Dacta DRAINAGE

AVAILABLE IN LEAD FREE

Solvent Weld uPVC Above Ground Drainage System

Manufactured by Hepworth

PRODUCT & TECHNICAL GUIDE

Terms of use

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Introduction

Hepworth PME LLC is the Middle East's premier manufacturer and supplier of plastic piping solutions. The company was established over 40 years ago in Dubai and manufactures pipes and fittings in the UAE, Oman and Qatar. Moreover, Hepworth trades through operating companies in Oman and Bahrain and exports its products globally.

As part of its strategy to grow its products portfolio, the company recently launched its own brand under the name of Dacta, a locally-manufactured range of uPVC solvent cement piping system, along with two sub-brands, Dacta Therm (PPR piping system) and Dacta Silent (Polypropylene sound proof piping system) to cater to the civil and building construction sectors. The new range of Dacta products is synonymous with quality and availability and allows the company to be present throughout all segments of the building materials industry.

Hepworth currently employs over 600 people in the Middle East, providing many years of experience and expertise in plastics processing.

Hepworth is the holding company of Corys Geosynthetics, the leading supplier of world-class Geomembrane, HDPE Liners, Geotextiles, Geogrids, Geocells and GCL. The company also counts among its companies Corys MDS, GF Corys and Corys Plastic Industries in Abu Dhabi.

Hepworth is a subsidiary of Green Coast Enterprises, a Dubai-based private family business owned by the Abdul Ghaffar Hussain family.

Sustainability

Hepworth translates global challenges into sustainable business activities and product solutions. Combining this responsibility with excellent performance has always been part of our corporate culture.

Hepworth was formed, with its practical commitment to the social welfare of employees and society alike - loyal to this tradition, our company has always vigorously pioneered improvements in energy efficiency and protection of natural resources.

Today, Hepworth continues to put these ideals into practice – worldwide and through the value chain – thus holding leading positions in pipework and fittings manufacturing both technologically and environmentally. In particular Hepworth strives for:

- The efficient utilization of energy resources and active climate protection
- The conservation of available water resources
- The efficient utilization of available raw materials and the avoidance of waste
- Improved social welfare of our employees and customers
- A safe and healthy environment for our employees, neighbours, customers and consumers

Hepworth ensures environmental protection in both its production processes and product solutions. Continuous optimization of energy and water use combined with less raw material waste reduces resource consumption and minimizes CO2 emissions during the production cycle

- Optimized production processes for the efficient use of resources
- Products and system solutions for sustainable construction work
- Healthy working conditions for users
- Healthy living environment for occupants

Sustainable construction practices involve the principled treatment of people in all phases of a building project. Hepworth is committed to fair competition, from bidding to execution.

For the building professional, Hepworth sets new standards in its practical training courses.

- Specialised training for construction workers
- Responsible and ethical behaviour compliant with the principles laid out in our Code of Conduct

Health, Safety and Environment Policy

Hepworth is committed to a zero accident target in all its business activities. We also aim to reduce environmental pollution through a process of continuous improvement in our environmental management system. We will protect the health, safety and environmental concerns of all our stakeholders (Employees, Visitors, Customers, Suppliers and the Community).

The Health, Safety and Environmental policy will be enabled through Health, Safety and Environmental management systems and appropriate business plans that establish Health, Safety and Environmental objectives and targets across all business units. We also commit to ensuring our business operations are in compliance with UAE Federal Laws & Orders, Civil Defense, Dubai Municipality and other applicable requirements to achieve organizational goals through management and organizational commitment, the allocation of sufficient human and capital resources, rigorous measurement and corrective systems.

The HSE policy is continually monitored, reviewed and amended as necessary, particularly when there are changes in occupational health and safety risks or environmental impacts of our operations, to remain relevant and appropriate to the nature and scale of our operations.

Quality Control

The corner stone of our quality policy is “Quality Without Compromise”.

The Quality control laboratory of Hepworth is equipped with state-of-the-art equipment and staffed with trained quality control inspectors. The laboratory performs ‘round the clock’ testing on products manufactured at our factories to ensure that quality is guaranteed. A continuous rigorous type test program is carried out, including process verification and long term pressure testing to ensure our fullest commitment to the highest industry quality standards.

We ensure the quality requirements of the client are met at every stage. This is typically by way of project-specific Inspection and Test Plan. We have a comprehensive Quality Control system that monitors every stage of production from receipt of raw materials to product delivery.

Manufacturing Standards

European Standard	Certificate Number	Standard Description
BS EN 1329-1:2014	KM 641268	European Standard Specification for Plastic piping system for soil and waste discharge (low & high) temperature within the building structure - Unplasticized polyvinyl chloride (uPVC)
BS EN 1455-1:2000	KM 709696 KM 717981	European Standard Specification for Plastic piping system for soil and waste discharge (low & high) temperature within the building structure - acrylonitrile butadiene styrene (ABS).

uPVC Physical Properties

- Inflammability: does not support combustion
- Specific heat: 1.00 kJ/kg/°C
- Thermal conductivity: 0.180 J/m^2/s/°C/m
- Impact strength: complies with EN 1401-1,EN1329
- Tensile strength: in excess of 45 MN/m^2 at 20°C

Modulus of elasticity = E (1 Min) > 2400 N/m^2
Average density = 1.35-1.60 g/cm^3
Average coefficient of linear thermal expansion = 0.08 mm/°C

Dacta uPVC Soil & Vent System

Dacta uPVC piping system advantages

Corrosion resistance
Dacta uPVC pipe does not corrode and is resistant to acids, alkalis and electrolytic corrosion from any source. uPVC, being a non-conductor, is resistant to all types of galvanic and electromechanical influences which might corrode it. In this respect, it outclasses most other pipe materials including stainless steel.

Lightweight, quick and easy to install
Dacta uPVC pipes are only about 20% the weight of an equivalent cast iron pipe and from 25 - 33% of the weight of an equivalent cement pipe. Thus the cost of transportation and installation is cut down dramatically.

Long service life
Since uPVC does not corrode and is resistant to most chemicals, this pipe does not lose strength from sewer gas corrosion or external galvanic soil conditions.The design of the pipe allows for a long-term deflection of 7.5%, without failure or damage.

Internal pipe smoothness
Due to the smoothness of the inner surface of Dacta uPVC pipes, the growth of algae, bacteria and fungi inside the pipe is reduced and flow rates are increased.

Effect of solar radiation
Prolonged exposure to sunlight will cause the colour to fade. It may also result in a slight loss of impact strength. We would not expect this to seriously affect the performance of the system. However, it is advisable to protect any exposed parts by painting them with exterior water based paints.

Flame resistance
Dacta PVC pipes are difficult to ignite and will not continue burning in the absence of an external ignition source. The spontaneous ignition temperature is 450°C.

Sustainability
Dacta PVC pipe, fittings and packaging materials are sourced and manufactured locally for distribution within the MENA region therefore leaving a smaller carbon footprint.

Applications

- Hospitality
- Healthcare
- Commercial
- Residential
- Education
- Industry

uPVC Above Ground Pipes & Fittings

Dacta solvent weld joints provide a rigid joint connection for use in applications where restraint of the joint may be needed. This allows the whole run of the pipe to act as one piece of pipe regardless of the number of joints. This is accomplished by fusing material from both the spigot end and the bell end (or coupling) together. Once this is properly done and the joint has cured, the result is a “zero-leak” joint that is structurally sound. Solvent weld joints are most often used in applications above ground and/or indoor but can also be used in underground applications. During installation, it is important to remember that the finished product will function as a single span of pipe.

BS EN 1329-1

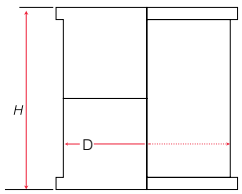
Product Dimensions

Product Size	Wall Thickness Min.	Wall Thickness Max	OD Min.	OD Max.
u-PVC Dia. 82mm Soil Pipe	3.00	3.50	82.0	82.3
u-PVC Dia. 110mm Soil Pipe	3.20	3.80	110.0	110.3
u-PVC Dia. 160mm Soil Pipe	3.20	3.80	160.0	160.4
u-PVC Dia. 200mm Soil Pipe	4.90	5.60	200.0	200.5
u-PVC Dia. 250mm Soil Pipe	6.20	7.10	250.0	250.5
u-PVC Dia. 315mm Soil Pipe	7.70	8.70	315.0	315.6

Standard EN 1329

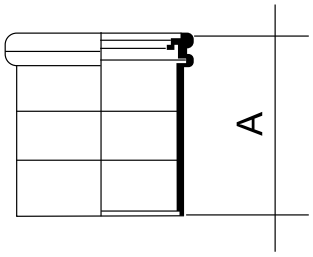
Socket

Socket (Coupler)



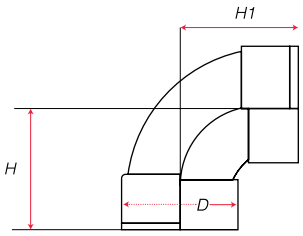
D (mm)	H (mm)	Item Code
82	92	DIS1 - 113/LF
110	102	DIS1 - 114/LF
160	123	DIS1 - 116/LF
200	127	DIS1 - 118/LF

Expansion Coupler - Double lip seal



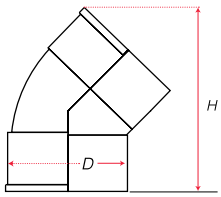
D (mm)	A (mm)	Item Code
82	97	S2-DS-113/LF
110	113	S2-DS-114/LF
160	139	S2-DS-116/LF

Elbow Double Socket 87.5°



D (mm)	H (mm)	H1 (mm)	Item Code
82	109	109	DIS12 - 113/LF
110	136	136	DIS12 - 114/LF
160	187	187	DIS12 - 116/LF
200	200	200	DIS12 - 118/LF

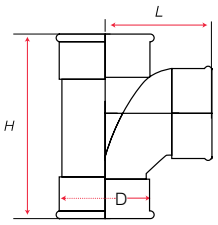
Elbow Double Socket 45°



D (mm)	H (mm)	Item Code
82	145.3	DIS15 - 113/LF
110	174	DIS15 - 114/LF
160	237	DIS15 - 116/LF
200	265	DIS15 - 118/LF

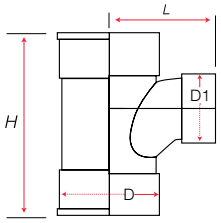
Sweep Branch Connection

Sweep Tee (3 x Sockets) 87.5°



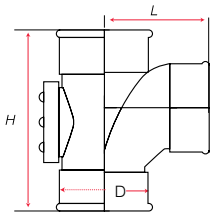
D (mm)	H (mm)	L (mm)	Item Code
82	200	108	DIS24 - 113/LF
110	240	133	DIS24 - 114/LF
160	332	184	DIS24 - 116/LF
200	400	209	DIS24 - 118/LF

Unequal Tee (3 x Sockets) 87.5°



D x D1 (mm)	H (mm)	L (mm)	Item Code
82 x 56	165	78	DIS24 - 517/LF
110 x 56	175	93	DIS24 - 520/LF
160 x 110	242	138	DIS24 - 526/LF

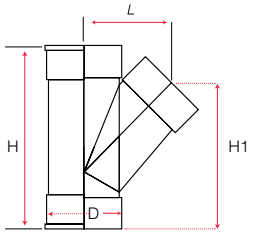
Equal Tee (3 x Sockets) 87.5° with Access Connection



D (mm)	H (mm)	L (mm)	Item Code
110	240	133	DIS24 - I0114/LF

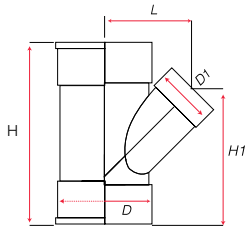
Y Branch

Y (Equal) 45° (3 x Sockets)



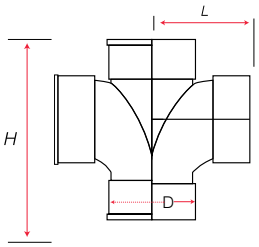
D (mm)	H (mm)	H1 (mm)	L (mm)	Item Code
82	216	173	104	DIS27 - 113/LF
110	265	211	132	DIS27 - 114/LF
160	360	285	183	DIS27 - 116/LF
200	420	330	218	DIS27 - 118/LF

Y (Unequal) 45° (3 x Sockets)



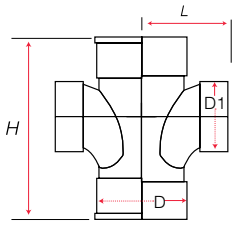
D x D1 (mm)	H (mm)	H1 (mm)	L (mm)	Item Code
160 x 110	290	226	158	DIS27 - 353/LF
200 x 160	376	295	211	DIS27 - 8x6/LF

Tee (Double) Equal 87.5° (4 x Sockets) with Boss Adaptation



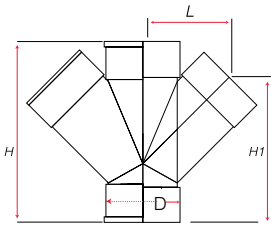
D (mm)	H (mm)	L (mm)	Item Code
110	240	133	DIS40 - 114/LF

Tee (Double) Unequal 87.5° (4 x Sockets)



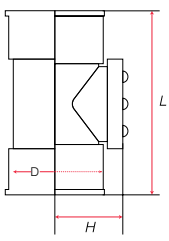
D x D1 (mm)	H (mm)	L (mm)	Item Code
160 x 110	242	138	DIS40 - 526/LF

Y Double (Equal) 45° (4 x Sockets)



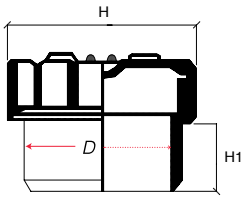
D (mm)	H (mm)	H1 (mm)	L (mm)	Item Code
110	265	211	132	DIS43 - 114/LF

Access Pipe (Double Socket)



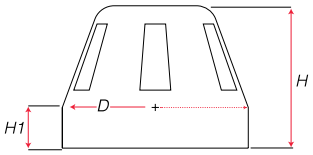
D (mm)	H (mm)	L (mm)	Item Code
82	60	160	DIS80 - 113/LF
110	80	206	DIS80 - 114/LF
160	106	250	DIS80 - 116/LF
200	126	280	DIS80 - 118/LF

Access Plug (Screwed)



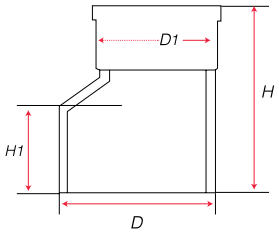
D (mm)	H (mm)	H1 (mm)	Item Code
82	92	53	S84/4-113/LF
110	119	60	S84/4-114/LF

Vent Cowl (Terminal)



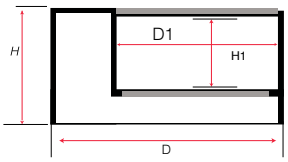
D (mm)	H (mm)	H1 (mm)	Item Code
82	76	26	DIS86 - 113/LF
110	89	26	DIS86 - 114/LF
160	115	32	DIS86 - 116/LF

Level Inverter (reducer)



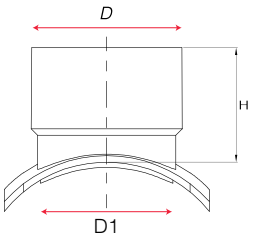
D x D1 (mm)	H (mm)	H1 (mm)	Item Code
82 x 56	96	55	DIS84 - 339/LF
110 x 82	132	74	DIS94 - 345/LF
160 x 110	187	91	DIS84 - 353/LF

Reducing Bush



D x D1 (mm)	H (mm)	H1 (mm)	Item Code
200 x 160	71	60	DIS94 - 8x6/LF

Patch Boss



D x D1 (mm)	H (mm)	Item Code
82 x 56	48	DIS95 - 333/LF
110 x 56	48	DIS95 - 343/LF
160 x 56	48	DIS95 - 116/LF

Note: Dacta pipe and fittings are available in Lead free content. “LF” will be added to item codes to mean lead free fitting. Code of 82mm Elbow Double Socket 87.5° in Lead free is DIS12 – 113 – LF

Dacta ABS Waste & Vent System

Dacta ABS piping system advantages

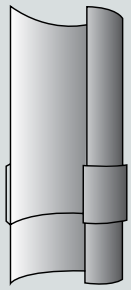
Material : Acrylonitrile Butadiene Styrene (ABS)

Colour : Grey

Sizes : Nominal OD 1.25'' (36mm), 1.50'' (44mm), 2'' (55mm)

Standards : The Dacta Solvent Weld Waste Systems conform where applicable to the standards laid down by BS EN 1455-1 and are entitled to carry the Kitemark. (See note on Quality Assurance).

Solvent Waste Socket Detail



Quality Assurance
All products manufactured by Hepworth have to pass our stringent quality control procedures. A substantial majority also satisfy continuous assessment schemes operated by the British Standards Institution and are entitled to carry the Kitemark

Products which bear a British Standard number have been made in accordance with the appropriate specification. Where no relevant British Standards exist products are manufactured to our own high standards.

Application
To provide an efficient means of drainage of waste water, to either a gully or soil stack, from single or multi-story buildings.

Thermal Movement
Coefficient of linear expansion 0.5 x 10^{-4} /°C temperature rise. (See fixing instructions for further details).

Effect of Solar Radiation
The performance of ABS waste systems is unaffected by solar radiation. The painting of external pipework, however, is recommended to give protection against the discolouring effects of strong sunlight.

Flammability
Flammability = 1.3 inches per minute. Test method BS 2782 508A

Effect of Chemicals
ABS is resistant to most organic acids, alkalis and aqueous solutions although subject to attack by some inorganic acids and concentrates.

Reaction with other Materials
ABS has not been found to react adversely with any traditional building materials.

Maintenance
Designers should provide adequate access for periodic cleaning. It is advisable to paint pipes fixed externally for protection against the effect of strong sunlight.

Prefabricated Items
For installations that require special products, a prefabrication service is available. Information on these items is available through the Technical Services Department.

Operating temperature
60 - 75°C

Applications

- Hospitality
- Healthcare
- Commercial
- Residential
- Education
- Industry

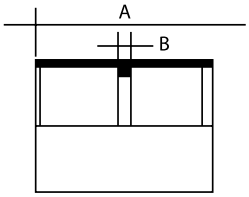
ABS Above Ground Waste Pipes and Fittings

BS EN 1455-1

Product Dimensions

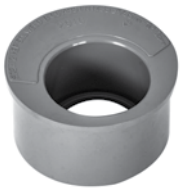
D (mm)	Length	Wall Thickness Min.	Wall Thickness Max	OD Min.	OD Max.
36	4M	1.80	2.20	36.1	36.5
43	4M	1.90	2.30	42.7	43.1
55	4M	2.00	2.40	55.7	56.1

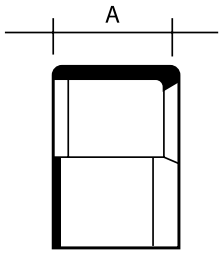
Straight Connector



D (mm)	A	B	Item Code
36	52	4	DISBW1G109
43	59	4	DISCW1G110
55	63	4	DISDW1G111

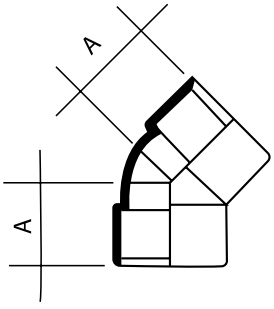
Socket Reducers





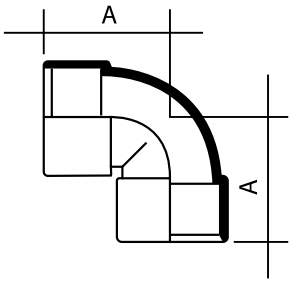
D1 (mm)	A	Item Code
43 x36	28	DISCBW2G324
55 x 36	34	DISDCW2G328
55 x 43	33	DISDCW2G329

Bend 45°



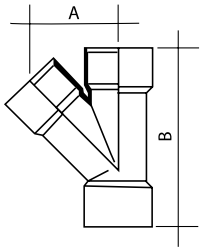
D (mm)	A	Item Code
36	33	DISBW10G109
43	45	DISCW10G110
55	57	DISDW10G111

Bend 90°



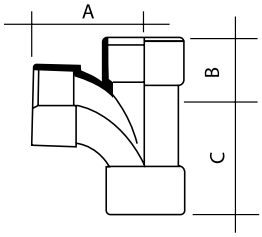
D (mm)	A	Item Code
36		DISBW11G109
43	57	DISCW11G110
55	70	DISDW11G111

Y Branch 45° (3XSocket)



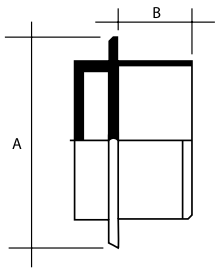
D (mm)	A	B	Item Code
36	65	110	DISBW13G109
43	70	126	DISCW13G110
55	78	150	DISDW13G111

Swept Tee 92.50° (3XSocket)



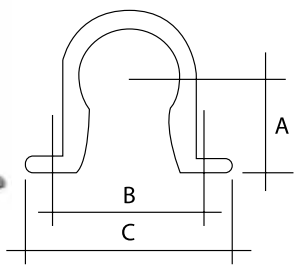
D (mm)	A	B	C	Item Code
36	48	27	70	DISBW15G109
43	64	33	82	DISCW15G110
55	73	32	133	DISDW15G111

Access Plug (With Screw Cap)



D (mm)	A	B	Item Code
43	41	27	DISCW16G110
55	41	30	DISDW16G111

Pipe Clip

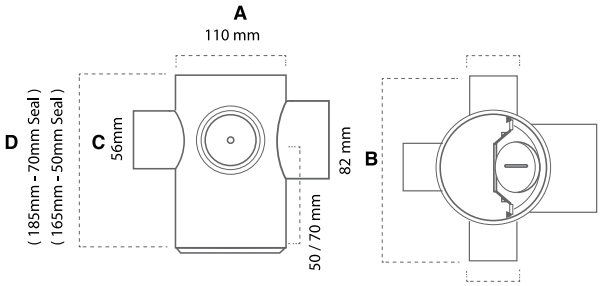


D (mm)	A	B	C	Item Code
34	28	50	65	DEAABS25GDL4K112
41	25	55	70	DEAABS25GDL4K111
54				DEAABS25GDL4K109

Floor Trap

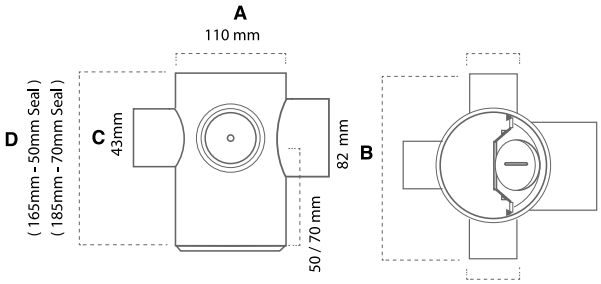
- The floor trap is manufactured in robust ABS and dimensionally complies with the relevant sections of standards EN 1455
- 50mm and 70mm deep-water seal providing maximum protection against seal loss due to evaporation and siphonage. Prevents possibility of foul air escape.
- Redesigned boss shoulders eliminate the use of adaptors for inlet connections.
- Can be used with both imperial and metric sized pipework.
- Accepts either plastic or stainless steel tile and grating.
- Simply extended by using 110mm plain ended pipe.
- The floor trap will not rust or corrode and is unaffected by domestic detergents.
- High temperature resistance.
- The unique design allows for the floor trap to be reduced in height when installed in shallow floor slabs.

Floor Trap 4” x 3” x 2” - SOLVENT



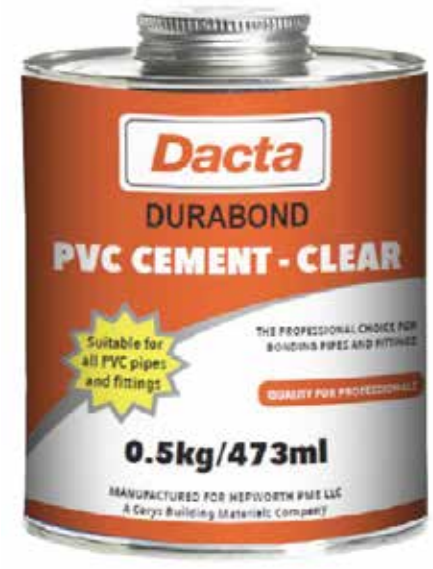
Details	A	B	C	D
DIFT-50-S/W431	110mm	82mm	56mm	165
DIFT-50-S/W432	110mm	82mm	56mm	185

Floor Trap 4” x 3” x 1 1/2” - SOLVENT



Details	A	B	C	D
DIFT-70-S/W431	110mm	82mm	56mm	165
DIFT-70-S/W432	110mm	82mm	56mm	185

Recommended Cement

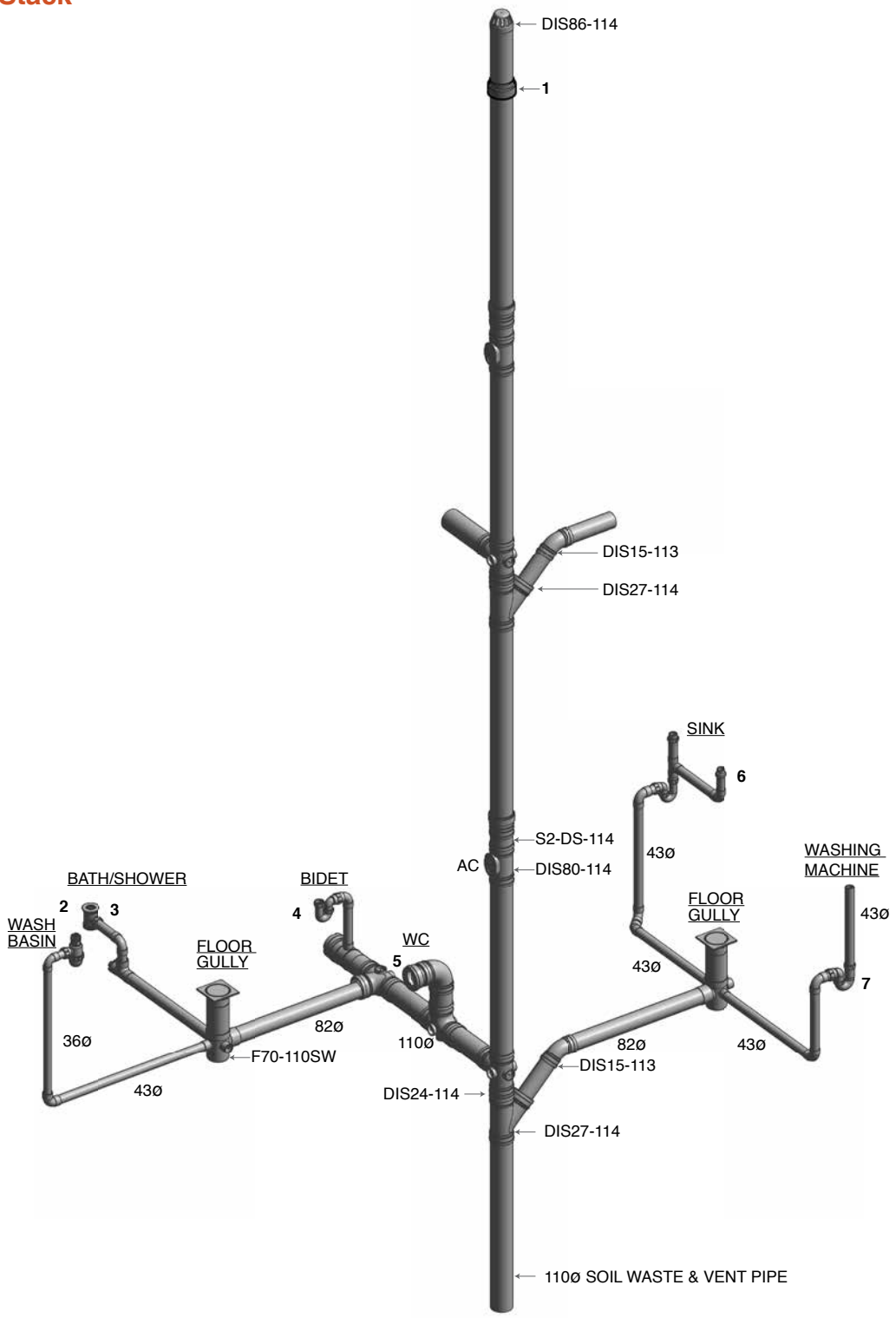


Dacta Durabond PVC Cement
Size: 473 m/l

*For further information about working safely with Dacta Durabond Solvent Cement P917, ask for a safety data sheet.

Soil Waste & Vent Drainage System

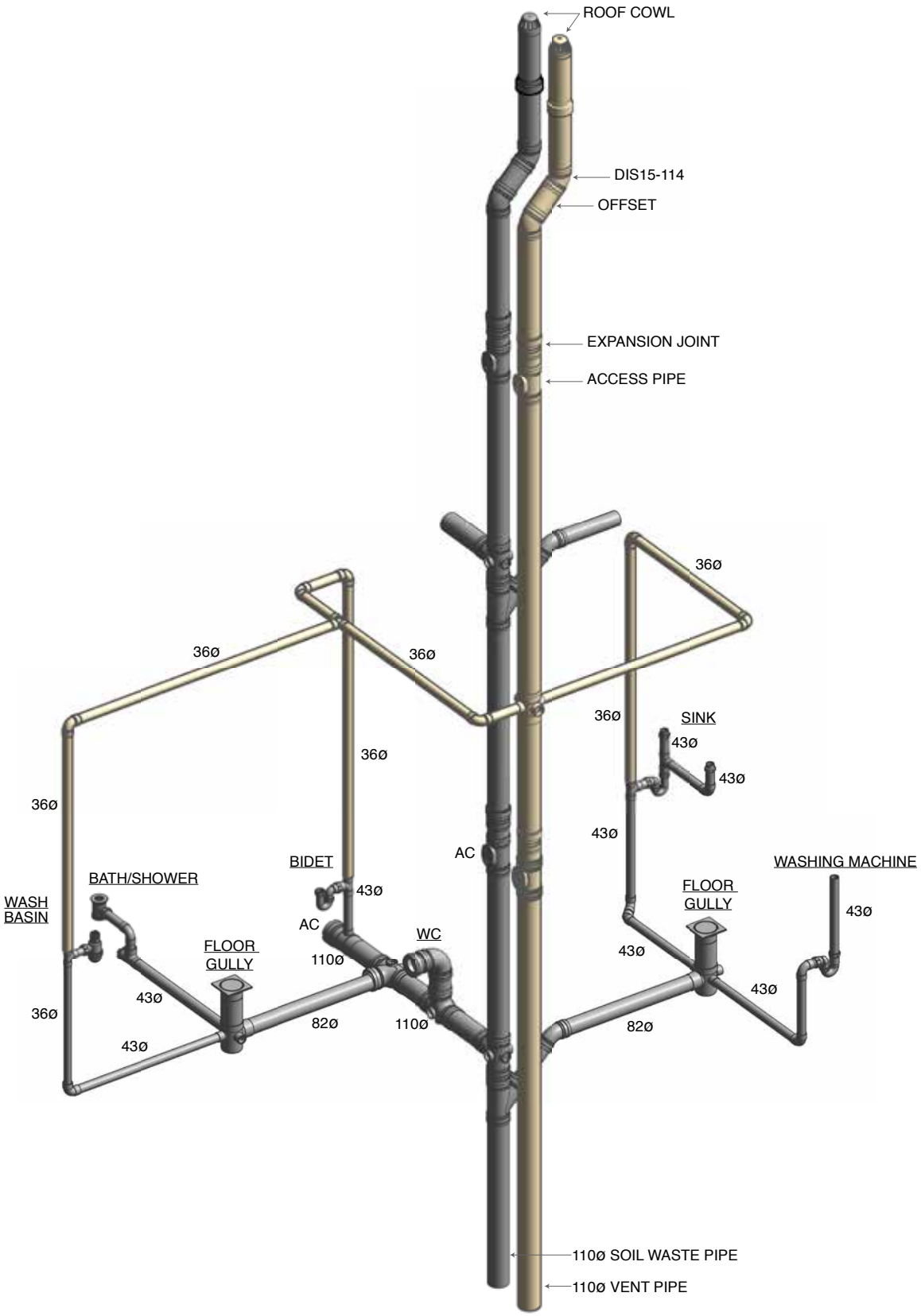
Primary Ventilated System
'Single Stack'



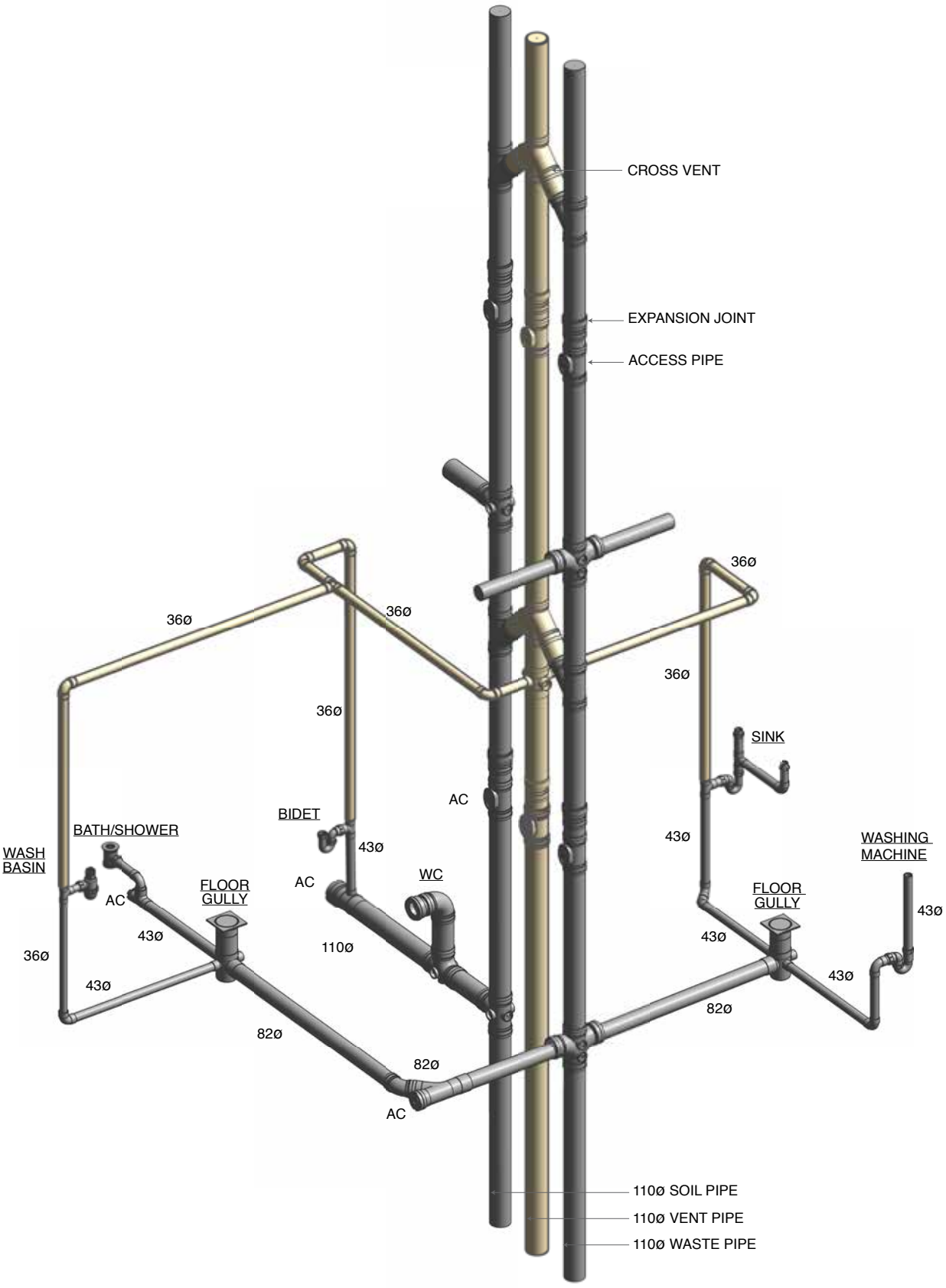
FITTINGS AVAILABLE IN HEPWORTH GROUP

1. **WEATHERING APRON**
2. **BOTTLE TRAP**
3. **BATH/SHOWER TRAP**
4. **"P" TRAP**
5. **WC CONNECTOR**
6. **DOUBLE BOWL TRAP KIT**
7. **STANDPIPE TRAP**

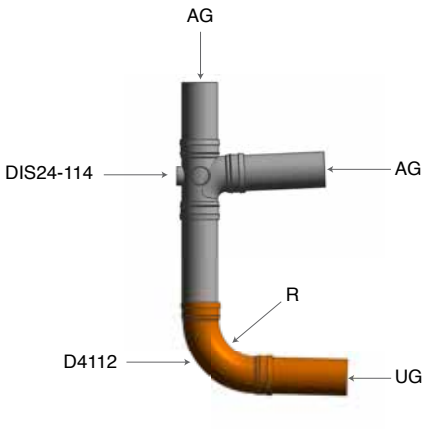
Single Stack Secondary Ventilated System
'Two Pipe System'



Double Stack Secondary Ventilated System
'Three Pipe System'

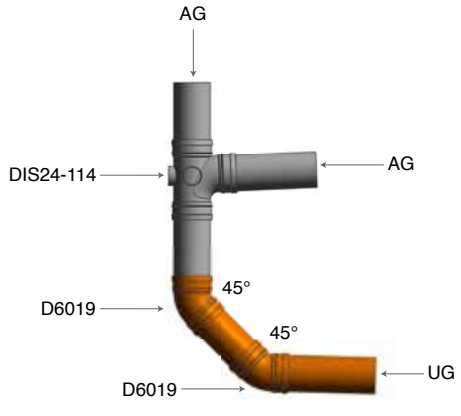


Above Ground to Underground Drainage Connection with Long Radius Bend- Alternative Installation



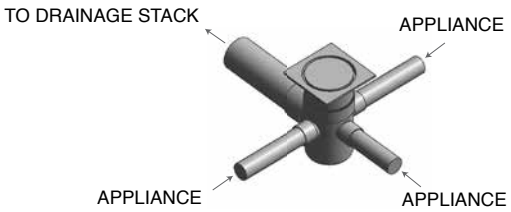
R - ID X 2 MINIMUM
AG - ABOVE GROUND DRAINAGE SYSTEM
UG - UNDERGROUND DRAINAGE SYSTEM

Above Ground to Underground Drainage Connection with 2 No 45° Bends - Preferred Installation



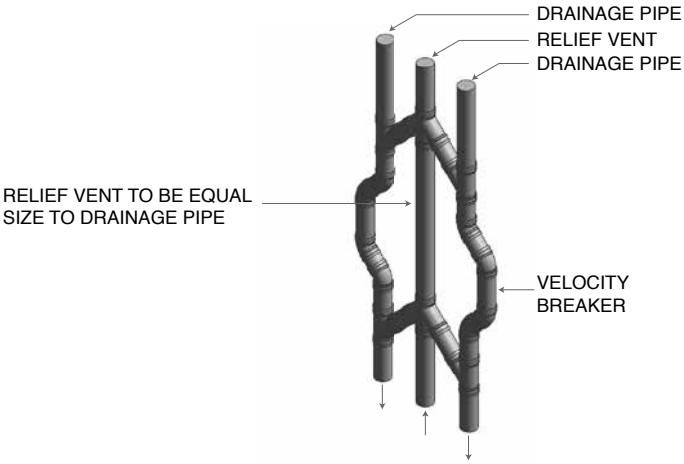
AG - ABOVE GROUND DRAINAGE SYSTEM
UG - UNDERGROUND DRAINAGE SYSTEM

Trapped Floor Gully



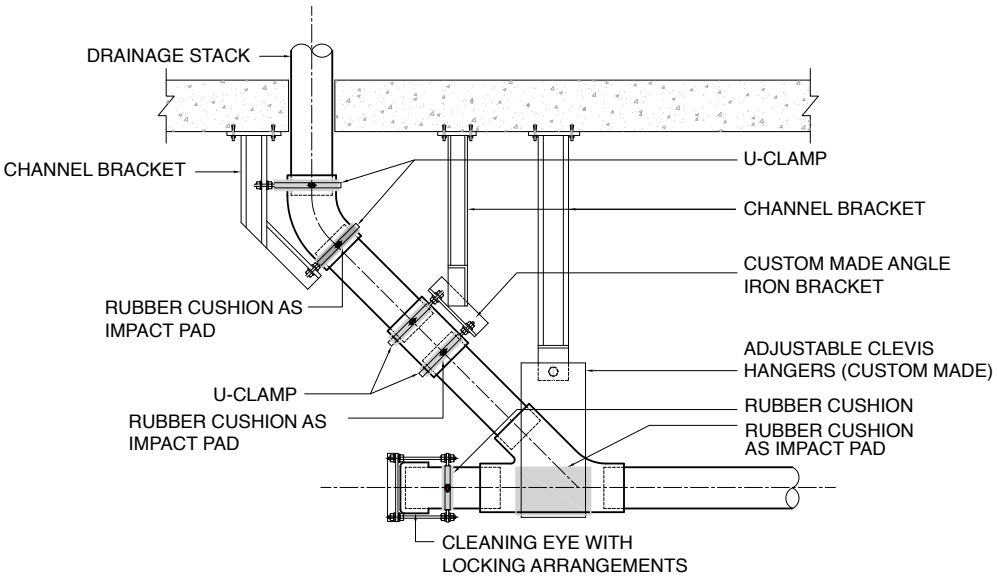
F50-110 S/W - 50MM TRAP
F70-110 S/W - 70MM TRAP

Drainage Velocity Breaker



VELOCITY BREAKER USE AND FREQUENCY AS REQUIRED BY LOCAL AUTHORITY REGULATIONS

Base of Stack Details



NOTE:

1. SOIL, WASTE & RAIN WATER DISCHARGE STACKS FOR UPPER FLOOR SHALL BE PROVIDED WITH UPVC CLASS E PIPE & FITTINGS WITH SOLVENT WELDED JOINTS AT THE BASE OF THE STACK & TO TWO METERS DOWN STREAM & UPSTREAM OF THE FOOT.

2. MAXIMUM DISTANCE BETWEEN SUPPORTS SHALL NOT BE MORE THAN 1 MTR.

3. DETAILS SHOWN ARE INDICATIVE FOR GUIDANCE. CONTRACTORS ARE REQUIRED TO SUITABLE ADAPT TO MATCH SITE CONDITIONS.

Considerations for Designing Above Ground Drainage

Local Municipality Requirements

All sanitary pipework and drainage installations must satisfy the requirements of the local Municipality and Sewage Company.

Installations in accordance with BS EN 12056:2 Code of Practice for Sanitary Pipework will meet all relevant requirements.

Ventilation

The discharge stack must be ventilated in order to prevent pressure building up within the system and drawing the water seals in the traps.

Separate ventilation of branch pipes is required only if the length and slope of the branch exceeds the following dimensions:

Maximum length:
(36mm) 1.7 metres
(43mm) 3 metres
(55mm) 4 metres
Slope: 18-90mm per metre

In these cases, the branch pipe should be ventilated by a branch ventilating pipe or an anti-siphon trap should be fitted.

Thermal expansion

Within a solvent-weld system you need to make adequate allowance for thermal movement. This is most easily achieved by fitting an expansion ring seal joint between two fixed solvent-weld joints. The expansion gap should be created by pushing the spigot fully into the ring seal socket, and marking the position at the socket face. Then withdraw the spigot by 12mm. Check subsequently to ensure that the expansion gap is not lost during further installation work.

Branch connections

The distance between the centre-line of the lowest branch connection to the discharge stack and the invert of the bend at the foot of the stack should be in accordance with the following:

- ≤3 storeys - 450mm min
- ≤5 storeys - 750mm min
- 5 storeys + - Ground floor connections should discharge direct to drain or into their own stack
- 20 storeys + - Ground floor and first floor connections should discharge into their own stack

A branch pipe should not discharge into a stack in a way which could cause crossflow into any other branch pipe.

Working temperatures

Dacta systems may be used to convey liquids with a maximum temperature of 60°C - 75°C when subjected to continuous flow.

Chemical discharges

Dacta Soil and Waste systems are generally resistant to most commonly used acids and those that may be discharged to the public sewer system. Rubber seals, however, are less resistant and it is advised that before any chemicals are conveyed through the systems, checks are made to establish their effects on the product. Refer to BS CP 312 Part 1 Code of Practice for Plastic Pipework for further information.

Access

Sufficient and suitable access must be provided to enable all pipework to be tested and maintained effectively. Access covers, plugs or caps should be installed in positions to facilitate use of testing equipment and removal of blockages.

Fire spread

In large commercial or housing developments, compartmentation may be required. In such cases, any penetrations by sanitary pipework must be suitably fire stopped. Suitable measures include the containment of pipes from floor to ceiling in a fire resistant enclosure (with appropriate fire rating).

Pipe support

Pipes need to be adequately supported when installed vertically or horizontally (to falls).

Notes:

1.Gradients

Gradients need to be between 1 and 5 degrees with a maximum distance of 3 metres. Distances over 3 metres are prone to blockage and should therefore be provided with access.

2.Ventilation

Maximum distance from stack for unvented system is 1.7 metres. Above 1.7 metres, venting is required, and if this is impractical then a suitable re-sealing trap should be used.

3.Distances

Distance must be a minimum of 450mm for single houses up to 3 storeys, or a minimum of 750mm up to 5 storeys, or one storey height for 5 storey buildings and over. Minimum radius of bend 200mm or alternative of 2 No. 45 degree bends.

4.Support and Expansion

Expansion should be allowed every 4.0 metres for 82mm, 110mm and 160mm and 2.0mtrs for 36mm, 43mm & 56mm respectively both vertically and horizontally.

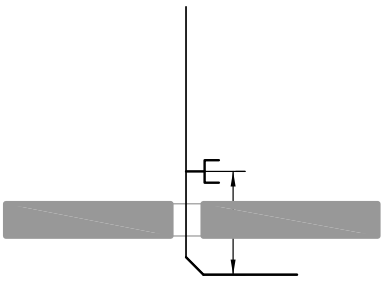
BRANCHES AT THE BASE OF SOIL STACKS

1. FOR SINGLE DWELLINGS UP TO THREE STOREYS HIGH, THE DISTANCE BETWEEN THE CENTRE LINE OF THE LOWEST BRANCH CONNECTION & THE INVERT OF THE DRAIN SHOULD BE 450MM MINIMUM.

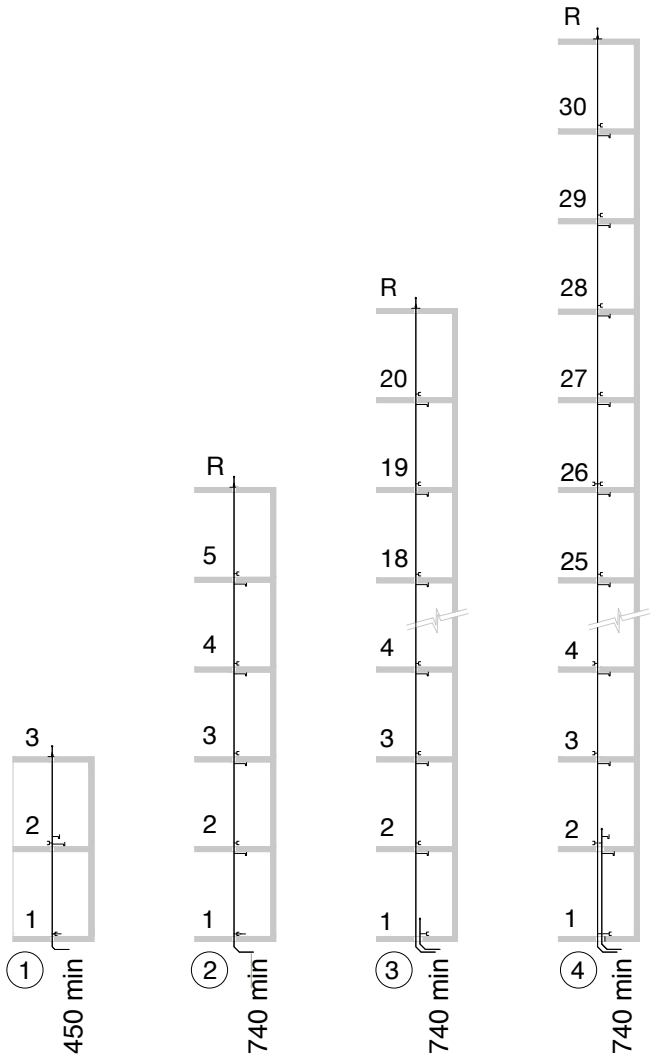
2. FOR MULTI-STOREY SYSTEMS UP TO FIVE STOREYS THE MINIMUM DISTANCE IS 740MM

3. FOR MULTI-STOREY UP TO TWENTY STOREYS A SEPARATE DRAIN CONNECTION IS REQUIRED TO LEVEL ONE.

4. FOR OVER TWENTY STOREYS A SEPARATE DRAIN CONNECTION IS REQUIRED SERVING LEVELS ONE AND TWO.



MINIMUM DISTANCE FROM LOWEST CONNECTION TO INVERT OF DRAIN



Soil and Waste Stack Sizing

BS EN 12056-2:2000 is the standard generally used when sizing Soil and Waste Stacks. It is based on Discharge Units and Probability for probably system loading.

Prior to calculating the Soil and Waste Stack there are a few items the designer should know:

- Building Height (assuming known)
- Building Use (assuming known)
- Number of Appliances (assuming known)
- Discharge Units
- Typical Frequency
- Venting System

Architects Plans and Sections can be used to calculate the building height and number of sanitary appliances. Discharge units, frequency of use and soil and waste ventilation require to be developed and calculated by the drainage engineer.

Most sanitary appliances have a discharge unit that has been determined mathematically to consider the discharge and probability of use. The discharge units can be used in a mathematical formula to determine an acceptable flow rate.

Appliance	System III DU l/s
Wash basin, bidet	0.3
Shower without plug	0.4
Shower with plug	1.3
Single urinal with cistern	0.4
Urinal with flushing valve-Slab urinal	0.2*
Bath	1.3
Kitchen sink	1.3
Dishwasher (household)	0.2
Washing machine up to 6kg	0.6
Washing machine up to 12Kg	1.2
WC with 4.0L cistern	**
WC with 6.0L cistern	1.2 to 1.7***
WC with 7.5L cistern	1.4 to 1.8***
WC with 9.0L cistern	1.6 to 2.0***
Floor gully DN 50	0.3
Floor gully DN 70	1.0
Floor gully DN 100	1.3

Table 1.

The frequency factor should be used when determining the pipework system flow rate. Each building type has different frequency of use.

Usage of appliances	K
Intermittent use, e.g. in dwelling, guest-house, office	0.5
Frequent use, e.g. in hospital, school, restaurant, hotel	0.7
Congestred use, e.g. in toilets and/or show-ers open to public	1.0
Special use, e.g. laboratory	1.2

Table 2.

Calculation of Flowrate

Waste water flowrate Qww is the expected flowrate of waste water in a part or in the whole drainage system where only domestic sanitary appliances are connected to the system.

$Qww = K\sqrt{\Sigma DU}$

Where: Qww = waste water flowrate (1/s)

K = Frequency factor (table 2)

IDU = Sum of discharge units (table 1)

Stacks should not flow at more than 0.25% to 0.33% full to ensure that a maximum negative pressure is maintained within the system.

Based on experience Dubai Municipality have recommended the following minimum stack sizes for buildings greater than 7 storeys':

Soil Pipe	150mm
Waste Pipe	150mm
Vent Pipe	100mm

Ventilation of the drainage system

In order to ensure the functioning of the drainage system and sewers, ventilation shall be provided.

The top of open stacks shall terminate outside the building structure and be positioned where odours and vapours from the system will not enter the building.

Ventilating pipes shall only serve the drainage system.

Where air admittance valves are used, they shall be installed in accordance with national and local regulations and practice.

Control of Thermal Movement – Expansion and Contraction

1 Introduction

This section describes the principals of expansion and contraction design.

2 Design

2.1 Calculate Expansion

Dacta uPVC above ground system coefficient of expansion, 0.08 (mm/m/°C), which is to be taken into consideration using the formula below.

The calculation is based on straight pipework lengths between fixed anchors. Fixed anchor points, Expansion joints and Pipe guides to be identified on the design drawings.

$$\Delta L = \alpha L \Delta T$$

Where:

ΔL - expansion (mm)
α - co-efficient of linear expansion (mm/m/°C) .
Dacta uPVC, 0.08
L - length of the pipe (m)
ΔT - temperature difference (°C)

NB. For waste discharges ΔT should always be calculated from 0°C, so if the temperature of the water in the pipe is to be 60°C, then ΔT is 60°C.

Example A

Soil Waste System - 20 storey foul drainage stack will collect and convey domestic waste (max temperature 60°C) and connect directly to drain. Each storey is 3.5 m high.

ΔL = α LΔT
ΔL = 0.08 x 70 x 60 = **336mm**

Example B

Rainwater System - A 40 metre high level lateral run has been designed in an open car park area, the ambient air temperature will vary from 10°C to 45°C

ΔL = α LΔT
ΔL = 0.08 x 40 x 35 = **112mm**

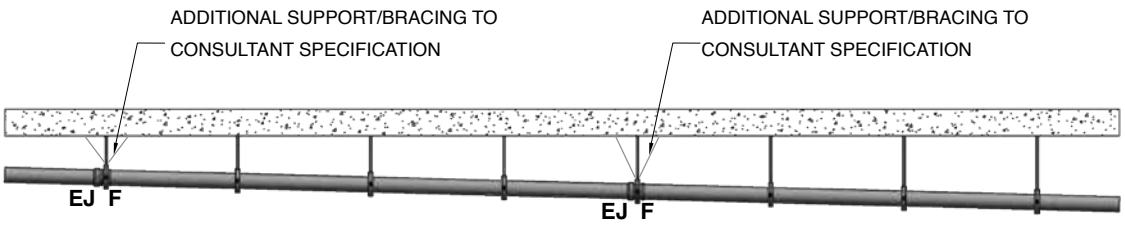
Pipe Supports to control Thermal Movement

uPVC and ABS pipework expands and contracts due to the ambient temperature where the system is installed or the various temperatures of fluids passing through the system. Both uPVC and ABS have expansion coefficients so the amount of expansion/contraction can be calculated. To compensate for the expansion/contraction of the system pipework Expansion Joints (EJ)are installed as table below.

At Expansion Joints (EJ) the pipework must be fixed to stop movement with a clamp which is called a Fixed Point (F). The clamp is fixed between the ridges on the expansion joint to stop any movement.

FIXED POINT

If a Fixed Point (F) is required on horizontal pipework extra bracing may be required to stop any movement. Intermediate supports between fixed points are Pipe Guides (G) that allow the pipe to expand/contract. Please contact Dacta Technical Support if you require project any specific information.



Support and Expansion Distances

Unless there is an alternative provision for thermal movement, pipework should be fitted with expansion joints in the following locations:

1) At spacing's no greater than 4m for pipework 82mm and above.

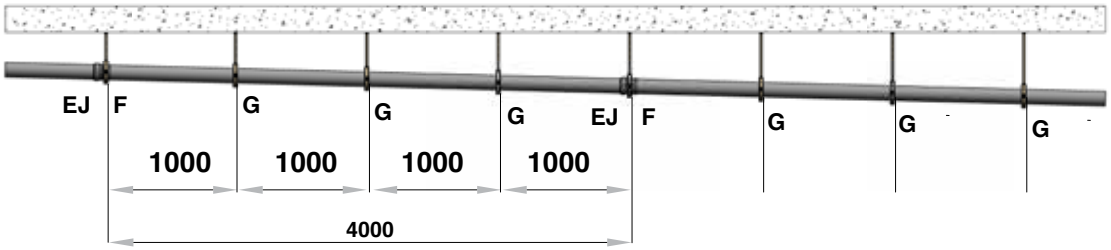
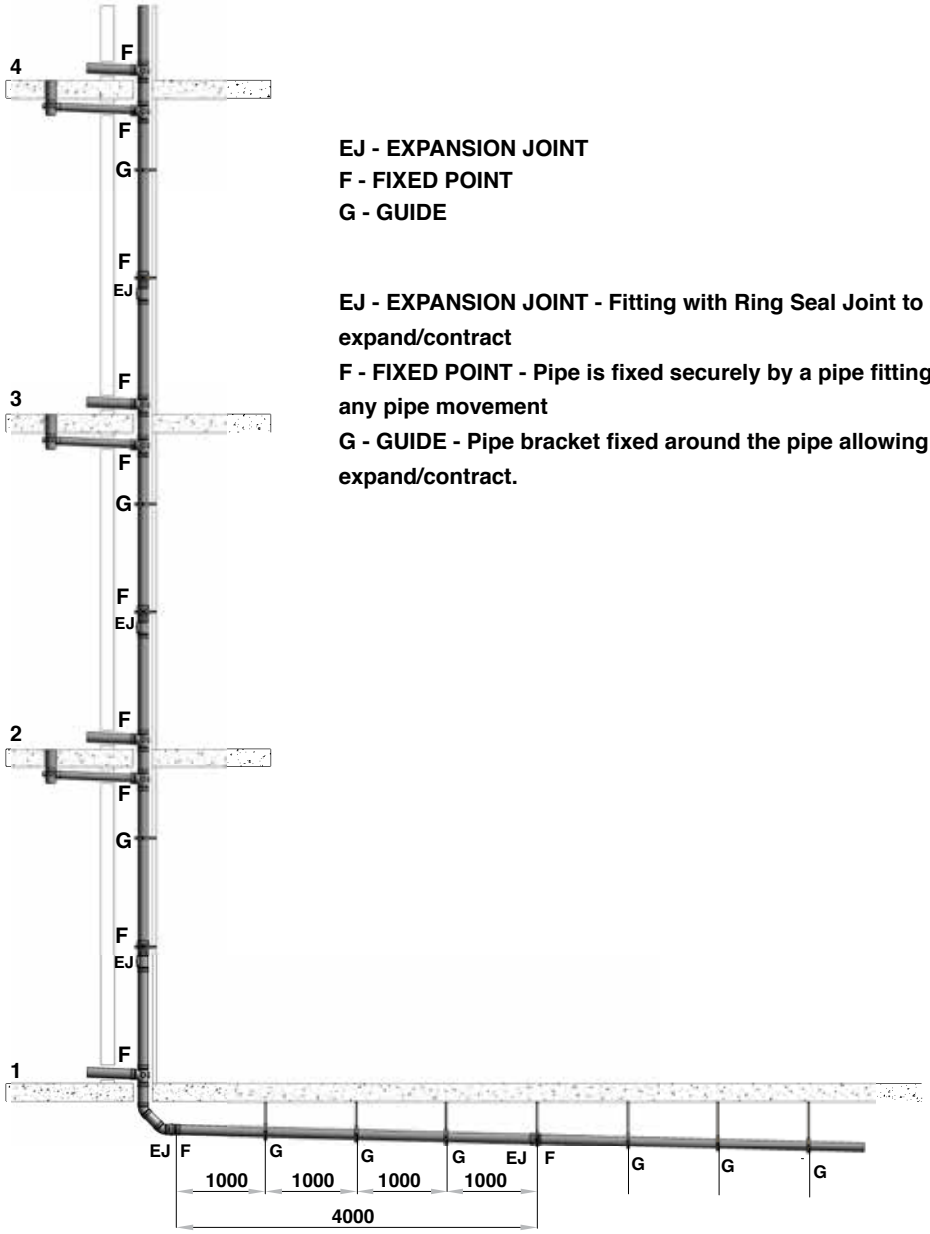


Fig 1

2) Where the maximum distance between fixed points exceeds 1m

	Maximum Distance between expansion joint
Pipe Size - Soil	
82mm	4m
110mm	4m
160mm	4m
Pipe Size - Waste	
36mm	2m
43mm	2m
56mm	2m

3) Any point where pipework passes through a floor or wall and is made good or fire stopped must be treated as a fixed point when determining positions of expansion joints.



EJ - EXPANSION JOINT
F - FIXED POINT
G - GUIDE

EJ - EXPANSION JOINT - Fitting with Ring Seal Joint to allow the pipe to expand/contract
F - FIXED POINT - Pipe is fixed securely by a pipe fitting/bracket to stop any pipe movement
G - GUIDE - Pipe bracket fixed around the pipe allowing the pipe to expand/contract.

Fig 2

4) Pipework supports shall be provided in accordance with the following tables and either side of bends.

Pipe Material	Pipe Size (mm)	Vertical Pipes (m)	Low Gradient Pipes
ABS	36-43	1.2	0.5
	55	1.2	0.9

Pipe Material	Pipe Size (mm)	Vertical Pipes (m)	Low Gradient Pipes
uPVC	36-43	1.2	0.5
	55	1.2	0.9
	75-100	2.0	1.0
	150	2.0	1.0

Alternative Provision for Thermal Movement

Expansion joints may be omitted if alternative provision is created in one of the following ways.

a) Above the highest branch connection to a foul and/or waste stack is free to move through a weather proof roof sleeve.

b) At the base of an external drainage stack that is connected to a drainage connection that allows movement through an EPDM sleeve.

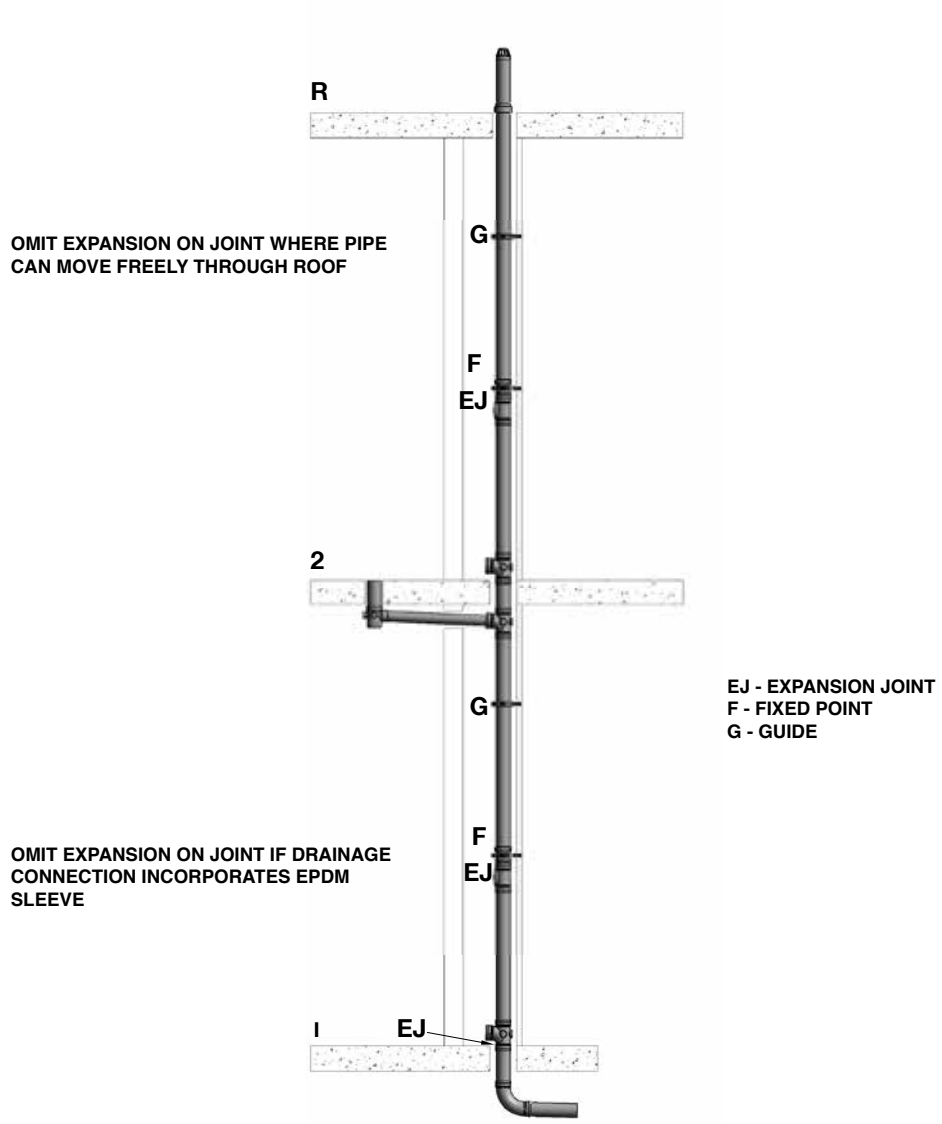


FIG 3

Stacks and Branches

When designing and installing uPVC stacks in multi-storey buildings is is recommended that an expansion joint is incorporated at each floor level.

Where a branch is taken off the stack, the expansion movement within the stack is going to affect the branch.

1. Calculate the distance between the branch and the nearest anchor
2. Calculate the movement at the point where the branch joins the stack
3. Establish the opening size through the wall and make sure that there is enough space for the branch to naturally flex, taking into account that the movement of the branch will be limited where it passes through a wall opening.
4. Add expansion joints and anchor points to the main stack to reduce the amount of movement experienced by the branch

Traps

Minimum Depth of Trap Seals

70mm – WHB – SINK – BIDET – URINAL – WM – DW
50mm – SHOWER – BATH - FLOOR GULLY – WC

Traps to be located in the Soil and Waste Drainage System to ensure that:

- they are easily and fully accessible
- can be removed/dismantled
- no more than one trap in the discharge line from an appliance
- they are self-cleansing
- they are attached direct to sanitary appliance outlet – or as close as possible
- there is no reduction in cross-sectional area of waste pipe

A minimum water depth of 50mm is all that protects the built environment from potentially harmful sewer gases and particles. The designer must always consider the trap seal and prevent it from being compromised.

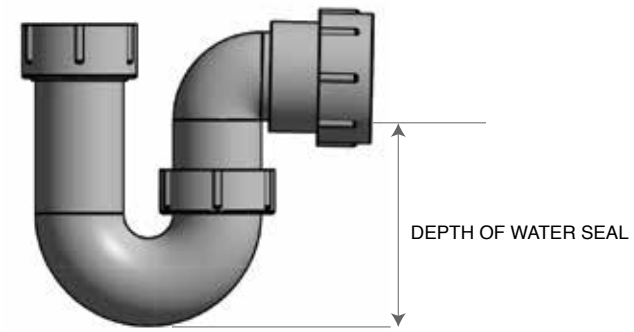


FIG 1

Induced siphonage is a common problem when more than one appliance is connected to a branch waste pipe. When another appliance is discharge full bore it can create negative air pressure causing suction on the other appliance – resulting in the trap being pulled (siphoned).

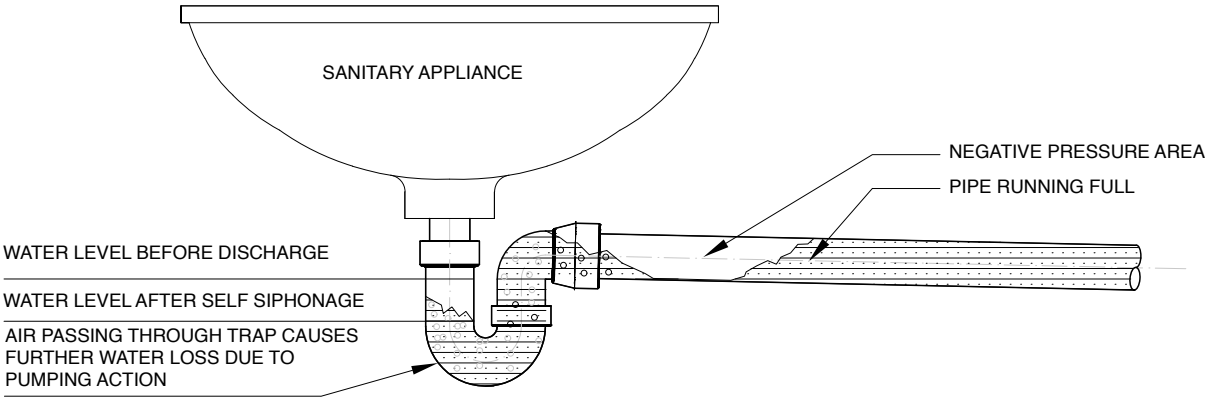


FIG 2

Gradients - Falls

All horizontal drainage pipes, both above and below ground, should be laid to an adequate gradient.

Gradients

Gradients from 1 in 40 to 1 in 110 will normally give adequate flow velocities. If the gradient is steeper than 1 in 40, the liquid may run faster than the solids in the sloping foul water pipe thus leaving the solids stranded, which could then block the pipe.

A gradient of 1 in 80 is suitable for commencing calculations for pipe schemes. If the gradient is less than 1 in 110, then the pipe could still block if the solids slow down and become stranded.

A gradient may be defined as fall divided by distance.

GRADIENT = FALL / DISTANCE

If a 48 metre section of drainage pipe has a fall of 0.60 metres, the gradient would be calculated as follows.
Gradient = 0.60 / 48 - Gradient = 0.0125
This can be converted into a gradient written as a ratio.

Gradient = 1 / 0.0125 = 80.

Gradient = 1 in 80

Falls

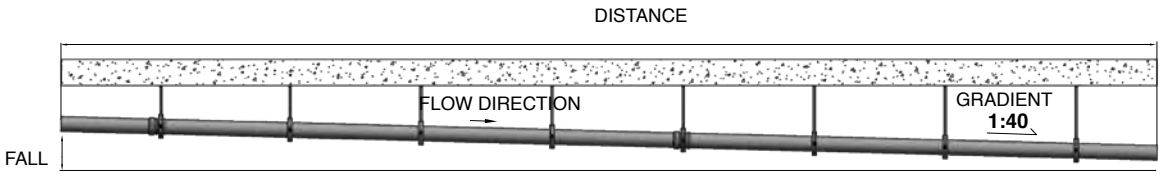
The fall in a pipe may be defined as the vertical amount by which the pipe drops over a distance. The distance can be between sections of pipe or between fittings. The diagram below shows pipe fall and distance.

FALL = GRADIENT X DISTANCE

For example, calculate the fall in a 10 metre section of foul water pipe work if the gradient is to be 1 in 60.
A gradient of 1 in 60 is converted to a number instead of a ratio - 1 / 60 = 0.0166

Fall = 0.0166 x 10

Fall = 0.166 metres or 166mm.



FALL AND GRADIENT IN DRAINAGE PIPE

FIG 1

Access

It is essential that adequate provision is made for the testing and maintenance of the above-ground drainage system. Suitable accessibility via access covers, plugs and caps should be provided to enable all traps, discharge pipes and stacks to be tested, cleaned and cleared of any obstructions as and when necessary.

Access points must be:

- air and watertight
- quick and easy to remove
- fully accessible to facilitate cleansing.

Access points should be located:

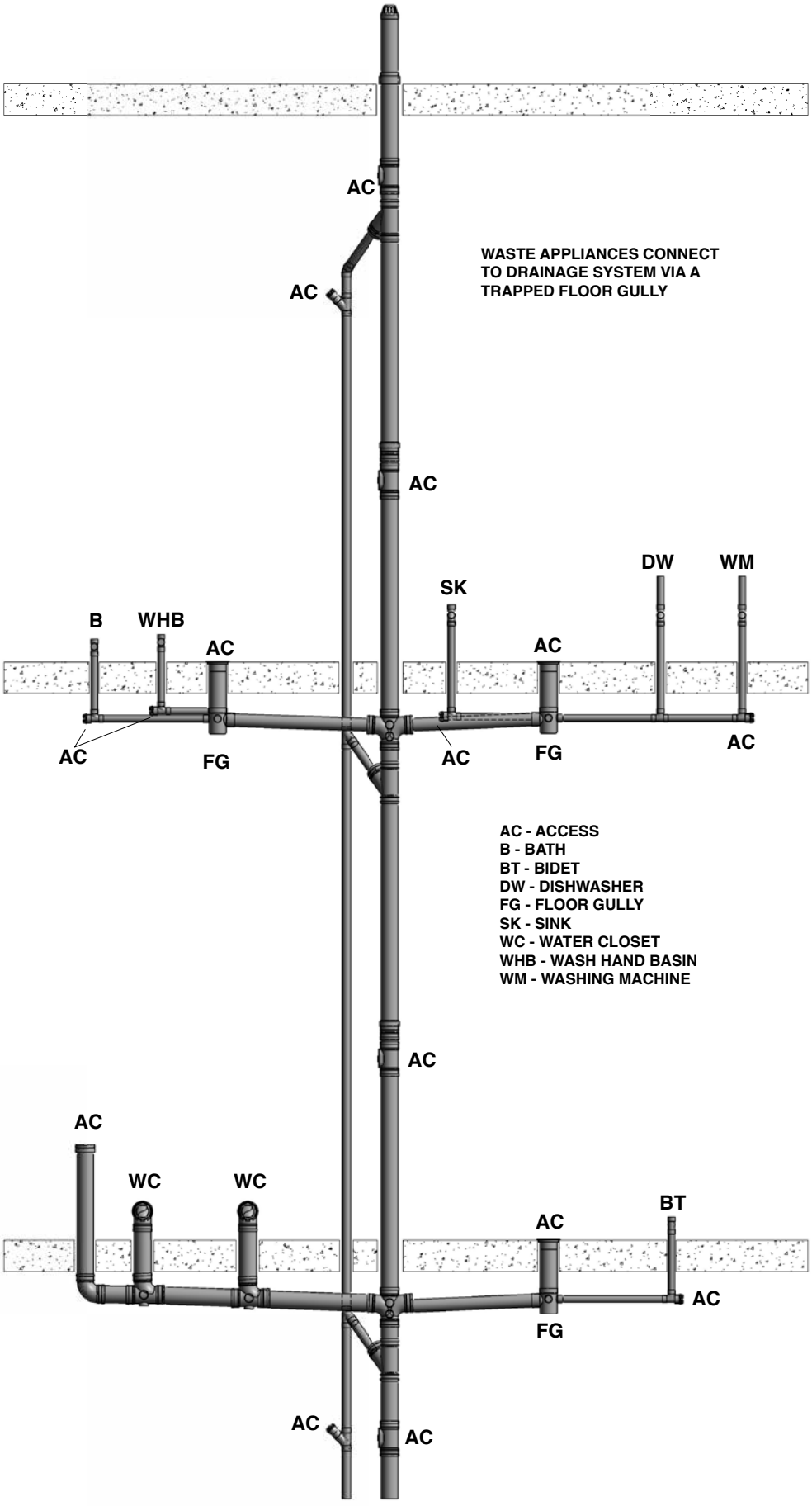
- at the base of all soil and waste stacks above the spill-over level of the highest connection on a branch run, typically1200mm above finished floor level
- at every change of direction, on vertical stacks and horizontal pipe runs
- at regular intervals on long horizontal runs, typically,
  - at 15m intervals on pipework up to110mm
  - at 24m intervals on pipework 160mm and above
- where more than 1 WC is connected to a branch.
- on all appliances, either via the trap or adjacent to the trap
- on multi-storey buildings at each floor level. The size of the access point within a building should generally be the same size as the pipework, up to 160mm. For larger pipework, 160mm access points should be adequate.

See FIG.1

To summarize, a drainage system needs to be airtight and watertight; dirty water leaking or contaminated air entering into the built environment should be avoided at all costs.

- Leakages can be mitigated by ensuring that the product of choice is a robust engineered drainage system, fit for the purpose and installed correctly.
- Contaminated air within a habitable space can be prevented by ensuring that the drainage pipework system design is properly engineered to protect its prime function, the water trap seal.

To ensure that the pipework system is airtight and water tight the installation should be tested in accordance with the requirements of the local governing body and the code/standard that the system has been designed to.



ACCESS TO SOIL WASTE & VENT PIPE SYSTEM

Noise in Above Ground Drainage Systems

Noise reduction is increasingly a factor in residential and commercial construction.

Multi-occupancy homes, hotels, hospitals and libraries are just some of the buildings where noise reduction is paramount. This need for soundproofing has placed a demand on the construction supply chain to design in good noise reducing practices both in the construction of a building and the building fit-out. In endeavouring to meet sound controls within buildings, additional materials and labour are required, increasing the cost and time on site.

Noise from drainage pipes is just one area where the right product can make a huge difference in soundproofing the pipework within a building.

What causes excessive waste and drain pipe noise?

The sound from soil and waste pipes can transfer into the occupied space: directly from the surface of the pipe as airborne sound; through the building structure where the pipe is not isolated from the adjacent surfaces (either through pipe supports or by direct interference); or along the pipe to and from a connected appliance.

Using the correct drainage system can dramatically reduce these noise levels

If you are designing the drainage system for a very high quality development where sound levels are an issue - consider **Dacta Polypropylene Silent Piping System**.

Drainage in High Rise Buildings

Drainage system considerations In the drainage system for a multi-storey building, the drains from the plumbing fixtures are connected to vertical drain stacks that convey the waste and sewage to below the lowest floor of the building.

The fixture drain traps must be vented to prevent their water trap seal from being siphoned by negative pressure or blown out by positive pressure in the drain piping. The fixture vent pipes must extend through the roof to outdoors.

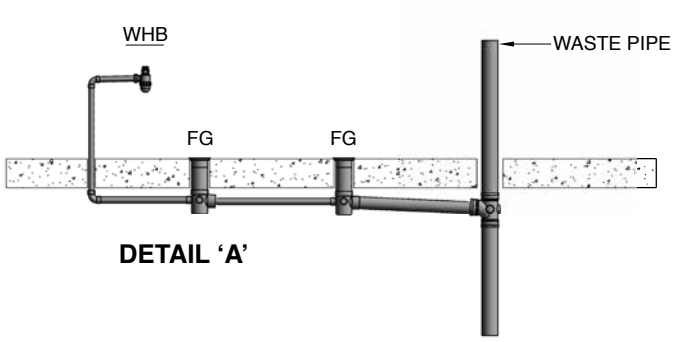
They can be run individually or be combined into one or more vents through the roof. Where buildings are over 10 storeys high, the drainage stacks require relief vent connections at specified intervals from the top, and connected to a vent stack that terminates above the roof. This relieves and equalizes the pressure in the drainage stack to maintain the water seal in traps serving plumbing fixtures. Wherever possible, the sanitary drainage system from a building should discharge to the public sewer by gravity.

Floor Gullies

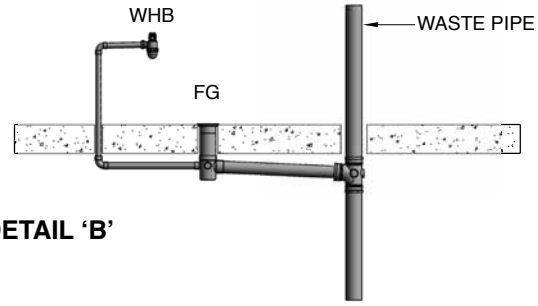
Floor gullies are widely used within the Middle East region to collect waste discharge from sinks, basins, baths, showers etc.

Floor gullies should be fully charged with water to prevent foul air from the drainage system escaping into the built environment.

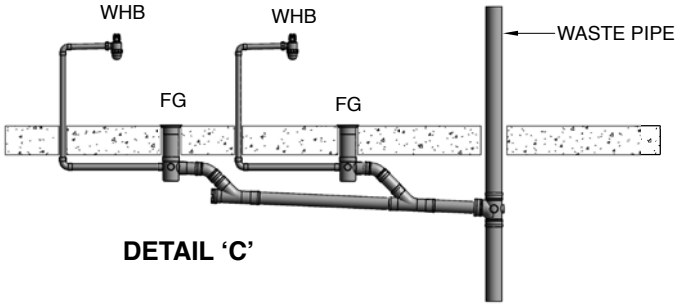
Generally, floor gullies are located at the head of a branch drain and access should be provided through the gully or adjacent to the gully at the head of the pipework run.



DETAIL 'A'



DETAIL 'B'



DETAIL 'C'

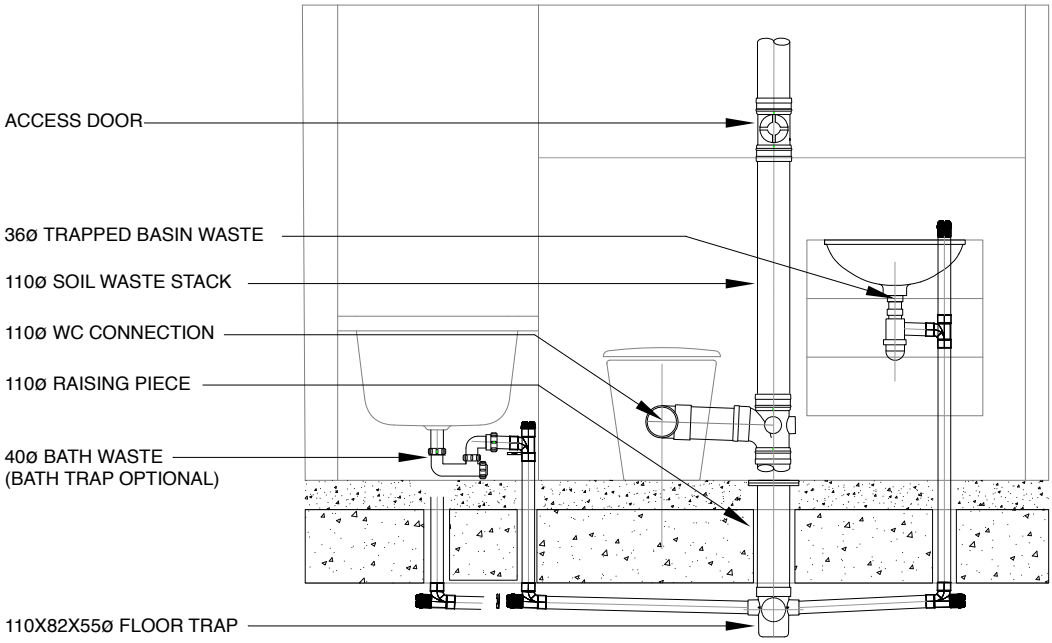
FIG 1

DETAIL A To make a direct connection from one floor gully to another floor gully is not permitted.

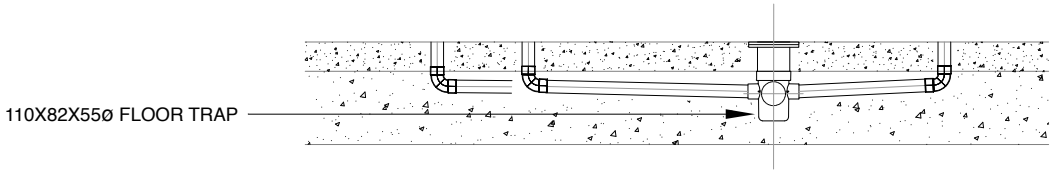
DETAIL B Floor gullies should connect direct to a stack or as Detail C.

DETAIL C Floor Gullies to discharge separately into a branch drain.

Depending on the structure of the building the floor gully waste connections can be made within or below the structural slab.



FLOOR TRAP BELOW SLAB



FLOOR TRAP IN SLAB

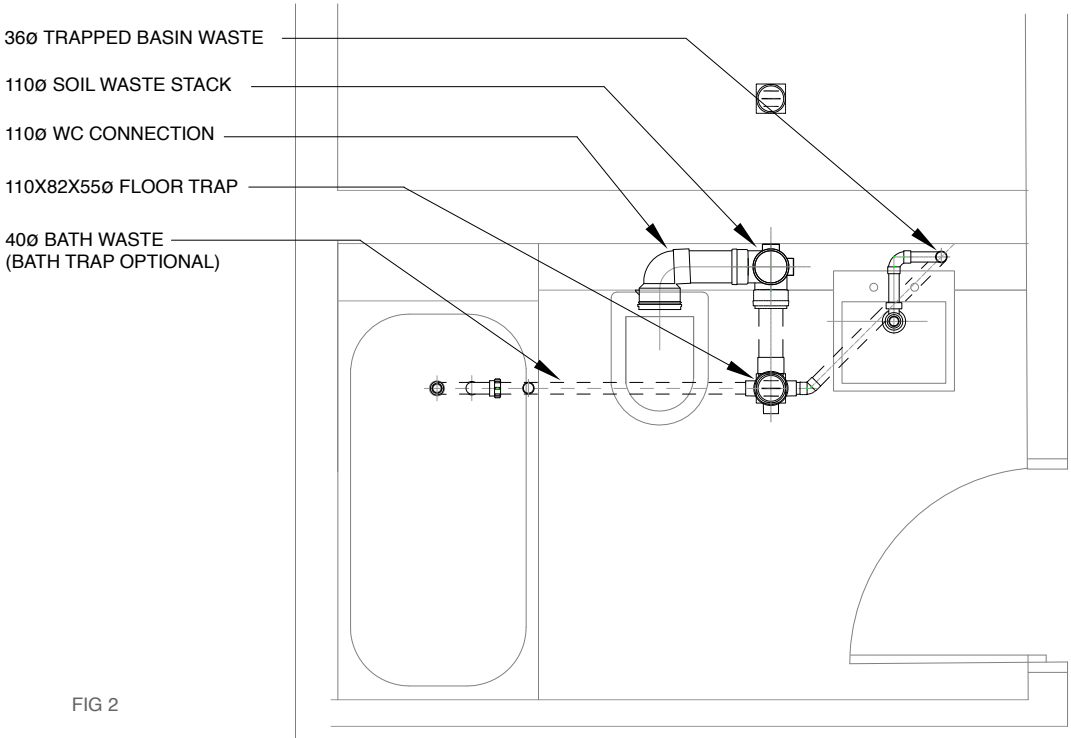
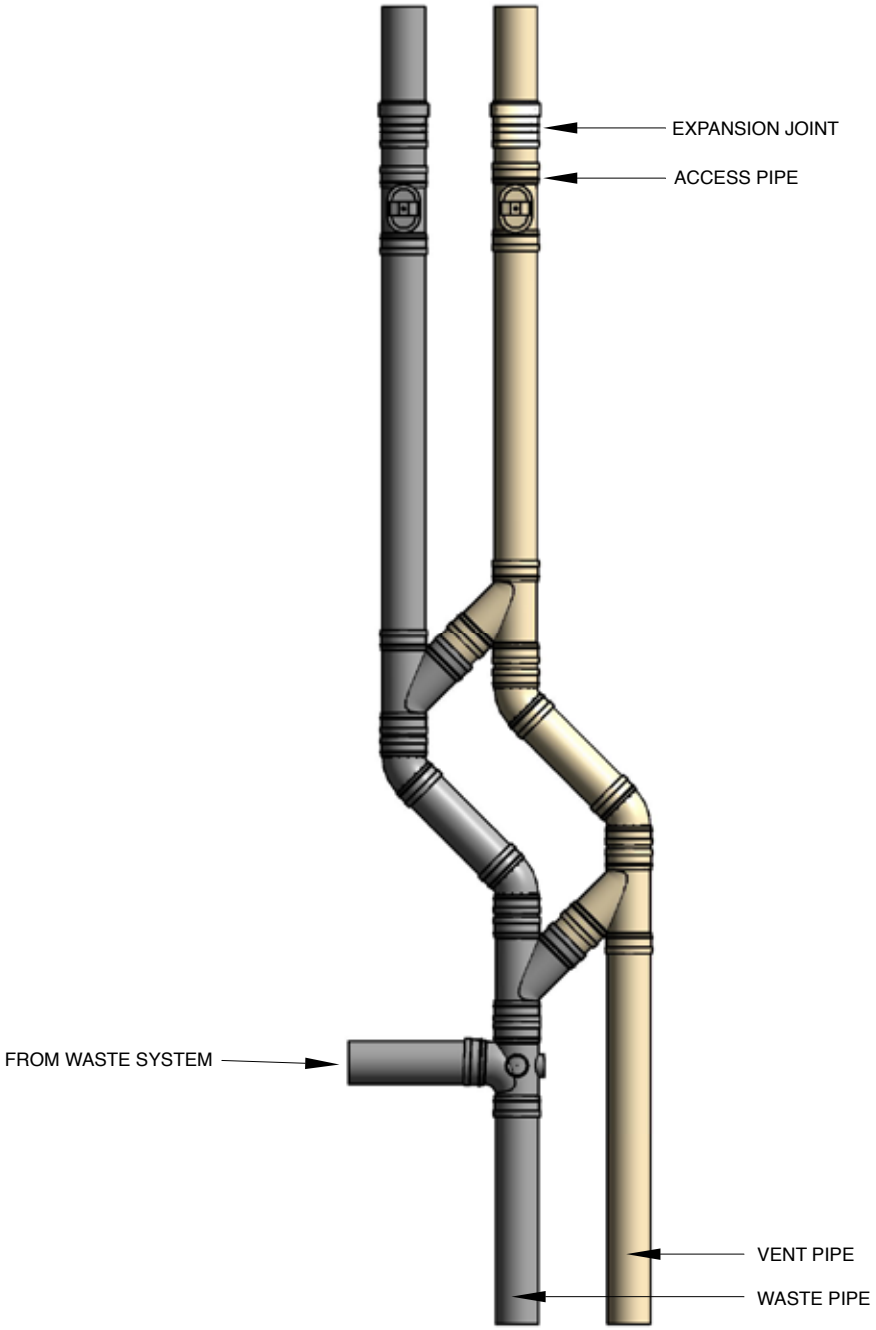


FIG 2

TYPICAL BATHROOM LAYOUT

Offsets

Offsets in the wet portion of a stack should be avoided. If offsets are to be introduced, large radius bends should be used; venting should be provided above and below the offset.



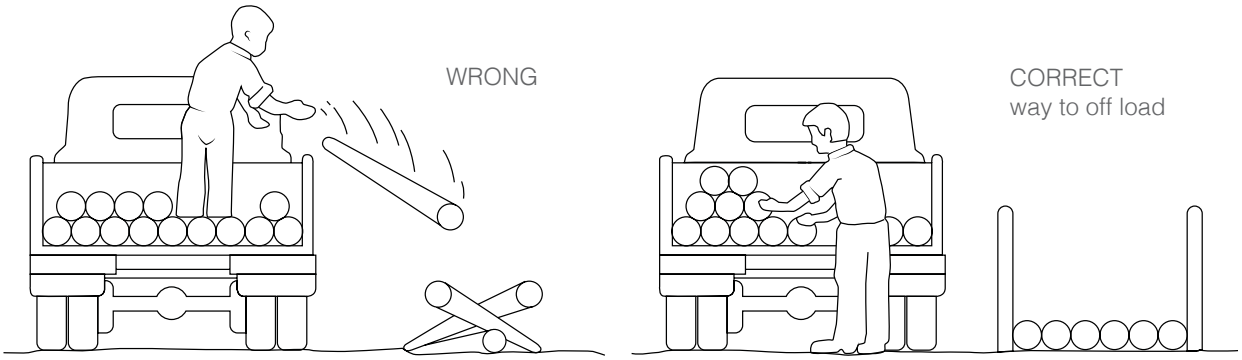
Offsets above the top most sanitary appliance or branch connection do not require venting.

Handling, Transport and Storage

Dacta pipes and fittings are manufactured from uPVC, a material approximately one-fifth the weight of ductile iron. Pipes and fittings made from this material are therefore light in weight and there may be a tendency to employ improper handling techniques, which result in damage to the pipes and fittings. Reasonable care should be taken in the handling and transportation which should be undertaken according to the following recommendations.

Handling

a) Pipes should not be dropped onto hard surfaces and should not be dragged along the ground. This is particularly important where the pipe ends have been prepared in the form of spigots (eg. chamfered ends) and integral sockets.



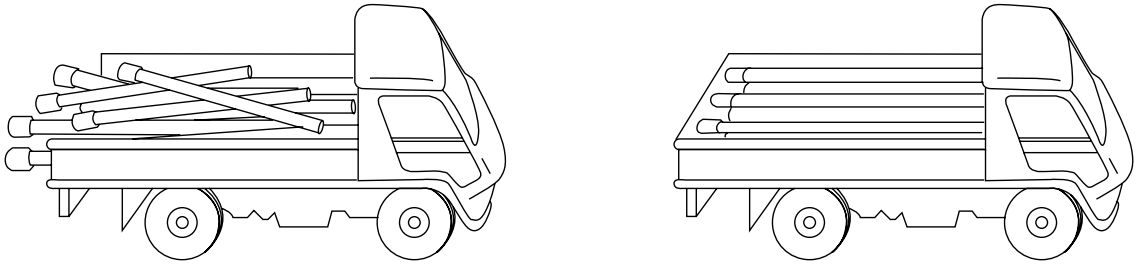
b) Where ever possible, the loading and unloading of pipes should be carried out by hand and can be carried by two men in normal site conditions.

c) If mechanical lifting equipment is used, no metallic slings, hooks or chains should be used in direct contact with the pipe. Rope or web slings are preferred, which will not gouge or cut the pipe wall. Gouges and cuts in the pipe wall can affect the pressure resisting capabilities of the pipe.

d) When pipes are being handled at freezing or near freezing conditions, they should never be dropped or have objects dropped on them. The impact strength of the material is high but is reduced somewhat at lower temperatures and extra care is required. Pipes and fittings, which have been subjected to abuse must be thoroughly examined before use for any evidence of structural damage.

Transport

a) If the pipe is to be transported the vehicles used should have a flatbed free from sharp projections of any kind.



Incorrect way to load pipes

Correct way to load pipes

b) The pipes should be evenly supported throughout their length and should not overhang the vehicle bed by more than 1 metre. Pipes should be loaded with sockets at alternate ends.

c) Larger diameter and/or thicker walled pipes should be loaded first and the vehicle should be fitted with side supports at no greater than 1.5 metre centres or continuously supported. These supports should be free of sharp edges.

Storage

To ensure that the deterioration of pipe and fittings does not occur during storage, it is imperative that the following recommendations are adhered to.

Bundled pipes

Pipes supplied in factory made bundles should be stored on a flat surface; bundles should not be stored on top of each other. The bundles should remain undisturbed until the pipe is required and any loose pipe should be stored according to the following recommendations.

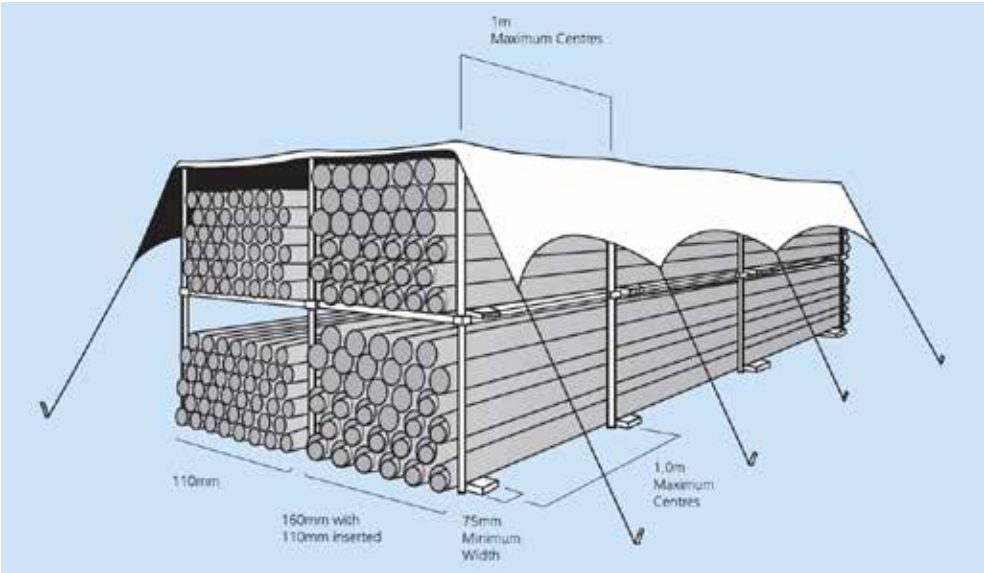
Loose pipes

a) Loose pipes should be stacked on a flat surface free from sharp projections, stones or other protuberances likely to cause point loading or pipe deformation.

b) It may be necessary to level the ground at the storage point in order that pipes may be uniformly supported throughout their length. An alternative means of storage is to lay the pipes on stout timber bearers not less than 75mm wide, placed at not greater than 1.5 metre centres along the length of the pipe.

c) Side supports should be provided in the form of stout timber posts, not less than 75mm square, placed at not greater than 1.5 metre centers along the length of the pipe. The width of stacked pipes should not exceed 3 meters.

When socketed pipes are stacked, the sockets should be placed at alternate ends of the stack with the socket protruding so that pipes are evenly supported along their entire length. Pipes of different sizes or wall thicknesses, should be stored separately. Where this is not possible, those with larger diameters and/or thicker walls should be placed at the bottom of the stack.



d) The height of pipe stacks should never exceed seven layers or 2 metres.

If prolonged storage (greater than one month) or storage in areas of high temperature (above 23° C) is anticipated, the stack height should never exceed 4 layers or 1 metre. Such stacks should be protected from the effects of weathering (particularly ultra violet exposure) by placing tarpaulins or similar sheets over them, secularly fixed to the timber support posts, to provide protected and shaded conditions, which allow free passage of air around the pipes.

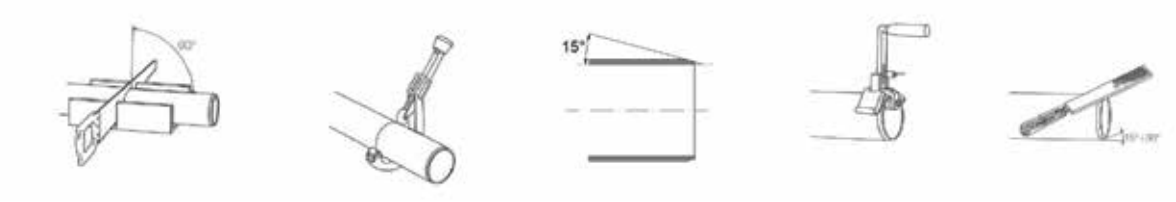
e) Pipe fittings may be subjected to damage and/or the effects of corrosion or weathering if stored for long periods. For this reason, fittings should be stored in sheltered conditions in such a way that they are protected from the effects of weathering and accidental damage.

Note: Fittings should be stored in sheltered conditions in the boxes as supplied, to protect them from weathering and accidental damage.

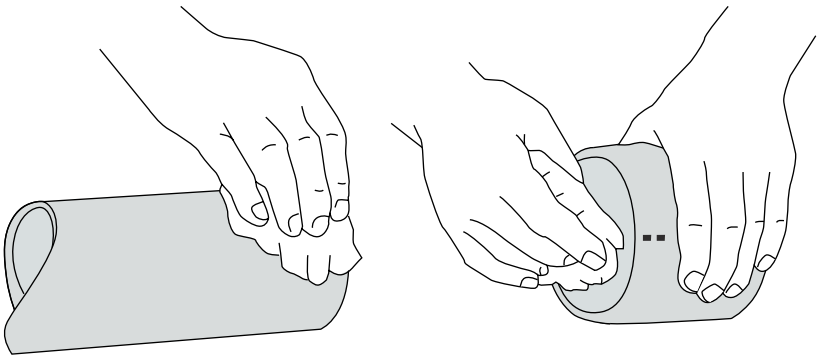
Pipe Cutting and Jointing Instructions

Solvent Weld Jointing:

Step 1 The pipe spigot should be cut square, then cleaned and all burrs removed. Ensure that both surfaces to be jointed are dry and free from dust or other debris. A chamfer to the depth of half the wall thickness at 15^0 inclination should be applied to each spigot.



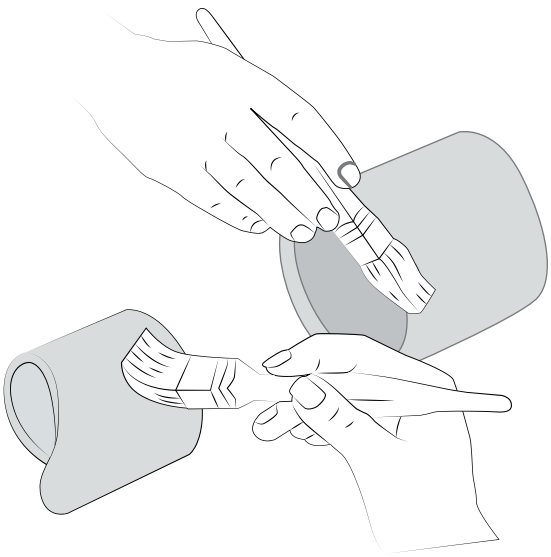
Step 2 All joints should be made with an approved solvent/cleaner, such as Dacta Durabond P917 Solvent Cement and Parabond C-70 Cleaner. This removes all dirt and machine release agents and softens the surface ready for the chemical solvent weld. Failure to do this can result in joint failure.



Step 3 The spigot and socket to be jointed should be carefully examined for any damage, which could impair the jointing procedure.

Step 4 The spigot insertion depth should be measured as the depth from the mouth to the root of the socket.The insertion depth should then be marked on the spigot using an indelible marker.

Step 5 Using a brush apply an even layer of solvent cement to the spigot and socket mating surfaces. The cement should be applied in a lengthwise direction and NOT with a circular motion. For joints of nominal diameter 82mm and above, the cement should be applied simultaneously to the spigot and socket by two people.



Step 6 Immediately following cement application, ensure that the parent pipe is suitably anchored, and push the spigot fully home in the socket without turning the pipe.

Step 7 The spigot should be inserted with a steady, continuous motion and held in place for 20 seconds.

Step 8 Remove the surplus cement from around the mouth of the socket.

*** Leave the joints to fully cure for 24 hours if hydrotesting is required.**

Solvent Welding In Hot Weather Conditions

During hot weather conditions of 35°C and above, special consideration should be given when Solvent Welding uPVC pipes and fittings to ensure a leak proof joint.

Solvent cements contain high strength chemical solvent which evaporates faster in hotter temperatures and windy conditions.

When uPVC pipes stored in open areas or under direct sunlight, the surface temperature will be approximately 15°C higher than the ambient temperature. The solvent cement reacts on the hot surface faster and deeper. Therefore, it is very important not to use excess cement during the jointing process to avoid creating pools of cement inside the fitting and pipe sockets. Excess solvent cement should be wiped off the surface quickly.

Recommendations for solvent welding during hot weather conditions:

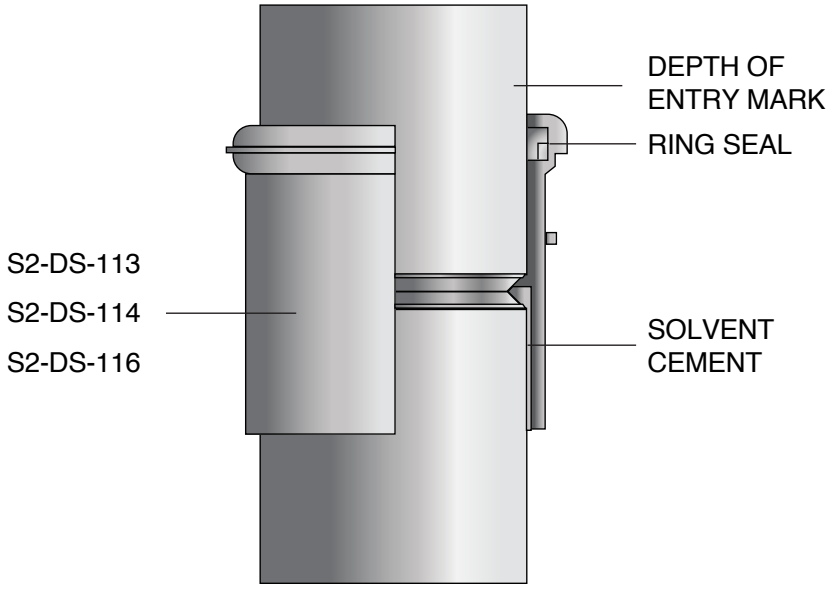
- Solvent cement and cleaners to be stored in cool area.
- Pipes/fittings should be stored in shaded area prior to solvent welding.
- Surfaces to be jointed should be cooled with a wet cloth and dried before applying the solvent cement.
- Solvent welding to be carried out in the cooler morning hours.
- The two surfaces should be joined quickly while still wet with cement.
- Shake or stir the solvent cement before use.
- Allow at least 24 hours for the joints to cure before pressurizing the system. 48hours for sizes 200mm and above.

Push-Fit Jointing

Ring-seal/Push-fit Jointing

1. Ensure any pipe cut on site is also chamfered.
2. Check that the sealing ring is properly seated in its housing in the socket of the fitting.
3. Ensure all components to be joined are dry, clean and free from grit or dust. Note any deep scratches on the pipe or fitting spigot as these may prevent the sealing ring from forming a water tight seal.
4. Lubricate evenly around the pipe or fitting spigot end. Do NOT lubricate inside the socket. Do NOT use washing up liquid as a lubricant. Put lubricant onto the spigot and not the ring seal. The spigot can then be inserted into the socket.
5. Correctly align the components to be joined.
6. Push the pipe or fitting spigot fully into the socket. Mark the pipe or fitting spigot at the socket face and then withdraw it by a minimum of 12mm to allow for thermal expansion.
7. Make a subsequent check to ensure that the expansion gap is not lost during further installation work.

Figure 6: Solvent cement and ring seal joint



Gravity Pipework Testing Procedure

All Soil, Waste and Vent Systems are tested to ensure they are watertight and airtight to make sure there are no fluids, gases or pathogens entering the building.

(a) The installer to inform design team sufficiently in advance to givethem a reasonable opportunity to observe tests.

(b) Check that all sections of installation are securely fixed andfree from obstruction and debris.

(c) Ensure that all traps are filled with clean water.

(d) Carry out tests as specified. After testing, locate andremedy all defects without delay, and retest as instructed.Do not use smoke to trace leaks.

Keep a record of all tests and provide a copy of each to the Engineer.

The Installer is to allow for intermediate testing where work is to be concealed by other installations, final finishes and to suit phased hand over of areas.

Water Test

- All pipe ends, connections and access points must be plugged using suitable testing plugs and bags.
- Where possible, the inside of the pipe should be cleaned before fitting the drain plugs, to ensure no grit or other detritus is present that could impair the air-tight seal required for an effective test.
- Install vertical pipe length to the drain to provide the the required head of water.
- Fill the system with water to maximum height of 3M (30kPa).
- The maximum head at the lower parts of the system should never exceed 4.0M, therefore in case of steep gradients the system should be tested in sections.
- The filled system should be left for 2 hours under testing, the system should be inspected by measuring the drop in water height.
- The system should be checked for any leakage and all defects should be made good and tested again.

Air Test

- One drain plug, normally at the head of the run, is fitted with the nipple that connects to the flexible hose, which in turn, is connected to the manometer, which has been partially filled with water equal to the 0mm level.
- Air is pumped into the pipeline, via the hand-pump, until the reading on the manometer is around 120mm.
- The set-up is left for 5 -10 minutes to allow for temperature stabilisation within the pipe, then the pressure is reduced (via the control valve) to exactly 100mm on the manometer scale.
- The manometer is then monitored for a period of five minutes; the level of water in the manometer should not fall below the 75mm mark during this period. This is deemed to ‘pass’ and the pipeline is declared satisfactory.

Leak Test Report

The testing is to be witnessed by Consultant, and QC Engineer with test results and comments are recorded on Leak Test Report sheet. Leak Test Report to be issued to the Construction Team as dictated by the Client.

Drain Test Plug

Drain Test Bag

Drain Test Air Pump

Drain Test Manometer

Dacta	EXAMPLE PROJECT LEAK TEST REPORT - ABOVE GROUND (GRAVITY) SANITARY WASTE & VENT PIPING	FORM NO. : FM- 123456 REV. NO. : 00 OWNER : ABC-123456 PAGE NO. : 1 of 1

Type of Service Flow & Test Pressure	SWVP Gravity (30kPa)	Specification Number	221316 (3.8.D)	Report No.	
				WIR No.	
Type of Pipe		Method Statement	MS-1234-1234	MIR No.	

Date and Time test commenced: Comment	Date and Time test completed:
	Drawing Referenced Location:

Inspection Activities Prior to Testing	QC Status	
	Accept	Reject
1. Check manufacturer approved plugs are installed correctly at the lower end of the drain run and at any downstream fittings to seal the complete run.		
2. Check all joints on the section being tested are visible.		
3. Check all P-bends, long radius bends (at stack lower ends) and elbows are properly supported		
4. Check all joints are longitudinally aligned and expansion joints present where dictated by the approved shop drawings.		
5. After filling the pipeline, ensure 30 minutes have been allowed for residual air within the system to escape prior to topping up and commencing test.		

WATER LEAK TEST RESULTS

Record the time the test started and the reduction of volume of water loss using the table below.

Time at reading	Water level above crown of sewer.	Head of water above pipe soffit. Max and Min		Practically Applied Pressure (Mtrs of Head)	Time intervals of adding water	Volume of water added	Water Loss
Specified Requirements for pipes							
Actual from test							
Complies With the specification.							
Details of test equipment to include serial no., calibration date and calibration due date.							
Remarks:-							

Site Engineer	Name	Signature	Date
QC Engineer	Name	Signature	Date
Engineer	Name	Signature	Date

uPVC, PE & GRP Fabrication

Hepworth 'One stop solution' for specialist fabrication.

Hepworth PME LLC have been fabricating specialized plastic fittings since the inception of the company. Many of our specialist fabricators have been with the company over 15 years & highly experienced in a wide range of products & materials. We fabricate in many forms of plastic - standard uPVC & PE, CPVC, PB (polybutylene) as well as other specialist plastics.

Our new purpose-built fabrication plant includes uPVC, PE & GRP workshops using innovative hi-tech machinery & equipment to ensure quality & precision are maintained. Our team of 120 experienced Technicians are ready to meet any urgent requirement to achieve project deadlines.

Onsite specialist fabrication, lamination & fusion jointing projects can be carried out on a 'turn-key project' basis.
Fabricated products are inspected & tested under stringent quality control in our in-house state-of-art Testing Laboratory.
Onsite Technical Design, Estimation & Supervision undertaken.

We have supplied specialized products to many prestigious projects in the middle east including:
Burj Khalifa
Emirates Tower
Dubai Airport Expansion
Atlantis, Pal Jumeirah
Dubai Sports City
The Lagoons
Dubai Festival City

We manufacture high pressure GRP PN16 rated fittings for SEWA, DEWA & FEWA pumping stations, desalinisation plants & water networks. We are the largest UAE approved manufacturer of uPVC Grease Traps to the hospitality and food industry as well as uPVC street lighting cable duct/bends for Dubai RTA. We are the sole DM approved manufacturer for PP Road Gullies & accessories for infrastructure projects.

Warranty

To Whom It May Concern

The u-PVC and ABS pipes and fittings manufactured and supplied by HEPWORTH PME, are guaranteed to be free from material an workmanship defects for a period of 5 (Five) years from the date of delivery.

This guarantee shall be rendered null and void should the u-PVC pipes be used for any application other than that for which they were designed. Furthermore HEPWORTH PME (LLC) shall not be liable if such products have not been handled, stored, installed or utilized in accordance with our express instructions or in conjunction with products or components not of our manufacture or supply. HEPWORTH PME (LLC) shall not be responsible for any claim for consequential loss or damage, and our liability shall not exceed the value of the invoiced amount on which the reputedly defective goods are based.

Technical Support & Training

Hepworth offer high quality Technical Support to your Design, Procurement & Construction Departments. For any Technical, Product or Installation queries contact your local representative.

Certificates for our Service & Quality

bsi.

Kitemark™ Certificate

This is to certify that: Hepworth PME (LLC)
Plot # 598-1105
Dubai Investment Park
PO Box 2345
Dubai
United Arab Emirates

Holds Certificate Number: KM 641268

In respect of:

BS EN 1329-1
Plastic piping systems for soil and waste discharge (low and high temperature) within the building structure - unplasticized poly(vinyl chloride) (PVC-U)

This issues the right and licence to use the Kitemark in accordance with the Kitemark Terms and Conditions governing the use of the Kitemark, as may be updated from time to time by BSI Assurance UK Ltd (the "Conditions"). All defined terms in this Certificate shall have the same meaning as in the Conditions.

The use of the Kitemark is authorized in respect of the Product(s) detailed on this Certificate provided at or from the above address.

For and on behalf of BSI: Chris Lewis - Certification Director, Product Certification

First Issued: 2017-02-13 Effective Date: 2020-04-14
Latest Issue: 2020-04-14 Expiry Date: 2021-06-13

Page: 1 of 10

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By Royal Charter

Kitemark™ Certificate

This is to certify that: Corys Plastic Industries L.L.C.
Mussafah South
ICAD III
Plot 475R17
Abu Dhabi
United Arab Emirates

Holds Certificate Number: KM 717981

In respect of:

BS EN 1455-1
Plastic piping systems for soil and waste (low and high temperature) within the building structure -, Acrylonitrile-butadiene-styrene (ABS)

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Latest Issue: 2019-09-23 Expiry Date: 2022-09-22

Page: 1 of 2

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Plot # 598-1105
Dubai Investment Park
PO Box 2345
Dubai
United Arab Emirates

Holds Certificate Number: KM 709696

In respect of:

BS EN 1455-1
Plastic piping systems for soil and waste (low and high temperature) within the building structure -

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Page: 1 of 2

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Ref: 812/02/02/1/1716381 09/11/2017

المحترمين

السادة/ هيبورث بي. ام. إي
ص.ب : 2345 - دبي

تحية طيبة وبعد

الموضوع: طلب الاعتماد كمورد لأنابيب اللدائن البلاستكية- دكتا

بداية تهديكم بلدية دبي أطيب تحياتها وتمنياتها لكم بدوام التوفيق والتقدم
وبالإشارة إلى طلبكم الوارد إلينا والمقرخ في 2017/07/23 ، بخصوص اعتماد شركتكم (هيبورث بي. ام. إي) كمورد لأنابيب اللدائن بلاستيكية لأعمال الصرف الصحي وبعد الإطلاع على تقرير الأنابيب البلاستيكية (دكتا) ونتائج التجارب المرفقة نفيدكم علما بأنه لا مانع لدينا من إستعمال هذه الأنابيب البلاستيكية(دكتا) المذكورة أعلاه كما يمكن إستعمالها في المشاريع المستقبلية بشرط وجود علامة الجودة (kite mark) مطبوعة على الأنابيب و وجود علامة الجودة (kite mark) نفسه بارزة على القطع الملحقة (fittings) وإجراء الاختبارات اللازمة طبقا للمواصفات وعبر إستشاري إدارة الصرف الصحي.

ملاحظة: هذه الموافقة ستكون بصفة مبدئية لمدة عامين، وأنه لن يسمح بمدها أو تجديدها ما لم تتوافق منتجاتكم تماما مع المواصفات الفنية لبلدية دبي والمشاريع المقدمة بها

وتقبلوا بقبول فائق الاحترام والتقدير

عن/
م. فهد أحمد العوضي
مدير إدارة الصرف الصحي والري

DUBAI MUNICIPALITY

رؤيتنا: بناء مدينة سعيدة ومستدامة
Our Vision: Developing a happy and sustainable city

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Certificate of Registration

QUALITY MANAGEMENT SYSTEM - ISO 9001:2015

This is to certify that:

Hepworth PME (LLC)
Plot # 598-1105
Dubai Investment Park
PO Box 2345
Dubai
United Arab Emirates

Holds Certificate No: **FM 36851**

and operates a Quality Management System which complies with the requirements of ISO 9001:2015 for the following scope:

The manufacture of PVC-U pipes, PVC-U sockets, PVC-U fittings, PPR fittings, PP fittings, PE fittings, PVC-U fabricated fittings and GRP fabricated fittings. The storage and distribution of plastic pipes, fittings and pipeline accessories. The manufacture of PE, PPR, ABS and PP pipes and PE fabricated fittings. The storage and distribution of plastic pipes, fittings, GRP tank panels, pipeline accessories, plastic and steel valves. The manufacture and supply of geomembrane liners, welding rods and trading of geotextiles and geomembrane accessories.

For and on behalf of BSI:

Andrew Launn, EMEA Systems Certification Director

Original Registration Date: 1997-05-07
Latest Revision Date: 2019-09-02

Effective Date: 2018-11-14
Expiry Date: 2021-11-13

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By Royal Charter

Certificate of Registration

ENVIRONMENTAL MANAGEMENT SYSTEM - ISO 14001:2015

This is to certify that:

Hepworth PME (LLC)
Ras Al Khor Road
Nad Al Hammar
PO Box 2345
Dubai
United Arab Emirates

Holds Certificate No: **EMS 670583**

and operates an Environmental Management System which complies with the requirements of ISO 14001:2015 for the following scope:

The manufacture of PVC-U pipes, PVC-U sockets, PVC-U fittings, PPR fittings, PP fittings, PE fittings, PVC-U fabricated fittings and GRP fabricated fittings. The storage and distribution of plastic pipes, fittings and pipeline accessories. The manufacture of PE, PPR, ABS and PP pipes and PE fabricated fittings. The storage and distribution of plastic pipes, fittings, GRP tank panels, pipeline accessories, plastic and steel valves.

For and on behalf of BSI:

Andrew Launn, EMEA Systems Certification Director

Original Registration Date: 2017-11-17
Latest Revision Date: 2019-09-27

Effective Date: 2017-11-17
Expiry Date: 2020-11-16

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By Royal Charter

Certificate of Registration

OCCUPATIONAL HEALTH AND SAFETY MANAGEMENT SYSTEM - BS OHSAS 18001:2007

This is to certify that:

Hepworth PME (LLC)
Plot # 598-1105
Dubai Investment Park
PO Box 2345
Dubai
United Arab Emirates

Holds Certificate No: **OHS 667308**

and operates an Occupational Health and Safety Management System which complies with the requirements of BS OHSAS 18001:2007 for the following scope:

The manufacture of PVC-U pipes, PVC-U sockets, PVC-U fittings, PPR fittings, PP fittings, PE fittings, PVC-U fabricated fittings and GRP fabricated fittings. The storage and distribution of plastic pipes, fittings and pipeline accessories. The manufacture of PE, PPR, ABS and PP pipes and PE fabricated fittings. The storage and distribution of plastic pipes, fittings, GRP tank panels, pipeline accessories, plastic and steel valves. The manufacture and supply of geomembrane liners, welding rods and trading of geotextiles and geomembrane accessories.

For and on behalf of BSI:

Andrew Launn, EMEA Systems Certification Director

Original Registration Date: 2017-04-22
Latest Revision Date: 2019-08-06

Effective Date: 2017-04-22
Expiry Date: 2020-04-21

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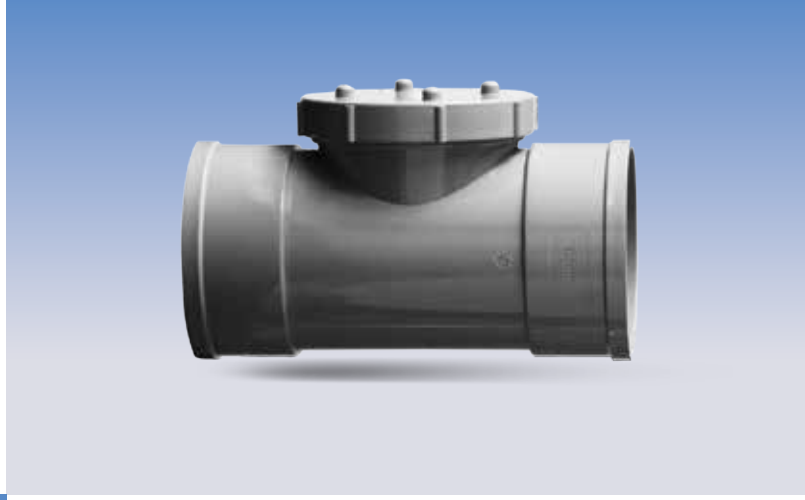

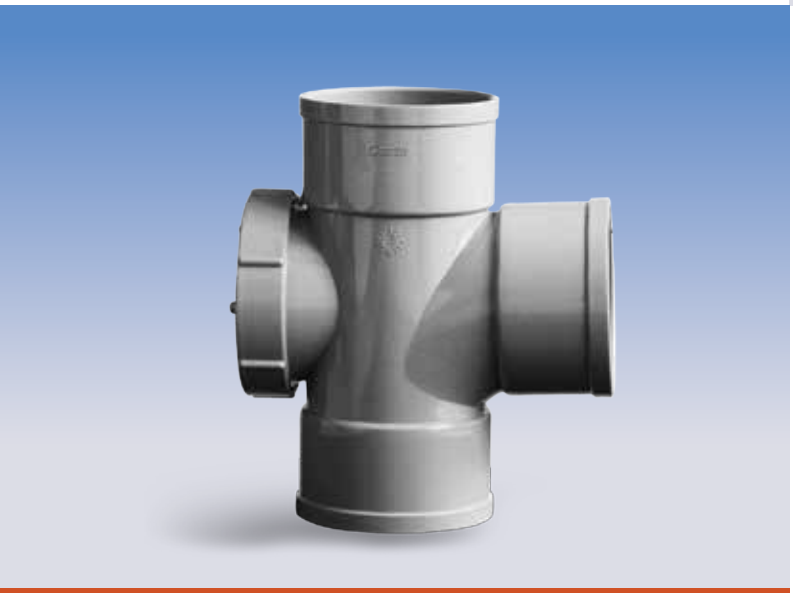

DACTA/Above Ground Drainage System-001/09-2020

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