aliaxis

ACTIVE DRAINAGE VENTILATION

About Us

About Aliaxis

Aliaxis is a global leader in advanced plastic piping systems for building, infrastructure, industrial and agriculture applications. The company provides communities around the world with sustainable innovative solutions for water and energy, leading the industry in a way that anticipates the rapidly evolving needs of its customers and of society. With a global workforce of about 14,000 employees, Aliaxis offers specific solutions that meet our customers' most demanding needs across the globe. Aliaxis is active through leading local brands and operating in over 45 countries, combining local solutions with global innovation and operational excellence. The company is privately owned, with its global headquarters in Brussels, Belgium.
For more information about Aliaxis Group, visit www.aliaxis.com.

About Cew Sin

Cew Sin Plastic Pipe Sdn Bhd was founded in 1992 and is a renowned plastic pipework system provider in Malaysia. Over the years, Cew Sin (CS) has expanded its product range including water supply, drainage, sewage, cable and wire conduits for a wide spectrum of industries such as construction, infrastructure, utility, agriculture and more. The collaboration between Cew Sin and Aliaxis are introducing Active Drainage Ventilation System. This is a unique sustainable innovation solution for building drainage system, leading the industry in a way that anticipates the rapidly evolving needs of its customers, society and building technology.

studor

Active Drainage Ventilation

In increasingly dense city areas most people will live in high-rise apartment buildings. These buildings must incorporate new and innovative high-rise building solutions to address the unique infrastructural challenges of tall buildings and to ensure that high-rise living is made more feasible, comfortable, green, safe and affordable.

The sheer height of a building changes the physical forces applied to plumbing systems, meaning conventional designs are no longer up to the job. In a high-rise building, a well-designed drainage system should operate without the user being aware of its existence. Practically speaking this means maintaining a water seal in all traps, avoiding any foul smells, no noise and no maintenance.

The outstanding quality of Cew Sin CS pipes and fittings in combination with the unique Aliaxis high-rise technologies creates an unmatched range of Aliaxis high-rise SWV solutions:

- Conventional primary and secondary ventilated SWV pipe systems
- SWV system with Active Drainage Ventilation

The Active Drainage Ventilation consists of the Studor P.A.P.A. (Positive Air Pressure Attenuator) and Studor Air Admittance Valves (AAVs) that provide a complete active drainage ventilation solution, particularly suited for high-rise applications.

Make buildings healthier.

Ventilation of Stacks

Fundamentally, an efficient drainage system design is about managing the mix of air and water. More precisely, it is about managing the air pressure regime within the boundaries that maintain a water seal in the trap. Aliaxis offers 3 different product solutions to manage this.

Primary Ventilation

Traditional drainage design of discharge stacks with lower sanitary fixtures rely on a single pipe system to drain both the waste water and ventilate air to ensure this air pressure is maintained.

Waste stack capacity

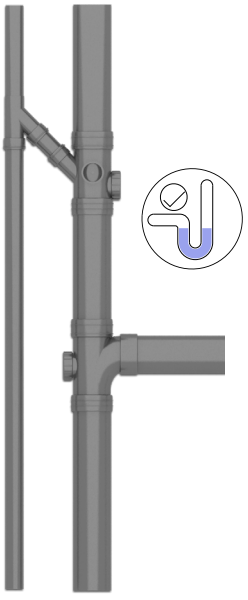
The capacity of the discharge stack and size is taken from tables 11 & 12 of BS EN 12056-2: 2000.

	Stack size (mm)	Maximum capacity (l/s)*	
		Square branches	Swept branches
Primary ventilated stack	110	4.0	5.2
	160	9.5	12.4

* Primary ventilated stacks are not limited in height in the BS EN12056-2:2000. We recommend primary ventilated stacks typically for low - to medium rise buildings only.

Secondary Ventilation

Traditional drainage design incorporates the installation of a secondary ventilation stack and branch pipework system alongside the main stack to ensure this air pressure is maintained.



Discharge stack capacity

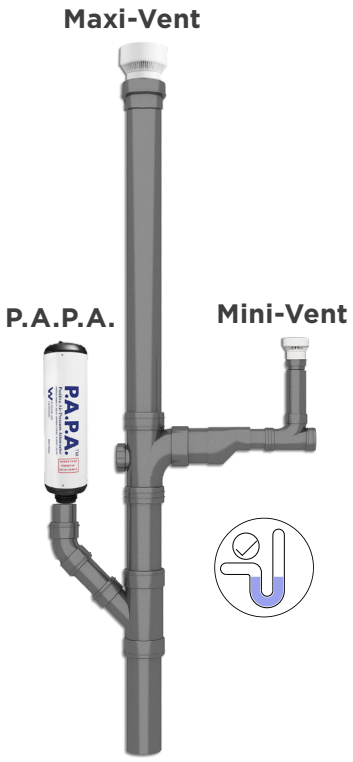
The capacity of a discharge stack can be increased by the installation of a secondary ventilated stack. The following information is taken from tables 11 & 12 of BS EN 12056-2: 2000 which illustrates this increase.

	Stack size (mm)	Secondary vent size (mm)	Maximum capacity (l/s)*	
			Square branches	Swept branches
Secondary ventilated stack	110	50 / 75	5.6	7.3
	160	75	12.4	18.3

* Secondary ventilated stacks are not limited in height in the BS EN12056-2:2000. We recommend for to the vent pipe to be equally sized as the wet stack for high-rise buildings.

Active Drainage Ventilation

An active ventilated system provides relief at the Point Of Need (P.O.N) by removing or attenuating an incoming pressure transient that, if left, could lead to trap seal depletion. The single stack solution with the P.A.P.A.s and AAVs is an ideal solution for high-rise applications, eliminating the need for roof penetrations and secondary ventilation. The combination of the P.A.P.A., Maxi-Vent and Mini-Vent AAVs support a complete system to limit pressure fluctuations, guaranteeing the integrity of the traps.



Benefits of single stack with the Studor P.A.P.A system:

- Provides effective protection against positive pressures in the drainage system
- Scientifically proven and tested for total peace of mind
- Reduces installed service space and less slab & roof penetrations
- Product solutions for new buildings and retrofit projects
- Connects to all Cew Sin CS SWV systems
- Exclusively designed by in-house technical experts

Pressure Type Explained

Negative Pressure

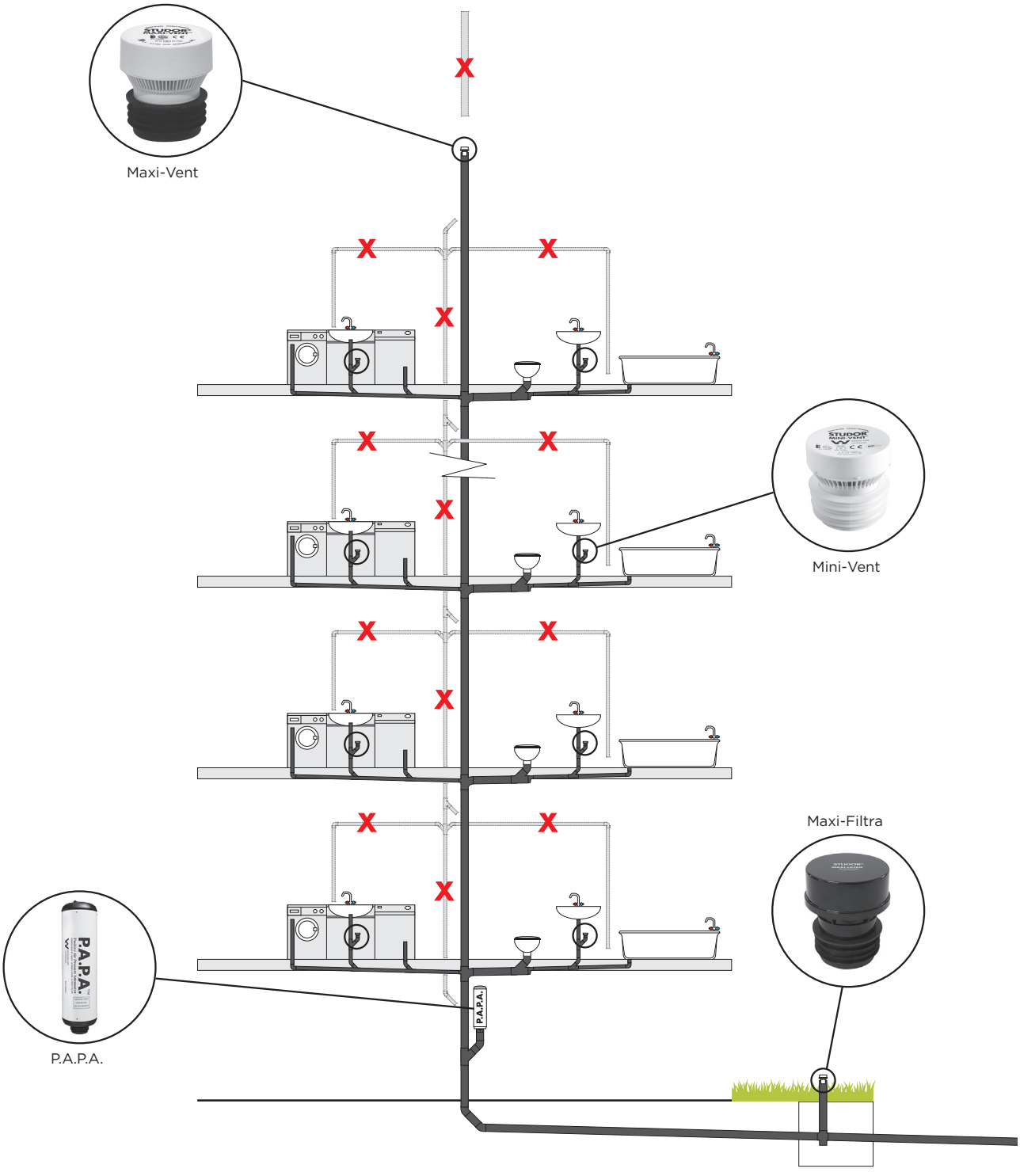
Siphonage from the traps starts to occur when the pressure at the point of drainage exceeds -400mmWg (-400 Pa)

Positive Pressure

Bubbles start to pass through the trap seal when the pressure at the point of drainage exceeds +400mmWg (+400 Pa)

Unnecessary Piping

The concept is simple: Studor active drainage ventilation products replace traditional secondary ventilation within drainage systems and will prevent the loss of water seals in traps.



P.A.P.A. (Positive Air Pressure Attenuator)

P.A.P.A. (Positive Air Pressure Attenuator) has been developed through years of research and development to solve the problems of positive pressures within drainage systems of multi-storey developments.

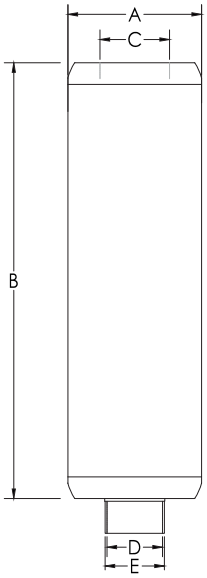
Features:

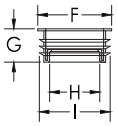
- Easy to install vertically or horizontally
- Lightweight and strong construction
- Push-fit connection
- Suitable for multi-storey developments
- Resistant to most chemicals

Installation

For installation instructions, please refer to page 24.

P.A.P.A. (8F-STU616-WHB)





Size mm	A	B	C	D	E	F	G	H	I	Colour
75/110	200	652	104	83	89	111	50	75	106	W

Materials

Component	Material
P.A.P.A. body	ABS
Internal container	Isoprene
Connector	Rubber

Volume Capacity

Series assembly	(litres)
1 unit	3.785
2 units	7.570
3 units	11.355
4 units	15.140

Temperature range	Max. pressure rating
-20ºC to +60ºC -40ºF to +150ºF	10,000 Pa (1m/40"H_2O) at 0 Pa or higher

Air Admittance Valves

Air Admittance Valves (A.A.V's) eliminate the need for passive pipe venting and roof penetrations with excellent performance as a result of their unique and patented design.

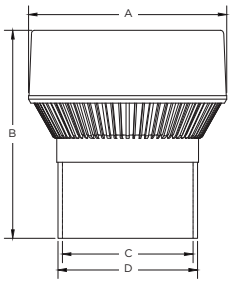
The negative pressure-activated, one-way A.A.V's vents to protect the trap seals in the drainage system by allowing the intake of air, so that the right level of pressure within the drainage system is maintained.

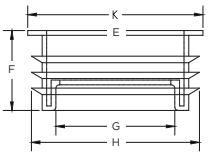
Their unique design guarantees a lifetime performance on quick opening reaction time, zero maintenance and a 100% closing ability that meets all leading international product standards.

EN 12380 A1 Rated

MAXI-VENT WITH CONNECTOR (49112)

Size mm	A	B	C	D	E	F	G	H
75/110	126	131	83	89	111	50	75	106





Performance parameter

Temperature range	-40ºC to +60ºC (CE) -40ºF to +150ºF (ASSE)
Opening pressure	-70 Pa (-0.010 PSI)
Max. pressure rating tightness	10,000 Pa (1m/40" H_2O) at 0 Pa or higher

Materials

Component	Material
Maxi-Vent body	ABS
Maxi-Vent membrane	Synthetic rubber
Connector	Rubber

Air flow capacity	Branch	Stack
Europe / Asia	32 l/s	32 l/s
AU/NZ	32 l/s / 1728 FU	32 l/s / 125 FU
USA	1 to 160 DFU	72 to 500 DFU

Air Admittance Valves

Features:

- 75/110mm pipe sizes (Maxi-Vent)
- 40/50mm pipe sizes (Mini-Vent)
- Prevents the release of foul air from the drainage system
- Can divert condensation away from the sealing membrane
- Double screen protection against foreign material or insects

Benefits

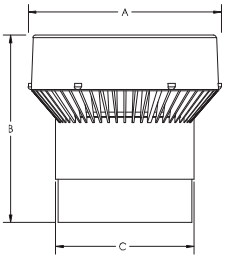
- Constant lifetime opening and closing
- Neutralise any internal condensation for constant membrane opening ability
- Dry membrane for consistent lifetime functioning, not depending on lubrication
- 500K cycle endurance testing
- Connects to all Cew Sin CS Plumbing & Drainage systems

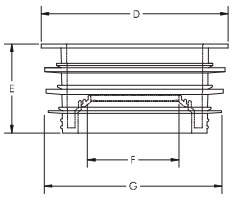
Installation

For full installation instructions, please refer to page 27.

MINI-VENT WITH CONNECTOR (49018)

Size mm	A	B	C	D	E	F	G
40/50	70	67	47	67	31.9	33	64





Performance parameter

Temperature range	-20ºC to +60ºC (CE) -40ºF to +150ºF (ASSE)
Opening pressure	-70 Pa (-0.010 PSI)
Max. pressure rating tightness	10,000 Pa (1m/40" H_2O) at 0 Pa or higher

Materials

Component	Material
Mini-Vent cap & body	ABS
Mini-Vent membrane	Synthetic rubber
Connector	TPE

Air flow capacity	Branch	Stack
Europe / Asia	7.5 l/s	7.5 l/s
AU/NZ	7.5 l/s / 94 FU	7.5 l/s / 7 FU
USA	1 to 160 DFU	8 to 24 DFU

Studor Maxi Filtra

The Studor Maxi Filtra is a two-way active carbon filter for EXTERNAL installation to eliminate bad odours produced by the drainage system. It operates as a 2-way vent, filtering air in both directions.

Outdoor Use Only

Features:

- Replaceable carbon filter cartridge
- Easy maintenance by lifting the cap
- Can be retrofitted to troubleshoot odours in existing building drainage
- Prevents the release of foul air from the drainage system
- Push-fit connector requires no specialist installation
- Available in black ABS

Applications:

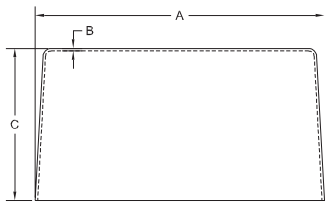
- Septic tanks
- Grease Separators
- Rainwater tanks
- Sewage treatment plants
- Lifting station / equipment*
- Building drainage open vents*

*In conjunction with Studor AAVs of an appropriate airflow

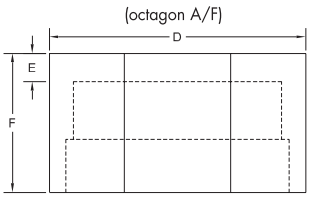
Installation

For full installation instructions, please refer to page 26.

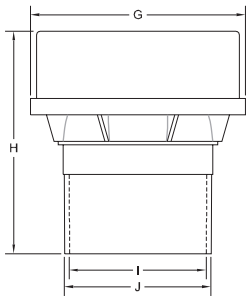
MAXI-FILTRA



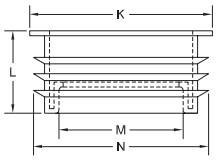
Aluminium Cover



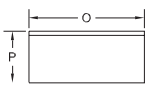
Insulating Cap



Maxi-Filtra



Connector



Cartridge

Size mm							
A	B	C	D	E	F	G	H
ø175	1.5	92	155	17	84	ø130	131
I	J	K	L	M	N	O	P
ø83	ø89	ø 111	50	ø75	ø106	ø70	31

Performance parameter

Temperature range	-20ºC to +60ºC (CE) -40ºF to +150ºF (ASSE)

Airflow Capacity

Pressure (Pa)	Flow Rate (l/s)
100	2
250	5
500	8

Materials

Component	Material
Aluminium cover	Aluminium
Insulating cover cap	Polystyrene
Maxi-Filtra body	ABS
Connector	Rubber
Cartridge	Activated carbon

Aliaxis Technical Service

Each high-rise project is unique and requires customised design and engineering that goes far beyond any standard. Supported by Aliaxis Technical Services, offers full support in the design and engineering of systems, to ensure that the specifications of each building are considered and that the performance of the system aligns with your needs.

You can trust Aliaxis to develop a premium-quality design, based on the best system, to deal with pressure transients and ensure water trap seals protection. We offer extensive expertise in designing piping systems for all types of tall, complex buildings, according to their specific requirements.

Our technical team can help you specify the system you need

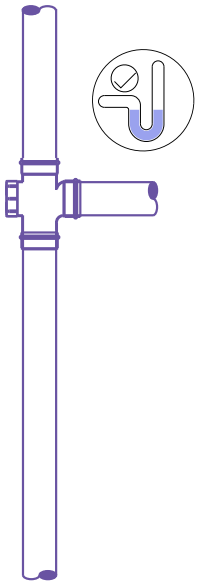
Years of experience mean that we can support you throughout your design process and assist with any technical and installation requirements.

- DESIGN SERVICES
- VALUE ENGINEERING
- TECHNICAL ADVICE
- SEMINARS / PRESENTATIONS
- MATERIAL TAKE-OFFS
- CAD FILES
- FIELD AND SITE SUPPORT
- SPECIFICATION
- TRAINING

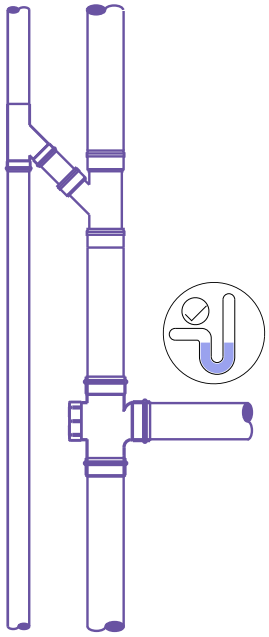
Design Guideline - Method of Ventilation

Venting

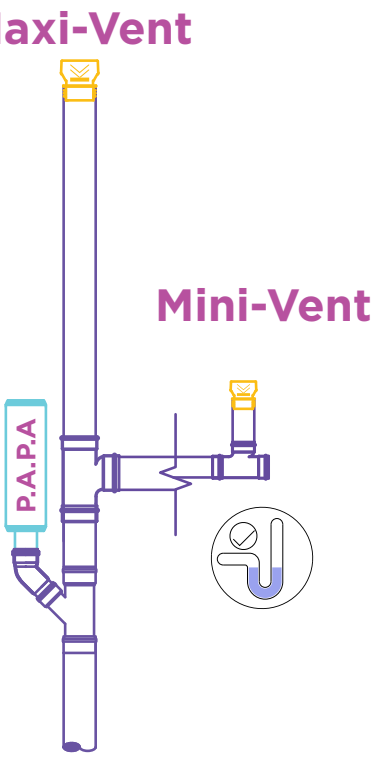
Aliaxis Technical Services design drainage pipework systems using the three methods of ventilation. Primary ventilation, secondary ventilation and active drainage ventilation using Studor P.A.P.A. and A.A.V.s.



Primary ventilation



Secondary ventilation



Active Drainage Ventilation

Design Guidelines

When designing an active drainage ventilation system, the following should be considered:

- Pressure within the pipework system is constantly changing
- Ensure the water seal in the trap is protected, due to the continual pressure changes in the pipework system

To create an effective active drainage ventilation system, P.A.P.A. should be installed throughout the pipework. Their position and layout will be designed by our in-house Technical Services team however this table provides general guidance on how many P.A.P.A.s may be required:

Single & Dual Pipe system (Separate soil & waste stacks) with single bathroom

No of floors	P.A.P.A Design Guideline
3-10	One unit at the base
11-15	One unit at the base and one half-way
16-25	One unit at the base, one unit on floor 5, one halfway between the remaining floors above floor 5.
26-50	Two units in series on the base, then one unit on every 5th floor to the 25th floor, the one every 10th floor thereafter.
50+	To be advise upon consultation with Studor
Offset	One unit must be installed above offsets of less than 10 floors, two units must be installed above offsets more than of 20 floors
Maxi-Vent	Top of the stack and stub stack
Mini-Vent	At the branch pipe

For back to back bathroom, single pipe & dual pipe design please contact Aliaxis team.

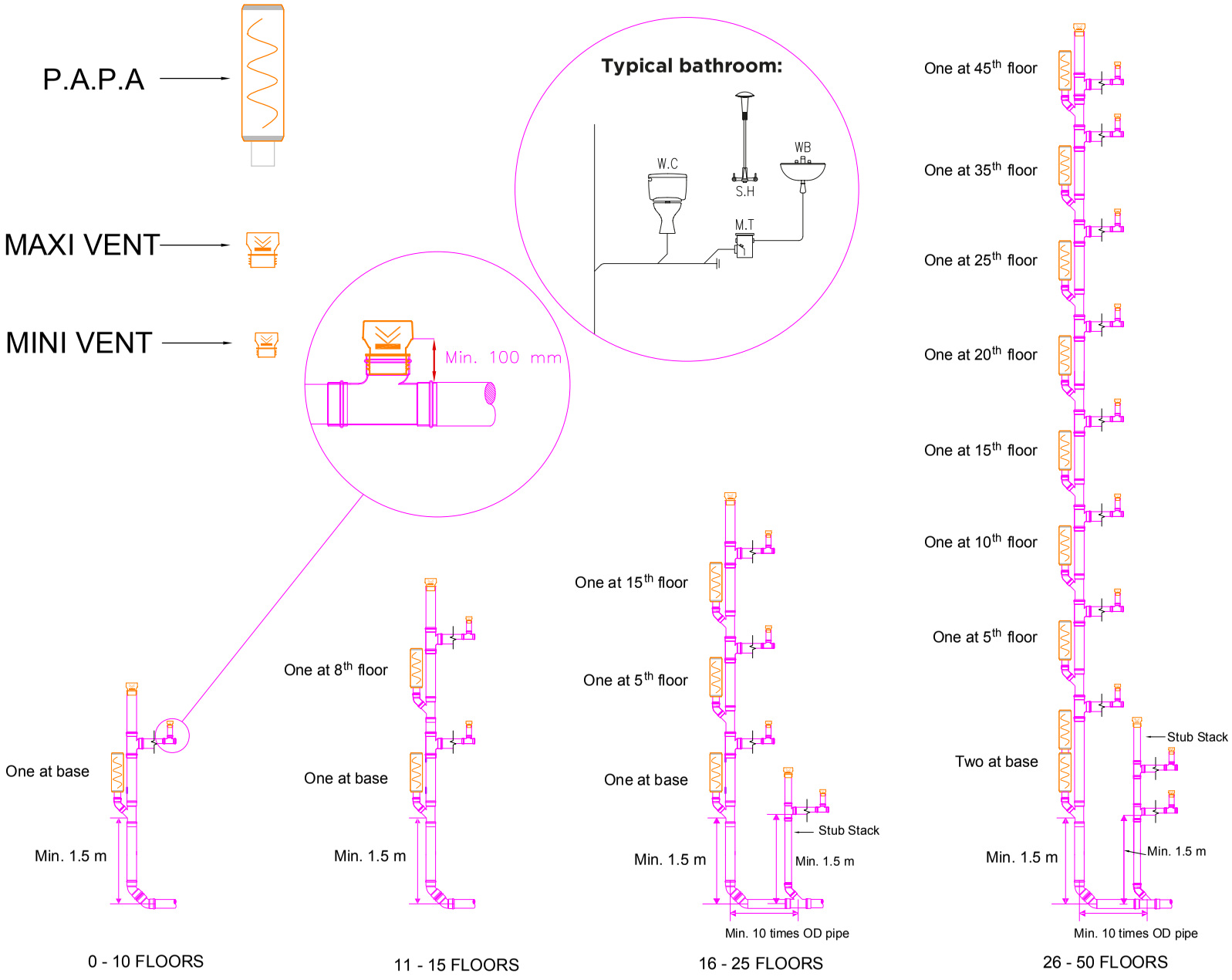
Bathroom up to 6 appliances so from typical (WC, basin, shower) to a higher loaded bathroom (WC, double basin, shower, bath, bidet).

The loading calculation (Qww) determines the pipe diameter and the maximum levels depending on the appliances.

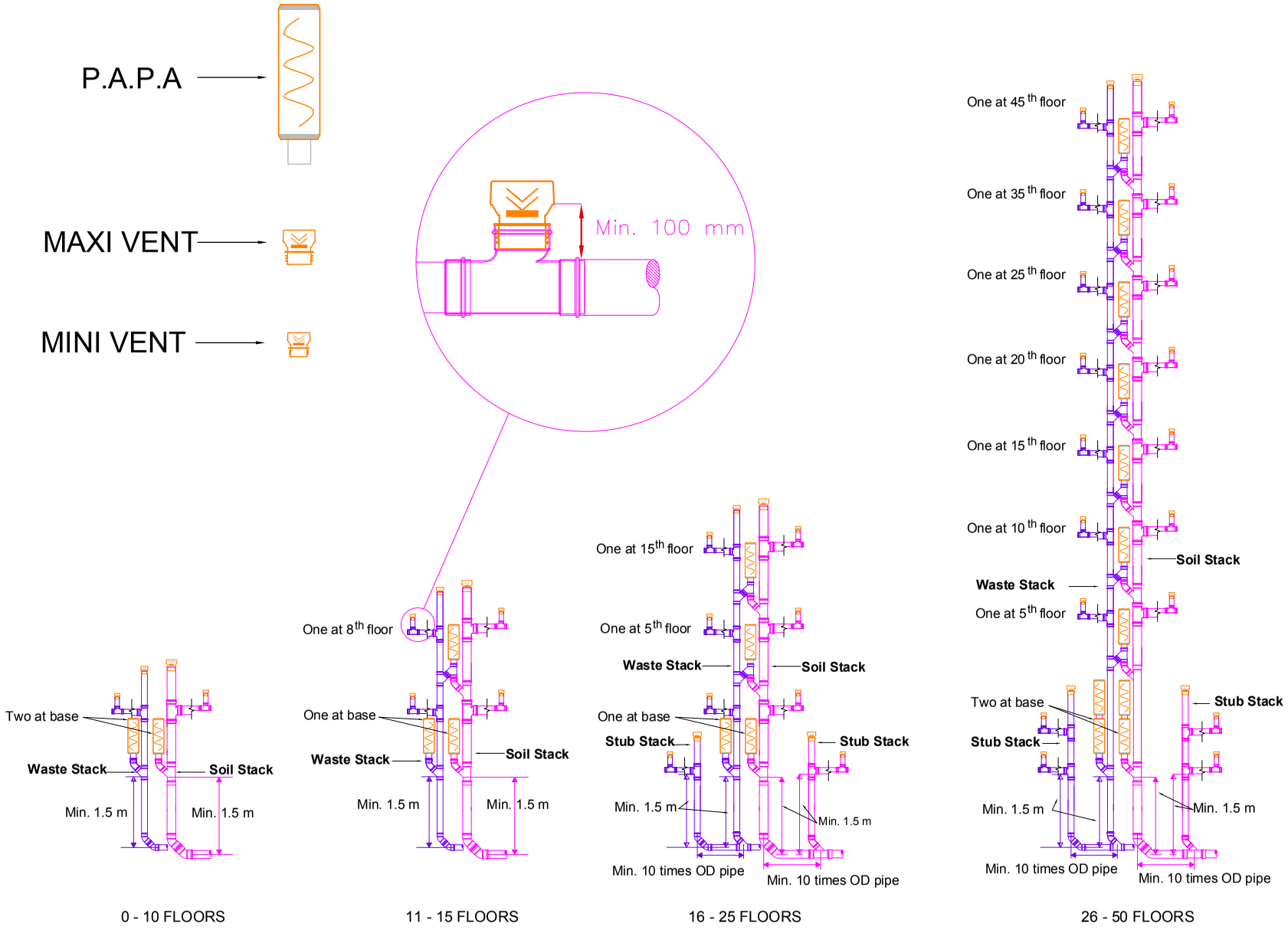
Active Drainage Ventilation is about zonal protection that operates independent from diameter.
These are design guidelines and we estimate the maximum number of PAPAs used in a project. Depending on the design there could be less.

Minimum distance of last connection above base of the stack

- Stack extending no more than 5 floors above the base of the stack or offset: 0.60 metres
- Stack extending more than 5 floors above the base of the stack or offset : 1 metre
- Stack receiving suds discharges: as close as possible to the first horizontal branch
- Minimum distance shall be measured from centre to centre



SINGLE PIPE SYSTEM WITH SINGLE BATHROOM



DUAL PIPE SYSTEM WITH SINGLE BATHROOM

Design Guideline – Sizing of Stacks

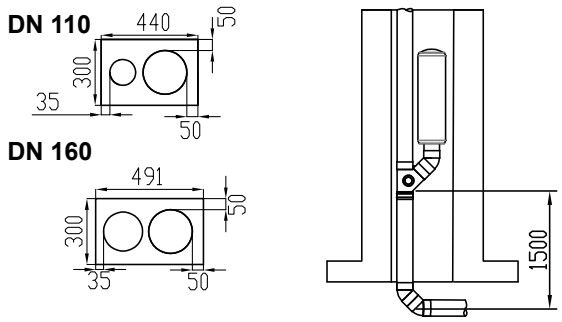
Sizing of stacks

It is recommended that the guidance given within BS EN 12056, part 2 be adopted when sizing stacks. Aliaxis technical services team offer design and installation advice, including the sizing of stacks, for those customers who make a commitment to use Aliaxis Plumbing & Drainage products.

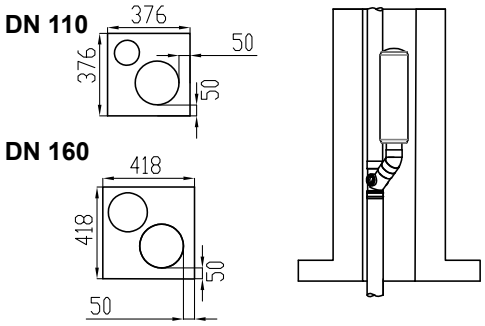
Accurate design and correct installation is key to the continuous efficiency of the drainage system. Please refer to full installation information in conjunction with the above standard.

Vertical duct installation

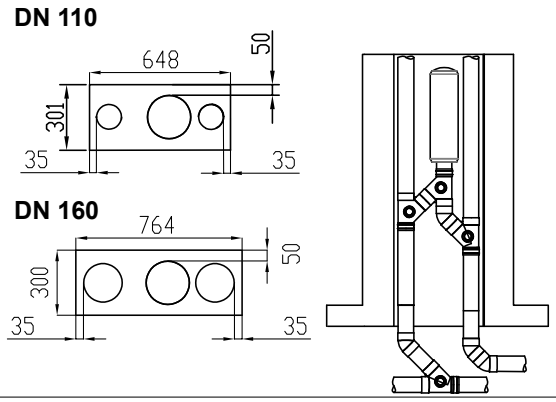
PAPA stack installation (Rectangular)



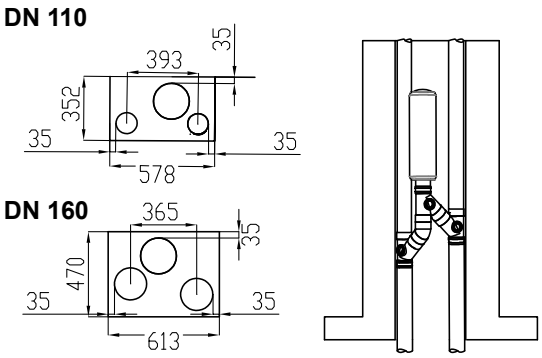
PAPA stack installation (Diagonal)



Combine PAPA stack installation (Rectangular)

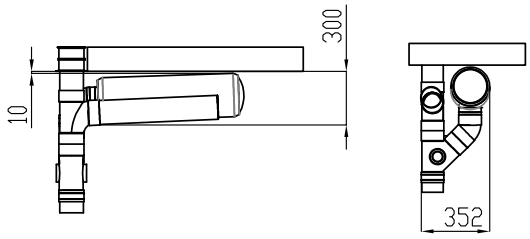


Combine PAPA stack installation (Diagonal)

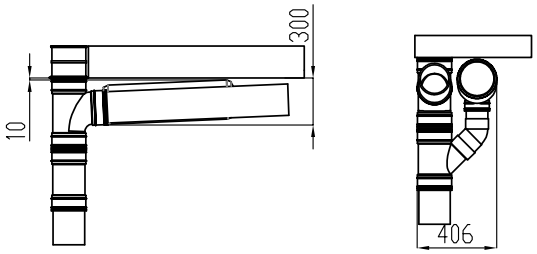


Horizontal floor installation

110 mm horizontal floor installation

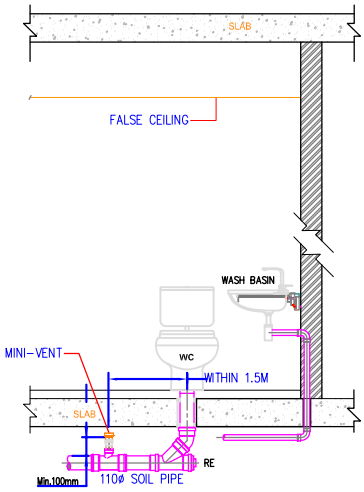


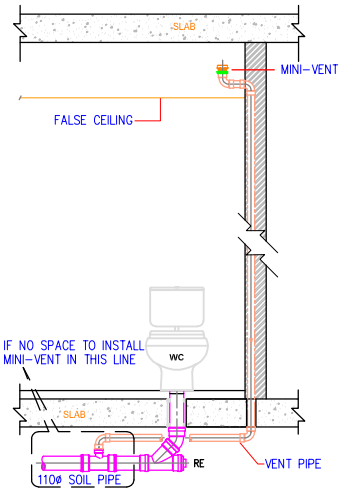
160 mm horizontal floor installation

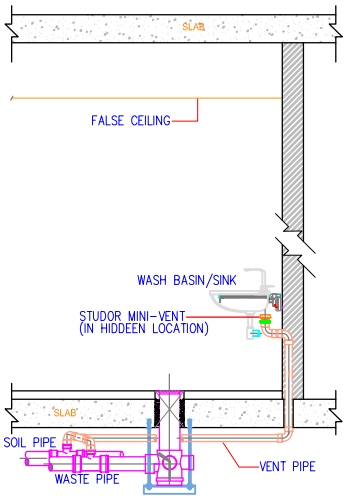


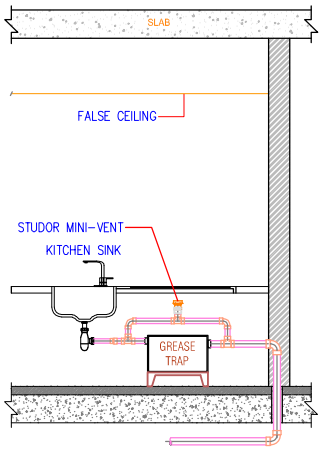
all dimension in mm

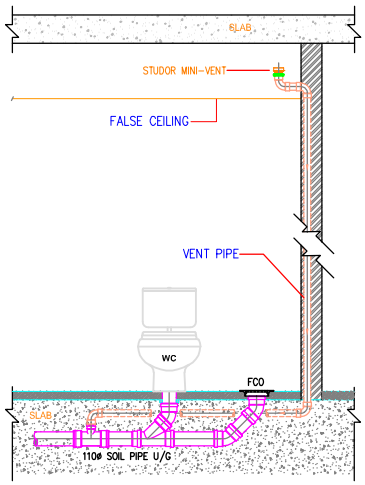
Design Guideline - Mini-Vent Installation

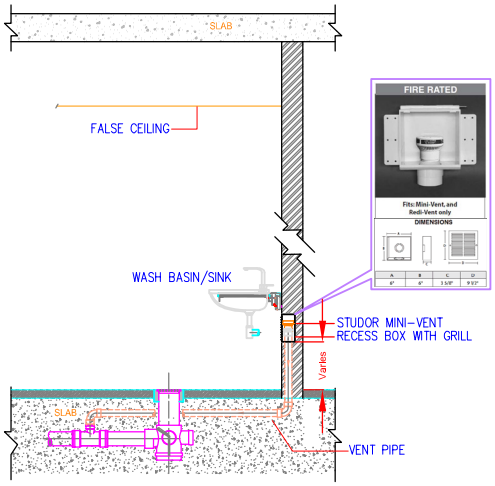


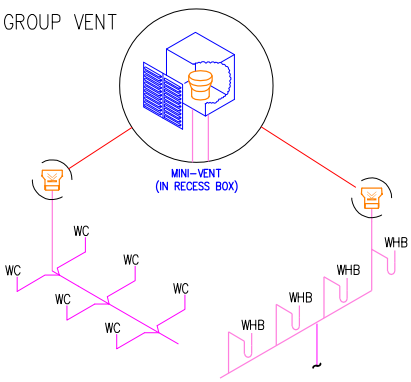


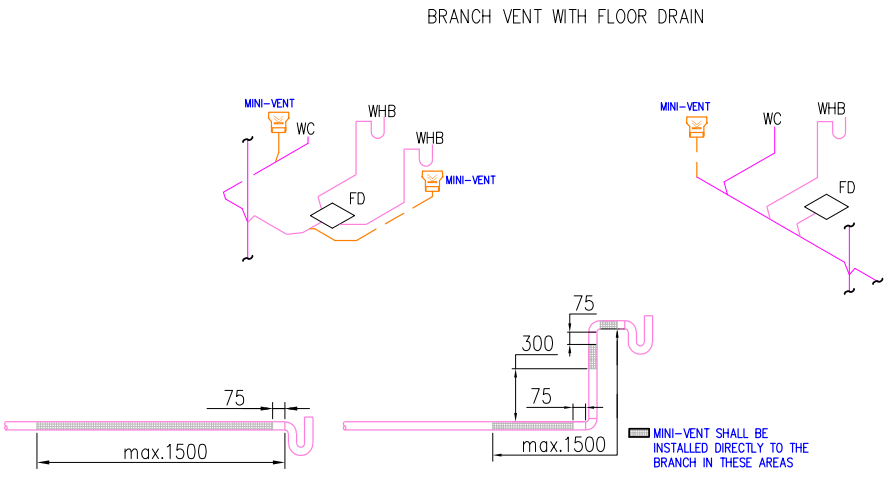




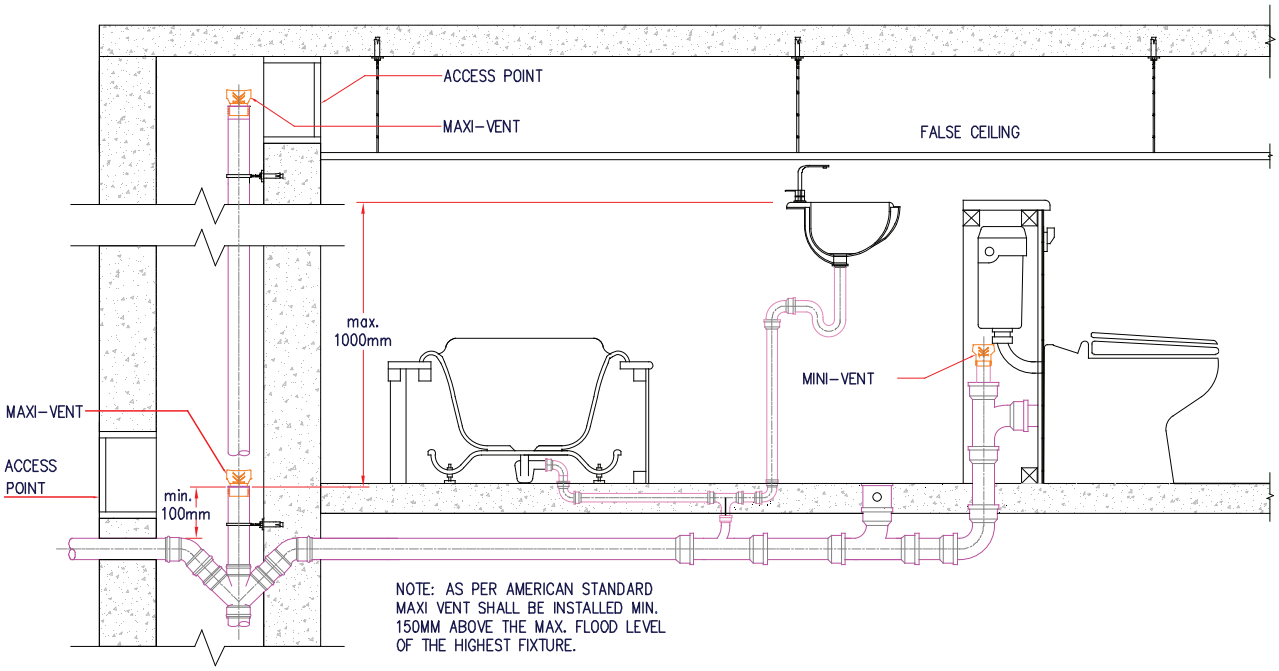


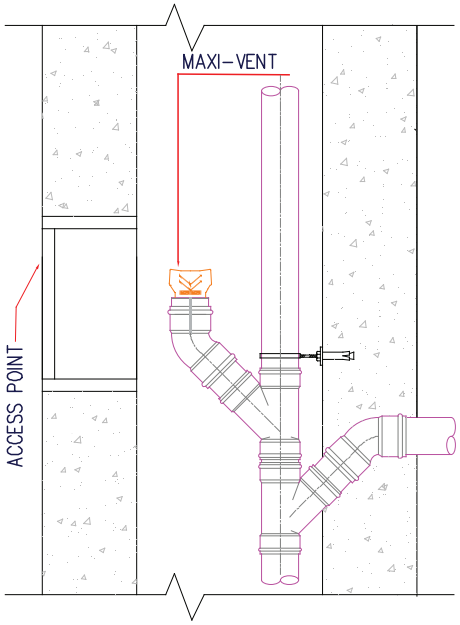


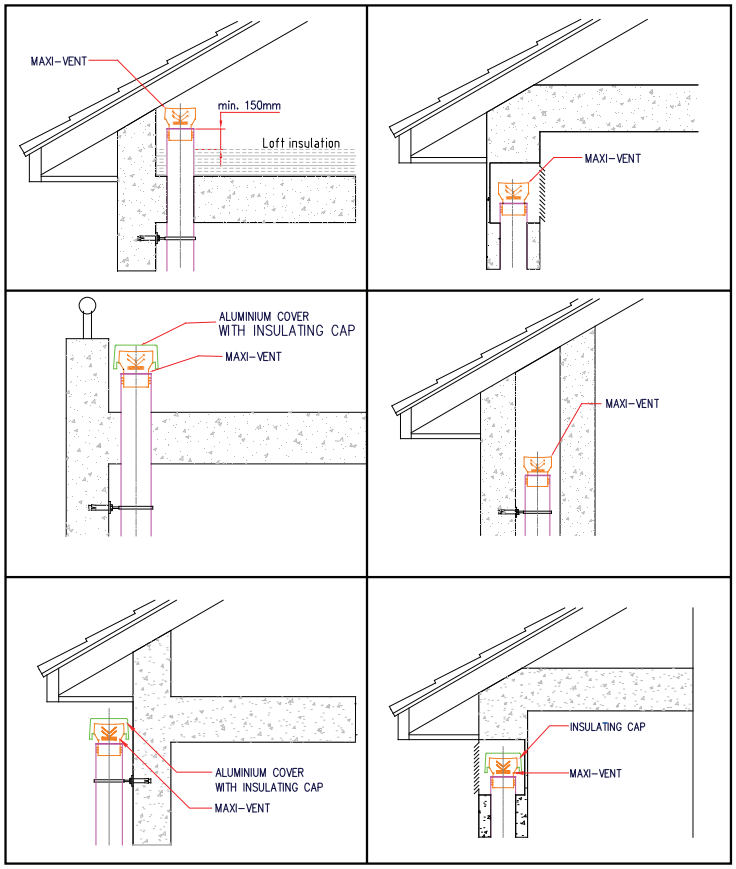




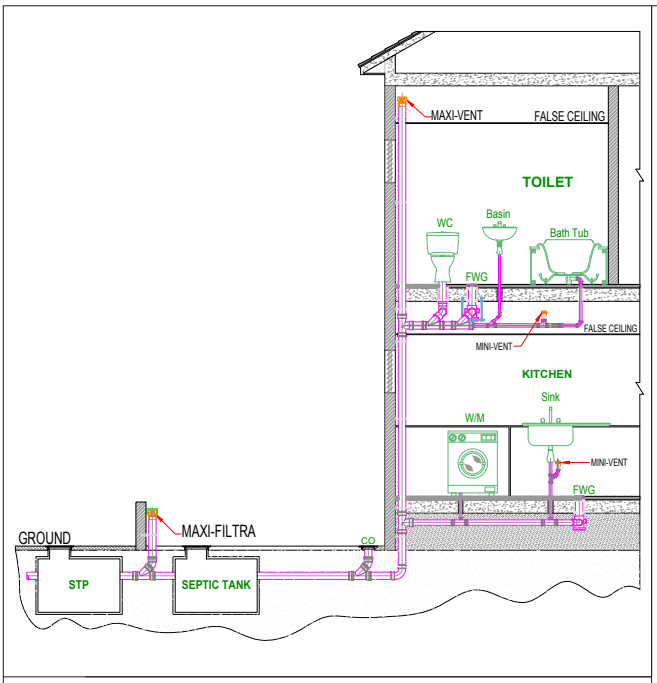
Design Guideline - Maxi-Vent Installation

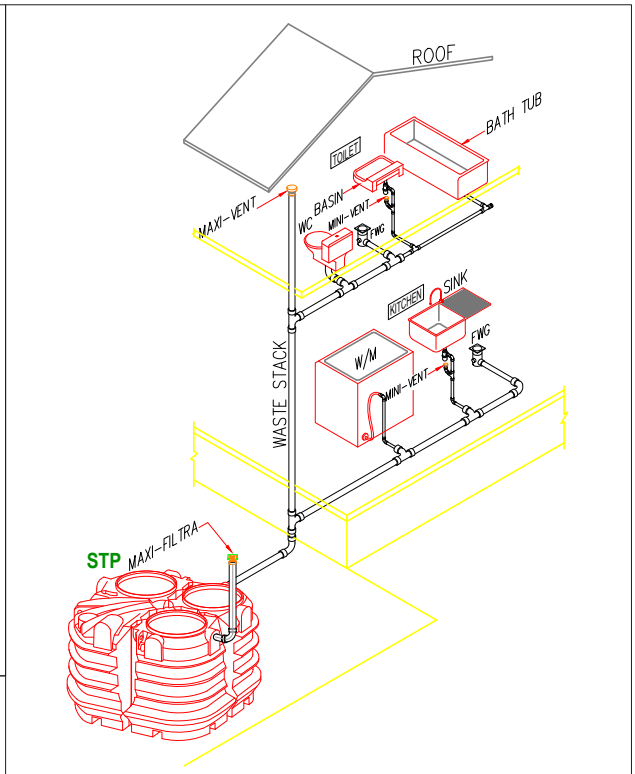


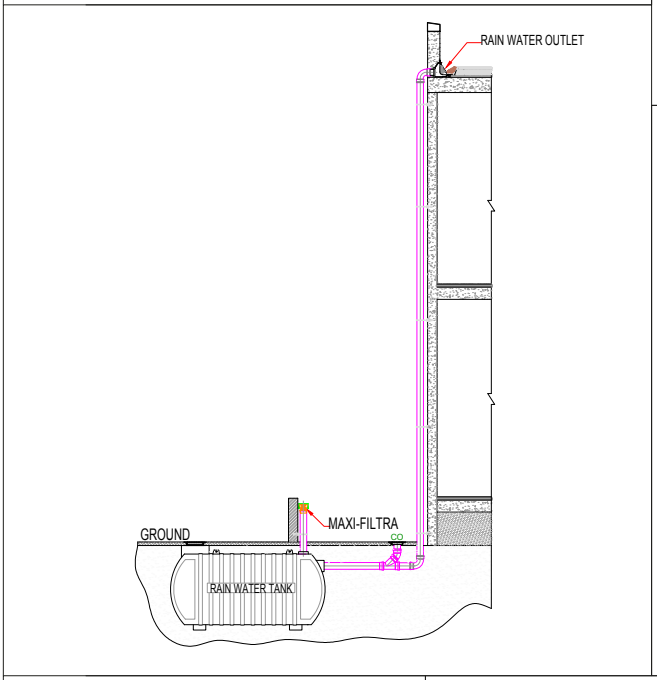


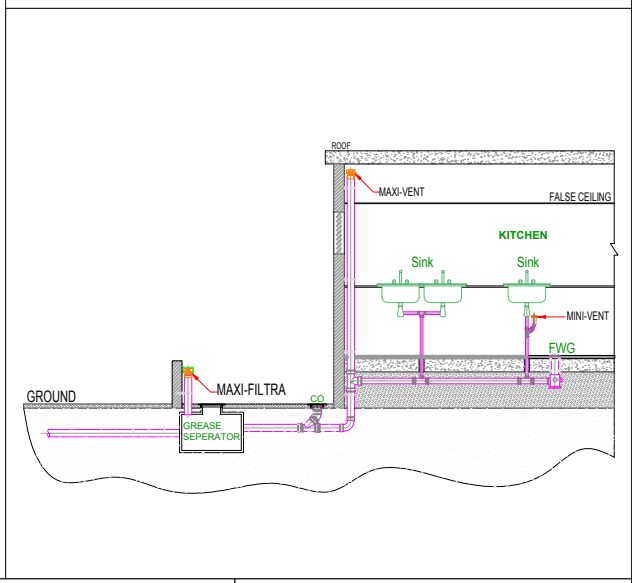


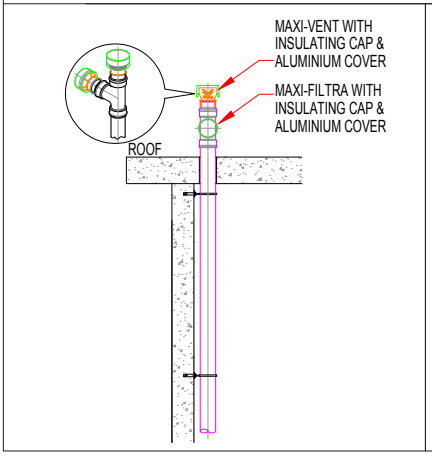
Design Guideline - Maxi Filtra Installation

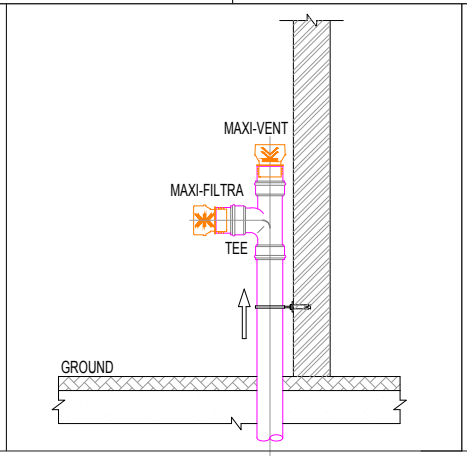


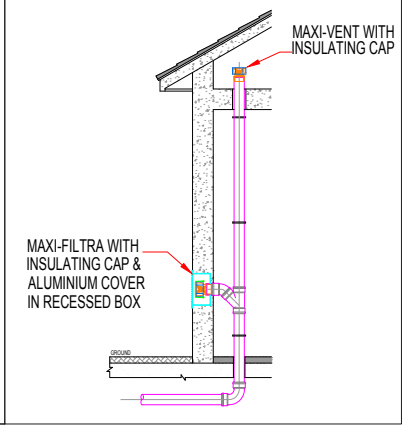








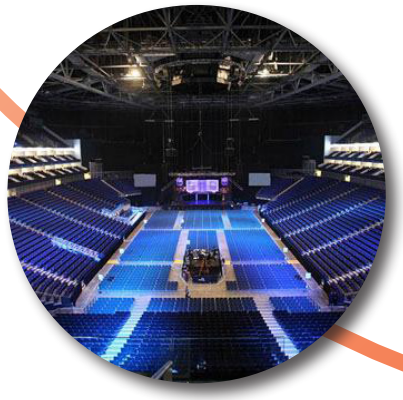




Project Reference

Marriott Hotel
Taipei & Kaosiung - Taiwan

Pak Tin Estate
Hong Kong – China



The O2
London - UK

Ferrari
Abu Dha

Hamilton Harbour
Queensland – Australia

The Hub Hotel
Milan - Italy

For more project reference, visit:
- studor.net
- high-rise.aliaxis.com

63 Square
Seoul - South Korea

Trump Ocean Club
Panama City – Latin America

Nation Towers
Abu Dhabi - UAE

World
bi – UAE

Alpensia Resort
Pyeongchang - South Korea

Bangkok International Airport
Bangkok - Thailand

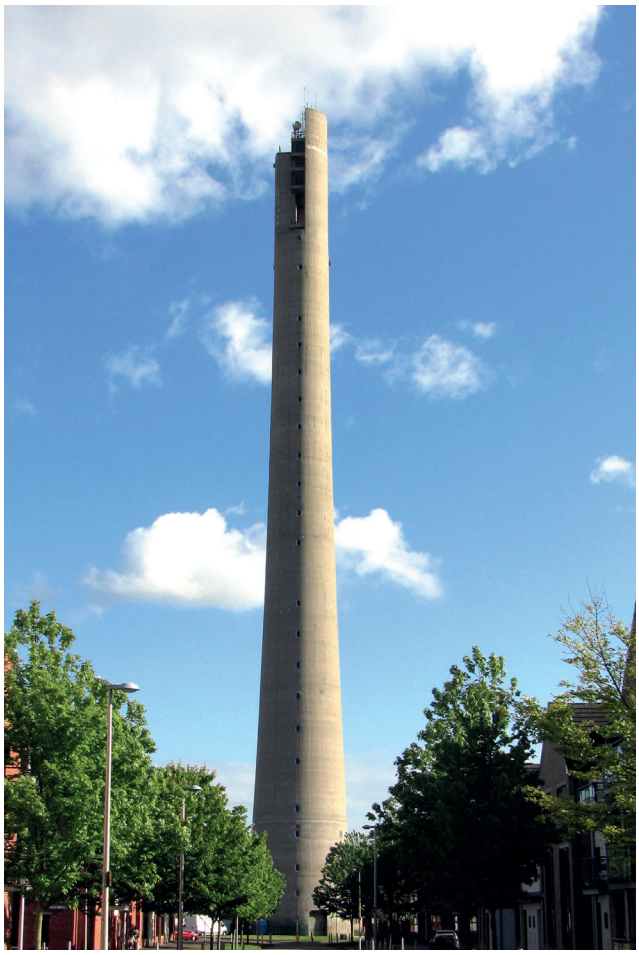
Test Facilities

Seeing is believing

See how water and air interacts in a true high-rise setting. The ‘Seeing is Believing’ experience is available in two unique testing facilities located in the UK and the Netherlands. They utilise clear pipe and completely visible products and fittings to demonstrate the occurrences within a real high-rise drainage system and how they are managed by the P.A.P.A. System versus a conventional vent pipe system.

Aliaxis High-rise Research Centre

The Aliaxis High-rise Research Centre is hosted by the National Lift Tower in Northampton (United Kingdom). It is the world’s tallest drainage testing installation, comprising a 96 metre soil stack fitted with the P.A.P.A. System (P.A.P.A. and AAVs) for active ventilation. Electronic pressure sensors in the test rig allow readings in the pipework to be recorded and used to objectively analyse the performance of the P.A.P.A. System versus alternative configurations.



The National Lift Tower

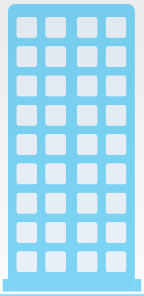
Where to use active drainage ventilation

Low-rise buildings

In low-rise buildings (up to 4 floors) the standardised plumbing design has proven to work without using active drainage ventilation. Typical residential roof penetrations, however, can be avoided using a Maxi-Vent; keeping the roof intact and the plumbing system internal for better insulation.

Medium-rise buildings

In medium-rise buildings (4 to 10 floors) depending on loading, traps can be depleted by induced siphonage, a phenomena in which a flush on one level causes negative pressures in the pipe system which acts on traps of other levels. The Mini-Vent placed on each horizontal branch will eliminate any negative pressure and protect the traps. The Maxi-Vent will avoid a roof penetration.



Hydro-Dynamics Experience Centre

Hydro-Dynamics Experience Centre

The state-of-the-art Hydro-Dynamics Experience Centre (HDEC), located in Panningen (Netherlands), combines a testing facility with a customer experience centre, where customers can see precisely how water and air actually flow through our pipe systems. The HDEC is instrumental in testing new solutions and also simulates the performance of systems in specific situations for increasingly complex and/or high-rise buildings.

Heriot-Watt University

Founded in 1821 in Edinburgh, Scotland, and has established a reputation as a leading research-led university and provider of education around the world, with campuses in several locations including Dubai and Malaysia. Heriot-Watt and Studor have collaborated for over 20 years on research and development on a range of innovative new products. The P.A.P.A. (Positive Air Pressure Attenuator) is one of the results of this partnership; many other developments are currently in process, with the potential to revolutionise the high-rise building drainage market.

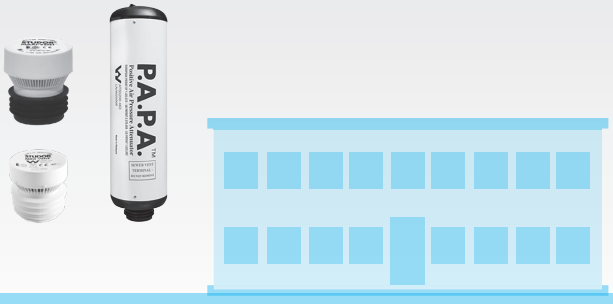
HERIOT WATT UNIVERSITY

High-rise buildings

In high-rise buildings (above 10 floors) there will be negative and positive pressures that influence the water seal in the traps. The P.A.P.A. (Positive Air Pressure Attenuator) dampens the positive pressure and, used in conjunction with the Mini-Vent and Maxi-Vent, offers a complete active drainage ventilation system for high-rise buildings.

Retro-fit buildings

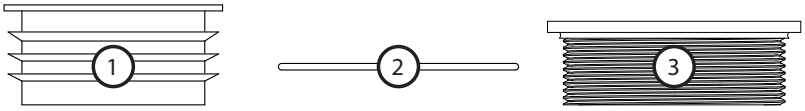
In existing buildings, drainage problems like slow wastewater drainage, gurgling noises, foul odours and trap seal depletion are largely due to negative pressures and can be solved by adding air admittance valves (AVVs). Retrofitting vertical stacks with P.A.P.A.s. will combat existing positive pressure problems in high rise buildings.



Installation Data

P.A.P.A. (Positive Air Pressure Attenuator)

The P.A.P.A is provided with a rubber connector on the base and with a separate O'ring and male thread adaptor to allow greater versatility

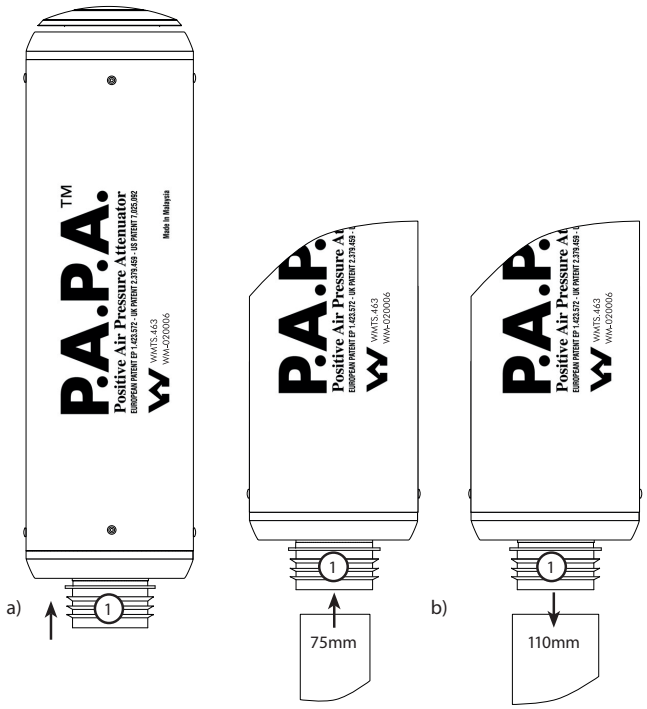


Rubber connector O-ring Male thread adapter

Installing P.A.P.A. with a rubber connector:

a) Ensure the rubber connector is securely fitted to the base of the P.A.P.A.;

b) Push-fit the rubber connector fitted to the base of the P.A.P.A. onto a 75mm or into a 110mm pipe connection.

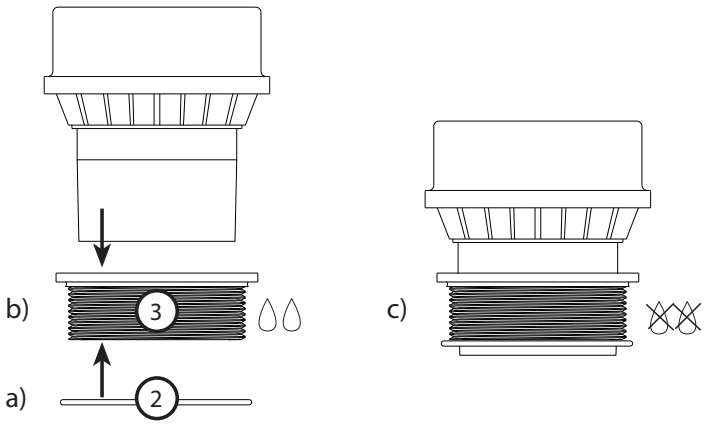


Installation of a Maxi Vent on top of the P.A.P.A:

a) Fit O'ring to the male thread adapter

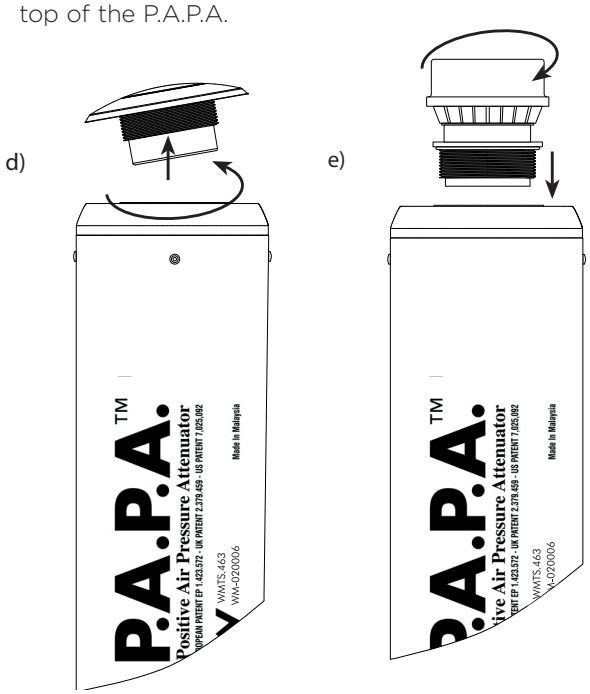
b) Fit the male thread adaptor to the base of the Maxi Vent and glue into place sparingly using ABS solvent cement

c) Wipe away any excess solvent to ensure this does not get into the Maxi Vent, as this will affect its operation.



d) Unscrew the cap on the top of the P.A.P.A

e) When the solvent has fully dried, screw the male thread adaptor fitted to the base of the Maxi Vent into the top of the P.A.P.A.



Installation of the P.A.P.A in series:

a) Up to 4 P.A.P.As may be installed in series,

b) Unscrew the cap on the top of this P.A.P.A,

c) Removed the rubber connector fitted to the base of the next P.A.P.A to be installed,

d) Fit O'ring to the male thread adaptor,

e) Fit the male thread adaptor to the base of this P.A.P.A and glue into place sparingly using ABS solvent cement.

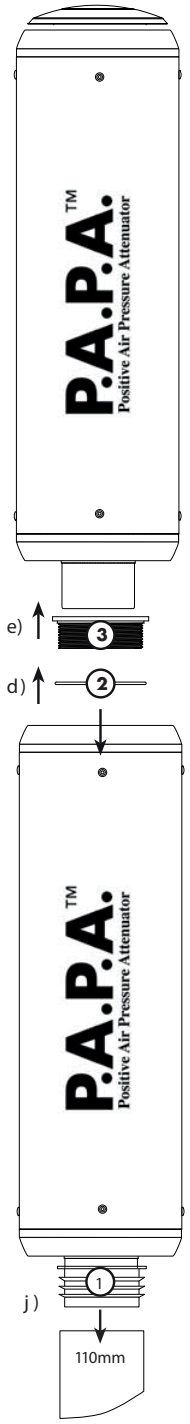
f) Wipe away any excess solvent cement,

g) When the solvent has fully dried, screw the male thread adaptor fitted to the base of this P.A.P.A into the bottom most P.A.P.A,

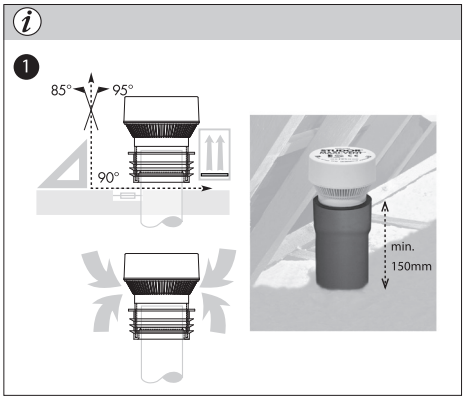
h) Repeat step b) to g) to install the subsequent P.A.P.A.

i) Ensure the rubber connector is securely fitted to the base of the bottom most PAPA.

j) Push fit the rubber connector fitted to the base of the PAPA onto a 75 mm or into a 110 mm pipe connection.

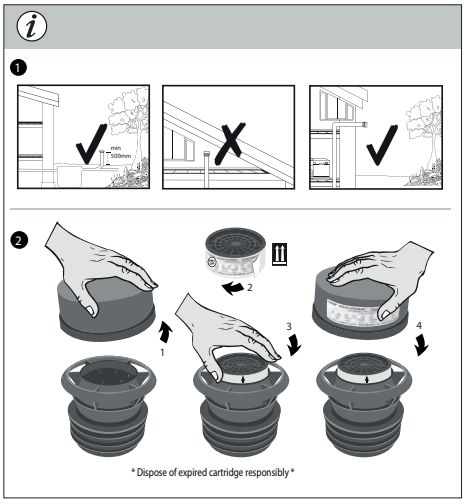


Maxi-Vent



The Maxi-Vent must be installed vertically and upright to permit its correct operation (within 5°of vertical).
Place the valve in an accessible location, allowing free air movement.
Install 150mm above the insulation in attic installations.
Install the Maxi-Vent after the drainage system has been tested.

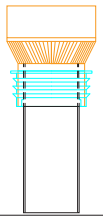
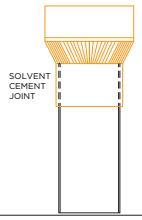
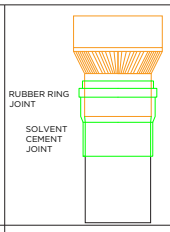
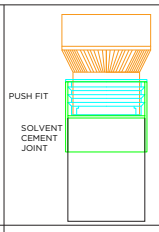
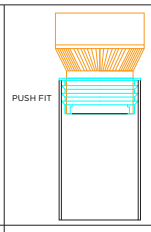
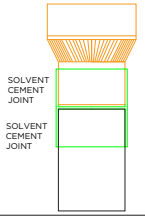
Maxi Filtra



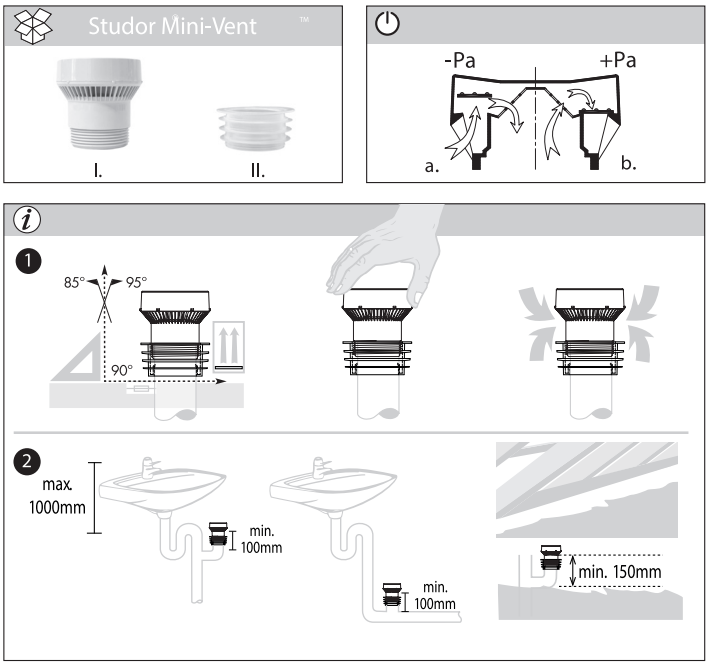
1. The Studor Maxi Filtra must be installed in an external accessible location only, as close as possible to the tank, which may also be used to provide an extra rodding point for the drain field pipework.
2. Install horizontally, at an angle or vertically. DO NOT install at an angle greater than 90 degrees.
3. Install a minimum of 500 mm above ground level or snow level.
4. Replace the filter cartridge two-yearly as a minimum (initial filter cartridge included). In installations with high odour saturation, the carbon filter should be replaced more regularly when odour becomes noticeable. The cap simply lifts off to enable easy access for the carbon filter.

Installation of a Maxi Vent/Maxi Filtra

As standard, the Maxi Vent / Maxi Filtra is provided with a push fit connector allowing its fixture to stack pipes sized 75 mm – 110 mm. This connections are apply to PAPA as well.

						
Pipe diameter	75.0 -75.4	82.4 - 82.8	90.0 - 90.4 (Rubber Ring Socket)	100.0 - 100.4 (Solvent Cement)	110.0 - 110.4 (Into Pipe Bore)	88.7 - 89.1
Installation method	Push pipe into the bore of rubber connector	Solvent cement joint with 82 mm pipe into the Maxi Vent	Push fit into the rubber ring joint at pipe	Push fit the rubber connector into the socket	Push fit rubber connector into pipe bore	Solvent cement into pipe / fitting's socket

Mini-Vent



1. The Mini-Vent must be installed vertically and upright to permit its correct operation (within 5°of vertical).

   Place the valve in an accessible location, allowing free air movement.

2. Install the Studor Mini-Vent no more than 1,000mm below the flood level of the fixture to which it is connected.

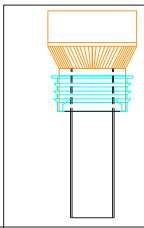
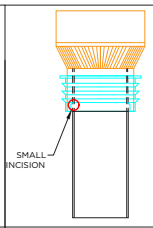
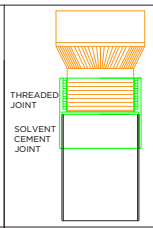
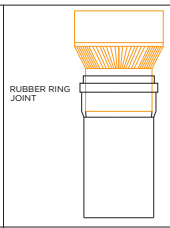
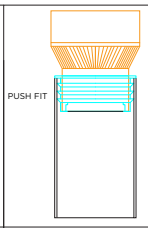
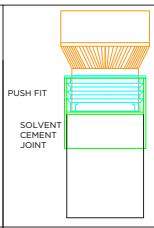
   The valve must be installed 100mm above the horizontal waste.

   In attic installations, place the valve 150mm above the insulation.

   Install the valve after the drainage system has been tested.

Installation of a Mini Vent

As standard, the Mini Vent is provided with a push fit connector allowing its fixture to stack pipes sized 32 mm – 63 mm.

						
Pipe diameter	32.0 -32.3, *36.2 -36.5	40.0 - 40.3	1 ½ " BSP / NTP Threaded Connector	50.0 - 50.3 Rubber Ring Joint	63.0 - 63.3 (Into Pipe Bore)	55.8 - 56.1
Installation method	Push pipe into the bore of rubber connector	Push pipe into the bore of rubber connector (remove small incision)	Apply Teflon tape / white tape at threaded area of mini vent, screw into the threaded connector	Push fit into the rubber ring joint at pipe	Push fit rubber connector into pipe bore	Push fit rubber connector into socket

Standard & Accreditations

BS EN 12380: 2002

The first European standard (EN 12380:2002) to cover the requirements, test methods and evaluation of conformity for Air Admittance Valves (AAVs) for drainage systems installed within buildings (in accordance with European Standard EN 12056-2:2002)

BS EN 12056-2: 2000

(GRAVITY DRAINAGE SYSTEMS INSIDE BUILDINGS – PART 2: SANITARY PIPEWORK, LAYOUT AND CALCULATION) WAS PUBLISHED IN JUNE 2000.

The standard provides different options for handling primary and secondary ventilation and, for the first time within a standard, it specifies AAVs as a legal alternative to the traditional pipe ventilation. Guidelines for the use of AAVs are detailed, including the requirement for them to comply with EN 12380.

EN 12056-2 provides a table based on the fixture units within the drainage system in order to calculate the required airflow. Studor developed the Airflow Calculator as a valuable tool to simplify the calculation process.

AS/NZS 3500.2: 2015

(PLUMBING AND DRAINAGE – PART 2: SANITARY PLUMBING AND DRAINAGE)

Table 6.2(A) provides a table detailing the fixture unit ratings for all fixtures, which are to be used for the sizing of drains, stacks and graded discharge pipes. Section 6.9 of the standard provides the guidelines for how AAVs may be used.

Section 6.10 was added as part of the November 2005 amendment, and provides guidelines on how devices to attenuate positive pressure transients in plumbing stacks, i.e. the P.A.P.A. (Positive Air Pressure Attenuator), may be used.

USA AND CANADIAN REGULATIONS

STUDOR ADHERES TO THE FOLLOWING USA AND CANADIAN REGULATIONS AND PLUMBING CODES:

- International Plumbing Code (IPC).
- International Residential Code (IRC).
- Uniform Plumbing Code (UPC).
- National Standard Plumbing Code (NSPC).

BBA APPROVAL INSPECTION TESTING CERTIFICATION CERTIFICATE 15/5224

ICC ES PMG PMG-1482

WMTS-463
WM-020006
WM-022831

DIN 011-7B003
011-7B008
Geprüft

CE

P.A.P.A.™ Positive Air Pressure Attenuator

Cew Sin Range of Products

Product Certification And Standard Compliance

PVC-U SOIL, WASTE & VENT SYSTEM

MS 1063:2002
- Unplasticized polyvinyl chloride (pvc-u) pipes for soil and waste discharge (low and high temperature) within the building structure.
- Unplasticized polyvinyl chloride (pvc-u) fittings for soil and waste discharge (low and high temperature) within the building structure.

PVC-U RAINWATER DRAINAGE SYSTEM

BS EN 12200-1:2016
- Unplasticized polyvinyl chloride (pvc-u) rainwater pipes for above ground external use.

MS 1063:2002
- Unplasticized polyvinyl chloride (pvc-u) pipes for soil and waste discharge (low and high temperature) within the building structure.
- Unplasticized polyvinyl chloride (pvc-u) fittings for soil and waste discharge (low and high temperature) within the building structure.

BS EN ISO 1452-2:2009
- Unplasticized polyvinyl chloride (pvc-u) pipes for water supply.

PVC-U UNDERGROUND SEWERAGE SYSTEM

MS 979:PART 1:1985
- Unplasticized polyvinyl chloride (pvc-u) pipes for non-pressure underground drainage and sewerage.

MS 979:PART 2:1985
- Unplasticized polyvinyl chloride (pvc-u) pipes for non-pressure underground drainage and sewerage.

HDPE (PE100) PIPE

MS 1058:PART 2:2005 & ISO 4427: PART 2:2007+A1:2014
- Polyethylene (pe) pipes for water supply.

PVC-U PRESSURE PIPE SYSTEM

MS 628-2:2014
- Unplasticized polyvinyl chloride (pvc-u) pipes for water supply (plain end).
- Unplasticized polyvinyl chloride (pvc-u) pipes for water supply (with socket for solvent cement and elastomeric ring seal joints).

MS 628-4:2015
- Polyvinyl chloride (pvc) solvent cement.

BS 3506:1969
- Unplasticized polyvinyl chloride (pvc-u) pipes for industrial applications.

BS EN ISO 1452-2:2009
- Unplasticized polyvinyl chloride (pvc-u) pipes for water supply.

PP-R HOT & COLD WATER SYSTEM

MS 2286:PART 2:2012 & ISO 15874:PART 2:2013
- Plastic piping systems for hot and cold water installations -polypropylene (pp) -part 2: pipes.

MS 2286:PART 3:2012 & ISO 15874:PART 3:2013
- Plastic piping systems for hot and cold water installations -polypropylene (pp) -part 3: fittings.

PIPES FOR INFRASTRUCTURE

MS 1034:2013
- Rigid polyvinyl chloride (pvc) conduit for underground telecommunication cables.

BS 3506:1969
- Unplasticized polyvinyl chloride (pvc-u) pipes for industrial applications.

MS 1058:PART 2:2005 & ISO 4427: PART 2:2007+A1:2014
- Polyethylene (pe) pipes for water supply.

TM CERTIFICATION OF SOLID WALL HIGH DENSITY POLYETHYLENE (HDPE) PN 10 / SDR13.6 / 110MM CONDUIT

TM CERTIFICATION OF UPVC TELECOMMUNICATION DUCT 107MM

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