

Guidance on :

**The Planning & Liaison Process for
the Erection, Climbing & Dismantling
of Tower Cranes**

The Site Induction of Tower Crane Teams

STRATEGIC  **FORUM**
FOR CONSTRUCTION

Strategic Forum for Construction Tower Crane Group

Association	Representing
Allianz Engineering	Safety Assessment Federation
Barrett Homes	Home Builders Federation
Battersea Crane Disaster Action Group	Public Opinion
Bovis Lend Lease	Strategic Forum
Bovis Lend Lease	Major Contractors Group
Carillion	Contractors
City Lifting	Tower Crane Suppliers
Construction Confederation	Construction Confederation
Construction Plant-Hire Association	Construction Plant-Hire Association
Falcon Tower Cranes	Tower Crane Suppliers
Galliford Try	Major Contractors Group
Health and Safety Executive	Health and Safety Executive
Home Builders Federation	Home Builders Federation
HSB Engineering Insurance	Safety Assessment Federation
HTC	Tower Crane Suppliers
Kier	Major Contractors Group
Manitowoc	Tower Crane Manufacturers
McCarthy and Sons	Construction Clients
Mitsui Insurance	Insurers
National Construction College	Construction Skills
Select Tower Cranes	Tower Crane Suppliers
St. George Plc.	Construction Clients
Stephensons	Contractors
Tower Crane Consultants	Construction Plant-Hire Association
UCATT Convenor, Bovis Lend Lease	UCATT
United Crane Operators Association	Tower Crane Operators
Vertical Transportation	Tower Crane Suppliers

Tower Crane Erection/Climbing/Dismantling & Induction Working Group

Association	Representing
HTC	Tower Crane Suppliers
Select Tower Cranes	Tower Crane Suppliers
Kier Plant	Tower Crane Suppliers
Falcon Tower Cranes	Tower Crane Suppliers
Miller Construction	Major Contractors Group
Wates	Major Contractors Group
Bovis Lend Lease	Major Contractors Group

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Summary

The following is a bullet point summary of the guidance recommendations contained within this document.

Planning/Liaison Process

A - Maintain same key personnel from Crane Provider and Principal Contractor/Hirer throughout the process from initial enquiry to dismantling.

B - Initial meeting and site inspection to take place as early as possible with Principal Contractor/Hirer and Crane Provider to establish:

1. Site restrictions and hazards (physical and environmental).

- Over head services.
- Underground services/voids
- Risks to and from adjacent undertakings
- Access issues.

2. Temporary works requirements.

- Who will design and to what criteria
- Who will provide/construct and sign off.

3. Responsibility for liaison/arrangements with adjacent occupiers/owners/local and statutory authorities and arrangements for road closures, track possession etc.

C- Method statements & risk assessments- Should be detailed and address all hazards/risks, Method statements should include:

- Detailed sequence and hold points, beyond which progress cannot continue until checked and signed off
- Drawings, plans and elevations indicating mobile crane setup areas and exclusion zones etc, together with appropriate calculations
- Manufacturer's details
- Emergency and contingency procedures
- Erection crew qualifications and training
- Test, thorough examination and handover procedures
- Sign off section for provider and PC including for relevant temporary works
- Etc.

D - Method statement sign off – The risk assessment and method statement must be checked in detail by the Principal Contractor and Hirer and signed off.

E- Pre-activity site inspection and meeting - To be held a maximum of 7 days prior to the operation to ensure that:

- There have not been changes to the anticipated site conditions or hazards that affect the risks
- That the method statement remains adequate and details all currently required precautions
- That all temporary works are complete and of adequate strength
- That all arrangements for road/footpath closures, exclusion zones etc are in hand.

F- Check List - to help ensure all items in B - E above are covered the checklist in Appendix 1 may be used.

G – On Day of Operation - Crane provider and Principal Contractor to carry out checks to ensure:

- Circumstances have not changed and that the method statement is still adequate
- That all precautions such as exclusion zones etc are in place
- That all associated with the operation have been inducted and briefed on the safe methods of works
- That the erection crew has the relevant agreed skills training/competence
- That the method statement and manufacturers guidance is on site
- That emergency procedures are in place.

H- Permit to Erect, Climb or Dismantle (see appendix 2) -It is recommended that following the above checks that both the Crane Provider's Supervisor and Principal Contractor's Manager sign off a permit to erect, climb or dismantle, before work commences for the first time and on each subsequent day of the operation.

Inductions

Erection, Dismantling and Climbing Teams

- All to have general H&S training and relevant skills training ie CPCS cards
- To be given by the Principal Contractor's Manager who will oversee the works
- To be restricted to project specific information (as per CDM regulations). If necessary a specific induction agenda for this task should be prepared
- The induction must be of sufficient length to cover the relevant risks, however it is anticipated that it would normally take 20 – 30 min
- Time of commencement should be agreed in advance of the day
- Should be followed by the method briefing by the Crane Providers Supervisors to all involved ie erection crew, Principal Contractor's Manager and others.

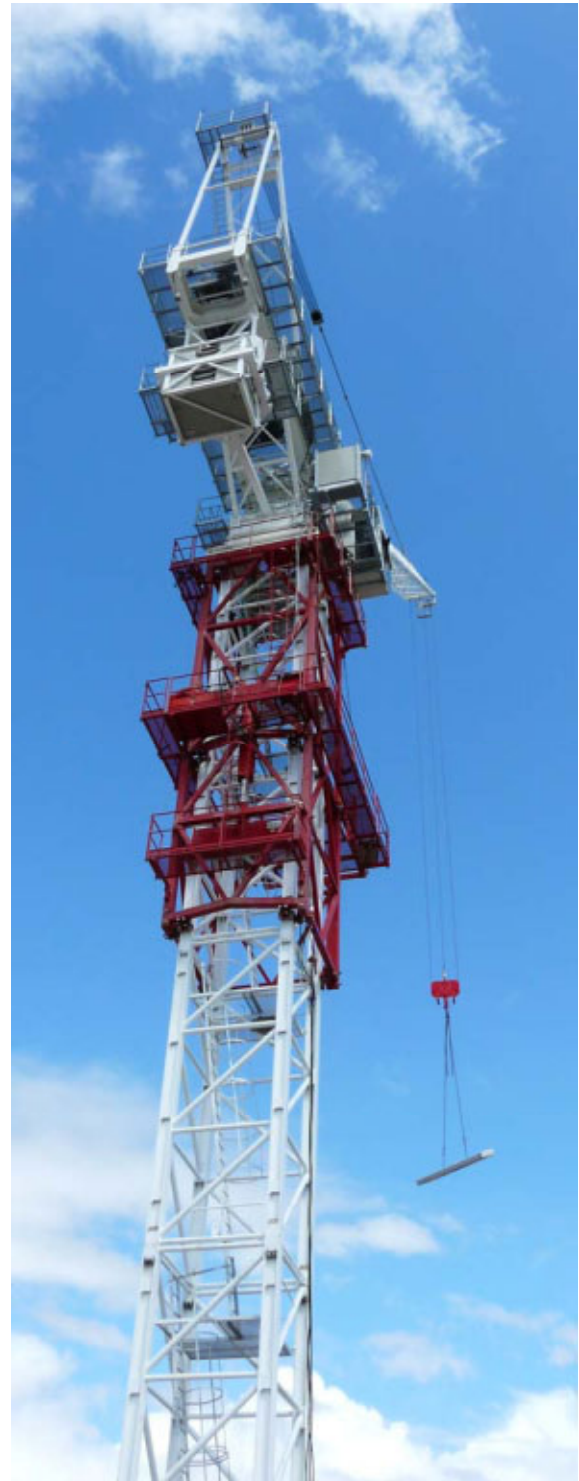
Maintenance, Repair and thorough Examination Personnel

- All to have general H&S training and relevant skills training (ie CPCS cards, SAFed Safety Passport)
- To be given by the Principal Contractor's Manager who will oversee the works
- To be restricted to project specific information
- The induction must be of sufficient length to cover the relevant risks, however it is anticipated that it would normally take 20 – 30 min.

Lifting Teams General

In addition to the normal site induction an additional site induction should be given to lifting teams to cover:

- The Project Crane Management Plan
- Individual's roles and responsibilities
- Standards required
- Specific site lifting risks
- Emergency procedures (ie stopping a lift).



Planning and Liaison

1. Introduction

Adequate planning by the Crane Company, the Principal Contractor, and the Crane Hirer where not the PC, is essential for the safe erection, dismantling and alteration of a tower crane. Additionally, adequate liaison between both (or all three companies) is essential if the operation is to take place on the day in an efficient safe manner, with the absence of “unforeseen circumstances”.

With the growth of work load in the industry and changing nature of construction more and more contractors will hire tower cranes for the first time. The following is aimed at highlighting some of the key elements needed to plan the erection, dismantling and alteration of a tower crane and promote the essential liaison between all parties.

2. Personnel

The time scale from the procurement to erection/dismantling of a tower crane can be a prolonged activity with many alterations to initial requirements, circumstances and the site conditions in which the operations will be carried out.

Good communication between the Crane Company and Principal Contractor (or other hirer) is essential. Maintaining the same Principal Contractor and Crane Company personnel through out the process will help build relationships and prevent misunderstandings that could lead to potentially dangerous situations when operations commence.

The use of check lists to ensure all issues are considered at the right stages will help the planning and liaison process.



3. Initial Site Inspection/Meeting

The contractual route and process in procuring a tower crane will vary dependant on the companies and individual situation. However at some stage between initial enquiry, and method statement preparation a site visit and meeting between the Crane Company and Hirer will be essential for both parties to establish/confirm:

- Crane type and size
- Temporary works required (bases, rail tracks and ties)
- Power supply
- Access issues
- Physical restrictions on operations
- Environmental restrictions on operations
- Restrictions caused by adjacent undertakings/structures
- Responsibility for associated activities i.e. road closures, liaison with neighbours/traffic police – etc.



Present at the meeting should be the Principal Contractor's Manager responsible for the planning and management of the installation, the Hirer (where this is not the PC) and the crane company's Technical/Operations Manager who will prepare the method statement, arrange appropriate crane designs and plan the installation.

Stage 1 of the attached check list (Appendix 1) can be used as a basis for the initial site visit/meeting and transfer of information on which to base planning and preparation of the risk assessment and method statement. Completion of the checklist will provide a record of the discussions/decisions made at the initial site visit /meeting for later reference.

It must be remembered that much of the planning will involve the placement of mobile erection/slave cranes.

4. Preparation of the Method Statement/ Risk Assessment

From the information gained and their expert knowledge the Crane Provider will prepare a risk assessment and method statement.



4.1 The risk assessment

The risk assessment will identify the hazards, assess the level of risk and identify the key control measures.

4.2 The method statement

The method statement will explain in detail the safe system of work for the operation and should as a minimum cover the following topics:

- Issue date and revision details
- Project details
- Details of crane to be erected including configuration
- Transport details/schedule of deliveries and contingencies for delays
- Personnel – names, responsibilities and competency proof
- Briefing arrangement
- Access arrangements
- Preparation and inspection of components
- Proximity hazards
- Assisting carnage arrangements
- Falling object protection
- Protection from falls from height
- Communication arrangements
- Weather forecasting and monitoring
- Information requirements
- Contingency arrangements
- PPE
- Principal Contractor/Hirer responsibilities
- Sequence of Erection – should include hold points (see below) and time scales. This must also include manufacturer's details of counterbalance weights and sequence of installation
- Plan and where appropriate elevation drawings indicating lay down/fabrication areas, exclusion zones, mobile crane locations with out rigger positions, road and foot path closures
- Drawings and support calculations of out rigger spreaders (where appropriate)
- Emergency procedures – including rescue from height and telephone numbers
- Test and independent thorough examination procedures. To include relevant checklists
- Handover process
- Sign off section for crane provider and Principal Contractor/Crane Hirer.

4.2.2 Hold points

The method statement should include HOLD POINTS, critical points in the operation that should not be proceeded beyond until checks have been carried out by the senior supervisor, and the hold point signed off in the method statement. Typical hold points would be:

- Once the tower mast has been erected ensuring that all the tower bolts been place correctly and torqued to the correct pressure before the slewing ring is fitted.
- If climbing - has the climbing frame assembly and bolt torques been checked and the checklist been completed?

4.2.3 Method statement format

It is recommended that the CPA standard format for method statements, with amendments to incorporate hold points and sign off by the Principal Contractor of items in section 4.3 below be the minimum standard used.

Principal Contractor/Hirer sign off

The method statement should contain a sign off section for the Principal Contractor to confirm:

1. They have read and have no adverse comments on the document.
2. That all temporary and where appropriate permanent works have been constructed to the agreed designs and where appropriate have reached the required strength including:
 - Crane bases and rail tracks
 - Anchorage locations for ties
 - Hard standings and temporary roads
 - Structural slabs
 - The verticality of the base unit including the first section of mast where cast in by the Principle Contractor or Hirer
 - Other items.

5. Principal Contractors Review of the Risk Assessment and Method Statement.



Once completed the Principal Contractor and the Hirer, if not the same, should review the method statement and sign it off.

The risk assessment and method statement should be checked to ensure that:

- The items discussed at the initial site investigation/meeting where applicable are adequately covered.
- Any information that has become available since the initial site inspection/meeting where applicable has been advised to the crane provider and adequately covered in the risk assessment/method statement.
- The assumptions on which the risk assessment and method statement are based have not changed.
- The method statement and risk assessment adequately addresses the risks and clearly details the safe system of work.

The review of stage one and completion of stage 2 of the attached check list (Appendix 1) may provide an aid in ensuring that consideration is given to relevant issues when reviewing/approving the risk assessment/method statement.

The method statement review process may not be a one off activity but will require comment by the Principal Contractor, changes by the Crane Provider followed by further comments by the Principal Contractor and so on until all issues are adequately addressed and an accurate risk assessment/method statement that clearly describes what is to be undertaken, when, by who, with what and how in a safe manner, is in place.

It may well be applicable for the contractor to meet with the Crane Provider when reviewing the method statement.

6. Pre-Activity Site Visit/Meeting



At a maximum period of 7 days prior to the work taking place a senior member of the Crane Provider's Technical or Operations Management should visit the site, meet with the Principal Contractors Management (preferably including persons who were at the initial site inspections/meeting, undertook the risk assessment/method statement review and who will oversee the operation).

The purpose of the meeting is to confirm all arrangements are in place and:

- That circumstances have not changed that may affect the hazard or risk levels and or that may necessitate changes to methods employed or timings
- To reconfirm the method statement is still correct
- To ensure the Principal Contractor signs off the method statement (if action not already completed)
- To confirm who will be responsible for what actions on the day, ie road/ foot path closure, hard standings, exclusion zones etc, and that these arrangements are in hand
- Etc.

The use of the check list in Appendix 1 will help ensure all issues are identified and agreed, by revisiting stages 1 & 2 and completing stage 3.



7. On the 1st Day of the Operation

Induction and methods briefing

These must both be undertaken before work commences. See Separate Section 9.

Final checks/permit to work

Before any work commences the **Crane Provider and Principal Contractor** and where relevant Hirer should check again to ensure that circumstance and conditions are as expected and all is in order to proceed safely.

The permit in Appendix 2 may be used as a check list and formal sign off to allow works to commence.

8. Subsequent Days of Operation

On each day after the first day of erection, dismantling or adaptation works, and before work recommences the following checks should be undertaken by both the Crane Provider's Supervisors and the Principal Contractor's Manager:

- A review of the last day's operations – were there any unexpected events/hazards or anything that can be learnt to improve safety?
- Exact state of the crane structure (ie have all bolts been located and torqued?)
- Have physical conditions on the site or adjacent area changed which require the risk assessment/method statements to be reviewed?
- Are other unexpected activities taking place?
- Are the expected weather conditions acceptable?
- Have there been any changes of personnel or new personnel that need briefing in the risk assessment and method statement?
- Do those involved need to be re-briefed?

The permit in Appendix 2 may again be used as a formal sign off for work to commence.

Site Induction Talks

1 Introduction

Site inductions for new personnel to site is a process of advising the individuals of the EHS risks that are specific to that site and what they may encounter, together with the precautions they must take.

However in recent years many site inductions have become a general EHS training session, often instructing those present in the skills and knowledge they should already have gained as part of their formal trade training and CSCS/CPCS certification. The quantity of this training has grown to a point where it can last 2 or even 3 hours plus.

While the will to ensure that all on site have a minimum level of general EHS training and the effort to regularly enforce this training must be applauded, in some exceptional circumstances this can cause additional health and safety hazards to develop.

2 Crane Erection Adaptation and Dismantling Teams

The erection, dismantling and alteration of tower cranes is a high risk operation much of which is carried out at height. Due to the need often to close or partially close sites as well as perimeter roads this operation frequently has to take place to tight set time scales over weekends, with early starts and late finishes. The vagaries of the weather often cause operations to be accelerated or delayed, again placing additional time constraints on the physical on site crane erection, dismantling or alteration operations.

As already noted, much if not most of the physical on-site work will be undertaken at height, with the necessary operatives having to access and climb onto elements of the crane structure with only fall arrest protection in place. Added to this are the risks of damp/slippery underfoot conditions, the need to accurately guide large craned members into place, and the use of often heavy hand held tools i.e. sledge hammers etc. There is also the need to ensure that the crane is erected in the correct sequence and as per manufacturers instructions ie bolt torques etc, if the potential for fatal collapses is not to occur. It is clear that the task of tower crane erectors is both a physically and mentally demanding role.

It is not unheard of for tower crane erectors to sit in a 2 or 3 hour site induction in the early hours of the morning when the light is good, only to be working at height when they are tired, in poor light and deceiving shadows with the evening dew making underfoot conditions even more dangerous.

Due to the above the following proposals for site inductions for crane erection, dismantling and alteration teams are recommended.

Recommendations

It is assumed that all the erection, dismantling or alteration team have the relevant skills and EHS training and that this will be demonstrated to the Principal Contractor (and or service hirer if not the PC) by sight of training and achievement documentation ie CSCS or CPCS cards or equivalent. This being the case, the following site induction proposals should be followed:

1. The contents of crane riggers site inductions should be restricted to those items only which are applicable over the period of the operation and are defined in the CDM Regulations 2007. ie be restricted to project specific information regarding the risks that may be encountered by the operatives together with the necessary precautions and details of welfare arrangements and accident reporting etc.

- Management commitment to H&S
- Project outline
- Line management and key responsibilities
- Site specific hazards and risks
- Control measures-site rules-permit systems-traffic routes-security-hearing protection zones-PPE
- Emergency procedures
- First aid arrangements
- Consultation arrangements.



2. The induction must be of sufficient length to cover the relevant risks, however it is anticipated that it would normally take 20 – 30 min, and where necessary be especially prepared by the Principal Contractor for the operation.
3. The time of the induction should be agreed in advance. If the erection/alteration works are programmed to commence at 6 am, there will be an automatic delay if the induction does not start until 8 or 9 am.
4. The induction should be given by the Principal Contractor's Manager who will oversee the crane operation. This will help build relationships and a joint understanding.
5. The induction should be followed by a methods briefing talk given by the crane company supervisor to the erection team, but also attended by the Principal Contractors Management, and any other parties involved ie security guards, those arranging exclusion zones or traffic diversions etc. This is to help ensure all know what is to happen, when and by whom.

3 Maintenance, Repair and Thorough Examination Personnel

Those engaged in the maintenance, repair and thorough examination of cranes should have undertaken suitable and sufficient health and safety training applicable to their activity. Such training should be sanctioned by an appropriate industry body for the work function being carried out. (Examples; SAFed Safety Passport for Engineers undertaking thorough examinations).

To supplement their trade specific health and safety training, visiting personnel must attend an appropriate site specific safety induction focused on the specific hazards that may be present in the vicinity of the intended work, similar to recommendations in section 2 above and would normally last 20 – 30 minutes.

(Note – maintenance work should be well planned and agreed with the crane hirer and principal contractor well in advance including risk assessments, method statements and required precautions such as exclusion zones and rescue arrangements etc.)

4 General Crane Lifting Teams (ie those using/managing the crane when handed over)

It is essential that those engaged in crane lifting operations clearly understand their duties, the standards expected of them, site rules with regards to lifting, the site crane/lifting management plan and the communication structure for feedback etc.

It is therefore recommended that persons engaged in crane lifting operations including Slinger Signallers, Crane Supervisors, Crane Coordinators, Operators, Appointed Persons and relevant managers should attend a specific site crane induction.

This additional site induction which would follow the normal site induction should be given/arranged by the Principal Contractor and cover:

- The Project Crane Management Plan including:
 - The crane management structure
 - The system and importance of method statements and risk assessment checking and sign off
 - The arrangement for coordination of lifting activities
- Individual's roles and responsibilities
- Standards required including:
 - Lifting plans
 - Slings techniques
 - Hand signals
 - Radio communication
 - Lift supervision
 - Wind speed policy
 - Anti collision and zoning arrangements
 - Etc
- Specific site lifting risks including:
 - Adjacent undertakings (railways etc)
 - Lifting/no lifting zones
- Emergency procedures (ie stopping a lift).

Tower Crane Erection Climbing and Dismantling Check List

Appendix 1

		<u>Stage 1 Initial Site Investigation / Meeting</u>	<u>Stage 2 Risk Assessment/ Method Statement Check</u>	<u>Stage 3 Final Pre-erection site inspection / meeting.</u>
		Date..... Time..... Those present at meeting	Have the following where relevant been adequately addressed in the risk assessment and method statement. Completed By Date Completed	Items to be checked Date..... Time Those Present
No	Item	Comments / Notes	Yes – No –N/A - Comments	Yes – No –N/A - Comments
Stage 1 Review the following Items at the initial Site Investigation / Meeting				
A1	Crane Type / design - Crane 1		<i>Confirm the following are still correct and the method statement / risk assessment is for this type of unit</i>	<i>Confirm the following are still correct and the method statement / risk assessment is for this type of unit</i>
1	Max Radius			
2	Max Load at Max. Radius			
3	Max Load at Min. Radius			
4	Max Height Under Hook			
5	Luffing or saddle jib			
6	What are the local wind speeds to be designed to?		<i>Have these been agreed in writing?</i>	<i>Have these been agreed in writing?</i>

		Initial Site Investigation / Meeting	Risk Asses. / Method Statement Check	Pre-erection Visit / Meeting
No	Item	Comments / Notes	Yes – No –N/A - Comments	Yes – No –N/A - Comments

A2	Crane Type/design - Crane 2		<i>Confirm the following are still correct and the method statement / risk assessment is for this type of unit</i>	<i>Confirm the following are still correct and the method statement / risk assessment is for this type of unit</i>
1	Max Radius			
2	Max Load at Max. Radius			
3	Max Load at Min. Radius			
4	Max Height Under Hook			
5	Luffing or saddle jib			
A3	Crane Type/design - Crane 3		<i>Confirm the following are still correct and the method statement / risk assessment is for this type of unit</i>	<i>Confirm the following are still correct and the method statement / risk assessment is for this type of unit</i>
1	Max Radius			
2	Max Load at Max Radius			
3	Max Load at Min. Radius			
4	Max Height Under Hook			
5	Luffing or saddle jib			

		Initial Site Investigation / Meeting	Risk Asses. / Method Statement Check	Pre-erection Visit / Meeting
No	Item	Comments / Notes	Yes – No –N/A - Comments	Yes – No –N/A - Comments

B	Base Type		<i>Are the base type and design criteria still correct?</i>	
1	Tracked (If yes length) Concrete block/pad			
2	Piles and pile cap			
3	Supported off existing structure			
4	Cruciform and Kentledge			
5	Other			
6	What are the local wind speeds to be designed to?			
7	Who will design		<i>Has the design been agreed?</i>	<i>Has the base(s) been constructed as the agreed design and has it reached sufficient strength – Has the PC signed off the MS to confirm this?</i>
8	Who will approve		<i>Has the design been approved?</i>	
C	Ties Required			
1	Number and levels		<i>Are these clearly identified in the method statement including sequence and hold points?</i>	
2	What are the local wind speeds to be designed to?		<i>Have these been agreed in writing?</i>	

		Initial Site Investigation / Meeting	Risk Asses. / Method Statement Check	Pre-erection Visit / Meeting
No	Item	Comments / Notes	Yes – No –N/A - Comments	Yes – No –N/A - Comments

3	Designed by			
4	Approved by		<i>Has the design been approved?</i>	<i>Has the PC signed off the method statement to confirm these have been installed to the agreed design and reached adequate strength?</i>
5	Preparation works by			
6	Installed by			
7	Access	<i>What will access to install be and who will provide access?</i>		
D	Climbing		<i>Have the following changed since last brief to crane provider and are they adequately reflected where appropriate in the risk assessment and method statement?</i>	
1	Number of climbs required			
2	Number of sections each time			
3	Site Conditions and restrictions at time of climb			
4	Exclusion zones required.	<i>Who will make arrangements, who will provide barriers etc who will police?</i>		

		Initial Site Investigation / Meeting	Risk Asses. / Method Statement Check	Pre-erection Visit / Meeting
No	Item	Comments / Notes	Yes – No –N/A - Comments	Yes – No –N/A - Comments

E	Adjacent Operations, Owners, undertakings & resultant restrictions.		<i>The requirements changed since last brief to crane provider and are they adequately reflected where appropriate in the risk assessment and method statement?</i>	<i>Re-confirm actions require, by who and if they are complete / in hand.</i>
1	Railways / Underground <u>Note</u> De-rating will probably be required.			
2	Schools			
3	Motorways			
4	Other Construction sites			
5	Other			
F	Air Rights		<i>Any Changes?</i>	
1	Issues			
2	Agreements in place			
3	Who will organise/agree			

		Initial Site Investigation / Meeting	Risk Asses. / Method Statement Check	Pre-erection Visit / Meeting
No	Item	Comments / Notes	Yes – No –N/A - Comments	Yes – No –N/A - Comments

G	Structures (above ground)		<i>Have the following changed since last brief to crane provider and are they adequately reflected where appropriate in the risk assessment and method statement?</i>	<i>Have the following changed since last brief to crane provider and are they adequately reflected where appropriate in the risk assessment and method statement?</i>
1	Details of Existing and New			
2	Drawings issued Plans Elevations			
3	Extent of new building works at time of crane operation. (including to adjacent buildings)			
4	Extent of new building works at time of climbing operation. (including to adjacent buildings)			
5	Extent of new building works at time of dismantling operation. (including to adjacent buildings)			

		Initial Site Investigation / Meeting	Risk Asses. / Method Statement Check	Pre-erection Visit / Meeting
No	Item	Comments / Notes	Yes – No –N/A - Comments	Yes – No –N/A - Comments

H	Over Head Restrictions		<i>Have the following changed since last brief to crane provider and are they adequately reflected where appropriate in the risk assessment and method statement?</i>	<i>Have the following changed since last brief to crane provider and are they adequately reflected where appropriate in the risk assessment and method statement?</i>
1	Structures			
2	Services Existing			
3	Services Future			
4	Aircraft			
I	Underground Restrictions		<i>Have the following changed since last brief to crane provider and are they adequately reflected where appropriate in the risk assessment and method statement?</i>	<i>Have the following changed since last brief to crane provider and are they adequately reflected where appropriate in the risk assessment and method statement?</i>
1	Services			
2	Tunnels			
3	Vaults/Basements			

		Initial Site Investigation / Meeting	Risk Asses. / Method Statement Check	Pre-erection Visit / Meeting
No	Item	Comments / Notes	Yes – No –N/A - Comments	Yes – No –N/A - Comments

J	Ground Conditions		<i>Have the following changed since last brief to crane provider and are they adequately reflected where appropriate in the risk assessment and method statement?</i>	<i>Have the following changed since last brief to crane provider and are they adequately reflected where appropriate in the risk assessment and method statement?</i>
1	Acceptable Bearing pressures			
2	Who will design spreaders?			
3	Who will approve design			<i>Have these been agreed with the PC?</i>
K	Hard Standings		<i>Has requirement(s) changed since last brief and is it clear who will provide and to what specification/design?</i>	<i>Has the PC confirmed these have been constructed as the agreed design and have reached adequate strength.</i>
1	Requirement ie size and location			
2	Loads to be taken			
3	Designed by			
4	Installed by			
5	Checked by			

		Initial Site Investigation / Meeting	Risk Asses. / Method Statement Check	Pre-erection Visit / Meeting
No	Item	Comments / Notes	Yes – No –N/A - Comments	Yes – No –N/A - Comments

L	Road & Footpath Closures	<i>What are requirements and confirm who will arrange</i>	<i>Check if requirements are as last brief to Crane contractor and if all arrangements are in hand. Ensure extent of closures is adequate</i>	<i>Have these been arranged including all diversions, temporary traffic control measures etc and is it clear who takes what actions – is extent / timing of any closure adequate?</i>
1	What is required			
2	Who will liaise with LA and obtain			
3	Traffic control required i.e. temporary signs and traffic lights, barriers and marshals. Who to provide			
4	Dates required			
M	Liaison with adjacent owners/occupiers/ undertakings or transport authorities.		<i>Check if requirements changed and are arrangements in place?</i>	<i>Confirm all arrangements are in place and who does what</i>
1	What is required			
2	Who will liaise and when			
3	Local activities that may affect works			

		Initial Site Investigation / Meeting	Risk Asses. / Method Statement Check	Pre-erection Visit / Meeting
No	Item	Comments / Notes	Yes – No –N/A - Comments	Yes – No –N/A - Comments

4	Street Markets			
5	Fairs			
6	Parades/carnivals			
7	Other planned street events			
N	Exclusion Zones (on site)		<i>Check these are clearly identified, are they are adequate and who is to provide.</i>	<i>Are these still adequate and are all arrangements to provide and maintain in place?</i>
1	Required size and location			
2	Signs barriers and Marshals required			
3	Who will provide.			
O	Power & Earthing			
1	Power Source, mains/ generator?			
2	Who to provides?			
3	If generator – who provides fuel?			

		Initial Site Investigation / Meeting	Risk Asses. / Method Statement Check	Pre-erection Visit / Meeting
No	Item	Comments / Notes	Yes – No –N/A - Comments	Yes – No –N/A - Comments

4	Earth requirements for the crane and or generator where applicable. Who specifies? Who provides?			
P	Other items to be provided by crane company			
1	Wind speed indicator requirement on cranes		<i>Confirm to be supplied</i>	<i>Confirm to be supplied</i>
2	Are zoning Controls required? If yes drawings and details to be provided by crane provider.		<i>Are relevant drawings included?</i>	<i>Drawings still relevant?</i>
3	Are anti clash systems required. If yes drawings and details to be provided by crane provider.		<i>Are relevant drawings included?</i>	<i>Drawings still relevant?</i>
4	Driver rescue systems required			
5	Crash Radio Requirements			
6	Slinger Communication Radio requirements			
7	Chains/slings etc			

		Initial Site Investigation / Meeting	Risk Asses. / Method Statement Check	Pre-erection Visit / Meeting
No	Item	Comments / Notes	Yes – No –N/A - Comments	Yes – No –N/A - Comments

8	Rescue basket			
9	Operator			
10	Appointed Person			
11	Crane Supervisor			
12	If yes to above, hours of work			
13	Trolley Cameras			
14	Cab air conditioning			
15	Anti climb fence/fan			
16	12 or 6 monthly thorough examination.			
17	Flood Lights required on Crane.			
18	Signage/advertising required on crane. (Wind loading effects and fixing details to be agreed)			

		Initial Site Investigation / Meeting	Risk Asses. / Method Statement Check	Pre-erection Visit / Meeting
No	Item	Comments / Notes	Yes – No –N/A - Comments	Yes – No –N/A - Comments

Q	Verticality			
1	Who will carry out survey of base, temporary works and mast?			
Stage 2				
Re visit items in Stage 1 and then the following items				
1	Method Statement Review, <u>Additional</u> Questions			<i>In view of any changes is the method statement/risk assessment still appropriate and the following still correct?</i>
2	Is there a clear step by step/sequence guide			
3	Does it contain a check list/hold points with key checks identified before next step take place			
4	Are there adequate plans and elevation drawings indicating, set up, lay down areas, mobile out rigger locations, exclusion zones, traffic/pedestrian diversions etc.			
5	Are all trades identified with operatives and supervisors names and proof of adequate training and experience (competency)			<i>Confirm Names and training/competency</i>
6	Does the method Statement contain a sign off box for the PC to confirm relevant temporary works/permanente works are constructed as agreed designs and adequate to take the loads.			<i>Has this been signed off?</i>

		Initial Site Investigation / Meeting	Risk Asses. / Method Statement Check	Pre-erection Visit / Meeting
No	Item	Comments / Notes	Yes – No –N/A - Comments	Yes – No –N/A - Comments

8	Are unacceptable weather conditions that will stop/prevent works continuing made clear?			<i>Have expected weather conditions been checked?</i>
9	Is it Clear who will provide 1 st aid cover			<i>Confirm who and name</i>
10	Is bolt torque checking methods clearly identified?			
11	Are fall prevention and rescue methods adequately describe and appropriate.			
12	Does the document contain a list of pre handover checks?			
13	Are crane load testing and thorough examination arrangements explained including documentation and handover for use.			
14	Are emergency arrangements and numbers etc clearly identified/explained?			<i>Are they all in place?</i>
15	Are the manufacturers counter balance weights clearly specified and the sequence of installation clear?			
16	Are details given of contingency arrangements for the occurrence of foreseeable circumstances that might affect the safety of the operation being undertaken? (Wind speed/direction changes – equipment breakdowns)			

		Initial Site Investigation / Meeting	Risk Asses. / Method Statement Check	Pre-erection Visit / Meeting
No	Item	Comments / Notes	Yes – No –N/A - Comments	Yes – No –N/A - Comments

<u>Stage 3</u>		
<u>Revisit the items in Stages 1 and 2 above then the following Items</u>		
1	Additional Pre-erection Site Visit/Meeting Items	
2	Has crane been subject to pre- erection inspection and maintenance?	
3	Has PC signed off the method statement?	
4	Have all temporary works been completed and signed off as being installed as design and reached the required strength?	
5	Have verticality of the base and first mast section (if cast in) been checked? Is it within tolerance?	
6	If climbing has verticality of existing mast been checked? Is it within Tolerance?	
7	Who will be on site on the day to check verticality?	

NOTE: Permit to Erect, Climb or Dismantle to be completed on day that operations are to commence before work starts. (See Appendix 2)

Project Details			
PROJECT		PRINCIPAL CONTRACTOR MANAGER	
CRANE PROVIDER		TEL:	LIFTING COORDINATOR
CRANE PROVIDER MANAGER		TEL:	CRANE LOCATION and IDENTIFICATION (number or mark)
DESCRIPTION OF CRANE OPERATION	Installation <input type="checkbox"/> Climbing <input type="checkbox"/> Dismantle <input type="checkbox"/> Tick box <input checked="" type="checkbox"/>		
Checks to be completed prior to commencement on 1 st day of operation			
1	Conditions/restrictions are as expected/planned and allowed for in the method statement.		
2	The Method Statement and Risk Assessment have been signed off by the Principal Contractor and are in the possession of the crane erection team. It contains a detailed sequence of operation with clear hold/check points.		
3	Manufacturers' guidance/operation/ erection manual and crane log book is on site in English and is with the crane erection team.		
4	Erection team including supervisor riggers, electricians and crane operator competency/training checked and in order.		
5	The crane erection team has received a site induction. They and all relevant parties have received a method briefing from the erection team supervisor. The erection team is clear on individual's responsibilities and all hold / check points.		
6	The potential risks to other operations on site and activities adjacent to the site are understood by all relevant parties and precautions are in place.		
7	Weather conditions have been checked and are acceptable for the operation to proceed.		
8	All 3 rd party inspection certificates required for cranes and lifting accessories to be used during the operation are available and valid (check dates and serial numbers).		
9	Mobile crane certification and proof of driver competency checked and OK?		
10	An adequate exclusion zone with where applicable road and foot path closures have been established around area of operations.		
11	Work has been visually inspected to ensure all working platforms are in good condition and protected with guardrails.		
12	Physical observations – Tower crane to be climbed or dismantled have been checked and are free of defects, are stable and bolts tightened etc. Required lifting accessories have been checked – crane hook fitted with safety catch, all chains and slings in good condition etc.		
Who will carry out the pre-use inspections?		Who will be carrying out the Independent Thorough Examination on completion of the works?	

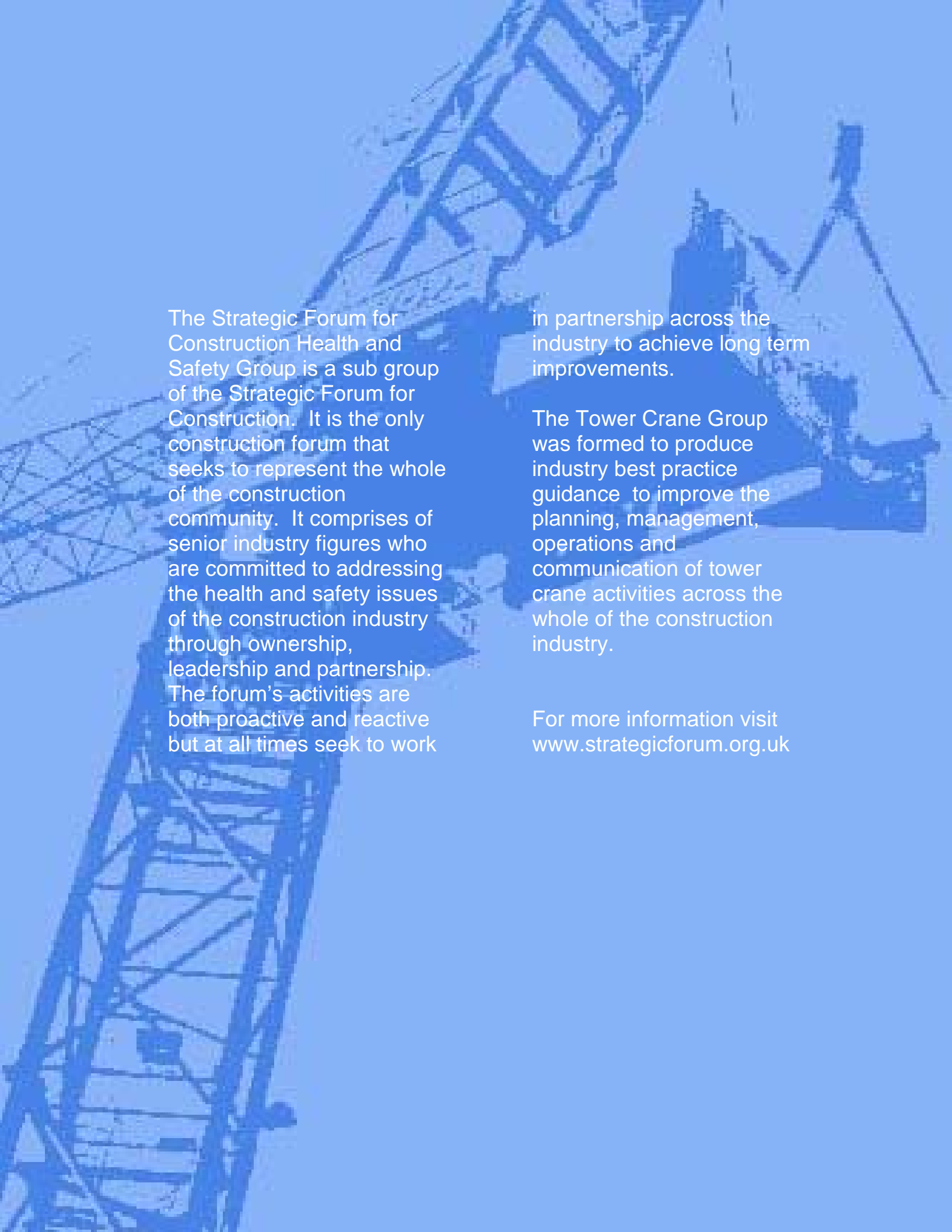
I confirm that all the above arrangements are in place and the operation may proceed

Start Date & Time		Completion Time	
Crane Provider Manager name	Crane Provider Manager signature		Date
Principal Contractor Manager name	Principal Manager signature		Date

To be completed on subsequent day of operation	
Conditions and risks have not substantially changed since yesterday; the method statement requires no amendments. There are no new personnel who require a site induction or instruction in the safe system of work. Weather conditions have been checked	
Where the tower crane has been partially erected/dismantled ie left over night etc, the structure and installation has been physically checked to ensure it is safe for the next stage to proceed.	

I confirm adequate Safety arrangements are in place and works may proceed

Start Date & Time		Completion Time	
Crane Provider Manager name	Crane Provider Manager signature		Date
Principal Contractor Manager name	Principal Contractor Manager signature		Date



The Strategic Forum for Construction Health and Safety Group is a sub group of the Strategic Forum for Construction. It is the only construction forum that seeks to represent the whole of the construction community. It comprises of senior industry figures who are committed to addressing the health and safety issues of the construction industry through ownership, leadership and partnership. The forum's activities are both proactive and reactive but at all times seek to work

in partnership across the industry to achieve long term improvements.

The Tower Crane Group was formed to produce industry best practice guidance to improve the planning, management, operations and communication of tower crane activities across the whole of the construction industry.

For more information visit www.strategicforum.org.uk