	Construction Plant-hire Association	
	Tower Crane Interest Group	
	Tower Crane Technical Information Note	
TIN 046	**Lifting Inside the Load Curve of Luffing Jib Tower Cranes**	

1. Scope

This Technical Information Note deals with the practice of lifting inside the load curve of luffing jib tower cranes.

2. The Issue

The load radius curve of luffing jib tower cranes specifies a minimum radius at which the inside radius limit is set. The crane manufacturer designs the crane jib to be stable in winds up to the maximum design in-service wind speed (normally 20 m/s, 45 mph). If the inside radius limit is bypassed to allow lifts to be carried out at a radius less than the manufacturer's stated minimum, there is a significant risk of the jib being blown backwards or suspended by the wind, with the consequent danger of collapse and uncontrolled falling of the load.

3. Alternative Methods

Where loads have to be placed in positions inside the minimum load radius of a luffing jib tower crane all possible alternative methods should be considered. These may included, but are not limited to:-

- Use of another crane such as another tower crane, a mobile crane (wheeled or crawler) or a spider crane;

- Use of a telehandler;

- Use of a cantilever lifting beam, which allows the centre of gravity to remain at the hook block, but the radius of the load to be altered (see **Figure 1**).
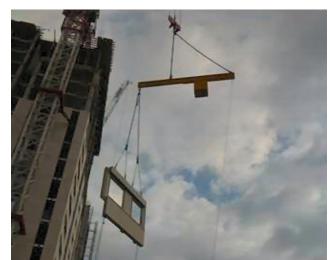

Figure 1 - Use of a Cantilever Lifting Beam

> **Lifting inside the crane manufacturer's minimum radius should only be considered if it is not possible to use a safer alternative method. The lift should be planned and managed as a complex lift, as defined in BS 7121-5:2006, and only be undertaken with the specific permission of both the crane owner and crane manufacturer.**

An example of a form for use by crane users and crane owners to ensure that effective controls are in place for lifting inside the crane manufacturer's minimum radius is on shown on Page 2.

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Client Name & Site Address:	

Site Contact:		**Site Contact No:**	
Date of Lifting Operation :		**Time:**	
Crane Type:		**Plant No:**	
Weight of Load:		**Radius of Lift:**	

Item No	Control	Project confirmation
1.	A specific method statement/ safe system of work prepared by the Project Appointed Person with a supplementary risk assessment appended, which considers the implications of crane failure and also eliminates all other possible alternatives to lift and transfer the load safely to the required position.	Signature Date
2.	Method statement adequately planned and classed as a *'Complex lift'*, documented in the safe system of work (SSOW) for the operation.	Signature Date
3.	Rated Capacity chart displayed in the method statement, which is to also be made available to the operator for the configuration of lift.	Signature Date
4.	Method statement to include a checklist and full list of controls.	Signature Date
5.	An exclusion zone established and demarcated on method statement drawing.	Signature Date
6.	Approval from the crane manufacturer obtained for the configuration of the lift.	Signature Date
7.	Confirmation that the lift is to be directly supervised by the Project Appointed Person.	Signature Date
8.	Evidence that the operator and crane team have been briefed on the Safe System of Work and CPA TINs, 023, 024 and 025	Signature Date
9.	The SSOW reviewed/approved and signed off by the Project Director.	Signature Date
10.		
11.		
12.		

NOTE: *Fields 10, 11 and 12 are for additional control measures identified in the job and site specific risk assessment*

Crane Owner Authorisation – Please sign and clearly print your name below.	**MANDATORY**
(Signature)	
(Print Name)	