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FACTsheet

Telecommunications cabling in buildings with a high voltage electrical supply

Telecommunications cabling registration requirements and standards have been developed to ensure that the installation or normal use of telecommunications cabling does not expose cabling providers, carrier personnel or customers to any dangers.

One of the areas where cablers are most at risk is working in buildings with high voltage electrical supply. This fact sheet outlines some of the safeguards that are in place to protect cablers working in buildings with a high voltage electrical supply.

Registration requirements

Telecommunications cablers must hold an **Open** cabling registration to install, connect or maintain cabling work in any area of a building where they may have access to a reticulated high voltage supply. Open registration holders are appropriately qualified in the technical requirements and safety procedures for performing cabling work in these hazardous environments.

These technical requirements and safety procedures are not covered in the mandatory requirements for **Restricted** registration holders, who are therefore prohibited from working in such areas.

The *Telecommunications Cabling Provider Rules 2000* (CPRs) place various limitations on restricted cablers. These include a prohibition on them performing cabling work where they may have access to a reticulated electrical supply that exceeds typical domestic single-phase and three-phase electrical supply voltages-nominally 240 volts ac (for single phase) or 415 volts ac (for three-phase).

The intent of this limitation is to ensure that restricted cablers do not work in areas of a site where high voltage (HV) electrical cables are accessible, such as within the confines of a substation, or in those areas where cabling from the substation provides HV to other parts of the building.

This limitation is not intended to prevent restricted cablers from working in commercial or industrial sites where the reticulated HV is totally inaccessible and identifiable to the cabler.

For example, large shopping complexes or sporting stadiums may have several HV substations operating that are linked together by underground HV cables in inaccessible locked and labelled pit and pipe systems. In these scenarios the distributed output voltages from the substations generally do not exceed three phase 415 volts ac.

Generally, restricted cabling is used to connect devices in which the customer cabling that is used terminates directly at the network boundary on a socket or network termination device. Other examples of restricted cabling work are:

- cabling work connected behind an alarm panel or modem (but not via a jumperable distributor/ frame or patch panel);
- cabling work connected directly behind a customer switching system (but not via a jumperable distributor/frame or patch panel); and
- cabling work for additional phone points (other than the first point) in a commercial, high rise or multi-storey building, if the service involved is a standard telephone service (but not via a jumperable distributor/frame or patch panel).

Technical requirements at high voltage sites

The AS/ACIF S009:2006 *Installation requirements for the customer cabling (Wiring Rules)* Australian Standard defines the technical requirements for the installation or repair of customer cabling or customer equipment. The standard identifies telecommunications hazards associated with HV electrical wiring. It sets certain rules that a cabler must follow in instances where the proposed installation is near a HV site.

Some of the important requirements are set out below:

- where a proposed installation is near a HV site, the cabling provider shall check with the power utility to determine the extent of the earth

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potential rise (EPR) hazard zone of the HV site (clause 5.1.4.2).
- where the premises are served with an electricity supply that exceeds 1,000 volts ac, the cabling provider shall check with the power utility to determine the extent of the EPR hazard zone of the HV site (clause 5.1.4.3).
- where an installation cannot be placed in a location where the EPR hazard is less than 430 volts ac, the installation shall not proceed unless on the basis of a design certified by a qualified electrical engineer as complying with the principles under the *Code of Practice for the Protection of Personnel and Equipment against EPR caused by HV Power Systems Faults* (clause 5.1.4.4).

In addition, customer equipment, distributors, network termination device enclosures, connecting hardware, earthed surge suppression devices, pits, access holes or cable joints must not be placed in a location where the EPR may exceed 430 volts ac under power fault conditions, except as part of an engineered solution as described above.

The standard also sets out requirements relating to the separation of telecommunications cables from HV cables. Under the standard:

- telecommunications cables containing electrically conductive elements that run alongside or across single-core HV cables must be separated for their entire length from the single-core cables by a distance of not less than 450 millimetres, irrespective of whether there is an interposing barrier; and
- telecommunications cables containing electrically conductive elements that run alongside or across multi-core cables must be separated for the entire length from the multi-core cables by a distance not less than 300 millimetres or a distance of not less than 150 mm where there is an interposing barrier that meets certain requirements (see clause 5.4.3.2 of the Standard).

Appropriately registered cablers should consult AS/ACIF S009:2006 *Installation requirements for the customer cabling* (Wiring Rules) and Telecommunications Cabling Provider Rules 2000 for detailed information about the technical requirements that apply in working at HV sites.

More information

For more information, telephone ACMA on (03) 9963 6800 or email ccat@acma.gov.au.

Please note: this document is intended as a guide only and should not be relied on as legal advice or regarded as a substitute for legal advice in individual cases.