

# TERRAIN

## World-class solutions for Local Authorities



Working together to deliver added value systems and solutions

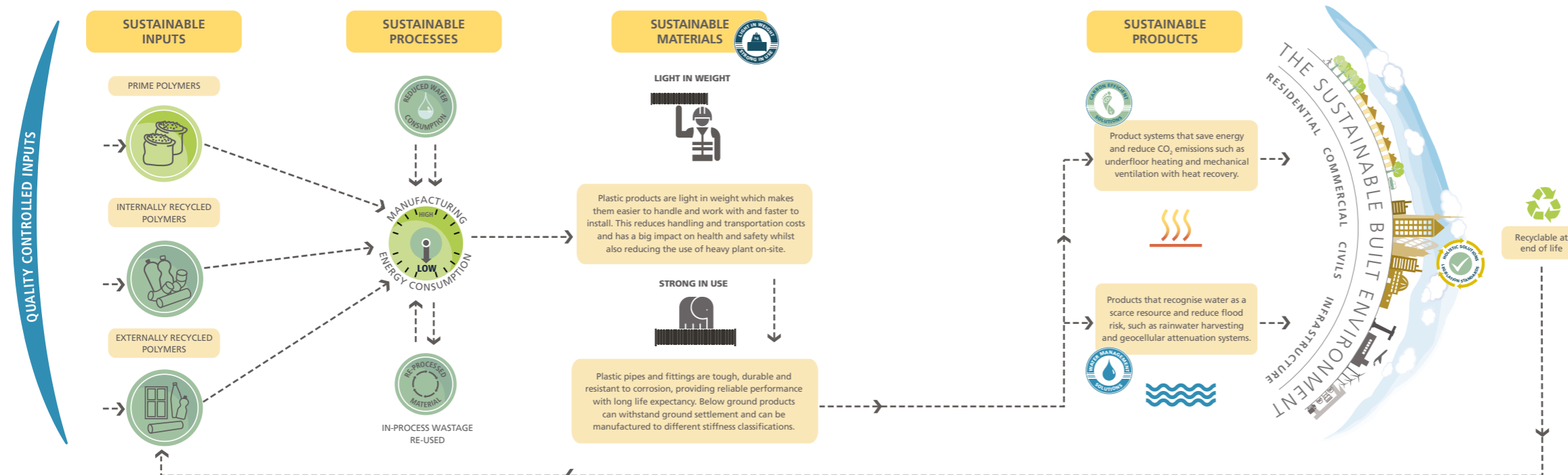
# Welcome to Polypipe

Polypipe are the UK's largest plastic piping systems manufacturer with over 20,000 product lines. We have the broadest product range available in the UK including innovative solutions for enabling the movement of water, air, power, chemicals and telecoms throughout the built environment.

Polypipe innovate for the construction challenges of our day, recognising the twin challenges of managing water and carbon resources. Our substantial technical knowledge and capability, when engaged early in the project, will deliver the most appropriate and cost-effective solutions within our highly focused market sectors. Polypipe has a long heritage of working with Local Authorities across the UK and continues to deliver added value systems and solutions working in partnership.



## The Polypipe Sustainable Journey



# Leading the Market

It's not just what we do but also the way that we do it that makes Polypipe number one in the UK for plastic piping systems. Our award winning history of innovation, having all the right approvals, accreditations and awards for quality standards are just the tip of the iceberg.



## An award-winning history of innovation and expertise

Polypipe's success has led to many awards and recognitions such as Building manufacturer of the year and approval under the London 2012 Supplier Recognition Scheme, culminating in being awarded Top 100 Business Superbrand in 2013, 2014, 2015 and 2016.

## Product approvals

Polypipe products are manufactured to the highest quality standards and carry all relevant third party product approvals and accreditations from the major recognised bodies.



## Quality standards

Polypipe operate to the highest quality standards, in particular: ISO 14001, 9001, 18001 and ROSPA Gold 2014 Award.



We are especially proud of our health and safety record.



# Professional Development Centre



As the UK's largest plastic piping manufacturer, we are committed to investing in the ongoing development of industry professionals. That's why we offer quality training on Polypipe products and systems at our purpose-built facility.

Located at our Aylesford site in Kent, we created the Professional Development Training Centre in response to Local Authority Building Control requirements – keeping Installers, Consultants, Housing Associations and Local Authorities up to date with current regulations, products and solutions.

Our centre showcases Polypipe Drainage products and systems in situ, making it ideal for demonstrating products, teaching installation processes and testing joints.



## Practical training

Training courses include a practical element where you have the opportunity to learn through a hands-on experience guided by our experts.

- BSEN 752 Underground Drainage
- BSEN 056 Above Ground Drainage
- BES 6001 Accreditation for responsibly-sourced materials
- Materials used in the creation of the products
- Best practice installation for various products
- Testing and commissioning



## Technical training

As well as gaining practical skills, you can enhance your technical knowledge with the help of our technical support and guidance.

- The History of Drainage and Terrain Products
- Design and drainage
- Design and installation issues
- Testing of joints
- Technical guidance



## Technical facilities

In addition to our innovative showroom, our Training Centre boasts an impressive hydraulic Drainage Tower designed to show our Terrain Products in action as a complete system, showing good and bad practice in drainage. We also use a 3D printer and transparent pipework to illustrate water-flowing clearly.

We also have seminar facilities for technical guidance to explain the materials used in the creation of our BES 6001 accredited products and what projects they are best suited to.

As the only manufacturer to hold BES 6001 accreditation, all the materials used in our systems are ethically sourced and easily traceable through the supply chain.



To organise a training session at our Centre of Excellence, please contact [minimaldisruption@polypipe.com](mailto:minimaldisruption@polypipe.com)



# Drainage Solutions

Polypipe has been working with a number of Local Authorities to tackle the problem and potential health risks of old and decaying cast iron soil pipes in high-rise accommodation.

Do your cast iron soil pipes look like this?



These are actual cast iron soil stacks removed from a high rise Local Authority building where ongoing system breakdown has caused these kinds of sanitation issues, such as leaking and blocked pipes.

The resulting soil stack replacement programmes offer a proven, effective and long-term solution that, with the use of fabricated stacks, speeds up the installation work on-site. A high level of fire protection can also be provided where required.



## Terrain PVC drainage systems

Terrain PVC Soil and Waste is a comprehensive range of solvent-weld and push-fit PVC drainage solutions, leading the market in terms and quality and reliability in use. The Solvent-Weld System is fully engineered to take account of flow direction, connection and expansion – proven to create a neat, permanent joint. Systems are available in eight sizes from 32 to 250mm.



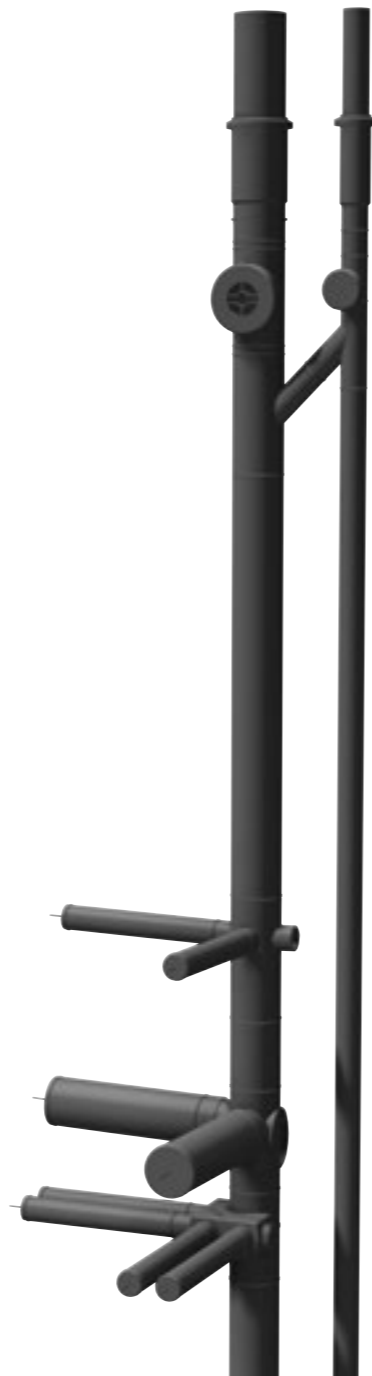
## Terrain dB12

Acoustic drainage solutions are increasingly in demand and Terrain dB12 provides a simple method to reduce sound emissions from soil and waste systems. Terrain dB12 is a triple-layer pipe system with specially developed co-polymer polypropylene layers. Acoustically engineered fittings reduce the levels of sound passing into the structure – perfect for big multi-occupancy building. The system is push-fit and remarkably easy to install.



## Terrain FUZE

Manufactured from high density polyethylene, Terrain FUZE is a high performance drainage system delivering many advantages over cast iron and other traditional materials. It is light in weight and easy to install, with strong resistance to abrasion, chemicals and extreme temperatures, plus its impact strength makes it almost unbreakable. Terrain FUZE is installed using a fully welded joint, providing a lifetime seal. The system is available in twelve diameters, from 40 to 315mm.



# Terrain Firetrap

Terrain Firetrap is a fire protection range, developed to offer Terrain drainage systems with the best fire rating possible. The range features a selection of sleeves and collars that are specified to fit all Terrain drainage systems and offer them up to four hours' fire protection. This allows you to use the system with confidence

Extensive and independent testing is carried out across the whole Terrain Firetrap range and numerous applications, giving you total peace of mind.



## Terrain Firetrap Sleeves

The Terrain Firetrap Sleeve was developed with ease of installation in mind. The sleeve can be quickly and simply fitted onto any Terrain FUZE, Terrain dB12 and Terrain PVC Soil and Waste above ground drainage pipe. In a fire situation the sleeve expands to close off the plastic drainage pipes and form a solid char that prevents smoke and fire passing through.

### Benefits and features

- Up to four hours' protection
- Quick to install in new build and retro-fit
- Protects pipe above and below the slab
- Cost effective
- Offers excellent acoustic insulation



Terrain Firetrap – the best rating available for the drainage stack, all products comply with BS 476 Part 20 and BS EN 1366-3



## Terrain Firetrap Collars

Terrain Firetrap Collars have been specifically designed to re-instate the fire resistance of a wall or floor, which has been penetrated by services such as Terrain PVC Soil and Waste, Terrain FUZE or Terrain dB12 for up to two hours'. The collars, made from steel, can be face fixed or set-in to a wall or ceiling structure with easy to use mounting tabs for quick and easy installation. The intumescent material will seal the gap between the hole and the pipe when activated by high temperature and fire to stop the spread of smoke and gas.

### Benefits and features

- Up to two hours' protection
- Can be applied to fire-proof concrete, brickwork floors and walls, masonry and plasterboard
- Seals against smoke, toxic gases, flames and heat
- Powder coated steel sleeve
- Can be installed in a recessed area to minimise overall dimensions



# MINIMAL DISRUPTION

## WITH TERRAIN'S LIVE STACK REPLACEMENT SERVICE

If you've got multi occupancy properties which need drainage replacing, our unique fabricated drainage stacks are delivered to site ready to install. This makes on-site installation much quicker, meaning that your residents can remain in their homes during the replacement, minimising disruption and saving you costs on temporary accommodation.

See it in action on our installation page: [www.polypipe.com/minimaldisruption](http://www.polypipe.com/minimaldisruption)

## The Terrain Fabrication Service

With over 40 years of experience, we have the expertise and resources to design and fabricate bespoke drainage stacks and fittings to the exact requirements of your project.

The solutions are engineered in our state-of-the-art facility, achieving a level of precision and quality which is difficult to replicate in on-site conditions. The Fabrication Service reduces installation time and waste, saving you time and money as well as allowing you to utilise your skilled labour force elsewhere. All stacks will be manufactured in accordance with detailed

drawings generated by our Technical Team who work closely with you to understand the exact project details, ensuring the perfect stack. Once completed, the stack will be transported to your site where it can be installed quickly and efficiently. Off-site fabrication also benefits from less people being required on-site, meaning there are fewer Health and Safety risks.



### SIMPLE ON-SITE CONNECTIONS

Straightforward installation saves on labour costs



### REDUCES ON-SITE LABOUR COSTS

Reduced installation time keeps overall project costs down



### REDUCES ON-SITE INSTALLATION TIME

Installation is simple and quicker than assembling loose fittings



### REDUCE ON-SITE WASTE

Made to measure, engineered solutions means there is a reduction in wasted materials



### PRE-AIR TESTING AVAILABLE

Removes the time and skills required for on-site testing



### WIDEST PORTFOLIO OF BESPOKE SOLUTIONS

Providing customised solutions for tricky one-off projects

40 YEARS

### TERRAIN HAS OVER 40 YEARS EXPERIENCE OF FABRICATING

You can expect quality from a brand you can trust



### BES 6001 ACCREDITATION

Our material has been responsibly sourced with full traceability throughout the supply chain

For more information visit [www.polypipe.com/terrainfabricationservice](http://www.polypipe.com/terrainfabricationservice)

## Live Stack Replacement

Any form of maintenance work on a tall building with multiple occupants can cause massive disruption to its residents and often leads to them being temporarily re-homed, at a large cost. Over time, the cast iron soil stack system in high rise Local Authority buildings may begin to breakdown, causing sanitation issues, such as leaking and blocked pipes. At Polypipe we are helping Local Authorities replace their old soil and waste pipes with minimal disruption to their residents with our Live Stack Replacement Service.

By utilising the benefits of the Terrain Fabrication Service and working closely with contractors, we can provide fabricated soil stacks and fittings that helps to drastically improve the time it takes to replace the current problematic stack. We also use a number of modern plastic alternatives to traditional materials such as, Terrain PVC Soil and waste, Terrain dB12 and Terrain FUZE – that are delivered straight to your site ready for installation.

### Minimal disruption because...

- Delivered to site ready for installation
- Quicker and easier to install
- Residents can stay in their homes during the process
- No temporary rehousing costs



# Residential 'Live Stack Replacement' made possible with Terrain Fabrication Service

Large scale 'live' drainage replacement works were able to take place thanks to a time saving solution from Polypipe.



**Terrain dB12 & Terrain FUZE**



Having worked closely with M&E Contractor IDS and Birmingham City Council on a refurbishment programme since 2009, Polypipe's fabrication team devised a solution which would enable residents to stay in their homes while essential works were undertaken to replace the original cast iron soil and waste pipes across three separate high rise towers.

Polypipe manufactured 200 metres of 110mm Terrain dB12 and 75mm Terrain FUZE fabricated soil and waste stacks to exact specifications and delivered them to site in Kings Norton, where sub-contractor Lovell were able to complete installations across 96 properties 40% faster than the average for such works.

Polypipe's ability to fabricate its drainage products off-site in its UK manufacturing facilities, along with the unique features of the soil and waste solution provided, ensured that the number of joints and cuts were kept to a minimum.

Using fabricated drainage stacks meant that average installation times per property were reduced from five hours to just three.

A vital element of this project was to complete the work with as little intrusion as possible. As a result of the type of works programme put into place it was possible to successfully deliver live stack replacements across 96 individual properties ahead of the timescales set out, with minimum disruption to residents.

The challenges presented on this project, not only with residents in place but also a lack of space for installation teams to work, were easily overcome thanks to Polypipe's ability to provide a high quality 'one fitting solution'.

**CASE STUDY**

**Project**  
Loweswater House, Waltham House and Sandhurst House Kings Norton, Birmingham

**Client**  
IDS

**Application**  
Drainage stacks

**Products**  
Terrain dB12, Terrain FUZE

# Millbrook Tower stands tall following replacement of rainwater drainage stacks

One of the tallest buildings in Southampton has had a complete drainage solution designed and installed without the temporary re-homing of any residents.



Using Terrain's Fabrication Service, the installation of the system was 40% faster than the average for such works.



Formerly the tallest building in Southampton, the Millbrook Tower stands at 240 feet. Built over 50 years ago, the building had a cast iron drainage system installed that had started to rust and fail, causing excessive leaking in the 144 flats in the development.

Southampton City Council (SCC) who wanted a complete holistic approach to the design, manufacture and installation of the replacement drainage system, approached Polypipe. In January 2016, eight members of the Direct Labour Organisation (DLO) department of SCC came to Polypipe's professional Development Centre in Aylesford for training to gain a better understanding of the specification, assembly and installation of plastic fabricated drainage stacks.

Working with SCC, as experts in providing intelligently engineered solutions for the movement of water and air around tall buildings, Polypipe assessed the failing drainage stacks in Millbrook Tower, and designed a new high-density polyethylene system. Terrain FUZE was installed due to a number of its key benefits over other more traditional materials.

Due to the inherent material characteristics of High Density Polyethylene (HDPE), Terrain FUZE lends itself to fabrication. Utilising Polypipe's unique Fabrication Service, the system was fabricated to exact specification and delivered to the site, where Southampton's DLO were able to complete the installation work across the 144 properties 40% faster than the average for such works. This meant that the residents of Millbrook Tower were able to remain in their properties, a key consideration when designing the drainage stacks of the building.

Lighter in weight than cast iron, Terrain FUZE can feature longer pipe runs, so less jointing is required. As the system is jointed using electro-fusion welding, where the weld area is as strong as the host material, the system integrity is increased and consequently the risk of leaks in the development is dramatically reduced.

**CASE STUDY**

**Project**  
Millbrook Tower, Southampton

**Client**  
Southampton City Council

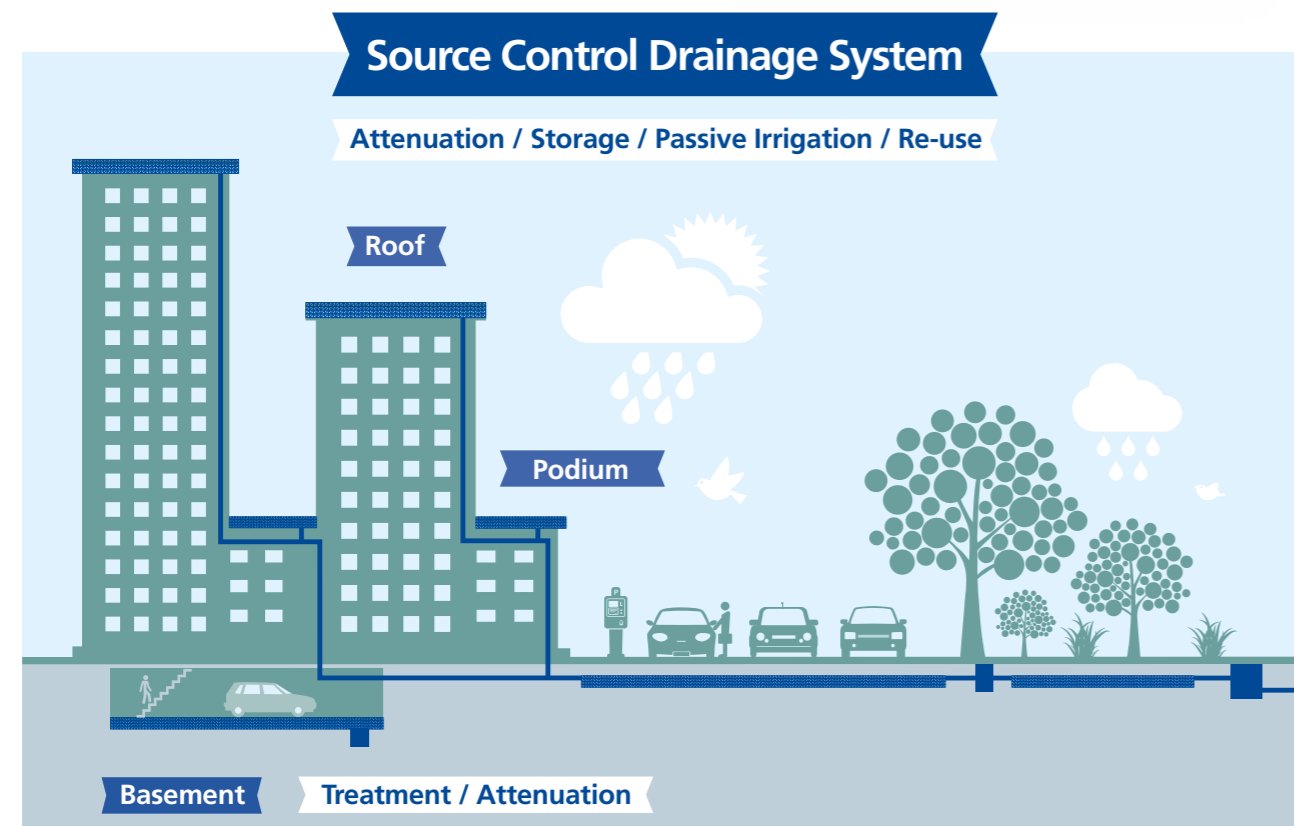
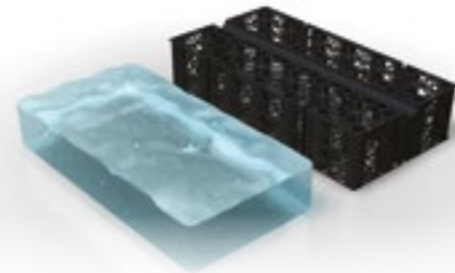
**Application**  
Live Stack Replacement

**Products**  
Terrain FUZE

# Water Management Solutions

## Permavoid Rainwater Interception System

As space becomes even more limited in the urban environment we need to look to more sustainable ways of managing the flow of rainwater. By using Polypipe water management and source control systems on roofs and podiums in conjunction with the trusted Terrain above ground drainage systems, building service designers can utilise these areas to integrate effective water management at source and control the flow of water at a designated rate into the underground drainage system.



## Below Ground Drainage

Informed by our understanding of market sector requirements, Building Regulations and client specifications, Polypipe has delivered a comprehensive range of below ground plastic drainage and sewer pipes, fittings and chambers.

### Ridgiform-XL

Approved by the WRc, Ridgiform-XL is an innovative large diameter structured wall pipe system. Available in 750mm to 3000mm, bespoke stiffness pipes can be engineered to suit your project requirements.



# Unite Stratford Student Accommodation

Permavoid Podium Deck has been specified for use within a large scale East London student accommodation project with a challenging restricted external ground area.

Working alongside main contractor Westfield Construction and M&E contractor Dimension Data Advanced Infrastructure, Polypipe helped to develop a rainwater attenuation system capable of managing the site's drainage requirements in the event of a '1 in 100' year + 30% storm event.

Although a large buried attenuation structure may have met the drainage needs of the site, a lack of external ground area made this impractical. As such Polypipe worked closely with the Environmental Protection Group (EPG) to provide a practical two-tiered attenuation system at podium level to collect water run-off.

Discharge from the selected Permavoid Podium deck system was conveyed using flow control outlets leading into a small 30m<sup>3</sup> buried attenuation tank, which was formed of Polystorm geocellular units. Using Polystorm in this way ensured that a discharge rate of 42 l/s could be maintained.

Permavoid Podium Deck provides ideal first stage rainwater interception and source control that can be easily integrated into an overall SUDS solution.

Having a 95% void ratio, Permavoid can collect and retain three times more water than aggregate sub-bases, making it ideal for projects where depths and loadings are a major consideration such as at Unite Stratford.

Glen Loftus from Dimension Data Advanced Infrastructure said: "Having to reconsider the drainage needs of the project during the build stage could have been an issue, however working with Polypipe and EPG on an appropriate podium level solution minimised disruption and went some way to making the project the success it was."

Work on the Unite Stratford ONE project completed in August 2014, allowing the building to open for its first intake of students in September. The accommodation houses more than 1,000 students across 28 floors.



## CASE STUDY

### Project

Unite Stratford student accommodation

### Client

Westfield Construction

### Application

First stage source control

### Products

Permavoid Podium Deck



# Ventilation

Polypipe Ventilation design and manufacture a range of high quality ventilation systems for domestic applications, improving air quality and homeowner comfort. Keeping buildings airtight to increase carbon efficiency is an important part of Building Regulations meaning advanced ventilation systems are crucial.

## Silavent



### Mechanical Ventilation with Heat Recovery (MVHR)

Efficiently combines supply and extract ventilation into one system, thus reducing household energy consumption and improving the indoor air. Designed to offer superior performance coupled with simple installation and operation, the Silavent Green Line award winning HRX and HRX2 MVHR units offer a heat exchange efficiency up to 95%, thereby lowering a property's Dwelling Emission Rate (DER) and helping to secure additional SAP points.



### Energy efficient bathroom and kitchen fans

Designed to comply with Building Regulations and reduce the build up of condensation and mould, our range of Silavent Green Line Sapphire fans offer a Specific Fan Power down to 0.22W/(l/s) and reduce carbon emissions. With models available to suit all applications, our new stylish fan range is the ideal solution for today's modern décor.



### Mechanical Extract Ventilation (MEV)

The exceptionally compact Silavent Green Line CMX MEV appliance continuously extracts waste air from a property and offers an extremely low Specific Fan Power down to 0.24W/(l/s), thereby improving a property's SAP rating and lowering its energy usage. At just 125mm in depth, the CMX is one of the most versatile and energy efficient MEV solutions available on the market.

## Domus



### Air-tight rigid duct systems

The market leading Domus rigid duct range is designed to achieve the highest possible energy efficiency from our ventilation appliances. Available in eight different profiles, Domus rigid duct is manufactured to exacting tolerances which virtually eliminates air leakage and pressure drop. The Domus range also includes sound attenuation and FireBrake fire-stopping products, in addition to high efficiency bends.

These are just a few products from Polypipe's market leading range of ventilation systems. Contact us for full details, go online at [www.polypipe.com/ventilation](http://www.polypipe.com/ventilation) or call **03443 715523**.



### Duct insulation for rigid duct systems

The LABC accredited, Domus Thermal is a unique, patented duct insulation system which significantly improves the thermal insulation of ducting in domestic properties. Designed to comply with the new NHBC Guidelines that state all duct insulation must have a specific thermal value.

# Water Supply Systems

With no specialist soldering skills needed, plastic plumbing systems offer safe, easy, almost instant jointing with no mess and no costly consumables and because the resale value of plastic is nothing like that of copper, are much less likely to be targeted by thieves. All of our Polybutylene systems are Class S rated to BS7291 and our Polyethylene systems is accredited to BS EN 12207.



**PolyPlumb** is our original grey plumbing system which comes with flexible grey polybutylene pipes in 10, 15, 22 and 28mm diameters. PolyPlumb fittings feature a one-step jointing process and a high performance stainless steel grabring within the fitting, ensuring superb joint integrity.



**PolyFit** is our hand-demountable white, push-fit plumbing system, offering maximum flexibility and adjustability in 10, 15, 22 and 28mm diameters. PolyFit features a one step jointing operation and, if adjustment is needed during installation, it can be easily demounted by hand or by using our release tool.

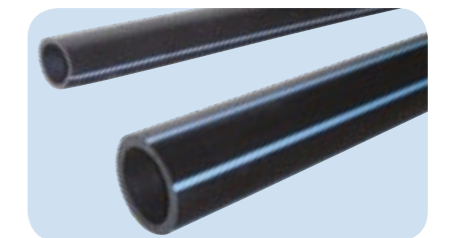


**PolySure** is our radial press-fit system uniquely available with brass and plastic fittings, available in 10, 15, 22 and 28mm diameters. Featuring secure, tamper-proof jointing technology for a permanent fit, its slim profile fittings are ideal for use in visible installations.

## PE100

A high performance polyethylene system, ideal for high pressure water supply. With excellent impact resistance and a butt or electro-fusion welded joint, PE100 is particularly suitable for boosted cold water systems in high rise buildings. Available in diameters:

- 32-1200mm in SDR17 10 Bar
- 20-630mm in SDR11 16 Bar



## Boosted water

Low water pressure can be an issue in many high-rise buildings. Polypipe provides solutions for the replacement of existing boosted mains pipework systems or upgrade buildings that previously relied on mains pressure alone. Our manufacturing department can prefabricate the components ready for delivery on-site. All this means your approved installers can install the product in the minimum time frame with minimum disruption to the tenants.

## Surestop

Fitting Surestop Remote Stopcocks in your properties allows your residents to turn off their mains water at the flick of a switch and can help protect your properties from the risk of water damage. The Surestop is:

- Powered by water pressure – so needs no batteries or electricity
- Resistant to limescale
- WRAS approved as a stopcock
- An easily affordable solution that can be fitted in less than an hour
- Specified and used daily by over 300 different social landlords
- Proven for reliability in use with over 800,000 having been sold in the UK

For more information visit [www.surestop.co.uk](http://www.surestop.co.uk)





Working together to deliver added  
value systems and solutions



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