21.05.05 Cable Hangers

Cable hangers shall only be used in circumstances where it is not possible to install cable trays, ladders, or conduits. Written approval must be obtained from ITI prior to the installation and use of cable hangers.

If approved, cable hangers should only provide strain relief or ensure that the radius of any bend in the cable route conforms to the requirements AS/NZS 3084. Cable hangers must be a type which is approved by the cable manufacturer as suitable for the cable type, and must be installed to conform to the manufacturer's correct cable installation procedures including spacing and attachment requirements.

21.05.06 Conduits

Where cables traverse inaccessible ceiling areas, such as those behind lock-in type ceiling tiles, drywall and plaster, conduits with draw wires shall be used for the distribution and containment of cables. Provide n+1conduits, where n is the quantity required for known services at time of installation.

Inspection type tees, bends, etc. are permitted if approved by ITI.

Draw wires shall be provided in all conduits after installation for possible future cabling additions, and shall be replaced in existing conduits after the initial draw wire has been used for new cabling.

21.05.07 Separation

Minimum separation between the fixed telecommunications cabling and parallel runs greater than 3 metres of low voltage (240V) fixed electrical cabling shall be at least 300mm for performance and noise reduction reasons.

Separation from other electric noisy environments such as distribution mains, sub-mains, fluorescent light fittings and halogen downlight transformers shall be 300mm.

21.05.08 Installation Practices

General - All horizontal cables shall be terminated in the TER.

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A 1RU 5-ring patch cord er TE Co tivity ADC Krone 1 050-A ordi epecainn 3 our)17n

The standard labelling for Ethernet Clock data outlets is as follows;

[Room No.] + [/] + [CLK] + [Outlet No.] + [Port Letter]

Example: for Room 2.06A
2.06A/CLK – for the first clock data port in the room
2.06A/CLK2A – for the second clock data port in the room
2.06A/CLK1A & 2.06A/CLK1B – for the first dual clock data port in the room

The standard labelling for Projector data outlets shall be as follows;

[Room No.] + [/] + [P] + [Outlet No.] + [Port Le tter]

Example: for Room 2.06A
2.06A/P1A – for the first projector data port in the room
2.06A/P2A – for the second projector data port in the room
2.06A/P1A & 2.06A/P1B – for the first dual projector data port in the room

The standard labelling for IP Camera data outlets shall be as follows;

[Room No.] + [/] + [CM] + [Outlet No.] + [Port Letter]

Example: for Room 2.06A
2.06A/CM1A – for the first camera data port in the room
2.06A/CM2A – for the second camera data port in the room
2.06A/CM1A & 2.06A/CM1B – for the first dual camera data port in the room

The standard labelling for Digital Signage data outlets shall be as follows;

[Room No.] + [/] + [DS] + [Outlet No.] + [Port Letter]

Example: for Room 2.06A
2.06A/DS1A – for the first sign data port in the room
2.06A/DS2A – for the second sign data port in the room
2.06A/DS1A & 2.06A/DS1B – for the first dual sign data port in the room

Printed labels at the wall outlet are either to be Times New Roman 10 point bold font if using
Microscar13(ual)-1( )13(c)-8let No.ffignceN t NoM004 Tc -0.002 Tw 0 -1.12 Tocescar13(ual)-1( )13(c)-8lo r -11.7(n t)2(ho

- A MFB Type A 650/19" Reduced Rack Cabinets 45RU and 855mm deep (Part No. MFBP4397), and provided with cage nuts and bolts
- Supplied with the following unless otherwise specified by an ITI representative –
  - For 32A socket installations: 1 x horizontal APC branded(AP7724) Rack ATS, 2U 230V, 32A, IEC309 32 2P+E, (16) C13, (2) C19 Out
  - For 20A socket installations: 2 x horizontal, 1U, 230V PDUs with 10 x 10A (IEC C13) and 2 x 16A (IEC C19) with matching and locking 20A IEC plug
- Supplied with 2RU Krone patch Cord Minder (Product no. 6450 2 017-00) installed at the top of each Rack
- Supplied with a Glass Lockable door, roof panel and two side panels, the same colour as the cabinet if not housed in a Data Room
- Complete with 19" Type 'C' profile mounting rails, front and rear
- Provided with a minimum 80mm clearance between the front face and the equipment
- Complete with 300mm wide vertical cable ladders on both sides 2RU from the back of the cabinet for securing power services (back right), and data services (back left). Cable ladders shall be the same colour as the cabinet
- In accordance with GU Standard Detail Drawing No. GSD-701
- An APC Netshelter SX Series 42RU rack shall be used for mounting a UPS where there is a requirement to install one in a TER.

Wall-mounted Cabinets - The use of wall-mounted data cabinets is discouraged. Where no suitable alternatives exist, wall-mounted cabinets may be used with the written authorisation of the ITI representative. These cabinets shall be;

- A MFB 650/19" wall mounting cabinet with swing frame, 12RU and a minimum 855mm deep.

21.09.03 Installation Procedures

Excavation - Prior to any excavation, the contractors shall obtain approval from the Superintendent's representative. All excavation, trenches and pits shall conform to the latest edition of the Griffith University Design Guidelines.

Telephone Cables - Inter building Telephone cables are to be terminated as follows;

All underground cables shall be Gel Filled and meet AS/ACIF S008 and AS/ACIF S009 requirements.

Ensure segregation between telecommunications and other types of cables comply with AS HB29 Cabling requirements, particularly electrical and control cabling.

All telecommunications conduits in ground will be white.

Underground cable joints are not acceptable.

Maximum distance between pits on underground cable runs shall be 60m.

All underground pits shall have their lids marked with a brass plate indicating the service installed and the route from the pit, and shall be positively drained without the use of pumps. Ensure pits do not receive water inflows through conduits.

Brass marker plates with lettering not less than 10mm high shall be installed at kerbs and road crossings and any changes in direction. In unpaved areas, the marker shall be set in a concrete pad not less than 300mm square x 200mm deep.

Fibre Optic Cable - All fibre Patch Panels shall be 'AFC' rack mounted optical fibre termination panels (see Clause 21.05.01). All fibres shall be terminated on to a type 'LC' connector. The fibre patch panel shall consist of angle adaptor plates/adaptor kits plus the patch cord minder to meet Class 2 Laser Product Standards.

Identificat ion Practices - All inter-building cables shall be identified with a permanent and indelible label in every pit clearly indicating destination from/to (refer to GU Standard Detail Drawing No. GSD-705, Cable Identification Tag).

All inter-building cables shall be identified with an indelible label in every telecommunications riser closet and telecommunications equipment room through which they pass.

21.10 Design Criteria for New Buildings

21.10.05 Riser Subsystem

Within each new building, the second, third, and subsequent TERs shall be star-wired to the main TER in that building by a fibre optic cable, the composition of which will be determined by ITI.

Where the distance between multiple TERs within a building is less than 90m, they shall also be star-wired to the main TER in that building using Category 6 UTP cables, quantity to be determined by ITI, and terminated on a separate patch panel and labelled.

21.11 Standard Documentation & Labelling Requirements

Block Diagrams - For new buildings and major refurbishment, the Contractor shall provide block diagrams showing all cable runs.

Room/Riser Titles - The TER shall be titled 'TELECOMMUNICATIONS EQUIPMENT ROOM'.

Telecommunications riser closets shall be titled 'TELECOMMUNICATIONS RISER'.

Record Books - Cable record books shall be supplied in each TER and completed for the initial installation and updated as work continues.

A separate Cable Record Book shall be completed for the initial installation of the special services cable and updated as work continues. A 'Special Services' record book shall be placed in a 10 Pair terminal block.

Voice Patch Panel Labelling - The standard for Voice Tie cables to Patch Panels is as follows;

The tie cable should be terminated one pair per port on each 24 port patch panel.
Example*:* a 100 pair coming from the PABX frame to the building terminates on vertical N, pairs 1 to 100.

- N1 to N24 would be terminated on the first patch panel. N25 would not be terminated but left at the back of the patch panel
- N26 to N49 would be terminated on the second patch panel. N50 would not be terminated but left at the back of the patch panel
- N51 to N74 would be terminated on the third patch panel. N75 would not be terminated but left at the back of the patch panel
- N76 to N99 would be terminated on the fourth patch panel. N100 would not be terminated but would be left at the back of the patch panel.

The patch panel would then be labelled to match the cable.
Example : the port that is wired to pair N24 should be labelled 'Vertical letter [N] + cable pair [24]'.

21.12 Building Control Systems

21.12.01 Generally

The following shall apply to the installation of Building control Systems;

- Building control systems shall be located in building plant rooms
- Services cabling will be Black in colour
- Patch Leads connecting building control systems to the Griffith Network shall be Black
- Installation of data cabling shall be by preferred data contractors as advised by OFM/ITI
- No building control system shall be installed in Data Rooms or Data Risers with the exception of legacy 'Cardax' installation in Residential Colleges
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- Relevant data outlets shall be identified and both cabling and outlets shall be tested
- Outlets must be identified at the field end and at the TER patch panel end. NCS is to be provided with a schedule of the outlet numbers
- The TER room shall be secure, safe and with a stable electrical power supply, lighting and ventilation
- The Building/Campus fibre link must be installed and tested
- The MAC address of the BMS equipment to be activated must be provided by ITI
- The IP address for the BMS outlet is to be obtained from ITI, DHCP configuration should be used
- Reasonable notice (minimum 10 working days) is required to allow NCS/ITI activities to be completed before activating the BMS network in the building
- All test results for cables and outlets are to be provided to NCS

21.13 Wireless Networks

A single data outlet for each wireless access point (WAP) is to be provided where access to Wireless Networks is re

21.14 Particula c 4 e