

Preventing lifting point failures in construction

The consequences of a lifting point failure can be fatal. In one incident, a crane was lifting a prefabricated wood wall panel into position on a multi-family residential construction site. When the wall panel was approximately 12 m (40 ft.) above the ground, the lifting point on the panel failed. The wall panel fell, striking and fatally injuring a worker on the ground.

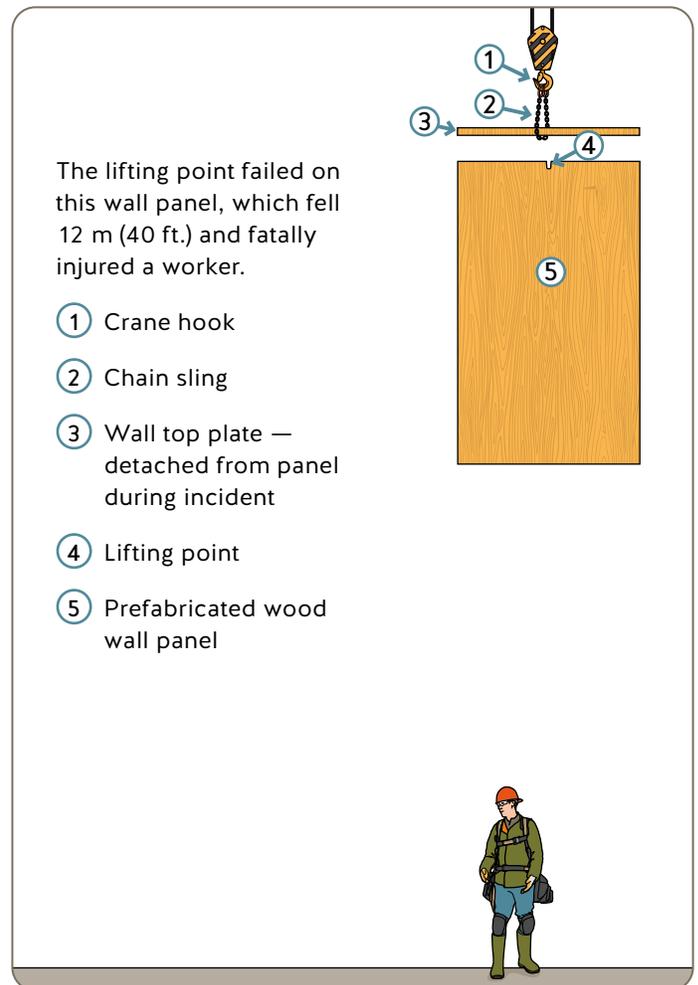
This bulletin discusses the potential hazard of inadequate lifting points. It describes how employers, suppliers, crane operators, riggers, and prime contractors can reduce or eliminate the risk of lifting point failures.

What is a lifting point?

A *lifting point* is a location on a piece of equipment or partially assembled structure where workers attach rigging so the item can be lifted, typically by a crane. Items that often have lifting points include concrete buckets, locking blocks, rooftop mechanical units, and prefabricated wall panels. Lifting points are used in many industries, but they are particularly common in construction.

What is the hazard?

Lifting points can fail when the forces applied (e.g., gravity or wind) are greater than the strength of the lifting point. In some cases, wear, corrosion, or other forms of deterioration can compromise the strength of a lifting point. Installing a lifting point in an incorrect location can also reduce its strength. An incorrectly located lifting point was a contributing factor in the incident described above.



When a lifting point fails, it typically results in the lifted item falling from a height. The consequences for people below the falling item can be severe, even fatal.

How to prevent lifting point failures

The information in this section applies only to equipment and partially assembled structures that are being lifted. Other types of lifted items (e.g., bundles of rebar or lumber) are beyond the scope of this bulletin.

Employers

- Make sure lifted items, including any lifting points, are capable of withstanding the forces applied to them during lifting.

Best practice: The manufacturer or a professional engineer should determine the structural adequacy of lifted items using the relevant principles in *ASME B30.20 Below-the-Hook Lifting Devices* (e.g., a design safety factor of 3).

- Make sure lifted items have reasonable instructions for safe use and that workers follow these instructions.
- Make sure equipment to be lifted, including any lifting points, is inspected, tested, repaired, and maintained as per the instructions of the manufacturer or a professional engineer. This applies to equipment but not to partially assembled structures.

Best practice: Instructions should meet the relevant requirements in *ASME B30.20*.

- For equipment that is intended to work as a container to lift other items (e.g., waste bins or concrete buckets), make sure there is an identifiable rated capacity specified by the manufacturer or a professional engineer. Make sure this rated capacity is not exceeded.

- Provide the instruction, training, and supervision necessary to ensure that crane operators and riggers rig and lift items safely.
- Make sure lifted items are rigged by or under the direct supervision of qualified workers familiar with the rigging to be used.

Suppliers

- Make sure lifted items are supplied with instructions for safe use.
- Make sure lifted items will perform safely if workers follow the safe use instructions

Best practice: Lifted items and their instructions should meet the relevant requirements in *ASME B30.20*. An internal or external professional engineer should help prepare the safe use instructions.

- If several employers are involved in the manufacture of a lifted item, at least one of them must ensure that the supplier responsibilities noted in this list are met.

Crane operators

- Do not lift an item unless you are satisfied that the item can be handled safely and it has sufficient structural integrity for lifting.
- Make sure the lifted item has reasonable instructions for safe use and that the instructions are being followed.
- Confirm that equipment to be lifted has been inspected, tested, and maintained as per the manufacturer's or engineer's instructions.
- For equipment with rated capacities, verify that the rated capacity will not be exceeded.
- Confirm that the rigger is qualified for the complexity of the lift, and that the rigger has correctly identified any lifting points that will be used and assessed whether they are adequate.

Best practice: Document that all of the items in this list have been met.

Riggers

Employers should have a system in place that instructs riggers to do the following:

- Make sure you are satisfied that the lifted item has sufficient structural integrity for lifting.
- Make sure the lifted item has reasonable instructions for safe use and that the instructions are being followed.
- Confirm that equipment to be lifted has been inspected, tested, and maintained as per the manufacturer's or engineer's instructions.
- For equipment with rated capacities, verify that the rated capacity will not be exceeded.
- Identify the lifting points to be used and assess whether these lifting points are adequate.
- Ask for help to rig a lifted item if you don't have the instruction or training necessary to complete the tasks noted in this list.

Best practice: Document that all of the items in this list have been met.

Prime contractors

- Verify that employers who will be lifting items or having items lifted on site have an effective system in place to prevent lifting failures.
- Confirm that lifted items supplied to the site have reasonable safe use instructions.
- Verify that crane operators and riggers are following a lifting process that prevents lifting failures.

- Assess the adequacy of the systems in place to prevent lifting failures at the necessary intervals to ensure these systems are effective.
- If employers, crane operators, or riggers haven't met their obligations regarding lifted items, stop all lifting work until they have done so.

Regulation requirements

For requirements related to lifting points, see the following sections of the Occupational Health and Safety Regulation and its related guidelines, and the *Workers Compensation Act* (available on [worksafefbc.com](https://www.worksafefbc.com)).

The Regulation

- [Section 4.3\(1\)\(a\) and \(2\), Safe machinery and equipment](#)
- [Section 4.8, Rated capacity](#)
- [Section 14.38\(2\), Safe lifting](#)
- [Section 15.2, Qualified riggers](#)
- [Section 20.14, Temporary support](#)

The Act

- [Section 21\(2\)\(e\), General duties of employers](#)
- [Section 26, General duties of suppliers](#)

For more information

The following safety bulletin is available on [worksafefbc.com](https://www.worksafefbc.com):

- [Lifting concrete locking blocks safely](#) (WS 2018-12)