- Helicopters
- Rigging/Rigging Hardware

	ADMINISTRATIVE METHODOLOGY AND PRACTICE FOR RIGGING			Page 4 of 8
	Company Doc. No. HSE DOCS-ELE-00-000	Contractor Ref. No. HSE-DOCS-MST-0000	Date 00-00-0000	Revision 00

- Lifting Lugs
- Signals and Signal Persons
- Categories of Lifts (includes critical lifts)
- Steel Erection
- Working Near Overhead Electrical Lines and Hazardous Pipelines
- Suspended Personnel Platforms (workbaskets)
- Variances

5.0. RIGGING POINTS OF CONTACT

Responsibilities.

Rigging Supervisor — A certified Rigging Supervisor must be determined by Site Management to have adequate experience and knowledge in rigging to safely perform the rigging on the project and has received certification from the [Company Name] Rigging Engineering Group or a qualified 3rd party, that they have the training and/or shown the competency to prepare and review rigging plans.

Contractor Rigging Coordinator — Preferably an English-speaking graduate engineer with rigging experience, approved by Fluor, who will work closely with the [Company Name] rigging supervisor designing and planning every lift. The rigging coordinator need not be solely dedicated to rigging.

Qualified Field Rigger — A qualified field rigger must have the necessary training and/or experience to safely perform the work he/she is assigned and be designated a “qualified field rigger” following an assessment of his/her abilities by the rigging supervisor.

Rigging Engineer — A [Company Name] rigging engineer is a graduate engineer who is competent in the methods and means to design, evaluate, plan, oversee, and estimate transportation and lifting activities during any phase of a project.

Crane Operator — All crane operators must be licensed.

6.0. LIFTING LUGS

Note: All weights are in metric tons but may be assumed to be imperial tons if the project is using imperial units.

A [Company Name] rigging engineer must design or review the lifting lugs for all equipment over 10 tons, or any equipment that must be upended during erection causing the load to the lug(s) to be applied in more than one direction.

Review of the lifting lugs for equipment less than or equal to 10 tons must be the responsibility of the project home office discipline engineer.

The rigging supervisor must be responsible for requesting that a [Company Name] rigging engineer review any questionable lifting lugs encountered in the field.

7.0. CATEGORIES OF LIFTS

Note: The use of the word “lifts” in the heading of the following categories denotes both transportation and lifting.

Note: All weights are in metric tons but may be assumed to be imperial tons if the project is using imperial units.

	ADMINISTRATIVE METHODOLOGY AND PRACTICE FOR RIGGING			Page 5 of 8
	Company Doc. No. HSE DOCS-ELE-00-000	Contractor Ref. No. HSE-DOCS-MST-0000	Date 00-00-0000	Revision 00

Note: Refer to Attachment 01 for quick references to categories of lifts.

7.1. Noncritical Lifts

In general, a lift that is less than 75 percent of the rated capacity of a crane for the configuration of the lift, and does not involve lifting personnel.

Noncritical lifts are divided into the following 2 categories:

A. Type 1 Noncritical Lifts

Lifts that are under 5 tons; or under 20 tons and less than 50 percent of the rated capacity of a crane for the configuration of the lift.

Responsible personnel for a type 1 noncritical lift must be a crane operator and field rigger.

Green Lift Checklist is not required.

B. Type 2 Noncritical Lifts

Lifts that are 5 tons or more and more than 50 percent of the rated capacity of a crane for the configuration of the lift, or greater than 20 tons.

Responsible personnel for a type 2 noncritical lift must be a crane operator, field rigger, and rigging supervisor.

A Green Lift Checklist is required.

7.2. Critical Lifts

Critical lifts include, but are not limited to:

- Lifts made when the load weight is 75 percent or more of the rated capacity of the crane(unless weight criteria supersedes)
- Lifts over operating processes, within 33 feet of energized overhead power lines, or in hazardous areas
- Lifts made with more than one crane (other than a tail crane)
- Lifts involving non-routine or technically difficult rigging arrangement
- Hoisting personnel with a crane or derrick
- Lifts that require the load to be lifted, swung, or placed out over critical processes

If the permit-to-work process is in use, a Permit to Work must be obtained.

All lifts by cranes, except bridge cranes, that are “critical lifts require a Critical Lift Permit, to be developed and approved. If the permit-to-work process is in use, the Critical Lift Permit is in addition and subordinate to a Permit to Work.

Before a critical lift, a Critical Lift Permit must be developed by the rigger or rigging supervisor, and the required approvals obtained. A copy of the permit, and any associated rigging drawings, must be placed in the cab of the crane, with the original(s) filed at the site.

	ADMINISTRATIVE METHODOLOGY AND PRACTICE FOR RIGGING			Page 6 of 8
	Company Doc. No. HSE DOCS-ELE-00-000	Contractor Ref. No. HSE-DOCS-MST-0000	Date 00-00-0000	Revision 00

Critical lifts are divided into the following 3 categories:

A. Type "A" Critical Lifts

Lifts per the following requirements:

- Vessels Vertical-Less than 30 tons
- Vertical-Less than 8 feet (2.4 meters) diameter
- Horizontal-Less than 60 tons
- All other equipment and structures are less than 60 tons.
- All lifts 75 percent, but less than 80 percent, of the capacity chart of the crane for the boom length and operating radius being used, or less than 90 percent of the crane has an operational load indication device with an overload cut off.
- Transportation – All plant equipment is less than 60 tons.
- A Green Lift Checklist and a Critical Lift Permit are required.

Responsible personnel for a type "A" critical lift must be:

Note: The designer and checker cannot be the same person. The crane operator and the qualified rigger are jointly responsible for the determination of the load weight and placement of the crane so that it is set up within the operating radius selected. The job site rigging supervisor has final responsibility for all operations.

Designer: Qualified field rigger

Checker: Qualified field rigger

Reviewer: Jobsite rigging supervisor

B. Type "B" Critical Lifts

Lifts per the following requirements:

Vessels Vertical-30 tons to 600 tons

Vertical-8 feet (2.4 meters) in diameter and over

Horizontal-60 tons to 600 tons

All other equipment and structures 60 tons to 600 tons

Equipment or vessels over 20 tons that are inside structures, in inaccessible locations, over operating processes, or in hazardous areas as determined by the Site Manager or rigging engineer. Also included are equipment and vessels constructed of nonferrous materials, or are otherwise prone to damage during handling.

All multiple-crane lifts (exclusive of a tailing crane) in which the load could be transferred from one crane to another during the lift.

All lifts over 80 percent of the capacity chart of the crane for the boom length and operating radius being used, or over 90 percent if the crane has an operational load indication device with an overload cut-off.

	ADMINISTRATIVE METHODOLOGY AND PRACTICE FOR RIGGING			Page 7 of 8
	Company Doc. No. HSE DOCS-ELE-00-000	Contractor Ref. No. HSE-DOCS-MST-0000	Date 00-00-0000	Revision 00

Transportation – All plant equipment 60 tons to 600 tons.

A Critical Lift Permit and rigging drawings are required.

Responsible personnel for a type “B” critical lift must be:

Note: The designer and checker cannot be the same person. The lead engineer can function in a dual role as designer/approver or checker/approver.

Designer: Responsible site rigging supervisor, [Company Name] rigging engineer, or contractor

Checker: [Company Name] rigging engineer

Reviewer: [Company Name] rigging engineer, [Company Name] lead rigging engineer, and site manager

A. *Type “C” Critical Lifts*

Lifts and transportation — 600 tons and above.

Before awarding a rigging contract and approving a rigging plan, the [Company Name] Project Manager, along with the [Company Name] Site and Rigging Managers, must review the rigging plan, risk analysis, and/or contractor bid evaluation to ensure that risk/liabilities are understood and mitigated to the maximum extent possible.

A Critical Lift Permit and rigging drawings are required.

Responsible personnel for a type “C” critical lift must be:

Note: The designer and checker cannot be the same person. The lead engineer can function in a dual role as designer/approver or checker/approver.

Designer: [Company Name] rigging engineer or contractor

Checker: [Company Name] rigging engineer

Reviewer: [Company Name] lead rigging engineer

Reviewer: [Company Name] lead rigging engineer from another rigging office

Reviewer: Optional third-party rigging consultant; the Site Manager, Rigging Manager, and Project Manager will determine if the lift requires an independent review by a third-party rigging consultant.

Reviewer: Rigging Manager, Site Manager, and Project Manager

Note: Review by the above managers is mandatory!

B. *Special Circumstances with Lifts*

	ADMINISTRATIVE METHODOLOGY AND PRACTICE FOR RIGGING			Page 8 of 8
	Company Doc. No. HSE DOCS-ELE-00-000	Contractor Ref. No. HSE-DOCS-MST-0000	Date 00-00-0000	Revision 00

The mobile crane lifts that is greater than 95 percent of the crane load/capacity chart require a [Company Name] rigging engineer to be present at the site to review and witness the lift. Permanent installations such as overhead bridge cranes and gantry cranes on which the load capacity is indicated following the appropriate ASME specifications may be exempt from this requirement with the approval of Fluor's Project/Site HSE Representative.

Special circumstances will be considered by the rigging engineer and the Site Manager on a case-by-case basis to determine if a lift needs to be elevated to a higher category of design and/or approval.

8.0. OPERATIONS — SITE-SPECIFIC PROCEDURE

In addition to this practice, each project location must develop an “operations — site-specific” procedure for all rigging activities that will be performed on the site. The Site Manager or his representative, along with the rigging engineer and the Site HSE Representative, will provide technical details and limitations required to safely execute all rigging operations. This procedure must be developed including the client’s crane/hoisting and rigging requirements.

9.0. VARIANCES FROM PRACTICES

If the Site Manager determines that a specific requirement of this practice will cause undue hardship and that the work can be done safely by employing another practice, the Site Manager or designee will:

- Develop an explanation and justification that they are suspending that specific requirement, describing why it is not appropriate for their job and what other method(s) will be employed to ensure the safety of the rigging operations.
- Obtain written approval from the Project/Site HSE Representative, the site rigging supervisor, and [Company Name] Rigging Engineering Group.

10.0. REFERENCES

- Document Title
- Crane and Rigging – Operations (Site-Specific)
- Permit to Work
- Cranes and Rigging — Introduction/Preuse
- Powered Industrial Trucks (Forklifts)
- Aerial Lifts, Elevating Work Platforms, and Material/Personnel Hoists
- Scaffolds
- Green Lift Checklist
- Permit to Work
- Critical Lift Permit

11.0. ATTACHMENTS

- Lift Categories