

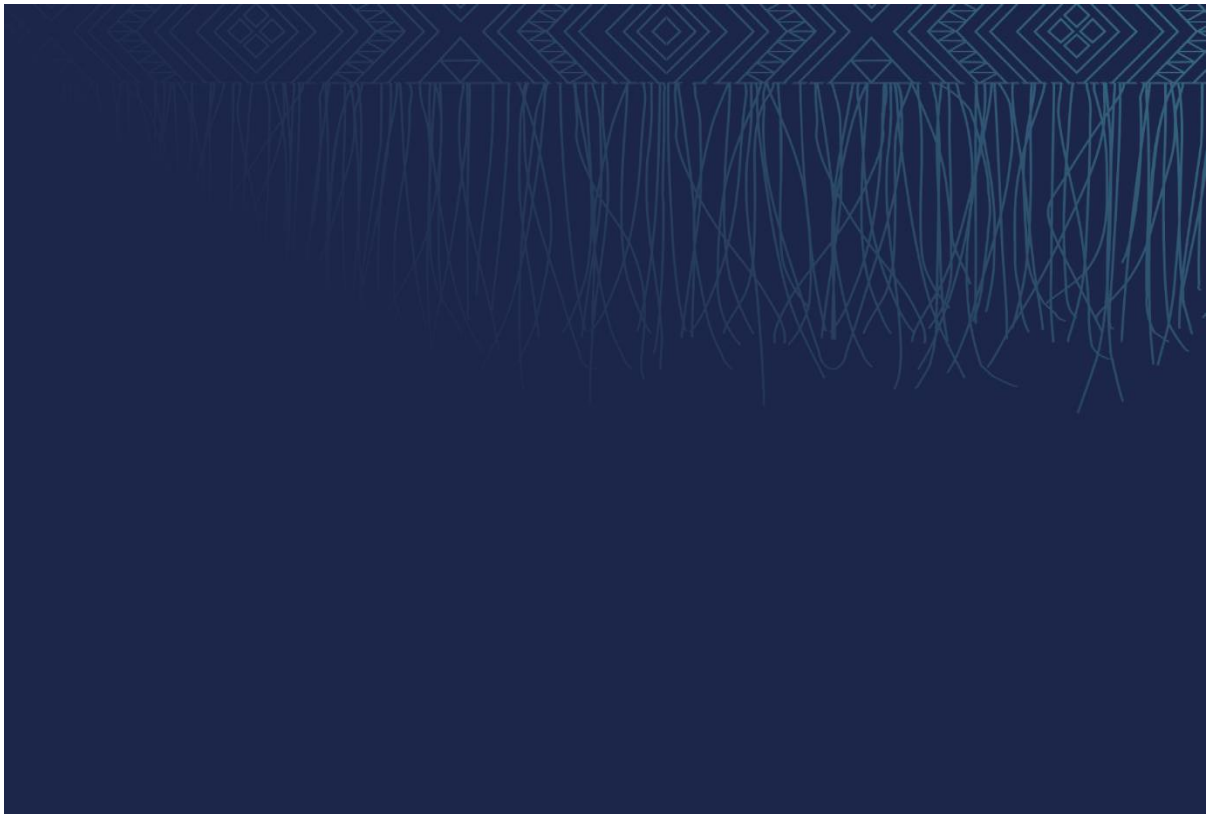


National Digital Communication Systems and Structured Cabling Labelling Standard

HISO 10106:2024

Data & Digital – 23 April 2024

Version 1.0



Document Control

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23 April 2024	1.0	Phil King, Data & Digital, Infrastructure & Investment Group & External Experts	First approved version

This document **shall** be reviewed regularly to address changes in standards and guidelines as they impact labelling relating to communications and cabling infrastructure. When the review process identifies the requirement for amendment a new or refurbished version will be released.

Acknowledgement: is made to the four regions that provided their communication systems and cabling labelling standards expertise to enable the creation of this National Labelling Standard.

Approvals

The following officer has approved this document

Name: Leigh Donoghue on behalf of the National Technical Design Council

Position: Chair National Data & Digital Technical Design Council

Signature



Date: 20/5/2024

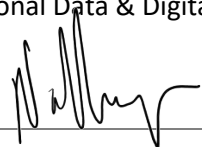
Endorsement

The following officer has endorsed this document

Name: Nic Hooper on behalf of the National Technical Working Group

Position: Chair National Data & Digital Technical Working Group

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Date: 10th May 2024

Contents

1.	Introduction	6
1.1	Purpose	6
1.2	Scope and criteria for use	6
1.3	Reference documents	7
1.4	Applicability.....	7
1.5	Exclusions	7
1.6	Mandatory criteria	8
1.7	Advisory or desirable criteria.....	8
1.8	Compliance management.....	8
1.9	Review	8
2.	General requirements	9
2.1	General.....	9
2.2	Occupational Health and Safety	9
2.3	Heritage environment	9
2.4	New infrastructure.....	9
2.5	Moves, Adds, Changes and upgrade of existing infrastructure	9
2.6	Conventions and special symbols	9
2.7	Third Party equipment	11
3.	Location and space identifiers	12
3.1	Database and Physical Label differences	12
3.2	Agency identifiers [a]	12
3.3	Region identifiers [r]	13
3.4	District identifiers [d]	13
3.5	Campus identifiers [c]	14
3.6	Building identifiers [b].....	15
3.7	Floor identifiers [f]	17
3.8	Room and Space identifiers	18
3.9	Description	19
3.10	Outdoor data spaces	19
3.11	Labelling of duct/conduit entry points	23
4.	Cabinet, frame, wall mount enclosures.....	25
4.1	Telecommunications rooms	25
4.2	Rack mounted equipment (database record only).....	26
4.3	Enclosure port number.....	26
4.4	Port fibre enclosure with four sub panels example.....	27
5.	Cable identifiers.....	28

5.1	Backbone cables	28
5.2	Tight-buffer and ABF fibre cables labelling.....	28
5.3	Distribution cables	30
5.4	Patch cables.....	31
5.5	Data Outlets	31
5.6	Consolidation points	33
6.	Indoor pathways and conduits	34
6.1	Cable support systems	34
6.2	Fire stopping penetrations	34
	Appendix A: Te Whatu Ora Building Naming Conventions	36

TABLES

TABLE 1 - IDENTIFIER SYMBOLS.....	10
TABLE 2 - AGENCY IDENTIFIER.....	13
TABLE 3 - REGION IDENTIFIER	13
TABLE 4 – DISTRICT IDENTIFIER.....	14
TABLE – EXAMPLE CAMPUS IDENTIFIERS	14
TABLE – EXAMPLE BUILDING IDENTIFIERS.....	17
TABLE – FLOOR LEVEL IDENTIFIERS	18
TABLE - OUTDOOR DATA SPACES	19

FIGURES

FIGURE 1– OUTSIDE PLANT LABELLING EXAMPLE 1.....	20
FIGURE 2 - OUTSIDE PLANT LABELLING EXAMPLE 2.....	21
FIGURE 3 - OUTSIDE PLANT LABELLING EXAMPLE 3.....	22
FIGURE 4 - OUTSIDE PLANT LABELLING EXAMPLE 4.....	24
FIGURE 5 - RACK LABELLING EXAMPLE.....	25
FIGURE 6 - ENCLOSURE LABELLING EXAMPLE.....	26

1. Introduction

1.1 Purpose

The Healthcare environment provides one of the most challenging areas for the design, installation and operation of ICT infrastructure and solutions. It has exceptionally high demands for reliability, fault tolerance, and service availability, and **must** address the complex demands required to support clinical technology, clinical operations, staff, and equipment throughout the facility and region wide.

Consistent and accurate labelling and records retention is essential to support daily operation of the networking infrastructure.

The purpose of this document is to define the labelling standards and conventions to be used at all Te Whatu Ora facilities and provide guidelines to be followed when undertaking data cabling design and installation labelling services for Te Whatu Ora.

All employees, manufacturers, accredited installers, cabling contractors, and design consultants involved in Te Whatu Ora ICT cabling projects **shall**:

- Contact the Data & Digital representative to confirm they are working on the current version of this standard before proceeding with work.
- Comply with this standard.
- Contact the Data & Digital representative to clarify/confirm site specific information.

This standard also encourages cabling designers to provide labelling applicable to the converged and integrated cabling solutions for equipment including IoT, CCTV, Building Management Systems (BMS), Access Control, Security and Nurse-call systems.

1.2 Scope and criteria for use

When installing **new** structured cabling infrastructure, all employees, manufacturers, accredited installers, cabling contractors, and design consultants involved in Te Whatu Ora ICT cabling projects **shall**:

- Contact the Data & Digital representative to confirm they are working on the current version of this standard before proceeding with work.
- Comply with this standard.
- Contact the Data & Digital representative to clarify/confirm site specific information.

This standard also encourages cabling designers to provide labelling applicable to the converged and integrated cabling solutions for equipment including IoT, CCTV, Building Management Systems (BMS), Access Control, Security and Nurse-call systems.

Note 1: this standard defines the minimum information to be applied to labels. Where regions or districts require additional information on a label, they may add the additional information as a suffix, however the prefix labelling information in this document must not be altered.

Note 2: Additional shortening of labelling may be applied to meet the needs of testing equipment that can only support 15 characters or less, (starting by removing identifiers from the left).

1.2.1. Scope

Labelling scope includes labelling of the following digital related items:

- Telecommunication Locations, rooms, and spaces
- Outdoor plant including Pits, Kiosks, Poles, and Pedestals

- Outdoor and Indoor Pathways, Conduits and Ducts
- Cabinets, Frames and Wall Mounted Enclosures
- Racks
- Enclosure Ports
- Data Outlets
- ABF and Innerducts
- Consolidation Points
- Cable Support Systems
- Fire Stopping Penetrations
- Cables including:
 - Backbone cables,
 - Tight buffer and ABF cables,
 - Distribution cables
 - Patch cables

1.3 Reference documents

This document provides the labelling conventions for communication and cabling systems as defined in the [“National Digital Communications Systems and Structured Cabling Standard”](#).

1.4 Applicability

- Design and construction of new communications rooms.
- Design and construction of new data cable pathways: tunnels, underground ducts, cable tray, cable basket, cable ladder, conduit, and any other cable containment/reticulation system.
- Design and installation of cabinets and racks for hosting networking and storage & compute equipment.
- Design and installation of all fibre optic cabling systems.
- Design and installation of all copper balanced cabling used for networking equipment including IoT, CCTV, Building Management Systems (BMS), Access Control, Security and Nurse-call and Duress systems.

1.5 Exclusions

- It is not required to retrospectively relabel existing data cabling, cable pathways and spaces, (i.e. only when implementing new rooms, racks etc). When utilising these elements for provision of new services, all aspects that can comply to this standard **must** do so. When submitting plans and commercial documentation related to cabling works all non-compliant elements of the proposed build **shall** be itemised.
- Sites co-owned by the Te Whatu Ora: cabling standards on these sites are to be determined on a per site basis. If the co-owner does not have a cabling standard this standard **shall** apply.
- Sites with existing structured cabling systems purchased by the Te Whatu Ora may not comply with these standards. In such a case, a migration to these standards may need to be staged.

- Non Te Whatu Ora owned sites where the comms and cabling infrastructure is provided as a third-party provider.
- Data cabling installed for non-Te Whatu Ora network provision within Te Whatu Ora buildings (e.g., comms and cabling equipment for retail shops), may require exemptions which **must** be agreed with the Data & Digital representative.

1.6 Mandatory criteria

Mandatory Criteria generally, apply to protection, performance, administration, and compatibility; they specify the absolute minimum acceptable requirements.

Mandatory requirements are designated by the words '**Must**' or '**Must not**', '**Shall**' or '**Shall not**'. All other references are recommendations only.

1.7 Advisory or desirable criteria

Advisory or desirable criteria are presented when their attainment will enhance the general performance of the system infrastructure in all its contemplated applications.

Advisory or desirable recommendations are designated by the words '*Should*', '*May*' or '*Desirable*'.

1.8 Compliance management

Compliance with the requirements of this document will be monitored by Te Whatu Ora and applied directly and/or through engaged 3rd party consultants and project managers.

All parties are to advise Te Whatu Ora of cases where non-compliance is determined onsite and not previously recorded and annotated in site information and drawings. When components requiring labelling are not addressed within this document, the contractor **shall** advise Te Whatu Ora Data & Digital representative and request the labelling convention or name to be applied.

1.9 Review

This document **shall** be reviewed regularly to address changes in requirements and labelling standards and guidelines as they impact cabling infrastructure records and documentation and at minimum as other Data & Digital national labelling standards are created. When the review process identifies the requirement for amendment a new version will be released.

2. General requirements

2.1 General

Handwritten labels are not acceptable.

- The contractor may use permanent marker on cables or on faceplates behind decorator covers during installation for their own purposes however approved permanent labels are to be applied during commissioning and testing.

2.2 Occupational Health and Safety

Refer to National Digital Communication Systems and Structured Cabling Standard.

2.3 Heritage environment

Where labelling of new infrastructure is being installed on existing sites, the designer and cabling contractor **shall** be responsible for determining whether a Te Whatu Ora building is heritage listed.

For those buildings listed the designer and cabling contractor **shall** make available to the Heritage New Zealand, plans detailing the work to be performed in or on the listed building and this includes its environs.

The designer and cabling contractor **shall** abide by the guidelines set by Heritage New Zealand for the installation. This may include requirements for:

- Use of discrete labelling to avoid impacting aesthetics (colour, size etc.).
- Locations where labels may be fixed, e.g. avoiding heritage woodwork and panels.

2.4 New infrastructure

This labelling standard **must** be applied to any new comms and cabling infrastructure.

2.5 Moves, Adds, Changes and upgrade of existing infrastructure

Upgrades and moves adds and changes should adhere to the new standard. Exemptions **must** be discussed with the Data & Digital Representative.

2.6 Conventions and special symbols

- Capital letters should be used for all labels and identifiers.
- Square brackets in the formulas listed in this document indicate optional fields. These fields may be removed when they are self-evident, for example it is not necessary to include the building name or floor level for a space (room) on labelling on the space door as the building and floor level is self-evident.
- Note that the square brackets are not part of the identifier or the label but are used solely to identify fields that may not be required in the label.

Special symbols	Description
-	Used as a separator between identifiers, (e.g. between building and floor)
:	The colon is used as a prefix to port identifiers and ABF configuration identifiers
/	Used between the identifiers of the two ends of a horizontal cable, backbone cable, or data pathway.
()	Additional information such as coordinates of a chamber, conduit number within a duct bank, or subduct within a conduit are enclosed in parentheses. This information is optional.
[]	Identifiers shown within square brackets are optional to put on the label.
B	Items highlighted in yellow and bold are mandatory to put on the label.
A	Agency
R	Region
D	District
C	Campus
B	Building Code
F	Floor level
S	Space or Room
N	Duct
d	Sub duct
T	Outdoor data space
g	GPS coordinate
KSK	Kiosk
PIT	Pit
PED	Pedestal
POL	Pole
RU	Rack Unit Number
W	Wall
XO	Data Outlet
CB	Cable Basket
CT	Cable Tray
CO	Conduit
FS	Fire Stop

Table 1 - Identifier symbols

2.7 Third Party equipment

All 3rd Party devices **shall** be labelled with the circuit details, name and contact details of the vendor support company as well as the hospital business department responsible for the equipment. This is so that these people can be contacted when a scheduled outage is expected to the room.

3. Location and space identifiers

The location derivations of all spaces are provided in the [National Facility and Design, Advisory and Assurance Space Numbering Guidelines document](#). Each space has a unique identifier that provides information on the campus, the building, the floor/level, and the room/space.

Note: All new buildings follow the requirements of the National Facility and Design, Advisory and Assurance Space Numbering Guideline document however some older buildings may not. In these older buildings, the identifiers are to be taken from the labelling apparent on site.

Spaces are identified using the format following format: [a]-[r]-[c]-[b]-[f]-[s] where items in “[]” field are not mandatory to put on the label and used only when required:

- a = agency, (e.g. Health New Zealand)
- r= region
- d=district
- c = campus (location / street address of site)
- b = building code
- f = Floor level
- s = space identifier (e.g. room or corridor)

*The minimum identifier that **must** be on the label will not be in square brackets, will be highlighted in **yellow** and shown in **bold**.*

A – (dash) is used to provide a separator between each identifier on labels and in the database description e.g. a-r-d-c-b.

3.1 Database and Physical Label differences

All labels may be referenced in a database.

The label formats described below fall into two categories:

- Database format
- Physical label format

The default format for all database and physical labels is in the following format:

Agency-Region-Campus-Building-Level-Room

Examples of the Database format example:

- HNZ-NOR-AK-MMH-B02-L01-R23

Examples of the physical label format example:

- HNZ-NOR-AK-MMH-B02-L01-R23
- B02-L02-R23

3.2 Agency identifiers [a]

The agency identifier identifies the legal entity.

- Agency identifiers are a 3-letter alpha identifier and are represented in the formula by [a].

Agency identifiers are generally not required on labels:

Agency	
HNZ	Te Whatu Ora
MHA	Te Aka Whai Ora

Table 2 - Agency identifier

3.3 Region identifiers [r]

The region identifier identifies the relevant geographical region

- Regional identifiers are a 3-letter alpha identifier are represented in the formula by [r]

Regional identifiers are generally not required on labels:

Region	
NOR	Northern
TMT	Te Manawa Tak
CEN	Central
TWP	Te Waipounamu

Table 3 - Region Identifier

3.4 District identifiers [d]

The district identifier identifies the district within the region. The district is generally not required on the label but has been shown here for completeness.

District identifiers are a 2-letter alpha identifier and are represented in the formula by [d]. Full list of district identifiers below:

Region	District	District Identifier	District Description
Northern	Northland	NL	Te Tai Tokerau
	Waitemata	WT	Waitemata
	Auckland	AK	Te Toka Tumai Auckland
	Counties Manukau	CM	Counties Manukau
Te Manawa Taki	Waikato	WK	Waikato
	Lakes	LK	Lakes
	Bay of Plenty	BP	Hauora A Toi Bay of Plenty
	Tairāwhiti	TW	Tairāwhiti
	Taranaki	TK	Taranaki

<i>Central</i>	<i>MidCentral</i>	<i>MC</i>	<i>Te Pae Hauora o Ruahine o Tararua Mid Central</i>
	<i>Whanganui</i>	<i>WH</i>	<i>Whanganui</i>
	<i>Capital & Coast /Hutt Valley</i>	<i>CH</i>	<i>Capital, Coast and Hutt Valley</i>
	<i>Hawke’s Bay</i>	<i>HB</i>	<i>Te Matau a Maui Hawke’s Bay</i>
	<i>Wairarapa</i>	<i>WR</i>	<i>Wairarapa</i>
<i>Te Waipounamu</i>	<i>Canterbury/West Coast</i>	<i>CW</i>	<i>Waitaha Canterbury; Te Tai o Poutini West Coast</i>
	<i>Nelson Marlborough</i>	<i>NM</i>	<i>Nelson Marlborough</i>
	<i>Southern</i>	<i>SO</i>	<i>Southern</i>
	<i>South Canterbury</i>	<i>SC</i>	<i>South Canterbury</i>

Table 4 – District identifier

3.5 Campus identifiers [c]

The campus identifier identifies the property site street address. A campus may contain one or many buildings in a larger campus area and will include other assets such as the Data Service Pit meet-me pit, distribution pits, poles, and pedestals.

Campus identifiers are a 3-letter alpha identifier and are represented in the formula by [c]. Examples in the table below.

Campus	Location	Address
DUN	Dunedin	201 Great King Street, Central Dunedin 9016
WAK	Wakari	369 Taieri Road, Halfway Bush, Dunedin 9010
INV	Invercargill	Kew Road, Invercargill, 9812
BAL	Balclutha	7/11 Charlotte Street, Balclutha 9230
DSN	Dunstan	29 Hospital Road, Clyde 9330
GOR	Gore	9 Birch Lane, Gore 9710
OAM	Oamaru	8 Steward Street, Oamaru 9400
LAK	Queenstown	20 Douglas Street, Frankton, Queenstown 9300
MAN	Maniototo	1 Tyrone Street, Ranfurly 9332

Table 5 – Example Campus identifiers

Database example:

Northern Region- Whangarei Hospital

- HNZ-NOR-NL-WHG

3.6 Building identifiers [b]

The building code is a 2 or 3 character alpha/numeric unique identifier for the building. The building codes are managed locally. Refer to the following table for an example of building codes to be used in the ICT labelling system. Note: the use of alpha or numeric naming of buildings **must** be kept consistent within each district or region.

- Building codes have the format: [c]-b
- The table below provides examples of building identifiers:

Campus	Building name	Building code
DUN	Inpatients NDH	IB
	Outpatients NDH	OB
	Childrens' Pavilion	CP
	Clinical Services Building	CS
	Corporate Building	CB
	Urgent Doctors	UD
	Fraser Building	FB
	Leith St	LS
	Oncology Building	ON
	Ward Block	WD
	Youth Specialty Service	YS
	Child & Family Mental Health	CF
WAK	Helensburgh House	HH
	Helensburgh Cottage	HC
	Padget House	PH
	Main Block	MB
	Acute Inpatient Unit	AI
	Boiler House	BH
	Puāwai Rehabilitation Unit (ISIS)	PR
	Secure Unit	SU
INV	Clinical Services Building (East Comms)	CSE
	Clinical Services Building (West Comms)	CSW
	Community Services Building	CSB
	Hospital Management	MGT
	Inpatient Mental Health	MHU
	Elm Court	ELM
	Mortuary	MOR
	Staff Residence	DOC
LAK	Queenstown-Lakes Hospital	QT
	Wakatipu Oral Health	QTD
BAL	Balclutha Hospital	BAL

DSN	Dunstan Hospital	DSN
MAN	Maniototo Hospital (Ranfurly)	MAN
OAM	Oamaru Hospital	OAM
AKH	Auckland Hospital-Building 01	B01
GLH	Greenlane Hospital-Building 15	B15
MMH	Middlemore Hospital-Kidz First	B12

Table 6 – Example Building identifiers

Using this format, the Dunedin Outpatients building would be identified as:

- Main records database (centralised records database)
 - DUN-OB
- As printed on label examples:
 - DUN-OB or
 - OB

3.7 Floor identifiers [f]

The floor level is identified by a 3 character alpha-numeric code in a common format across all buildings and structures.

- Floor level identifiers have the format: Campus-Building-Floor: [c]-[b]-f

Valid codes for floor level are as follows:

Floor Level Code	Floor Level Name	Notes
BM1	Basement	Relates to the lowest level of the building. In most instances this is non-habitable space (e.g. Basement carpark)
LG1	Lower Ground	Lower ground relates to levels below the ground floor not defined as a basement.
GND	Ground	Relates to the floor of a building at or nearest ground level
MZ1	Mezzanine	An intermediate floor, between other floors. # relates to the level below the mezzanine. (e.g. MZ3 = mezzanine level between third and fourth floors)
L00 - L12	Level 0 - 12	Level 00 can be used to designate the ground floor. Level 01 relates to the first floor above ground level
RF1	Roof Level 1	First roof level
RF2	Roof Level 2	Second roof level
RF3	Roof Level 3	Third roof level

Table 7 – Floor level identifiers

Using this format, the Dunedin Outpatients building, level-03 would be identified as:

- Main records database (centralised records database)
 - -DUN-OB-L03

As printed on label examples:

- DUN-OB-L03
- OB-L03

3.8 Room and Space identifiers

Indoor data spaces are identified with a space code, generally this is the Room number as defined in the Numbering Guidelines or provided by the Te Whatu Ora Data & Digital team.

The room number will be unique within the floor level of the building but will likely exist in other buildings therefore master records will need to include the campus and building codes. There may be more than one data space on the floor level particularly in larger buildings.

The label on the space will be the room number only as the campus, building and floor level codes are self-evident. If the room number has more than three characters, the most unique or 'commonly known' three characters will be used.

Space identifiers have the format: Campus-Building-Floor-**Space**: [c]-[b]-[f]-s. Using this format, the Dunedin Outpatients building, level-03, Comms Rooms identified as space 030 and space 032 (example only) would be identified as:

- Main records database (centralised records database)
 - DUN-OB-L03-030 (Comms room identified as room 030)
 - DUN-OB-L03-032 (Comms room identified as room 032)
- R or S may be used as the first identifier for rooms or spaces that require two digits or less, (e.g. R30 or S30):
 - DUN-OB-L03-R30 (Comms room identified as room R30)
- Labelling on the space door **must** include the minimum description on the label to enable identification of the correct space.
- **Minimum written on the space/room:**
 - **030 or R30**
- Recommended practise generally includes both the floor number and a unique room number on a label as follows:
 - L03-R30
 - L03-032

Alternatively, it is also okay to include the full identifier on the label as follows:

- DUN-OB-L03-R30 (Comms room identified as room R30)
- DUN-OB-L03-R32 (Comms room identified as room 032)

3.9 Description

In addition to the formal labelling identifiers an additional description may be added e.g., Telecommunications Room, Hub Room, etc:

- L03-R30 Hub Room
- DUN-OB-L03-R30 Hub Room

3.10 Outdoor data spaces

Outdoor data spaces or other external structures used for data distribution or termination **shall** be uniquely identified and labelled. Outdoor data spaces may include:

- Chambers/pits – standard data pits.
- Pedestals – an above ground level termination of joint enclosure.
- Poles/antenna – may include poles supporting CCTV or external Wi-Fi or may be communications antenna poles. Poles may support other functions such as lighting and wayfinding signage.
- Kiosks – structures used for special purposes. Kiosk may include services such as external pay-stations for a parking system, Access Control barrier gates controllers, and external duress or security call-points.
- The format of the outdoor space label is as follows:
- Region-District-Campus-**Outdoor Data Space**-(GPS Coordinates) [r]-c-T-[(g)] where
 - *r* = region
 - *d* = district
 - *c* = campus
 - *T* = outdoor data space type of three-character alpha with a three-character number unique number identifier
 - *g* = GPS coordinates of the space in brackets. The (*g*) field is optional but if used **shall** be applied consistently throughout the administration system.

Example

- TWP-SO-DUN-PIT001
- TWP-SO-DUN-PIT001-(48°51'30.24"N, 2°17'40.2"E)

The following types of outdoor spaces labels are to be used:

Label	Description
KSKxxx	Kiosk, for example Duress call point kiosk
PITxxx	Pit / chamber
PEDxxx	Pedestal (infrastructure potentially providing power and/or data services)
POLxxx	Pole (for example with CCTV camera cable joint)

Table 8 - Outdoor data spaces

Kiosks, Pedestals and Poles **must** at minimum display the data space identifier on the label e.g. **KSK030**.

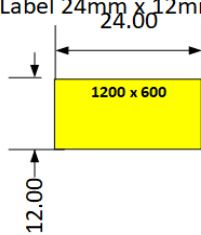
Pits / chambers **must** adhere to the below labelling standard:

Outside Plant Labelling

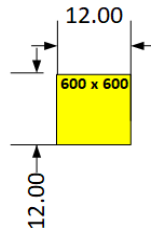
Region:		Acronym	Object Type		Acronym
Northern	-	NOR	Pit/chamber	-	PIT
Te Manawa Taki	-	TMT	Kiosk	-	KSK
Central	-	CEN	Pole	-	POL
Te Waipounamu	-	TWP	Pedestal	-	PED

PIT – Manholes, Access holes. Colour yellow.

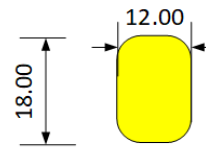
Rectangular Pit dimensions
1200mm x 600mm wide.
Label 24mm x 12mm.



Square Pit dimensions
600mm x 600mm wide.
Label 12mm x 12mm.



BDD Pit for 100mm duct.
Dimension vary. Smaller than
the square pits..
Label 12mm x 18mm.



Pit dimensions are for illustration.

Most comms pit sizes are 1200 x 600 or variations of those sizes.

Pits are available in other sizes. The yellow squares and rectangles are to give an indication to the person on the ground what they should be looking for when searching for the next pit.

The pit dimensions are only put on the label for the pit it is on.

Example square or rectangle pit label.

Name is a 6 character field.

Prefixes can be PIT or BDD.

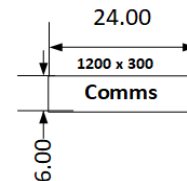
The remaining 3 characters are a number for that PIT or BDD on site.

A BDD (buried distribution system) pit is an oval shaped pit that is smaller/narrower than a 600x600 pit.



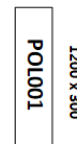
In building terminations – colour white.

Comms racks, 110 frames, consolidation points.



External building terminations – colour white.

Wall mounted ducts, pliNORs, pedestals, kiosks, bus shelters, barrier arm control housing.



Ducts – data (green) and power (orange)

The default duct size is 100mm diameter.

A minimum of two ducts to be installed between pits.

Three ducts to be installed between pits if there is a possibility that carrier circuits will be installed into a duct.

Power ducts not to be run to or through data pits.

Only show power ducts if they terminate in or traverse through legacy pits.

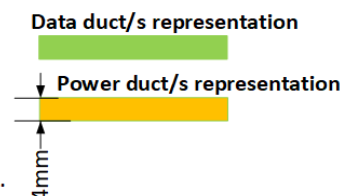


Figure 1– Outside Plant labelling example 1

Outside Plant Labelling

The label template background.

Sub-heading:

Region(3 chars)-District(2 chars)-Campus(3 chars)-PIT(6 chars)

Example:Northern, Middlemore Hospital, Pit 005

NOR-CM-MMH-PIT005

Material: - 304L Stainless Steel sheet 110 x 110 x 1mm thick.

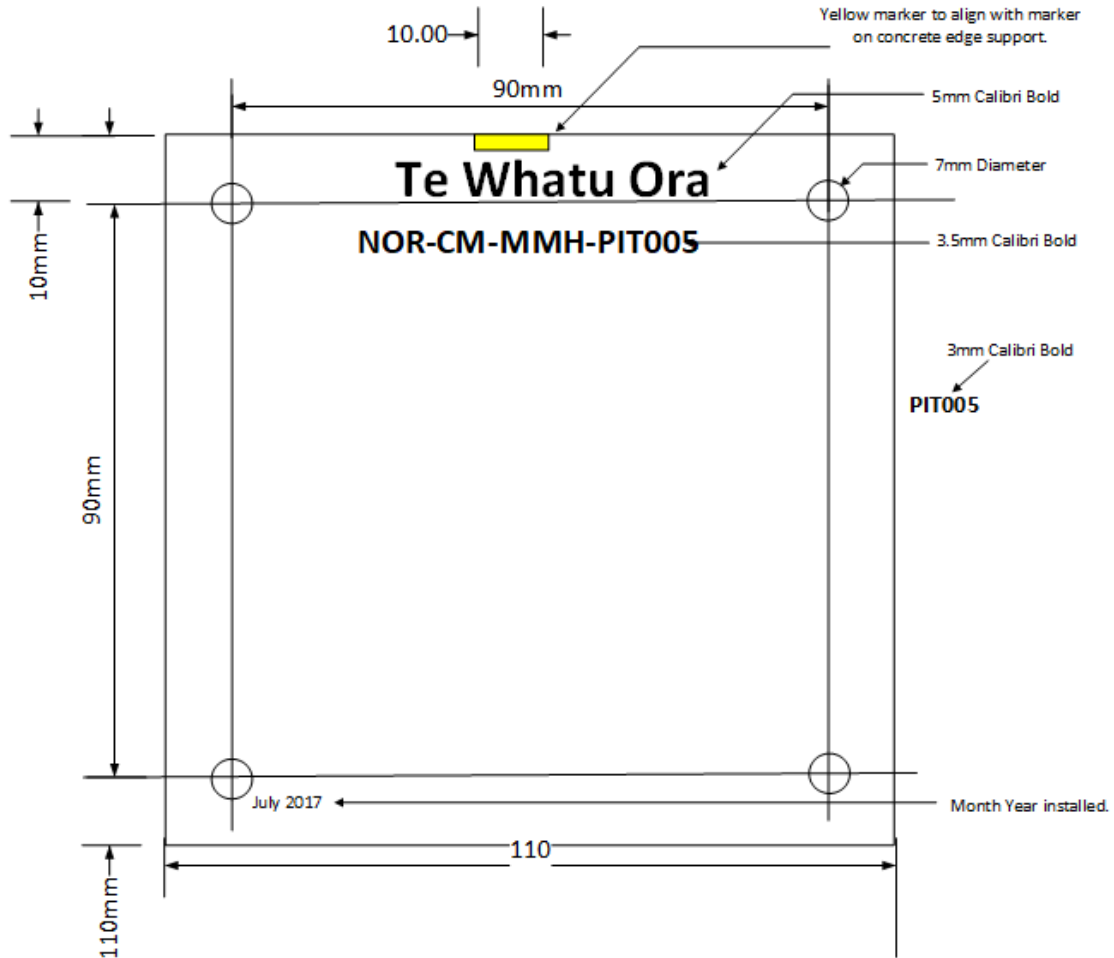


Figure 2 - Outside plant labelling example 2

Outside Plant Labelling

Example:

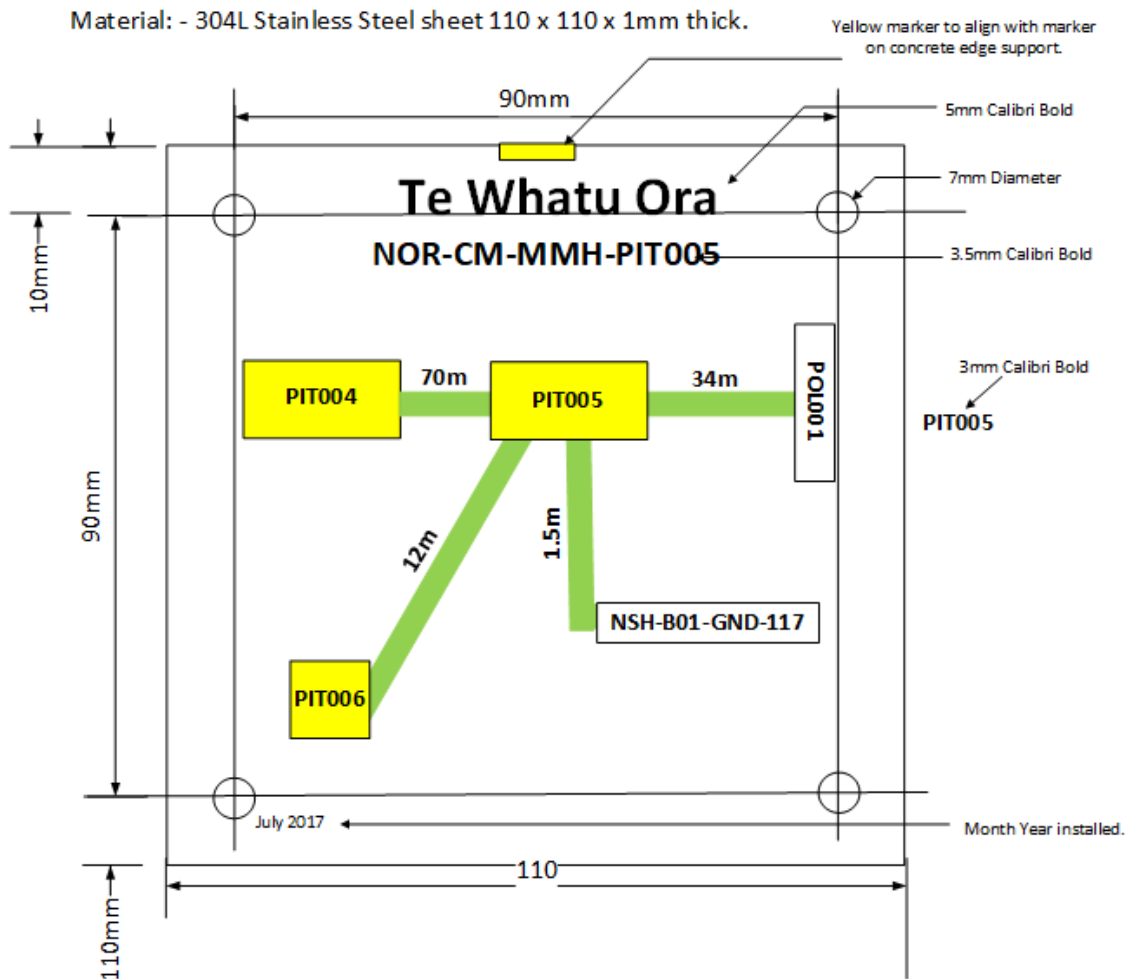


Figure 3 - Outside Plant labelling example 3

All Pits should be identified with a graphical label that clearly depicts:

- Te Whatu Ora and full pit identification, (e.g. NTH-WAI-NSH-PIT005)
- Current Pit Number (e.g. PIT005)
- Connected Pit Numbers
- Any other connected assets, (e.g. building, poles, pedestals etc)
- Distance to Pits
- Direction to Pits
- a coloured marker on the pit label that aligns with an identically coloured marker on the concrete surround to ensure that the pit cover is not put back on in the wrong orientation.

The label should be:

- made from 304L Stainless Steel that
- 110 * 110mm and 1mm thick.

- *In Calibri Bold font*
- *Be date stamped*

Note: Pit/Chamber labels **must** be branded with 'Te Whatu Ora' and **must** also include the Campus identifier. Pit/Chambers **must** have an identifier that enables confirmation of correct alignment of label, (ref appendix for example).

3.11 Labelling of duct/conduit entry points

Outdoor cable pathways identify duct, conduits, and sub-ducts to connecting pits, pedestals, buildings etc. Labels **must** be applied to every duct within each pit.

The outdoor pathway unique identifier **shall** be added to the end of the source and destination labels as an alpha/numeric string separated by the ":" character.

The string follows the format as follows, :N([d]) where N indicates conduit or duct number, the "d" indicates sub-duct if present.

In the below example the third sub-duct installed within the second conduit pathway from Waikato, Main Building, Level 1, Room 07, PIT001, Conduit 3, sub duct 2 to

Waikato, Helen Hanson Building, Level 1, Room 09, Conduit 3, sub duct 2, would have the format [Campus]-[Building]-[Floor]-**Outdoor Data Space: Duct or Conduit (Sub-duct)** / destination: [c]-[b]-[f]-[S]-**T:N**([d]):

- Main records database (centralised records database)
 - WAK-MB-L01-R07-PIT001:3(02) / WAK-HH-L01-R09:3(02)
- On the conduit sub-duct within room HH-L01-09
 - HH-L01-R09-:3(02) / MB-L01-R07-PIT001:3(02)
- **Minimum written on the pathway label for a building duct connecting to a pit duct:**
 - **B01-L01-09:3 / PIT001:3**
- **Minimum written on the pathway label for a pit duct 003 sub duct 02 connecting conduit 3 to another pit duct 001 with a sub duct 02:**
 - **PIT003-3(02) / PIT001-3(02)**

Outside Plant Labelling

Labelling of ducts within the pits/chambers.

Source and destination label.

Format:

Source:Duct number (sub-duct number)/ Destination:duct number(sub-duct number)

Labels to be locally significant. i.e. Use the least amount of fields necessary.

Examples:

Pit 5 to pit 6 duct 1.

PIT005:1/PIT006:1

Pit 7, duct 2, sub-duct 1 to Building 01, Ground floor, Room 303.

PIT007:2(1)/B01-GND-303:1(1)

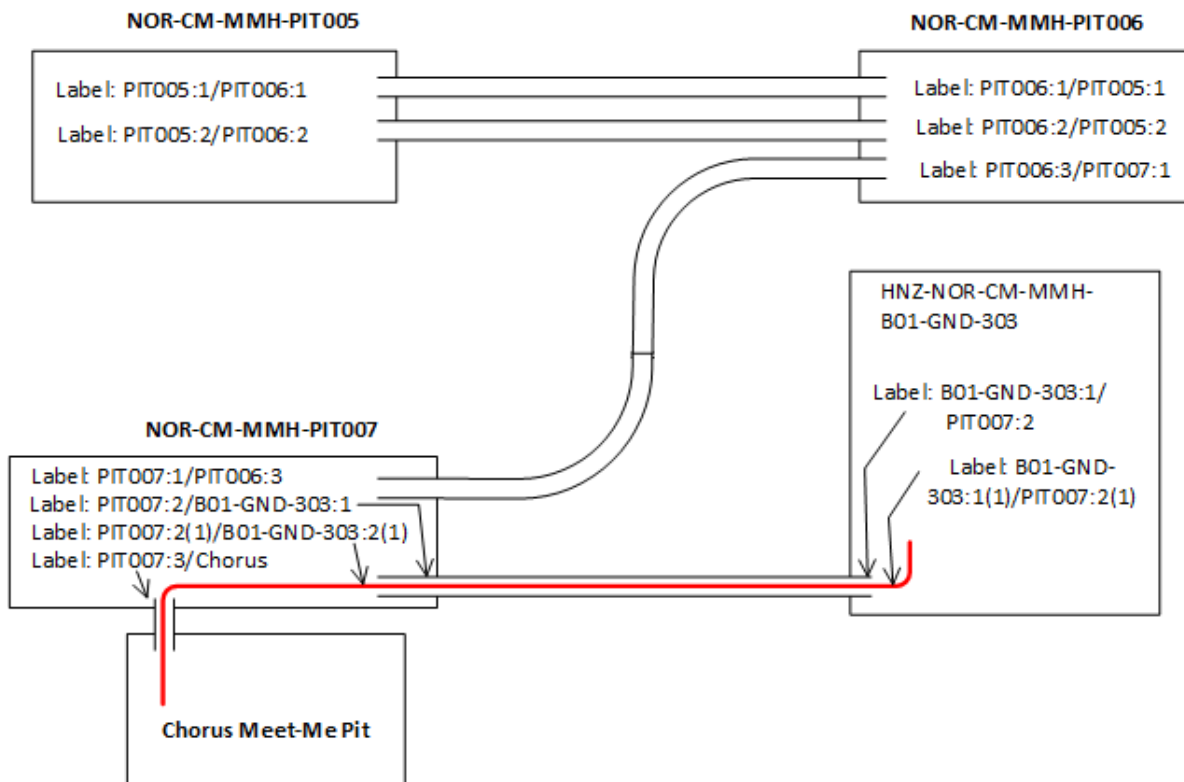


Figure 4 - Outside Plant labelling example 4

4. Cabinet, frame, wall mount enclosures

4.1 Telecommunications rooms

Cabinets and frames may be identified by using a row/number combination in telecommunications rooms and spaces. Identify racks and frames in telecommunication rooms in a consistent format where:

- Rows have an alpha designator starting with A. Note the alpha designator is optional if the room is not capable of holding more than one row of racks.
- Cabinets have a 2-digit numerical identifier where 01 is the first cabinet.
- Rack labelling will be a minimum of 50mm in height with the label located at the top-front centre and top-rear centre of the cabinet.
- Should use a self-adhesive multi-layered laminate engraved with 15mm upper case lettering.
- Numbering should start at a location that is unlikely to be expanded upon in future.

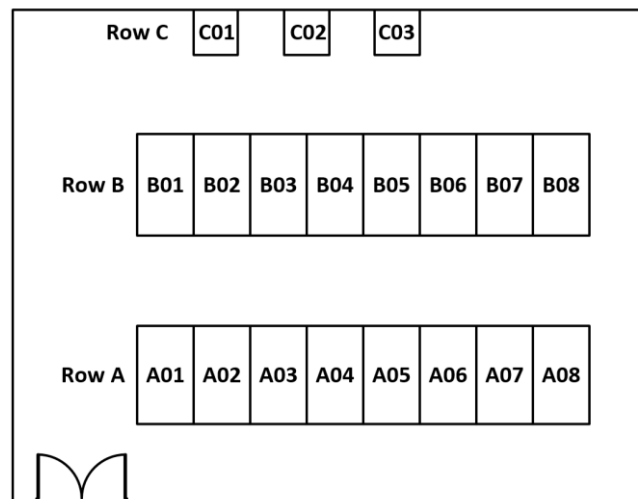


Figure 5 - Rack labelling example

Cabinet identifiers have the format: Campus+Building-Floor-Space-**Cabinet Number**: [c]-[b]-[f]-[s]-xyy where “xyy” is the row and cabinet number.

Following the labelling format shown in the above figure, cabinet A02 in Room (space) 05 on Level 1 L01, on Wakari Hospital property would have the following identifiers:

- Main records database (centralised records database)
 - WAK-MB-L01-R05-A02
- Space identifier label on the door to the telecommunications room
 - L01-R05
- **Minimum Cabinet identifier label on the front of the cabinet**
 - **A02**

Note that the building and room identifiers are not needed on the cabinet, as both would be self-evident by presence in the building and room respectively.

4.2 Rack mounted equipment (database record only)

Enclosures and patch-panel installed within frames and cabinets **shall** have a common system to clearly identify the placement of devices in the cabinet in the main records system and on design documentation. The labelling of the active equipment in the rack is beyond the scope of this standard.

- The position of the enclosure or patch panel is determined by the RU location the top left of the enclosure or panel is installed in, use 2-number numeric.
- RU spaces are numbered from the bottom with the bottom RU being 01.

Rack mounted equipment identifiers have the format: Campus-Building-Floor-Space-**Cabinet Number-Rack Unit Number**: [c]-[b]-[f]-[s]-xyy-RU where “xyy” is the row and cabinet number, and “RU” is the rack unit number.

Following the format shown in the above figure, for rack mounted equipment in RU35 cabinet A02 in Room (space) 05 on Level 1 L01, on Wakari Hospital property would have the following identifiers:

- Main records database (centralised records database)
 - WAK-MB-L01-R05-A02-RU35
- Note: there is no minimum requirement to physically label the rack unit numbers

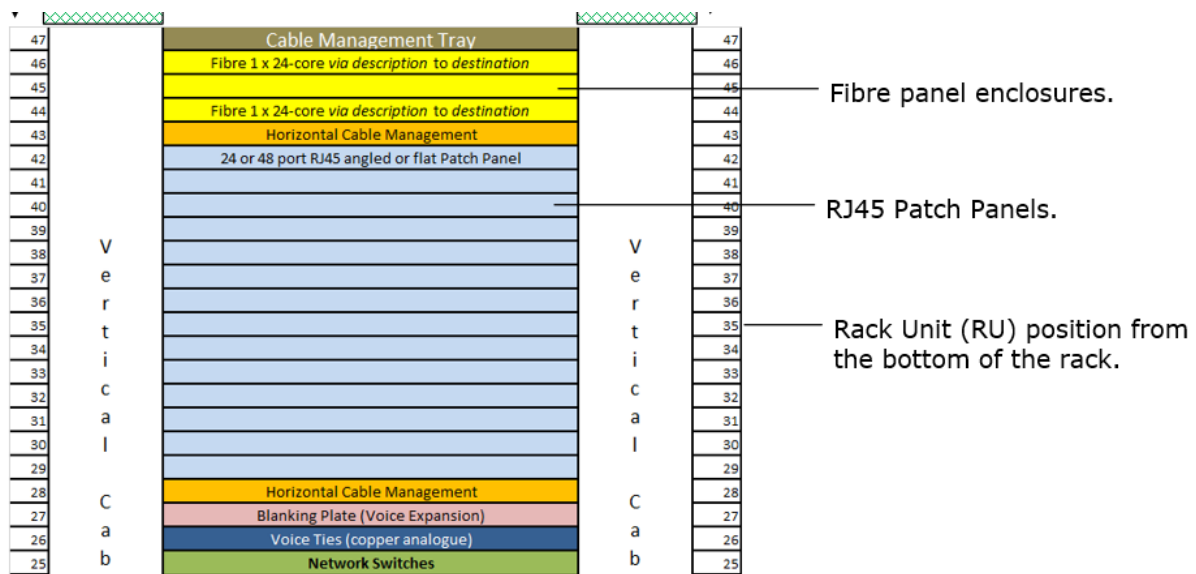


Figure 6 - Enclosure labelling example

4.3 Enclosure port number

Enclosure and patch panel port numbers **shall** be identified in the records set using a “:” character between the enclosure number and the port number.

- One to three characters identifying the port number. The quantity of digits used **shall** be the same for all ports on the enclosure, for example the first port on a 24-port panel will be 01, the first port on a 144-port enclosure **shall** be 001.
- When sub-panels are used in an enclosure, a sequential alpha character **shall** be used before the port number to identify the sub-panel.

- Patch panels should be installed sequentially from Rack A1 down the rack and when deemed sufficient they should be continued on rack A2. The intent is that the outlet numbering works across the racks and is not restarted in separate locations in the racks.
- The numbering **shall** remain sequential regardless of which floor or service the cabling supports. i.e. The numbering **shall** not re-start if the rack feeds cabling to Levels 1 and Levels 2. The cabling numbering **shall** not divide itself into services e.g. Data, Voice, WiFi.
- For the database entry and/or design documentation following the labelling format shown in the above, the second port of a 48-port patch panel enclosure in RU35 of cabinet A02 would have the following identifiers Campus-Building-Floor-Space-Cabinet Number-Rack Unit Number: **Port Number** [c]-[b]-[f]-[s]-[xyy]-[RU]:xxx

Examples:

- Main records database (centralised records database)
 - WAK-MB-L01-R05-A02-RU35:002
- **Minimum Cabinet identifier label on the port within the enclosure**
002

Note 1: that the enclosure identifier is not needed on the enclosure label as this would be self-evident by its presence in the enclosure labelled 35.

Note 2: individual labelling of ports on patch panels is recommended.

4.4 Port fibre enclosure with four sub panels example

Following the labelling format shown in the above, the second port of the fourth sub-panel (cassette) in a 144-port fibre patch panel enclosure in RU41 of cabinet A02 would have the following identifiers:

- Main records database (centralised records database)
 - WAK-MB-L01-R05-A02-RU41:D02
- Written records retained within the room or space
 - A02-RU41:D02
- **Enclosure port identifier is mandatory on the enclosure label:**
 - **D02 (+ triangular laser radiation warning label)**

Note that the enclosure identifier is not needed on enclosure label as this would be self-evident by its presence in the enclosure labelled 41.

Fibre patch panels and wall enclosures **must** include triangular laser radiation warning labels.

5. Cable identifiers

5.1 Backbone cables

Full cable identifiers identify cables uniquely in the main records database but in general, most components can be omitted, (depicted within open brackets [] to represent as 'optional fields') during field labelling. For example, the location labels for cables indicating campus, building, space are not required in field labelling as the cable is present in that space.

Fibre cables and ABF micro-duct bundles **must** be labelled at every point of access using Critchley labels. Every point of access means each pit that the cable passes through, each building entrance facility the cable passes through, the termination points of each cable and any space within a building where there is reasonable utility in having the cable labelled.

Fibre optic cables **must** have orange warning stickers affixed to them at 4 metre intervals within service spaces.

Backbone cables should be labelled:

- Approx. 300mm from the rear of the fibre tray
- Approx. 300mm- 600mm from any pathway change
- Approx. 300mm- 600mm either side of a firewall
- Approx. 300mm- 600mm after exiting a duct, a sub duct, or conduit

Cable labelling **shall** always be of the format

- Cable labels **shall** be in the format with source/destination labelled separated by the / character. The same label format will be used at each end of the cable.
- When recording in the main database, the full description shall be used. The source end (first label point) **shall** be the end of the link nearest to the main Campus Distributor
- The cable type **shall** be added to the end of the source and destination labels as an alpha/numeric string separated by the “:” character. The cable type follows the second location only.
- Valid cable types are OS1A, OS2, OM3, OM4, OM5 for fibre cables, Cat.5E, Cat.6, Cat.6A for balanced cables, and 25P and 100P for Cat.3 voice grade cables.
- When the fibre cable is an air-blown cable installed in ABF conduits, include an ABF identification with the number of innerducts and the innerduct number used before the fibre cable designation, i.e. in this format ABF:11/7- would indicate an 11 innerduct ABF bundle with the fibre installed in the 7th innerduct.

5.2 Tight-buffer and ABF fibre cables labelling

Following the labelling format shown in the previous examples, a 24-core single-mode OS1A fibre backbone cable:

- From building HH, level L01, room R05 cabinet A02, rack unit 35 sub-unit D ports 1-24
- to building MB, level L01, room R09, cabinet A01 and rack unit 45 sub-unit A ports 1-24 would have the format
- Campus-**Building-Floor-Space-Cabinet Number-Rack Unit Number:Port Numbers**
- [c]-b-f-s-xyy-RUxx:Rx_xx / destination system - cable type (e.g. OS1)Main records database (centralised records database)

- **Tight-buffered:** WAK-HH-L01-R05-A02-RU35:D1_24 / WAK-MB-L01-R09-A02-RU45:A1_24:OS1
- **ABF:** WAK-HH-L01-R05-A02-RU35:D1_24 / WAK-MB-L01-R09-A02-RU45:A1_24:ABF:11/7-OS1 (where 11 represents an ABF construction containing 11 innertubes, and 7 represents the 7th innertube duct)
- On the cable within room HH-L01-R05
 - **Tight-buffered:** HH-L01-R05-A02-RU35:D1_24 / MB-L01-R09-A02-RU45:A1_24:OS1
 - **ABF:** HH-L01-R05-A02-RU35:D1_24 / MB-L01-R09-A02-RU45:A1_24:ABF:11/7-OS1 (where 11 represents an ABF construction containing 11 innertubes, and 7 represents the 7th innertube duct)
- On the cable within room MB-L01-R09
 - **Tight buffered:** MB-L01-R09-A02-RU35:A1_24 / HH-L01-R05-A02-RU45:D1_24:OS1
 - **ABF:** MB-L01-R09-A02-RU35:A1_24 / HH-L01-R05-A02-RU45:D1_24:ABF:11/7-OS1 (where 11 represents an ABF construction containing 11 innertubes, and 7 represents the 7th innertube duct)
- **Minimum information on fibre cable labels:**
 - **HH-L01-R05-A02-RU35:D1_24 / MB-L01-R09-A02-RU45:A1_24**

Tube management boxes **must** be labelled. The labels **shall** be 50mmx50mm, self-adhesive multi-layered laminate engraved with 15mm upper case lettering.

5.2.1. ABF jacket and innerduct labelling

ABF jackets and individual innerducts are to be labelled in the same format as fibre cables with the fibre cable type identifier not included. ABF cable may be installed from source to destination without breaking out of an inner tube. In many installations the ABF sheath will be removed at a mid-point location enabling one of the inner tubes to be cut and broken out with an extension to support a breakout location.

5.2.2. ABF Sheath

The ABF outer sheath **shall** be labelled showing initial source and final destination of the ABF cable sheath. The label will include the number of inner ducts and identify as the sheath with the format xx/y where:

- xx indicates the number of internal innertubes
- y is 0 to represent the sheath.

Using the same example as above the labelling is as follows:

- Main records database (centralised records database) for air blown fibre:
 - WAK-HH-L01-R05-A02-RU35:D1_24 / WAK-MB-L01-R09-A02-RU35:A1_24:ABF:11/0
- On the cable within room closest to the campus distributor HH-G01-R05
 - HH-L01-R05-A02-RU35:D1_24 / MB-L01-R09-A02-RU35:A1_24:ABF:11/0
- On the cable within room further away from the campus distributor MB-L01-R09
 - HH-L01-R05-A02-RU35:D1_24 / MB-L01-R09-A02-RU35:A1_24:ABF:11/0

5.2.3. ABF Innertubes

The ABF innertubes **shall** be labelled showing initial source and destination of the ABF cable innertube. The label will include the number of inner ducts and identify as the sheath with the format xx/y where:

- xx indicates the number of internal innertubes.
- y indicates the innertube number.

When an innertube is broken out, it **shall** be labelled from the source to the breakout location. At the breakout location, the innertube will be cut and an extension applied to take the innertube to the termination point.

As an innertube is not withdrawn from the ABF cable sheath when a breakout is made, the innertube continues to the final destination of the ABF construction. The remaining innertube can also be used as another path to and from the final destination. The remaining innertube is to be labelled with its source at the breakout location to the final destination.

Using the same example as above and assuming an ABF fibre construction with 11 innertubes and the 7th innertube being labelled, the labelling is as follows:

The ABF innertubes shall be labelled showing the source and destination.

- Main records database (centralised records database)
 - ABF: WAK-HH-L01-R05-A02-RU35:D1_24 / WAK-MB-L01-R09-A02-RU35:A1_24:ABF:11/7
- On the cable within room HH-G01-R05
 - ABF: HH-L01-R05-A02-RU35:D1_24 / MB-L01-R09-A02-RU35:A1_24:ABF:11/7
- On the cable within room -MB-L01-R09
 - ABF: MB-L01-R09-A02-RU35:A1_24 / HH-L01-R05-A02-RU35:D1_24:ABF:11/7

5.3 Distribution cables

Distribution cables run from local TRs to the edge outlet and are identified by the port on the enclosure on which they terminate.

Note it is not required to label distribution cables unless they are for critical distribution connections only.

The cable should be labelled at both ends and the label should include:

- The SpaceCode of the telecommunications room
- Cabinet number
- RU and port number
- Following the labelling format shown in the above examples, the cable connected to the second port of a 48-port patch panel enclosure in RU35 of cabinet A02 would have the following identifiers Campus-Building-Floor-Space-Cabinet Number-Rack Unit Number:Port Number [c]-b-f-s-xyy-RU:xxx

Main records database (centralised records database)

- WAK-MB-L01-R05-A02-RU35:02
- Written records retained within the room or space
 - A02-RU35:02

- **Minimum information on distribution cable labels (both ends)**
 - **MB-L01-R05-A02-RU35:02**

5.4 Patch cables

As the location of the telecommunications room is self-evident by presence within the room, and the space of patch cables is limited, the labels on patch cables do not need to include the SpaceCode identifiers and can be simplified to show the port numbers.

A patch cable connecting the second port of a 48-port patch panel enclosure in RU35 of cabinet A02 to the third port of a closure or network device in cabinet A01 RU 30 would have the following identifiers:

- **Minimum identifier on the patch cable label:**
 - **A02-35:02 \ A01-30:03**

Note that as patch cords are frequently changed or reconfigured, the labelling of patch cords may be restricted to critical patch connections only.

5.5 Data Outlets

Each data outlet **shall** be labelled at minimum with the port identifier.

A Data Outlet is identified by the port of the closure on which the horizontal link terminates followed by the = sign and the capital letters XO.

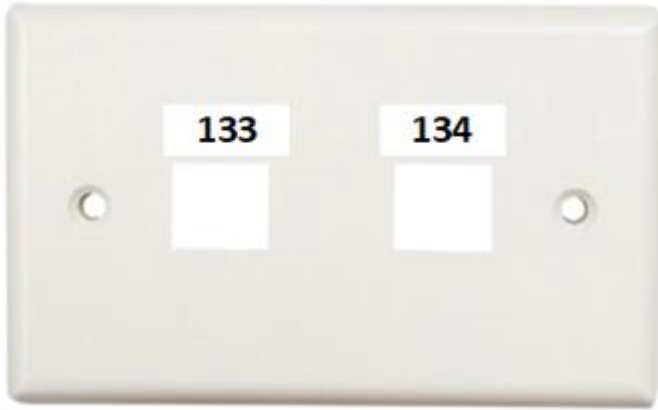
Note “X” is the IEC identifier for a connecting object, and “O” further identifies the object as an Outlet.

Following the labelling format shown in the above examples, the data outlet connected to the second port of a 48-port patch panel enclosure in RU35 of cabinet A02 would have the following identifiers Campus-Building-Floor-Space-Cabinet Number-Rack Unit Number: **Port Number**=Data Outlet [c]-[b]-[f]-s-[xyy]-[RU]:xxx[=XO]:

- **Main records database (centralised records database)**
 - WAK-HH-L01-R05-A02-RU35:02=XO
- **Written on the cable (both ends), (only required for critical cables)**
 - A02-RU35:02 (the XO indicator is not required as the data outlet is self-evident)
- **Minimum on the outside of the faceplate, (faceplate label)**
 - **02**

If there is only one Telecommunications Room within a building, then each outlet **shall** at a minimum be labelled with the data outlet identifier.

Example of data outlet numbering only.

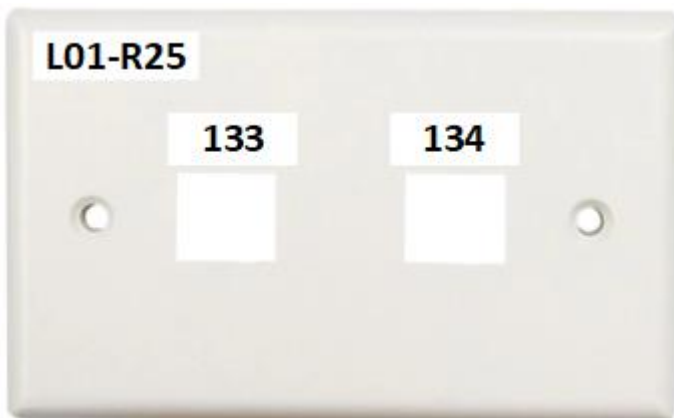


Where there are multiple comms rooms feeding an area then the faceplate is to also list the Telecommunications Room name on the top-left of the faceplate.

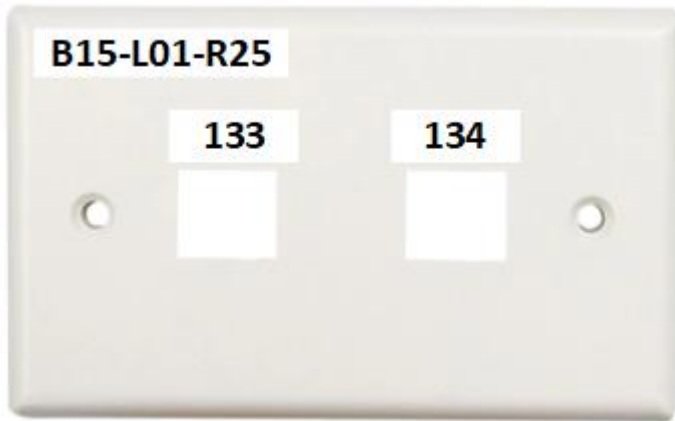
Example of Telecomms Room and data outlet numbering.



Where TRs feed multiple floors then the faceplate label is to include the level that the TR is located. The default faceplate label is to include the Level and TR name as well as the data outlet numbering. E.g. L01-R25 and the data outlet numbers.



Where Buildings join and it is possible to have the cabling overlap in an area then add the building prefix to the label.



5.6 Consolidation points

A Data Outlet within a Consolidation Point is identified by the port of the enclosure on which the horizontal link terminates.

Following the labelling format shown in the above examples, the data outlet connected to the second port of a 48-port patch panel enclosure in RU35 of cabinet A02 would have the following identifiers: [Campus]-[Building]-[Floor]-TR **Space**-Cabinet Number-Rack Unit Number:**Port Number=Data Outlet**: [c]-[b]-[f]-s-[xyy]-[RU]:xxx :

- Main records database (centralised records database)
 - WAK-HH-L01-R05-A02-RU35:02
- **Minimum written within the Consolidation Panel label:**
 - **R05:02**

6. Indoor pathways and conduits

6.1 Cable support systems

Indoor pathways include cable tray, cable basket, or conduits and may be installed either vertically as risers, or horizontally for distribution and backbone cables.

Where Comms cable baskets, tray and conduits enter an enclosed space, wall, tunnel, trench, or other area where the other side of the support system is not visible and there may be uncertainty in which system is appearing at the far end then both ends of the support system must be labelled to provide certainty.

The format for the label is: source [c]-[b]-f-s:Comms (x) / destination [c]-[b]-f-s:Comms (x).

Campus-Building-Floor-SpaceCode:Comms (Numeric) / Campus-Building-Floor-SpaceCode:Comms (Numeric)

The SpaceCode may be a Room number or a description of the space itself.

Labels shall be installed in pairs. One at the source and one at the destination.

The source on the label will be the same regardless of where the 2nd label is located.

The label **shall** read the same at both ends of the basket/tray/conduit to be traced. i.e. When installers are reading the label out to each other, and they are at different locations the label **shall** read the same.

Labels **shall** be installed in locations where they will assist future cable installers in the installation and removal of cables. Examples of the locations could be riser openings, ceiling access trapdoors in closed ceilings, areas across the top of Labs or infection control areas where limited exposure the ceiling void is required, areas where the ceiling void fixtures (air conditioning, piping, trays, etc) hide the cable tray path.

Examples of source to destination labels:

AKH-B01-L03-R145:Comms1 / AKH-B01-L03-InwardsGoodsTunnel:Comms1

AKH-B06-Tunnel:Comms1 / AKH-B13-Tunnel:Comms2

- **Minimum written on the cable support system label:**

Tunnel exit to Generator:Comms3 / Tunnel exit to B40:Comms3

- **L03-R17:Comms1 / L04-R24:Comms1**
- **L03-R17:Comms2 / L05-R340:Comms2**
- **L03-R17:Comms3 / L06-R47:Comms3**

6.2 Fire stopping penetrations

Fire stopping penetrations **shall** be labelled on both sides of the barrier (wall for distribution, floor/ceiling for risers). The labelling format is a similar structure to the cable support systems but replaces the pathway identifier with "FS" to indicate the fire stop barrier. The unique fire stop identifier **must** also be added to the label e.g. FS1 to indicate fire stop 1. Fire stops should be numbered sequentially within each space to provide a unique identifier for each fire stop.

Fire stopping penetrations **must** include the label "For Data Use Only" in addition to the identifier. The abbreviation 'FS' or the complete words may be used on the label i.e. Fire Stop.

Following the labelling format shown in the previous examples, a Fire Stop from level 1, Room 5 to level 1, Room 6 on the same floor would have the following format: **Building-Floor-Space:Fire Stop** / destination: *-b-f-s*:Fire Stop / destination.

- Main records database on the R05 side of the wall (centralised records database)
 - HH-L01-R05:FS1 / HH-L01-R06:Fire Stop 1
- **Minimum identifiers written on the labels on each side of the fire stopping penetration:**
 - **HH-L01-R05:FS1 / HH-L01-R06:Fire Stop1 For Data Use Only** (written on the R05 side of the wall)
 - **HH-L01-R06:FS1 / HH-L01-R06:FS1 For Data Use Only** (written on the R06 side of the wall)

Appendix A: Te Whatu Ora Building Naming Conventions

Please ensure to reference the latest version of the Naming Conventions document [here](#).

Please correspond with the Infrastructure and Investment Group regarding any questions with the above naming conventions: iig@health.govt.nz.