

Bringing *Comph* to your New Development

New Build Handbook

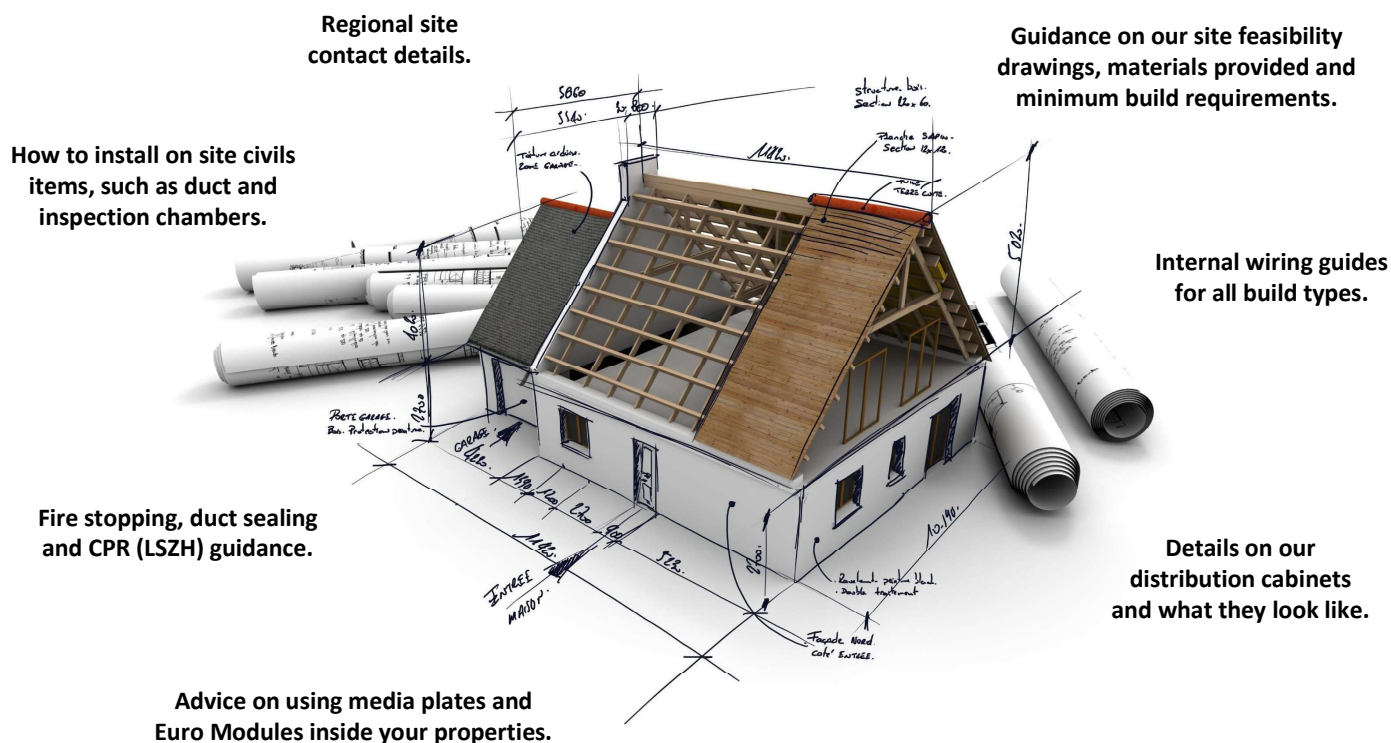
Technical Information to support our network build on your site.

This guide is intended to support your on site teams in the deployment of our minimum requirements for civils infrastructure and wiring required in each property. All information within this guide is supplied for information purposes only and does not constitute a change in terms of your agreed contract with Virgin Media.

This is a living document and if printed then all information should be treated as subject to change. If you are unsure of any aspect of this document then please refer to your Virgin Media site contact in the first instance for support.

Stay in touch, upload your new site requests and find our latest technical documentation at...

www.virginmedia.com/developer



Members of...



This guide is intended to support both your planning and delivery functions with technical information on our network build. If you have any queries about deployment of Virgin Media network on your site then please contact your local New Build Officer.

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Colour Key:

Chambers



Duct and Street Cabinets



Pre Wiring Guidance



User Guides and Information

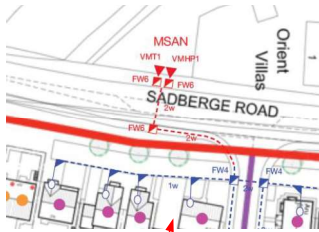


Regional Contacts



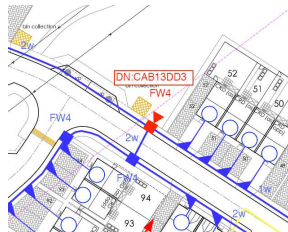
Understand the Jargon...

- CPR** – Construction Products Regulation
- HFC** – Hybrid Fibre Coaxial
- FTTP** – Fibre To The Property
- LSZH** – Low Smoke Zero Halogen
- MDU** – Multiple Dwelling Unit



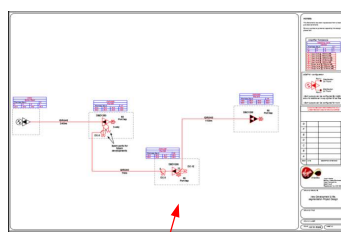
Off Site (Virgin Media) Works

Works to be completed by Virgin Media will be highlighted in red and will encompass all works external to a developers site allowing the Virgin Media network to reach the development.



On Site (Developers) Works

On Site works to be completed by developer will be highlighted in blue to show the variation to Virgin Media works. This includes on site chamber construction as part of cabinet deployment.



RF Cable Schematics/Blown Fibre Schedule

Your site contact will confirm the required build schedule of on site cabinets in a pre start meeting, this will help us work with you to plan activation for the site and ensure that all customers can get service in a timely manner.



Cabinet Boundaries

Site layouts will identify the properties served from each cabinet with a dotted line segregating each area. Please bear this in mind when planning the build route and deployment of duct on your site. Ensure cabinet locations are accessible and agreed in advance with your site contact.

3

Drawing Symbols



Footway/Carriageway Chamber

Designation of chamber to be specified as per Virgin Media standards. Works for developer will be highlighted blue and works for Virgin Media contractor will be red.



Direction of sweep

Swept Tee (Lateral Connection)

Tee's will be shown "sweeping" in the direction of the serving distribution cabinet as shown in the examples above.

2W

Duct Arrangements

Duct routes are all shown as a single line, the number of ducts in the route will be signified by a way count... for example a 2 way duct is signified as 2W but will still show as a single line. For full details on duct arrangements please see drawing VMTD0017d.



Distribution and Nodal Cabinets

Cabinets are highlighted as an inverted triangle. If a chamber is required for the cabinet build then this will be highlighted at the base of the cabinet in red to determine Virgin Media contractor works.

Chamber Dimensions

FW2 – 730 x 460 x 465
FW3 – 750 x 600 x 600
FW4 – 915 x 445 x 600
FW6 – 1310 x 610 x 750
FW10 – 2320 x 740 x 750
CW1 – 600 x 600 x 900
CW2 – 1200 x 675 x 900
CW3 – 1800 x 675 x 900

Approx. **brick built** chamber dimensions. L x W x D. Dimensions correct as of April 2019, all dimensions in millimetres. For full details on individual chamber specifications please refer to the individual drawing suitable for the chamber size you require in the Developers Guide. Please note that pre fabricated chamber opening sizes will vary but will still work with the matching sized frame/cover.



VMTD0001

Version 1.4 Revised 21/03/2022

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New Build Site Drawing Guidelines

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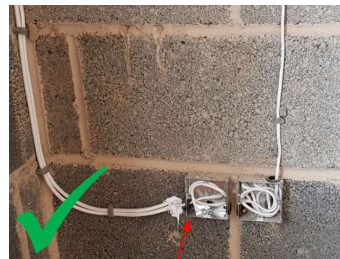
Site Security

Please ensure your compound is secure, cable drums left out in the open will attract metal thieves.



On Site Materials Storage

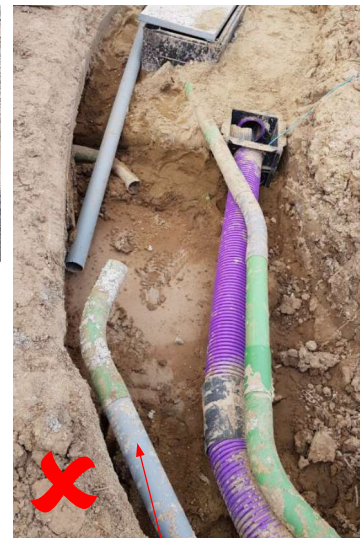
Please keep all duct items stored in a secure area to prevent damage/theft. Virgin Media supplies materials free issue but if replacements are required we may levy a charge.



Internal Sockets

Single gang back boxes to be utilised at all times for all points. Wiring to be left with 150mm tails and all internal Coaxial cable runs to be secured with suitable cable clips or ties.

Please ensure and blown fibre tubing is secured with the supplied Velcro straps only.



Duct Formation

Do not mix and match our duct with another operator (Openreach duct on VM and vice versa). Our site liaison will work with your teams to ensure you have enough material to complete any duct routes required by us on site.

Please also ensure that correct chamber lids are used for each operator. Its worth noting that Openreach frame and covers are lockable our covers do not fit so please ensure the correct frames are used in all instances.



Wiring and Draw Rope

Ensure any external wiring is kept tidy until second fix, draw ropes to be tied off and secured until finish of ground level duct and final cable pull is complete. Ducts should always be cut back to ground level before any cables are pulled up the property.



External Presentation

At second fix, Omni boxes must be fitted to tidy external cable looms. Termination boxes to be fitted over duct ends and levelled with the ground. If consideration is given at first fix to ingress points for ourselves and other operators then you can achieve a tidy external finish. If possible, have your telecoms ingress point to the side of your property rather than the front to reduce the impact of external boxes.

Remember the minimum distance between core locations should be 350mm.



VMTD0001a

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New Build Best Practice Guidelines

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Access Chamber Options						Access Cover Options		
Chamber Dimensions	Type	Application	Virgin Ref	Standard Depth	Additional Sections Available	B125		D400
						Concrete Infill	Recessed	Ductile Iron
550mm x 315mm	Monobox	Footway	FW1	390mm	No	■	■	
730mm x 460mm	Monobox	Footway	FW2	465mm	No	■	■	
750mm x 600mm	Modula	Footway	FW3	600mm	Yes	■	■	
915mm x 445mm	Fortress	Footway	FW4	600mm	Yes	■	■	
1310mm x 610mm	Ultima	Footway	FW6	750mm	Yes	■	■	
2320mm x 740mm	Ultima	Footway	FW10	750mm	Yes	■	■	
600mm x 600mm	Modula	Carriageway	CW1	900mm	Yes			■
1200mm x 675mm	Ultima	Carriageway	CW2	900mm	Yes			■
1800mm x 675mm	Ultima	Carriageway	CW3	900mm	Yes			■

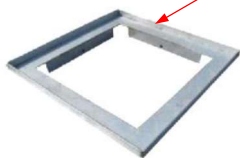
AX-S™ Concrete Infill



FW4



FW3



AX-S™ Concrete Infill raising frame, recommended for use with the Monobox Chamber Assembly



Cubis AX-S™ Concrete Infill covers are the sole approved footway cover used by Virgin Media.

AX-S™ Concrete Infill covers are rated to B125 load classification and meets the requirements of BS EN124: 1994 (B125). All concrete infill lids are slip resistant and have no inherent scrap value.

AX-S™ Recessed



Recessed covers are tested (unfilled) to the B125 load classification and can be filled with any material to suit the surrounding area.

In line with industry specification, individual AX-S recessed covers will not weigh more than 78Kg even when filled. This is to allow a single person to lift out the cover using the lift and slide design.

Silent Knight and Inter-Ax2 Ductile Iron

Skid resistant D400 class/Group 4 carriageway frame and covers. Suitable for use in carriageway environments only.



Please discuss your chamber requirements with your local Virgin Media site contact before site works begin. Standard chamber lids can be sourced quickly but there may be a lead time on specialist covers/recessed covers.



VMTD0008	
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Chamber Sizes and Approved Lids

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Brick built footway and carriageway chambers (single and double skin) have long been the norm on new build sites, most developers see them as the easy option as its "how its always been done". Working alongside our partner, Cubis, we want to promote the benefits of switching your on site access chamber builds to a pre-formed or modular solution using the Cubis® range of access chambers.

FW4 Box – Brick Built – Based on 2 Chambers per day.

Concrete Floor - £16 based on £80 per cubic meter.
Bricks - £50 based on £300 per K (approx. 150 bricks per box).
Mortar - £20 estimate.
Machine Time - £15 based on £30ph for forklift.
Mixer/Fuel/Misc - £15 estimate.
Labour - £150 based on £20hr bricklayer and £10hr labourer over 10hr shift.

Total Cost - £266 approx. per box.

Issues...

- Wastage of brick/mortar.
- Speed of build.
- Cannot backfill for 2-5 days until mortar has set.
- Cannot cut duct entries until cured.
- Labour intensive to drill and fix cable management to chamber walls.
- Manual handling of bricks and mortar.
- Quality of finish/snagging required, additional costs to rebuild if required.
- Edge protection issues until backfilled.
- Machine resource required for loading out of materials.
- Weather dependant.

Cubis® Fortress Box – Based on VM specification.

Concrete Floor - £16 based on £80 per cubic meter.
Chamber Sections - £160 based on £40x4 for 600 depth box.
Labour - £33 based on 2 labourers at £10hr.
Machine Time - £10 Provision of type 1 for floor.

Total Cost - £219 approx. per box.

Advantages...

- Speed of build (Approx. 1 hour per chamber, reduced to 30 minutes without backfill or excavation times added (reliant upon cured concrete base).
- Reduction of wet trades (less and lower skilled man power required).
- Manual handling issues removed - Removes repetitive movements associated with brick building.
- Backfilled instantly so no edge protection required.
- Simple Duct entry cutting.
- Cable management easy and fast.
- Not weather dependant.

Your local Virgin Media site contact can get you in touch with your local Cubis® representative who can work with you on site to make sure you have the correct materials for your project.

Notes...

- *Virgin Media do not supply pre formed chamber rings/sections as standard.* If you require to purchase these items then please confirm stock availability with your local trade counter. If you require materials direct from Cubis® then please contact your local Virgin Media site contact who can get you in touch with your regional Cubis® representative. *Virgin Media can supply these items with our on site materials deliveries but this must be agreed in advance of any contract being agreed for the site. This is not a standard item and is provided as an additional cost service if required.*
- Although we promote the deployment of pre formed solutions, we still support the deployment of brick built chambers. Our site liaison engineers can support whatever your build type is on site.
- If the ground type determines a concrete pre formed chamber then your Virgin Media liaison engineer will make sure that site is aware of requirements and specifications as per the Virgin Media specification.
- The figures used in this example are based on industry wide cost samples from October 2017. This will be reviewed regularly to make sure this stays relevant to the current construction climate.
- A similar example has been worked for the FW6 brick (400 brick count) and a Cubis® Ultima chamber build with costs of £374 per chamber for both examples. The main difference being brick chambers are estimated on a 2 per day build while the pre-formed chamber is calculated on a 6 per day build schedule. In all examples looked at, pre formed worked out slightly cheaper but the largest benefits come from labour saved, reduction in build and deploy time and number of chambers built per day.
- Pre formed chambers (when type 1 backfilled) can be moved and re-utilised unlike a brick chamber which would have to be demolished and rebuilt.

As long as duct entry holes are core drilled as per the manufacturers specification, then a chamber can easily be dis-assembled and moved rather than destroying the unit. As only type 1 backfill is required, if a chamber is required to be repositioned then it can be hand dug and replaced with minimal effort compared to rebuilding a 150 brick chamber.



VMTD0013

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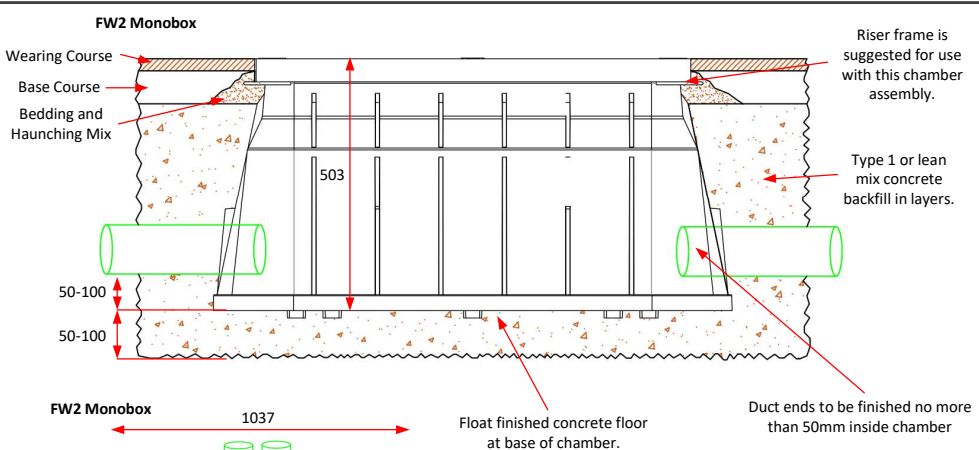
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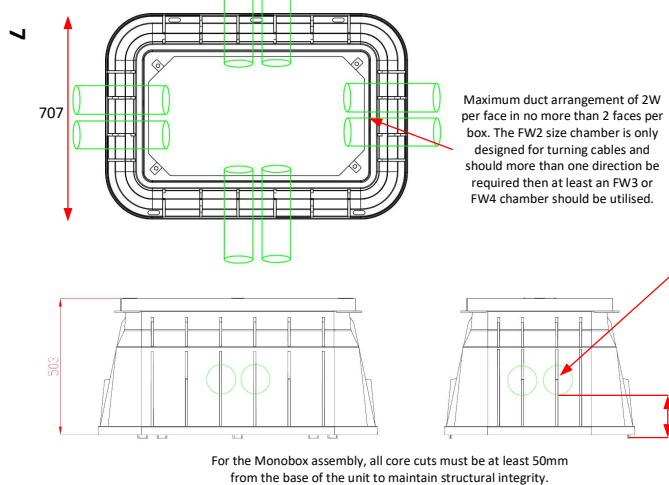
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Preformed vs Brick Chamber Construction

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1. All dimensions in millimetres unless otherwise stated.
2. Reinstatement to comply with the requirements of the NRSWA (subject to category).
3. All duct ends to be finished with a bell mouth where possible or finished 50mm from edge of interior wall.
4. The maximum number of duct entries into any single wall is 2. no.
5. All materials and workmanship to be in accordance with the specification.
6. Virgin Media supplied Cubis Footway covers and frames to be class B125 to BSEN124. A separate riser frame is suggested for this setup and should be utilised.
7. Concrete base and surround (if required) to be low water/cement ratio (low slump) Grade C40/20 for non aggressive soil conditions, for other soil conditions see Eurocode 2 part 1 sections 3 and 6 recommendations and obtain Virgin Media Delivery Engineers approval prior to construction. The mix design shall take full account of ground sulphate content conditions and comply with table 6.1 of Eurocode 2.
8. Concrete base slab to be placed, tamped and surface finished. Cubis pre formed chamber to be installed and levelled to suit before any cuts are made in the assembly.
9. Duct entries vary in number, grouping and orientation. Duct entry positions should be agreed with the Virgin Media Build Engineer prior to construction..
10. Draw lines shall be secured inside chambers by tying off to a suitable fixture or by tying to an approved batten.
11. Backfill to be type 1 as standard and compacted in layers (or lean mix concrete surround if poor soil conditions).
12. Chamber frame and cover to be bedded with haunching mix (wet) or epoxy resin if required.



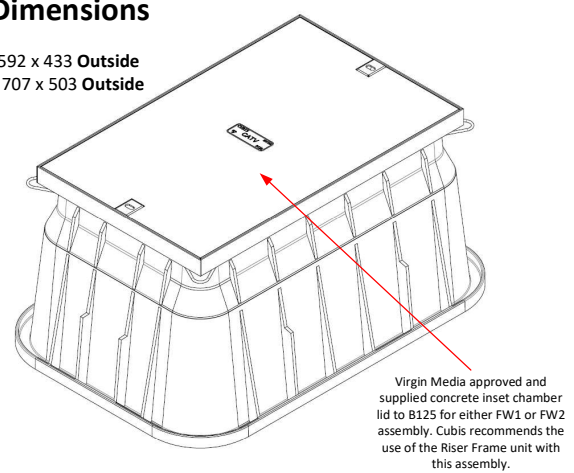
Monobox® Chamber Dimensions

FW1 – 550 x 315 x 433 Inside, 832 x 592 x 433 Outside
FW2 – 730 x 460 x 503 Inside, 1037 x 707 x 503 Outside

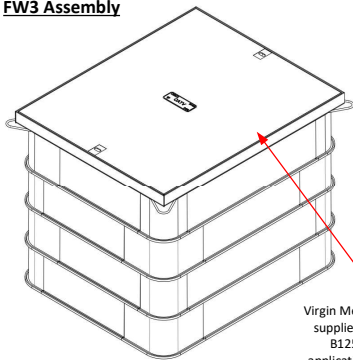
Duct entry holes in Monobox assemblies must be core drilled. Cubis recommend a Bi-Metal hole saw be used with a slow speed high torque drill.

Please Note – Ducts should never enter through the bottom lip of the chamber as structural integrity will be compromised.

50 Min. Duct core hole spacing should be no more than 50% of the largest duct size i.e. 50mm for a 100mm duct utilised.

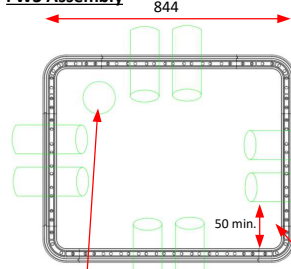


FW3 Assembly



Virgin Media approved and supplied chamber lid to B125 for Footway applications and D400 for carriageway applications.

FW3 Assembly



Sump to be located off centre with fall to grating in base of chamber

Ducts must not enter within 50mm of a corner section.

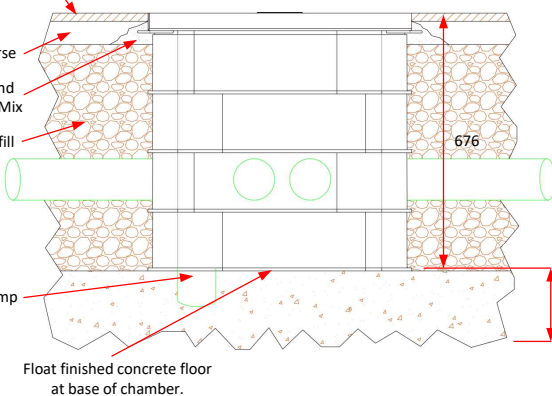
Duct entry holes in Modula assemblies must be core drilled. Cubis recommend a Bi-Metal hole saw be used with a slow speed high torque drill.

Please Note – Ducts should never enter through the bottom section or the top 2 sections without prior approval from your Virgin Media site contact.

Wearing Course

FW3 Assembly

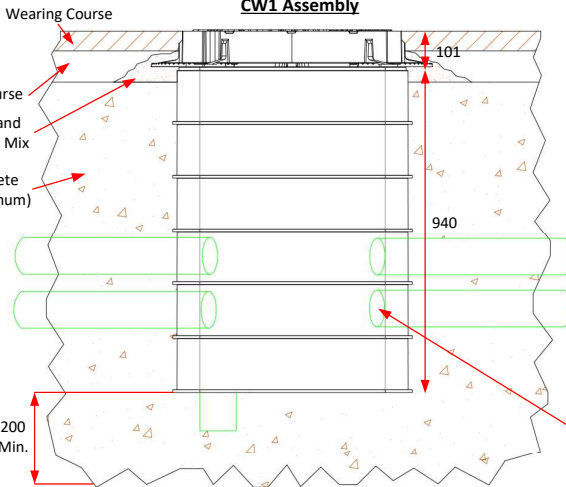
Base Course
Bedding and Haunching Mix
Type 1 Backfill



Wearing Course

CW1 Assembly

Base Course
Bedding and Haunching Mix
200mm concrete surround (minimum)

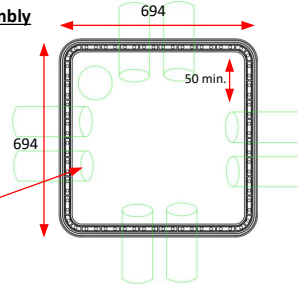


1. All dimensions in millimetres unless otherwise stated.
2. Reinstatement to comply with the requirements of the NRSWA (subject to category).
3. All duct ends to be finished with a bell mouth where possible or finished 50mm from edge of interior wall.
4. All materials and workmanship to be in accordance with the specification.
5. Virgin Media supplied Cubis Footway covers and frames are class B125 to BSEN124 and Saint Gobain carriageway are class D400.
6. Concrete base (for carriageway chambers) and surround to be low water/cement ratio (low slump) Grade C40/20 for non aggressive soil conditions, for other soil conditions see Eurocode 2 part 1 sections 3 and 6 recommendations and obtain Virgin Media Delivery Engineers approval prior to construction. The mix design shall take full account of ground sulphate content conditions and comply with table 6.1 of Eurocode 2.
7. Concrete base slab to be placed, tamped and surface finished. Cubis chamber rings to be installed and levelled to suit.
8. Duct entries vary in number, grouping and orientation. Duct entry positions should be agreed with the Virgin Media Build Engineer prior to construction.
9. Draw lines shall be secured inside chambers by tying off to a suitable fixture or by tying to an approved batten.
10. Standard backfill requirements for an FW3 chamber shall be type 1 in all circumstances unless further support is required then concrete backfill is recommended. CW1 standard backfill shall be a concrete surround when used in a D400 category situation.
11. For full build guidelines please refer to the Cubis Installation guide found on their website.

Modula® Chamber Dimensions

FW3 – 750 x 600 x 600 Inside, 844 x 694 x 676 Outside
CW1 – 600 x 600 x 900 Inside, 694 x 694 x 940 Outside

CW1 Assembly



For the Modula assembly, all core locations must be located in the centre of any given ring to maintain structural integrity of the frame.

VMTD0005

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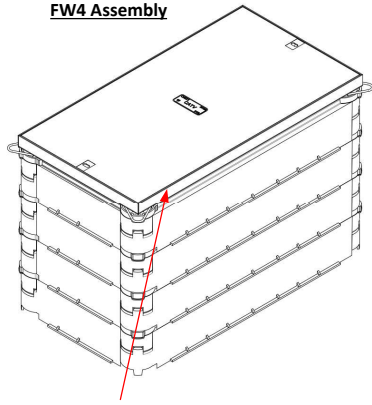
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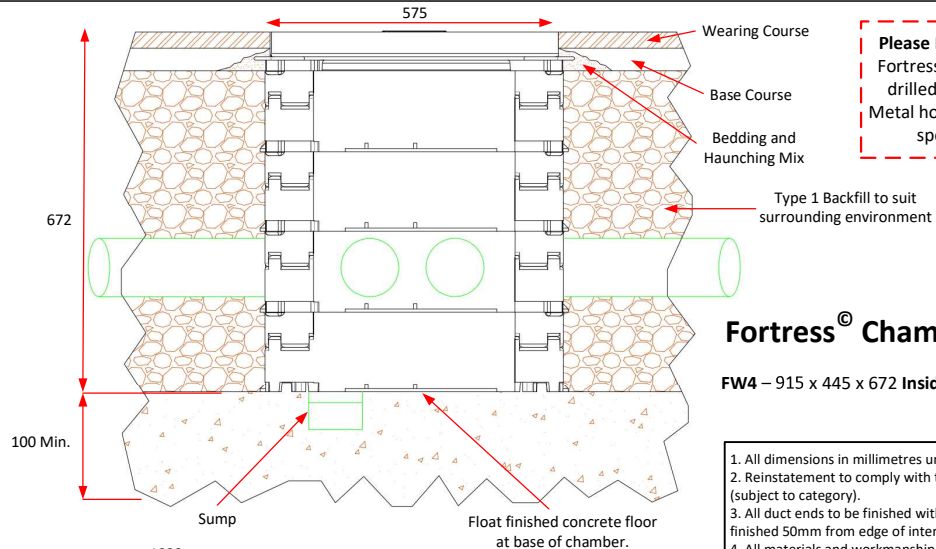
Modula® Chamber Assembly

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FW4 Assembly



Virgin Media approved and supplied chamber lid to B125 for Footway applications and D400 for carriageway applications.



Please Note - Duct entry holes in Fortress assemblies must be core drilled. Cubis recommend a Bi-Metal hole saw be used with a slow speed high torque drill.

Fortress[®] Chamber Dimensions

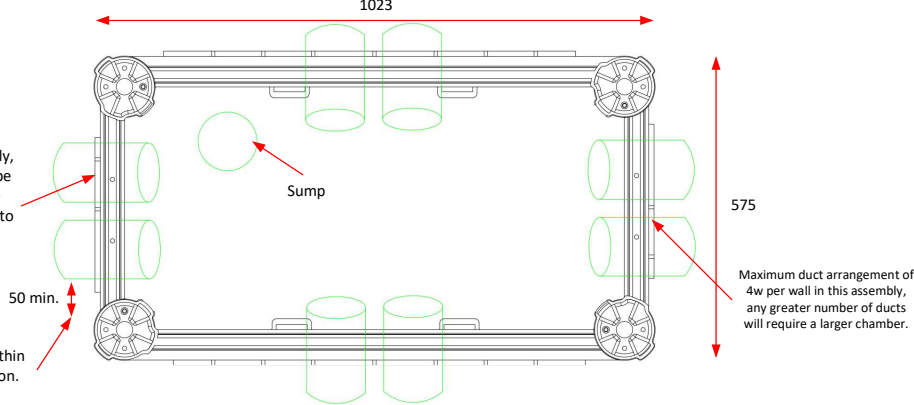
FW4 – 915 x 445 x 672 Inside, 1023 x 575 x 672 Outside

1. All dimensions in millimetres unless otherwise stated.
2. Reinstatement to comply with the requirements of the NRSWA (subject to category).
3. All duct ends to be finished with a bell mouth where possible or finished 50mm from edge of interior wall.
4. All materials and workmanship to be in accordance with the specification.
5. Virgin Media supplied Cubis Footway covers and frames are class B125 to BSEN124 and Saint Gobain carriageway are class D400.
6. Concrete base and surround to be low water/cement ratio (low slump) Grade C40/20 for non aggressive soil conditions, for other soil conditions see Eurocode 2 part 1 sections 3 and 6 recommendations and obtain Virgin Media Delivery Engineers approval prior to construction. The mix design shall take full account of ground sulphate content conditions and comply with table 6.1 of Eurocode 2.
7. Concrete base slab to be placed, tamped and surface finished. Cubis chamber rings to be installed and levelled to suit.
8. Duct entries vary in number, grouping and orientation. Duct entry positions should be agreed with the Virgin Media Build Engineer prior to construction.
9. Draw lines shall be secured inside chambers by tying off to a suitable fixture or by tying to an approved batten.
10. Standard backfill requirements shall be type 1 in all circumstances unless further support is required then concrete backfill is recommended. For CW class chambers in a D400 category setting then concrete backfill is required.
11. For full build guidelines please refer to the Cubis Installation guide found on their website.

6

For the Fortress assembly, all core locations must be located as close to the centre of any given ring to maintain structural integrity of the frame.

Ducts must not enter within 50mm of a corner section.



VMTD0006

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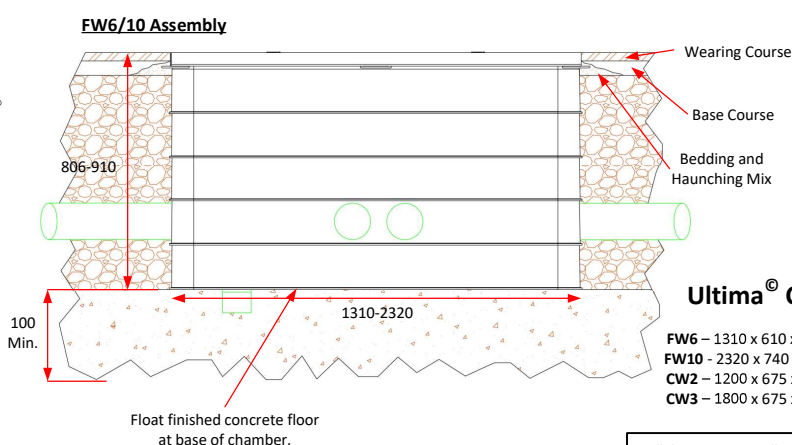
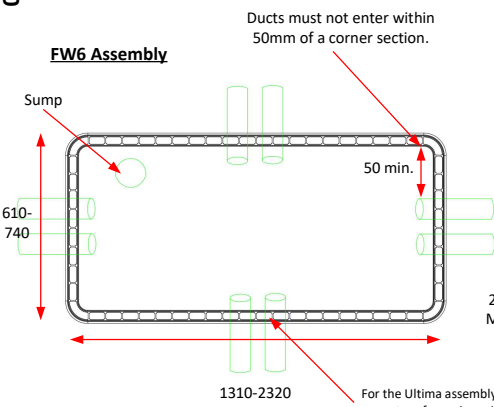
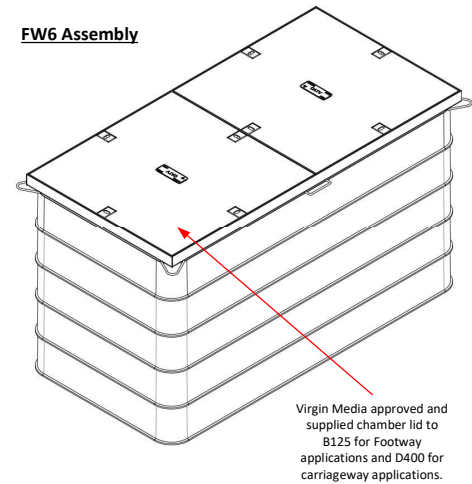
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Fortress[®] Chamber Assembly

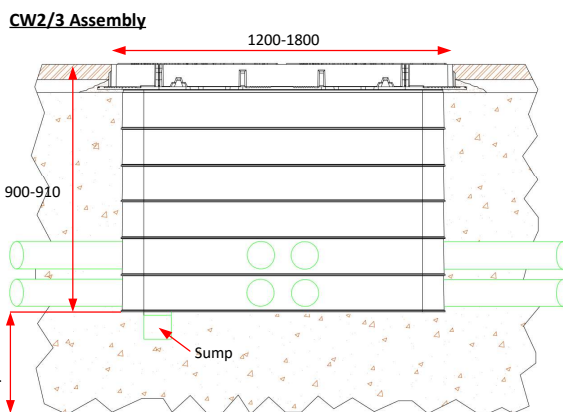
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Please Note - Duct entry holes in Ultima assemblies must be core drilled. Cubis recommend a Bi-Metal hole saw be used with a slow speed high torque drill.

Ultima[®] Chamber Dimensions

FW6 – 1310 x 610 x 806 **Inside**, 1408 x 708 x 806 **Outside**
FW10 - 2320 x 740 x 812 **Inside**, 2446 x 866 x 812 **Outside**
CW2 – 1200 x 675 x 900 **Inside**, 1326 x 801 x 900 **Outside**
CW3 – 1800 x 675 x 910 **Inside**, 1926 x 801 x 910 **Outside**



1. All dimensions in millimetres unless otherwise stated.
2. Reinstatement to comply with the requirements of the NRSWA (subject to category).
3. All duct ends to be finished with a bell mouth where possible or finished 50mm from edge of interior wall.
4. All materials and workmanship to be in accordance with the specification.
5. Virgin Media supplied Cubis Footway covers and frames are class B125 to BSEN124 and Saint Gobain carriageway are class D400.
6. Concrete base and surround to be low water/cement ratio (low slump) Grade C40/20 for non aggressive soil conditions, for other soil conditions see Eurocode 2 part 1 sections 3 and 6 recommendations and obtain Virgin Media Delivery Engineers approval prior to construction. The mix design shall take full account of ground sulphate content conditions and comply with table 6.1 of Eurocode 2.
7. Concrete base slab to be placed, tamped and surface finished. Cubis chamber rings to be installed and levelled to suit.
8. Duct entries vary in number, grouping and orientation. Duct entry positions should be agreed with the Virgin Media Build Engineer prior to construction.
9. Draw lines shall be secured inside chambers by tying off to a suitable fixture or by tying to an approved batten.
10. Standard backfill requirements shall be type 1 in all circumstances unless further support is required then concrete backfill is recommended. For CW class chambers in a D400 category setting then concrete backfill is required.
11. For full build guidelines please refer to the Cubis Installation guide found on their website.

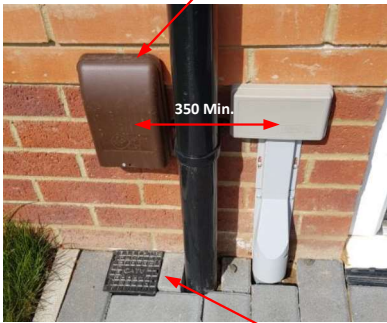


VMTD0007	
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Ultima[®] Chamber Assembly

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Care must be given to the location of Virgin Media and Openreach ETB's, this is even more important if your site is Openreach Fibre. A distance of at least **350mm** between core locations for external cabling must be provided to allow adequate space for ETB's to be fitted.

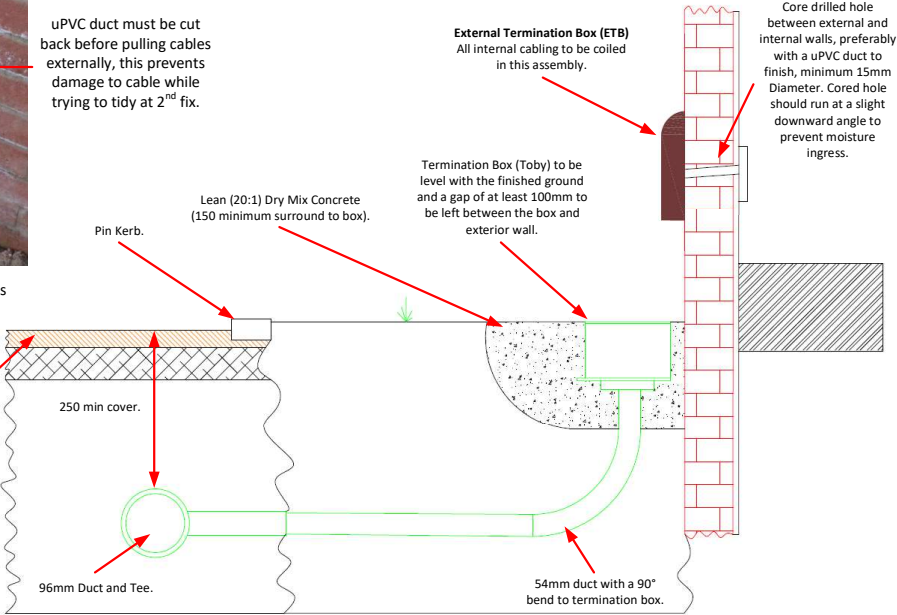


Termination Box to be finished flush to ground level and backed against the property external wall.



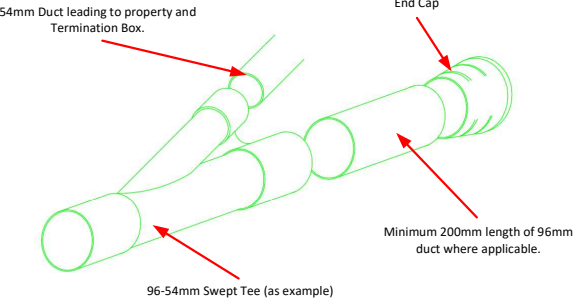
Only the final Tee in a duct route is required to be roped. Roping every Tee will lead to blockages and should be avoided.

uPVC duct must be cut back before pulling cables externally, this prevents damage to cable while trying to tidy at 2nd fix.



Highway or Footway finished to NRSWA standards.

Terminating a Single Way Duct Configuration at the Last Swept Tee



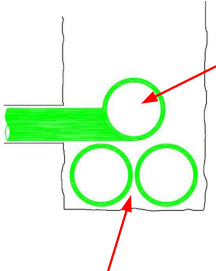
- 1. All dimensions in Millimetres unless otherwise stated.
- 2. Reinstatement to comply with requirements of the NRSWA (subject to category).
- 3. The installed assembly complies with BSEN124 and should only be installed in line with these guidelines. Any deviation from this install example must be highlighted with the local Virgin Media Delivery Engineer.

Important Note: If internal wiring is complete before external civils infrastructure is deployed the Termination Box (Toby) should be located immediately opposite the Internal Back-box or below the External Termination Box (ETB). If the external civils infrastructure is complete first then consideration must be given to the placement of the Toby compared to the cable input point at the property.



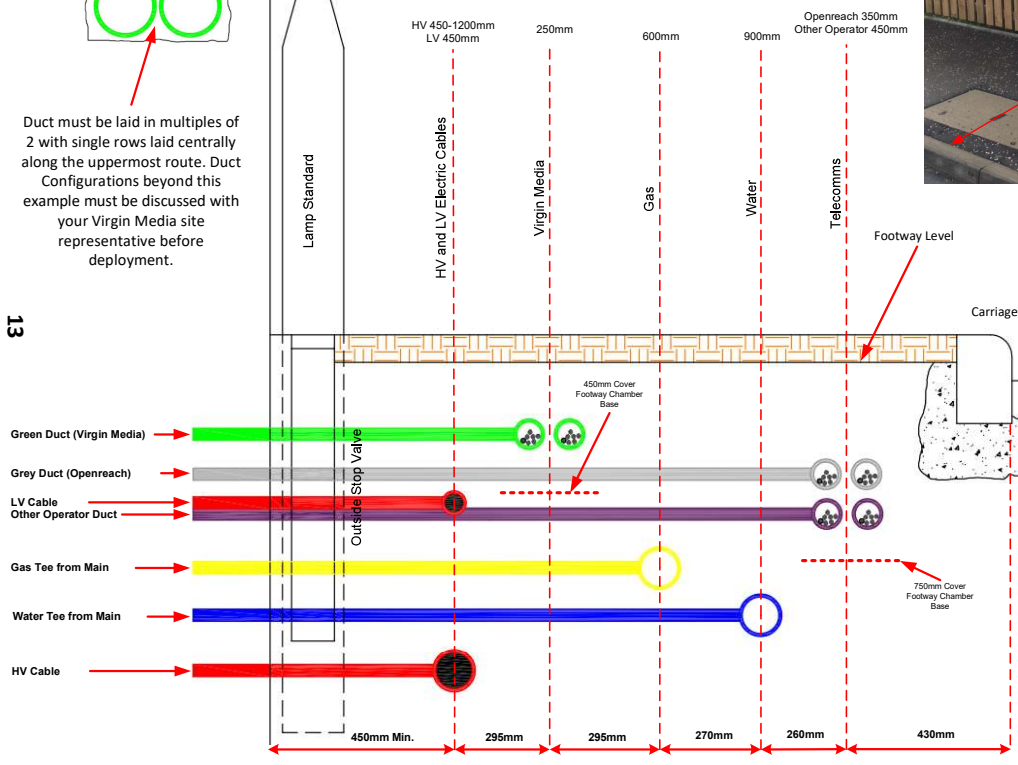
VMTD0011c	
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Residential Termination Box
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Duct must be laid in multiples of 2 with single rows laid centrally along the uppermost route. Duct Configurations beyond this example must be discussed with your Virgin Media site representative before deployment.

Minimum Coverage Depths and Spacing for Utilities on a New Build Site



Street Furniture in the Highway



When deploying our service on new sites, we aim to follow the national minimum standard of **1.2m** space from the front of our street furniture to the edge of the new public highway. We understand that the average highway on new sites will generally be 2m so maintaining the desired 1.8m space that most local authorities look for may be difficult. Please liaise with your regional highways teams prior to design/adoption to discuss any issues they may have with street furniture in newly created highways. We will always work with you to install our equipment in the best location possible.

This example shows how staging utilities in a new footpath using the minimum standards from the Streetworks UK standards, you can achieve 5 utilities in less than a 2m footway (1.7m example shown), with space for 450/750mm cover footway boxes. This would allow the potential addition of a third Telecoms supplier (below the Openreach minimum depth) while still maintaining all standard depths for all critical utilities.

Remember, Virgin Media Duct Coverage is...
Footway – 250mm (260mm Scotland)
Carriageway – 450mm

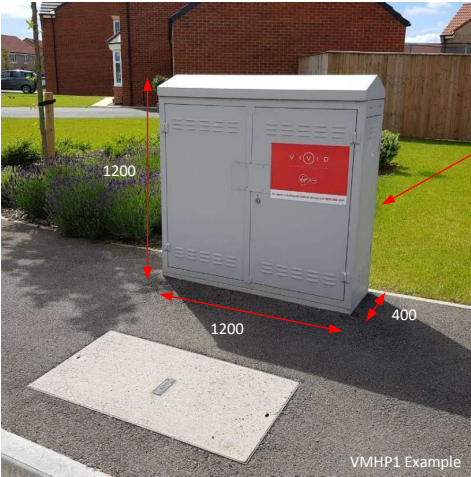
1. All measurements in millimetres unless otherwise stated.
2. Utilities measurements are distance from outer footway limit with the carriageway.
3. All measurements are minimum depth of cover requirements.
4. Duct/cable routes are indicative and drawn on the basis that all utilities lead straight to the property and do not terminate in the footway with Cable TV being the exception.
5. Measurements taken from NJUG Guidelines 2014.
6. Please refer to VMTD0017d for full details of duct alignment and backfill requirements in a service trench.



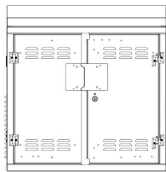
VMTD0017c	
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Virgin Media Streetworks Requirements
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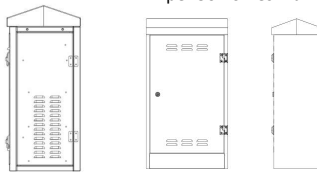
- 1. All measurements in millimetres.
- 2. This guide is representative of the cabinets utilised across the Virgin Media network, the description and number of homes served is indicative only to give an impression of what cabinets to expect based on the size of your site. Full confirmation of the cabinet types and positioning will be agreed at the planning stage.
- 3. All cabinets are supplied with the standard Virgin Media cabinet colour of Goose Grey.
- 4. Cabinets manufactured and supplied to Virgin Media by Eurocraft Enclosures.



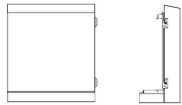
VMDD3(i) – 900 W x 940 H x 400 D
Distribution Cabinet – 1 per 60 homes max.



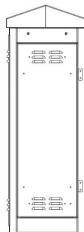
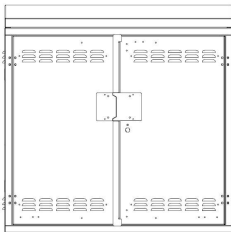
VMSD1(i) – 535 W x 985 H x 315 D
Distribution/Amplifier Cabinet
1 per 30 homes max.



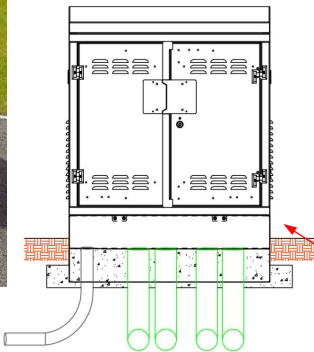
VMSD0 – 535 W x 600 H x 250 D
Distribution Cabinet – 1 per 16 homes max.



VMDD1/HP1 – 1200 W x 1200 H x 400 D
VMDD2 – 1500 W x 1200 H x 400 D
Distribution and Nodal Cabinets
1 per 60 homes max.



Please consider the location of all cabinets we propose on site, the primary cabinets feeding your development will more than likely be placed off the site entrance so bear this in mind when designing your show area or any special features.



Cabinet Colour
All of our cabinets by default will be supplied with colour reference 00 A 05 from the BS4800/5252 range – Titled Goose Grey.



Root Base Formation - All Virgin Media cabinets are supplied and installed by our own contractors. We will work with your site teams to make sure we have access to build the root base and adjoining chambers to tie into your on site network build. If your groundworker has the ability to build and form our root base and duct then we will supply technical documents directly to specify the requirements for any given cabinet type.

Choosing a Cabinet Location - Cabinets are best sited against property gable ends or against retaining or boundary walls where they are both protected from vehicle damage and as un-obtrusive as visibly possible to your site.

We will not deploy a cabinet on your new build site until adequate lines and levels as well as protection are available for the unit.

Cabinets deployed without barrier protection are subject to damage from construction traffic and we will not take risks when deploying our network infrastructure.

Power Requirements - The HP1 Nodal cabinet is the parent cabinet serving the on site distribution cabinets with digital services. No customer drop cable will terminate in this cabinet. If the cabinet can be deployed within your new site boundary, we may ask you for an LV power feed for the primary cabinet from your on site power distributor, please take this into consideration when planning power requirements for your site. We will make any required applications and pay any fee's for power connections directly with your site supplier.

There may be a delay with deployment of service if our Primary Fibre cabinet has to be deployed off site due to time restrictions in receiving power quotes from regional DNO's and potential restrictions from local authorities.



VMTD0031a	
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HFC Distribution Cabinets
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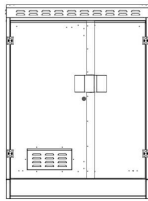
1. All measurements in millimetres.
2. This guide is representative of the cabinets utilised across the Virgin Media network, the description and number of homes served is indicative only to give an impression of what cabinets to expect based on the size of your site. Full confirmation of the cabinet types and positioning will be agreed at the planning stage.
3. All cabinets are supplied with the standard Virgin Media cabinet colour of Goose Grey.
4. Cabinets manufactured and supplied to Virgin Media by Eurocraft Enclosures.
5. Please refer to VMTD0031a for full details on the other cabinets in the VM range in HFC build areas.



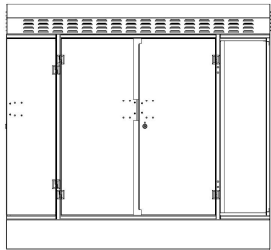
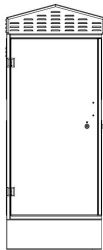
Power Requirements - The VHUB will always be co-located with a smaller SD1 power cabinet. Due to the size and importance of these cabinets, a lot of planning consideration will be taken when locating these to serve a new build site. Normally these will be off site and out of visible range of your new properties.

If the cabinet can be deployed within your new site boundary, we may ask you for an LV power feed for the primary cabinet from your on site power distributor, please take this into consideration when planning power requirements for your site.

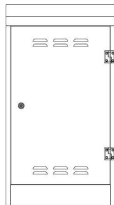
There may be a delay with deployment of service if our Primary Fibre cabinet has to be deployed off site due to time restrictions in receiving power quotes from regional DNO's and potential restrictions from local authorities.



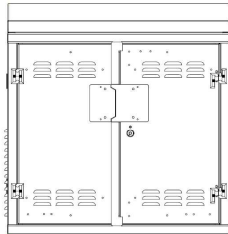
POP-A – 1124 W x 1495 H x 400 D
Node Cabinet L3
When used as Inverted Node – Up to 256 Homes (depending on local capacity).
When used as FTTP POP-A – 500 homes on a single chassis, 1000 homes on dual chassis.



VMVH1 (VHUB) – 1800 W x 1700 H x 650 D
Nodal Cabinet L2.5 (Virtual Hub)
1 per 3000 Homes Approx.
This is not a distribution cabinet but utilised as the parent cabinet for on site cabinets/services. Customer drop cables will not lead to this cabinet.



VMSD1i – 535 W x 985 H x 330 D
Distribution Cabinet L4
1 per 48 Homes (when used as L4)
1 per 512 Homes (When used as L3)
Also used as a power pedestal for VHUB.



VMDD3i – 900 W x 940 H x 400 D
Distribution Cabinet L4
1 per 96 Homes (When used as L4)
1 per 1024 Homes (When used as a dual L3)



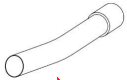
VMTD0031b		FTTP Distribution Cabinets
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PVC-U Duct Items from Emtelle, supplied by Virgin Media for your new site...

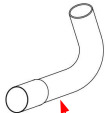
- Manufactured from virgin PVC-U polymer for 100% reliable performance.
- Solid wall construction, capable of being back filled with "as dug" materials where appropriate and not be affected by sharp stone impingement.
- Strong, flexible and impact resistant yet lightweight.
- Flexible and easy to work with, even at well below zero temperature.
- Long life resistance to fatigue and resistant to many common liquids and chemicals.
- All duct manufactures to BS-EN 61386 Industry Standard (450N Class)



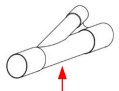
54/96mm Duct. Available in 3m (54mm) and 4m (96mm) lengths, used in all duct configurations requiring 96mm duct runs.



54/96mm Slow Bend. Used to ease main ducting around bends and obstacles. Also used to extend the main 96mm duct towards a building when terminating a Swept Tee in an MDU.



54/96mm 90° Bend. Used primarily in cabinet root base construction. These bends should not be utilised for moving duct around obstacles due to the limitation on cable bending radius. This piece can be used when bringing a duct into an MDU where trunk cable is used and not drop cable.



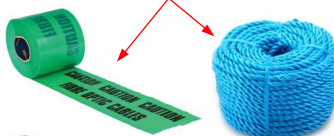
96mm to 54mm Swept Tee. A standard lateral connection size where 54mm duct will feed a property from a 96mm main line duct.



54/96mm Swept Tee. Used mainly for MDU installation where larger duct capacity is required.



Split Duct Kits are available to repair damaged sections of existing duct or where its too difficult to replace an damaged section of duct. Please liaise with your local Virgin Media contact for best practice use.



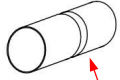
Marker tape and draw rope supplied by Virgin Media. Please ensure that both are used as advised by your local Virgin Media site contact.



Termination boxes must be utilised for end of swept Tee routes. Each property must be fitted with an appropriate box.



To prevent wastage of materials and unnecessary waste, we recommend the use of suitable deburring and chamfer tools when cutting duct. **This will allow you to use as much duct as possible and reduce plastics waste on your site.** Recommended tools are available direct from Emtelle or your local wholesale supplier.



Slip Collar/Coupler. Available for both 96mm and 54mm duct connections, also available as a 96/54mm reducer.



End Cap. Available in 54mm (Yellow) and 96mm (Red).

- Duct**
- 54mm – 3m Lengths – VM SKU 10007586
 - 96mm – 4m Lengths – VM SKU 10007572
- Bends/Collars**
- 54mm – 11.25° Bend (350mm radius) – VM SKU 10007590
 - 54mm – 22.5° Bend (350mm radius) – VM SKU 10007589
 - 54mm – 45° Bend (150mm radius) – VM SKU 10007588
 - 54mm – 90° Bend (200mm radius) – VM SKU 1007587
 - 96mm – 11.25° Bend (700mm radius) – VM SKU 10007576
 - 96mm – 22.5° Bend (700mm radius) – VM SKU 10007575
 - 96mm – 45° Bend (350mm radius) – VM SKU 10007574
 - 96mm – 90° Bend (427mm radius) – VM SKU 1007573
 - 54mm – Slip Collar/Coupler – VM SKU 10007591
 - 96mm – Slip Collar/Coupler – VM SKU 10007578
 - 96mm – Collar/Coupler – VM SKU 10007577
 - 96mm – Reducer (96mm to 54mm) – VM SKU 10007581
- Split Duct**
- 96mm – Duct Inserts (for use with split duct repair kit) – VM SKU 10007585
 - 96mm – Duct Repair Kit 3m Length – VM SKU 10007584
- Duct repair kit consists of...
- 2no.Split collar inserts, 6no. Duct liners, 4no. Cables ties
 - 96mm – Split Swept Tee (96mm to 54mm) – VM SKU 10007580
- Swept Tee's**
- 54mm to 54mm Swept Tee – VM SKU 10007592
 - 96mm to 54mm Swept Tee – VM SKU 10007579
 - 96mm to 96mm Swept Tee/Y Branch – VM SKU 10007582
 - Footway Termination Box (New FTTP Version) – VM SKU 10011047
 - Footway Termination Box (When 10011047 cant be used) – VM SKU 10007594
 - 54mm Duct Cap – VM SKU 10007593
 - 96mm Duct Cap – VM SKU 10007583
- Miscellaneous**
- Draw Rope 500m, 6mm Diameter – VM SKU 6020490
 - Fibre Optic Marker Tape 365m – VM SKU 10007596



Delivery to your site will be through our delivery partner K&N in Virgin Media branded trucks.

Need Duct Items for your site?

Contact your local Virgin Media representative to arrange a duct delivery direct to your holding yard. Please allow 7-10 days for delivery so try and give us as much notice as possible.

1. All measurements in millimetres unless otherwise stated.
2. This guide is representative of the duct items utilised and provided by Virgin Media. Where the duct supplied does not meet your site requirements or you have special engineering requirements then please liaise with your Virgin Media site contact to discuss any issues.
3. All duct is manufactured by Emtelle and provided in Green, this is to differentiate our network from other operators and is part of the Streetworks UK standards set out for utilities colouring and usage. Virgin Media supplied duct is also stamped as property of Virgin Media.
4. Do not use our duct to satisfy the build requirements of other operators, you will be asked to remove any duct used for purposes not within our network plan. On the contrary, do not use other operator duct to complete our on site network build either.
5. Deliveries will be made by the Virgin Media fleet on either curtain sided trucks or read load LGV's. Moffet Mounty fork lift vehicles are available for larger deliveries, please advise in advance if you do not have unloading facilities for pallets on your site prior to your order being placed.
6. If you have an overstock of duct items at the end of your project, get in touch with your local Virgin Media contact to arrange uplift of these materials.

 	 	VMTD0043		New Build Civils Duct Items
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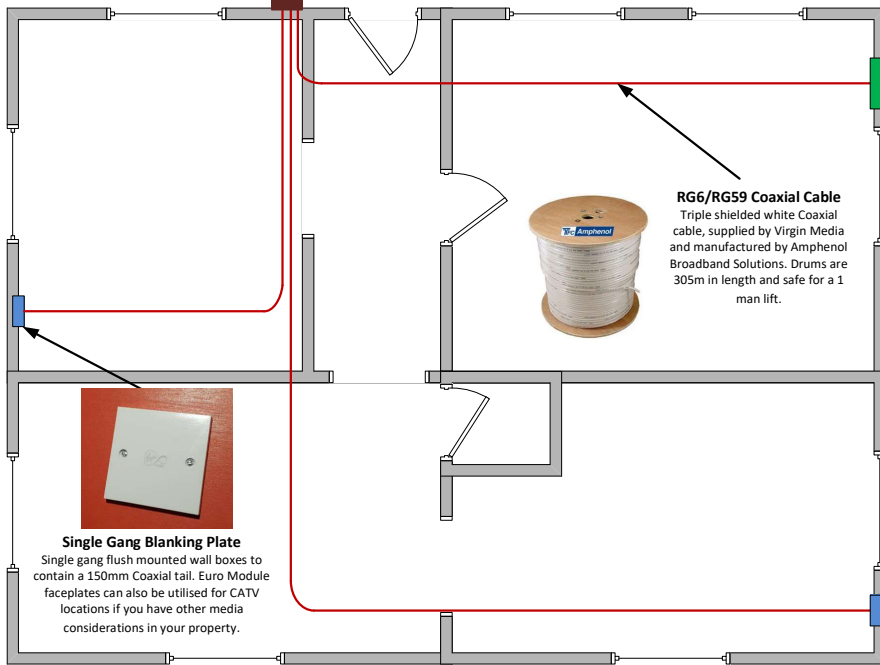
Virgin Media Digital Voice

Our new phone platform allows us to offer traditional phone services without the need for copper wires into the home. Our current generation Hub 3 has phone ports on the back and allows customers to connect their usual landline phone and have all the same benefits of a fixed copper phone line.

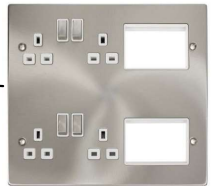


External Termination Box (ETB)
All cables terminated back to this location with 150mm tails and labelled. Available in either White, Grey or Brown to suit your external build.

- All cable and single/double gang blanking plates supplied by Virgin Media.
- A minimum of 2 Coaxial sockets (master bedroom and living room) per property. Further sockets can be agreed with local Virgin Media New Build teams.
- All cabling must be labelled at the termination box to highlight its destination.
- All sockets must be installed within 1m of a power outlet.
- Individual cable lengths should not exceed 30m, please seek advice before wiring if this isn't possible.
- 150mm minimum tails to be left coiled in each back box.
- Cables must be separated from low voltage electrical cabling by at least 50mm. Our cable may only be installed adjacent to LV power cabling where LV cables are installed in a separate conduit or are of a mineral insulation or armoured construction.
- For guidance on LSZH cabling please refer to document VMTD0063.



RG6/RG59 Coaxial Cable
Triple shielded white Coaxial cable, supplied by Virgin Media and manufactured by Amphenol Broadband Solutions. Drums are 305m in length and safe for a 1 man lift.



Media Plate (Optional)
Coaxial and copper cables to be coiled behind lower section of media plate. Lower panel to be reserved for Virgin Media use. Please refer to document VMTD0048 for more details.



Euro Modules
If Euro Module faceplates are to be utilised then please consider at least 2 Euro Module slots per room for Virgin Media connectivity. Cables to be coiled with a 150mm tail and faceplate to be finished with blanking Euro modules.



Single Gang Blanking Plate
Single gang flush mounted wall boxes to contain a 150mm Coaxial tail. Euro Module faceplates can also be utilised for CATV locations if you have other media considerations in your property.

Connections

There is no requirement for fitting connectors to our cable by your electricians during the build phase, this is done by our installs team at the point of customer install. All we require is a 150mm tail coiled inside the back box ready for us to use.



VMTD0044

Version 1.5 Revised 22/03/2022

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New Home Pre-Wire to Individual Points

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- All cable supplied by Virgin Media.
- A minimum of 2 Coaxial sockets (master bedroom and living room) per property. Further sockets can be agreed with local Virgin Media New Build teams.
- All cabling must be labelled in the ITB to highlight its destination.
- All CATV sockets must be installed within 1m of a power outlet.
- Individual cable lengths should not exceed 30m, please seek advice before wiring if this isn't possible.
- 150mm minimum tails to be left coiled in each back box.
- Cables must be separated from low voltage electrical cabling by at least 50mm. Our cable may only be installed adjacent to LV power cabling where LV cables are installed in a separate conduit or are of a mineral insulation or armoured construction.
- For guidance on LSZH cabling please refer to document VMTD0063.



External Termination Box (ETB)
All cables terminated back to this location with 150mm tails and labelled. Available in either White, Grey or Brown to suit your external build.



RG6/RG59 Coaxial Cable

Triple shielded white Coaxial cable, supplied by Virgin Media and manufactured by Amphenol Broadband Solutions. Drums are 305m in length and safe for a 1 man lift.

Media Plate (Optional)

Coaxial and copper cables to be coiled behind lower section of media plate. Lower panel to be reserved for Virgin Media use. Please refer to document VMTD0048 for more details.

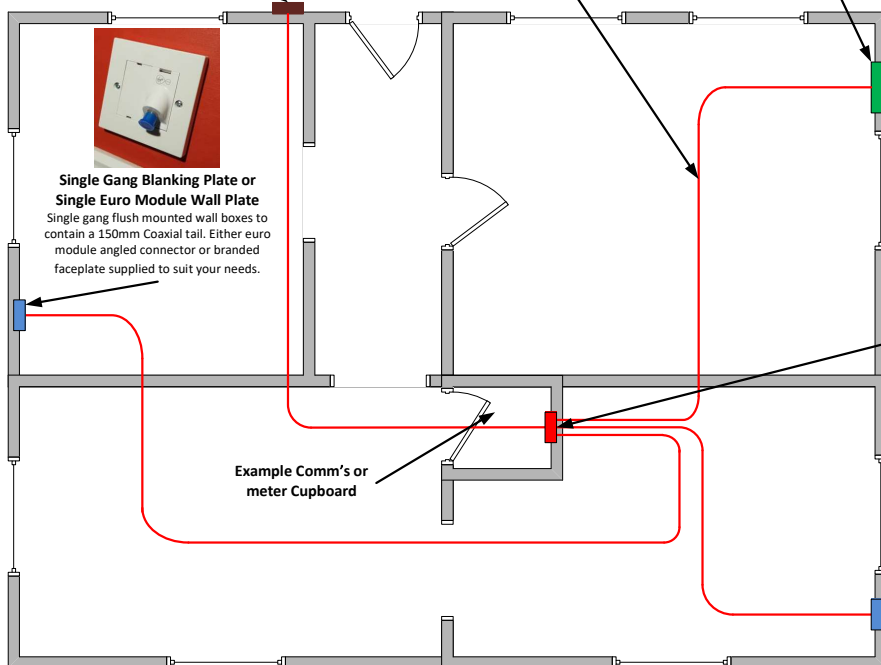


Virgin Media Digital Voice

Our new phone platform allows us to offer traditional phone services without the need for copper wires into the home. Our current generation Hub 3 has phone ports on the back and allows customers to connect their usual landline phone and have all the same benefits of a fixed copper phone line.



Single Gang Blanking Plate or Single Euro Module Wall Plate
Single gang flush mounted wall boxes to contain a 150mm Coaxial tail. Either euro module angled connector or branded faceplate supplied to suit your needs.

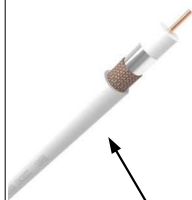


Internal Termination Box (ITB)

PVC termination box supplied by Virgin Media. All internal wiring to be terminated back to this location. **This must be located next to a dual 13A power socket to allow mains power for our equipment.**

Small (Krone 220A) - 170 x 120 x 80 HWD
Medium (Krone 251A) - 210 x 160 x 90 HWD
Large (Krone250/7) - 236 x 176 x 98 HWD
Standard HDU (Pictured) - 140 x 140 x 50 HWD

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Connections

There is no requirement for fitting connectors to our cable by your electricians during the build phase, this is done by our installs team at the point of customer install. All we require is a 150mm tail coiled inside the back box ready for us to use.



Amphenol
Broadband Solutions®

VMTD0047

Version 1.5 Revised 22/03/2022

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New Home Pre-Wire to an Internal Termination Box

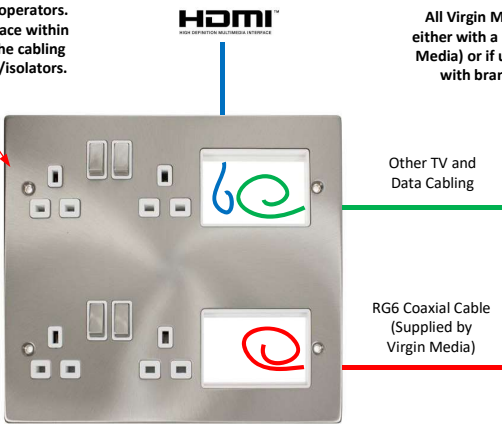
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- 21
1. All dimensions in millimetres unless otherwise stated.
 2. All faceplates for both single and double gang sockets are supplied by Virgin Media, currently we only offer standard white PVC. If you utilise your own faceplates we can supply transparent Virgin Media logo stickers to identify the faceplates.
 3. When using Euro Modules, all spaces within the faceplate must be filled with blanking plates to complete the finish and protect the faceplate/socket.
 4. No connectivity is required for our Euro Module insert until the customer is installed. All that is required is the tail of the adapter top be coiled inside the backbox alongside the incoming pre fitted coaxial cable.
 5. Sockets are best installed at floor level, please avoid installing high level sockets especially when wall mounting a TV. Remember that a set top box is required for premium satellite and cable connections so care must be given to the location of incoming cable sockets.



Virgin Media Euro Module with In Line Isolator
Our branded Euro module outlet allows you to have a single fixed master Coaxial socket in a Euro module faceplate without the need for additional wall-boxes. These units are supplied by Virgin Media, please specify in advance if you require these.

When using Media plates (see also drawing VMTD0048a) then please ensure that Virgin Media wiring is segregated from other operators. This ensures enough space within the back box to work the cabling and insert any splitters/isolators.



All Virgin Media sockets should be finished either with a blanking plate (supplied by Virgin Media) or if using Euro Modules then finished with branded Euro module inserts and blanking plates.

If using a single gang standalone socket for Virgin Media, please ensure that only a single cable feeds to/from this backbox. If the socket is being used as a junction or splitter then please utilise a double gang backbox. It creates a better finish if you utilise Euro Module faceplates for double sockets especially.



VMTD0048b	
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Faceplates and Euro Modules
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- All cable supplied by Virgin Media.
- A minimum of 2 Coaxial sockets (master bedroom and living room) per property. Further sockets can be agreed with local Virgin Media New Build teams.
- All cabling must be labelled at the termination box to highlight its destination.
- All CATV sockets must be installed within 1m of a power outlet.
- Individual cable lengths should not exceed 30m, please seek advice before wiring if this isn't possible.
- 150mm minimum tails to be left coiled in each back box.
- Cables must be separated from low voltage electrical cabling by at least 50mm. Our cable may only be installed adjacent to LV power cabling where LV cables are installed in a separate conduit or are of a mineral insulation or armoured construction.
- For guidance on LSZH cabling please refer to document VMTD0063.



Virgin Media Digital Voice

Our new phone platform allows us to offer traditional phone services without the need for copper wires into the home. Our current generation Hub 3 has phone ports on the back and allows customers to connect their usual landline phone and have all the same benefits of a fixed copper phone line.



FTTP ITB Example

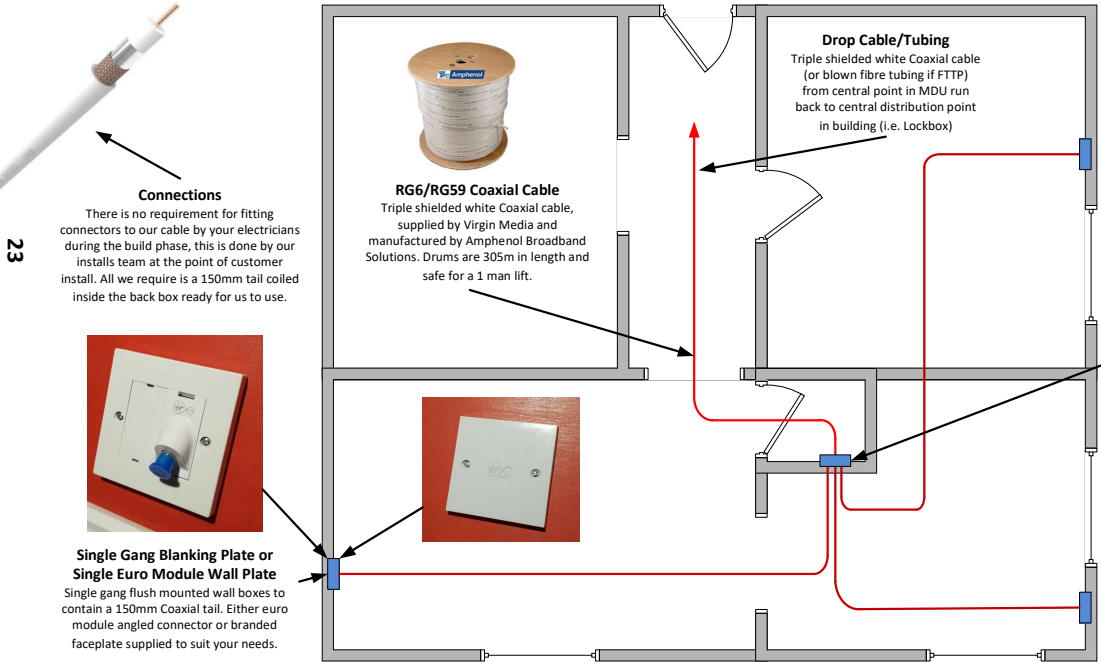


HDU Example

Internal Termination Box (ITB)

PVC termination box supplied by Virgin Media. All internal wiring to be terminated back to this location. **This must be located next to a dual 13A power socket to allow mains power for our equipment.**

- Small (Krone 220A) - 170 x 120 x 80 HWD**
- Medium (Krone 251A) - 210 x 160 x 90 HWD**
- Large (Krone250/7) - 236 x 176 x 98 HWD**
- Standard HDU (Pictured Above) - 140 x 140 x 50 HWD**
- FTTP (Pictured Top) - 195 x 275 x 65 HWD**



VMTD0049

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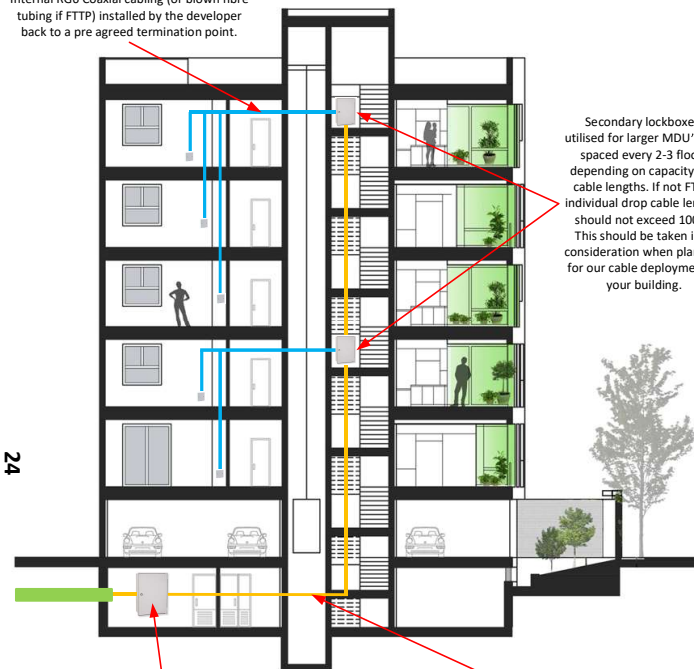
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Individual MDU Pre Wire

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Internal RG6 Coaxial cabling (or blown fibre tubing if FTTP) installed by the developer back to a pre agreed termination point.



Primary Lockbox, either for terminating incoming external cabling or used as a primary connection point for the entire building if capacity suits the size of the cabinet.

The primary distribution cabinet should always be installed directly above or next to the incoming 96mm duct feed, so there is no more than 3m distance between of external cable run within a building.

If internal trunk cabling/tubing is to be utilised for a larger MDU then a separate grade of cable/tubing will be supplied which meets the fire regulations required. This can either be installed by your electricians or our cable teams depending on what's easier for your site.

Internal RG6 Coaxial cabling (or blown fibre tubing if FTTP) run from each primary connection point within each unit back to either a primary or secondary distribution cabinet. Actual cabling termination points to be confirmed on site with the your Virgin Media representative.

Secondary lockboxes, utilised for larger MDU's and spaced every 2-3 floors depending on capacity and cable lengths. If not FTTP, individual drop cable lengths should not exceed 100m. This should be taken into consideration when planning for our cable deployment in your building.



Wall Mounted Distribution Boxes

We supply a range of plastic (FTTP) and powder coated galvanised steel distribution boxes (HFC) for terminating drop cables in an MDU. Available in three sizes depending upon the number of units being supplied...

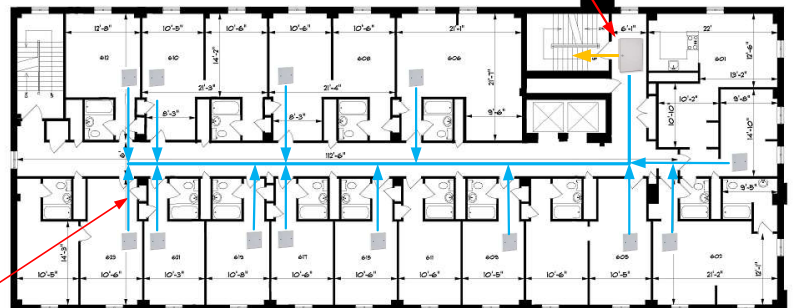
Small HFC – 400 x 300 x 210 HWD – 16 Units
Medium HFC – 700 x 500 x 260 HWD – 32 Units
Large HFC – 1000 x 800 x 300 HWD – 64 Units

Small FTTP – 300 x 245 HW – 1-16 Units
Medium FTTP – 368 x 275 HW – 17-24 Units
Large FTTP – 500 x 375 – 25-48 Units

Node Cabinet FTTP – 600 x 440 x 220 HWD

- All cable supplied by Virgin Media.
- A minimum of 2 sockets (master bedroom and living room) per unit. Further sockets can be agreed with local Virgin Media New Build teams.
- All cabling must be labelled in the distribution cabinet to highlight its destination.
- All sockets must be installed within 1m of a power outlet.
- Individual cable lengths should not exceed 100m from a distribution point, please seek advice before wiring if this isn't possible.
- 150mm minimum tails to be left coiled in each back box.
- Cables must be separated from low voltage electrical cabling by at least 50mm. Our coaxial cable may only be installed adjacent to LV power cabling where LV cables are installed in a separate conduit or are of a mineral insulation or armoured construction.
- For guidance on LSZH cabling please refer to document VMTD0063.

Primary or secondary Distribution box with feed to primary or external cabling



VMTD0051a

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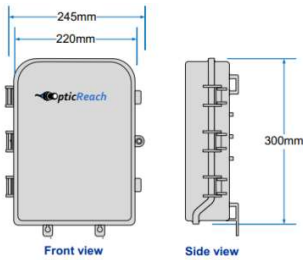
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Large Multi Dwelling Unit Pre Wire

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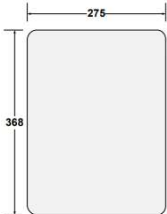
Small FTTP Wall Box



We utilise a 7mm OD (4mm ID) internal tubing for connection between boxes on site. This is usually white and all materials are supplied by Virgin Media.

For our primary node cabinet in large FTTP builds, we utilise the Hexatronic Fibre Splicing Cabinet – NCD-518-8003. This cabinet is designed to feed 12f tubes to each distribution box around the building and act as the primary splice location for the main external fibre into the building. Once fitted and fully connectorised, we require access only for maintenance.

Medium FTTP Wall Box



All of our approved wall boxes are a minimum IP54 rated against particles and water ingress for internal domestic use. Our powder coated cabinet range is IP66 rated as it needs to protect active line powered equipment.

Wall Mounted Distribution Boxes

We supply a range of plastic (FTTP) and powder coated galvanised steel distribution boxes (HFC) for terminating drop cables in an MDU. Available in three sizes depending upon the number of units being supplied...

Eldon Enclosures

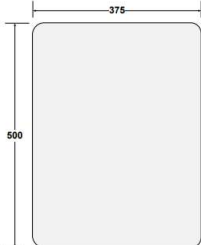
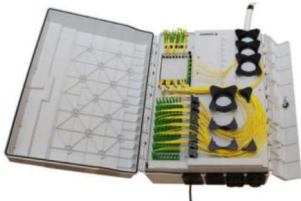
- Small HFC – 400 x 300 x 210 HWD – 16 Units
- Medium HFC – 700 x 500 x 260 HWD – 32 Units
- Large HFC – 1000 x 800 x 300 HWD – 64 Units

Hexatronic Enclosures

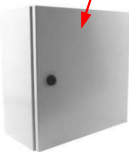
- Small FTTP – 300 x 245 x 45 HWD – 1-16 Units
- Medium FTTP – 368 x 275 x 114 HWD – 17-24 Units
- Large FTTP – 500 x 375 x 182 HWD – 25-48 Units

Node Cabinet FTTP – 600 x 440 x 220 HWD

Large FTTP Wall Box



For our traditional build areas (HFC) we supply powder coated cabinets from Eldon Enclosures in the three sizes listed in the table to the right. These mild steel enclosures are IP66 rated for water/dust ingress and suitable to contain the active powered devices contained within.



- 1. This guide is a representation of the equipment supplied and utilised by Virgin Media for internal distribution boxes within MDU builds.
- 2. Actual products may differ depending on manufacturer specification, please confirm any specific requirements with your Virgin media site contact if you have any questions or concerns.
- 3. All dimensions in millimetres unless otherwise stated.



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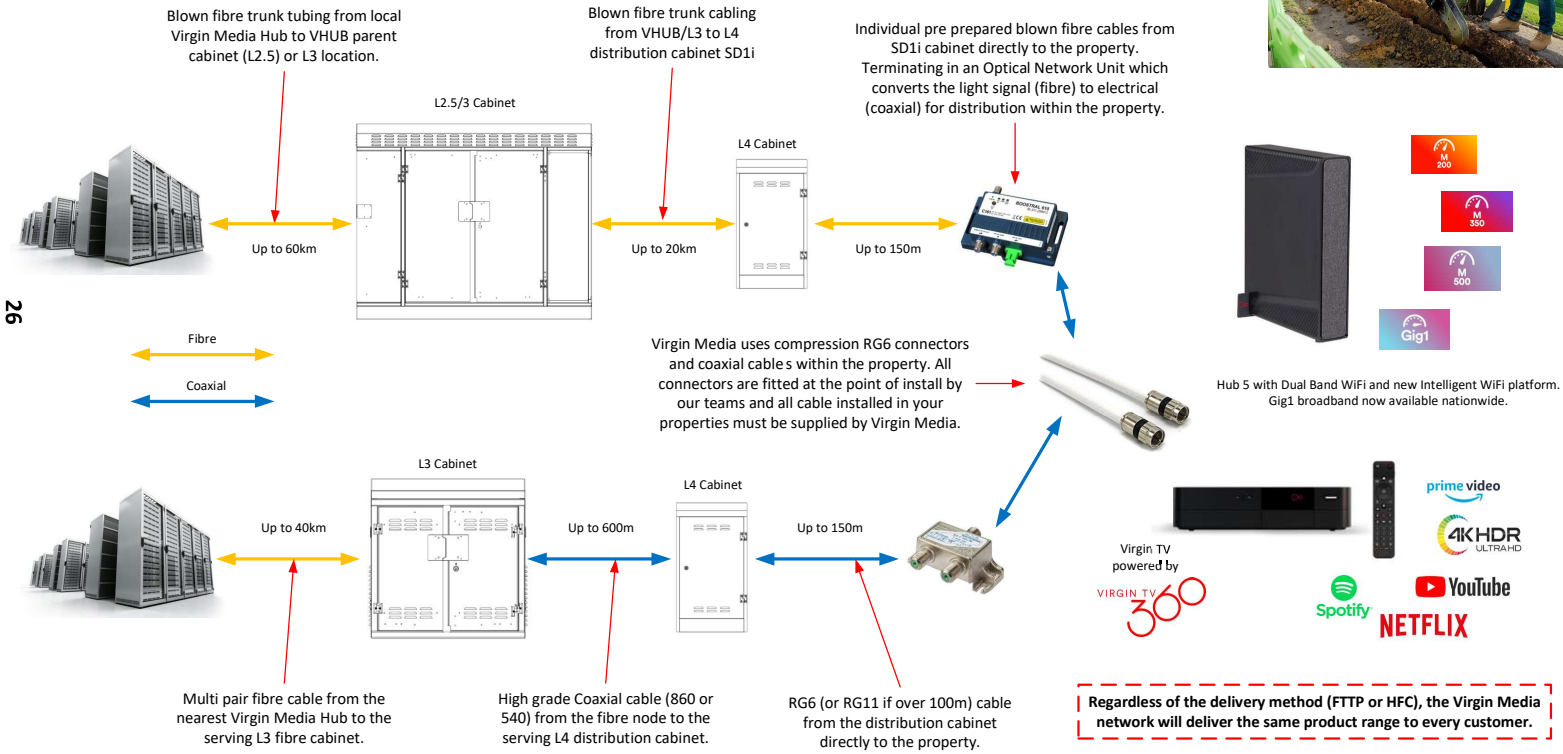
MDU Wall Boxes
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1. This guide is representative of the Virgin Media network build at a high level, some local variances may apply in distances and cabinet types.
2. Images of equipment are subject to change on delivery and are for illustrative purposes only.
3. Currently Virgin Media customers can choose a variation of broadband products ranging from 50Mbps to 350Mbps.
4. Broadcast TV services are delivered by Virgin Media and supplemented by additional services like YouTube (available in HD and 4K) and Netflix (available in HD and 4K).

Network Upgrades!
 Virgin Media O2 UK have announced in 2022 that works will begin to upgrade all existing network areas to allow a full-fibre product to be made available to all customers nationwide by 2028.



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HFC and FTTP Comparison
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Currently our FTTP Omni box can support up to 4 internal points, each internal point will consist of a single RG6 coaxial cable terminated back to the Omni box. Power for the ONU is supplied through a power inserter connected to one cable from the primary point in the property, this is fitted at the point of customer install.



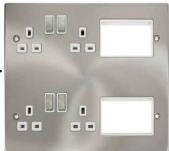
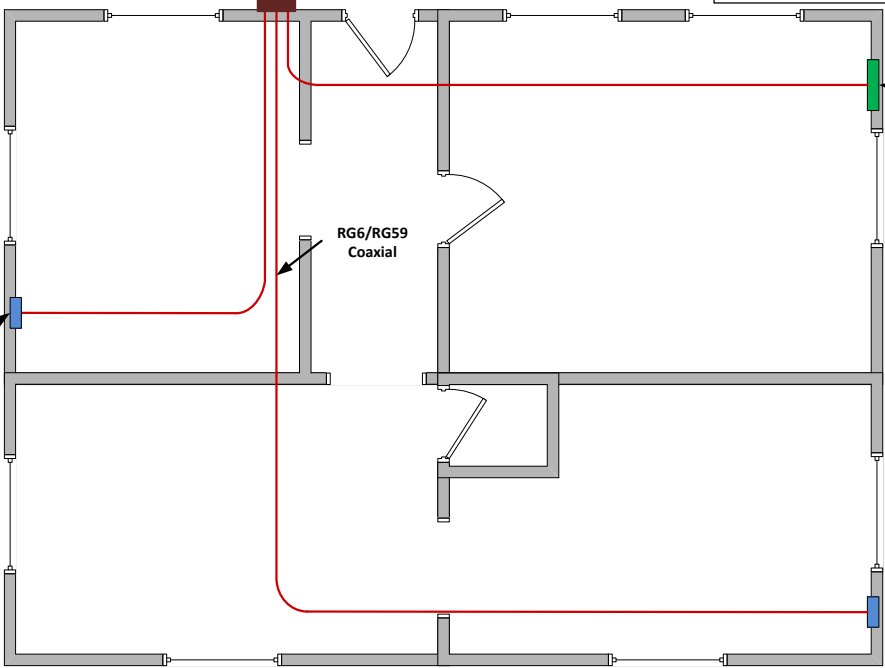
External Termination Box (ETB)
Coax cables from Internal locations coiled with a 150mm tail. The ETB in Fibre areas is larger than our usual model, please bear this in mind when positioning the entry point to your property. We recommend access to the side of the property rather than the front. The ETB measures 250x250x120.



- All cable supplied by Virgin Media.
- A minimum of 2 sockets (master bedroom and living room) per property. Further sockets can be agreed with local Virgin Media New Build teams up to a maximum of 4 without further power requirements.
- All cabling must be labelled in the ETB to highlight its destination.
- All sockets must be installed within 1m of a power outlet.
- Individual cable lengths should not exceed 30m, please seek advice before wiring if this isn't possible.
- 150mm minimum tails to be left coiled in each back box.
- Cables must be separated from low voltage electrical cabling by at least 50mm. Our coaxial cable may only be installed adjacent to LV power cabling where LV cables are installed in a separate conduit or are of a mineral insulation or armoured construction.
- For future proofing of your property, we recommend CAT6 cable installation from each point back to the same location as the ITB.
- For guidance on LSZH cabling please refer to document VMTD0063.



All internal RG6 cables will be terminated at the point of install by a Virgin Media install team, they can utilise up to a 4 way splitter for FTTP builds without requiring any further power.



Media Plate (Optional)
Coaxial cable to be coiled behind lower section of media plate. Lower panel to be reserved for Virgin Media use.



Virgin Media Digital Voice
Our new phone platform allows us to offer traditional phone services without the need for copper wires into the home. Our current generation Hub 3 has phone ports on the back and allows customers to connect their usual landline phone and have all the same benefits of a fixed copper phone line.



Amphenol
Broadband Solutions®

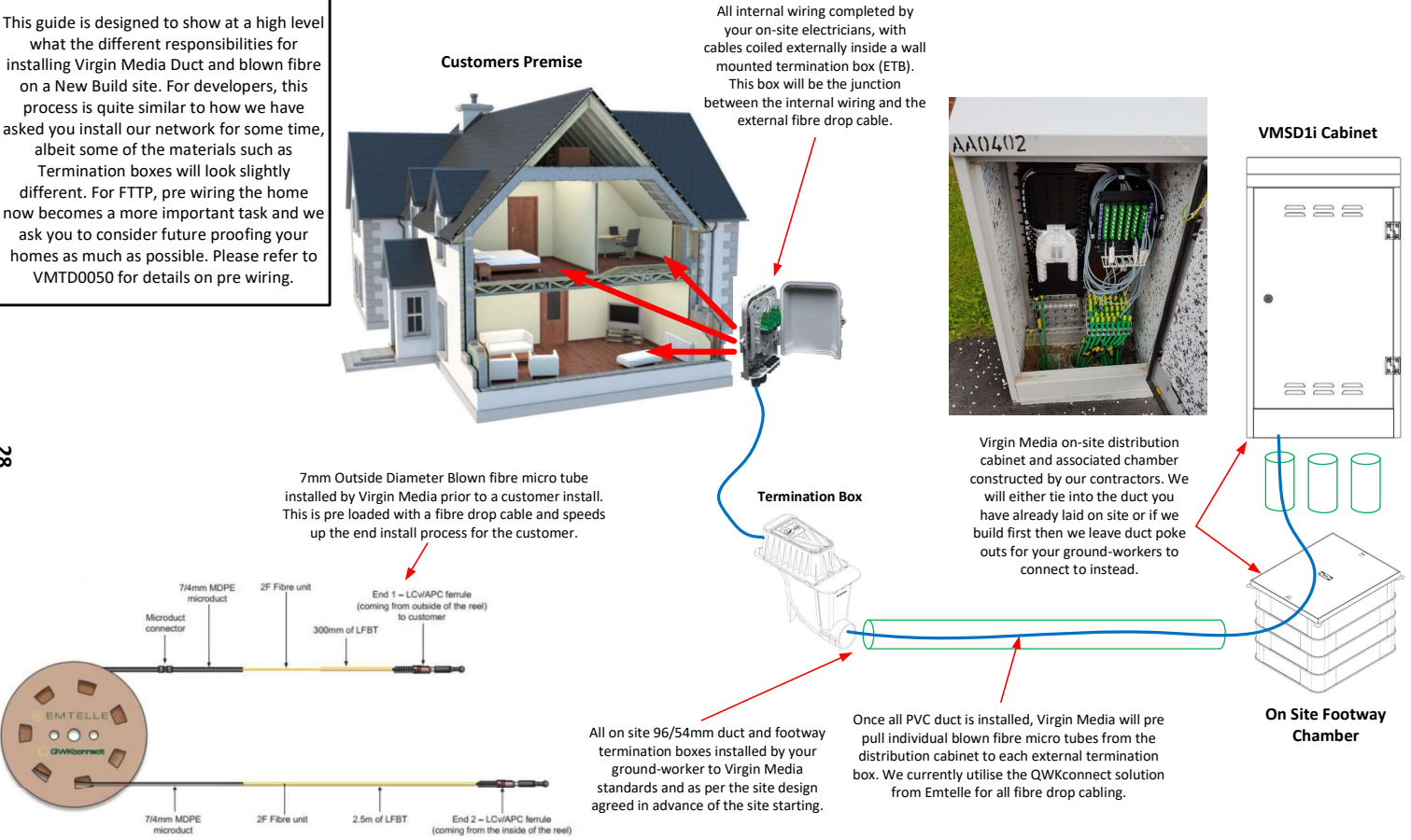
VMTD0050		
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New Home Pre-Wire for FTTP

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This guide is designed to show at a high level what the different responsibilities for installing Virgin Media Duct and blown fibre on a New Build site. For developers, this process is quite similar to how we have asked you install our network for some time, albeit some of the materials such as Termination boxes will look slightly different. For FTTP, pre wiring the home now becomes a more important task and we ask you to consider future proofing your homes as much as possible. Please refer to VMTD0050 for details on pre wiring.

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Please Note – Equipment and tubing images are examples, actual equipment may vary.

In the EU, the fire testing and classification standards for construction products have been harmonised in European Standard EN 13501-1. The European Reaction to Fire classification system (Euro classes) is the EU common standard for assessing the qualities of building materials in the event of a fire. Euro classes arise from classification systems for 'reaction to fire' performance of construction products. All Virgin Media products are classified for use in their respective country and safe to use in LSZH required environments.

Amphenol
Broadband Solutions



All internal coaxial cabling used by Virgin Media is manufactured by Amphenol. They produce their range of products with fire retardant PVC outer jackets and the main composition is foamed Polyethylene which meets the required LSZH standards of <0.02 of Halogenated materials.

EMTELLE

All the fibre tubing and fibre based products used by Virgin Media are supplied by Emtelle who confirm the usage of LSZH materials in their manufacturing process. Emtelle's range of pre loaded internal fibre tubing is rated to A1, s1a, d2.



All consumable items such as hook and loop tape that we supply also exceeds the CPR requirements by being fire retardant.

The Construction Products Regulation (CPR)

All power control and communication cables must conform with the CPR regulations from July 2017. This guide will refer only to communication cables.

Important Facts:

- CPR requires certain cables to be certified in terms of their "reaction to fire" to does not specify where cables can be used.
- These cables are designated in terms of their EuroClass and marked or labelled with the CE mark.
- Optical fibres and bundles of optical fibres not installable without additional mechanical and environmental protection (bare fibre) are not within scope of the CPR.
- Cable management systems are not within scope of the CPR – This includes conduit, blown fibre micro-duct, trunking, ducting and tray work.
- Any cable installed within a building fall under the scope of the CPR and must be specified in terms of their Euroclass.

Products containing halogenated polymers (such as PVC and FEP) are inherently flame resistant. When burned, the materials generate free radicals that slow down the combustion process by reacting with high energy free radicals. One of the products of this process is halogen acid gas such as hydrochloric acid.

The varying types of PVC coating types and their halogenated material contents are...

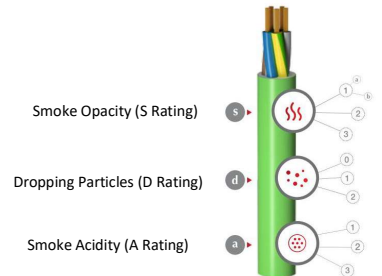


PU (polyurethane) <0.02
PE (polyethylene) <0.02 – Virgin Media supplied LSZH cable, micro duct and TX10
 CSPE (chloro-sulfonated polyethylene) 13-26
 CPE (chlorinated polyethylene) 14-28
PVC (polyvinyl chloride) 22-29 – Standard (non LSZH) Coaxial Cable Jacket
 FEP (fluorinated ethylene propylene) 62-78

<0.02 generally considered zero halogen

Requirements for High Rise Buildings in...

England, Wales and Northern Ireland – B-s3, d2
Scotland – A2-s1, d0



Please note that Scotland has higher standards for the use of internal cabling in high rise units. All Virgin Media supplied cabling is CPR compliant to the highest possible standards.



VMTD0063d

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CPR Guidelines for Cabling (LSZH)

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This guide is intended solely for guidance purposes and does not endorse the use of specific products or over rule any local fire protection regulations or restrictions. Please consider all aspects of fire protection within your building and ensure consultation with industry experts to make sure all regulations are adhered to.



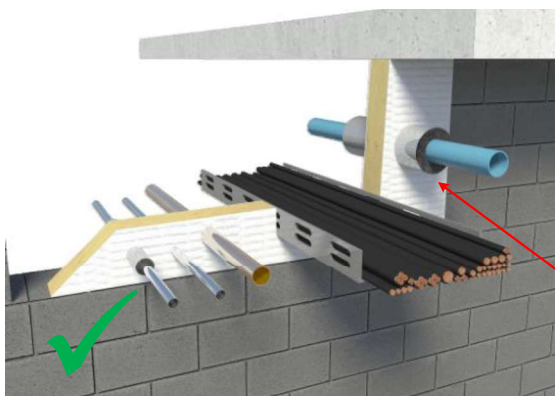
Note - Remember that a product can be “fire resistant” but not Low Smoke... always confirm the specifications of the product you are deploying on site and use branded materials where possible. If Virgin Media is required to fire seal an entry point to a building as a retrospective work then a branded material suitable for the job will be used under guidance from a fire consultant.

ROCKWOOL® provides intumescent putty pads which can be used to fire seal sockets within dry walls that require an element of fire protection.

ROCKWOOL® Firestop compound is the perfect product for use in fire rated walls and floors where cable penetration is required. It is a low maintenance product with 6 hours fire protection and no smoke emission.



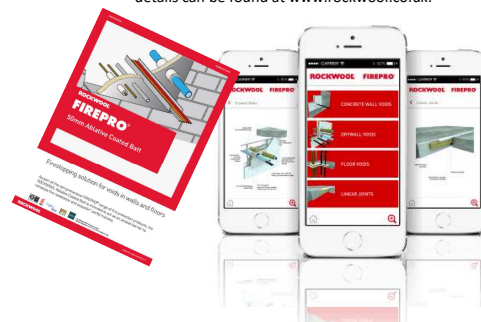
Forward planning of your fire protection requirements will mean choosing the correct method at the point of construction and prevent retrofitting of potentially unsuitable materials. Its easier to work with products like ablative coated batts at the point of first fix rather than trying to retrofit a solution that potentially wont meet the manufacturers install standards.



Notes:

- Virgin Media has consulted ROCKWOOL® on the best practice use of fire stopping and fire protection materials that are directly utilised in the deployment of cabling within a building and recommends the use of their rated range of products. This guide is intended to provide a point of reference and does not directly endorse a specific product or brand, please always consult a fire protection professional for guidance on protecting your building/project accordingly.
- Fire protection materials used incorrectly on site and identified by a Virgin Media employee will be reported to on site H&S as well as the HSE. There is no excuse for the misuse or incorrect install of fire protection.
- Virgin Media reserves the right to refuse access to our network infrastructure on site if guidelines are not met and our network will not be protected against potential fire ingress or assists in the spread of fire within a building.
- Where possible, we recommend the use of removable or malleable materials for fire protection within risers or partition walls so that future upgrade works or re-cabling exercises will not adversely damage the properties of installed fire protection.

ROCKWOOL® provides access too all of their technical documents and guidance both through its website and on its handy to use FirePro® App for smartphones. Full details can be found at www.rockwool.co.uk.



VMTD0063b

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Fire Stopping Guidelines

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Filoform offers different products to suit your internal & external duct sealing requirements, from either re-enterable duct sealant systems to full fire protection. Full details on the product range available can be found on the Filoform website at www.filoform.co.uk.

Tel: 01189 886 873 – Fax: 01189 886 576 – E-Mail: info@filoform.co.uk

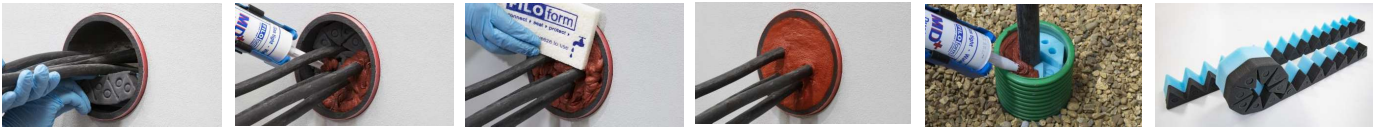
GAS & WATER PROTECTION

When sealing internal Virgin Media access cable ducts, either the '56 or 96mm' ducts against water & gas then the recommended sealing method to use is **FiloSeal+** from Filoform.

FiloSeal + is a universal product for sealing cables and pipes in ducts or bore holes. FiloSeal + is very easy to apply regardless of the type of cable scenario in the cable ducts as it uses a uniquely shaped foam piece which positions neatly around the cable or pipes in the duct. FiloSeal + uses our MD+ sealant which is easily applied from a 310ml tube using a skeleton gun. The unique design of the tri-flexible foam makes positioning and separation of the cables very simple while also providing cable separation and a backing for the MD+ to be applied on.

Notes...

- This guide is intended to highlight the benefits of using a specialist product in completing duct sealing within a building to meet BS:EN 1366-3 and to the Virgin Media standards. Other products are available for use from other suppliers but please ensure they meet the required standards before install.
- Any duct seal utilised on Virgin Media cable routes must be agreed in advance with the local engineer, if sealant is used incorrectly or an improper sealant is used (expanding foam), Virgin Media reserves the right to request removal and replacement of seals and cabling at the developers expense.
- Any duct sealing requirements within your building must be done with guidance from your fire consultant to ensure that the required materials used are suitable for the environment being utilised within.
- There are varying levels of internal duct seals available depending on the environment of install required. Remember, not all duct seals are fire proof/resistant but not all duct seals need to be. Always ensure you use the product suitable for the intended environment.



FIRE RESISTANCE AND LARGE HEAVY CABLES

If and when Fire Resistance is needed to seal a cable duct or large heavy cables, then all Virgin Media's ducts should be sealed using **FiloSeal+HD FIRE**, which gives a minimum of 2 hours fire resistance in accordance with BS EN 1366-3:2009.

Duct sealing system FiloSeal+HD FIRE is a highly certified fire, gas and water sealing system for both ducts and transit frames. FiloSeal+HD FIRE provides a strong support system using our specially formulated material called Formite which builds up like a honeycomb structure. FiloSeal+HD FIRE is suitable for sealing any cable configuration or pipes contained in one duct and also allows easy re-entry of the seal to add or remove cables or pipes as required.



Part Numbers...

Gas and Water Protection – P/N 282580 (Ducts up to 125mm) – FiloSeal+
Fire Resistance and Large Heavy Cables – P/N 280070 (Ducts up to 110mm) – FiloSeal+HD FIRE
Other sizes available upon request from Filoform direct.



VMTD0063c

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Duct Sealing Guidelines

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Virgin TV Powered by TV360

- 1Tb recording capacity (500hours SD, 100 hours HD).
- Record 6 shows simultaneously.
- Integrated Netflix, Prime Video, YouTube, iPlayer, Spotify and hayu apps.
- UHD 4K ready with immediate access to 4K content on Netflix, Prime Video and Youtube with broadcast content on Virgin TV UHD and BT Sport UHD.
- Stream content between boxes at home if you have more than one 360 box.
- Our smallest box yet, less than half the size of our previous generation TIVO*.
- Dimensions – 55x230x153 (HxWxD)
- Weight – 1.04kg

TV Apps



Virgin TV Go

Stream your socks off wherever there WiFi, 3G or 4G in the UK and Europe. It lets you watch TV on your mobile or tablet at home or on the go.



Virgin TV Control

Set and manage your V6 box, browse the TV guide or change the channel from anywhere in the world with WiFi, 3G or 4G.



Virgin TV Kids

Designed for kids aged 3-7 the Virgin TV Kids app lets you conjure up entertainment with the tap of a finger (or the stamp of a foot) at home – and on the go.



Virgin Media Store

This app lets you watch or download TV shows and movies you've bought from the Virgin Media Store.



Virgin Media Connect

Manage your intelligent WiFi service and Plume pods from one handy app. Scan for blackspots, get support with WiFi issues and auto connect with our nationwide external WiFi network including the London Underground.

Hub 5 – The Technical Bit



- DOCSIS 3.1 cable modem functionality (also fully compatible with DOCSIS 1.0, 1.1, 2.0, 3.0)
- 3x GigE and 1x 2.5Gbps Ethernet ports.
- 3x3 MIMO 2.4Ghz, 4x4 MIMO 5Ghz and WiFi 6.
- Five internal antennas
- Supports WEP/WPA/WPA2 wireless security encryption
- Supports WPS push button synchronisation
- Built-in router, DHCP and firewall which can be customised and deactivated
- Virgin Media customised housing
- External power supply (12v 1.5A)
- 2 voice ports for Digital Voice Service.
- Dimensions – 244x45x190 (HxWxD)
- Weight – 750g

Plume WiFi Pods

- Mesh WiFi system to help with your home coverage issues!
- Dual band 2.4 and 5Ghz with automated band steering.
- Plume HomePass subscription service extends your home security, coverage and control.
- Compatible with our Hub3 upwards.



1. This guide is intended to highlight the current customer premised equipment used by Virgin Media in the UK. This guide is correct as of March 2022.
2. All Equipment is supplied and maintained by Virgin Media.
3. Current broadband data in partnership with SamKnows can be found on our website at virginmedia.com/shop/broadband/speeds.



VMTD0040

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Customer Premised Equipment and Services

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New Build Contacts - North

Here are all your local New Build contacts, get in touch and we can discuss your site requirements.

If you cannot find a suitable contact then please liaise with our central admin team. **newbuild@virginmedia.co.uk – 0800 408 0088**



virginmedia.com/developer

North New Build Team

Regional New Build Manager

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Covering Edinburgh, Lothians, Fife, Perth, Dundee, Falkirk.

Postcodes G, KA, ML, PA

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 **Sarah Baldridge** – sarah.baldridge@virginmedia.co.uk – 07805 183 775
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New Build Officers North West and Yorkshire

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Our Regional New Build Officers are supported by our Business Development Team...

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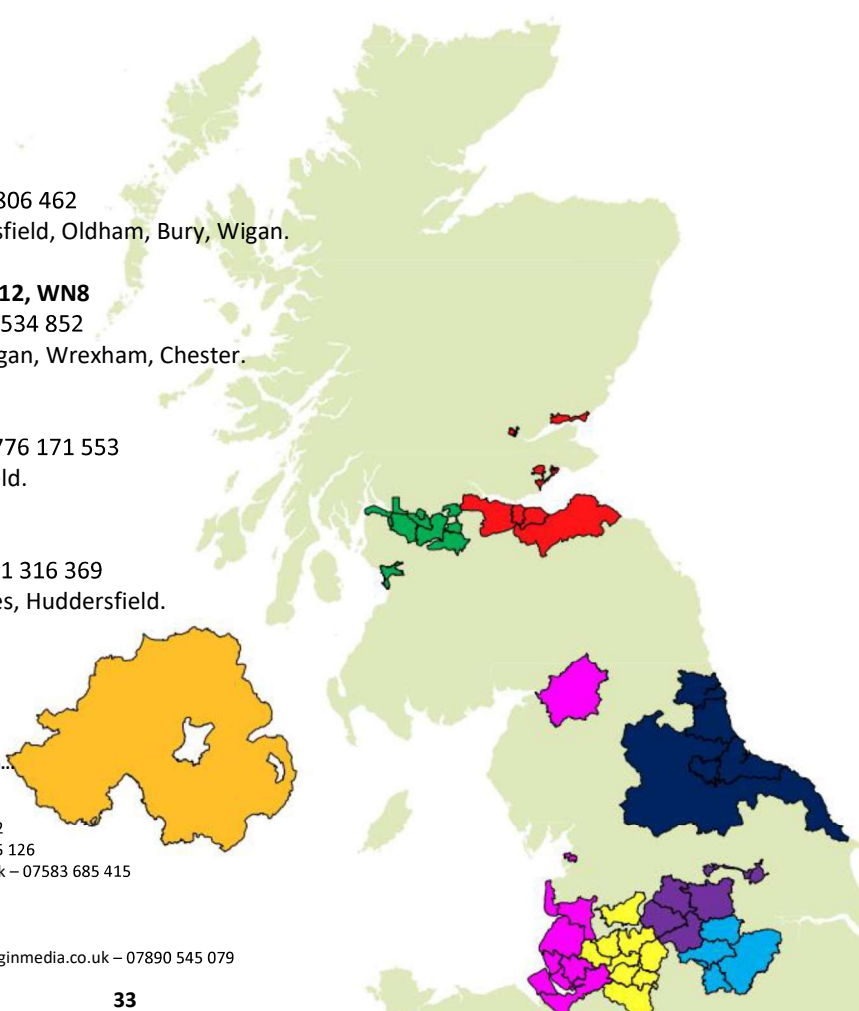
NE and Yorks – Richard Pardoe – richard.pardoe@virginmedia.co.uk – 07790 817 392

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National Developer Agreements (GB) – Luke Pinder – luke.pinder@virginmedia.co.uk – 07583 685 415

Site Progress

National New Build Site Progress Manager – Nathan Belfield – nathan.belfield2@virginmedia.co.uk – 07890 545 079



New Build Contacts – Central



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Central and South West

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Covering Cornwall, Devon, South Somerset.

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West Mids – Alan Felton – alan.felton@virginmedia.co.uk – 07980 758 265

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New Build Contacts - South

Here are all your local New Build contacts, get in touch and we can discuss your site requirements.

If you cannot find a suitable contact then please liaise with our central admin team. **newbuild@virginmedia.co.uk – 0800 408 0088**

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London, South Central and South East

Regional New Build Manager

in **Anne Marie Smith** – anne.smith@virginmedia.co.uk – 07966 833 255

New Build Officers London

Postcodes W1, W2, W9, WC1, WC2, NW1, NW8, SW1, SW3, SW7, SW8, SE1, SE11, SE17, EC1-EC4, E1, E2, E8, N1, N5, N7, N19, NW5, WC1V, N1C, SW1V, W1, SW1, WC1, WC2, EC1-EC4.

in **Paul Rosi** – paul.rosi@virginmedia.co.uk – 07985 807 162

Postcodes SW2, SW4-SW6, SW9-SW20, W3-W8, W10-W14, NW2-NW4, NW6, NW7, NW9-NW11, N2, N3, N6, N8, N10, N11, N12, N14, N20.

in **James Ellery** – james.ellery@virginmedia.co.uk – 07792 180 133

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Site Progress

National New Build Site Progress Manager – **Nathan Belfield** – nathan.belfield2@virginmedia.co.uk – 07890 545 079

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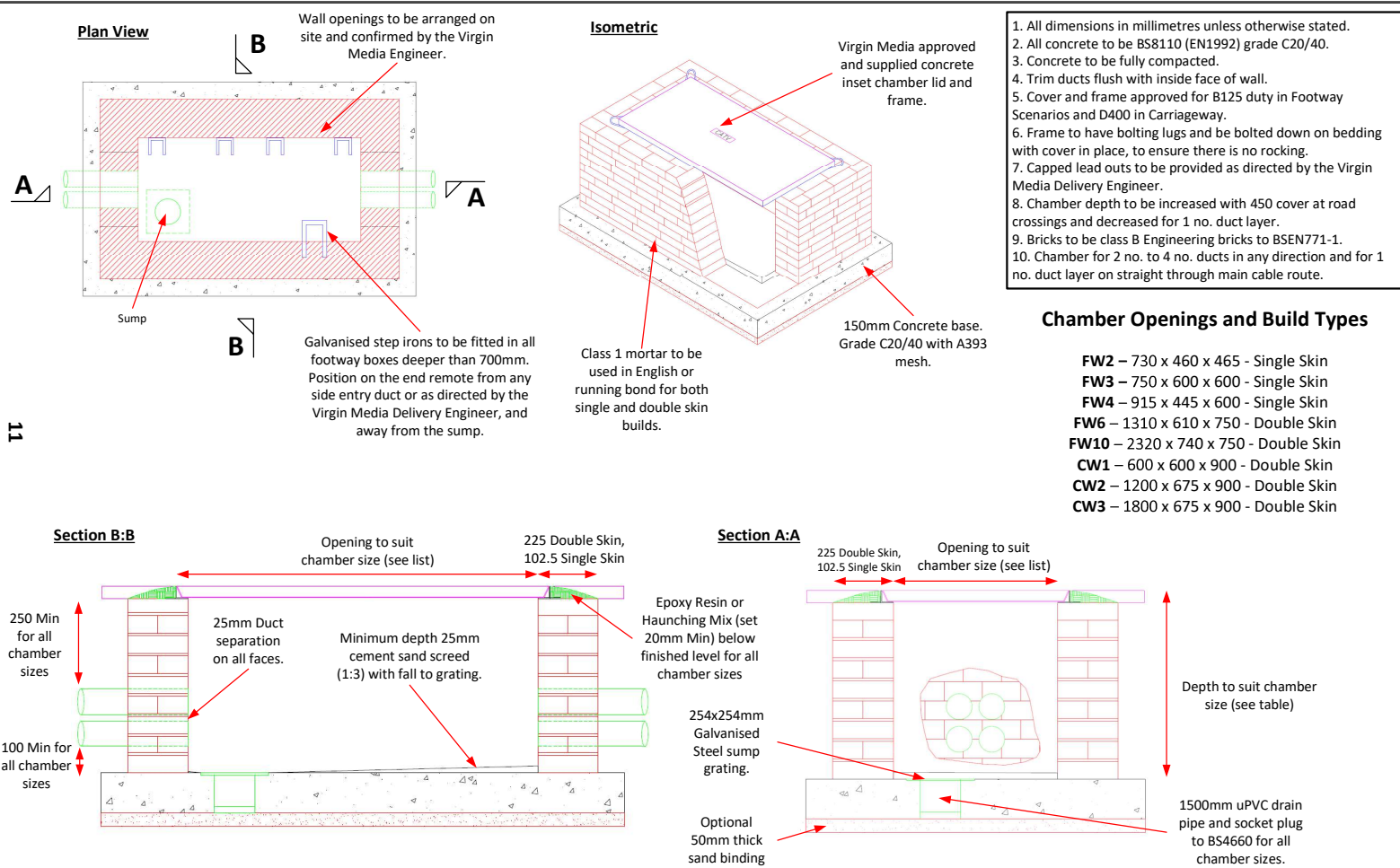
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NEW DEVELOPMENTS TEAM

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