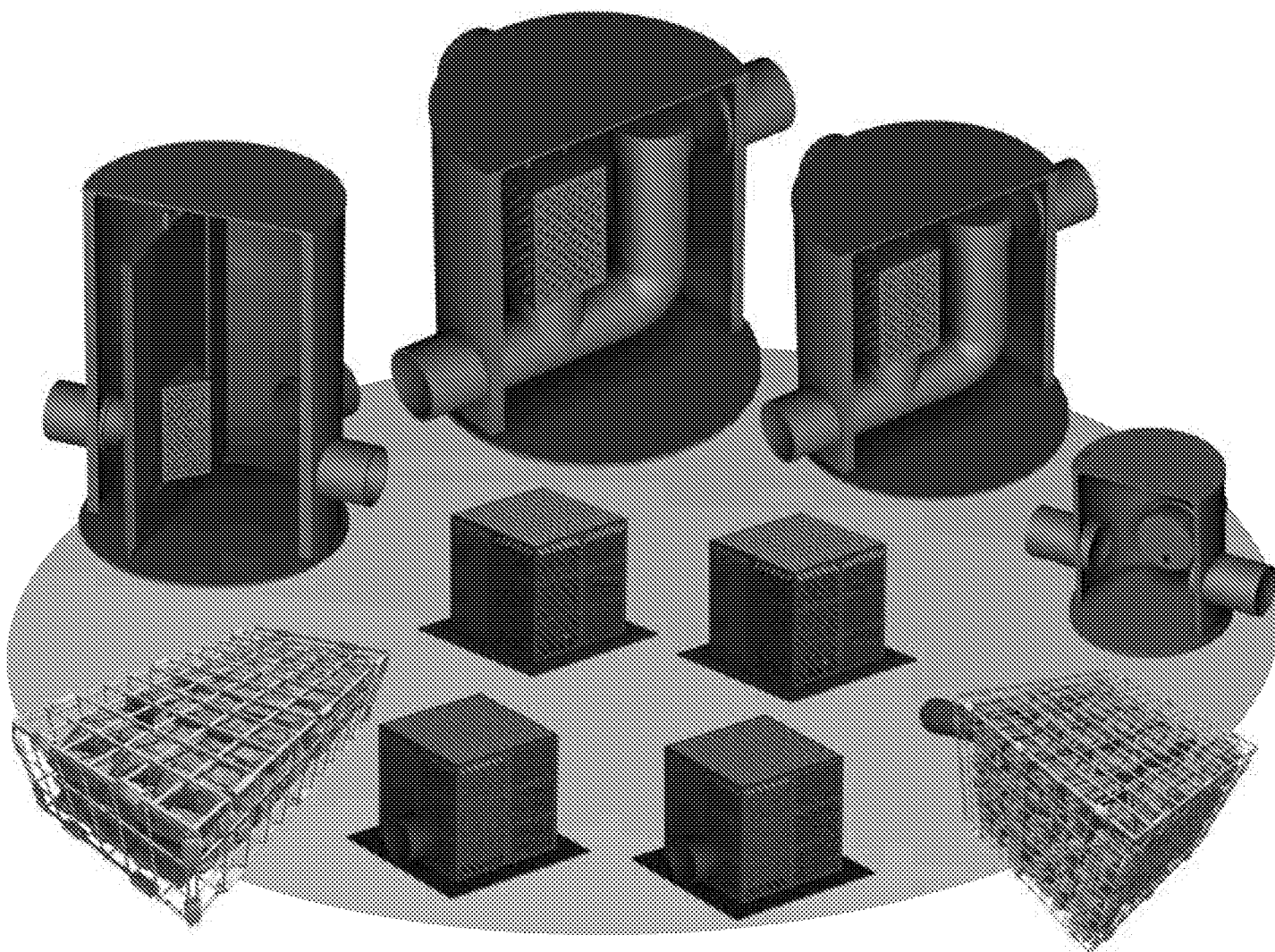


Controflow

flow controls dedicated to SuDS



Controflow
exclusively from

SuDS
store

05/2019

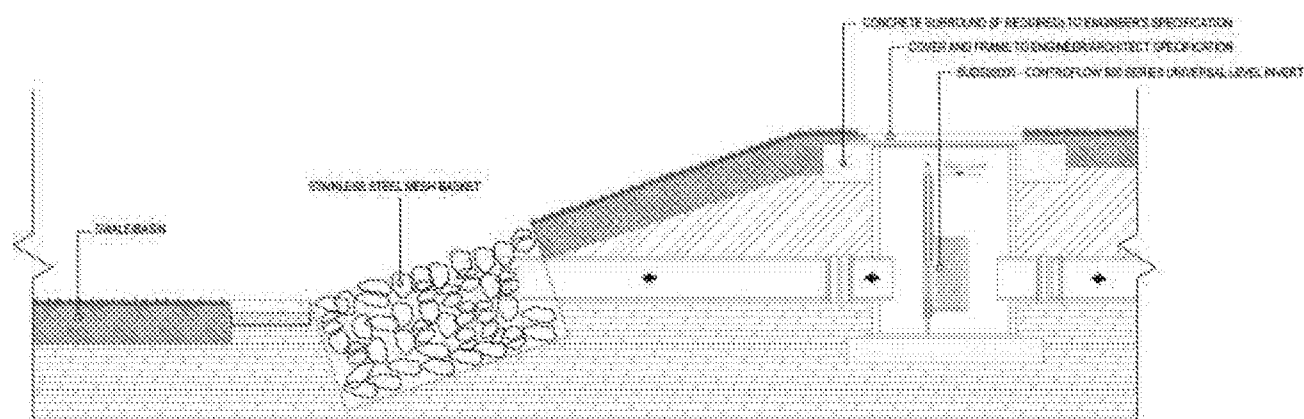
Controflow

flow controls dedicated to SuDS

Controflow® control chambers are specifically designed for shallow SuDS elements to manage rainwater runoff, including permeable pavements, swales and basins. They feature orifices, guarded where necessary, which are accessible for demonstrating straightforward compliance to local authorities as part of the SuDS design approval process.

Controflow universal stainless steel mesh SuDS Baskets - for filling with stone - act as attractive pipe inlets or outlets, or enable diffuse water flows down slopes, avoiding erosion.

Controflow Roof Outlet Control and/or Overflow Units have been specifically designed for blue and green roofs, and are easily installed without interfering with existing roof outlets.



The Controflow range

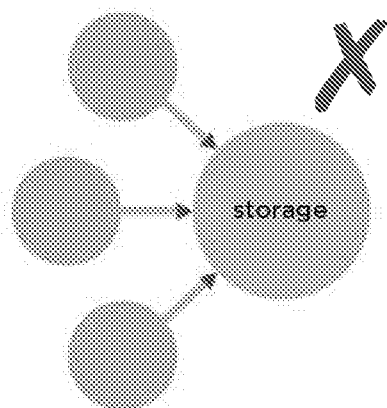
- Developed by experienced SuDS designers with practicality in mind
- Tested in situ for over a decade
- Satisfies National Standards as well as the SuDS Manual 2015
- Simple installation
- Minimal maintenance over the long term
- Universal formats for simple specification or bespoke for complete flexibility
- Low-cost flow control devices for use throughout management trains
- Performance easily verified by local authorities
- Straightforward specification using established criteria
- Passive operation with consistent performance
- Made to order using recyclable materials
- Easy access for inspection, measurement or sampling

Controflow

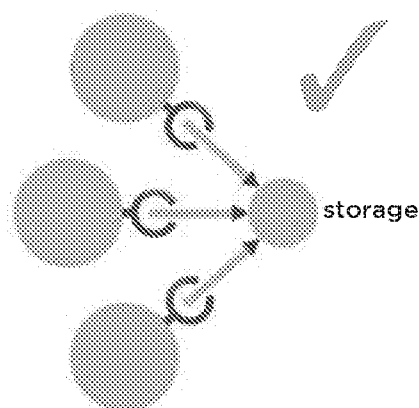
why we need flow controls

SuDS are now a Government requirement on many developments, approved and often adopted by local authorities. The key to successful SuDS is water storage strategically deployed around a site within SuDS elements – such as swales, basins ponds and, particularly, permeable paving – forming discrete sub-catchments with flow controls. Controflow chambers can also maximise storage in permeable paving on sloping sites, with terraced compartments separated by simple check dams. They can also detain water to optimise ground infiltration, so reducing discharge volumes.

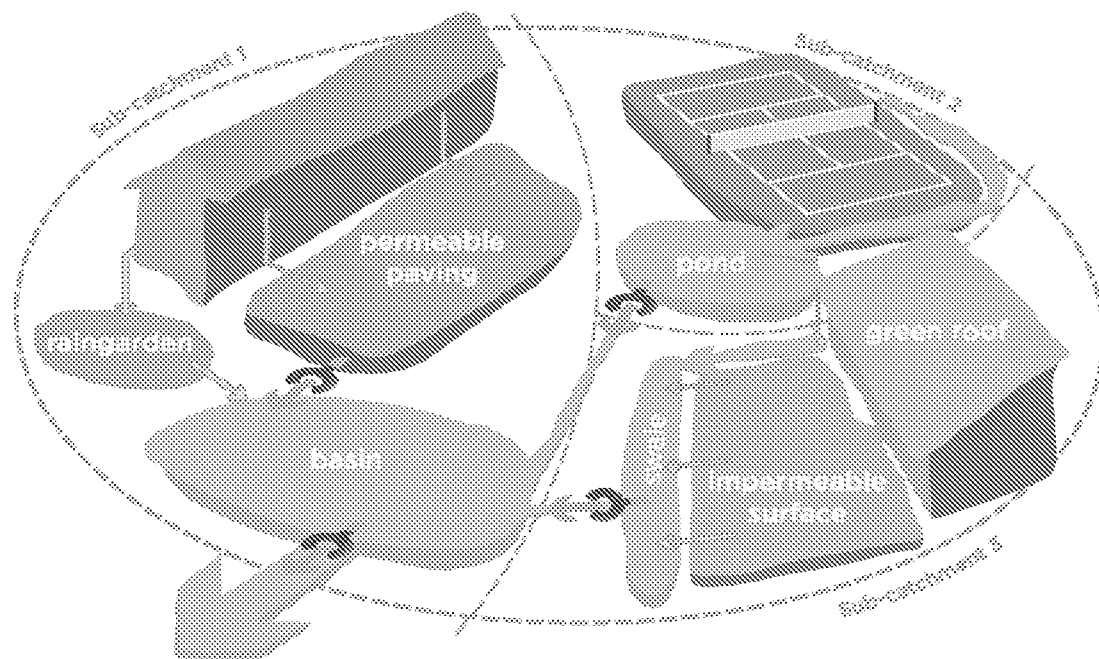
These techniques using Controflow chambers avoid the additional land-take and costs of large, heavily engineered control and storage structures at the perimeter of developments. It also optimises the multi-functionality of SuDS. With their low cost and shallow construction, Controflow® chambers control flows from each sub-catchment, as well as at site perimeters, whilst keeping water flow on or near the surface. All flow controls should be protected to prevent leaves and other debris from entering.



conventional drainage – single large storage volume



SuDS with flow controls – optimised storage throughout site



With their low cost and shallow construction, Controflow® chambers are ideally suited to control flows from each sub-catchment as well as from whole sites, while realising a key aim of SuDS to keep water management on or near the surface.

Controflow

flow controls for all SuDS situations

Controflow 300 Series Level Invert

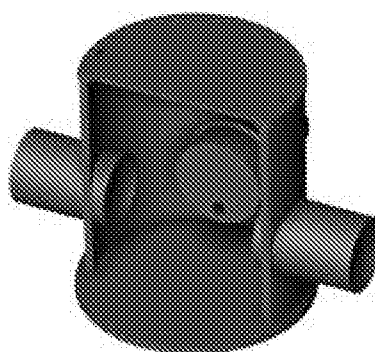
SUDS01001

Applications – permeable paving, filter drains and other shallow SuDS elements where water is pre-filtered

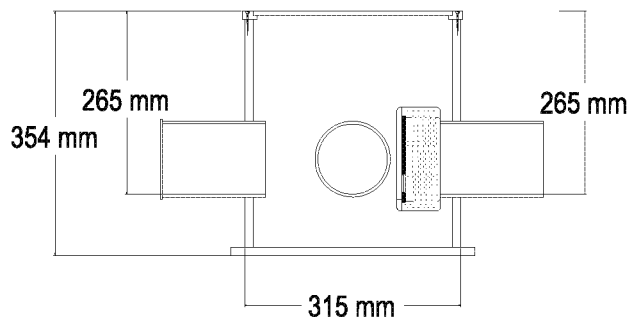
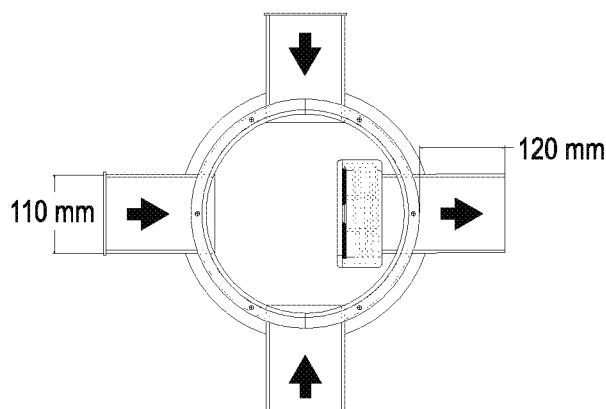
A standard, shallow flow control chamber with an un-guarded single orifice (to specified diameter), designed to manage outflows from permeable paving or other open graded sub-base construction. Its small size and low cost make it ideal for check dams between permeable paving compartments.

The removable cap locks in position with the orifice at invert level. Three 110mm diameter inlet pipe connection stubs offer layout flexibility. Supplied with a temporary protective site cover (permanent cover and frame not included). Suitable for a maximum overall depth of 600mm (finished cover to base).

Bespoke flow control chambers can be manufactured to suit specific requirements.



Please specify:
• orifice diameter



Controflow

flow controls for all SuDS situations

Controflow 500 Series Universal Level Invert

SUDS02005

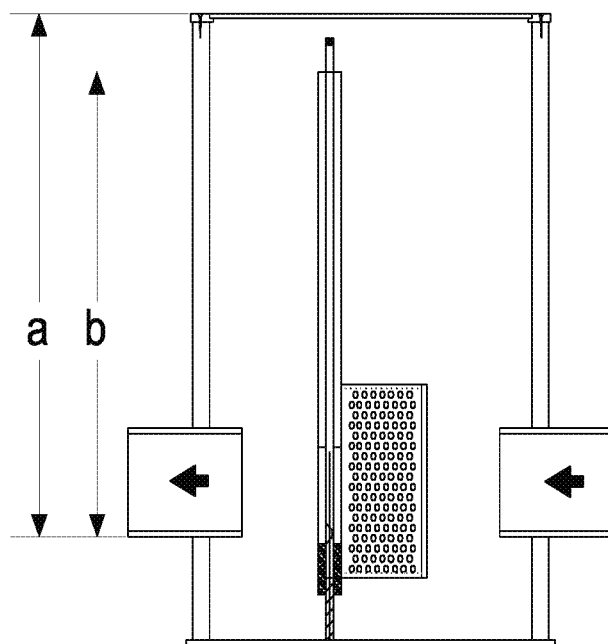
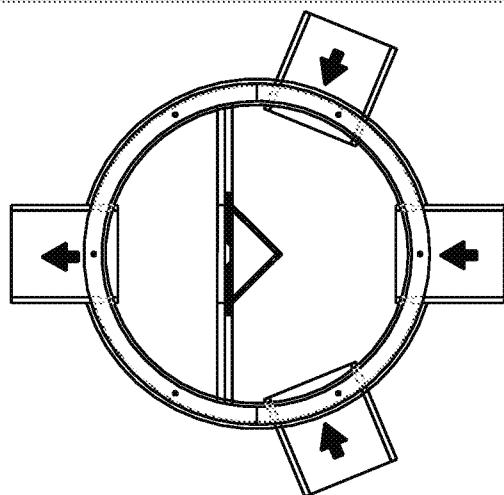
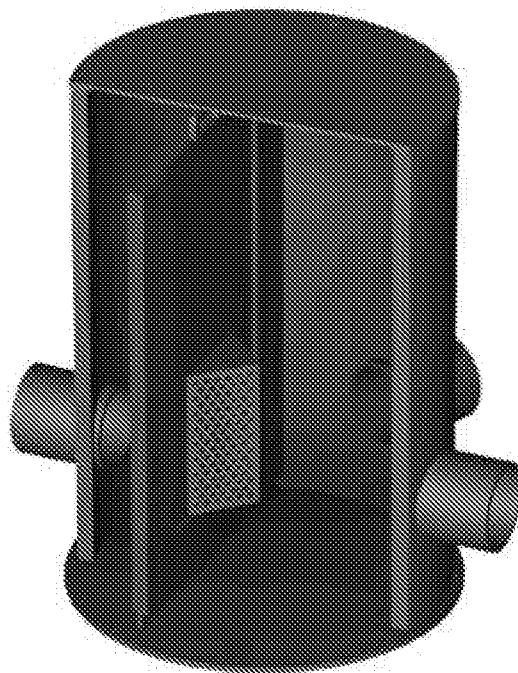
Applications - all SuDS elements where water is not pre-filtered and at the end of the management train.

A flexible, universal flow control chamber suitable for any SuDS technique, with level inverts. The slide-out centre plate contains a circular orifice (to specified diameter), protected by an upstream guard, and acts as an overflow weir. Additional orifices can be added to order.

Three 160mm diameter inlet pipe connection stubs offer layout flexibility. Supplied with a temporary protective site cover (permanent cover and frame not included). Suitable for depths ranging from 537mm to 1.2m (finished cover to base). An optional foul air trap is available when connected to combined drains.

Please specify:

- orifice diameter
- type/depth of cover/frame to be used
- any additional orifice positions & diameters
- if foul air trap is required
- cover to inlet invert depth 'a'
- weir to inlet depth 'b'



Controflow

flow controls for all SuDS situations

Controflow 500 Series 110 Ø Stubs Stepped Invert Roddable

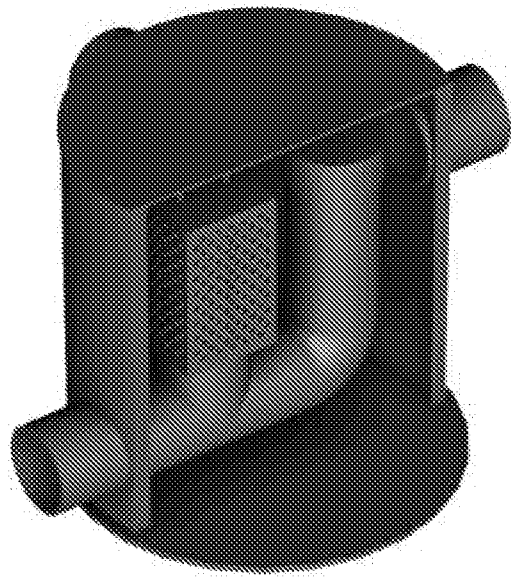
SUDS02008

Applications – permeable paving

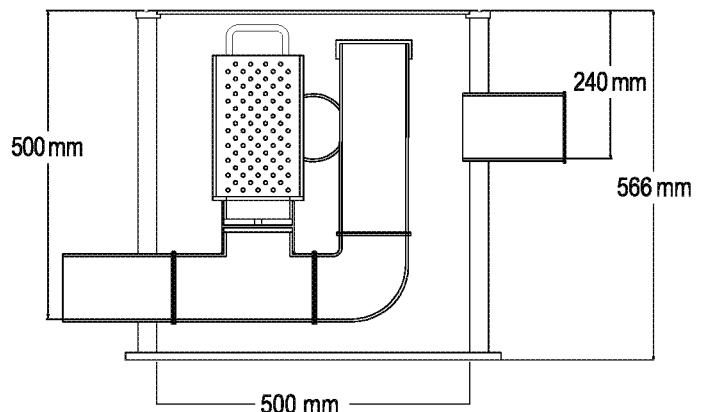
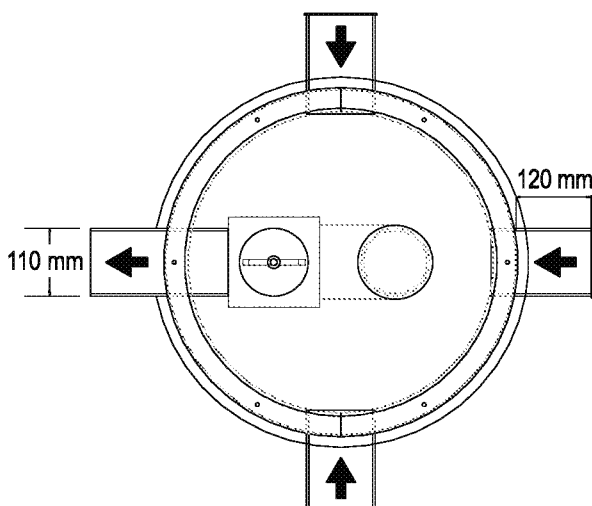
A standard flow control chamber with a single, guarded orifice (to specified diameter), designed to manage outflows from permeable paving or other open graded sub-base construction. Stepped inverts simplify the construction of transitions from shallow permeable paving to deeper constructions.

The protective guard and orifice cap are removable, and the rodding access upstand can act as an overflow with its cap removed. Three 110mm diameter inlet pipe connection stubs offer layout flexibility. Supplied with a temporary protective site cover (permanent cover and frame not included).

Bespoke flow control chambers can be manufactured to suit specific requirements.



Please specify:
• orifice diameter



Controflow

flow controls for all SuDS situations

Controflow 600 Series 160 Ø Stubs Stepped Invert Roddable

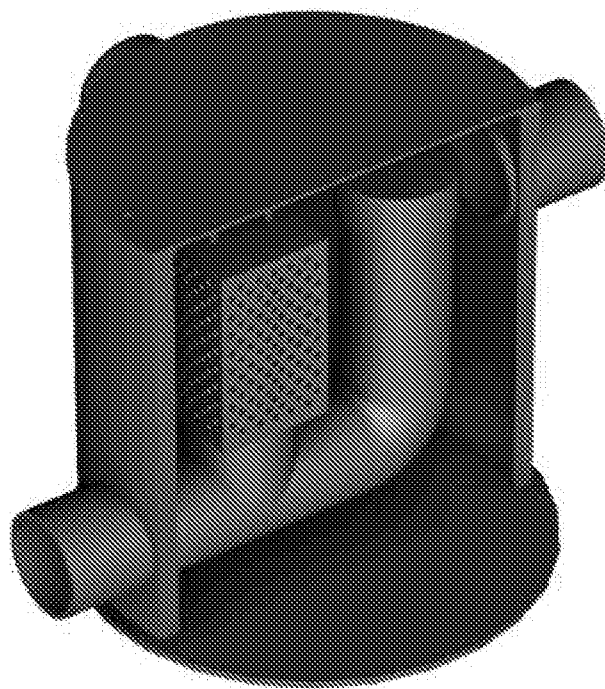
SUDS03001

Applications – permeable paving

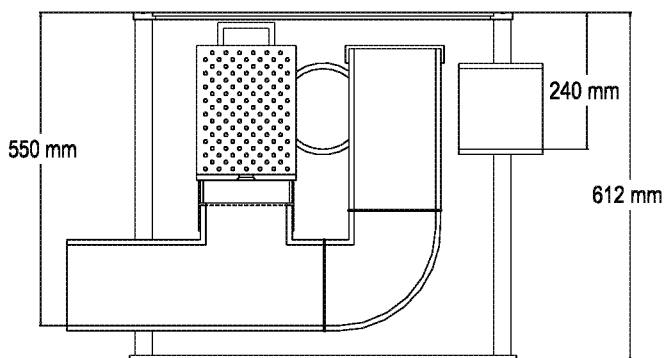
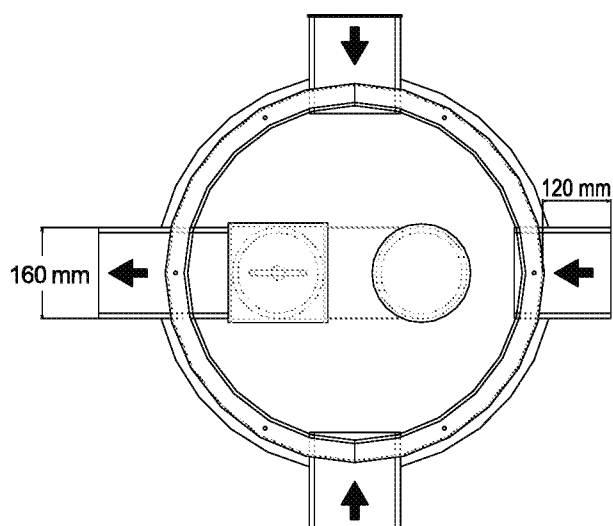
A larger diameter, standard flow control chamber with a single, guarded orifice (to specified diameter), designed to manage outflows from permeable paving or other open graded sub-base construction. Stepped inverts simplify the construction of transitions from shallow permeable paving to deeper constructions.

The protective guard and orifice cap are removable, and the rodding access upstand can act as an overflow with its cap removed. Three 160mm diameter inlet pipe connection stubs offer layout flexibility. Supplied with a temporary protective site cover (permanent cover and frame not included).

Bespoke flow control chambers can be manufactured to suit specific requirements.



Please specify:
• orifice diameter



Controflow

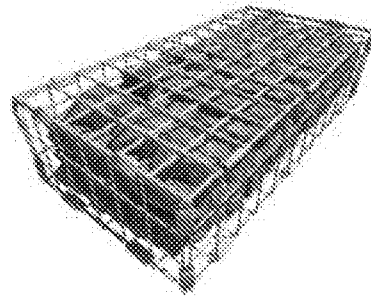
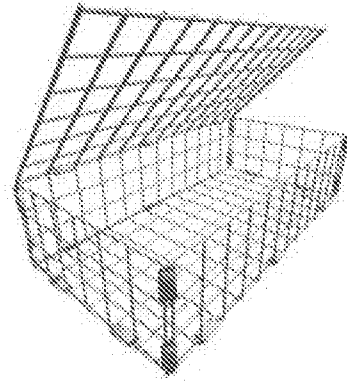
flow controls for all SuDS situations

Stainless Steel Erosion Control Basket 600x300x150mm

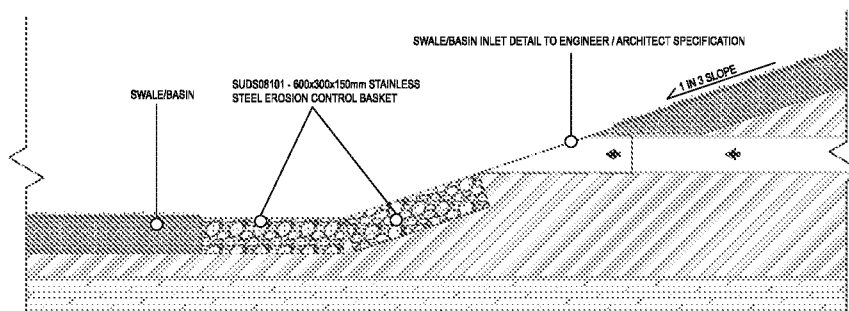
SUDS08101

A universal stainless steel mesh SuDS basket designed to be filled with 80mm - 150mm stone that prevents erosion of soil profiles where outfalls and low flow channels deliver water down slopes from SuDS features. The shallow basket (150mm deep) is laid dry directly onto subsoil with a geotextile surround to prevent erosion of the soil. The basket can be filled with soil to encourage vegetation cover. Each basket is supplied flat with crimp clips (fitted at 200mm centres) and a needle punched geotextile liner to prevent erosion.

- **Protects soil surfaces from outlets and low flow channels on slopes**
- **Anti-erosion surround to prevent soil erosion**
- **Cost effective and minimum maintenance**



Typical Application:



Controflow

flow controls for all SuDS situations

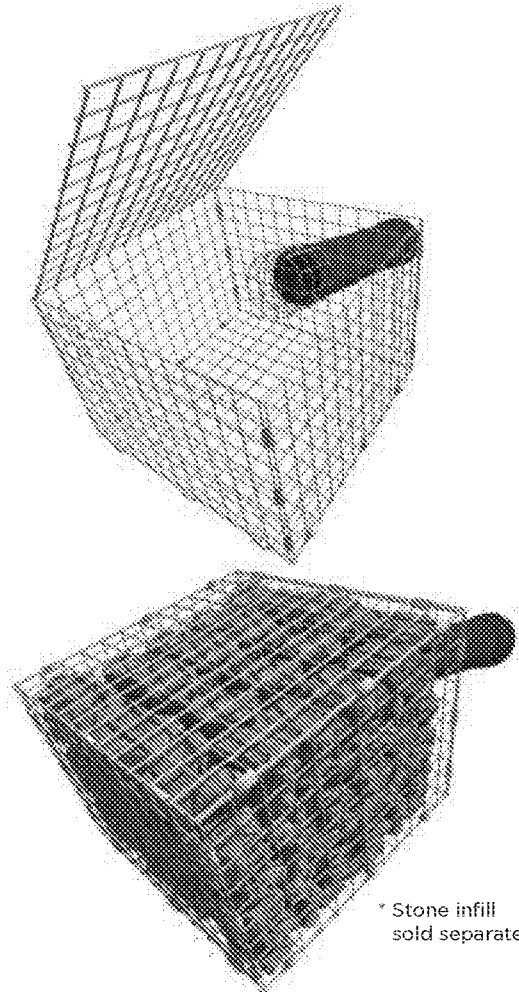
Stainless Steel Mesh Basket 600x600x450mm

SUDS08400

The 600x600x450mm Stainless Steel Mesh SuDS Basket is used as an attractive pipe inlet or outlet within landscaped SuDS features such as swales, ponds and basins. It diffuses inbound and outbound flows, conceals and protects the pipe. Each SuDS Basket is supplied assembled for simple ease of installation and filled with 80mm – 150mm stone*. The basket is supplied complete with a stainless steel mesh pipe guard (to specified pipe size) and a hinged lid for access during maintenance. The pipe exit location is flexible but should avoid the box hinge and can be determined on site depending on local requirements.

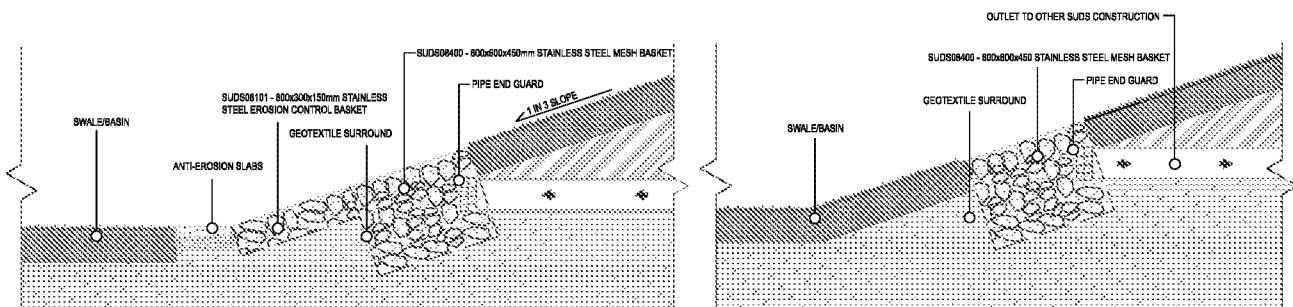
- Diffuse inbound or outbound flows for landscaped SuDS
- Attractive and low-maintenance
- Easy access for maintenance

Please specify:
+ pipe diameter



* Stone infill sold separately

Typical Applications:



Controflow

flow controls for all SuDS situations

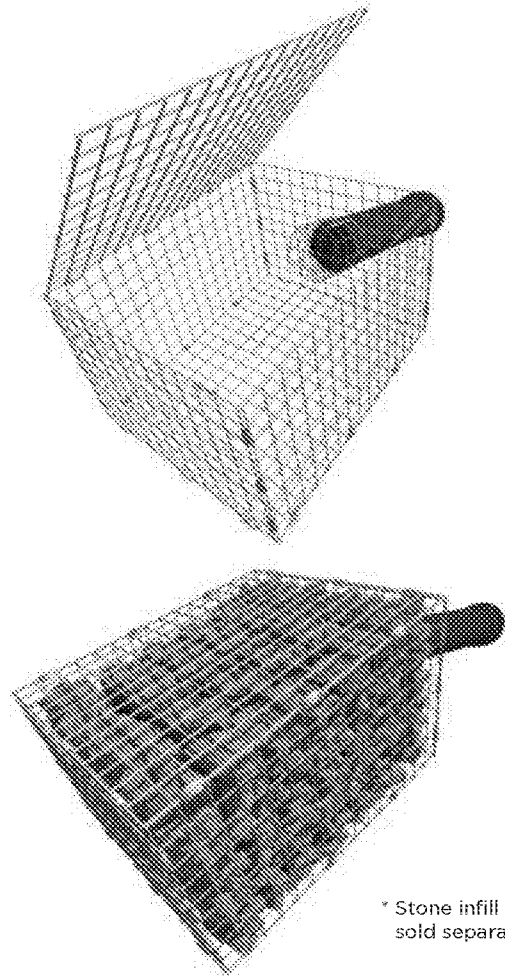
Stainless Steel Mesh Basket 750x600x450mm

SUDS08401

The 750x600x450mm Stainless Steel Mesh SuDS Basket is used as an attractive pipe inlet or outlet within landscaped SuDS features such as swales, ponds and basins. It diffuses inbound and outbound flows, conceals and protects the pipe. Each SuDS Basket is supplied assembled for simple ease of installation and filled with 80mm – 150mm stone*. The basket is supplied complete with a stainless steel mesh pipe guard (to specified pipe size) and a hinged lid for access during maintenance. The pipe exit location is flexible but should avoid the box hinge and can be determined on site depending on local requirements.

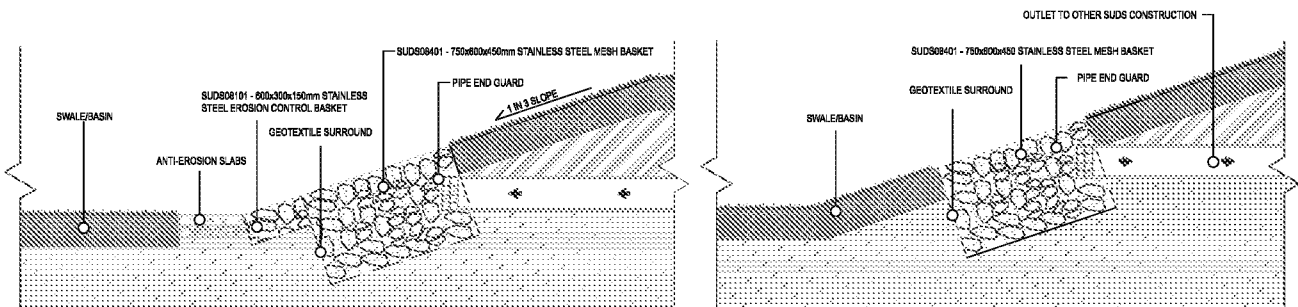
- Diffuse inbound or outbound flows for landscaped SuDS
- Attractive and low-maintenance
- Easy access for maintenance

Please specify:
+ pipe diameter



* Stone infill sold separately

Typical Applications:



Controflow

flow controls for all SuDS situations

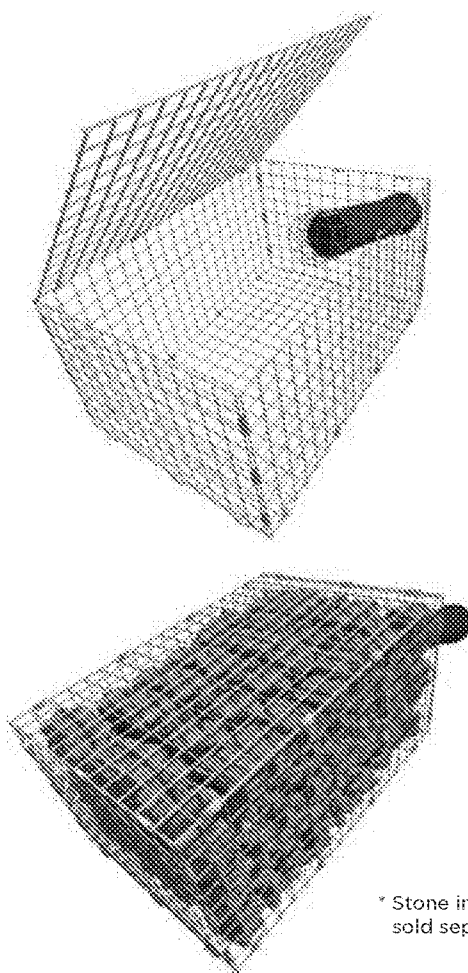
Stainless Steel Mesh Basket 900x600x450mm

SUDS08402

The 900x600x450mm Stainless Steel Mesh SuDS Basket is used as an attractive pipe inlet or outlet within landscaped SuDS features such as swales, ponds and basins. It diffuses inbound and outbound flows, conceals and protects the pipe. Each SuDS Basket is supplied assembled for simple ease of installation and filled with 80mm – 150mm stone*. The basket is supplied complete with a stainless steel mesh pipe guard (to specified pipe size) and a hinged lid for access during maintenance. The pipe exit location is flexible but should avoid the box hinge and can be determined on site depending on local requirements.

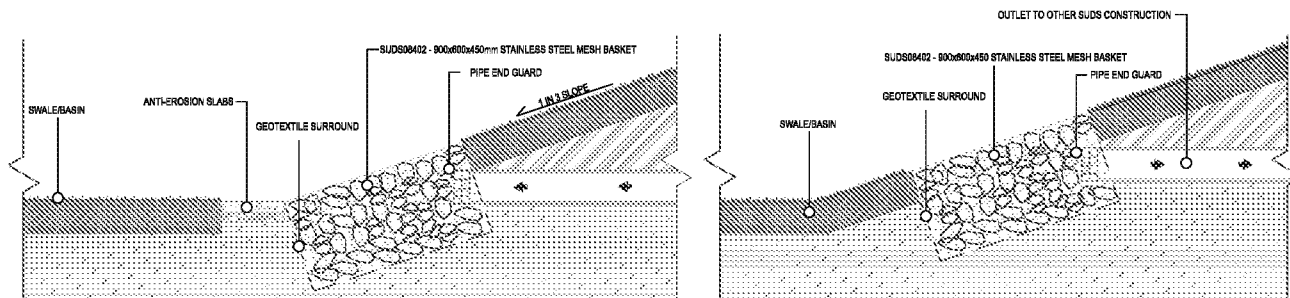
- Diffuse inbound or outbound flows for landscaped SuDS
- Attractive and low-maintenance
- Easy access for maintenance

Please specify:
+ pipe diameter



* Stone infill sold separately

Typical Applications:



Controflow

flow controls for all SuDS situations

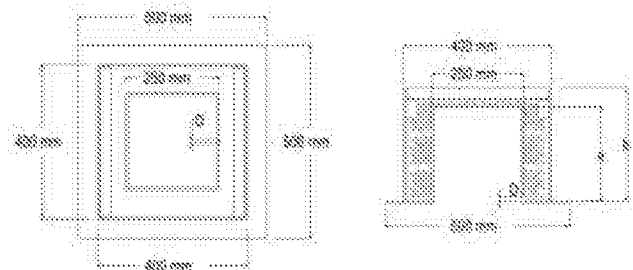
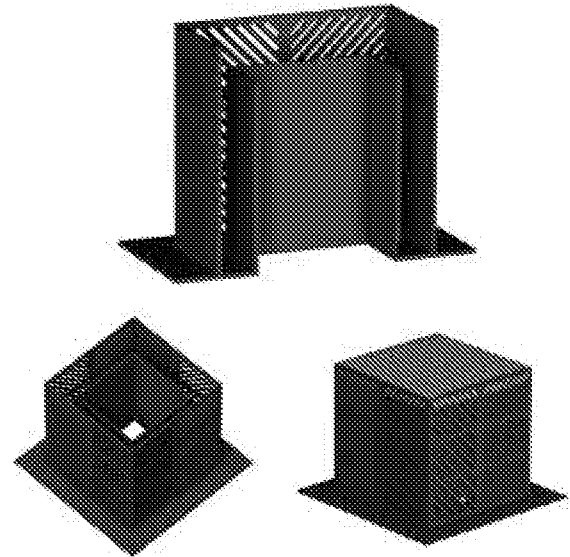
Controflow Vertical Roof Outlet Flow Control and Overflow Chamber

SUDS04001

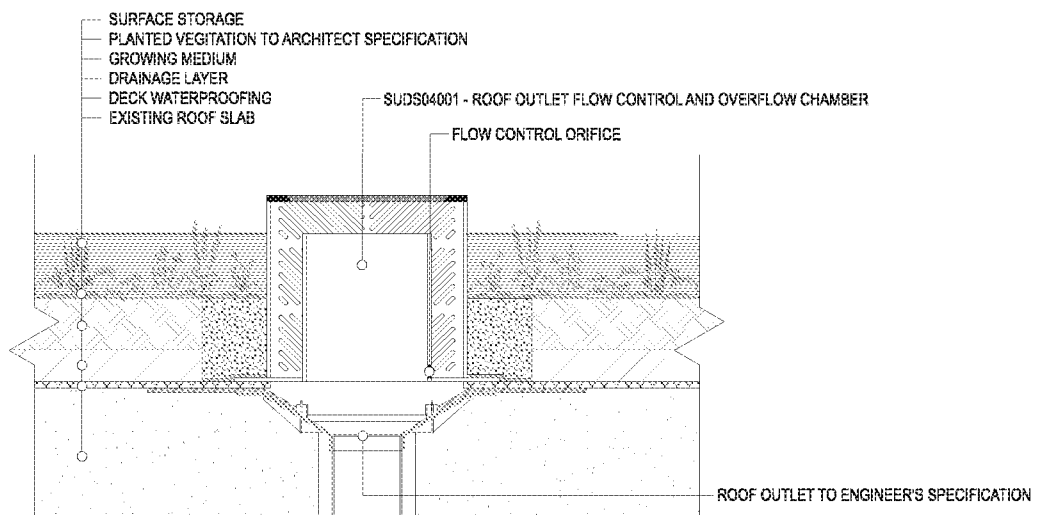
Applications – blue and green roofs

The Controflow Roof Outlet Overflow Flow Control Chamber is a universal combined flow control and overflow chamber for use on blue and green roofs. The roof outlet chamber can be easily installed, and is ideal for restricting flows from blue/green roofs, without interfering with existing roof outlets. Each chamber is designed to limit the flow through an orifice at the required discharge rate, and has an integral debris filter and an unrestricted overflow through a vertical outlet. Supplied complete with light duty cover. The control chamber should be located at the edge of the roof in the pebble perimeter strip to protect the inlet.

- **Integral debris filter**
- **Universal flow control outlet**
- **Combined flow control and overflow**



Typical Application:



Controflow

flow controls for all SuDS situations

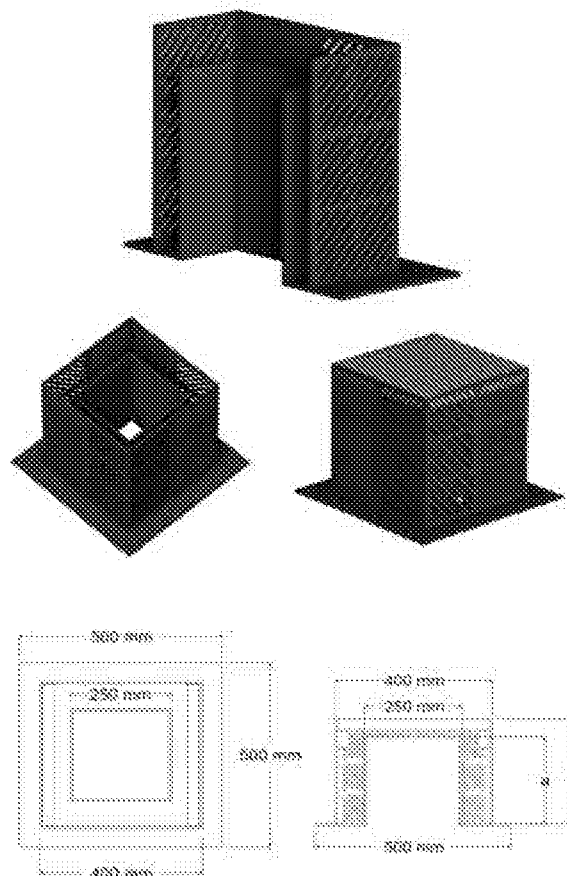
Controflow Vertical Roof Outlet Overflow Chamber

SUDS04101

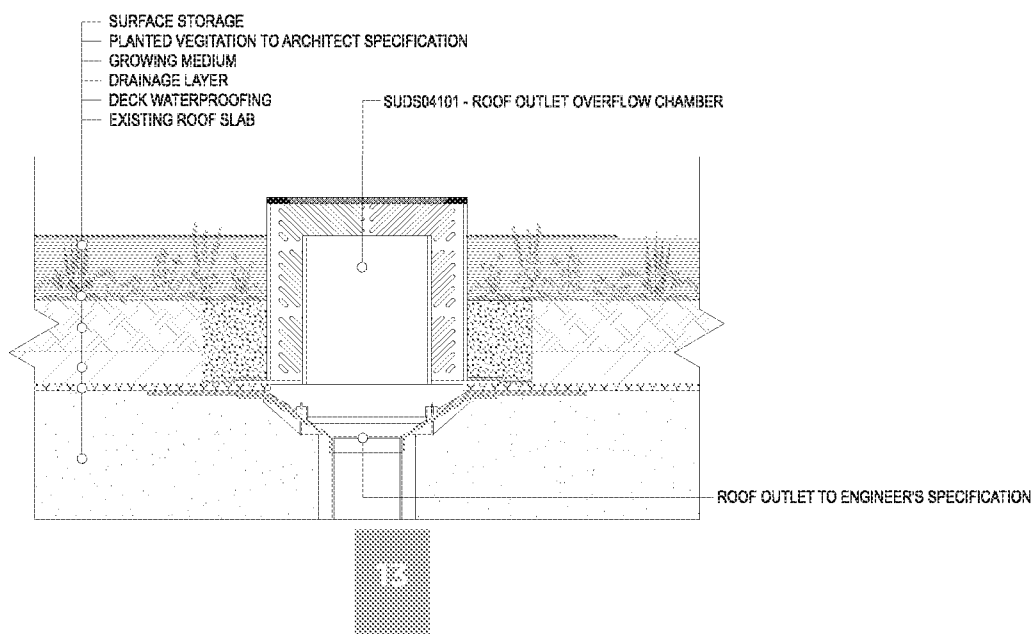
Applications – blue and green roofs

The Controflow Roof Outlet Overflow Control Chamber is a universal overflow chamber for use on blue and green roofs. The roof outlet chamber can be easily installed, and is ideal for ensuring water levels do not exceed the designed top water level on blue/green roofs, without interfering with existing roof outlets. Chambers are made to suit site requirements, allowing users to specify the height of the filter and overflow. Supplied complete with light duty cover. The control chamber should be located at the edge of the roof in the pebble perimeter strip to protect the inlet.

- **Easy to install**
- **Universal roof outlet overflow**



Typical Application:



Controflow

flow controls for all SuDS situations

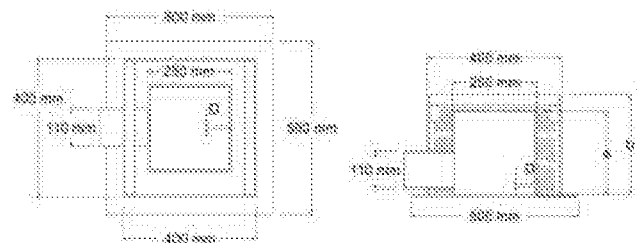
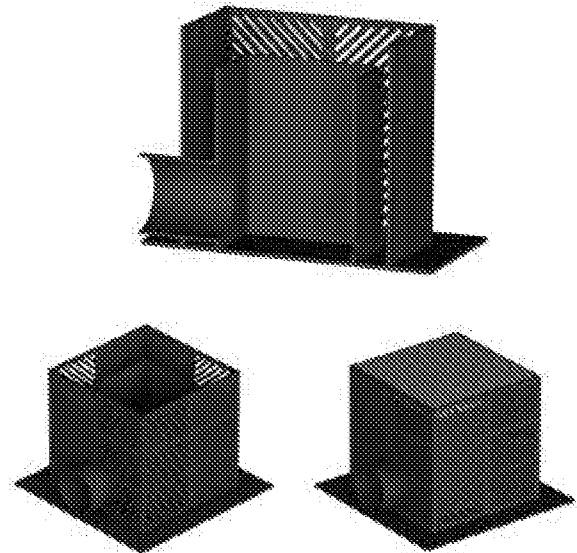
Controflow Parapet Wall Outlet Flow Control Chamber with Overflow

SUDS04201

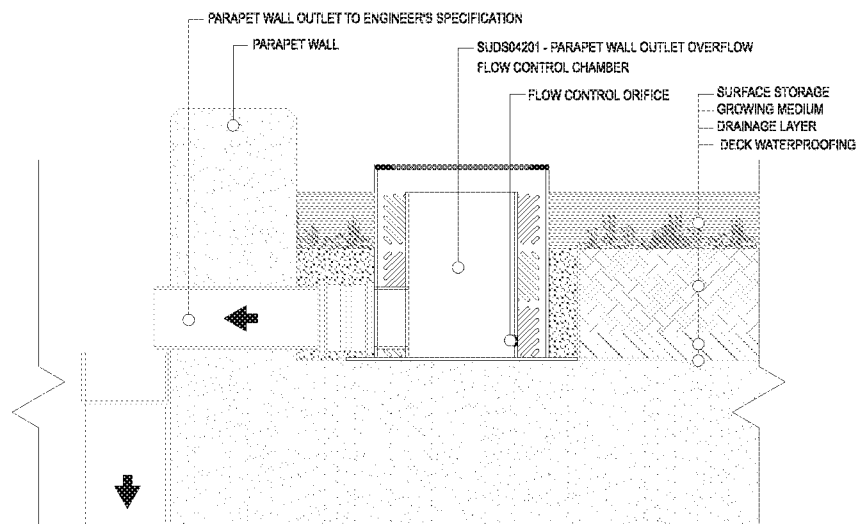
Applications – blue and green roofs

A flow control chamber, with a combined overflow, to suit green/blue roof constructions with parapet wall outlets. Designed to limit water flows through an orifice to the designed discharge rate. The SUDS04201 - Parapet Wall Outlet Flow Control Chamber with Overflow is supplied with an integral debris filter to protect the orifice, ensuring unhindered flow control performance. Supplied complete with light duty cover. The control chamber should be located at the edge of the roof in the pebble perimeter strip to protect the inlet.

- Universal parapet roof outlet
- Restricts flows to designed rates



Typical Application:



Controflow

flow controls for all SuDS situations

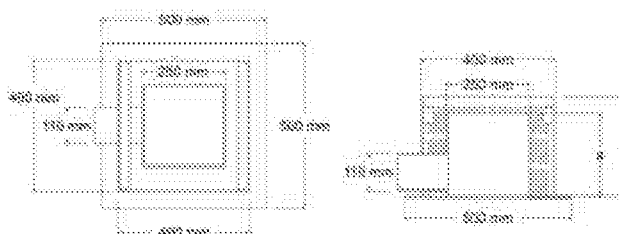
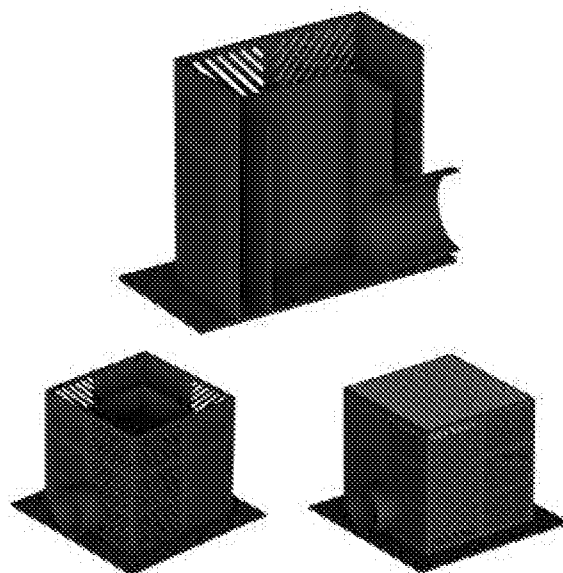
Controflow Parapet Wall Roof Outlet Overflow Chamber

SUDS04301

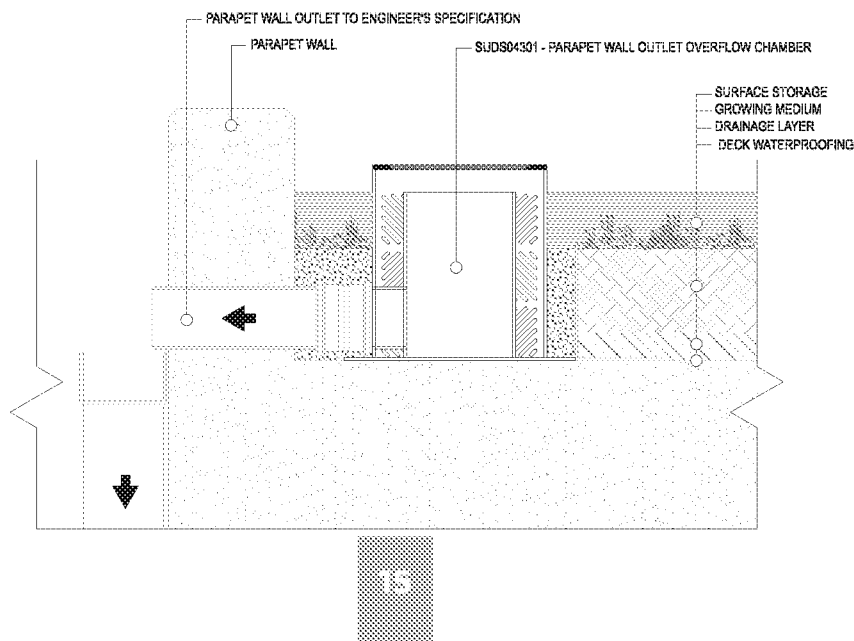
Applications – blue and green roofs

An overflow chamber to suit green/blue roof constructions with parapet wall outlets. Designed to allow water to flow unrestricted through the parapet wall, preventing green/blue roof constructions from exceeding the designed top water level. The chamber is supplied with an integral debris filter and a standard 110mm Ø push fit PVC-u coupling for connection to existing roof outlets. Supplied complete with light duty cover. The control chamber should be located at the edge of the roof in the pebble perimeter strip to protect the inlet.

- Universal parapet roof outlet
- Unrestricted overflow to existing outlet



Typical Application:

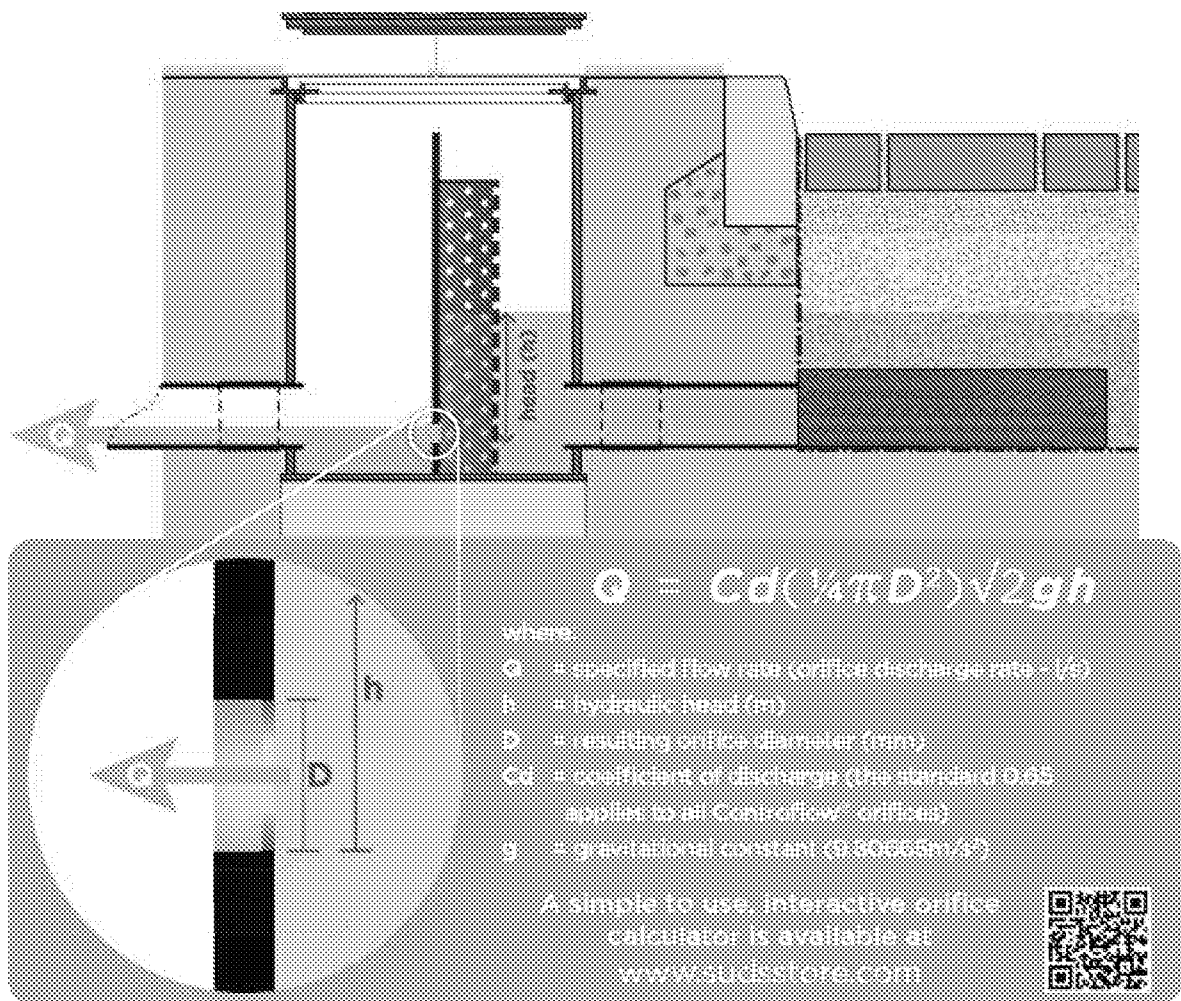


Controflow

Straightforward design and predictable performance

The Controflow® orifice design is based on well-established flow rate performance characteristics using the standard orifice equation shown below. The Controflow® orifice profile is recognised as delivering a standard 0.65 coefficient of discharge irrespective of orifice size.

The performance of Controflow® mimics the gradual response of natural drainage particularly during short duration or low intensity rainfall. Full flow characteristics operate once the storage depth provides the designed 'hydraulic head'.



$Q = Cd(\frac{1}{4}\pi D^2)\sqrt{2gh}$

where:

- Q = specified flow rate (orifice discharge rate - l/s)
- h = hydraulic head (m)
- D = resulting orifice diameter (mm)
- Cd = coefficient of discharge (the standard 0.65 applies to all Controflow® orifices)
- g = gravitational constant (9.80665m/s²)

A simple to use, interactive orifice calculator is available at www.sudsstore.com



Controflow

exclusively from

SuDS store