



BUILDING SAFELY NEAR POWERLINES

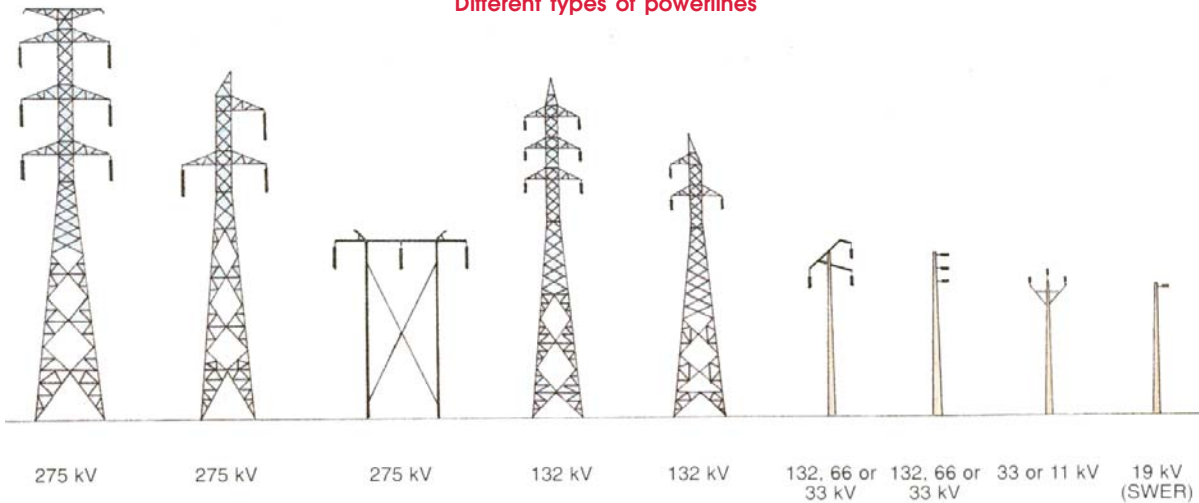
Powerlines bring electricity to our homes, properties and businesses, safely and efficiently supplying the energy essential to running our modern lives. But electricity should always be treated with respect, especially when working near powerlines, such as when building or extending. Always ensure there is enough space between the building work and powerlines to minimise the risk of electric shock, fire, power cuts or damage to property and powerlines, both now and in the future.

Most people understand that touching a powerline is dangerous and can result in death or serious personal injury or property damage. However, you don't need to touch a powerline for this to happen - electricity can spark or jump across a gap. A person can be some distance away from a powerline and still be in danger of receiving an electric shock or severe burns. In addition, aerial lines move due to the effects of wind, temperature and load on the line.

To protect people and property, minimum safe clearances from powerlines have been established in *Regulations under the Electricity Act 1996*. This brochure provides information on those clearances and tips on how to stay safe when building near powerlines.

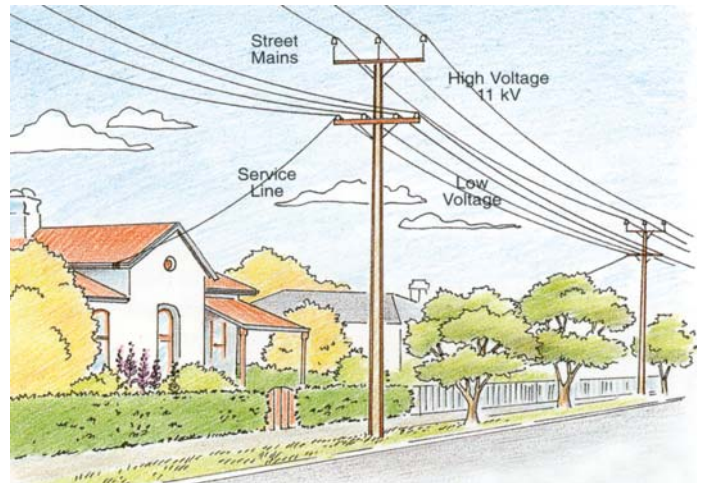
Adopt the 'Look Up and Live' motto and maintain adequate safety clearances between the building and any powerlines - you might just save a life.

Different types of powerlines



Definitions

- kV - kilovolt (1 kV = 1000 volts)
- high voltage - any voltage more than 1000 volts (1 kV)
- low voltage - any voltage up to and including 1000 volts (1 kV)
- transmission line - a supply line that carries very high voltage electricity from power stations to major substations, or between major substations. Normally seen in country areas or on the outskirts of towns (commonly 275 kV or 132 kV)
- distribution line - a supply line that carries electricity from substations, along streets, to private property
- private supply line - any powerline on private property that supplies electricity to that property and no-one else
- conductor - a wire or cable that carries electricity



Typical powerlines in built-up areas

BUILDING SAFELY NEAR POWERLINES

Safe Clearances

The minimum safe clearance between powerlines and buildings depends on the voltage of the powerline and the type of conductor. The different types of powerlines can usually be recognised from their construction and from the type of insulator or number of disc insulators which separate the powerline from the power pole or tower. However, always check with your Electricity Supplier (the organisation which distributes your power, e.g. ETSA Utilities) to find out what the powerline voltage is.

In rural areas, a SWER (single wire earth return) powerline is commonly used, and this has a voltage of 19 kV. It is safer to include additional clearances to take into account the longer lengths of SWER spans. This distance, to be added to the table 2 clearance, can be obtained when the distance between the poles is provided.

Please take into account safe working distances to powerlines when designing your building. For example, scaffolds are considered structures and must comply with the clearances given in table 2 of this brochure.



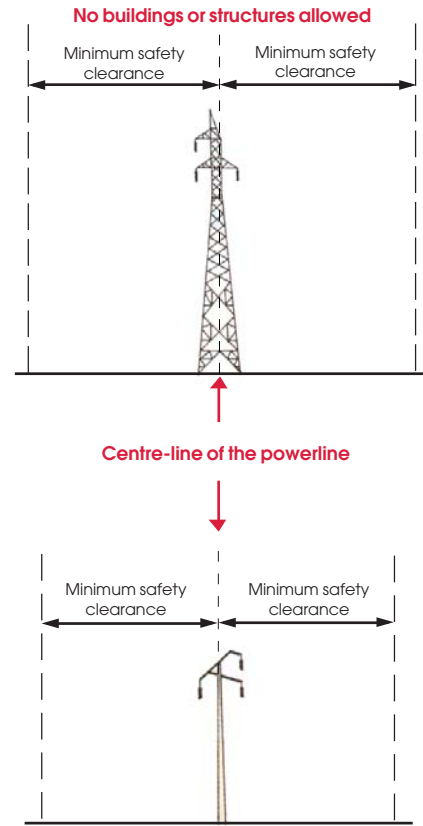
Powerlines next to & crossing properties

Table 1 lists the minimum safe clearances which are required **each side of the centre-line of a 132 kV or higher voltage powerline** from any building or structure. Fences with a height of less than 2 metres are exempted from this restriction, but must include gates to enable truck access for maintenance of the electrical infrastructure.

Table 1: Minimum safe clearances for buildings or structures

Powerline Voltage	Minimum Horizontal Clearance Distance <i>Metres either side of powerline</i>
275 kV	25 metres
132 kV (except single pole lines)	20 metres
132 kV (single pole lines)	15 metres

Minimum Safety Clearance



Is building within the clearance distance ever permitted?

1. Transmission Lines

If any construction is to take place within the minimum safety clearance of the centre-line of transmission lines constructed along a public road* (see Table 1), then a written approval must be obtained from the Technical Regulator before construction starts. Swimming pools are considered to be structures and are not permitted within the safe clearance area.

- First contact the Technical Regulator to ensure that your construction proposal is safe.
- If your proposal is acceptable, the Technical Regulator will clearly identify any conditions of the proposed approval.

In some cases, it may be necessary to relocate the powerlines before construction begins, to ensure that safety requirements are met. The cost of the relocation or alteration work, or any other costs involved, must be negotiated with the Electricity Supplier.

* **Note: Approval can only be considered if the powerline is on a public road.**



BUILDING SAFELY NEAR POWERLINES

Table 2: Minimum clearances in metres from the closest conductor under worst conditions* (*max. swing and sag)

Voltage	Up to and including 1 kV			Above 1 kV		Above 1 kV up to and including 33 kV	66 kV
	Insulated	Bare		Insulated			
		neutral	active	with earthed screen	without earthed screen		
Dimension A <i>Vertically above those parts of a building or structure normally accessible to persons</i>	2.7	2.7	3.7	2.7	3.7	5.5	6.7
Dimension B <i>Vertically above those parts of a building or structure not normally accessible to persons but on which a person can stand.</i>	0.1	2.7	2.7	0.1	2.7	4.7	5.5
Dimension C <i>In horizontal direction from those parts of a building or structure normally accessible to persons, or that is not normally accessible to persons but on which a person can stand.</i>	0.1	0.9	1.5	0.1	1.5	3.1	5.5
Dimension D <i>In horizontal direction from those parts of a building or structure not normally accessible to persons.</i>	0.1	0.3	0.6	0.1	0.6	2.5	4.5

Vertical dimension (A) applies, for example, to:

- Balconies
- Terraces
- Walkways
- Bridges
- Scaffolds

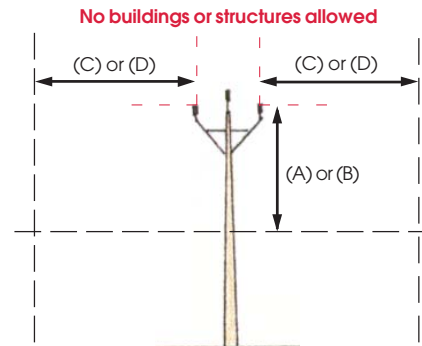
Horizontal dimension (C) applies to the same as (A) and (B).

Vertical dimension (B) applies in relation to things such as:

- Roofs with a slope of less than 45°
- Parapets wider than 0.1 metre
- Pergolas
- Carports

Horizontal dimension (D) applies in relation to things such as:

- Roofs with a slope of 45° or more
- Flag poles
- Light poles



2. Distribution Lines

If the powerline voltage is 66 kV or less, it may still be necessary to obtain a written approval from the Technical Regulator in addition to any other approvals required before starting the building work. You may be required to obtain additional information from the Electricity Supplier, including the maximum worst case swing and sag of the powerline.

Swimming pools are considered to be structures and are not permitted within the clearance zone. It is unsafe to locate a swimming pool **under any powerline**.

The safe clearances for different types of powerlines are provided in Table 2. Where the distance between a proposed construction and the nearest conductor of any line is less than that shown in the table, the Technical Regulator must be contacted. The Technical Regulator will assess the proposed construction and may provide an approval with appropriate conditions.

A written approval from the Technical Regulator is required before construction can begin.

BUILDING SAFELY NEAR POWERLINES

3. Underground Powerlines

Since the mid 1970s the majority of new powerlines have been placed underground in new housing developments.

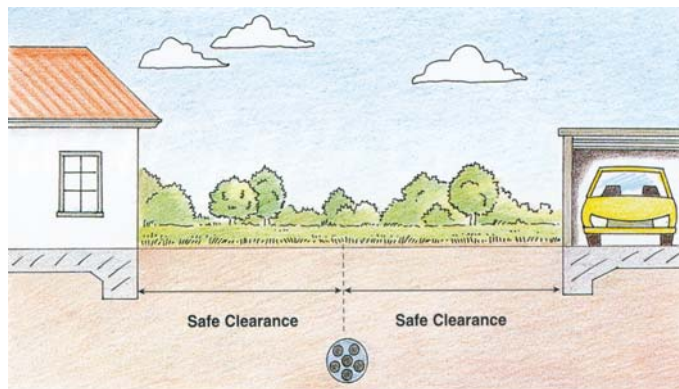
If you are planning to build in an area where there are underground powerlines, you should contact your local Electricity Supplier before starting any excavation. The minimum safe clearances for underground powerlines are shown in table 3.

If your property is supplied from a service pit, you must not construct or place anything next to or over it, including fences, retaining walls and moss rocks, which may prevent safe access.

If you want underground powerlines or any equipment owned by the Electricity Supplier to be relocated, these requirements and any associated costs should be agreed with the Electricity Supplier well in advance of any site works.

Table 3: Minimum safe clearances for underground lines

Underground Powerline Voltage	Minimum Clearance Distances metres from the line
275kV, 132kV, 66kV	3 metres
33kV or less	2 metres



Clearances for underground powerlines

4. Easements

An easement is a right of use over the property of another person.

Easements exist along the route of powerlines and other electricity infrastructure so access to the infrastructure is available for maintenance and other work on the infrastructure.

Registered easements are required for all new powerlines on private properties and any alterations to existing powerlines. Where these did not already exist, statutory easements were declared for all powerlines, transformers etc. which were on private property in 2000*.

No structures may be built in or over easements or so as to prevent access.

* **Note: You should contact your Electricity Supplier (e.g. ETSA Utilities) for distribution system easement details and ElectraNet for transmission system easement details**

Excavation Near Stobie Poles

It could be dangerous to dig near stobie poles and other electricity infrastructure. You could contact underground cables or destabilise the stobie pole, causing it to fall over. The Regulations require written authority from the Electricity Supplier before excavating deeper than 0.3 of a metre, within 3 metres of a stobie pole. Raising the ground level directly under powerlines is also prohibited if it reduces the ground clearance to less than as prescribed by the Regulations.

Approvals

When you apply for an approval for building proposals which come within the clearances given in any of the tables in this brochure, you need to give the Technical Regulator the following information:

- the location of the property on which the construction is proposed
- a dimensional site plan and elevation drawing showing the proposed location of the construction work and any powerlines
- full details of the proposed construction, including any use of cranes or scaffolds
- the name of a person who can be contacted if additional information is required

The Technical Regulator will then consider an approval for the proposed construction.

Where can I get further **energy safety** advice?

Log on to the *Technical Regulator* website @

www.technicalregulator.sa.gov.au

Regulations under the Electricity Act 1996 are available from:

Service SA Government Legislation Outlet

Ground Floor 101 Grenfell Street, Adelaide, 5000, Ph: 13 23 24

More detailed information is available in the Regulations, or by contacting the

Office of the Technical Regulator, Ph: (08) 8226 5500



**Government
of South Australia**

Department for Transport,
Energy and Infrastructure



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POWERLINE CLEARANCE DECLARATION GUIDE

This brochure provides summary information on clearances from powerlines and tips on when it's OK to sign the declaration form.

To protect people and property, minimum safe clearances from powerlines have been established in the *Regulations under the Electricity Act 1996*. The declaration form requires applicants to confirm that their development will meet these safe clearances.

The vast majority of applications will not have any powerline issues as normal residential setbacks often cause the building to comply with the clearance distances prescribed by the Electricity Act.

Particular care needs, however, to be taken for developments on major roads, commercial/industrial developments and in other cases where higher voltage powerlines exist.

Even if the proposed location of your building is closer than the clearances outlined in this brochure, it may still be compliant with the *Regulations under the Electricity Act 1996*. Please see our brochure **'Building Safely Near Powerlines'** for more details or contact the Office of the Technical Regulator. You may be required to obtain additional information from the Electricity Supplier for a nominal fee, including the maximum worst case swing and sag of the powerline.

Swimming pools are considered to be structures and are not permitted within the clearance zone. **It is unsafe to locate a swimming pool under any powerline.**

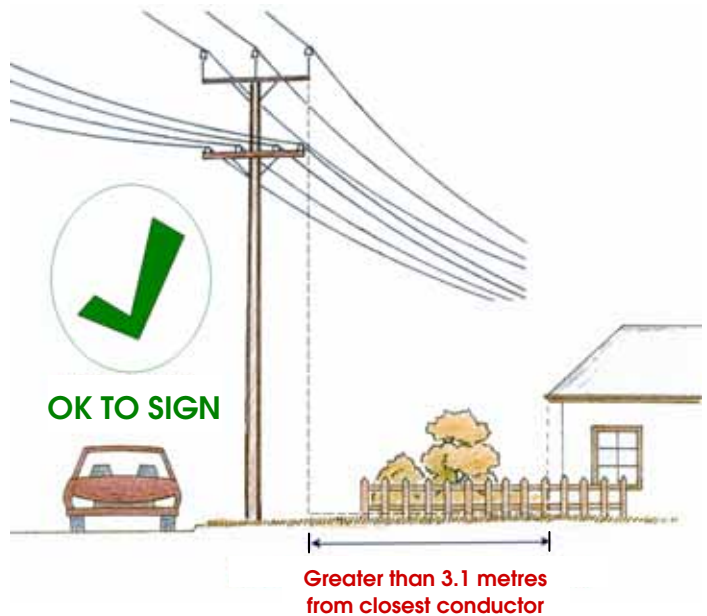
These legislated clearance distances are not the same as electricity distribution or transmission company easements for access to the powerlines.

If there is an easement for electricity supply purposes registered on your Certificate of Title you must ensure that the proposed location of your building does not encroach on the easement area. If your proposal will encroach on the

easement area you will also need to approach ETSA Utilities or ElectraNet to seek approval for your proposal.

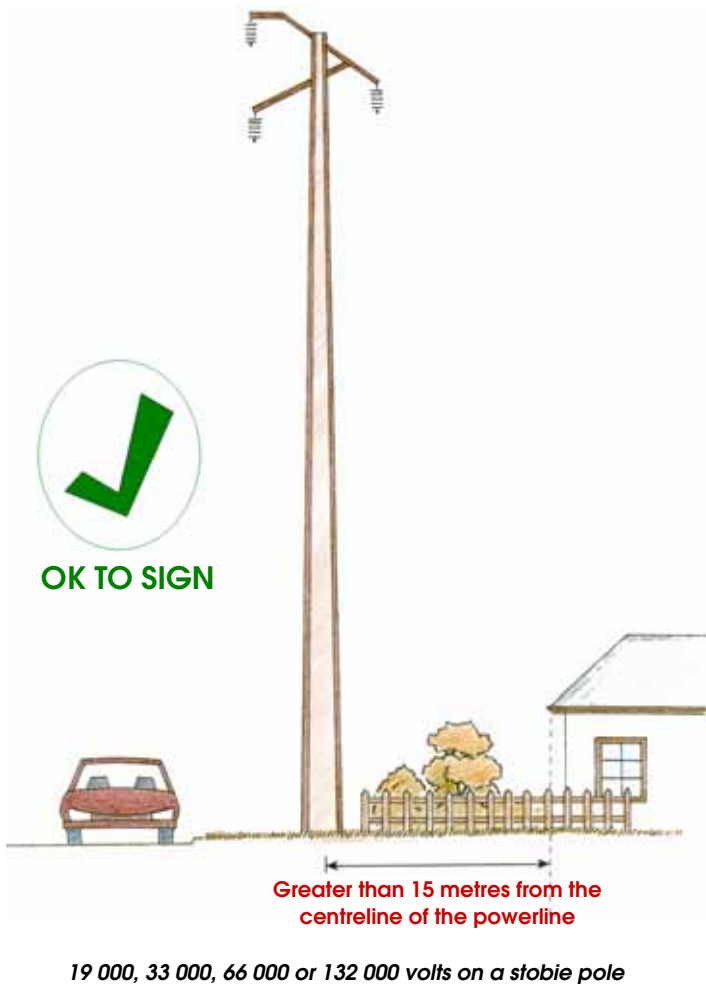
Overhead Powerlines

The minimum safe clearance between powerlines and buildings depends on the voltage of the powerline and the type of conductor. The different types of powerlines can usually be recognised from their construction, however, check with ETSA Utilities if you are not sure what the powerline voltage is. The Technical Regulator website contains a list of personnel at ETSA Utilities who can be contacted for voltage identification.



Low Voltage and 11 000 volts

Most metropolitan streets contain **only low voltage, or low voltage and 11 000 volt** powerlines. In these cases, if your development will be more than 3.1 metres horizontally away it is OK to sign the declaration form.



Transmission lines are very high voltage powerlines that carry electricity from power stations to major substations, or between major substations. These are normally seen in country areas or on the outskirts of towns.

If there are transmission towers near your proposed development and your building will be more than 25 metres away from the centreline of the powerline, then it is OK to sign the declaration form.

Underground Powerlines

If you are planning to build in an area where there are underground powerlines, you should contact **Dial Before You Dig** on telephone 1100 before starting any excavation.

It is a requirement that underground powerlines are more than 3 metres away from buildings. This does not include underground powerline lines directly supplying power to the building. Unless your building is right on the front boundary of your property or there is an electricity easement on your property, it is probably OK to sign the declaration form.

In rural areas, a SWER (single wire earth return) powerline is commonly used, and this has a voltage of 19 000 volts. Due to the long span lengths (distance between poles) of SWER lines, it is necessary to include additional clearance distances. If there is a SWER line near your proposed development and your building will be more than 15 metres away from the powerline, then it is OK to sign the declaration form.

Some higher voltage (e.g. 66 000 volts and 132 000 volts) powerlines are on very tall stobie poles—around 15 metres or higher. If you are near one of these powerlines and your building will be more than 15 metres away from the centreline of the poles, then it is OK to sign the declaration form.

For further information refer to the brochure *Building Safely Near Powerlines*, available from:

www.technicalregulator.sa.gov.au

Or call the Office of the Technical Regulator on (08) 8226 5500



Government of South Australia

Department for Transport, Energy and Infrastructure

DEVELOPMENT REGULATIONS 1993

**Declaration of Applicant
(Schedule 5 Clause 2A)**

To: *Mid Murray Council*

From: *Name*

Address

Address

Contact Telephone Number

Date of Application: / / **Development Number:**

Location of Proposed Development:

House No: **Lot No:** **Street:**

Section No (full/part): **Town/Suburb:** **Hundred:**

Hundred: **Volume:** **Folio:**

Nature of Proposed Development:

.....

I (insert name) being the applicant/a person acting on behalf of the applicant (delete the inapplicable statement) for the development described above declare that the proposed development will involve the construction of a building which would, if constructed in accordance with the plans submitted, not be contrary to the regulations prescribed for the purposes of section 86 of the *Electricity Act 1996*. I make this declaration under Clause 2A(1) of Schedule 5 of the *Development Regulations 1993*.

Date: / /

Signed:

Note 1

This declaration is only relevant to those development applications seeking authorisation for a form of development that involves the construction of a building (there is a definition of 'building' contained in Section 4(1) of the *Development Act 1993*), other than where the development is limited to –

- a) an internal alteration of a building; or
- b) an alteration to the walls of a building but not so as to alter the shape of the building.

Note 2

The requirements of Section 86 of the *Electricity Act 1996* do not apply in relation to:

- a) a fence that is less than 2.0m in height; or
- b) a service line installed specifically to supply electricity to the building or structure by the operator of the transmission or distribution network from which the electricity is being supplied.

Note3

Section 86 of the *Electricity Act 1996* refers to the erection of buildings in proximity to powerlines. The regulations under this Act prescribe minimum safe clearance distances that must be complied with.

Note 4

The majority of applications will not have any powerline issues, as normal residential setbacks often cause the building to comply with the prescribed powerline clearance distances. Buildings/renovations located far away from powerlines, for example towards the back of properties, will usually also comply.

Particular care needs to be taken where high voltage powerlines exist; where the development:

- is on a major road;
- commercial/industrial in nature; or
- built to the property boundary.

Note 5

Information brochures 'Powerline Clearance Declaration Guide' and 'Building Safely Near Powerlines' have been prepared by the Technical Regulator to assist applicants and other interested persons. Copies of these brochures are available from Council and the Office of the Technical Regulator. The brochures and other relevant information can also be found at www.technicalregulator.sa.gov.au

Note 6

In cases where applicants have obtained a written approval from the Technical Regulator to build the development specified above in its current form within the prescribed clearance distances, the applicant is able to sign the form.