



## CICA – Vic / Tas Branch Crane Safety Bulletin #337 June 2024



Greetings all. Today's Bulletin is about operating cranes on a side slope which comes with its own set of challenges that require a bit more attention to detail.

One key thing you'll need to wrap your head around is side slope deration, which is basically reducing the crane's lifting capacity to make sure it stays stable on an incline.

Let's break down what you need to consider to keep things safe and smooth.

### What is Side Slope Deration?

So, side slope deration is all about reducing the crane's rated capacity when you're working on a slope.

Why? Because an incline adjusts the crane's balance, making it more likely to tip over and can introduce side load on the boom.

By adjusting the lifting capacity, you're making sure the crane can handle the job within the rated capacity.

### Key Things to Consider

#### 1. Slope Angle

The steeper the slope, the more you need to derate. Even a small incline can throw off the crane's stability. Most crane manufacturers provide charts or guidelines showing how much to reduce the capacity based on the slope angle.

#### 2. Crane Setup

What kind of crane are you using? A mobile crane? A crawler? Each type handles slopes differently.

Plus, factors like boom length and boom angle matter a lot. A long boom or too much boom angle can make things even trickier.

#### 3. Ground Conditions

The ground you're working on plays a big role. Is it firm or soft? Compacted or loose? Wet or dry?

Unstable ground means you need to be more cautious with your deration calculations as settling ground can create side slope.

#### 4. The Load

What are you lifting? The weight, shape, and how the load's weight is distributed can all affect stability.

Awkwardly shaped or top-heavy loads are especially challenging on a slope.

#### 5. Weather and Environment

Wind can make an already tricky situation worse. Operating in windy conditions means you need to derate even more.

Rain or snow can also affect ground stability and crane performance.

#### 6. Safe Practices

Using outriggers? Make sure they're fully extended and properly positioned.

Safe operational practices can enhance stability, but you still need to account for the slope in your deration.

#### 7. Manufacturer Guidelines and Rules

Always check the crane manufacturer's guidelines and any relevant safety regulations. They usually provide specific instructions for side slope deration.

### Tips for Safe Crane Operations on Slopes

- **Plan Ahead:** Take a good look at the site to understand the slope, ground conditions, and any potential hazards. [Use this tool](#) to figure out the right deration and ensure you're following the guidelines.
- **Use Tech Tools:** Load moment indicators, inclinometers, and other tech can help you keep an eye on the crane's stability in real-time. These tools can alert you if things are becoming unstable.
- **Training is Key:** Make sure everyone on the team knows the risks and best practices for working on slopes. Regular training and updates on safety protocols are essential.
- **Regular Checks:** Inspect the crane regularly, especially the outriggers and undercarriage, to make sure everything's in good shape for handling the extra stress of a slope.

### Wrapping It Up

Working with cranes on a side slope definitely ups the ante when it comes to safety and precision.

By paying close attention to the slope angle, crane setup, ground conditions, load characteristics, and weather, and sticking to manufacturer and regulatory



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guidelines, you can keep your operations safe and efficient.

A bit of planning, some handy tech tools, and ongoing training will go a long way in making sure everything goes off without a hitch.

### **Useful resources:**

[This CICA video explaining side slope deration](#) has over 30 000 views and is a useful training resource.

To assist you with planning your lift using articulated pick and carry cranes, CICA together with Multiplex have developed [an easy-to-use side slope deration calculation tool](#) according to the manufacturer's instructions. [Here is a video](#) on how to use this tool.

CICA has also provided these [Lift Planning Tools](#) for your use.

Find the '[Outrigger App](#)' in the Google Play Store or Apple App Store, just type in 'CICA Calc'.

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