

Technical Briefing Note

Lifting operations - Hands off, Step back 5 paces

Loads are more likely to move unexpectedly when they are picked up than they are once they are freely suspended, steady, and stable. Unexpected movement can be for a number of reasons: load centre of gravity not under suspension point of the crane, load snagging, boom/jib deflection, verticality of hoist ropes, load settling into slings, load centre of gravity moving in plan as a load is stood up, wind effects etc.

Consideration of how to eliminate or minimise direct load handling requirements should be made throughout the design process. For example load attachment points can be integrated within a load and arranged to facilitate lifting and manipulation of the load with minimal need for direct load handling, and minimising working at height requirements.

The centre of gravity (CoG) of the load must be considered, especially for complex / irregular loads where the CoG location may not be where people would expect, for loads where the CoG may shift during the lifting operation (for example when rotating loads to take them from transport orientation to installation orientation, or when lifting loads containing fluids), or for loads with a high CoG. Wherever possible attachment points should be above the CoG, to increase load stability, and the CoG should be marked on the load / design to aid in lifting on site.

If there are specific slinging arrangements recommended, for example to achieve stable lifting, these should be communicated through the design deliverables and should be produced / assessed by a competent person. Where there is a requirement to equalise loads, to avoid overloading individual attachment points, this must be communicated.

A digital rehearsal of the lifting operation may help in identifying potential issues and in refining the lifting methodology.

See also [TBN 17 Management of potential crushing zones around plant](#), [TBN 13 Precast concrete anchor lifting systems](#) and [TBN 26 Integral lifting points on loads](#).

Remember The Golden Rules for Lifting ([OPS-T-976](#)) & This is how we LIFT ([OPS-T-977](#)).

Hands off, Step back 5 paces rule

The Hands off, Step back 5 paces rule is intended to reduce the risk of loads striking personnel due to unexpected load movement. The following steps are a hierarchy of control and should be followed as such.

Take **HANDS OFF** the load and **STEP BACK 5 PACES** until the load is freely suspended, steady, and stable.

During the picking up of loads, personnel must take their hands off the load and step back 5 paces.

Only when everyone is 5 paces back should the lifting equipment be directed to start lifting up the load.

They must remain 5 paces away until the load is freely suspended, steady, and stable.

Once the load is freely suspended, steady, and stable, it may be acceptable for personnel to approach the load for guiding and positioning where it is reasonable for them to do so, and it has been approved through the lift plan and risk assessment.

The intention is that 5 paces should prevent the unconscious behaviour of personnel approaching an unsteady load, with the intention of intervening to steady it, by providing time for personnel to consciously stop themselves from moving any closer.

It may be necessary to be further away than 5 paces to account for any load failure or part of the load falling, e.g. from a muck skip; any required exclusion zone to the load should be detailed in the lift plan.

If step back 5 paces is not practicable, **AGREE** with the Lift Supervisor (LS) where it is **SAFE** to stand whilst the load is being picked up. LS to **OBSERVE** pick up.

If 5 paces is not achievable, for example due to physical constraints or the required method of working, then the lift must be paused until the SS and the LS are able to discuss and agree where it will be safe for the SS to be positioned during the initial picking up of the load.

In determining safe positioning, the SS and LS must consider the locations of obstructions, crushing zones, slip, trip and fall hazards, and must also consider the route to safely retreat should the need arise. The LS is required to be present during the picking up of the load, to act as a reinforcer for the SS in not moving towards the load should an issue arise.

If the SS and LS is being undertaken in a combined role, the combined SS/LS must agree and discuss safe positioning with their supervisor (e.g. FLS); **not being 5 paces back from a load must not be an individual decision.**

If **DIRECT LOAD CONTROL** is required, this is subject to **RISK ASSESSMENT** by the **APPOINTED PERSON**.

Where the SS is required to provide direct load control from within 5 paces, this is subject to risk assessment and approval by the AP, and priority should be given to control by tag line or push/pull stick.

Technical discipline	Target audience	Raised by	Reviewed by
Technical Assurance	Lifting, Design, Construction, and Temporary Works teams.	Tom Pawson DI Lifting / Scaffolding	Andrew Threlfall Group Chief Engineer

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Direct load control risk assessment

In all circumstances where direct load control is being considered an assessment should be made of the **necessity**, **feasibility**, and **safety** aspects of direct load control. See Figure 1.

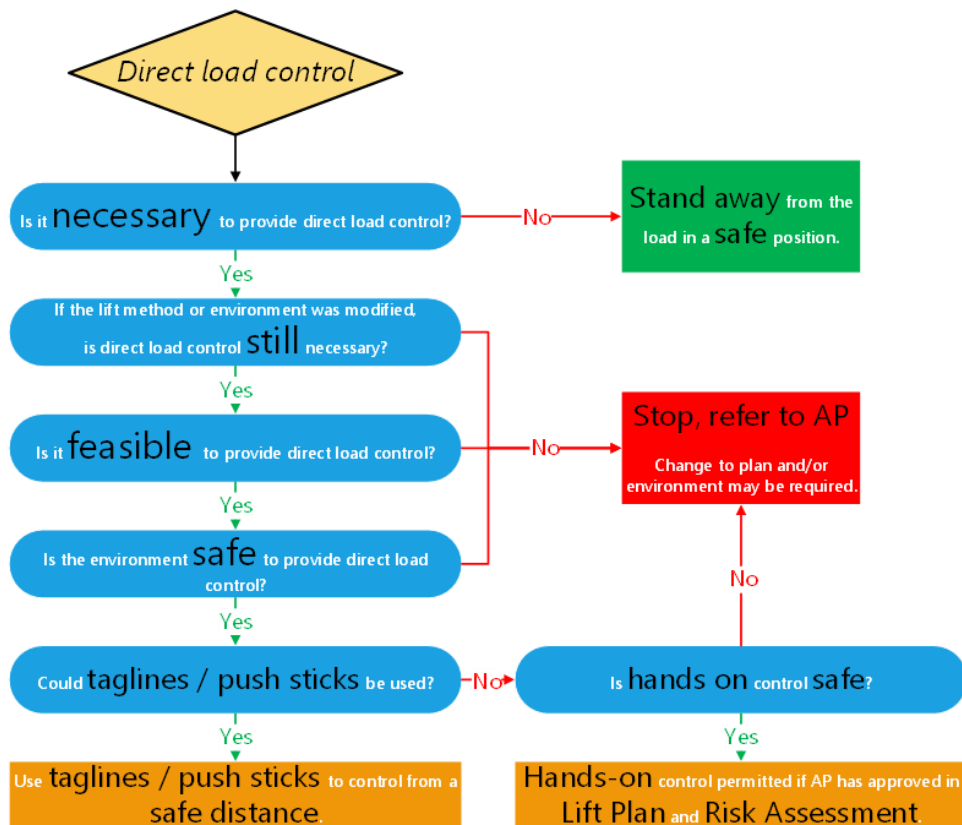


Figure 1. Direct load control assessment.



No requirement for direct load control. SS stood away from the load.



Direct load control necessary. SS using tagline for safe positioning.

Necessity - Is it necessary to directly control the load?

Loads which are fragile, easily damaged, close to sensitive assets, or require fine positioning may require load control. Other loads probably do not require load control. Wherever reasonably practicable, the lifting method or working environment for the lifting operation should be modified to eliminate the need for personnel to directly control the load. For example, the location for the operation could be changed, the slinging arrangement could reduce potential unintentional load movement, obstructions could be relocated etc.

Feasibility - Would personnel be able to control the load?

Consider size / weight of the load - it is ineffective for people to control large / heavy loads so don't even try. Consider also wind sail effects for large, light, or unaerodynamic loads.

Safety - Is the environment safe to put personnel in?

Identify hazards and manage appropriately. Reduce the risk from obstructions, crush zones and snagging locations (temporarily relocating obstructions, barriering off crush zones or covering snag hazards where practicable). Consider lighting levels in the environment and visibility of personnel. Is there potential for material to fall from the load (e.g. muck skips)?



Figure 2. Proprietary tagline.

Tagline guidance and safety

Consider number and positioning of personnel required. Don't stretch to reach loads, and remain an arms distance away. Consider where and how to attach taglines (most effective control from taglines is when horizontal and perpendicular to the load, at corners). Remember you cannot push with a tagline, you may need more than one person to control!

- Release the tagline if it becomes too difficult to control, or you are being pulled towards a position of danger
- Only use taglines when it is necessary to guide/control the load and it doesn't create additional hazards

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- Use a proprietary tagline with a hook attachment (see Figure 2), not draw cord, as proprietary taglines reduce the risk of entanglement
- Use an appropriate length tagline (excessively short moves you closer to the load, excessively long could catch on surrounding features)
- Wear appropriate gloves
- Attach the tagline to the load in preference to the lifting accessories
- Attach the tagline to a strong part of the load
- Attach the tagline to the corners of large loads for improved control
- Use a boat hook or similar to retrieve a tagline without standing under a suspended load (see Figure 3)
- Keep the “spare” end of the tagline tidy so as not to be a tripping or snagging hazard and to allow unimpeded “paying out” as required
- Assess the path of the lift and, where practicable, remove any obstructions prior to commencing the lift
- Remain clearly visible to the crane operator
- Be aware of power lines in the proximity of the lifting operation – taglines must not trail into power lines
- Never wrap the tagline around your body or limbs
- Do not allow taglines to trail along the ground or over structures / plant - there is a risk of entanglement
- Do not tie knots in the tagline
- Never step into a loop in a tagline
- Never place any part of your body between a load and another object (potential crush zone)
- Do not position yourself where you could be trapped as the operation proceeds

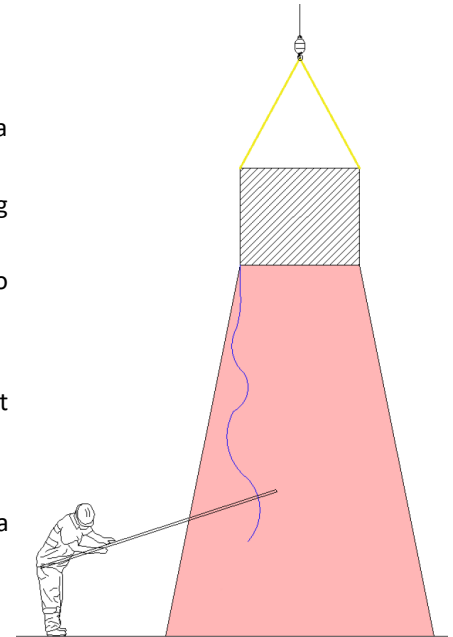


Figure 3. Retrieval of tagline.

Direct load control guidance and safety

Hands on control only where absolutely necessary and, for picking up operations, only when specifically approved in the Lift Plan and Risk Assessment. Remain conscious of the potential for movement of the load and safe access / retreat positions. Consider the movement of the load, both intentional and unintentional.

- Place hands flat on the surface of the load
- Make sure that good communication is maintained with the operator and other personnel
- Maintain an arm's length away from the load
- Walk the load down with your hands (reaching down moves you closer to the load)
- Never place your hands in / under the load
- Never reach above shoulder height to access a load
- Never place any part of your body between a load and another object (potential crush zone)

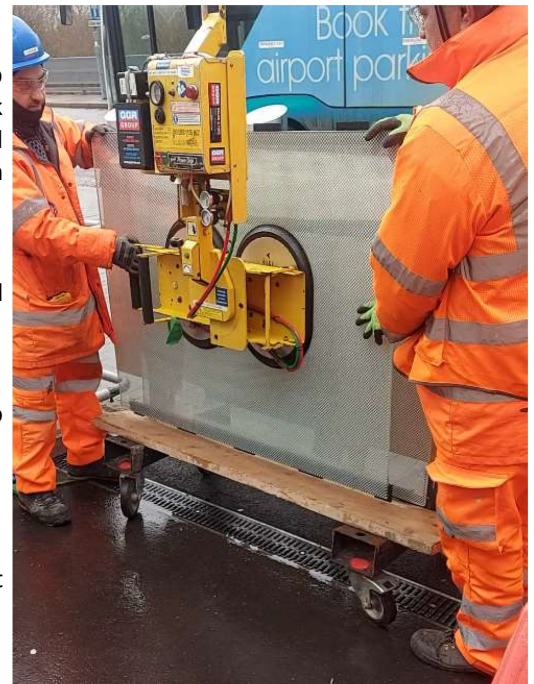


Figure 4. Hands on direct load control.

Remember!

The Golden Rules for Lifting ([OPS-T-976](#))

This is how we LIFT ([OPS-T-977](#))