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Introduction: The Digital Building Access Guideline

Foreword

The objective and purpose of this document is to provide information and guidance to building owners/managers to assist them in facilitating and managing the arrangements for access to buildings for multiple telecommunications carriers, carriage service providers and other service providers that are involved in the provision of telecommunications services to tenants located in a given building. This document also provides information that is relevant to tenants.

The focus of this guideline is on:

- Multi-tenant buildings
- Commercial and residential buildings
- Buildings located in the City of Melbourne
- Facilitation of building access carriers and carriage service providers to provide telecommunications services to tenants in that particular building
- Facilitation of provision of broadband services in a given building by multiple carriers and carriage service providers
- Providing information to tenants in regard to the way in which multiple carriers and carriage service providers can provide broadband services in a given building
- Encouragement of an environment in the City of Melbourne where there is multiple suppliers, extensive competition and high take-up of broadband telecommunications services to buildings

In this environment of deregulation of the telecommunications industry, there has been growth in the number of carriers and carriage service providers and in the development of telecommunications services and broadband services. This has led to a number of issues that have emerged for building owners/managers, carriers, carriage service providers and tenants in the area of building access.

Key issues include:

- Building access is being sought by multiple carriers and service providers to service tenants

- There is limited availability of space and limitations in building services sought for telecommunications facilities in many buildings
- End-to-end connectivity with customers is sought by carriers and carriage service providers
- Multiple technology and infrastructure types require accommodation and building services for telecommunications systems and other communications systems
- There is inadequate documentation and co-ordination of telecommunications and other communications infrastructure in some buildings
- The complexity of the telecommunications regulatory environment in regard to rights and responsibilities of carriers, carriage service providers, buildings owners/managers and tenants in regard to building access.

Glossary

ACA Australian Communications Authority

ACIF Australian Communications Industry Forum

Australian Standards refers to documents produced by Standards Australia.

Carrier the holder of a telecommunications carrier license granted under the Telecommunications Act 1997. There are around 80 licensed carriers in Australia.

high bandwidth or broadband a general term used to describe transmission at bandwidths higher than four Mbits/sec (e.g.: high-speed data and video services). It should be noted that some lower bandwidth services, and called broadband, such as ADSL operate at speeds less than 2 Mbit/s

Scope and Purpose

The purpose of this document is to provide information and general guidance to building owners/managers. It is recommended that building/owners managers refer to the relevant reference material, legislation, industry codes and guidelines, industry bodies and seek specialist advice if they judge that it is required in areas of building services, telecommunications services, telecommunications regulatory aspects and other relevant disciplines in the application of this guideline to a specific building.

It is also highlighted that information provided in reference sources is subject to change and telecommunications regulatory arrangements are subject to change and that building owners/managers should not rely on the currency of information provided in this guideline.

The information and scope of this guideline is grouped into the following areas in the document:

- Spatial Access and Design (Principle 1)
- Diversity (Principle 2)
- Building Services (Principle 3)
- Terms of Access (Principle 4)
- Access Management Issues (Principle 5)
- Telecommunications Regulatory Principles
- Proposed Building Access Terms (Appendix D)

This guideline recognises that specific legislative rights and obligations exist for telecommunications carriers and seeks to integrate these into the approach suggested for building owners/managers in facilitating provision of telecommunications services to tenants.

The guideline also recognises that the industry body ACIF (Australian Communications Industry Forum) is planning to issue an ACIF Guideline Building Access Operations and Installation (DR G571) covering the area of procedures and processes for building access. City of Melbourne supports the ACIF initiative and supports building owners/managers, carriers and carriage service providers adopting the procedures and processes proposed by ACIF. This guideline is intended to co-exist with the proposed ACIF Guideline and to complement the ACIF Guideline by providing a document with focus on information and guidance for building owners/managers in the area of building spaces and

services that are required to facilitate multiple carrier/service provider access to a given building.

Although the focus of this guideline is facilitation of telecommunications services the document recognises that building owners/managers are operating in an environment where in many cases the building spaces and building services sought by carriers and carriage service providers are also required by other communications systems. These other communications systems include building management systems and communications systems operated by tenants or other suppliers on behalf of tenants. However, this guideline is not intended to provide information and advice to building owners/managers or tenants in regard to spatial or building service requirements of these other communications systems.

The guideline also recognises that providers of radio (wireless) based systems and services may seek access to a building for the purposes of serving tenants within that building, for serving customers located outside that building or a combination of the both.

This guideline addresses the requirements of radio based systems provided to service building tenants, however, the scope of this guideline does not include the provision of information and guidance in regard to building spaces and building services that may be sought by providers of radio based systems that are designed primarily to service customers that are not located in the building where access is sought.

Digital River

Digital River was commenced in July 2000 by the Committee for Melbourne, City of Melbourne, Docklands Authority and the Property Council of Australia (Vic). During the subsequent 12 months, the Building Commission joined the founders and, at a later date both Digital Harbour and Versitec Consulting also joined the Digital River roundtable. Digital River was directed at identifying initiatives to address current market barriers to, and create widespread public awareness and acceptance of, broadband. Digital River recognised that Melbourne's and ultimately Victoria's economic future will be enhanced by making Melbourne and Victoria a more attractive investment target for locating and developing Business.

The Digital Building Telecommunications Access Guideline is one of Digital River's initiatives and the City of Melbourne has been proud to lead this project. Multimedia Victoria has provided significant funding

support to the City of Melbourne for the launch and implementation of the guideline project recognising that the project has several aspects that are consistent with the State Government of Victoria's multimedia policies and initiatives.

The Process

During the last five years the telecommunications industry in Australia has undergone extensive change.

At the time of writing this guideline, approximately 80 licensed carriers existed in Australia, with many seeking to provide telecommunications services to commercial and residential tenants in buildings.

The Digital Building Telecommunications Access Guideline was developed in consultation with the market including carriers, building owners, agents and telecommunication advisers to identify existing issues and potential solutions.

Market information was then coupled with research into best practice and a review of Australian Standards and legislation.

This document is not intended to be a legally enforceable document, however it resides within a regulated environment. The principles and guidelines outlined in the DBTAG are made in consideration of market feedback and are intended for use as complementary documents to the relevant regulations and legislation.

More information and comments

To make comment on this guideline or to seek further information please contact:
ecodev@melbourne.vic.gov.au

Consultants and Advisors

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Principle 1: Spatial Access and Design

“Building space should be able to accommodate multiple independent telecommunications facilities ”

Objective: To encourage a competitive market within city buildings for telecommunications carriers and service providers that will result in availability of high capacity telecommunications services from multiple carriers. The provision of suitable minimum accommodation and building services will give more carriers and carriage service providers the opportunity to provide services to a building, ensuring that service access is not limited to services from one carrier to a given building.

Current key issues include:

- Limited availability of space for telecommunications facilities in buildings
- Multiple-carrier building access being sought by carriers and service providers to service tenants
- End-to-end connectivity with customers
- Multiple technology and infrastructure types requiring accommodation and building services for telecommunications systems and other communications systems
- Inadequate management and identification of telecommunications and other communications infrastructure in some buildings

A number of facilities are required in a building to ensure that telecommunications services, other communications services and broadcasting services can be adequately provided for.

This guideline suggests that except where permitted by Standards and Codes, the building accommodation and building services that are the subject of this document should be used exclusively for telecommunications, other communications and cable broadcasting services and include:

- Telecommunications service entrance facilities, lead-in ducts and building entry points
- Entrance rooms or space
- Equipment rooms
- Backbone pathways or riser shafts.
- Building distributor or MDF

Glossary

Access—giving access to a building includes access to all areas required for installation and maintenance of telecommunications facilities. This may include Equipment Rooms, Entrance Rooms, riser shafts and horizontal pathways as defined.

Access hole—an underground chamber constructed on the street side cable route to give access to jointing or feeding of new services and for maintenance.

Building Entry Point. (BEP) — a point at which a line that is used to provide a carriage service to an end-user in a building meets the outer surface of that building, immediately before entering the building.
AS/ACIF S009: 2001 4.2.2

Building management—for this document means any person or body that controls the building. Includes building owner, building manager, leasing agent, body corporate, etc.

Campus—refers to a local network arrangement, servicing a number of buildings, rather than just a single building. Examples of these include universities and many hospitals.

Carriage service provider (CARRIAGE SERVICE PROVIDERS)—is a supplier of carriage services using network units owned by carriers.

Entrance Room—this room is often the first room in the building in which the conduits from the access-hole appear. This room or space may contain network interface devices and telecommunications equipment. .

Equipment Room—a centralised room for telecommunications facilities. It may house equipment such as switches, computing equipment, video switches for serving the tenants

- Floor distributor
- Horizontal pathways
- Telecommunications outlets
- Lead-in cabling

- Building backbone cable
- Horizontal cable
- Telecommunications closets
- Telecommunications equipment/facilities

1.1 Introduction

This document is intended as a guideline to building owners and managers. The actual size, specifications and structural design of all accommodation and building services provided for telecommunications facilities and other communications facilities should be referred to professional telecommunications advisers, building design specialists, carriers and tenants as appropriate and should adhere to relevant Australian Standards and Building Codes.

1.2 Communications Network Architectures

The building's accommodation of entrance room, equipment rooms and communications pathways should aim to be able to accommodate several different types of network architectures.

Multiple Network Architectures

The communication network architectures in a multiple storey building include those for telecommunications carriers and service providers, building management and control systems, tenant computer and communications systems and other related systems.

The technology architectures in use for delivery of telecommunications carrier and carriage service providers services within buildings include:

- Telephone cabling in vertical and horizontal pathways
- Special purpose copper cabling in vertical and horizontal pathways for delivery of high bandwidth services
- Optical fibre cabling in vertical and horizontal pathways for delivery of wide bandwidth services
- Coaxial cable in vertical and horizontal pathways for delivery of Pay TV, high-speed Internet and telephony services

Glossary

Horizontal pathways— are horizontal cable paths. These refer generally to pathways for distribution cabling from telecommunications closet(s) and/or riser shaft(s) to cable outlets. These include ceiling space systems, under floor systems and skirting duct systems.

MOCS— Melbourne One Call Service (Dial before you Dig).

Riser shaft—is a vertical pathway for backbone distribution cables within a building. It is a physical vertical pathway between floors of a building. Riser shaft types through floors include rectangular slots and circular holes. The riser shafts are typically filled with fireproof material to prevent them from becoming between floor pathways for fire.

Telecommunications— the carriage of communications by means of guided and/or unguided electromagnetic energy

Telecommunications Service Entrance—the point at which telecommunications pathways enter or leave a building.

Telecommunications Closet [TC]—this houses equipment and cable terminations for horizontal wiring for each floor. Other names include *communications closet, floor distribution point, wiring closet*.

- Specialised antenna cables in vertical pathways for provision of mobile telephone and other radio-based services
- Electronic equipment located in entrance room(s), equipment room(s), telecommunications closets and tenancy areas
- Copper and optic fibre cables entering the building
- External antenna systems for connection of carriage services to the building. External antenna systems may also be associated with provision of Carriage Services to customers not located within the building

Other communications architectures are also in use within buildings including:

- Multipair data cabling in vertical and horizontal pathways for LAN systems, other computing systems, security systems, control systems, video systems etc.

- Coaxial and fibre-optic cables in vertical and horizontal pathways for LAN systems, other computing systems, security systems, control systems, video systems etc.

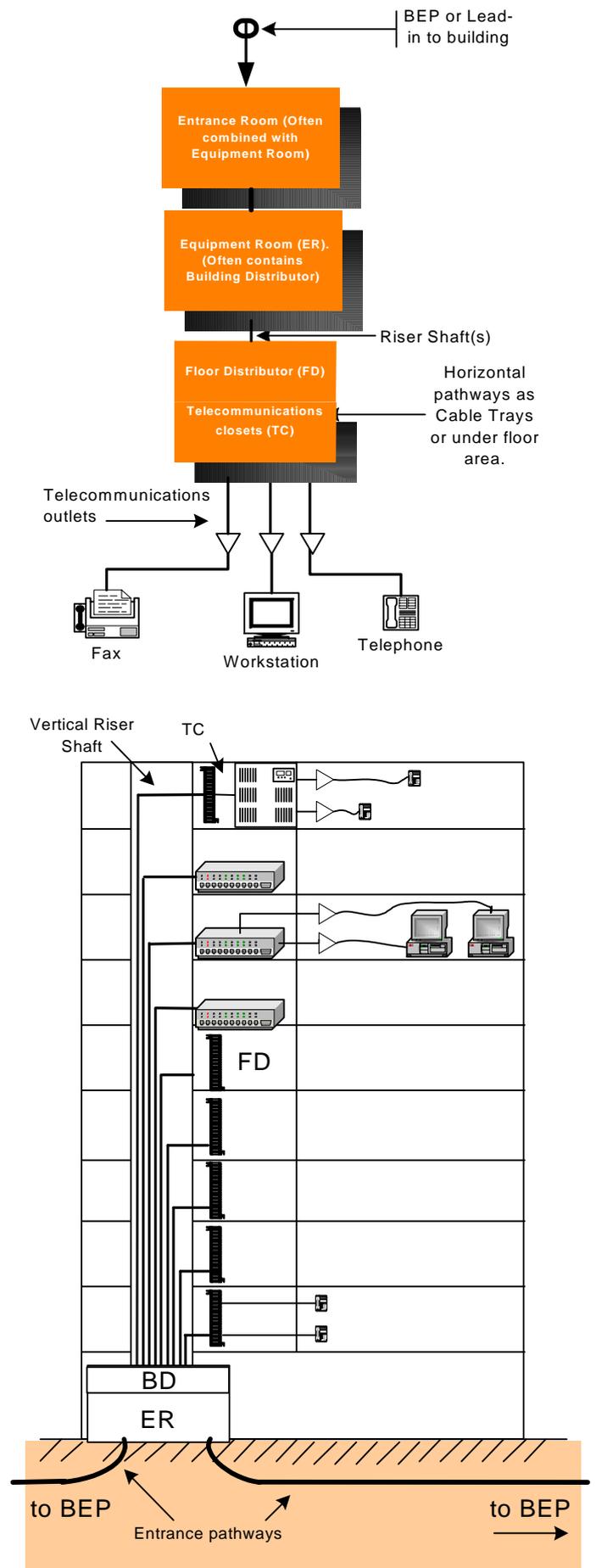
In addition, some buildings also have communications systems that are not specifically related to servicing the building's occupants. These include:

- Mobile telephone, mobile data, link radio and mobile radio systems which have cabling in vertical pathways for connection of these systems to a carriers' network
- Television and radio broadcasting systems which have cabling in vertical pathways for connection of these systems to a carriers' network
- Other systems such as weather monitors, environmental monitoring, video surveillance, which have cabling in vertical pathways for connection of these systems to a carriers' network

In-building Common Use Telecommunications Infrastructure.

Building owners typically provide a range of accommodation and building services in buildings to facilitate the provision of telecommunications services to tenants, to accommodate tenant communications systems and to accommodate other communications systems. This accommodation and services typically includes building entry points, entrance room(s), equipment room(s), vertical pathways, horizontal pathways, primary power, telephone backbone cabling (in some cases) back-up power (in some cases), lighting, HVAC and other building services. These facilities are typically provided on a common use basis with carriers, carriage service providers, tenants, building owner/manager and other suppliers sharing these infrastructure facilities. In cases where the carriers or carriage service providers proposed installations result in additional expenditure, carriers, carriage service providers and other service providers may fund specific works and/or upgrades of the facilities (such as additional electrical distribution circuits and circuit breakers, additional air-conditioning, additional cabling, back-up power systems, access control systems etc.) to meet the requirements of their specific systems. Carriers, carriage service providers, other service providers and tenants in many cases establish agreements in relation to use of common-use infrastructure.

In the specific case of vertical backbone cabling, building owners typically provide backbone telephone cabling in vertical pathways in multi-storey buildings and in some cases inter-building telephone cabling in a multi-building environment.



This is done to facilitate tenants being connected to telecommunications carrier services without the need for disruptive and time-consuming provision of new telephone cables for each building tenant.

Typically, these backbone cables are provided and owned by the building owner and made available for use by tenants and carriers.

In some cases, building owners may also provide optical fibre cables in vertical pathways and between buildings.

However, due to the diverse range of architectures used by telecommunications carriers, in most cases in a multi-storey building, carriers will still need to install additional equipment and cabling to deliver the full range of telecommunications services to tenants.

These carrier systems of additional equipment and cabling require access and accommodation, including telecommunications service entrance, entrance room(s), equipment rooms, telecommunications closets, vertical and horizontal pathways.

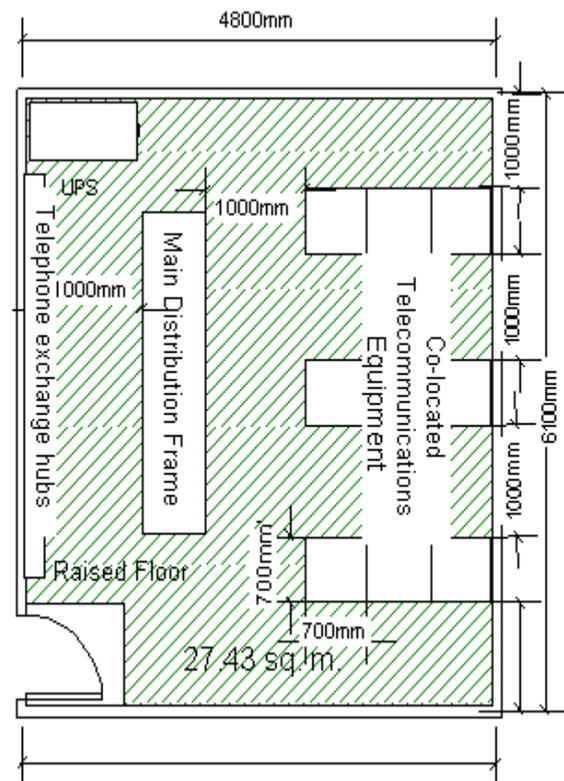
In accordance with the telecommunications regulatory requirements or as part of a commercial arrangement, telecommunications carrier infrastructure provided in buildings may be used by other carriers and carriage service providers.

Equipment and Cabling requirements

This document does not contain specific advice on the type of communications equipment and cabling that should be installed into a building as this is the responsibility of carriers, carriage service providers, other service providers and tenants other than in the case of the building owner/manager providing common use infrastructure. Issues relating to choosing the most suitable communications equipment and cabling, especially in the case where a common-use infrastructure is provided, should be referred to a telecommunications advisor and building services advisor (where appropriate) and planned in consultation with carriers where appropriate.

1.3 Telecommunications Service Entrance

To provide telecommunications services and cable-based broadcasting services to a building, lead-in ducts need to be laid below pavement level from an access hole outside the property boundary that contains cables



An example of an ER

from an underground street system, to the building's entry point.

In accordance with appropriate Australian Standards and best practice, building management should meet spatial and structural requirements for all relevant building entrance facilities and contact relevant local authorities and MOCS (Dial before you Dig) for information on existing conditions.

Any location where a lead-in duct enters the building is defined in this document as the Building Entry Point (BEP). In some cases for diversity two or more building entry points are provided to a building. It is also noted that in some cases a carrier may use a radio-based system with antennas mounted on the building to provide the primary or secondary building entry point to a building.

Entrance Pathways and Entrance Rooms

In the current environment of multiple carriers and changing technology architectures (eg extensive use of fibre optic cable) the identification of the appropriate sizing of entrance pathways and entrance rooms is not straightforward. In many cases building owners/managers are operating in a situation where the disruption and costs of providing additional facilities are significant.

Building management should obtain advice from telecommunication advisers and tenants and liaise with carriers to agree on a suitable location, type, size and number of entrance pathways to meet their cabling requirements.

The following issues should be considered in the consideration of entrance pathways and entrance rooms:

- Carriers have certain obligations in relation to co-locating facilities and co-operating with others. See section 5.6 of this Guideline for further details
- Multiple entrance pathways may be sought by carriers and tenants to provide diversity of connections to a given building. In these cases multiple entrance rooms and equipment rooms are highly desirable to maximise the degree of diversity that is provided
- The entrance room is required to accommodate the building distributor (building MDF) cable frames, which is typically either wall, mounted or located in freestanding frames/racks
- In many cases the entrance room and equipment room are collocated
- Information on the spatial design of underground lead-in ducts and entrance facilities is given in AS 3084-1993 s.7.3 and s.7.4 and AS/ACIF S009:2001 s.5.5
- Additional information is provided in Appendix B, *"Typical Spatial Requirements for Telecommunications Facilities"*

It is noted that in the case of large-scale multi-unit apartment complexes or campus-style commercial arrangements, where underground networks may be required to link up all the buildings within the development, provision may also need to be made for a campus distributor and an alternate inter-building backbone pathway. Alternatively, separate lead-in ducts along the perimeter of the estate for connecting an individual building may be provided.



The size of the ER will depend on the tenable area of the building



Positioning of an ER under water pipes should be avoided

1.4 Equipment Room

In the current environment of multiple carriers and changing technology architectures (eg many carriers seeking accommodation, extensive use of optic fibre cable systems and reduction in physical dimensions of

equipment) the identification of the appropriate sizing of equipment rooms is not straightforward. In many cases building owners/managers are operating in a situation where the disruption and costs of providing additional facilities are significant. For a building to facilitate provision of multiple carrier systems and services, management will need to provide one or more dedicated equipment rooms with enough suitable space to house carrier communications equipment and in some cases equipment associated with tenants and/or associated suppliers. Provision for the equipment accommodation for a minimum of four carriers is suggested.

The room should house only telecommunications equipment or related compatible equipment.

It is desirable that access to the equipment room be available on a 24 hour, 7 days a week basis.

Refer to Appendix B for suggested dimensions of equipment rooms to accommodate a minimum of four carriers.

General considerations in regard to equipment room requirements are as follows:

- Carriers have certain obligations in relation to collocating facilities and co-operating with others. See section 5.6 of this Guideline for further details
- Multiple equipment rooms may be sought by carriers and tenants to facilitate increased diversity of connections to a given building
- In many cases the entrance room and equipment room are collocated. In these cases the room will be required to accommodate the building distributor (building MDF) cable frames, which is typically, either wall mounted or located in freestanding frames/racks
- The room should be located above the building's lowest basement level and be resistant to flood damage
- The room should be easily accessible to the carriers
- The room should have pathways to the vertical pathway(s), campus pathways and the entrance room (if separate) as well as the lead-in ducts if no entrance room is provided
- No water pipes, sewage pipes, water drainage, water sprinklers, high voltage power supply cables or power transformers shall be installed within the equipment room

- The equipment room should be protected against water infiltration and if there is a risk, then a floor drain must be provided
- No air ducts, except for ducts that provide service to the equipment room, should be installed or routed through the equipment room
- There should be no openings in the room except for the door, the ventilation ducts and cabling ducts. All windows, if any, must be shut and sealed. If necessary, window coverings and security grilles should be provided. Penetrations, openings and doors must adhere to suitable fire resistance levels where applicable. (Also see Principle 3.3 Fire protection)
- The room should not be located where it is exposed to vibration due to vehicles or machinery
- There must be sufficient lighting provided in the room. in accordance with AS 3084-1993 s. 6.2.3.8
- A dedicated electrical power supply should be provided to the room. The power supply should be connected to an essential supply generator if provided
- The temperature and humidity range for the room should be between 18°C and 24°C with 30% to 55% humidity as per AS 3084-1993 s.6.2.3.6.2
- The floor, walls and ceiling should be painted in light colours to assist in the room illumination and to minimise dust generation

A suitable layout of an equipment room should most importantly take into account the following:

- The potential quantity and volume of equipment to be used by multiple carriers
- The expected frequency of accessing equipment racks for maintenance purposes
- Security and access arrangement for access to/from the equipment room to external parking for the transport of equipment
- Ensure that room for future expansion is allowed wherever possible

For further information refer to AS3084 – 1993 s.6

1.5 Backbone Pathways or Riser Shafts

In the current environment of multiple carriers and changing technology architectures (e.g. many carriers seeking accommodation, extensive use of optic fibre cable systems and reduction in physical dimensions of equipment) the identification of the appropriate sizing of riser shafts is not straightforward. In many cases building owners/managers are operating in a situation where the disruption and costs of providing additional facilities are significant.

Riser shafts provide a vertical passage for telecommunications services to be distributed to each floor. Therefore, it is important that carriers are provided adequate cabling space and access in riser shafts so they can provide an effective service within the building.

Riser shafts are also used for cabling associated with other communications services including:

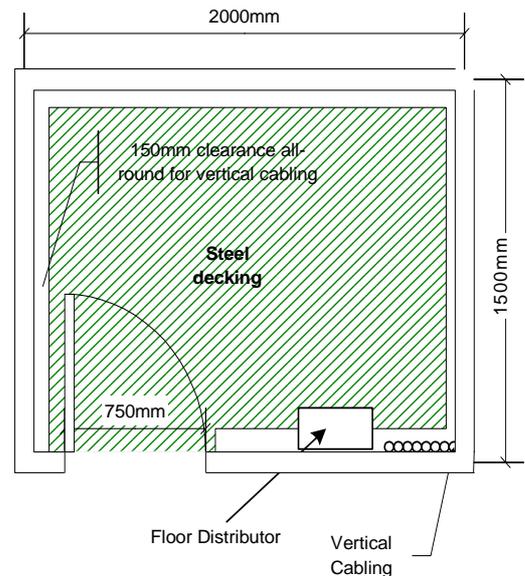
- Backbone cabling for tenant telephone systems
- Pay TV cabling
- Antenna cables (e.g. mobile telephone systems)
- Tenant LAN/WAN systems
- Security and surveillance systems

Riser shaft penetrations between floors are often accessible at each floor of a multiple storey building at a riser shaft cupboard that also accommodates a telecommunications closet.

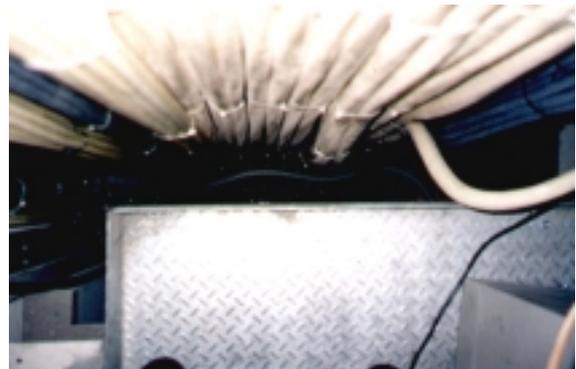
In accordance with appropriate Australian Standards and best practice, building management should provide adequate spatial, structural and access requirements for dedicated telecommunication riser shafts or backbone pathways. If the network architecture is not known, spatial provision for a minimum of four carriers is recommended. Refer to Appendix B for suggested minimum riser shaft (between floor penetration) dimensions to accommodate a minimum of four carriers.

For further information refer to AS 3084-1993, 3.2.2. To obtain maximum utility from the riser shafts, they should ideally be placed through a common part of the building and central to the distribution area in which they are to serve.

To ensure the proper fixing of cables, the accommodation associated with riser shafts should be fitted with appropriate cable fixing devices. (eg: steel cable racks, perforated cable trays, etc.) These devices will be fixed along the entire length of the vertical pathway from the entrance or equipment room to the top



Typical vertical riser shaft design



Provision for access to cabling must be provided within the riser shaft

of the building and should only be installed on the permanent structure of the building to avoid difficulties with future rearrangements of partition walls. Vertical pathway fixings used will depend on the type and quantity of cables to be installed. All cabling fixed in the building should conform to current cabling standards.

To provide flexibility of cable runs and to improve reliability of telecommunication services, provision of more than one riser shaft is highly desirable in buildings with large floor areas.

For firestopping through riser shafts etc. refer to AS 3084-1993 s.3.2.2.3

Access to riser shafts

Access to each riser shaft will be necessary on each floor and should always be from a corridor or common area to avoid disturbance to tenants. Access is best provided by a hinged-door of standard height to give reasonable access to the cables.

1.6 Telecommunications Closets (TC)

In the current environment of multiple carriers and changing technology architectures (eg many carriers seeking accommodation, extensive use of optic fibre cable systems and reduction in physical dimensions of equipment) the identification of the appropriate sizing of telecommunications closets is not straightforward. In many cases building owners/managers are operating in a situation where the disruption and costs of providing additional facilities are significant

The telecommunications closet (TC) contains telecommunications equipment, cable terminations for the horizontal wiring and the cross-connection wiring to the backbone cabling. In some cases the TC is also used to accommodate equipment associated with tenant systems and other systems. As a general guideline, the size and spacing of telecommunications closets should be in accordance with AS 3084-1993 s.5.2 however, depending on the requirements to facilitate multiple carriers and to accommodate tenant systems, additional accommodation may be required.

Typically, in large buildings, the Telecommunications Closet is located on the services core(s) and the riser shaft floor penetrations are located within the same accommodation area as the Telecommunications Closet.

In general, the following requirements should be met:

- Ideally, at least one telecommunications closet with adequate access should be provided on each floor. As a general guide, as per AS3084-1993 5.2.2.1, each Telecommunications Closet should serve a maximum floor area of 1500m². Should any cable run exceed 90 metres in length then a further Telecommunications Closet is required. The 90-metre distance limit is particularly relevant where the horizontal cabling system is an integrated telephone and data system

- Adequate provision to accommodate a minimum of four carriers is suggested
- There should be a rigid wall that is capable of supporting the equipment
- Telecommunications closets must be located away from water pipes and fire hydrants



Sufficient access should be provided into riser shafts

1.7 Horizontal Pathways

Horizontal pathways allow the installation of telecommunications cabling from each telecommunications closet to the tenant area in an office or apartment. The pathways may be in conduit, cable tray and ducts, ceiling or perimeter, infloor or under floor access. In some cases the use of catenaries may be employed. Horizontal pathways are typically inherent in the building design and hence are managed by the building owner/manager and the tenant, however in some cases parts of the horizontal pathways are provided by the tenant by means such as partitioning ducting.

In all cases, the pathway should be designed to accommodate all types of telecommunications cable, other distribution cables and also have spare capacity to allow for expansion. It is noted that although the industry practice is for use of integrated voice and data horizontal cabling systems (eg Category 5 cabling) that in many cases there are still separate telephone and data cabling systems in many tenancy areas due to historical installations and/or use of certain computer systems which have specific cabling systems.

In general, building management and tenants should provide horizontal distribution pathways with spatial design in accordance with AS 3084-1993 Section 2. However, it is highlighted that the requirements will be specific to particular tenant requirements for computer system and telephone system internal cabling in addition to telecommunications services.

Building management should liaise with telecommunications advisors, building services advisors, existing and prospective tenants to ensure that the most appropriate horizontal pathways are used for the planned network architecture.

Methods of distribution

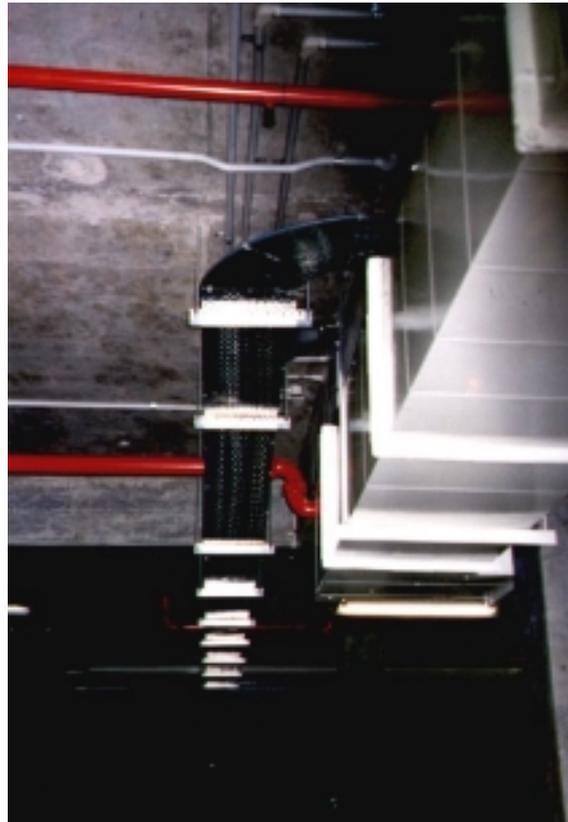
To service the building tenant work areas, building management should provide one or more of the following horizontal distribution methods:

Infloor

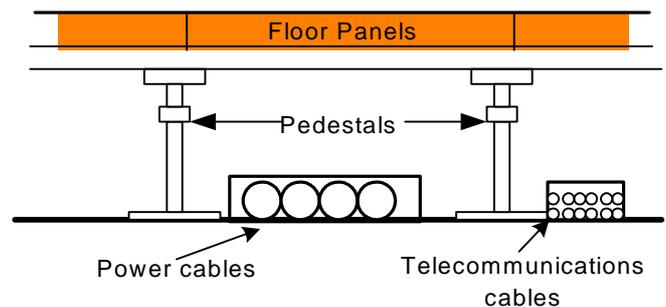
There are several types of infloor ducting; some are incorporated in the concrete when the building is being constructed. Others, such as freestanding duct, are not embedded in the concrete. Refer to AS3084-1993 s2.2.1.3 for the design information.

Access floor

This requires the construction of a floor, from floor panels supported on pedestals. Design guidelines for this type of floor are given in AS 3084-1993 s. 2.3



A cable tray attached to ceiling



If ducts not used, separation between cables is required for EMI prevention.

Typical underfloor cabling

Conduit

This may be constructed from rigid metal or PVC. This method is mainly used where the telecommunications outlets quantities are low in density and their positions are likely to be permanent. For design information refer to AS 3084-1993 s. 2.4.

Ceiling Pathway

Ceiling spaces may be used for the provision of pathways for telecommunications cables. Generally this requires the provision of ducting or troughing, such as cable trays. The cables must not be laid directly on the ceiling tiles.

Should the ceiling space be inaccessible, such as behind fixed ceiling tiles, or plaster, these spaces should not be used for a pathway unless a duct or conduit with draw wire is provided.

Access to the pathway is through the ceiling where the tiles must be of the removable or lay-in type. Refer to AS 3084-1993 s. 2.6.

Perimeter Pathways

These pathways are often located as a skirting duct. AS 3084-1993 s. 2.7 discusses in detail the types and the general design guidelines for this type of pathway.

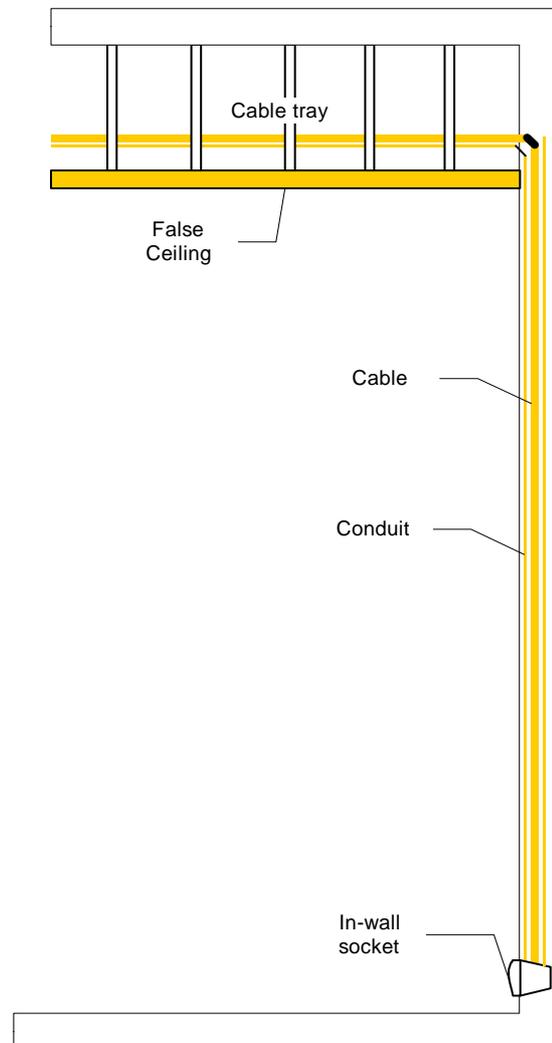
A highly detailed description regarding pathways may be found by referring to Section 3 of the Communications Cabling Handbook, Module 2, HB 29:2000.

Residential Premise

The horizontal pathway requirements of multiple dwelling residential premises will in general need to be specifically developed for the particular building to take into account aesthetic requirements and specific plans such as provision of outlets for telephone, Pay TV, free to air TV and computer systems. Typically in the case of residential apartments, where integrated wiring is employed, telecommunications wiring is brought into the apartment from the floor distributor (FD) where it is connected to a disconnection test point (DTP). This enables tests to be undertaken for both, in the direction of the network and in the direction of the tenant's equipment. After the DTP there is a distribution device (DD) from whence cabling in a star configuration goes to each telecommunications outlet. In some cases, particularly where there is existing cabling, the point between the network and the customer may be at the building distributor.

If the building is wired using an integrated cabling system, a detailed description of the wiring, pathways and installation requirements is described in AS 3086:1996.

Building management should liaise with telecommunications advisors and building services advisors to ensure that the most appropriate horizontal pathways are used for the planned network architecture.



Cable distribution through a false ceiling

1.8 Radio (Wireless) Facilities Provision

Providers of radio (wireless) based systems and services may seek access to a building for the purposes of serving tenants within that building, for serving customers located outside that building or a combination of the both.

The purpose of this guideline is assist building owners/managers in facilitating the access of multiple telecommunications carriers and service providers to provide high capacity services to building tenants.

For the cases of organisations seeking building access for the purpose of providing services to their own customers in general rather than solely for provision of services to tenants of the building (eg mobile radio base station facility, mobile telephone base station facility) a range of issues in regard to accommodation and building services arise, plus issues in regard to rights of access for carriers. Building owners/managers should seek professional advice from telecommunications advisors, building services advisors, carriers and other advisors in regard to these facilities. It is noted that these facilities may have requirements for use of inbuilding common-use infrastructure such as riser shafts, equipment rooms and building services.

For the case of carriers seeking building access for radio based facilities to provide services to tenants, building owners/managers should apply the general principles of this guideline in regard to provision spaces and building services.

In-building requirements

The nature and design of carrier radio based systems for provision of services to building tenants range widely from very small external antennas and small internal equipment to relatively large antenna systems and requirements for equipment racks.

The arrangements need to be dealt with on a case-by-case basis with the carrier, for access to rooftop equipment accommodation and mounting locations for antennas.

Carrier requirements for access to vertical riser shafts, the telecommunications equipment room and building services such as power should be made in a manner that is consistent with the principles for carriers' access to these facilities that are outlined in other sections of this guideline.

Building owners/managers should take into account a number of additional items in making arrangements for



Radio Communications on rooftop

carriers to provide radio-based systems to service building tenants including:

- Carriers should be responsible to ensure that external equipment including antennae and cables meet appropriate structural and wind load requirements and to demonstrate this to building owners
- The ACA has regulatory powers in regard to protection of health and safety of persons exposed to non-ionising Electro Magnetic Radiation (EMR). The ACA does not have regulatory powers in relation to ionising radiation such as X-rays
- The ACA has been instrumental in a process of development and consultation in relation to EMR limits in the communications industry (including the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) and the Australian Communications Industry Forum (ACIF)). The ACA has requested public comment in regard to the ACA proposal to adopt the EMR limits set by the ARPANSA standard "Radiation Protection Standard Maximum Exposure Levels to Radiofrequency Fields – 3kHz to 300 GHz" which was issued in May 2002
- It is anticipated that this process will result in changes to the current interim standards and responsibilities in regard to EMR for manufacturers/importers/agents, distributors and resellers, and operators and users of equipment that generates EMR
- It is also noted that ACIF published in April 2002 the Industry Code ACIF C564: 2002 Deployment of Radiocommunications Infrastructure, which is understood to be intended to complement the ARPANSA standard. As at July 2002 this Code is

under consideration by the ACA for registration as an industry code

- Carriers should agree to remove the radio-based facilities and make good in the event that the facility is no longer in use to provide service to building tenants
- Please refer to section 3.1 for further information on EMR aspects of radio installations

1.9 Standards and references

To keep abreast of developments in industry, these Standards and references from the ACA, Standards Australia and ACIF are periodically amended or new editions are published. It is therefore important that readers refer to these organisations to ensure that they are in possession of the current document.

The following standards, references and codes, incorporated in the Standards Australia document, "Communications Cabling Manual", are relevant to this principle:

AS3084-1993

Telecommunications Pathways and Spaces for Commercial Buildings

ACA TS 008-1997

Requirements for Authorised Cabling Products

AS/ACIF S009:2001

Installation Requirements for Customer Cabling (Wiring Rules)

AS HB 29:2000

Communications Cabling Handbook

AS/NZS 3080: 2000

Telecommunications Installations - Integrated Telecommunications cabling systems for commercial premises

The following are relevant standards /regulations/codes.

ACCC Facilities Access Code 1999

A code of access to telecommunications transmission towers, sites of towers and underground facilities

DR ACIF: G571 : April 2001

Building Access Operations and Installation

Note that this reference is in draft form

ACIF C564:2002

Deployment of Radiocommunications Infrastructure

ARPANSA . Radiation Protection Standard – Maximum Exposure levels to Radiofrequency fields. May 2002

AS 1170

Minimum design loads on structures

AS 1530

Methods for fire tests on building materials, components and structures

AS/NZS 2053

Conduits and fittings for electrical installations

AS 2118

Automatic fire sprinkler systems

AS2772.2-1998

Radiofrequency radiation - Principles and methods of measurement – 300kHz – 100 GHz

Building Act 1993

Building Regulations 1994

Building Code of Australia 1996

City of Melbourne Local Laws

Telecommunications Act 1997

Telecommunications Code of Practice 1997

Principle 2: Diversity

"Provision of spatially diverse telecommunications connections to a building "

Objective: This principle addresses the issue of diversity or redundancy in the telecommunications services to a building and the associated requirements for diversity in building spaces and building services that may be sought by carriers, carriage service providers and tenants. It aims to outline requirements for a building in order to facilitate provision of the highest possible level of telecommunications service reliability. Typically this is achieved through the provision of a minimum of two building entry points so that carriers can provide connections to the public network via two geographically diverse routes.

This guideline is intended to provide guidance to building owners/managers in regard to potential requirements of tenants and carriers/carriage service providers for building spaces and building services to facilitate the provision of diverse telecommunications services. The requirement for diversity in telecommunications connection to a building will vary with the requirements of individual tenants and the size of a building. The requirement is however, increasingly important for communications intensive tenants.

The provision of full diversity of a telecommunications service to a tenant is a complex design process that is ultimately the responsibility of carriers and carrier customers to determine. However, the provision of diverse telecommunications services to a given building will typically generate requirements for building spaces and building services which support the diverse service provision. The potential requirements may include diverse Building Entry Points, diverse Entrance Rooms and/or Equipment Rooms, diverse vertical riser shafts, diverse horizontal pathways and back-up to primary power.

The provision of diversity in building spaces and services to facilitate diversity in telecommunications services to a building should be carried out in consultation with tenants, carriers and carriage service providers where feasible.

Building space and building service diversity issues should also be referred to a professional telecommunications adviser and building services advisor.

Glossary

Alternate Entrance—a supplementary service entrance facility into a building using a different routing to provide diversity of service and assurance of service continuity. AS3084-1993, S.1.4.4

Building Entry Point (BEP) —a point at which a line that is used to provide a carriage service to an end-user in a building meets the outer surface of that building, immediately before entering the building. AS/ACIF S009: 2001 4.2.2

Spatial or geographical diversity— the use of two independent facilities that do not have elements located on the same route or same accommodation. This minimises the risk of all services being lost through damage.

2.1 Building Entry Point (BEP)

The requirement for provision of diverse building entry points is dependent on tenant requirements, however as a guide it is suggested that as a minimum, one alternate entrance be included in new buildings or in reconditioned buildings with a lettable floor area greater than 50,000 m² where possible. (Refer to Appendix B). Where a second BEP is provided, a second entrance room (or equipment room where it is collocated) may be sought to allow for spatial diversity in the building distributor and other equipment.

It is highlighted that carriers and tenants may also seek a radio-based facility to provide diverse connection.

2.2 Equipment Room (ER)

The requirement for provision of diverse equipment rooms is dependent on tenant requirements however as guide it is suggested that a second equipment room be considered for new buildings and in reconditioned buildings with a floor area greater than 50,000 m². A possible approach in the case of existing buildings where the existing single equipment room is of insufficient size is to provide an additional equipment

room to provide diversity and additional floor space. It is noted that an alternative to diverse equipment rooms is the use of tenant floor areas and/or telecommunications closets to accommodate equipment.

In the case of residential buildings, provision for a second ER is not considered to be a key requirement for tenants. It is noted that individual tenant requirements for diversity may be provided by carriers by the use of fixed and mobile radio services.

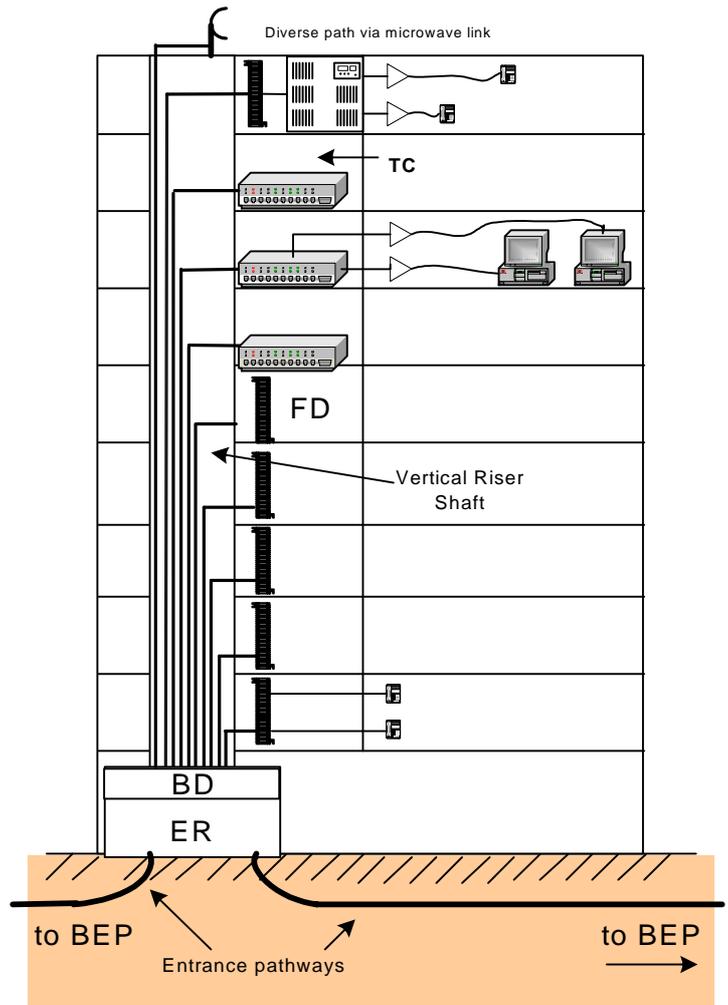
It is critical to consider a disaster recovery strategy as part of the overall diversity of the building infrastructure. For a high level of diversity when two ERs exist, one should be able to continue operating if the other is taken out of service. This means that diversity of building services such as primary power and Heating Ventilating Air Conditioning (HVAC) for the diverse Equipment Rooms will need to be considered.

2.3 Riser Shafts

The requirement for provision of diverse riser shafts is dependent on tenant requirements however as guide it is suggested that a second riser shaft be considered for new buildings and in reconditioned buildings where multiple telecommunications closets are required. A TC per 1500 m² of habitable floor area is recommended in AS 3084 s5.2.2.1. In addition it is suggested that an extra riser be provided for buildings of total floor area in multiples of 50,000 m². For residential developments and smaller commercial or reconditioned buildings, it is suggested, that where tenant requirements for diversity are identified that alternatives be considered. In these cases, building management should consider utilising an existing appropriate utility riser, separately fire-rated, as a provisional secondary communications riser. It is also noted that carriers may be able to provide diversity to individual tenants by use of fixed and mobile radio based services. It is considered that geographical diversity is more likely to be critical in commercial buildings than in residential buildings.

2.4 Radio (Wireless) services

Radio based carrier services can be used to provide BEP diversity to cable based telecommunications services.



Principle 3: Building Services

"Adequate building services to support broadband telecommunications facilities."

Objective: The objective of this principle is to ensure that building services provided are adequate to support telecommunications facilities for a minimum of four carriers.

In addition to the spatial access requirements outlined in Principle 1, the facilities that carriers and carriage service providers install in buildings to provide broadband and other telecommunications services to building tenants also typically have requirements for:

- Air-conditioning (HVAC)
- Primary power
- Fire Protection
- Lighting
- Access control and security

This section outlines the principles that are suggested as being appropriate for building owners and managers to consider in the design and provision of building services to facilitate provision of telecommunications facilities by multiple carriers.

The focus of this document is on carrier (and carriage service provider) telecommunications facilities however as highlighted in Principle 1, "Spatial Access and Design", there are number of other communications systems which may also be provided by the building owner/manager, tenants and other suppliers that may also require similar building services to those identified in this section.

Building service issues should also be referred to a professional building services and telecommunications advisors and adhere to relevant Australian Standards and Building Codes as outlined in Principle 3.8: Standards and references.

3.1 Air-conditioning (HVAC)

Telecommunications facilities for providing services to tenants are typically electronic equipment requiring a controlled environment in regard to temperature and humidity for optimum reliability and service life.

Telecommunications facilities of this type will be located in the equipment room and also may be located in the entrance room (where this is separate to the equipment

Glossary

earthing — the provision of a direct, low-impedance connection to the building earth.

electromagnetic interference (EMI) —unwanted signals or interference from an external source, such as radio transmitters, interfering with or degrading performance in another service.

electromagnetic radiation (EMR) — the radio frequency energy generated by a radio transmitter and radiated from an antenna.

HVAC—Heating Ventilation and Air Conditioning equipment.

Pathway —the spaces in which backbone or horizontal cables are installed.

room), in the riser and/or the telecommunications closet and in some cases in the tenant's floor area.



Air-conditioning units in ER area

The typical general HVAC requirements for these telecommunications facilities are:

- Air temperatures should be between 18°C and 24°C with and humidity from 30% to 55% as per AS 3084-1993 s.6.2.3.6
- It is highly desirable that separate HVAC zones covering the entrance room and equipment room(s) are provided so that settings can be made specifically for these areas and the HVAC operation is continuous and unaffected to settings of tenancy areas
- Cooling capacity in entrance room and equipment rooms sufficient to maintain temperatures required for the heat load of the equipment installed. The heat load of telecommunications facilities and other systems in these rooms needs to be assessed for each specific situation, however as a guide, the heat dissipation of each rack of telecommunications carrier facility is typically in the range of 100 watts to 250 watts. However there are some certain installations that will exceed this range
- The total number of racks that may be installed in a given room can be estimated on the basis of the direct footprint floor area of a typical rack (up to 0.5m²) and the typical occupancy ratio of an equipment room (in the order of 25% to 35% after allowance for walk areas, room doorways and access to racks). It is noted that heat loads of other systems that tenants and suppliers to tenants may seek to have accommodated may be higher than these allowances
- It is desirable that common area HVAC zones service telecommunications facilities located in risers/telecommunications closets so that settings can be made specifically for these areas and the HVAC operation is continuous and unaffected to settings of tenancy areas. Typically, facilities provided by carriers in these locations are relatively robust and specific dimensioning of HVAC cooling capacity is not required

Building owners/managers should inform carriers and other users of spaces of the capabilities of the HVAC systems provided. Carriers and other users should be responsible for ensuring that the HVAC services are appropriate for their requirements and that their facilities will not jeopardise the performance of HVAC services for other existing users. Further, if HVAC services require augmentation or upgrade as a direct result of carrier/service provider proposed installation then the carrier/user will reach agreement with the building

owner/manager on these changes. These matters should be covered in a building access agreement.

3.2 Primary Power supply

Telecommunications facilities for providing services to tenants are typically electronic equipment requiring continuous 240VAC primary power.



A power supply

Telecommunications facilities of this type will be located in the equipment room and also may be located in the entrance room (where this is separate to the equipment room), in the riser and/or the telecommunications closet and in some cases in the tenant's floor area.

Typical general primary power requirements for these telecommunications facilities -

- It is highly desirable that dedicated 240VAC circuit(s) are provided from the building main distribution board to the entrance room and equipment room(s) so that so that power is specifically for these areas and is unaffected by loads and circuit breaker operation of circuits servicing of tenancy areas

- It is highly desirable that electrical distribution boards (or sub-boards) are provided in the entrance room and equipment room(s) so that individual circuits and associated circuit breakers can be allocated to individual equipment racks (and/or major systems) so that the operation of one rack (or system), which is usually associated with one carrier or service provider, is unaffected by loads and circuit breaker operation of other racks/systems
- It is desirable that dedicated 240VAC circuit(s) are provided from the building main distribution board to a sub-board(s) which service the risers/telecommunications closets so that power is specifically for these and power is unaffected by loads and circuit breaker operation of circuits servicing tenancy areas. The number of electrical outlets required at each riser/telecommunications closet will need to be determined for each specific building, however it is suggested that a minimum of 2x 10A, 240VAC double general purpose outlets (GPOs) are provided
- The power load of telecommunications facilities and other systems in entrance room and/or equipment room(s) needs to be assessed for each specific situation, however, as a guide the power load of each rack of telecommunications facility is typically in the range of 100VA to 400VA with peak VA draw on start-ups being higher
- The total number of racks that may be installed in a given room can be estimated on the basis of the direct footprint floor area of a typical rack (up to 0.5m²) and the typical occupancy ratio of an equipment room (in the order of 25% to 35%, after allowance for walk areas, room doorways and access to racks). It is noted that power requirements of other systems that tenants and suppliers to tenants may seek to have accommodated may be higher than these allowances
- The power load of telecommunications facilities and other systems in risers/telecommunications closets needs to be assessed for each specific situation, however as a guide the power load of each closet of telecommunications facilities may range from nil VA to 250VA for each carriers facilities with peak VA draw on start-ups being higher.
- Where a building emergency primary power supply is provided it should be connected to sub-boards servicing the entrance room, equipment room(s) and risers/telecommunications closets. The arrangements for specific buildings in regard to which racks/systems are to be connected to the

emergency primary power would be subject to agreement between the building owner/Manager and the carriers and carriage service providers

- Electrical earthing is outside the scope of this guideline as this is covered in various electrical standards. There are several ways in which earthing for telecommunications purposes may be undertaken, the type used being the responsibility of the carrier/carriage service provider. A detailed technical description of the three main methods is covered in Section 5.6 of AS/ACIF S009:2001. The building owner/manager should provide access to the main building earth if required by the carrier or service provider. Should a special form of earthing be employed by a carrier or service provider, details of the earthing should be provided to the building owner/manager

The provision of back-up batteries and uninterruptible power supply (UPS) systems is typically the responsibility of individual carriers and service providers although it is noted that use of batteries may require adjustment to the HVAC system.

It is suggested that requirements for 3 Phase power for telecommunications facilities be treated on a case-by-case basis.

Arrangements for payment by carriers and carriage service providers for access to primary power and back-up power should be made and included in a building access agreement. Also any arrangements for the provision of separate metering for power should be identified and agreed.

Building owners/managers should inform carriers and other users of spaces of the capabilities of the primary power and back-up power systems provided. Carriers and other users should be responsible for ensuring that the primary power and back-up power services are appropriate for their requirements and that their facilities will not jeopardise the performance of power services for other existing users. Further, if power services require augmentation or upgrade as a direct result of carrier/carriage service provider proposed installation, then the carrier/user will reach agreement with the building owner/manager on these changes. These matters should be covered in a building access agreement.

3.3 Fire protection

Fire protection systems should be provided in the building as required under the requirements of the Building Code of Australia 1996. The level of protection depends on the Class of the building, however, if the building is greater than 25 metres in effective height, then sprinkler systems are compulsory.

Building owners/managers should include consideration of fire protection systems in the processes carried out with carriers and service providers as part of providing access to the building.

Building owners/managers should note that the provisions contained in the Building Code of Australia override any standard should a conflict of interpretation occur.

Carriers and carriage service providers will generally prefer that water sprinkler systems be not used in areas that accommodate telecommunications electronic equipment as activation of these systems damages equipment. Where sprinkler systems are fitted to these areas carriers and carriage service providers may seek that the systems are zoned such that they are only activated by fire located within the areas where telecommunications equipment is located.

If an automatic sprinkler system (water) is provided for fire protection, sprinkler heads must be fitted with wire cages in accordance with AS 3084-1993 s6.2.3.5 in order to prevent accidental operation. The equipment room, entrance room and telecommunications closets should also have non-destructive fire protection measures, such as smoke detectors and fire blankets. They will normally require passive fire separation from the rest of the building (see AS 2118). AS2444: 2001 sets out the criteria for the selection of portable fire extinguishers and specifies the requirements for their application, location and distribution.

In compliance with AS 3084-1993 s 6.2.3.12, appropriate non-destructive, portable fire extinguishers shall be provided and maintained within the equipment room as close as practicable to the entry/exit.

In compliance with AS 3084-1993 and other relevant standards any penetrations through fire rated partitions in any communications facility must meet the requirements of the Building Code of Australia.

All cabling pathways should conform to AS 4072.1-1992, Building Act 1993 and Part C3, Volume One of the Building Code of Australia along with any other relevant standards for fire protection. Any penetrations through



Wall penetrations re-instated and fire rated

fire-rated building elements should be fire sealed. Such elements include, risers, floors and firewalls.

Building owners/managers should inform carriers and other users of spaces of the capabilities of the fire warning and protection provided. Carriers and other users should be responsible for ensuring that the fire warning and protection systems are appropriate for their requirements and that their facilities will not jeopardise the fire safety of the building. Further, if fire warning and protection systems require augmentation or upgrade as a direct result of carrier/carriage service provider proposed installation, then the carrier/user will reach agreement with the building owner/manager on these changes. These matters should be covered in a building access agreement

3.4 Electromagnetic Radiation

Carriers and carriage service providers may provide facilities that generate radiofrequency electromagnetic radiation (EMR) (also sometimes called electromagnetic energy EME) as part of providing services to building tenants. These facilities may include systems such as mobile telephone inbuilding coverage systems and radio systems to provide connection to/from the building.

The area of regulation of EMR is complex and is undergoing review at the time of drafting this Guideline. Building owners/managers and tenants may have some responsibilities regarding EMR, for example in relation to occupational health and safety requirements. They should seek information and advice from the relevant Commonwealth regulatory bodies, the relevant State/Territory regulatory bodies and from relevant professional advisors in regard to any responsibilities that they may have in this area.

The ACA has regulatory powers in regard to protection of health and safety of persons exposed to non-ionising Electro Magnetic Radiation (EMR). The ACA does not have regulatory powers in relation to ionising radiation such as X-rays

The ACA has been instrumental in a process of development and consultation in relation to EMR limits in the communications industry (including the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) and the Australian Communications Industry Forum (ACIF)). The ACA has sought public comment in regard to the ACA proposal to adopt the EMR limits set by the ARPANSA standard, "Radiation Protection Standard Maximum Exposure Levels to Radiofrequency Fields – 3kHz to 300 GHz", which was issued in May 2002.

It is anticipated that this process will result in changes to the current interim standards and responsibilities in regard to EMR for manufacturers/importers/agents, distributors and resellers, and operators and users of equipment that generates EMR.

It is also noted that ACIF published in April 2002 the Industry Code ACIF C564: 2002 Deployment of Radiocommunications Infrastructure, which is understood to be intended to complement the ARPANSA standard. As at July 2002 this Code is under consideration by the ACA for Registration as an industry code.

In view of the current state of change in regard to EMR this guideline suggests that best practice for building owners/managers in regard to any new installation of radio equipment is to inform carriers and other users of spaces of any current sources of electromagnetic radiation located in the building that they are aware of. Building owners/managers should also seek information and advice from carriers/carriage service providers and other advisors if appropriate in regard to the new installation meeting the relevant prevailing regulatory requirements.

3.5 Electromagnetic Interference

Facilities provided by carriers and carriage service providers may be affected by electromagnetic interference.

Electromagnetic interference) can adversely affect the performance of some types of electronic equipment. It is

important that equipment rooms be located as far as practicable from such sources of interference. Some of the main sources of such interference are radio or radar transmitters, medical or industrial radio diathermy equipment, X-Ray equipment, and power supply transformers.

Building management should obtain telecommunications advice when determining the location of all telecommunications equipment near other sources of electromagnetic interference so that the level of any interference may be reduced to meet the requirements specified in AS 2834:1995.

Building owners/managers should inform carriers and other users of spaces of any potential sources of electromagnetic interference. Carriers and other users should be responsible for ensuring that the level of electromagnetic interference is appropriate for their requirements and that their facilities will not jeopardise the performance of services for other existing users. Further, if electromagnetic interference requires further reduction as a direct result of carrier/carriage service provider proposed installation, then the carrier/user will reach agreement with the building owner/manager on these changes. These matters should be covered in a building access agreement

3.6 Lighting

Telecommunications facilities will be located in the equipment room and also may be located in the entrance room (where this is separate to the equipment room), in the riser and/or the telecommunications closet and in some cases in the tenant's floor area.

The typical general lighting requirements for these telecommunications facilities are:

- It is highly desirable that lighting circuit(s) for the entrance room and equipment room(s) are provided so that circuits are specifically for these areas and lighting is unaffected by loads and circuit breaker operation of circuits servicing of tenancy areas. As the rooms are not staffed switching of lighting at the room is also highly desirable
- It is desirable that the lighting level in entrance room, equipment room(s) and risers/telecommunications closets meet the requirements of AS 3084 (600 lux)

- It is highly desirable that lighting circuit(s) for the risers/telecommunications closets are provided so that circuits are specifically for these areas and lighting is unaffected by loads and circuit breaker operation of circuits servicing of tenancy areas. It is also highly desirable that switching of lighting is locally located at each riser/telecommunications closet
- Where a building emergency primary power supply is provided it should be connected to lighting circuits or emergency lighting for servicing the entrance room, equipment room(s) and risers/telecommunications closets. The arrangements for specific buildings in regard to which lighting is to be connected to the emergency primary power would be subject to agreement between the building owner/Manager and the carriers and service providers)

Building owners/managers should inform carriers and other users of spaces of the capabilities of the lighting systems provided. Carriers and other users should be responsible for ensuring that the lighting and back-up lighting services are appropriate for their requirements and that their facilities will not jeopardise the performance of services for other existing users. Further, if lighting services require augmentation or upgrade as a direct result of carrier/carriage service provider proposed installation then the carrier/user will reach agreement with the building owner/manager on these changes. These matters should be covered in a building access agreement.

3.7 Access Security and Building Management

Building owners/managers are responsible for establishing the operations and management arrangements for building services, and any agreements that are made with carriers and other service providers in regard to building access. In addition to the building services addressed in the preceding sections of this guideline, carriers and other service providers will seek services in the areas of access/security systems and information services. In regard to these services building owners/managers will need to address any of the arrangements entered into for building access.

It is suggested that building management act as a central repository of information relating to all installation and maintenance work. The building management



Typical lighting level in an ER.

should also be made aware of access to shared facilities.

Access/Security

The building owner/manager and the carrier or other carriage service provider will need to establish arrangements for access to facilities provided and operated by the carriers and other service providers that provide the agreed degree of access control and security. The factors to be addressed in agreement of arrangements for access control and security should include:

- Carriers and other carriage service providers will generally be seeking access control arrangements that facilitate access to the telecommunications facilities on a 7 days a week, 24 hours a day basis to allow rapid response to fault situations. Systems to facilitate this may include keys; entry passes, parking passes and access control system cards
- Building owners/managers, tenants, carriers and other carriage service providers may seek access control system arrangements that automatically keep a record of ingress and egress activities of personnel
- Change management processes will be required for access control arrangements to deal with changes such as changes in the listing of authorised personnel, provision of access to new

groups and discontinuing access to vacating groups

- Carriers and other carriage service providers are not to change any locks, alarm codes or other security devices on access points that may be deemed in any way to be communal, without an agreement with building management. If this is the case, it is that carrier's responsibility to issue any new security device to the existing carriers and building management

upgrade, then the carrier/user will reach agreement with the building owner/manager on these changes. These matters may be covered in a building access agreement where appropriate.

Building owners/managers should inform carriers and other users of spaces of the capabilities of the access control systems provided. Carriers and other users should be responsible for ensuring that the access control arrangements are appropriate for their requirements and that their facilities will not jeopardise the access control arrangements for other existing users. Further, if access control services require augmentation or upgrade as a direct result of the carriers/carriage service providers' requirements then the carrier/user will reach agreement with the building owner/manager on these changes. These matters should be covered in a building access agreement

Information Services

Carriers and other service providers will seek information on building spaces and services to facilitate the design required to establish building access.

To maintain records, drawings and plans of spaces, services and the occupancy of these, building managers/owners will also need information provided by carriers, carriage service providers and tenants.

This guideline suggests that to facilitate timely and efficient access to building spaces and building services by carriers, carriage service providers and tenants, building owners/managers keep suitable records. In keeping such records, building owners/managers should obtain information on proposed facilities and where practicable and necessary, existing facilities, so that accurate records can be maintained. It is noted that for new installations carriers may provide information in the form of a land access notice.

Building owners/managers should inform carriers and other users of spaces and building services of the records available. Carriers and other users should be responsible for ensuring that the records available are appropriate for their requirements and that information on their facilities will be provided for update of the records. Further, if records require augmentation or

3.8 Standards & Reference

The following standards, references and codes are relevant to this principle:

ACIF C564: 2002.

Deployment of Radiocommunications Infrastructure

Building Act 1993

Building Regulations 1994

Building Code of Australia 1996

ARPANSA . Radiation Protection Standard – Maximum Exposure levels to Radiofrequency fields. May 2002.

AS 1170 and Supplements

Minimum design loads on structures

AS 1530 and Supplements

Methods for fire tests on building materials, components and structures

AS 2118 and Supplements

Automatic Fire Sprinkler Systems

City of Melbourne Local Laws

Telecommunications Act 1997

DR ACIF: C571: April 2001

Building Access Operations and Installation

AS2444: 2001

Portable fire extinguishers and fire blankets - Selection and location

AS2772.2-1998

Radiofrequency radiation - Principles and methods of measurement – 300kHz – 100 GHz

AS 2834:1995

Computer accommodation

AS/NZS 3080:2000

Telecommunications Installations - Integrated Telecommunications cabling systems for commercial premises.

AS 3084-1993.

Telecommunications installations- telecommunications pathways and spaces for commercial buildings

AS/NZS 3086:1996

Telecommunications Installations – Integrated telecommunication cabling systems for small office/home office premises.

AS4072.1 – 1992.

Components for the protection of openings in fire-resistant separating elements – service penetrations and control joints.

ACA Facilities Access Code 1999

AS62040.2: 2001

Uninterruptible Power Systems (UPS) – Electromagnetic Compatibility (EMC) requirements.

AS/ACIF S008: 2001

Requirements for Authorised Cabling Products

AS/ACIF S009: 2001

Installation Requirements for Customer Cabling (Wiring Rules)

AS HB 29:2000

Communications Cabling Handbook

Telecommunications Code of Practice 1997

Principle 4: Terms of Access

"Fair and reasonable terms of access for Carriers and Carriage service providers"

Objective: To outline building owners'/managers' and carriers'/carriage service providers' respective rights in relation to telecommunications access so that the parties can make informed decisions about the terms of access to the building, including rights to compensation, reimbursement of expenses and whether any rent or licence payments may be payable.

4.1 Regulatory provisions

Schedule 3 of the Telecommunications Act 1997, the Telecommunications (Low-Impact Facilities) Determination 1997 and the Telecommunications Code of Practice 1997 set out the statutory rights of carriers to inspect land, install low-impact facilities and maintain those facilities.

It is important to note that these regulatory provisions apply only to carriers, not carriage service providers. A carrier is not obliged to enter into an agreement with the building owner/manager and there is no automatic right to demand rent or license payments from a carrier exercising its rights under Schedule 3 of the Act.

However, typically there will be a number of matters on which the parties will need to agree. In addition, there are certain minimum regulatory requirements that must be adhered to by carriers. These are discussed in this Principle.

First, clause 42, Schedule 3 of the Act provides a right to compensation if a person suffers financial loss or damage because of anything done by a carrier in exercising its inspection, installation or maintenance powers.

However, it is important to note that the right to compensation under clause 42 is specifically limited. Essentially, it is only if a property owner or a person with an interest in that property suffers financial loss or damage because of anything done by a carrier in exercising its installation, maintenance and inspection powers that the carrier is liable to pay compensation. The issue of compensation is to be decided after a carrier has relied on its powers to access land and buildings to install low impact facilities. The amount of the compensation is to be either agreed between the carrier and building owner or, failing agreement, as determined by a Court.

Secondly, the carrier must comply with certain obligations under the Act and the Telecommunications Code of Practice. These include:

- giving notice to the owner of the land;
- causing as little detriment and inconvenience and doing as little damage as practicable;
- ensuring that the activity interferes as little as practicable with the use of the land;
- protecting the safety of persons and property;
- using best practice methods;
- complying with applicable noise level regulations;
- co-locating facilities;
- co-operating with other carriers and utilities;
- restoring the land;
- acting in accordance with good engineering practice;
- complying with conditions specified in the regulations (where applicable);
- complying with conditions specified in the Telecommunications Code of Practice;
- complying with any applicable industry codes or standards; and
- complying with conditions specified in a facility installation permit (where applicable).

If a building owner/manager is approached by an organisation wishing to install facilities in the building owner/manager's building, it is a good idea to check whether the organisation is a licensed carrier or a carriage service provider. This will help to determine whether the above regulations apply.

4.2 What about carriage service providers?

Normally it would be a carrier that seeks access to a building to install facilities. However, sometimes carriage service providers may also wish to do so.

As the land access regulations apply only to carriers, not carriage service providers, if a carriage service provider wishes to obtain access to a building, the building owner/manager may require that the parties enter into an agreement.

4.3 Terms of Access

Carriers may decide to rely on their statutory powers under Schedule 3 of the Act and not enter into an agreement with a building owner/manager for building access. However, in practice, a carrier may enter into an agreement for building access, in addition to its statutory rights.

If a building owner/manager and a carrier/carriage service provider are going to enter into an agreement, they will need to consider what types of terms the agreement will contain.

The Proposed Building Access Terms set out in Appendix D of this Guideline supplied with this document contain information and discussion on the types of terms and conditions that may be relevant to a building access agreement.

In addition, parties may wish to consider the following issues relating to payment.

(a) Payments for occupancy of the site:

- if the agreement is with a carrier, whether the carrier agrees to pay an amount for occupancy of the site (such as rent or licence payments);
- if the agreement is with a carriage service provider, the carriage service provider will typically pay rent or licence payments;
- if an amount is payable, whether there will be a periodic review of such payments and the nature of such a review; and
- an independent property agent may be of assistance where rent or licence payments are to be paid

(b) Compensation for financial loss or damage. Issues to consider include:

- clause 42, Schedule 3 to the Act;
- agreed indemnities; and
- agreed limitation of liability for direct loss and damage and for indirect/consequential loss and damage

(c) Reimbursement for expenses. The parties should consider what amounts the carrier/carriage service provider should reimburse the building owner/manager for and on what basis. Alternatively, the carrier/carriage service provider may be directly responsible for certain costs. These may include things such as:

- Primary power
- Lighting
- Heating ventilation and air conditioning
- Fire protection systems
- Security and special access arrangements
- Car parking
- Construction/development works
- De-commissioning/removal of facilities
- Site restoration

The regulations do not specify how, or to what standard, these types of items should be provided. This is a matter which the parties should sort out between themselves, acting reasonably, and taking into account any applicable standards or codes.

(d) Other considerations may influence the “value” to the carrier/carriage service provider of gaining timely access to the building, such as:

- Suitability of the building for other communications purposes;
- The number of tenants;
- The amount of space available in the building;
- Timing issues;
- Access to the building by competing carriers; and
- Determining which competing carriers take priority, for example in the case of electromagnetic interference.

Sometimes disputes or objections arise in relation to telecommunications building access.

If the dispute or objection involves access by a carrier, the Telecommunications Code of Practice sets out procedures for dealing with it. This is discussed in more detail in the section of this document headed *Regulatory Principles* in Appendix A. In this situation, the Telecommunications Industry Ombudsman has

jurisdiction for determining certain types of disputes. However, the Ombudsman does not have jurisdiction to determine disputes relating to the payment (or non-payment) of monies.

If the dispute or objection involves a carriage service provider, then the Telecommunications Code of Practice does not apply and the parties may use ordinary dispute resolution mechanisms.

4.4 Provision of external communication services

A carrier may also approach a building owner/manager for building access for the purpose of augmenting the carrier's network, rather than providing services to tenants within the building. For example, the carrier may wish to install rooftop transmission equipment. This type of building access is outside the scope of this Guideline, which is concerned with building access to multi-tenanted buildings for supplying carriage services to tenants within the building. However, it does involve many related issues (such as the application of Schedule 3 of the Act), including many of the issues dealt with in the proposed Building Access Terms set out in Appendix D of this Guideline. Building owners/managers should note, for instance, that Schedule 3 of the Act would still apply where a carrier wishes to install low-impact facilities on or outside the building. The parties should consider obtaining independent professional advice in these situations.

4.5 Standards and references

The following standards references and codes are relevant to this guideline:

Schedule 3, Telecommunications Act 1997

Telecommunications (Low Impact Facilities) Determination 1997

Telecommunications Code of Practice 1997

Principle 5: Access Management Issues

“Provide information to assist in access management.”

Objective: To provide information on effective access management that addresses a number of key issues, including:

- Providing a reference to the ACIF proposed “best practice” guidelines for carriers/Carriage service providers and building owners/managers when interacting with each other
- Requirements on carriers for co-location and co-operation in relation to building access
- Guidelines for security and access
- Recognition of the benefits of conforming to the Digital Building Telecommunications Access Guideline
- Adherence to relevant sections in the Telecommunications Code of Practice 1997, particularly those pertaining to carrier conduct

Principle 5 relates to carriers and carriage service providers. However, carrier-specific rules or standards may also apply (for example, under Schedule 3 to the Telecommunications Act 1997 and the Telecommunications Code of Practice 1997)).

5.1 Timing and notification

Access timing is a key issue for tenants. If a tenant requires telecommunications services from a new, existing or additional service provider the building owner/manager or leasing agent should facilitate this access as quickly as possible.

Clause 17, Schedule 3 of the Telecommunications Act 1997 provides that before engaging in inspection, installation or maintenance activities, a carrier must give the land owner and (if the land is occupied by a person other than the owner) the occupier, written notice of its intention to do so. The notice must specify the purpose for which the carrier intends to engage in the activity.

The timeframes for notification under the Act are set out in the *Regulatory Principles* section of this Guideline in Appendix A. However, a land owner or occupier may waive its statutory notification rights or agree alternative timeframes with the carrier.

Glossary

Making good reinstatement of disrupted infrastructure to a standard that is equal to the previous standard

Based on market feedback, it is suggested that timely access is more easily facilitated by prior accurate notification.

5.2 ACIF Guideline

As at the time of drafting this Guideline, the Australian Communications Industry Forum (“ACIF”) is developing a guideline that deals with (amongst other things) timeframes, provision of information and carriers’ and building owners/managers responsibilities when dealing with each other in relation to telecommunications building access: *Building Access Operations and Installation, ACIF DR G571*. Readers should refer to ACIF’s website: www.acif.org.au.

This Digital Building Telecommunications Access Guideline should be read in conjunction with the ACIF guideline (once it is published). To the extent that there is any inconsistency between the two guidelines, it is intended that the ACIF guideline prevail.

5.3 Conduct between building management and carriers/carriage service providers

Building management should co-operate with carriers/carriage service providers to establish appropriate management practices relating to matters such as:

- Occupational Health and Safety requirements
- Permits and times of work
- Security and access system for shared facilities
- Cable and equipment labelling policies
- Maintenance of accurate records of building telecommunications facilities and related data and telephony infrastructure

5.4 Tenant Consultation

In line with one of the key aims of this Guideline, building owners and managers should, where possible, liaise with existing and prospective tenants (both in the early stage of the building planning and during the tenancy period). This is to ensure that the spatial and geographical requirements of all telecommunications pathways, telecommunications closets, equipment room(s) and entrance room(s) are sufficient, and so tenants are aware of any new facilities that may be available within the building.

5.5 Security and Access systems

Readers should refer to Section 3.7 of this Guideline in relation to security, access and safety issues.

5.6 Co-location and co-operation

Before a carrier installs or carries out an activity for purposes in connection with the installation of low-impact facilities (including subscriber equipment), it is obliged under the Telecommunications Code of Practice 1997 to take all reasonable steps to find out whether any of the following things is available for the activity and to take all reasonable steps to use such things:

- Cabling, conduits or other facilities of the carrier or another carrier; or
- A facility of a public utility; or
- An easement attaching to the land for a public purpose

In addition, a carrier must take all reasonable steps:

- To find out whether another carrier, or a public utility, is engaging in, or proposing to engage in, a similar activity for the same land; and
- To consider whether it is practicable to work with the other carrier or the utility to allow the first carrier: (i) to cause as little detriment and inconvenience as is practicable; and (ii) to do as little damage as is practicable

These rules about co-location and co-operation are relevant to carriers' arrangements to share building entries, entrance rooms, equipment rooms and vertical and horizontal pathways. They are also intended to minimize the detriment, inconvenience and damage to building owners/managers.

5.7 Standards and references

The following standards, references and codes are relevant to this guideline:

ACIF C564: 2002.

Deployment of Radiocommunications Infrastructure

DR ACIF: G571 :

Building Access Operations and Installation

The following standard, references and codes, incorporated in the Standards Australia document, "Communications Cabling Manual", are relevant to this principle:

AS/NZS 3080: 1996

Telecommunications Installation - Integrated Telecommunications cabling systems for commercial premises

ACA TS 008-1997

Requirements for Authorised Cabling Products

AS/ACIF S009:2001

Installation Requirements for Customer Cabling (Wiring Rules)

AS HB 29:2000

Communications Cabling Handbook

The following are relevant standards /regulations/codes

A Guide to Applying to the ACA for Issue of a Certificate, (ACA)

AS 1742.3

Australian Standard Traffic for Management

Telecommunications Act 1997

Telecommunications (Low-impact Facilities) Determination 1997

Telecommunications Code of Practice 1997

City of Melbourne Local Laws

Building Act 1993

Building Regulations 1994

Building Code of Australia 1996

AS 1170 and Supplements

Minimum design loads on structures

AS 1530 and Supplements

Methods for fire tests on building materials, components and structures

AS 2118 and Supplements

Automatic Fire Sprinkler Systems

AS2772.2-1998

Radiofrequency radiation - Principles and methods of measurement – 300kHz – 100 GHz

Appendix A – Regulatory Principles

Regulatory Provisions Relating to Telecommunications Land Access

Overview

Licensed carriers have certain statutory rights and obligations under the *Telecommunications Act 1997* (Cth) (the “**Telecommunications Act**”) in relation to land access for telecommunications-related purposes.

In particular, carriers have the right to enter upon another person’s land to do the following:

- Inspect the land;
- Install facilities; and
- Maintain facilities.¹

These rights and obligations relate only to licensed carriers; they do not relate to carriage service providers or cablers.

Schedule 3 to the Telecommunications Act operates together with the Telecommunications Code of Practice 1997 made by the Minister for Communications and the Arts (the “**Code of Practice**”). Under these regulations, a carrier may exercise its right of entry upon another person’s land, for instance:

- To provide services to tenants within the building;
- To provide services to the building owner/manager;
- To maintain its facilities;
- To augment its own network (for instance, to install a radio communications transmitter on top of a building); or
- To do a combination of the above

This Guideline focuses on the provision of services to tenants within the building and the maintenance of facilities.

However, in doing so, the carrier must comply with certain obligations, for instance obligations relating to notifying the land owner of its intention to enter the land and acting in accordance with good engineering practice. In addition, building owners have limited rights to object to land access by carriers and may in some circumstances bring complaints before the Telecommunications Industry Ombudsman.

Carriers also have rights under the Telecommunications Act to obtain access to other carriers’ facilities, such as transmission towers and underground ducts.² Such rights as between carriers are an important part of the regulatory framework relating to the development of competing telecommunications networks. However, they do not directly affect the relationship between a carrier and a building owner/manager or a tenant and they are therefore outside the scope of this Guideline.

¹ See section 484 and Schedule 3 of the Telecommunications Act.

² See Schedule 1, Parts 3 and 5 of the Telecommunications Act and *A Code Of Access To Telecommunications Transmission Towers, Sites Of Towers And Underground Facilities*, ACCC October 1999.

Carriers' Powers and Immunities

Low-Impact Facilities

A carrier's statutory rights to enter another person's land apply automatically in relation to "low-impact facilities". Generally, these are facilities that have been determined as being of "low-impact" based on the type of use, geographic location and the nature of the facility.³

In-Building Subscriber Connection Equipment

One particular type of low-impact facility is "in-building subscriber connection equipment". This is defined as a facility installed within a building with the aim of managing and maintaining the supply of carriage services to a customer of a carrier.⁴ In other words, a carrier has a statutory right to enter another person's land to inspect the land and install and maintain in-building subscriber connection equipment.

Agreements between Carriers and Building Owners

A carrier and a building owner may enter into an agreement to govern each party's rights and obligations in relation to telecommunications land access. Such an agreement may include terms such as the facilities to be installed, the period of the arrangement, terms of access, security requirements and payment for access. The Proposed Building Access Terms set out in Appendix D of this Guideline set out a number of issues that the parties may wish to consider if they are to enter into an agreement. If the carrier and the building owner do not have an agreement, then Schedule 3 of the Telecommunications Act, together with the Code of Practice, set out the minimum rights and obligations of the carrier and the building owner. Some of these matters are discussed below.

Carriers' Obligations

In exercising its powers under the Telecommunications Act in relation to inspecting land, installing a facility or maintaining a facility, a carrier must comply with certain conditions, including:

- Giving notice to the owner of the land;
- Causing as little detriment and inconvenience and doing as little damage as practicable;
- Ensuring that the activity interferes as little as practicable with the use of the land;
- Protecting the safety of persons and property;
- Using best practice methods;
- Complying with applicable noise level regulations;
- Co-locating facilities;
- Co-operating with other carriers and utilities.
- Restoring the land;
- Acting in accordance with good engineering practice;
- Complying with conditions specified in the regulations (where applicable);
- Complying with conditions specified in the Telecommunications Code of Practice;
- Complying with any applicable industry codes or standards; and

³ See the *Telecommunications (Low-Impact Facilities) Determination 1997* and the *Telecommunications (Low-Impact Facilities) Determination 1997 (Amendment No. 1 of 1999)* for precise definitions of what is a low-impact facility.

⁴ See the *Telecommunications (Low-Impact Facilities) Determination 1997 (Amendment No. 1 of 1999)*.

- Complying with conditions specified in a facility installation permit (where applicable)

Notification

Clause 17, Schedule 3 to the Telecommunications Act provides that before engaging in inspection, installation or maintenance activities under the Act, a carrier must give the land owner and (if the land is occupied by a person other than the owner) the occupier written notice of its intention to do so.

The notice:

- Must be in writing
- Should specify the proposed start and finish dates of access
- Must specify the purpose for which the carrier intends to engage in the activity
- Must contain a statement about the carrier's obligation to pay compensation under clause 42, Schedule 3 to the Telecommunications Act
- Must contain details of the actions that the carrier expects to take, as part of the land entry activity, on land affected by the activity (except in circumstances in which the safety of life or property is endangered or if the owner or occupier of the land has asked the carrier to engage in it as part of the installation of a facility); and
- Must contain a statement about the objection process (except in circumstances in which the safety of life or property is endangered or if the owner or occupier of the land has asked the carrier to engage in it as part of the installation of a facility)

The notice must be given at least 10 business days before the carrier begins to engage in the activity, except:

- (a) The notice need be given only two business days before the carrier begins to engage in inspection activity that:
- Will not have an adverse effect on a streetscape or other landscape; and
 - Will not have an impact on (relevantly) a declared World Heritage property (as defined in the *Environment Protection and Biodiversity Conservation Act 1999*), a place that Australia is required to protect by the terms of a listed international agreement, or an area that, under a law of the Commonwealth, a State or a Territory, is protected from significant environmental disturbance; and
 - Will not have an impact on (relevantly) a thing that is entered in the Register of the National Estate, or the Interim List for that Register, or is registered under a law of a State or Territory relating to heritage conservation, or is of particular significance to Aboriginal persons, or Torres Strait Islanders, in accordance with their traditions;
- (b) No notice need be given if the carrier intends to engage in inspection, installation or maintenance activities and those activities need to be carried out without delay in order to protect the integrity of a telecommunications network or a facility, the health or safety of persons, the environment, property or the maintenance of an adequate level of service; and
- (c) Other exceptions to the notice requirements apply in relation to temporary defence facilities and public places, but these are not immediately relevant to this Guideline

The carrier and land owner may agree alternative notification arrangements.

The ACIF Guideline referred to further on contains examples of alternative notification arrangements.

Objections

An owner or occupier may object to a carrier exercising its inspection, installation or maintenance powers.

The objection must be given within the following timeframes:

- In the case of activities relating to the inspection of land, one business day before the activity is to commence;
- In the case of activities relating to installing low-impact facilities, five business days before the carrier proposes to engage in the activity; and
- In the case of maintenance activities, five business days before the carrier proposes to engage in the activity

The objection must be in writing and may only be made for a reason that relates to any or all of the following:

- Using the objector's land to engage in the activity;
- The location of a facility on the objector's land;
- The date when the carrier proposes to start the activity, engage in it or stop it;
- The likely effect of the activity on the objector's land;
- The carrier's proposals to minimise detriment and inconvenience, and to do as little damage as practicable, to the objector's land

The carrier must make reasonable efforts to consult with the objector about the objection within five business days after receiving the objection. The carrier must also make reasonable efforts to resolve the objection by agreement with the objector within 20 business days after receiving the objection.

If the objection is not resolved by agreement within 20 business days after receiving the objection, the carrier must consider whether to change the low-impact facility activity. However, the carrier is not required to change the activity in a way that:

- (a) Is not economically feasible; or
- (b) Is not technically practicable; or
- (c) Is likely to have a greater adverse effect on the environment than engaging in the activity as originally proposed; or
- (d) Is inconsistent with a recognised industry standard or practice relevant to the activity.

Within 25 business days after receiving the objection, the carrier must tell the objector, in writing:

- (a) Whether the carrier proposes to change the activity, and, if so, how; and
- (b) If the carrier does not propose to change the activity, why the carrier will engage in the activity as originally proposed.

If:

- (a) The objection is not resolved by agreement between the carrier and objector; and
- (b) The objector is not satisfied with the carrier's response to the objection; and
- (c) The objection comes, in whole or part, within the Telecommunications Industry Ombudsman's jurisdiction,

Then:

- (d) Within 5 business days after the objector receives the carrier's response to the objection, the objector may make a written request to the carrier to refer the objection to the Telecommunications Industry Ombudsman.

If the Telecommunications Industry Ombudsman gives a direction to the carrier about the way in which the carrier should engage in the low-impact facility activity, the carrier must comply with the direction.

The carrier must not engage in the activity unless one of the following situations exists:

1. The objection is resolved by an agreement between the carrier and objector;
2. A request to refer the objection to the Telecommunications Industry Ombudsman is not received by the carrier within nine business days after the objector receives the carrier's response to the objection (in the case of activities relating to the inspection of land) or five business days after the objector receives the carrier's response to the objection (in the case of activities relating to installing low-impact facilities or maintaining facilities);
3. The Telecommunications Industry Ombudsman deals with the objection without giving a direction to the carrier, and the Ombudsman informs the carrier in writing of that outcome; or
4. The Telecommunications Industry Ombudsman gives a direction to the carrier.

Co-location and Co-operation

Before a carrier installs or carries out an activity for purposes in connection with the installation of low-impact facilities (including subscriber equipment), it is obliged under the Telecommunications Code of Practice 1997 to take all reasonable steps to find out whether any of the following things is available for the activity and to take all reasonable steps to use such things:

- (a) Cabling, conduits or other facilities of the carrier or another carrier; or
- (b) A facility of a public utility; or
- (c) An easement attaching to the land for a public purpose.

In addition, a carrier must take all reasonable steps:

- (a) To find out whether another carrier, or a public utility, is engaging in, or proposing to engage in, a similar activity for the same land; and
- (b) To consider whether it is practicable to work with the other carrier or the utility to allow the first carrier: (i) to cause as little detriment and inconvenience as is practicable; and (ii) to do as little damage as is practicable.

These rules about co-location and co-operation are relevant to carriers' arrangements to share building entries, entrance rooms, equipment rooms and vertical and horizontal pathways. They are also intended to minimize the detriment, inconvenience and damage to building owners/managers.

ACIF Guideline

The Australian Communications Industry Forum ("**ACIF**") is developing a guideline entitled Building Access Operations and Installation (ACIF DR G571), which deals with (amongst other things) timeframes, provision of information and carriers' and building owners/managers responsibilities when dealing with each other in relation to telecommunications building access.

This Digital Building Telecommunications Access Guideline should be read in conjunction with the ACIF guideline (once it is published).

Status of DBTAG

The DBTAG is a voluntary guideline, intended for use as an informational tool by building owners and carriers/carriage service providers. The DBTAG is not intended to limit or replace any regulatory provisions and should be read down in the case of any inconsistency.

Appendix B – Typical spatial requirements of telecommunications facilities

The information in these tables is intended as a guide to building owners for spatial requirements that may be sought to accommodate Telecommunications Facilities for up to and including 4 carriers. The spatial requirements are general only and are suggested on the assumption that some spatial provisions are also sought for use by tenants, service providers to tenants, building owners and other parties for other communications systems in addition to telecommunications systems operated by carriers and carriage service providers. To avoid doubt, any information or suggestions given are subject to the disclaimer at the beginning of this document.

COMMERCIAL BUILDING					
Usable Floor Area, A (m ²)	Number of BEPs Note 1	Area of ERs (m ²)	Height of CER (m)	Total Vertical riser (mm) area	No. of vertical riser shafts Note 1
Up to 4000	1 - 2	14-28	2.4 – 3	300 x 200	1 - 2
4001 up to 12000	1 - 2	28-53	2.4 – 3	300 x 200	1 - 2
12001 up to 25000	1-2	33-64	2.4 – 3	400 x 200	1 - 2
25001 up to 50000	1-2	39-77	2.4 – 3	400 x 200	1-2
50001 up to 75000	2	50-99	2.4 – 3	600 x 250	2
75001 up to 100000	2	56-111	2.4 – 3	650 x 250	2 – 3
100001 up to 150000	2 - 3	67-142	2.4 - 3	950 x 250	2 - 3
MULTI- TENANT RESIDENTIAL BUILDING					
No. of apartments in a building, n	Number of BEPs Note 1	Area of ER (m ²)	Height of ER (m)	Total Vertical riser (mm) area	No. of vertical riser shafts Note 1
Up to 5	1	5-9	2.4 – 3	100 x 75	1
6 up to 50	1	5-9	2.4 – 3	200 x 100	1
51 up to 100	1	10-27	2.4 – 3	200 x 100	1
101 up to 250	1	15-31	2.4 – 3	200 x 200	1
251 up to 500	1	20-37	2.4 – 3	300 x 200	1
501 up to 1000	2	26-54	2.4 – 3	300 x 200	2
1001 up to 1500	2	31-60	2.4 - 3	400 x 200	2

BEP – Building entry point

ER – Equipment Room (may also include co-located Entrance Room)

Note 1- Quantities for diverse BEPs and risers are suggested for new and/or refurbished buildings

Appendix C - Glossary of Terms

ACA Australian Communications Authority

ACCC Australian Competition and Consumer Commission

Access for the purposes of this document, giving access to a building includes access to all areas required for installation and maintenance of telecommunications facilities. This may include Entrance Rooms, Equipment Rooms, riser shafts and horizontal pathways as defined.

Access hole is an underground chamber constructed on the street-side cable route to give access to jointing or feeding of new services and for maintenance.

ACIF Australian Communications Industry Forum

As-built drawings documentation by way of drawing, sketch or plan that accurately records the works that have been carried out. The drawings, or plans, depict what has been done, where it has been done and when.

'**best practice**' in this instance, taken to be in line with the definition in the Telecommunications Code of Practice 1997

BEP is known as the Building Entry Point This is the point at which a line that is used to provide a carriage service to an end-user in a building meets the outer surface of that building immediately before entering the building.

Broadband or **high bandwidth** a general term used to describe transmission at bandwidths higher than four Mbytes/sec (e.g. high-speed data and video services). It should be noted that some lower bandwidth services and called broadband, such as ADSL, operate at speeds less than 2Mbit/s).

Bonding is the provision of an embankment or raised surrounding.

Building Distributor means a distributor in which the building backbone cabling terminates (previously known as the building MDF)

Campus refers to a local network arrangement servicing a number of buildings, rather than just a single building. Examples of these include universities and many hospitals.

Carrier means a holder of a telecommunications carrier license granted under the Telecommunications Act 1997.

Carriage Service means a service for carrying communications by means of guided and/or unguided electromagnetic energy.

Carriage service providers supplier of carriage services using network units owned by carriers.

Co-located means the location of one or more facilities with another facility.

Conduit a tube or duct for enclosing wires or cable

Contaminants are foreign materials such as dust, moisture, steam, gases and fumes, which are detrimental to the integrity of equipment.

Distributor the term used for a the functions of a collection of components (such as patch panels, patch cords) used to connect cables.

Diversity. This refers to cabling networks with redundant pathways so that the network does not rely on any individual path. Therefore should one pathway be severed, the network will still function.

Earthing is the provision of a direct, low-impedance connection to the building earth.

Electromagnetic interference refers to interference in electronic signal flow through cables, or internally in electronic equipment, due to the functioning of nearby electronic or electrical equipment.

Electromagnetic Radiation is the radio frequency energy generated by a radio transmitter and radiated from an antenna.

Entrance Room. is a room or space where the joining of inter- and intra-building backbone facilities may take place. It is often the first room or space in the building in which the conduits from the access-hole appear. The room may contain network interface devices and telecommunications equipment. The entrance room may be co-located with an Equipment Room.

Equipment Room. Is a centralised room for telecommunications facilities. It may house equipment such as switches, computing equipment, video switches for serving the tenants. Typically, Equipment Rooms and Entrance Rooms are co-located.

Facility any part of the infrastructure of a telecommunications network, or any line, equipment, apparatus, tower, mast, antenna, tunnel, duct, hole, pit, pole or other structure or thing used, or for use, in or in connection with a telecommunications network.

False ceiling Refer to Suspended Ceiling.

Floor Distributor. Previously known as an IDF (intermediate distribution frame) it is an element in the network that serves as the connection between the vertical backbone and the horizontal cabling. These are generally located in Telecommunications Closets.

High bandwidth, See **broadband.**

Horizontal pathways are horizontal cable paths. These refer generally to providing a route for distribution cabling from Telecommunications Closets to outlets. Horizontal cable paths may be placed in, false ceilings, under floors or around the perimeter of the room.

HVAC stands for Heating Ventilation and Air Conditioning.

Lead-in access refer to BEP

Lead-in ducts are the conduits carrying incoming cables into the building.

Leasing agent is the party responsible for the management of an asset on behalf of an owner or owners.

Lighting refers to the illumination of a room.

Low-impact facility means a low-impact facility within the meaning of the *Telecommunications (Low-Impact Facilities) Determination 1997* and the *Telecommunications (Low Impact Facilities) Determination 1997 (Amendment No. 1 of 1999)*. Generally, these facilities that have been determined as being of "low impact" based on type of use, geographic location and the nature of the facility.

Lux is a measure of lighting intensity.

Making good reinstatement of disrupted infrastructure to a standard that is equal to the previous standard.

MOCS Melbourne One Call Service (Dial before you Dig).

Pathway is the route along which the internal cables travel

Raised floor is a false floor or floor above normal floor level that contains space for cable paths or horizontal pathways.

Riser duct, a vertical pathway for local distribution cables within a building. It is a physical vertical duct, up through a building, and is completely enclosed and fireproof.

Service area is the total floor area that an item of equipment can adequately provide service to.

Suspended Ceiling. is a space between a structural floor and the finished architectural ceiling. It is an area where cables can be run horizontally or moved or accessed

Telecommunications Closet refers to a telecommunication closet. Houses equipment and cable terminations for horizontal wiring for each floor

Telecommunications Outlets a fixed connecting device where the horizontal cable terminates. The telecommunications outlet provides the interface to the work area cabling.

Utility means a body that provides to the public: reticulated products or services, such as electricity , gas, water, sewerage or drainage; or carriage services (other than carriage services supplied by a carriage service provider); or transport services; or a product or service of a kind that is similar to the products and services referred to in this definition.

UPS stands for Uninterruptible Power Supply

Appendix D - Building Access Terms

1. INTRODUCTION

In accordance with the provisions of Schedule 3 of the *Telecommunications Act 1997* (Cth) ("the Act") and the *Telecommunications Code of Practice 1997* ("the Code") (together referred to as "statutory powers"), licensed telecommunications carriers have a right to enter upon land to inspect the land to determine whether the land is suitable for the carrier's purposes, install "low-impact" facilities (including "in-building subscriber connection equipment") and maintain such facilities that are situated on the land. The scope of such rights, and concomitant obligations on carriers, are set out in more detail in the Regulatory Principles section of the DBTAG.

Where a carrier relies on its statutory powers under Schedule 3 of the Act, the carrier is not obliged to enter into an agreement with a building owner/manager for building access. However, in practice, for a variety of practical and commercial reasons, a carrier may enter into an agreement for building access, in addition to its statutory powers.

The provisions of Schedule 3 of the Act apply only to carriers, not carriage service providers. Accordingly, if a carriage service provider wishes to obtain access to a building, the building owner/manager may require that the carriage service providers enter into an agreement for building access. These Proposed Building Access Terms may be used in building access agreements with carriage service providers or, where applicable, in building access agreements with carriers. References to the statutory powers throughout these Proposed Building Access Terms apply only to carriers and not carriage service providers. For simplicity, Section 2 of this document generally refers only to carriers.

Where a building owner/manager and a carrier/carriage service provider agree to enter into an agreement for building access, they will need to consider what terms the agreement will contain. These Proposed Building Access Terms outline some of the key issues which the parties may wish to consider. However, they are intended as a guide only and parties ought to seek independent professional advice in relation to any proposed agreement.

The aim of this document is to give building owners/managers and carriers/carriage service providers a guide to the types of issues that could be covered off in any building access agreement. None of the suggested issues is mandatory and ultimately, the terms of any agreement are to be decided by the parties.

This document sets out a non-exhaustive list of matters for consideration. Some of these matters are dealt with in Schedule 3 of the Act and the Code, others are not. Nothing in these Proposed Building Access Terms is intended to affect or derogate from existing regulations. However, the parties may agree to do so in some respects.

The scheme of the Proposed Building Access Terms in Section 2 of this document is as follows: first, an issue is identified (for example: 2.1 Relationship of building access agreement with existing regulation); then, there is a brief discussion of the issue, including issues for consideration by the parties.

2. PROPOSED BUILDING ACCESS TERMS

Relationship of building access agreement with existing regulation

In many instances, a building access agreement will compliment (rather than substitute) a carrier's statutory powers. In such cases, the parties may wish to expressly preserve their statutory powers.

Nature of the occupancy of the site

A carrier is entitled to exercise and rely upon its statutory powers without entering into an agreement with the building owner/manager. However, a carrier may agree to enter into an agreement to do so. Such an agreement may either confirm that the carrier is relying on its statutory powers, or it may set out the terms of a lease or licence arrangement for building access.

Alternatively, the parties may wish to consider a lease or a licence. Typically, a lease would give the carrier a proprietary interest over the site in question and exclusive possession to the areas covered by the lease. This is generally regarded as a stronger right (from the carrier's perspective) than the granting of a licence, which gives a contractual right only.

2.1 Definition of the land/building to which the carrier has access

The agreement should define the building at which the facilities are to be installed. This may be defined as the "site".

The parties may also wish to expressly provide that the carrier may have access to any adjoining areas and common areas over which the building owner/manager has a right of control, to the extent necessary for the carrier to exercise its rights under the agreement.

2.2 Definition of the place where the facilities are to be located

The agreement should define the precise location within the site where the facilities are to be installed. This may be defined as the "location" and may be specified in drawings and specifications attached to the agreement.

2.3 Definition of the facilities to be installed

The agreement should clearly and accurately define the facilities (including equipment and cabling) to be installed. Typically these will be limited to "low-impact" facilities pursuant to the *Telecommunications (Low-Impact Facilities) Determination 1997* (as amended by the *Telecommunications (Low-Impact Facilities) Determination 1997 (Amendment No. 1 of 1999)* to include "in-building subscriber connection equipment").

The agreement may provide that the facilities are not to become fixtures of the land owner.

In addition, the parties may wish to consider responsibility for tagging of facilities to show who is the owner of the facilities and the maintenance of records of tagged facilities.

2.4 Duration of works at the site

The building access agreement should specify the start and finish dates of proposed works at the site.

2.5 Duration of the occupancy of the site

Where a carrier relies on its statutory powers for building access, the carrier has statutory tenure to occupy the site.

Alternatively, if the parties are entering into a lease or a licence, they should consider a clause which specifies the commencement and expiry dates of the lease or licence and which provides for extensions to the lease or licence and the terms applicable to the lease or licence during the extended period.

2.6 Giving notice to the building owner/manager

Schedule 3 to the Act and the Code contain detailed provisions requiring a carrier to give notice to the land owner (or occupier) prior to exercising statutory powers. These are set out in more detail in the *Regulatory Principles* section of the DBTAG. The land owner/occupier may waive its right to receive such notice or the parties may agree alternative notification arrangements.

The parties should consider whether to retain the statutory notice requirements, or provide for different notice requirements, or provide for no notification requirements. The parties should also consider what notice requirements will apply to scheduled maintenance activities.

2.7 The purposes for which the carrier may exercise its rights

The agreement should specify the purposes for which the carrier may exercise its rights of inspection, installation and maintenance. For example, these rights may be limited to the purposes provided for in Schedule 3 of the Act.

2.8 Emergency access

Carriers have a right to access a site pursuant to the statutory powers to carry out works of an urgent nature. Where an agreement is entered into, the carrier will require a right to obtain access to the site and take other steps in the event of an emergency. A clause dealing with emergency access may take into account any applicable notice requirements, a definition of what constitutes an emergency, what the carrier may do if it gains access in the event of an emergency and an obligation on the parties to co-operate in good faith in dealing with and resolving emergency situations (including dealings with third persons).

2.9 Specific conditions of site access

The building owner/manager may wish to impose specific conditions relating to who may or may not have access to the site, access procedures, security requirements and other matters. A clause dealing with conditions of site access may take into account the following matters:

- requirements relating to personnel who may or may not be admitted to the site;
- procedures as to the method of access;
- times of access;
- rules relating to conduct at the site;
- occupational health and safety of personnel at the site; and
- security procedures and requirements.

2.10 Responsibility for obtaining applicable consents and approvals

Typically the carrier will be responsible for obtaining all applicable consents and approvals relating to the facilities themselves, the installation of facilities and any works at the site.

2.11 Measures to reduce interference and which carrier takes priority

The parties should consider how to deal with situations involving facilities which cause interference (including electromagnetic radiation) with other facilities. The parties may wish to consider the following issues:

- an obligation on the carrier to co-operate in good faith with the building owner/manager and the owner or operator of the other facilities to ensure that such interference does not occur;
- the standard or amount of evidence required to show that the carrier's facilities are causing interference with other facilities;
- what the carrier must do in such circumstances;
- the amount of time in which the carrier must eliminate the interference;
- requirements in relation to compliance of facilities with applicable ACA and industry codes and standards; and
- any specific provisions relating to the priority of competing carriers' facilities.

2.12 Co-location and co-operation

The Code contains certain obligations on carriers with respect to co-location of facilities and co-operation with other carriers and utilities. These obligations are described in more detail in the Regulatory Principles section of the DBTAG. The parties may wish to refer to these obligations in a building access agreement.

2.13 Rights of assignment, sub-letting and sub-licensing

The parties may wish to consider whether the carrier ought to have a right to assign its rights under the agreement, or sub-let the site (in the case of a lease arrangement) or sub-license the site (in the case of a licence arrangement). The carrier may wish to do so, for instance, if it is engaged in a joint project with another company or a related body corporate. The possibility of transferring rights and granting further rights in favour of other entities is one feature which distinguishes a building access agreement from the situation where the carrier simply relies on its statutory powers.

2.14 The right to engage sub-contractors

A carrier may require the right to engage sub-contractors to perform works at the site. The parties may wish to consider the extent to which the carrier is to be responsible for the acts and omissions of its contractors and agents.

2.15 Maintaining the site, site restoration, cleaning up and safety requirements

To assist with harmonious relations between the carrier and the building owner/manager and to reflect the carrier's responsibilities under the Act and the Code for its use of the site, the parties may wish to consider including provisions dealing with the following issues:

- ensuring that the carrier causes as little detriment and inconvenience, and does as little damage, as is practicable;
- ensuring that the carrier keeps the site clean and tidy and removes all of its rubbish from the site (not using on-site bins);
- ensuring that the carrier takes all reasonable steps to ensure that the site is restored to a condition that is similar to its condition before the activity began; and

- ensuring that the carrier immediately reports any hazardous materials discovered or uncovered by the carrier, to the building owner/manager.

2.16 Associated services

Building owners/managers should inform carriers of the capabilities of various building services provided at the site. Carriers should be responsible for ensuring that such services are appropriate for their requirements and that their facilities will not jeopardize the performance of such services for other existing users. Further if such services require augmentation or upgrading then the carrier should obtain the building owner's/manager's consent to such changes. The types of services contemplated here include:

- primary power;
- back-up power systems;
- heating ventilation and air-conditioning systems;
- lighting;
- fire protection systems; and
- access control and security systems.

The parties should discuss and agree payment terms regarding the use of such services and (where practicable, for example in the case of primary power) whether separate metering is to be provided.

2.17 Force majeure

The parties may wish to consider including a force majeure clause in a building access agreement, to deal with the parties' responsibilities in the event of matters beyond their reasonable control.

2.18 Adherence to applicable standards, etc.

The Act and the Code impose a number of requirements on carriers regarding the standard of their conduct. The parties may wish to consider referring to these requirements in a building access agreement, including the carrier's obligations to:

- act in accordance with best practice;
- act in accordance with good engineering practice;
- protect the safety of persons and property;
- comply with conditions specified in applicable regulations; and
- comply with any applicable industry codes, standards or guidelines.

2.19 Payment issues

There is no automatic right to demand rent or licence payments from a carrier exercising its statutory powers. However, there are likely to be a number of matters under a building access agreement which raise the question of payment. These include the following.

- (a) Payments for occupancy of the site:

- if the agreement is with a carrier, whether the carrier agrees to pay an amount for occupancy of the site (such as rent or licence payments);
- if the agreement is with a carriage service providers, the carriage service providers will typically pay rent or licence payments;
- if an amount is payable, whether there will be a periodic review of such payments and the nature of such a review; and
- an independent property agent may be of assistance where rent or licence payments are to be paid.

(b) Compensation for financial loss or damage. Issues to consider include:

- clause 42, Schedule 3 to the Telecommunications Act 1997 (Cth) (see the *Regulatory Principles* Section of the DBTAG);
- agreed limitation of liability for direct loss and damage and for indirect/consequential loss and damage; and
- agreed indemnities.

(c) Reimbursement for expenses. The parties should consider what amounts the carrier should reimburse the building owner/manager for and on what basis. Alternatively, the carrier may be directly responsible for certain costs. These may include things such as:

- primary power;
- lighting;
- heating ventilation and air conditioning;
- fire protection systems;
- security and special access arrangements;
- car parking;
- construction/development works;
- de-commissioning/removal of facilities; and
- site restoration.

The regulations do not specify how, or to what standard, these types of items should be provided. This is a matter which the parties should sort out between themselves, acting reasonably, and taking into account any applicable standards or codes.

(d) Other considerations may influence the “value” to the carrier of gaining timely access to the building, such as:

- suitability of the building for other communications purposes;
- the number of tenants;

- the amount of space available in the building;
- timing issues;
- access to the building by competing carriers; and
- determining which competing carriers take priority, for example in the case of electromagnetic interference.

2.20 Responsibility for payment of taxes

The parties should consider obtaining independent professional advice as to their respective responsibilities for payment of any taxes (including stamp duty) applicable to the building access agreement.

2.21 Limitation of liability

The parties may wish to consider whether to limit their liability under the building access agreement, including liability for direct and indirect/consequential loss and damage.

2.22 Indemnities and insurance for damage to property and third party claims

The parties may wish to consider whether to include indemnities and insurance provisions for damage to property and third party claims under the building access agreement.

In addition, the parties may wish to consider whether to expressly preserve the operation of clause 42, of the Act, which provides a right to compensation if a person suffers financial loss or damage because of anything done by a carrier in exercising its inspection, installation or maintenance powers.

2.23 Completion of schedules

The parties should ensure that all schedules to the building access agreement are agreed and finalized before the parties sign the agreement.

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This document is not intended to impose legal rights or obligations on any person, nor is anything in this document intended to create a contract or relationship of any kind as between any persons.

Nothing in this document constitutes (or is intended to constitute) legal, engineering, design or other professional advice. This document is intended as a guide only. It is intended to identify some issues for consideration by potential parties to a telecommunications building access agreement; however, it does not contain all of the elements necessary to form such an agreement. Moreover, each situation is different and parties may have additional requirements which are particular to them. Accordingly, persons using this document should not rely on the information in this document, but should first seek independent professional advice specific to their requirements.

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Appendix E - Checklist

DIGITAL BUILDING TELECOMMUNICATIONS ACCESS GUIDELINE CHECKLIST-PRINCIPLES 1-3		
	Y/N	Notes.
PRINCIPLE 1. SPATIAL ACCESS AND DESIGN		
Telecommunications Service Entrance		
Are these in accordance with Guideline?		
Is there a separate Entrance Room?		
Equipment Room		
Dimensions in accordance with Appendix B?		
Anything other than telecommunications equipment in it?		
Is this a co-located ER and Entrance Room?		
Is there risk of flooding?		
Easy access for carriers and carriage service providers?		
Are there pathways to the vertical pathway(s), campus and lead-in ducts as required?		
Apart from the door, are there other openings i.e. windows?		
If so, are they/is it secure?		
Are all penetrations sealed if they pass through fire-rated partitions?		
Is there adequate lighting (AS 3084-1993 s.6.2.3.8)?		
Is there a dedicated electrical supply and, if available, on an essential supply?		
Does temperature and humidity seem to be within limits?		
Are the floors, walls and ceiling painted in light colours?		
Is there room for future expansion?		
Backbone Pathways or Riser Shafts		
Is the riser shaft accessible from each floor?		
Is access from a common area, i.e. corridor?		
Is it fitted with appropriate cable fixing devices?		

Telecommunications Closets		
Is there one on each floor?		
Is the area it is serving no greater than approx. 1500 square metres?		
Is the size approximately in accordance with AS 3084-1993 s.5.2?		
Are there any water pipes and fire hydrants in TC?		
Is there a rigid wall in it to mount equipment?		
Is there a Floor Distributor?		
Horizontal Pathways		
Is there a pathway provided to service most of the tenanted areas of the building?		
Does it access the TC and Floor Distributor if used?		
Radio (Wireless) Facilities Provision		
Is there equipment still installed that is not in service?		
Has the carrier(s) demonstrated to the building owner that structural aspects are met?		
Where applicable, has the carrier(s) defined safe distance from equipment for EMR?		
PRINCIPLE 2. DIVERSITY		
Building Entry Point		
Is there more than one BEP? (Refer to Appendix B)		
Equipment Rooms		
Does building warrant, and if so, does it have more than one ER?		
Riser Shafts		
Refer to Appendix B.		
Radio Wireless Services		
Does the building utilise this as another entry point for diversity?		
PRINCIPLE 3. BUILDING SERVICES		
Air-conditioning (HVAC)		

Does there seem to be an HVAC zone for the Equipment Room(s)?		
Primary Power Supply		
Is there a dedicated supply to the ER?		
Is there a switchboard in the ER?		
Is there a dedicated supply to the TCs?		
Is the main building earth available for access by a carrier or carriage service providers?		
Fire Protection		
If there are sprinklers in the ER, do they have protective cages?		
Are there portable fire extinguishers as close as practicable to ER entry/exit?		
Are penetrations through fire-rated partitions fire-sealed?		
Electro-magnetic Radiation (EMR)		
Are EMR requirements met . See section 3.5		
Electro-magnetic Interference (EMI)		
Is ER located away from sources of EMI?		
Have potential sources of EMI been identified by building owner/management?		
Lighting		
Is lighting provided from a dedicated supply for both ER and TC?		
Access Security and Building Management		
Does building management act as a central repository of information re installations?		
Is there 24/7 access to the installations for the carrier(s)/carriage service providers(s)?		

CHECKLIST - CURRENT BROADBAND SERVICES DELIVERY		
	No.	Notes.
NUMBER OF CARRIERS AND CARRIAGE SERVICE PROVIDERS		
How many carriers are providing services in the building		
How many carriers are providing broadband services in the building		
How many carriers have Optic Fibre connection to the building		
How many carriage service providers are proving services in the building		
How many carriage service providers are proving broadband services in the building		
How many carriers/carriage service providers are using rooftop radio to service tenants in the building?		
How many carriers/carriage service providers are using rooftop radio to service tenants in the building?		
How many carriers/carriage service providers are using rooftop radio to provide broadband services to tenants in the building?		