## Document Control Information

<table>
<thead>
<tr>
<th>Team Name</th>
<th>Published date</th>
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<tr>
<td>Design Standards Steering Group</td>
<td>20 January 2020</td>
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</table>

<table>
<thead>
<tr>
<th>Document version</th>
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<tr>
<td>Version 1.0</td>
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### Document Control

<table>
<thead>
<tr>
<th>Version</th>
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<td>20 January 2020</td>
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10-3.1 Introduction

Introduction
This section shall be specifically read in conjunction with Section 1 About this Document and Section 2 Project and Building Works Requirements of the University of Auckland’s (the University) Property Services Design Standards and Guidelines.

10-3.1.1 About this document
The University’s Passive Fire guide outlines the requirements when undertaking fire and smoke stopping within any building at the University. It is made up of 3 parts:

Table 1: Passive fire guide documents

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Part 1, General</td>
<td>Focuses on defining the performance requirements for the systems, the fire stopping documentation package and other general requirements.</td>
</tr>
<tr>
<td>Part 2, Product Selection</td>
<td>Provides, for information only, details on a significant number of fire stopping products from various manufacturers / suppliers / importers which manufacturers attest to achieving compliance with NZ Building Code requirements (AS4072 Part 1).</td>
</tr>
<tr>
<td>Part 3, Basic Solutions.</td>
<td>Provides, for information only, a number of documented solutions for frequently occurring fire stopping situations. This information is intended to minimise the design effort required to ascertain the suitability of the solution and to minimise the risk of installation errors.</td>
</tr>
</tbody>
</table>

10-3.1.2 Using this document
All fire stopping works are undertaken as a contractor ‘design and build’ element. The contractor is responsible for fully reviewing the fire stopping problem, developing a solution and installing it in a satisfactory way.

It is the responsibility of the fire stopping contractor to confirm that the installation or construction has been carried out in accordance with the Building Code (and any University requirements). In situations of uncertainty, information conflicts or missing information, the contractor must confirm any design and installation details with the product manufacturer (or their local representative).

The responsibility of NZ Building Code compliance of fire stopping products within this guide lies solely with the product manufacturer / supplier / importer. This includes all installation details.

All product information detailed within this guide is provided for information only. Given normal product development cycles, it is possible that products identified within the guide will be superseded, withdrawn or redesigned. Whilst the intent is for the guide to be periodically updated, the fire stopping contractor shall be responsible for checking the product information is current and correct.

“Passive Fire” relates to maintaining the fire resistance rating of a fire separation and / or the integrity of a smoke separation. This guide frequently uses ‘fire stopping’ and ‘smoke stopping’ to denote this. For simplicity, this guide frequently refers to fire and smoke stopping as ‘fire stopping’.
This guide does not remove the requirement for the installer to be competent, both in understanding the fire performance objectives of the fire stopping works and the specific limitations of the fire stopping solution to be used.

Those undertaking passive fire works for the University are expected to understand all parts of this guide. Any questions about this information should in the first instance be raised with Property Services.

### 10-3.1.3 Purpose

The purpose of this section is to:

- Provide, for information only, several documented solutions for frequently occurring fire stopping situations.
- Minimise the design effort required to ascertain the suitability of the solution
- Minimise the risk of installation errors
- Identify the design limitations of each solution
- Identify the appropriate installation details.

### 10-3.1.4 Applicable standards

This table lists the standards that are applicable to this document.

**Note:** The list is not exhaustive and if superseded by other standard(s), the latest version and/or amendment applies.

<table>
<thead>
<tr>
<th>Standard</th>
<th>No</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>AS</td>
<td>1530, Part 4</td>
<td>Methods for fire tests on building materials, components and structures. Part 4: Fire-resistance test of elements of construction</td>
</tr>
<tr>
<td>NZS BS</td>
<td>476 Part 21</td>
<td>Fire tests on building materials and structures. Methods for determination of the fire resistance of loadbearing elements of construction</td>
</tr>
<tr>
<td>NZS BS</td>
<td>476, Part 22</td>
<td>Fire tests on building materials and structures. Methods for determination of the fire resistance of non-Smoke and loadbearing elements of construction</td>
</tr>
<tr>
<td>NZS</td>
<td>4520 (2010)</td>
<td>Fire resisting doorsets</td>
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<tr>
<td>BS/EN</td>
<td>12101, Part 1</td>
<td>Smoke and heat control systems, Specifications for smoke barriers</td>
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<tr>
<td>EN</td>
<td>1634 Part 3</td>
<td>Fire resistance and smoke control tests for door and shutter assemblies, openable windows and elements of building hardware, Part 3 – Smoke control test for door and shutter assemblies</td>
</tr>
<tr>
<td>AC</td>
<td>1825</td>
<td>Auckland Council statement for acceptance of firestopping</td>
</tr>
<tr>
<td>UL</td>
<td>1479</td>
<td>Standard for Fire Tests of Penetration Firestops.</td>
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</table>
10-3.1.5 Design documentation

As well as design documentation outlined within *Parts 1 and 2 of Section 10* and *Section 2 Project and Building Works Requirements* of the Property Services Design Standards and Guidelines the consultant may be requested to make available to FM the following design documentation for their review:

- The Acceptable Solutions, C/AS1 – C/AS7, and the Verification Method, C/VM2
10-3.2 Abbreviations

### Passive Fire Guide, Basic Solutions abbreviations

**Table 3: Passive Fire Guide, Basic Solutions abbreviations**

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AC</td>
<td>Auckland Council</td>
</tr>
<tr>
<td>BCA</td>
<td>Building Consent Authorities</td>
</tr>
<tr>
<td>BWoF</td>
<td>Building Warrant of Fitness</td>
</tr>
<tr>
<td>DIBT</td>
<td>Deutches Institut für Bautechnik</td>
</tr>
<tr>
<td>EJ</td>
<td>Engineer's Judgement</td>
</tr>
<tr>
<td>FRR</td>
<td>Fire resistance rating</td>
</tr>
<tr>
<td>ICT</td>
<td>Information and Communication Technology Includes server and communications rooms</td>
</tr>
<tr>
<td>ISO</td>
<td>International Organisation for Standardisation</td>
</tr>
<tr>
<td>NZBC</td>
<td>New Zealand Building Code</td>
</tr>
<tr>
<td>TA</td>
<td>Territorial Authority</td>
</tr>
<tr>
<td>UL</td>
<td>Underwriters Laboratories</td>
</tr>
</tbody>
</table>

**Primary element**
A building element providing the basic loadbearing capacity to the structure, and which if affected by fire may initiate instability or premature structural collapse.

**Secondary element**
A building element not providing load bearing capacity to the structure and if affected by fire, instability or collapse of the building structure will not occur.

**Fire separation**
Any building element which separates firecells or firecells and safe paths and provides a specific fire resistance rating (FRR).

**Note:** The FRR relates to a standard test which established criteria for structural adequacy, fire integrity and fire insulation.

**Fire-rated floor infills**
- Minimum 1.5 kPa live load capacity to enable maintenance access to the services and/or their respective fire stops.
- Maximum 100mm clearance between the service penetrating the fire separation and the load-carrying fire-rated infill. (Clearance to be filled by non-load carrying fire stopping.)

**Fire resisting closure**
A fire rated device or assembly for closing an opening through a fire separation.

**Sleeping risk spaces**
- Includes bedrooms in a hall of residence, dormitories, hospital ward bedrooms, and clinical treatment spaces using sedation.
- Does not include bedrooms in a domestic dwelling owned by the University.

**Smoke separation**
Any building element able to prevent the passage of smoke between two spaces.
10-3.3 Basic Fire Stopping Solutions

10-3.3.1 Introduction

Applying fire and smoke stopping to walls and floors (fire and smoke separations) is both a requirement of the NZ Building Code (NZBC) and the Building Warrant of Fitness regime.

The fire guidance documents to support the NZBC result in the need to include fire or smoke rated construction in most buildings. The fire and smoke performance for these elements are usually defined within the fire engineering documentation submitted as part of the of Building Consent process. The Building Warrant of Fitness regime seeks to maintain, for the life of a building, the fire or smoke rating performance of these building elements as defined at the time of their construction.

The NZBC requires that the continuity and effectiveness of fire separations (the substrate) shall be maintained around penetrations, and in gaps between or within building elements, using fire stops.

Testing fire stops

Fire stops shall be tested:

- In circumstances representative of their use in service, paying due regard to the size of expected gaps to be fire stopped, and the nature of the fire separation within which they are to be used, and
- In accordance with AS 4072: Components for the protection of openings in fire resistant separating elements – Part 1: Service penetrations and control joints.

Solutions

While there are many fire and smoke stopping solutions available to meet these requirements (refer to the Passive Fire Guide, Part 2 - Product Selection), the information provided in this document is intended to simplify these works by providing prescriptive details for a number of fire stopping situations that frequently occur on the campus.

The design of all ‘fire stopping’ is dependent on many variables that are only determined during Construction Phase Design (as per NZ Construction Industry Council Design Documentation Guidelines). For this reason, fire stopping design must be included in the Construction Phase design (i.e. by the Contractor). The contractor is responsible for fully reviewing the fire stopping problem, developing a solution and installing it in a satisfactory way. Involvement by the project fire engineer may facilitate this work.

It is intended that the information provided in this document is enough to clearly:

- Identify the design limitations of each solution
- Identify the appropriate installation details.

All work undertaken using the details within this document are expected to be complied with in full (i.e. no deviations from these prescribed solutions permitted). If no solution is provided in this guide, refer Passive Fire Guide, Part 2 - Product Selection.
10-3.3.2 How to use this guide

<table>
<thead>
<tr>
<th>No.</th>
<th>How to use this guide</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Review the Methodology Flowchart (refer to Passive Fire Guide, General). Check the actual fire or smoke performance requirement relevant to the wall, floor or ceiling.</td>
</tr>
</tbody>
</table>
| 2.  | Review the flowchart which is applicable to the onsite issue:  
|     | • Concrete Vertical Fire Separations, page 12  
|     | • Concrete Horizontal Fire Separations, page 13  
|     | • GIB Vertical Fire Separations, page 14.  
|     | These flowcharts provide a solution reference code (e.g. CH5). |
| 3.  | Review the design and installation details found in Appendix A applicable to the solution reference code. |
| 4.  | Complete the works in accordance to steps 4-8 (approval and installation) of the Methodology Flowchart. |

10-3.3.3 Methodology Flowchart

The methodology flowchart in Passive Fire Guide, General summarises the required steps when undertaking fire and smoke stopping. The prescribed solutions within this guide is expected to simplify steps 1-3 (design). The contractor is still expected to address steps 4-8 (approval and installation).

Notes:
- Fire ratings (FRR) are typically specified in a form comprising three values (e.g. 60/60/60) for stability, integrity and insulation respectively. The number relates to the performance in minutes.
- Many suppliers of fire stopping products rely on local or overseas fire tests which have been carried out on gypsum plasterboard assemblies with significantly greater fire resistance than may be found onsite. The flowchart in 10-3.5 Concrete Vertical Separations on page 12 requires plasterboard linings which are at least 26mm on each side of the wall. Local patching of the wall may therefore be required. Refer to the extract from the GIB Fire Rated Systems guide in 10-3.4 GIB Information on Proprietary Penetration Seals on page 11 for further details.
- As referenced in the Gib Fire Rated Systems guide, fire stops are not to be supported directly by the plasterboard lining. Unless specified by the fire stopping manufacturer, the fire stop will need to be fixed to wall framing. Heavy items such as cable trays are not to be supported by the plasterboard lining.
10-3.4 GIB Information on Proprietary Penetration Seals

Resolve and specify fire rated service penetrations in the design office rather than on-site. Combine services as much as possible in service shafts which can themselves be fire rated, eliminating the need for many different and individual penetrations.

ENSURE FITNESS FOR PURPOSE

Fire test results for penetration seals, such as plastic pipe collars that have been tested in concrete, can not be simply transferred to other types of construction such as framed cavity construction lined with gypsum plasterboard.

Many suppliers of penetration seals in New Zealand rely on overseas or local tests carried out on gypsum plasterboard assemblies with significantly greater fire resistance than what is claimed for the penetration seal.

Check test reports and manufacturer’s information carefully. A penetration seal must be suitable for the construction type it is intended to be installed in.

SUPPORT PENETRATION SEALS

To erase doubt, ensure penetration seals are supported by framing around the aperture and not directly by gypsum plasterboard linings. Installation of additional framing members is often required.

Alternatively an additional strip of plasterboard can be installed over the existing lining and supported by adjacent framing members. This option is suitable for penetration seals such as cable bundles, metal pipes and PVC pipe collars.

Penetration patches are not required when penetration seals are installed in one-way universal (OW) systems. Heavy penetrating items such as cable trays and ducts must have separate supports, such as hangers to the floor above.

FOR FURTHER INFORMATION VISIT WWW.GIB.CO.NZ OR PHONE 0800 100 442
10-3.5 Concrete Vertical Separations

10-3.5.1 Flowchart

Figure 1: Concrete vertical separations flowchart
10-3.6 Concrete Horizontal Fire Separations

10-3.6.1 Flowchart

Figure 2: Concrete horizontal fire separations flowchart
10-3.7 GIB Vertical Fire Separations

10-3.7.1 Flowchart

![GIB Vertical Fire Separations Flowchart](image)

Figure 3: GIB vertical fire separations flowchart
Appendix A - Fire Penetration Details
A.1 CV1 - HILTI CP-660

≥100mm thick Concrete wall – single non-combustible pipe. ≤100mm dia steel pipe, ≥1.5mm pipe wall thickness
A.2 CV2 – HILTI CP-643N

≥100mm thick concrete wall – single plastic (combustible) pipe. 50-160 PE, 32-150 PVC, 110-160 ABS (all mm dia)

---

3D Cutaway
HILTI CP-643N

---

SECTION

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PLAN

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Note,
Suitable for: uPVC, PE & HDPE
PLASTIC SLEEVE NAIL - ANCHORS ARE NOT TO BE USED
Collar to be attached using MIS 5 x 25 Metal Pin Anchors

---

Installation Instructions for CP-643 N

- Before handling, read safety data sheet and product data for safe usage and health information.
- Only for materials that are compatible with CP-643 N.
- Use only CP-643 N for materials that are compatible with CP-643 N.
- Do not use CP-643 N for materials that are not compatible with CP-643 N.
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A.3 CV3 – HILTI CP-644

≥115 thick concrete wall – single plastic (combustible) pipe. 40-200PE, 40-150PVC, 40-125PPR, 40-125 Raupiano (all mm dia)

<table>
<thead>
<tr>
<th>CP-644</th>
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<tbody>
<tr>
<td>Designation</td>
<td>Pipe suitable (mm)</td>
<td>Colour suitable (mm)</td>
</tr>
<tr>
<td>CP-644-B33</td>
<td>12-51mm</td>
<td>0.7mm</td>
</tr>
<tr>
<td>CP-644-B38</td>
<td>15-51mm</td>
<td>1.2mm</td>
</tr>
<tr>
<td>CP-644-A38</td>
<td>15-51mm</td>
<td>1.2mm</td>
</tr>
<tr>
<td>CP-644-A40</td>
<td>15-51mm</td>
<td>1.2mm</td>
</tr>
</tbody>
</table>

Installation Instructions for CP-644

1. Close the plastic pipes. Lapover of the insulation material during a fire is not allowed, only dry, with a plastic wrapper. This remains of mineral is the only one that allow a delay in the opening action. Closed metal pipe should, therefore, be closed in the same pipe where the CP-644 Firestop Collar is to be installed.

APPLICATION OF FIRESTOP SYSTEM

2. Seal the openings. The opening must be closed with CP-644. The approved method is close to CP-644 Firestop Collar. After the CP-644 Firestop Collar around the plastic pipe and back the chosen for sealing this procedure (e.g., sealing)

3. Attach sealing rods. The sealing rods can be attached to various points on the metal housing, allowing the sealing points to be moved to suit the situation. In case the opening is already present, the sealing points must be moved to the respective as possible. The required number of sealing points is indicated on the packaging.

4. Fastening the CP-644 Firestop Collar. Only when backfilled properly can CP-644 offer protection against fire passing through.

5. Mark the fastening points.

6. Drill holes with a yield (such as CP-644) according to Table 4.4.2 (Table 4.4.2) and according to Table 4.4.3 (for pipes of different diameters) and

7. To assure the CP-644 Firestop Collar, use Hilti anchors/bedscrews.

8. Put firestop means, a penetration can be permanently closed with an insulation pipe and fastened in a suitable position next to the seal.

NOTE:

- Suitable for PE, uPVC, PP
- PLASTIC SLEEVE NAIL – ANCHORS ARE NOT TO BE USED
- Collar to be attached using M6.5 x 25 metal pin anchors
- Hill DBZ 64 5 Item No: 266312
- Hill HUSS 60x40 Item No: 416745

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Design Standards and Guidelines

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A.4 CV5 – HILTI CFS-SL

100-300mm thick concrete wall. Single to small bundled cables (new install)
A.5 CV6 – HILTI CP-660

≥110mm thick concrete wall. Single to small bundled cables (existing install)

**Distance Requirements**

<table>
<thead>
<tr>
<th>Distance Requirements</th>
<th>WALL</th>
<th>FLOOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>s1 (distance between cables / cable supports &amp; wall edge)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>s2 (distance between cable supports)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>s3 (distance between cable supports &amp; upper wall edge)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>s4 (distance between cable supports &amp; wall edge)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>s5 (distance between cables &amp; cable support above)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>s6 (distance between metal pipes &amp; wall edge)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>s7 (distance between metal pipes &amp; upper wall edge)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>s8 (distance between metal pipes)</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

The service must not exceed 100% of the penetration Volume / Area.

**Installation Instructions HILTI CP-660**

1. Open the opening to be sealed from the inside or outside.
2. Paste the foil tape into the hole.
3. Secure the foil tape to the backing sheet by tightening the screws.
4. Do not apply the foil tape to the opening. Do not apply the foil tape to the opening.
5. Close the opening and seal it.
6. The cable can be secured after installation with sealing material. Do not apply after installation.
7. The cable can be secured after installation with sealing material. Do not apply after installation.
8. The cable can be secured after installation with sealing material. Do not apply after installation.
9. The cable can be secured after installation with sealing material. Do not apply after installation.
10. The cable can be secured after installation with sealing material. Do not apply after installation.

NOTE B:

<table>
<thead>
<tr>
<th>HILTI CP-660</th>
<th>CABLES (WALLS &amp; FLOORS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electrical Cable</td>
<td>Single up to 13mm or bundled up to 15 cables</td>
</tr>
<tr>
<td>Single to Small Bundled Cables</td>
<td>Single up to 9mm or bundled up to 15 cables</td>
</tr>
</tbody>
</table>

Dimensions indicative only.

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A.6 CH1 – HILTI CP-660

≥150mm thick concrete floor – single non-combustible pipe. ≤100mm steel pipe (≥1.5mm pipe wall thickness)
A.7 CH2 – HILTI CP-643N

≥150mm concrete floor – single plastic (combustible) pipe. 50-160 PE & HDPE, 32-150 PVC (all mm dia)

Example - Typical CH2 Solution:

60mm dia hole through 150mm thick concrete floor
50mm dia PVC pipe penetrating service
HILTI CP-643N Firestop Collar top or bottom as smoke seal
HILTI CP-643N Firestop Sealant top or bottom as smoke seal

Installation instructions for CP-643 N

Materials: HILTI CP-643 N Firestop Collar

NOT FOR USE WITH:
- Metal Pipes
- Wiry or metallic surroundings
- Unapproved anchors/fixtures

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A.8 CH3 – HILTI CFS-C P

≥120mm concrete floor – single plastic (combustible) pipe. 40-125 PVC, 40-125 PE, 40-110 PPR, 50-110 Raupiano (all mm dia)
A.9 CH5 – HILTI CFS-SL

≥150mm thick concrete floor. Single to small bundled cables
A.10 CH6 – HILTI CP-660

≥120mm thick concrete floor. Single to small bundled cables (existing install)
A.11 GV1 – HILTI CP-606

≥2 x 16mm GIB Fyreline – single non-combustible pipe. ≤150 copper, ≤100 brass (all dia mm & ≥1.5mm pipe wall thickness)
**A.12 GV2 – HILTI CP-643N**

≥2 x 13mm GIB Fyreline – single plastic combustible pipe. 50-60 HDPE, 32-150 PVC (all mm dia)
A.13 GV3 – HILTI CP-644

≥2 x 16mm GIB fyreline – single plastic combustible pipe. 40-200PE, 40-150PVC, 40-125PPR, 40-125 Raupiano (all mm dia)
A.14 GV5 – HILTI CFS-CL

≥2 x 13mm GIB Fryeline. Single to small bundled cables

NOTE:
Timber framed Construction shown.
Solution is also acceptable for use with Steel Frame Construction eg: AXAS (or similar approved)

2 x 13mm GIB Fryeline each side of timber framed wall

NOTE:
INSTALLATION OF SLEEVE TO BE CARRIED OUT IN STRICT ACCORDANCE WITH MANUFACTURER’S RECOMMENDATIONS

HILTI CFS-CL Spreadsleeve enclosing various services
Refer NOTE C:
(Spreadsleeve inner sleeve not shown)

≥2 x 13mm GIB Fryeline

HILTI CP-606 Flexible Firestop Sealant
Full depth of GIB Fryeline (20mm)

3D CUTAWAY
HILTI CFS-CL

Centre spreadsleeve in wall

HILTI CFS-CL Spreadsleeve
Single & small Bundled Cables

FILL ANNULUS GAP WITH HILTI CP-606 Flexible Firestop Sealant both sides

Note: Typical GV5 Solution
12mm dia hole through 2 x 13mm GIB Fryeline over timber framing
Single to small Bundled Cables penetrating service
HILTI CP-606 Flexible Firestop Sealant full depth of Fryeline (20mm)
HILTI CFS-CL Spreadsleeve installed centred in wall

INSTALLATION INSTRUCTIONS

Sprayed screws usage information:

<table>
<thead>
<tr>
<th>Perforated hole (mm)</th>
<th>screw (mm)</th>
<th>Screw thickness (mm)</th>
<th>PMK</th>
<th>Devices</th>
<th>Other criteria description</th>
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</thead>
<tbody>
<tr>
<td>All sheathed cables types - drien dia ≥ 1000mm / 800mm</td>
<td>≥ 130 / 130</td>
<td>≥ 130 / 130</td>
<td>≥ 130 / 130</td>
<td>≥ 130 / 130</td>
<td>CP 955 F-4 / CP 955 F-4</td>
</tr>
<tr>
<td>All sheathed cables types - drien dia ≥ 800mm / 600mm</td>
<td>≥ 100 / 100</td>
<td>≥ 100 / 100</td>
<td>≥ 110 / 110</td>
<td>≥ 110 / 110</td>
<td>CP 955 F-4 / CP 955 F-4</td>
</tr>
<tr>
<td>All sheathed cables types - drien dia ≥ 600mm / 400mm</td>
<td>≥ 60 / 60</td>
<td>≥ 60 / 60</td>
<td>≥ 70 / 70</td>
<td>≥ 70 / 70</td>
<td>CP 955 F-4 / CP 955 F-4</td>
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<tr>
<td>Test cable bundle - maximum dia 60mm (max) maximum bundle dia single cables 21mm</td>
<td>≥ 200 / 200</td>
<td>≥ 200 / 200</td>
<td>≥ 200 / 200</td>
<td>≥ 200 / 200</td>
<td>CP 955 F-4 / CP 955 F-4</td>
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<tr>
<td>Test cable bundle - maximum dia 60mm (max) maximum dia of single cables 21mm</td>
<td>≥ 200 / 200</td>
<td>≥ 200 / 200</td>
<td>≥ 200 / 200</td>
<td>≥ 200 / 200</td>
<td>CP 955 F-4 / CP 955 F-4</td>
</tr>
<tr>
<td>Non-services penetrating</td>
<td>≥ 200 / 200</td>
<td>≥ 200 / 200</td>
<td>≥ 200 / 200</td>
<td>≥ 200 / 200</td>
<td>CP 955 F-4 / CP 955 F-4</td>
</tr>
</tbody>
</table>

NOTE C:
HILTI CFS-CL Spreadsleeve - CABLES (WALLS)
All sheathed cables type - drien dia ≥ 12mm / 10mm
Test cable bundle - minimum dia 60mm (max) maximum bundle dia 21mm
A.15 GV6 – HILTI CP-611A

≥2 x 16mm GIB Fyreline. Single to small bundled cables (existing install)
A.16 GV-LPD

Local patching detail – GIB Fyreline & HILTI CP – CP606

NOTE:
Local patching detail is considered suitable for use in all relevant existing "through-wall" penetration situations as required to achieve wall board thickness specified for particular fire rated system.
Timber framing shown but also suitable for use with Steel Frame Construction eg: AXXIS (or similar approved)

Through – wall services penetration

16mm GIB Fyreline each side over existing

16mm GIB Fyreline both sides in addition to existing wall

GIB Local Patching Detail combined total thickness to be achieved 25mm minimum

PLAN

3D CUTAWAY LOCAL PATCHING DETAIL

FRONT ELEVATION
Appendix B Feedback Form

We love hearing from you. Please take a few moments to let us know how we can improve the Property Services Design Standards and Guidelines.

1. **Name:**

2. **Contact Details:**
   (in case we need clarification)

**Complete this section if you have found a typo / formatting error.**
(If possible, attach a photo of the error)

3. **Section No:**
   **Page No/s:**
   **Description of error:**

**Complete this section if you have a suggestion about content.**

4. **Section No:**
   **Page No/s:**
   (if applicable)
   **Suggestion/s:**

**Complete this section if you have any other suggestions for improvement.**

5. **Suggestion/s:**

6. **Email your feedback to PSTechServices@auckland.ac.nz**

**Thanks for your feedback!**
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