

Tyre handling workshops

Mezzanine floors



Photo courtesy of Hawleys (Tyre Services) Ltd

The problem

Mezzanines are common storage areas for tyres and other goods. Often they are constructed using roof space or other areas. While the storage space is valuable, access to and from it with tyres can be awkward. Common risks include:

- a lack of edge protection or handrails to prevent workers from falling;
- lifting tyres above the head;
- passing heavy tyres up and down from the mezzanine floor;
- reduced headroom;
- insufficient space between 'polo' stacks or racking.

Lifting a 10 kg tyre above the head to a mezzanine floor involves a vertical lift from below the knee to above the shoulder, which is a risk. Selecting and picking up tyres involves reaching away from the body and tyres are often picked up one-handed. Handling tyres without enough room makes it difficult to obtain a suitable grip.

Also consider the load capacity of the floor.

The solution

Eliminate repetitive handling of tyres from the ground to the mezzanine by using a mechanical aid. There are mobile lifts available, which can be moved out of the way when not needed. A powered conveyor will move tyres between levels quickly and safely and eliminate the need to carry tyres on stairs or ladders. For heavy tyres or intensive use, vertical hoists are available. The equipment can enhance the usefulness of the mezzanine.

Provide stairs rather than ladders for carrying tyres to and from mezzanines. Use the space you have sensibly. Avoid handling in reduced headroom unless absolutely necessary.

Purpose-built mezzanines should include a mechanical means of moving tyres up and down, especially if significant volumes of stock are held.

The problem of low headroom in a mezzanine floor **Low head room: The solution**

Manual handling in reduced headroom, in stooped or kneeling positions increases the loading on the lower back and risk of injury. Handling while stooped or kneeling is more hazardous than when standing upright. There is thought to be around a 15% increase in risk.

Use space sensibly. Avoid handling in areas of reduced headroom unless absolutely necessary. Avoid storing heavy and/or frequently needed types in areas with low headroom. Minimise the handling risks by storing tyres 'on the roll' in these areas. If tyres are stacked 'polo' style, make sure they can be rolled out of the confined space to another worker so that they do not have to be carried while stooping or kneeling.

Risk assessment

A risk assessment for placing tyres onto mezzanine levels using a stepladder, using HSE's Manual Handling Assessment Chart, is shown below.

Load weight/frequency G0/A4	The load is between about 10 kg for a 225/70 R15 van tyre, but up to 18 kg for a 295/40 R20 4x4 tyre. Typically, the combination of load weight and frequency of handling will put the task within the low risk zone.
Hand distance from lower back A3/R6	There is some reaching away from the body when handling tyres to and from the mezzanine level and when picking or placing tyres from the stack at floor level. Tyres are often handled with one hand.
Vertical lift distance R3	The tyres are handled from below knee level to above shoulder level.
Trunk bending/sideways bending A1	There is often some trunk twisting associated with this operation, especially if the ladder or steps are at right angles to the mezzanine access.
Postural constraints G0	There is not usually a significant problem with space, but the height of the mezzanine level in relation to the steps provided forces poor lifting postures.
Grip on the load G0	The grip on the tyres is good as they will be new, dry and clean.
Floor surface G0/A1	Since the task is performed inside, the floor surface is typically good. However, if steps or ladders are used the risk is increased.
Other environmental factors G0	Since this operation is usually performed inside, the lighting and thermal environment is usually good.
Overall score	7-15