

Avoiding Utility Strikes

Toolbox 5: Building structures near overhead powerlines – transcript

Welcome to SafeWork SA's toolbox series on avoiding utility strikes. This series is all about avoiding utility strikes while digging or working near overhead powerlines. This is the fifth episode – building structures near overhead powerlines.

There are many hazards associated with building a structure near overhead powerlines. Electricity can be extremely dangerous and it is important to educate yourself on what you need to know and do to stay safe. This toolbox outlines the safe distances required when building structures, including scaffolding, near overhead powerlines.

In this modern world of medium to high density housing, structures are built closer and closer to property boundaries.

This has then caused an upward trend in machinery, workers and scaffolds getting closer to powerlines when the structure is being built.

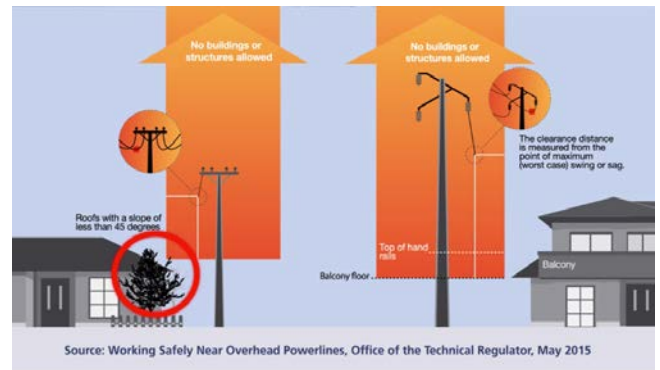
Before you plan to build, you should firstly consider the voltage of any powerlines located near your structure or scaffold - are they high or low voltage? Remember, high voltage is greater than 1000 volts. Consider the amount of swing or sag in the powerlines and the distance of the structure to the powerline.

To help you correctly calculate safe clearance distances it is important to remember to measure from the nearest power line at maximum 'worst case' swing or sag. For example, at low voltage, a 240 to 415 volt bare line has a horizontal clearance of 1.5 metres and a vertical clearance of 3.7 metres.

For a high voltage line, say 7,600 to 33,000 volts, the horizontal clearance is 3.1 metres and a vertical clearance of 5.5 metres.

In both examples, the structures final position must achieve the correct horizontal or vertical distance and allow enough clearance for a safe work environment when the structure is being built.

Also, don't forget to include trees that have the potential to interfere with the powerlines in the future.



When positioning a building on site, you should allow for the width of any scaffold you may need to erect. This is to ensure the scaffold can be positioned in a way that legal safe clearance distances are met.

The clearance distances must never be breached. If the building must be positioned close to the clearance distances, ensure the power is isolated while work is being performed.

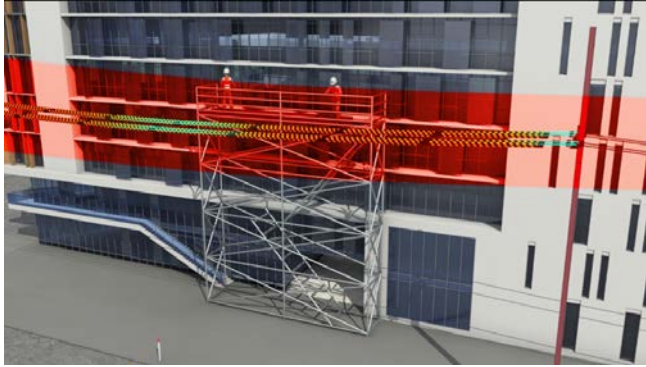
Remember, a person, including objects being held, can only work to within 1 metre of a 415 volt power line, or to within 2 metres of 11,000 volt power line with a Safe Work Method Statement, based on a risk assessment.

All development applications submitted to councils must include an Electricity Act Declaration Form, signed by the applicant, acknowledging the development plans comply with prescribed clearance requirements.

It is the applicant's responsibility to pass information on to any persons carrying out the building works, where there is a risk of breaching the safe clearance distances.

Erecting and dismantling scaffolds near powerlines

Erecting, dismantling and using scaffolds near overhead powerlines can introduce many high risk construction work activities.

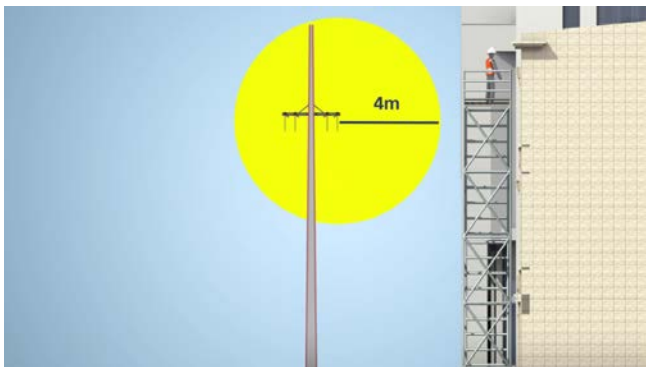


A documented Safe Work Method Statement will need to be developed for those activities, identifying site specific hazards and the appropriate risk controls. The Safe Work Method Statement must also describe how the control measures are to be implemented monitored and reviewed, and should include what actions are required in the event contact is made.

Any contact with overhead powerlines can cause death, electric shock or other injury to workers. Even a close approach may allow a 'flashover' to occur. The risk of flashover increases as the line voltage increases.

When planning scaffolding work you should use a four metre clearance distance initially.

The four metre or greater approach distance applies in any direction where metallic scaffolding is erected, used or dismantled near overhead powerlines.



The minimum safe clearance distances are measured from the power line to the final position of the scaffold.

You must ensure that no part of the scaffold, person, equipment or material can breach the safe approach limits during the construction, dismantling and use of the scaffold.

Consider having a safety observer onsite that observes and warns people before they enter the 4 metre clearance distance.

If however the erected scaffold or any part of the erection process causes scaffold parts to come within four metres of the power line, then contact the Technical Regulator for advice on authorisations. Authorisations may include a network access permit and safety observer, as discussed in the previous toolbox

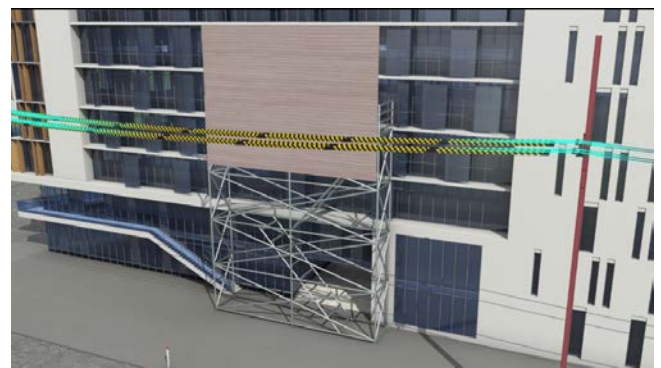
Please note, the use of a safety observer is not an adequate measure to control no-go zone risks during the erection and dismantling of scaffolding due to the high risk of electrocution.

In limited circumstances where it is safe to do so, the Technical Regulator has powers to approve buildings and structures within the minimum safety clearance distance.

Using a scaffold near powerlines

It is very important to remember, if the final position of the scaffold is within the no-go zone, then the power must remain isolated until building works are completed.

If the final position of the scaffold is outside the safe clearance distances but creates a risk to workers, including tools used or objects held by the person, then hoarding fixed securely to the face of the scaffold may be required to act as a physical barrier between workers and overhead powerlines.



For example, where the safe clearance distance is 1.5 metres from a bare 415 volt line, the hoarding needs to extend 2.7 metres below the power line and continue to 2.4 metres above the power line (for more information on these distances, please contact the Office of the Technical Regulator on 8226 5500).

There are various types of hoarding. They can be:

- ply
- reinforced plastic
- or other approved non-conductive material.

Once the hoarding is installed, signs should be attached to the safe side of the hoarding warning of the electrical hazards and that hoarding must not be removed.



Permit conditions may require the hoarding to have the top edge extend above the work platform adjacent to the power line.

Summary

So in summary, remember, electricity can be extremely dangerous; any breach of legal safe clearance distances with powerlines can result in severe injuries and even death.

Builders, contractors and workers are reminded to:

- identify any overhead powerlines that will be a hazard to those working onsite and reduce the risks, so far as is reasonably practicable
- maintain safe clearances to overhead powerlines
- if a network access permit is issued, comply with all the permit's requirements
- complete a documented Safe Work Method Statement based on a risk assessment.

Toolbox 6 in the series will explain what to do when things go wrong.

More information

For further information on work health and safety matters, visit the SafeWork SA website at safework.sa.gov.au or call 1300 365 255.

