

Providing a Mode 3 Socket to an Existing Installation

Technical article

The ACMA regularly receives complaints about mode 3 sockets that have been wired incorrectly.

Common mistakes made by cablers are:

- installing a mode 3 socket in carrier network cabling before the first socket, due to restrictions in the access to the first socket (eg slab floors or wall phones) and
- installing a mode 3 socket at the star wire point in carrier network cabling (eg TBA-8 block or Luca box) before the first socket. Star wiring was common in residential houses pre-deregulation when a network boundary did not exist.

If cablers cannot provide a mode socket in the manner prescribed in the diagram below (ie connected at or after the first socket), then the cabler must arrange for the carrier staff to provide the mode connection.

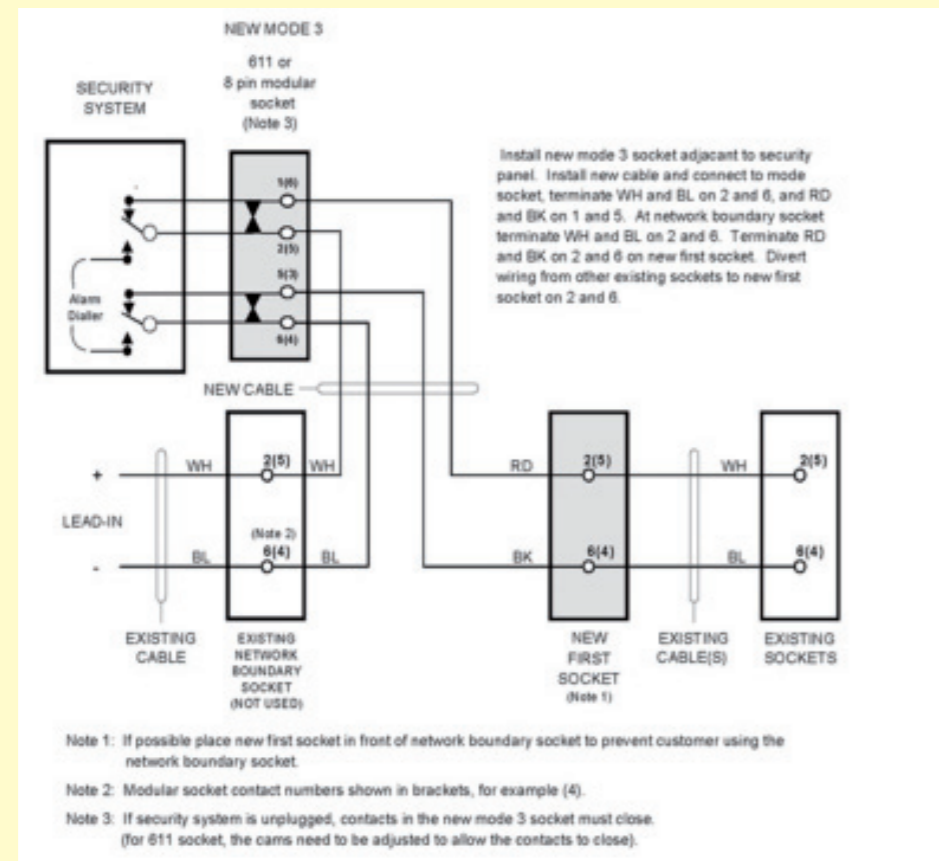
Cablers who have an Open registration may install mode sockets for security systems that connect to the telecommunications network at industrial, commercial or residential properties. Cablers with a restricted registration may install mode sockets only in residential or small commercial properties providing that they do not provide any cabling that connects to jumperable frames at or after the network boundary frame.

Note: Telstra have produced a technical specification (012882) titled Alteration of Telstra Facilities in Homes and Small Businesses which allows cablers to alter Telstra facilities including the network boundary socket, fixed wall phone or C/O key within a customers premises to meet a customers cabling requirements. Providing cablers comply with the specification it may be expedient to install mode 3 connections in other, more convenient ways than in the diagram below. The link to Telstra's

technical specification 012882 can be found on the Telstra website below:

- www.telstrasmartcommunity.com > Builders > General Specifications

To view the "Installing a Mode 3 Socket" article online please visit the ACMA website www.acma.gov.au/WEB/STANDARD/pc=PC_1460



Has your BRCA Cabling registration lapsed?

Check your registration card now! Remember, you are committing an offence if you perform cabling work that connects to the telecommunications network without a current cabling registration. You could be fined if you continue to perform cabling work after your cabling registration has expired.

Has your cabling registration expired? Many cablers allow their cabling registration to lapse for months or even years, but are unsure how to get a new registration. Sometimes this is due to personal circumstances (illness, overseas, change of address, or domestic problems). Sometimes it's because of a job change out of the cabling industry, and the registration wasn't needed anymore. Sometimes it just gets forgotten. Regardless of the reason, the good news is that you don't have to start from scratch to get your cabling registration valid again.

How do I get my cabling registration valid again?

Contact BRCA on 1800 306 444 or email info@brca.com.au

Standards

BICSI is proud to release **BICSI 002-2010, Data Center Design and Implementation Best Practices**

The demand for data centers has been a constant for many years. With the push for greater capacity, increased efficiency and higher levels of utilisation, data centers have become more complex to design and bring on-line. Due to this, today's data center designer is often required to have knowledge in a mechanical, electrical and telecommunications systems—areas not typically found in the same reference manuals or standards.

BICSI 002 addresses this need. Collected within its pages are requirements, recommendations and additional information that should be considered when working with site selection, thermal systems, and security. Additionally, this standard provides references to other documents and standards effecting data centers, aiding the designer, owner or operator in understanding specific requirements and recommendations.

If you require any further information or would like to purchase the BICSI 002-2010 Standard please email the BRCA office info@brca.com.au

In other Standards news **The Institute of Electrical and Electronics Engineers' IEEE 802.3ba** standard was ratified at their board meeting June 2010. This Standard represents a major advancement in these emerging technologies, and is the first specification that supports both 100 GbE and 40 GbE throughout speeds over fibre-optic cables for telecom carriers and enterprise data centres.

With Internet traffic volumes expected to grow by nearly 50 percent every year, carriers and data centres are already preparing for next-generation 100 Gbps and 40 Gbps Ethernet technologies to support the surging demand for broadband applications and content. As global enterprise requirements continue to evolve, the volumes of data needing to be transmitted and stored will continue to grow exponentially. According to analyst firm IDC, storage growth is continuing at a compound annual growth rate of more than 35 percent and a recent Cisco Systems study predicts overall annual data traffic growth of 46 percent – a six-fold growth in traffic between 2007 and 2012.

The new technologies as a result of the standard are expected to lead to the development of new data centre ecosystems, including a common network interface, servers and other gear, to help providers more effectively and efficiently meet the demands.

Frequently Asked Questions:

What happened to AUSTEL/ACA cabling licenses?

The ACMA (formerly ACA and AUSTEL) regulates communications cabling. Cabler Provider Rules (CPRs) replaced the previous cabler licensing system with a new industry managed registration system. Individual ACA/AUSTEL licenses have now been replaced with Cabling Registrations under the new arrangements.

What are the requirements for registration under CPRs (Cabler Provider Rules)?

All registered cablers are required to undertake appropriate training modules to ensure that they are competent to perform the cabling work according to the Wiring Rules, which ensure safety to consumers, cablers and the network.

What work can I do under each registration type?

Under the registration system there are three types of registrations available – Open, Restricted and Lift. You should obtain the type of registration that is most relevant for the work that you wish to perform.

If you wish to work in both commercial and domestic premises you will require an **Open registration**. However, if you only want to work in domestic premises you will require a Restricted registration. The **Lift** registration type is for installing and maintaining communications cables in lifts only.

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So Many Cables, So Little Space

The sheer quantity of telecommunications cabling and associated equipment in buildings is cluttering systems, jeopardising safety and leaving facility managers with few clear solutions. JEFF SALTON investigates this widespread and potentially devastating problem.

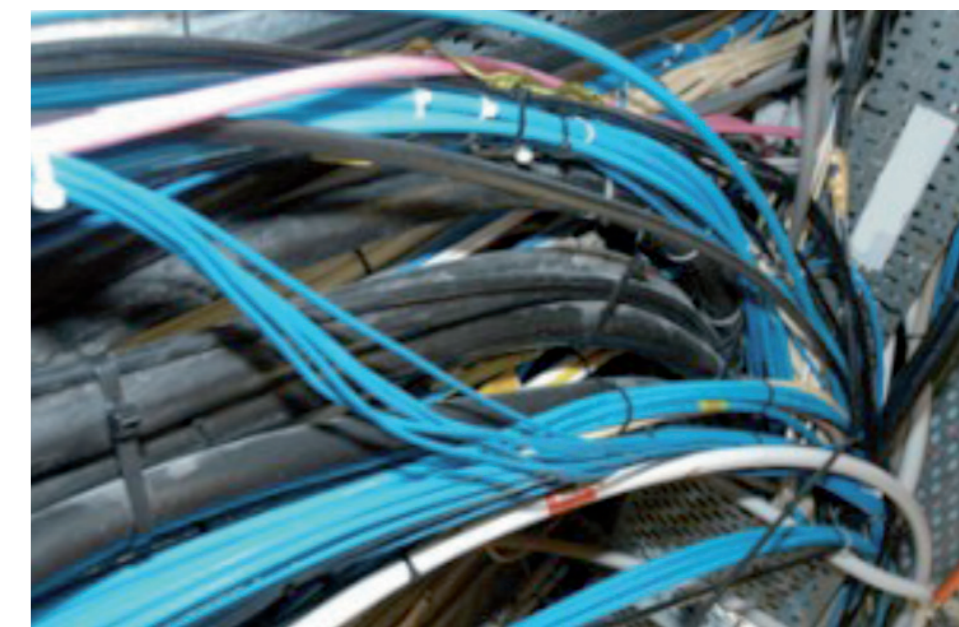
Telecommunications infrastructure within buildings is growing exponentially as new carriers emerge on the landscape and customers add more services or change service providers (churn) regularly for reasons such as offers of higher bandwidth, lower fees, bundling deals etc.

Normally, when dealing with services like power or HVAC, the facility manager has control over who provides that service – the manager has chosen which contractors he prefers based on their skills, knowledge, helpfulness, turnaround times etc. If they don't please him, he doesn't use them again.

But it would appear that carriers or telcos' contractors can come and go as they please, citing Schedule 3 (low-impact facility provisions) of the Telecommunications Act 1997 (Cth) (Telecommunications Act) as their right to enter a building to install their choice of telecommunications equipment for purposes connected with the supply of a service.

If your building's tenants order a telecommunications service, that's basically what they get – whether the facility manager likes it or not.

But where do facility managers stand when their buildings' risers have become messy or, worse, clogged with kilometres of cables – in use and redundant –



and every convenient centimetre of wall and floor space in their basements now houses all forms of telecommunications equipment?

Can they refuse to accept the next telecommunications proposal and contractor that bangs on the door and, if that's denied, the inevitable contact with the

Telecommunications Industry Ombudsman (TIO) for its determination, which most times works in favour of the telco, even if it further compromises the building?

"Not exactly," says industry expert and former telecommunications manager Bob Reid from Reid-Net, who has a communications engineering background.

"If your building's communications risers are choked with cables and your horizontal cable trays resemble a nest of snakes – and I've seen plenty of them – then you can't wait another day before taking action to correct the problem. But it's not easy," he warns.

"Be prepared for a long fight. Typically, the carriers will wave Schedule 3 in front of you and say they have the right to install a new comms service. If you refuse (because you're trying to sort out the existing mess) they'll likely ring their client (your tenant) and blame the building manager (you) for not letting them do their job,

Facility managers and telcos

In surveys conducted by Bob Reid from Reid-Net Pty Ltd telecommunications seminars for building managers in Victoria:

- 96 percent of attendees were concerned about the installation of facilities or cabling
- 66 percent had issues with MDF and IDF jumper records (poor record-keeping)
- 54 percent had issues with telecommunications contractors
- 41 percent had issues with the rooftop telecommunications installations and management
- 86 percent complained of poor use of cable trays
- fire-stopping was a concern of 64 percent of attendees
- additional facilities, i.e. racks, cabinets, etc, worried 48 percent of managers
- 70 percent had issues with legal costs for challenging the telcos
- 49 percent were bothered by excessive delays with site agreements
- 63 percent thought their building's safety had been compromised
- 70 percent said negotiating building access agreements was cause for concern, and
- 47 percent of managers were worried about the impact on tenants

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identifying you as the bad guy just for insisting that work be done properly, while trying to maintain the rights of the building owners to operate their property in a quality manner and in compliance with the OHS codes required of them.

"But after, say, 10 to 20 years of managing a building that began well from new, now there's a stockpile of cables and equipment that is clogging the building's arteries and taking up valuable, revenue-generating tele-housing, car parking and general storage space – and still the telcos are coming to install even more infrastructure because they have the right to enter the building to provide a service. It's time to call 'enough is enough'," says Reid.

CLEAN UP THE MESS

What can building managers do about cables and equipment that are not being installed properly? How do you get the telcos to clean up their mess or remove redundant cables and equipment before installing new gear?

"Well, unfortunately, there's no statutory requirement for telcos to remove redundant cables or other facilities under Schedule 3, as it is deemed customer cabling, which is where most of the problems lie," says Reid. "So it's up to the facility manager to insist that before any new work commences, the old equipment is removed – even if it's just one cable at a time – and to ensure the new cable and facilities are installed correctly, something that most managers are ill-equipped to do as most are not trained in telecom practices and need informed advisory services."

Under the Telecommunications Code of Practice 1997 (Cth) (Telecommunications Code of Practice), Reid says carriers are supposed to use 'industry best practice' to install their telecommunications infrastructure.



This is not regulated by the Australian Communications and Media Authority (ACMA), the relevant regulatory body, to the extent that the majority of cables are installed on the carrier side of the network boundary as carrier network facilities, owned but installed by the carrier under Schedule 3 in order to deliver the final service connection. The Telecommunications Cabling Provider Rules 2000 (Cth) (Cabling Provider Rules) administered by ACMA only apply to customer cabling, which is installed on the customer side of the network boundary. Is this confusing to you? Don't be alarmed, as not many understand this confusing state of affairs, which has operated in Australia since deregulation of the telecommunications industry.

"Best practice, from my understanding, has largely been determined by the industry," Reid explains. "And if everyone's doing poor work, based on my observations, then that would appear to be best industry practice. Indeed, it appears the industry seldom, if ever, reviews its work to ensure quality of its installed network – if it works it is OK".

"There are some very good installers who take pride in their work, but due to the legacy of poor industry practices they're between a rock and a hard place too. If the building's cabling infrastructure is already in a mess, they can't fix it. If installers (subcontractors) try to follow the Cabling Provider Rules, but struggle to connect the service and tell the carrier that the job can't be done, then my guess is they'll find someone else who is willing to do it because that has a direct impact on the telco's revenue stream.

"If you have a look at typical examples of extremely overburdened cable trays, you'll see that the guy who comes to remove or replace a cable that's in the middle or bottom of one of these trays would find it impossible to do so. He has little choice other than to just add to the problem by running another cable (or two or three) based on his work order from the carrier."

Reid says rarely is older equipment removed unless the carriers are put under pressure to do so. Contractors are sent on a mission to install new equipment, not remove the old, as it's not on their work order. There's no money in old equipment.

"If you consider taking a carrier to court to remedy poor workmanship, they have legal people on staff, unlike most property owners, and due to high legal costs I am not aware of any precedent forcing a clean-up, because no one's ever been taken to court to my knowledge."

TRAINING SHORTCOMINGS

Reid says much of the problem lies in the lack of telco staff who are trained in quality facility implementation management and, therefore, don't have much understanding of the problems they're creating. Also, they are not dealing with the day-to-day issues of facility managers and therefore, it appears, there is little, if any, sympathy for these kinds of ongoing issues.

Bemused, Reid says you may not get much joy from the TIO, either. "If a building manager keeps refusing to deal with a telco, for any one of many reasons, then the telco can take the case to the TIO for adjudication, but in most cases the TIO will make a determination that the telco has a right to enter that building and install its equipment based on a narrow interpretation of the provisions of the Telecommunications Code of Practice," says Reid. "The TIO appears not to look at the specifics, just interprets the Telecommunications Code of Practice as written."

CANNIBALS

Reid says a common problem in a lot of larger buildings is the telco coming into the facility only to find a small mainframe room and practically no suitable area for their equipment. The telco then seeks to use (cannibalise) every spare bit of space they can find, whether it's a rentable car parking space, the cleaner's room or a storage facility. . . they don't seem to care. And why should they, given their apparent rights of access that no other Australian industry enjoys?

"And once there's one rack on a wall in a new area, the next telco just lines up another one next to it, and so on, because under the Telecommunications Act telcos aren't required to use each other's facilities, though they have the right to do so in specified circumstances under Schedule 1, but that right is generally not exercised on the basis that such sharing is not considered feasible when installing facilities under Schedule 3.

"This is a major part of the problem," says Reid. "There's little if any facility sharing among the telcos on the Customer Access Network edge of their networks. With so many carriers, particularly in the larger commercial buildings, it's easy to see how things can get out of hand so quickly, unlike when tightly controlled MDF copper distribution technologies were used to provide the end service connection."

Now every new provider needs its own hardware from where they choose to run a customer service connection cable once they have their distribution network inside the building. Five main providers equates to a minimum of five panels/boxes/racks, most of which are often nowhere near fully utilised in many cases. Not that this would be understood by the building owners, as this information is not available to them unless requested, and even then it may not be particularly helpful if the carrier's records are not up to the mark.

Reid believes most of the building riser congestion problems could be avoided if carriers shared a lot more of their resources, as they do outside in the streets where they readily rely on their rights under Schedule 1 of the Telecommunications Acts to use each other's facilities.

COMPENSATION

Reid says building owners are entitled to compensation from telcos for using their premises to house their facilities.

"But there is very little realistic compensation for building owners and rarely does compensation offered meet the building owner's expectations and mitigate some of their costs due to the practices and requirements of the industry.

"I've seen buildings where the façade has been compromised with a mobile antenna," Reid notes. "The owners should be entitled to compensation under the Telecommunications Act, but what is appropriate compensation when a building has its 'look' compromised?"

A more common request for compensation comes about when a telco's equipment rack is erected in a commercial area: e.g. a car parking spot in the building basement. What was once a revenue-generating space is now taken up or compromised in some way with telecommunications gear.

"When queried, the telco may say, 'Too bad, that's the only place it can go' and if building owners/managers seek compensation they have few, if any, rights. Indeed, the carrier may say, 'We'll give you a peppercorn (\$1 per year) rent for that spot as we are adding value to your building', but the leasing opportunity of, say, \$12,000 per annum may be forfeited well into the future. Negotiation may increase the offer, but if you're still not satisfied you need to go to court for a determination – a right under Schedule 3 – to do battle with their legal

staff for an unlikely outcome and further potential loss for a facility that will earn the telco ongoing revenue. "Under Schedule 3, compensation can only be awarded after the event," says Reid.

Apart from compensation, he says the carriers should be held accountable for any repairs needed to the building after an installation.

"Many times in buildings I've managed and consulted to, I've seen fire ratings between floors compromised by cabling, and the telcos don't automatically come back to fix it. It's the building manager's job to run around after them, ensuring the fire ratings etc, are kept according to Australian Standards, often at their cost unless they push back."

If the facility manager isn't on top of their game, and is unsure about who last worked in a certain space in the building, then the cost of the restoration works is borne by the building owner, who does not wish to run the risk of fires or other hazards. If the property is inspected by a risk assessor, the risk profile of the building may be assessed as high, which increases its insurance liabilities. It is the same with the old jumper wiring on the Main Frames (MDFs), as the telco staff don't remove unused jumpers; they are left for the building owner staff to remove at their own cost. The state of some MDFs is amazing.

Solutions

Reid suggests the following actions can help facility managers take back or keep control of telecommunications infrastructure within their buildings:

- keep good records of which carrier owns what equipment inside the building and note any issues of quality that need attention
- don't allow any cabling in without prior consent and have a good understanding of their proposed works
- seek adequate compensation for facilities that consume property space outside the original allocation (timing is important in respect to the provisions of the Telecommunications Code of Practice, along with some understanding of Schedule 1 and the ACMA complaints process)
- check completed work with contractors before they leave the premises or soon after to ensure the building hasn't been compromised
- have any poor workmanship remedied immediately
- where there is any uncertainty, seek professional advice about proposed works and your legal rights when dealing with carriers
- seek resolutions in the most cost-effective ways, and
- remind carriers that you wish to work as partners, not adversaries.



Making workers work – Common Law stand-down

A common complaint of many employers is that one of their workers refuses to do a specific task. They ask: "What should I do?" Their questions are usually directed at the disciplinary process and what is a reasonable reaction. Employers forget the immediate tool they have in their arsenal – simply advise the worker: "I am directing you to leave work until such time as you are willing and able to perform all aspects of your work. You will not be paid for this time away from work!"

That should focus the mind!

In the case of Coal & Allied Mining Services v MacPherson (12 July 2010), MacPherson advised Coal & Allied (CAMS), that he would be leaving work early for personal reasons, but would not disclose the reasons. The Mine Maintenance Manager directed him off-site without pay.

The majority judgement held that: "Unless an employer waives the usual requirement of a contract of employment that an employee perform the full range of the work properly assigned to him or unless the award under which the employee works makes a contrary provision, payment of wages is conditional upon performance by the employee of the full range of work assigned or, at least, a readiness and willingness to do so.

"It cannot be right that an employer should be compelled to pay something for nothing whether he dismisses or retains a worker. In a contract of employment wages and work go together. The employer pays for work and the worker works his wages. If the employer declines to pay, the worker need not work. If the worker declines to work, the employer need not pay. In an action by a worker to recover his pay he must allege and be ready to prove that he worked or was willing to work."

The case is good reading for those who enjoy the rational development of common sense. This is the wash-up for businesses:

1. Where a worker refuses to undertake a part of their work, an employer can direct them to cease work and leave the site until they are ready and willing to perform all work.
2. During the period the worker has been direct to not work – the employer can lawfully refuse to pay them.
3. If you permit the worker to continue on different or altered duties – you have to pay the worker their full wage.

"Just remember, even if the building is in a mess, it's not too late to implement good practices," Reid advises. "Seek a meeting with the telcos individually and explain your building's requirements (from now). This may be difficult from experience, but be persistent – the reward is a quality building and in the end good respectful relationships with the telcos and their contractors.

"Seek a quality resolution from each one. Get an agreement in writing about what you will provide to the carriers and how they will conduct themselves inside your building.

"You'll achieve a lot more by having a good working relationship with the carriers and their contractors. Respect goes both ways. Sure, they should respect you and the building you manage, but managers need to respect the carriers' role in providing a timely service to tenants.

"Overall, a well-run building, internally, will provide communications installers with a much better working environment and cost carriers less in labour, so remind them that it's in their interests, financially, to help you keep accurate records about cables and infrastructure in your building."

"This article first appeared in the Aug-Sep 10 issue of 'Facility Management' and has been reproduced with their permission

Network Boundary distributor installations

Technical article

Non-compliance for Main Distribution Frame (MDF) installations can be categorised as follows:

- not providing or completing distributor records
- not providing appropriate markings on verticals
- locating the distributor in a prohibited area (EPR zone)
- locating the distributor in an unsuitable location e.g. dusty, damp, poor lighting, inadequate accessibility
- not mounting the distributor according to height requirements and
- not providing secure fastenings for the distributor.

It should be noted that these non-compliances represent the main problems encountered with MDFs, however, they are not the only problems found.

The following information, describes how to overcome the non-compliance categories.

No records

Typically, a record book is used to maintain the record of an MDF. However, there are some computer based systems currently available. Whatever the system used it shall comply with the following performance requirements:

- Where cross-connections are made by means of jumpers, the cabling provider shall supply sufficient information (records) pertaining to the cabling work performed to enable cables and cross-connections to be correctly identified and connected.
- Records shall be legible and updateable.
- The records shall include details of any customer cabling that runs outside the boundaries of the premises.
- Terminations and cross-connections used for lines providing power feeding exceeding SELV shall be clearly identified in the records and by appropriate labelling or marking of the MDF connection modules.

Verticals not marked

Typically, verticals shall be marked alphabetically. However the markings are placed on the MDF, they shall comply with the following performance requirements:

- The MDF shall be clearly marked as follows:
- The vertical columns of jumperable terminations ('verticals') shall be alphabetically designated, from left to right, omitting the letters 'I' and 'O'.
- The range of jumperable terminations within each vertical shall be indicated numerically in ascending order from the lowest module position unless clearly labelled otherwise, starting from numeral 1.
- Partially equipped MDFs should be marked so as to allow expansion without the need to redesignate verticals or renumber existing terminations.

Prohibited or unsuitable location

There are a number of areas in which it is unsuitable or unsafe to install an MDF. The locations are as follows:

- The MDF shall not be installed in the following locations:
 - a. In ablation or toilet facilities, boiler/plant/machine rooms, in areas subject to corrosive fumes or fluids.
 - b. Fire escape stairways.
 - c. Near automatic sprinklers, unless the MDF is provided with a shield to prevent water falling on it or all sprinkler heads which could project water on to the MDF are provided with suitable deflectors, or all sprinkler heads are of the dry type.

- Within a cupboard containing a fire hose reel.
- Indoor MDFs shall be installed in a position free from ingress of dust and moisture and not subject to damp and/or humid conditions.

- An MDF shall not be installed within any damp situation such as:
 - o Locations containing baths, showers or other fixed water containers.
 - o Swimming pools, paddling pools and spa pools or tubs.
 - o Locations containing sauna heaters – within the room or enclosure containing the sauna heater.
 - o Refrigeration rooms – within the refrigeration room.

- MDFs installed in a position exposed to the weather shall have a minimum degree of protection of IPX3.
- MDFs shall be provided with adequate lighting.

- Adequate space shall be provided around the MDF where persons are to pass to enable safe and

convenient access to the MDF and ready escape from the vicinity under emergency conditions.

Incorrect height (mounting position)

To provide sufficient access for working safely, reduce the likelihood of service outages and prevent mechanical damage from devices (cleaners etc) moved along floors the MDF shall be suitably positioned.

- The highest terminal or socket of a wall-mounted MDF shall not be greater than 1800 mm above finished ground or floor level.
- The lowest terminal or socket of an outdoor or indoor MDF shall not be less than 350 mm above finished ground or floor level.

Incorrectly fastened

To provide a safe working environment, reduce the likelihood of service outages and prevent injury to those working near an MDF, the MDF shall be suitably fastened.

- The MDF shall be securely attached to a permanent building element such as a wall, floor or column. The proposed location of the MDF should be discussed with the carrier prior to installation.

This article provides a guide and is not intended to supply the reader with all the information required to correctly install an MDF. For the complete details refer to the Wiring Rules AS/ACIF S009: 2006 see resource box on right.

To view the "Network Boundary Distributor Installations" article online please visit the ACMA website www.acma.gov.au/WEB/STANDARD/pc=PC_1462

