

BLU-SMART

System 180: Smart Stormwater Retention Roof Applications



SUSTAINABLU

ON STRUCTURE STORMWATER MANAGEMENT SYSTEMS

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BLU-SMART RETENTION/FLOW CONTROL SYSTEM OVERVIEW

Blu-Smart is not that different from other Stormwater BMP's; it's just Smart in numerous ways that other BMP's are not. Blu-Smart is an **Elevated Retention/Detention Pond** that is placed on structure. Functionally, it operates fairly similar to how a normal Retention/Detention pond operates. It all starts with precipitation occurring. That precipitation flows to the pond and the pond retains and/or slows down the stormwater entering sewer systems. The only difference is that Blu-Smart's pond is on an approved "waterproofing" surface that is designed to "retain" ponding water; think clay liner of a retention pond. Yes, there are certain requirements that make this possible, but Blu-Smart has figured that all out:

- Approved by numerous waterproofing manufacturers
- Constant monitoring leak detection satisfying the most scrutinous roof warranties
- Meets **ALL** Health and Safety Codes for ponding water

Blu-Smart optimizes stormwater management. This is especially so in urban and dense communities that lack space for the common retention/detention pond. Meeting **ALL** volume stormwater management requirements, out of the box, the system manages roof retention depths of 2", 4", 6", 8" (Custom heights available). In dense urban areas or where land is sparse, Blu-Smart provides the safest and most cost competitive means to manage volume stormwater.

- 38-64% less than underground cisterns
- 26-75% less than permeable/porous pavements where low infiltrating or clay soils exist
- 31-48% less than even **Sustainablu's** high stormwater retention green roofs

Blu-Smart's maintenance costs are also extraordinarily low. Although maintenance of Blu-Smart is required, it is a fraction of the cost of other BMP's. It is also money well spent. The roof of your building is an asset, if you think about it or not. It keeps your building dry and is supposed to for 20 years or more if you purchase a good roofing/waterproofing system. Maintain it and it will last even longer. Blu Smart's maintenance program is about as simple as it gets.

- Blu-Smart is self monitoring with a Dashboard showing real-time roof conditions
- Physical maintenance requirement is two visits a year by your roofing installer
- An easy to fill out checklist is submitted and this maintains warranty

Being so simple, the maintenance of Blu-Smart eclipses the maintenance of all other BMP's

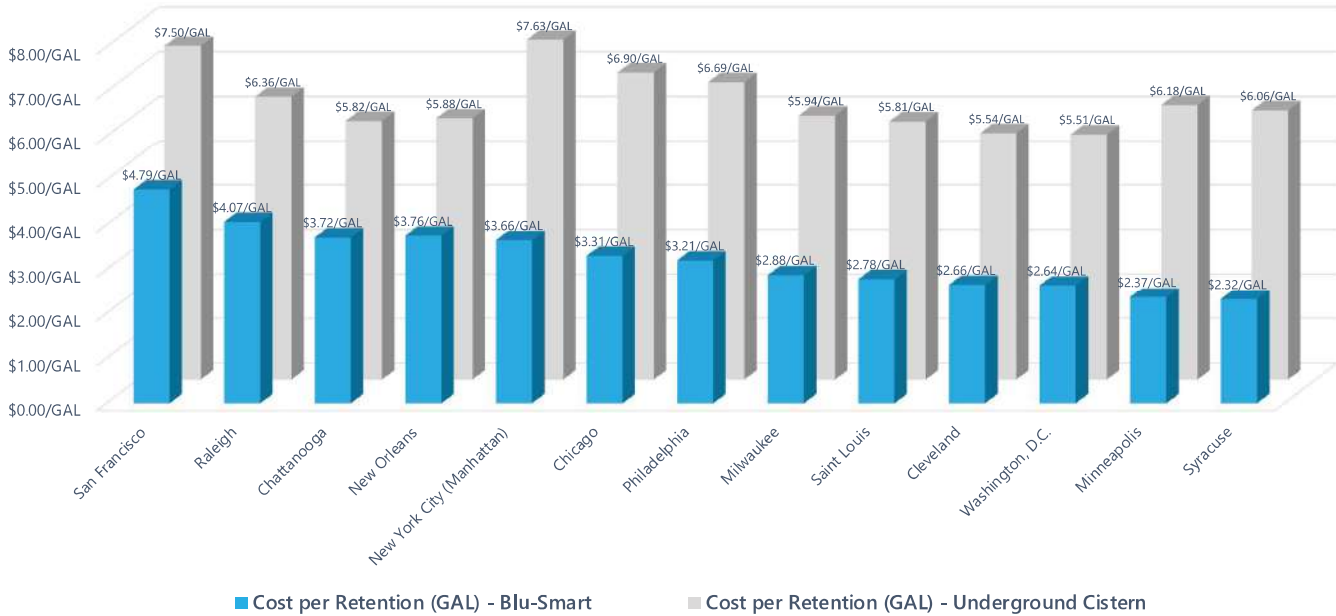
- 15-35% less than bioswales
- 10-60% less than permeable/porous paverments
- 55-68% less than green roofs

On the next page of this technical guide we provide further data and charts of the multiple benefits of Blu-Smart in comparison to other stormwater BMP's. Please read through the entire guide and learn more about Blu-Smart options, planning, installation and our warranty.

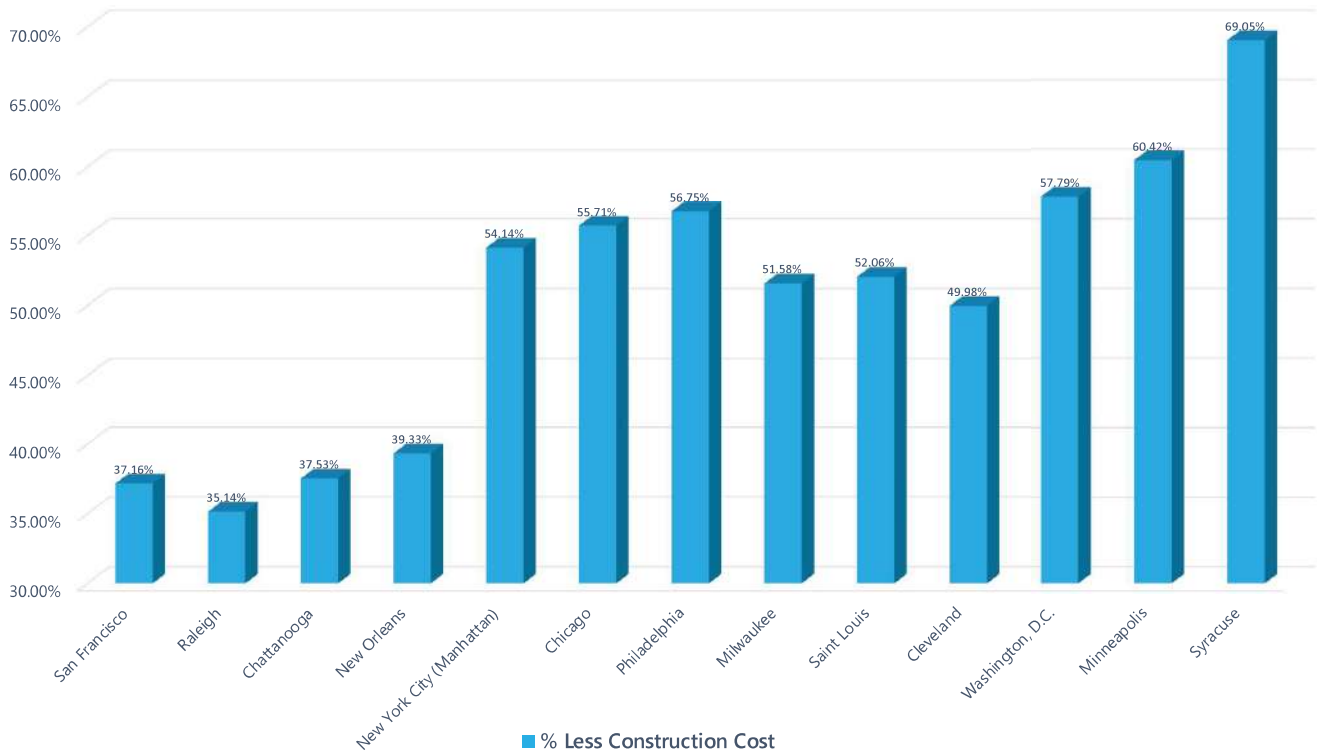
BLU-SMART COST-BENEFIT ANALYSIS

BLU-SMART VS. UNDERGROUND CISTERN CONSTRUCTION COSTS

BLU-SMART VS. UNDERGROUND CISTERN CONSTRUCTION COSTS - VARIOUS USA CITIES



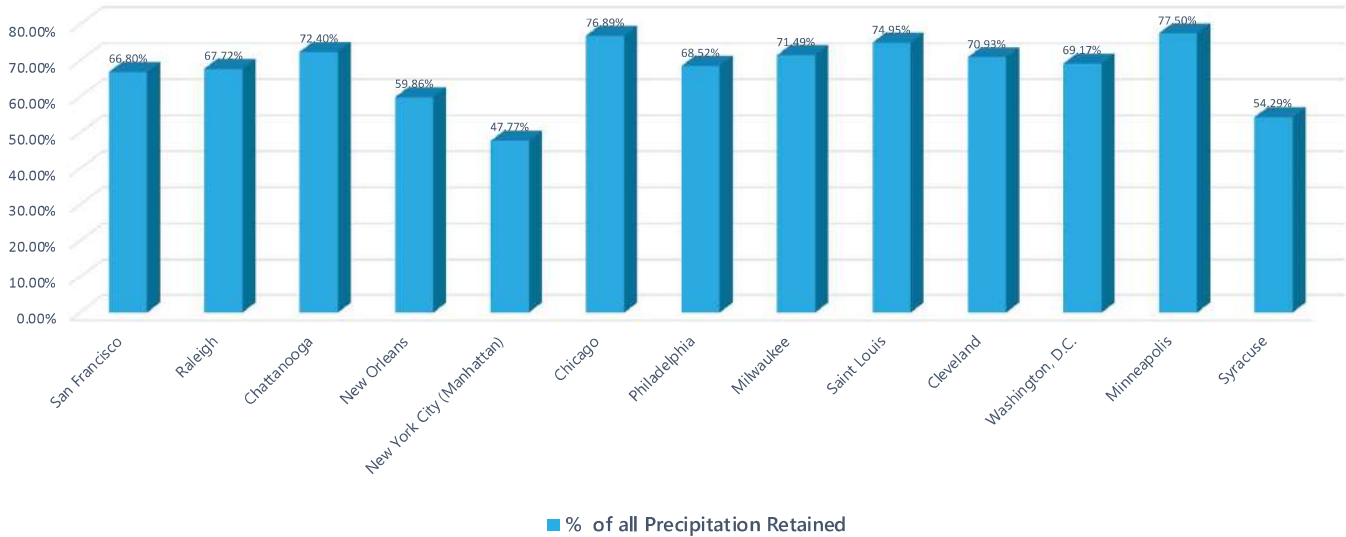
% LESS TOTAL CONSTRUCTION COSTS BLU-SMART VS. UNDERGROUND CISTERN - VARIOUS USA CITIES



BLU-SMART COST-BENEFIT ANALYSIS

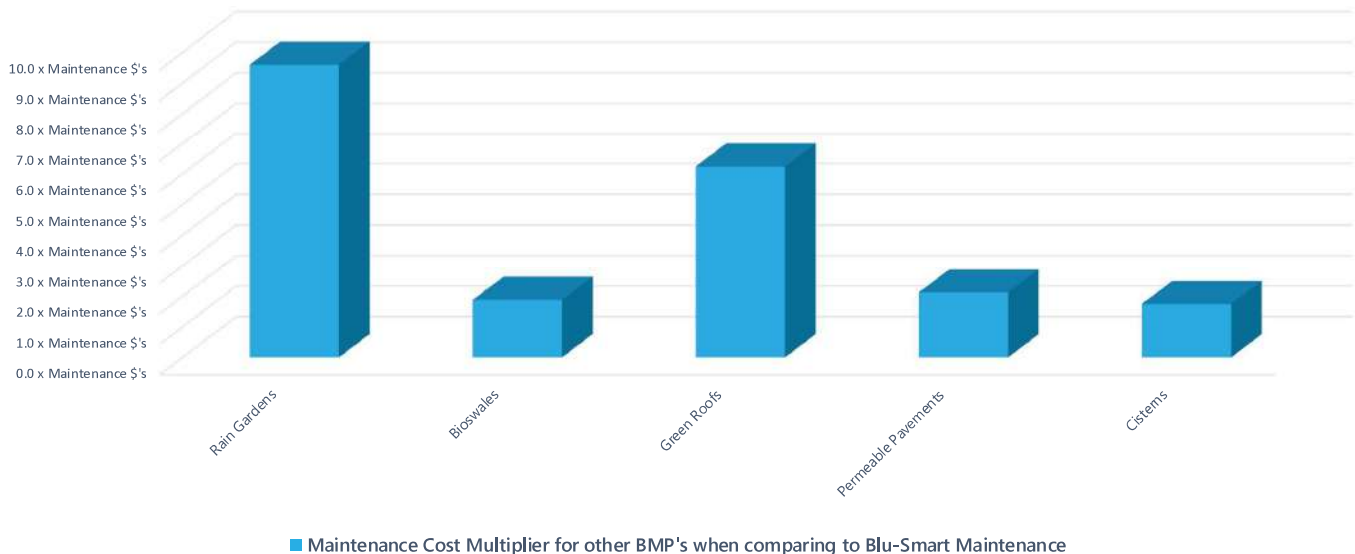
BLU-SMART PERCENTAGE OF TOTAL PRECIPITATION MANAGED

BLU-SMART % OF ALL PRECIPITATION MAINTAINED - VARIOUS USA CITIES



BLU-SMART VS. OTHER STORMWATER BMP'S MAINTENANCE COSTS

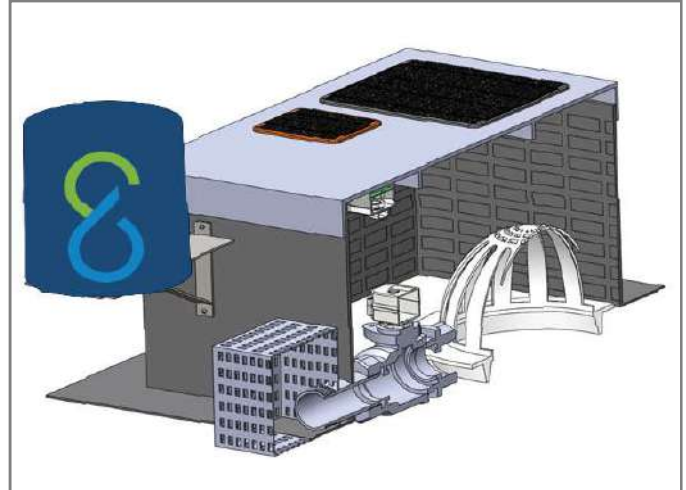
BLU-SMART VS. OTHER STORMWATER BMP'S - ONGOING MAINTENANCE



BLU-SMART - ALL CLIMATE MASTER VALVE

The Blu-Smart – All Climate Master Valve is the brain for Blu-Smart retention/flow control systems and may be used in all climates. From the All-Weather Master Valve, real time weather data and volume storage availability is transmitted to the main server. The data is deciphered to open and close valves and/or manage flow rate. The All-Climate system also offers a full array of atmospheric data that may be shared with commissioning agencies for compliance.

- Solar powered
- Wireless interface
- Measures and reports all atmospheric conditions
- Regulates stormwater volume detained and flow rate
- Integrated overflow integral to unit



• Special order product



• Per Unit



• Unlimited Satellite valves per control

TECHNICAL DATA

Materials:

- Stainless Steel and Aluminum

Power:

- DC (solar)

Unit Dimensions:

- 18" x 18" x 12" (26" x 26" x 12" with flanges)

Overflow heights available:

- 2", 4", 6", 8" (Custom heights available)

Valve Sizes Available:

- 2", 3", 4"

Operating Temperatures:

- To -20°F (-28°C)

Maximum Retention:

- Up to 12" (7.48 GAL/SF - 1 CF/SF)

Maximum Flow Rate:

- Programmable to local code requirements

Standard Kit:

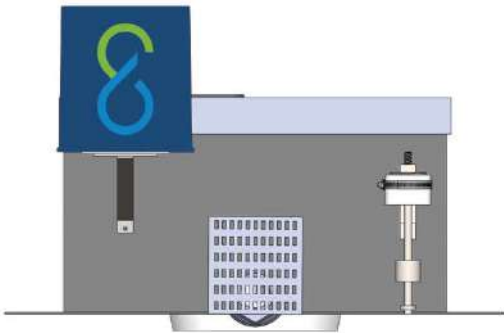
- Drain Box & Cover
- Main Control Box
- Automated Valve
- Liquid Level Sensor
- Atmospheric Controls

Additional Components & Accessories:

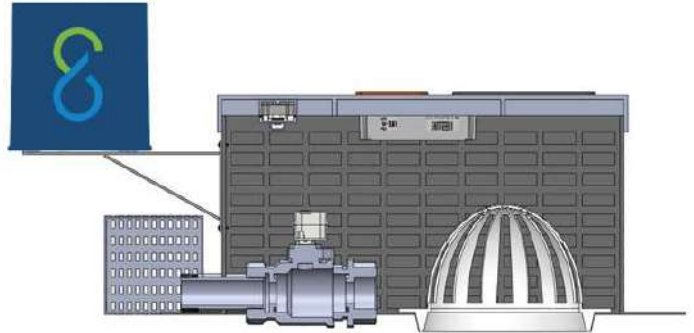
- Constant Monitoring Leak Detection
- Water Level Sensor Valve
- Satellite Valves
- Dashboard
- Mobile Device Application
- Building Operating System Integration

Product # **181-ACH**

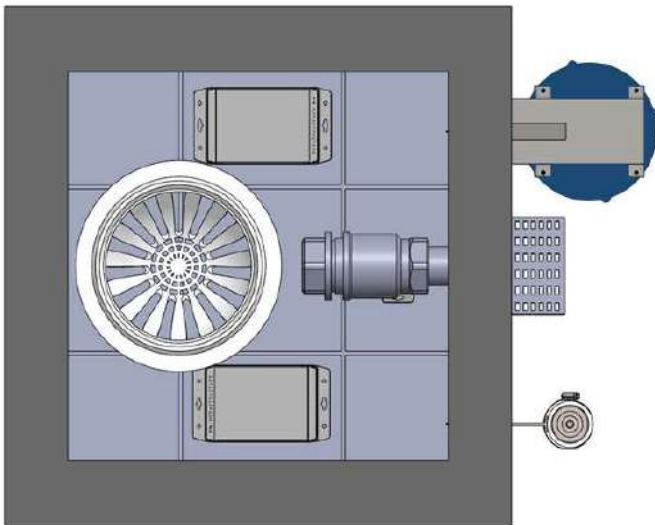
Front View



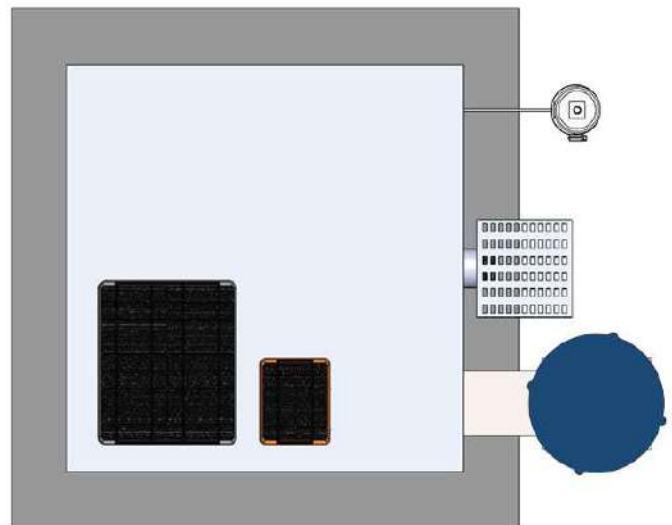
Side View



Bottom View

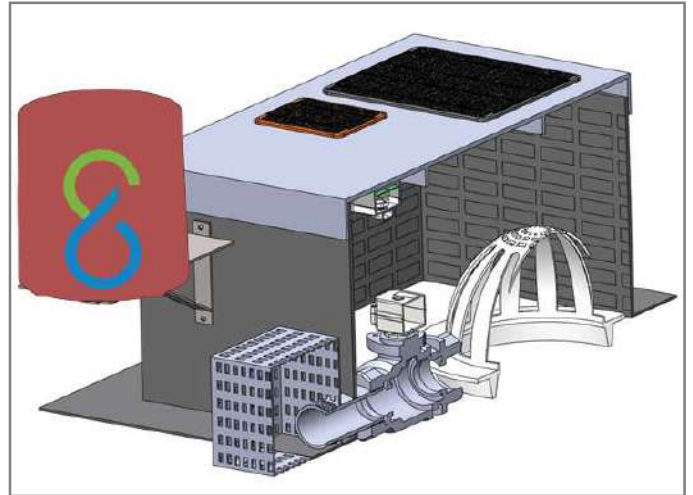


Top View



BLU-SMART - WARM WEATHER CLIMATE MASTER VALVE

Blu-Smart – Warm-Weather Climate Master Valve is the brain for Blu-Smart retention/flow control systems operating in climates. At the Warm-Weather Master Valve, real time weather data and volume storage availability is transmitted to the main server. The data is deciphered to open and close valves and/or manage flow rate. The Warm Weather system also offers a limited array of atmospheric data that may be shared with commissioning agencies for compliance.



- Solar powered
- Wireless interface
- Measures and reports precipitation and volumes managed
- Regulates stormwater volume retained and flow rate
- Integrated overflow integral to unit
- Operates to temperatures as low as 20°F (-7°C)



• Special order product



• Per Unit



• Unlimited Satellite valves per control

TECHNICAL DATA

Materials:

- Stainless Steel and Aluminum

Power:

- DC (solar)

Unit Dimensions:

- 18" x 18" x 12" (26" x 26" x 12" with flanges)

Overflow heights available:

- 2", 4", 6", 8" (Custom heights available)

Valve Sizes Available:

- 2", 3", 4"

Operating Temperatures:

- To 20°F (-7°C)

Maximum Retention:

- Up to 12" (7.48 GAL/SF - 1 CF/SF)

Maximum Flow Rate:

- Programmable to local code requirements

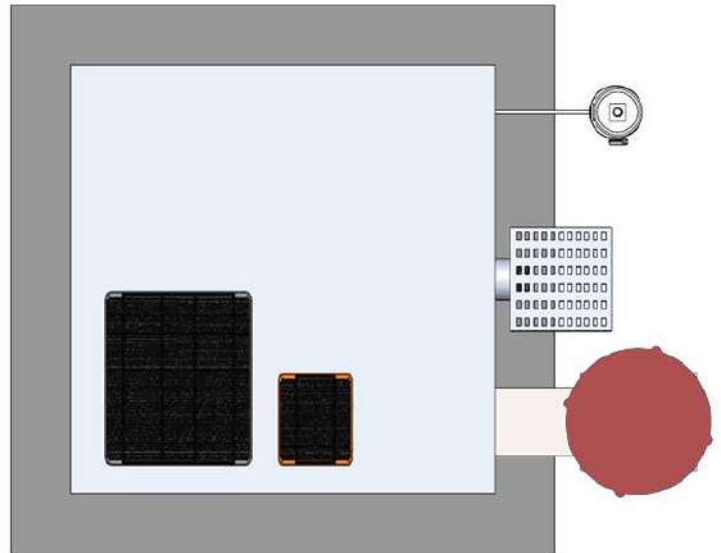
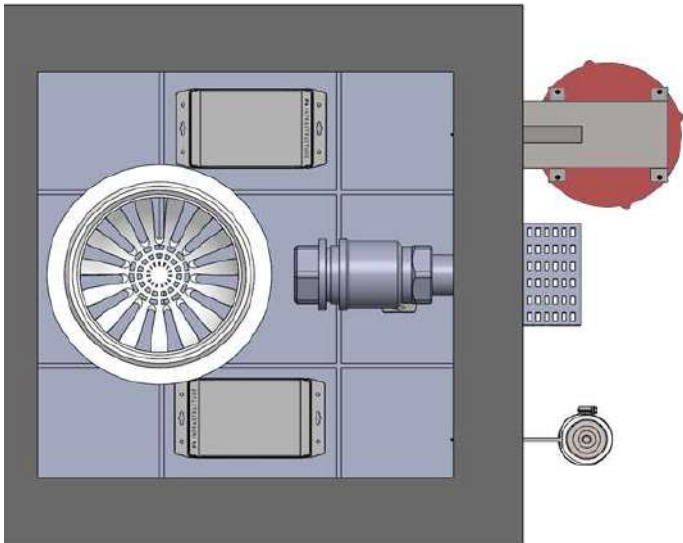
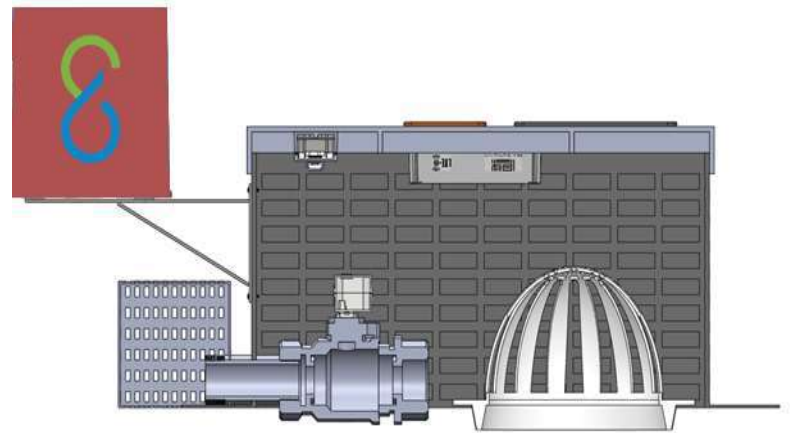
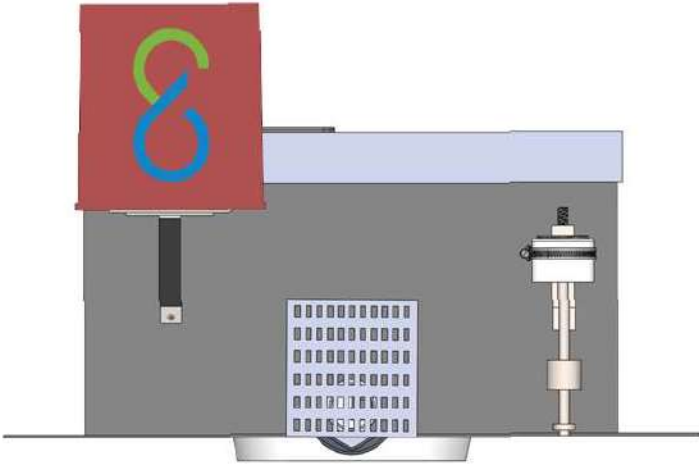
Standard Kit:

- Drain Box & Cover
- Main Control Box
- Automated Valve
- Liquid Level Sensor
- Atmospheric Controls

Additional Components & Accessories:

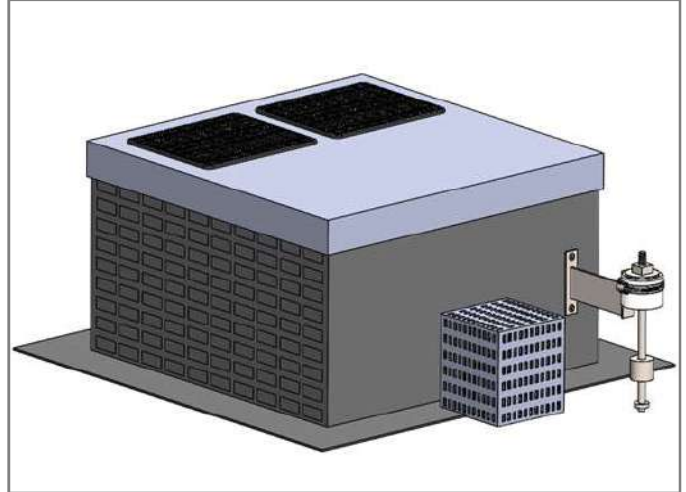
- Constant Monitoring Leak Detection
- Water Level Sensor Valve
- Satellite Valves
- Dashboard
- Mobile Device Application
- Building Operating System Integration

Product # **181-WCH**



BLU-SMART - WATER LEVEL SENSOR VALVE

The Blu-Smart – Water Level Sensor Valve is used in conjunction with the appropriate Master Valve when there are multiple roof levels being managed. The Blu-Smart Water Level Valve provides specific data to its roof's retention level that is transmitted to the server. This data is deciphered to open and close valves and/or manage flow rate specific to the conditions of each roof level surface integrated into a Blu-Smart Retention/Flow Control System. open and close valves and/or manage flow rate.



- Solar powered
- Wireless Interface
- Measures and reports all atmospheric conditions
- Regulates stormwater volume detained and flow rate
- Integrated overflow integral to unit
- Operates down to -20°F (-29°C)



• Special order product



• Per Unit



• Unlimited Satellite valves per control

TECHNICAL DATA

Materials:

- Stainless Steel and Aluminum

Power:

- DC (solar)

Unit Dimensions:

- 18" x 18" x 12" (26" x 26" x 12" with flanges)

Overflow heights available:

- 2", 4", 6", 8" (Custom heights available)

Valve Sizes Available:

- 2", 3", 4"

Operating Temperatures:

- To -20°F (-28°C)

Maximum Retention:

- Up to 12" (7.48 GAL/SF - 1 CF/SF)

Maximum Flow Rate:

- Programmable to local code requirements

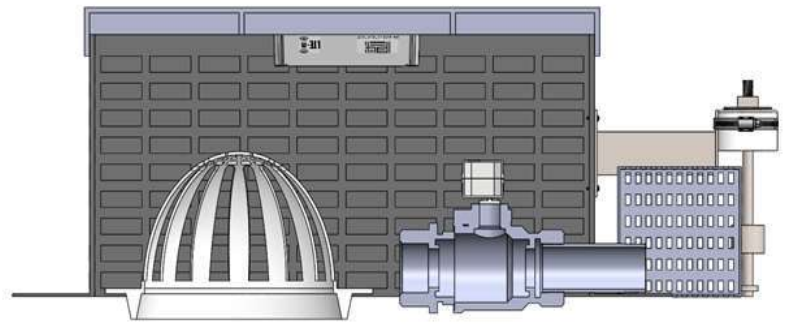
Standard Kit:

- Drain Box & Cover
- Main Control Box
- Automated Valve
- Liquid Level Sensor

Additional Components & Accessories:

- Constant Monitoring Leak Detection
- Master Valve
- Satellite Valves
- Dashboard
- Mobile Device Application
- Building Operating System Integration

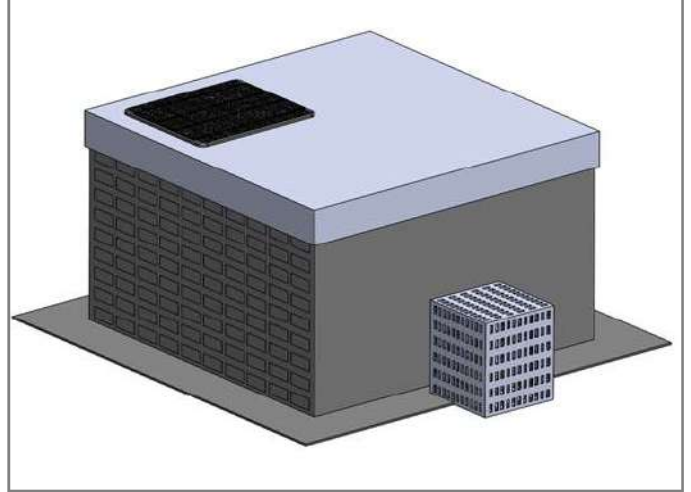
Product # 182-WLS



BLU-SMART - SATELLITE VALVE

Blu-Smart – Satellite Valves regulate the volume of stormwater retained and/or the management of flow rates from the roof surface(s). Satellite Valves are controlled by data accumulated from a Master Valve and/or a Water Level Sensor Valve (Multiple Roof Levels Only).

- Solar Powered
- Wireless interface
- Regulates stormwater volume detained and flow rate
- Integral overflow integral to unit



• Special order product



• Per Unit



• Device is dependant on Master and/or Water Level Sensor Valve

TECHNICAL DATA

Materials:

- Stainless Steel and Aluminum

Power:

- DC (solar)

Unit Dimensions:

- 18" x 18" x 12" (26" x 26" x 12" with flanges)

Overflow heights available:

- 2", 4", 6", 8" (Custom heights available)

Valve Sizes Available:

- 2", 3", 4"

Operating Temperatures:

- To -20°F (-28°C)

Maximum Retention:

- Up to 12" (7.48 GAL/SF - 1 CF/SF)

Maximum Flow Rate:

- Programmable to local code requirements

Standard Kit:

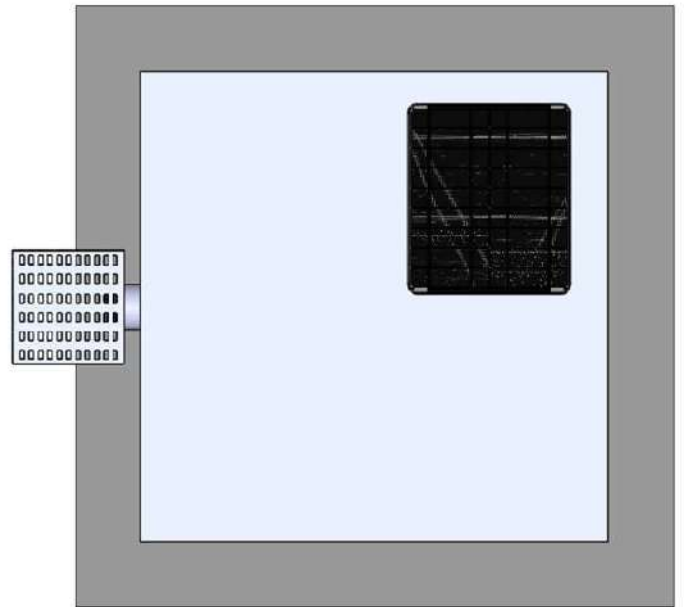
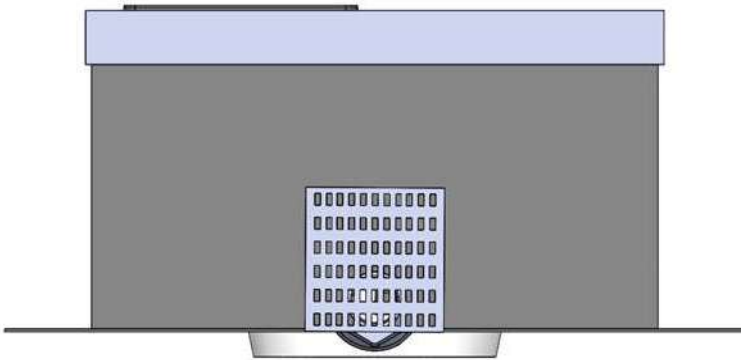
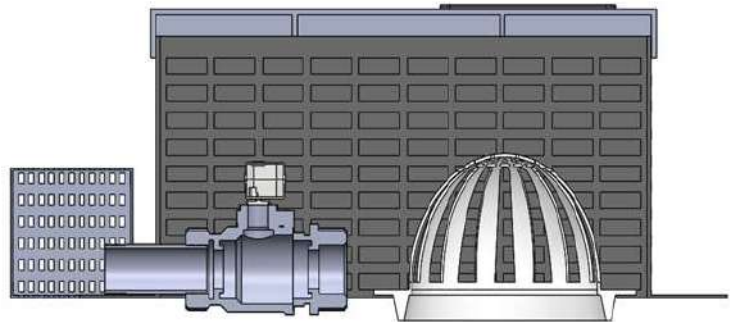
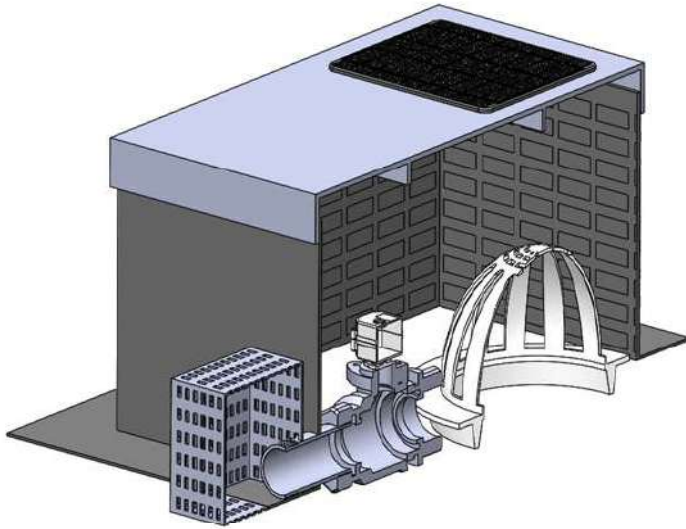
- Drain Box & Cover
- Main Control Box
- Automated Valve

Additional Components & Accessories:

- Constant Monitoring Leak Detection
- Master Valves
- Water Level Sensor Valve
- Remote Desktop Controls
- Mobile Device Application
- Building Operating System Integration

183-BVA

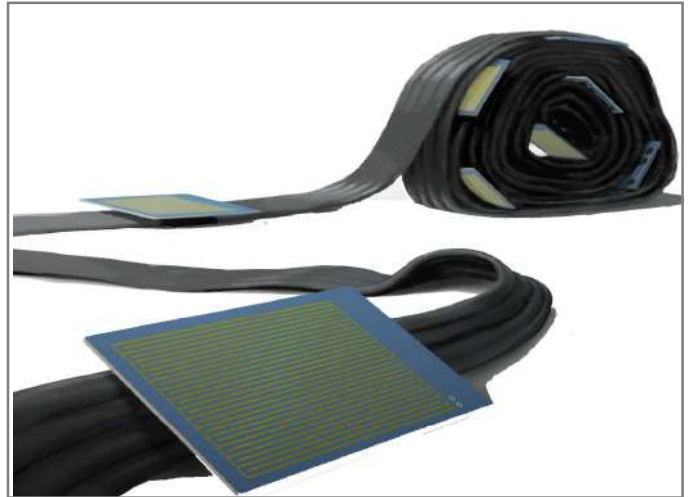
Product #



BLU-SMART - CONSTANT MONITORING LEAK DETECTION

Blu-Smart – Constant Monitoring Leak Detection constantly monitors the integrity of the water tightness of the roofing and/or waterproofing system. This product communicates directly to the Blu-Smart Dashboard on the water tightness of the roofing and/or waterproofing system. If there is ever a notification that a leak is occurring, the system server will open all Blu-Smart Valves to drain all retained water from the roofing/waterproofing surface.

- Detects leaks immediately
- Flushes Blu-Smart system at 1st sign of a leak
- Provides continuous monitoring
- 24/7 Cloud Based access to integrity data



• Special order product



• Per Unit



• Integrated into Blu-Smart Controls

TECHNICAL DATA

Materials:

- PVC Coated Wire & Titanium Dioxide Sensors

Length:

- 328 feet (100 meter)

Coverage per Length:

- Approximately 1,500 SF of Roof Area

Power Source Requirement:

- 100-240V, 50-60Hz AC

Wired Internet Connection (Leak Detection Only):

- 10/100/1000 Mbps LAN, such as a hub or a switch

Wireless Internet Connection (Complete Blu-Smart System):

- 802.11b/g-compliant device

Optimal Operating Temperature (in insulated condition):

- 68°F (20°C)

Operating Temperature (Min/Max):

- -40°F (-40°C) to 158°F (70°C)

Standard Kit:

- Sensor Cable
- Connection Cable
- Communication Unit
- Dashboard

Additional Components & Accessories:

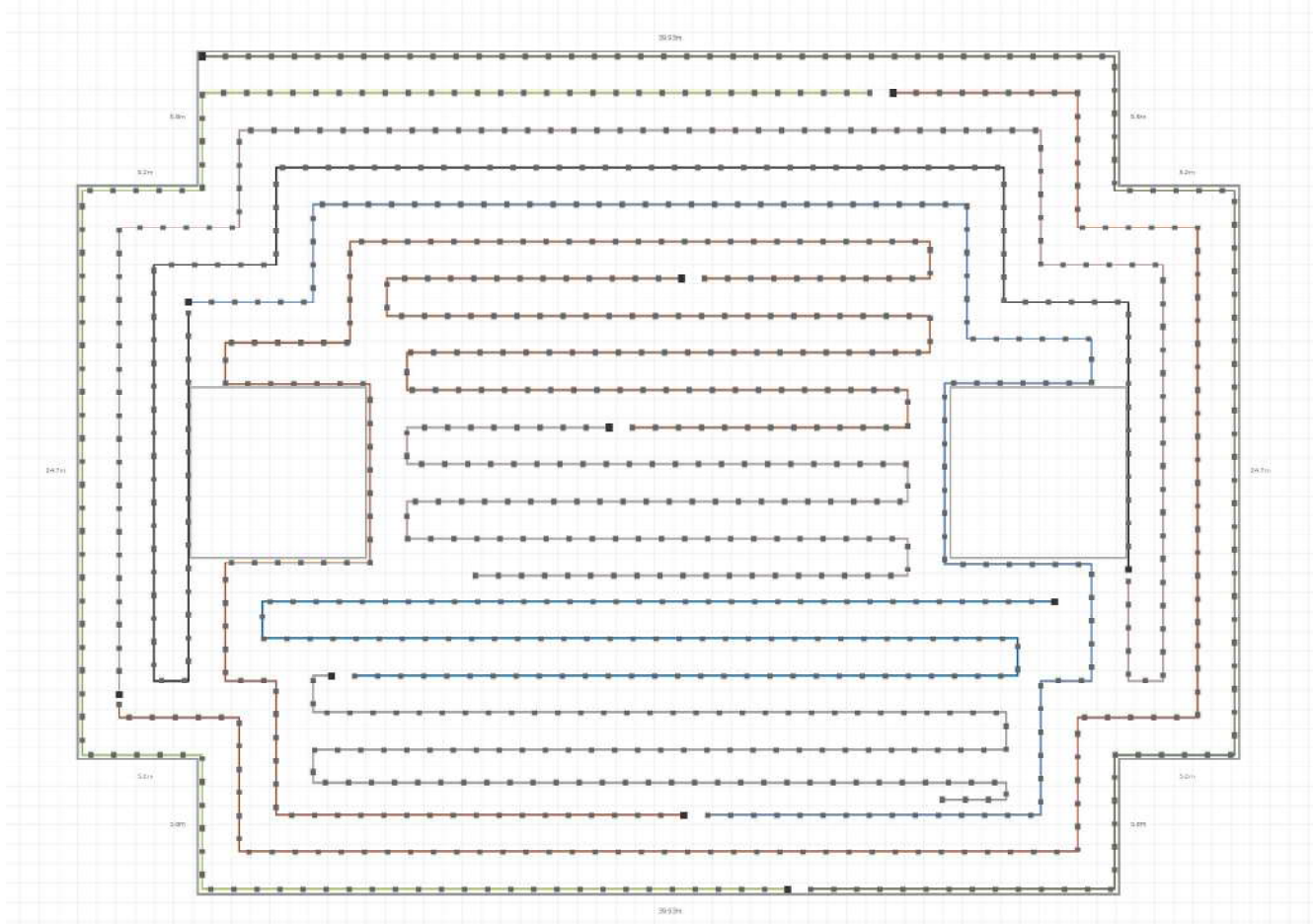
- Master Valve
- Water Level Sensor Valve
- Satellite Valves
- Mobile Device Application
- Building Operating System Integration

Product # 184-SMA

SHOP DRAWINGS

St. Patrick's Center, 800 Tucker Boulevard, St. Louis, MO 63101

Zone	Article #	Control Device #	Connection #	Activation Code
Zone 1	SC018_100	CU1	4	0ur80EfHWX
Zone 2	SC018_100	CU1	3	0ur80EfHWX
Zone 3	SC018_100	CU1	2	0ur80EfHWX
Zone 4	SC018_100	CU1	1	0ur80EfHWX
Zone 5	SC018_100	CU2	4	BqO5Otm5pQ
Zone 6	SC018_100	CU2	3	BqO5Otm5pQ
Zone 7	SC018_100	CU2	2	BqO5Otm5pQ
Zone 8	SC018_100	CU2	1	BqO5Otm5pQ
Zone 9	SC018_100	CU3	3	WqBGmBduL9
Zone 10	SC018_100	CU3	2	WqBGmBduL9
Zone 11	SC018_100	CU3	1	WqBGmBduL9



Refer to 184-SMA installation instructions and vapor barrier manufacturer's adhesion requirements

BLU-SMART - DASHBOARD

Blu-Smart – Dashboard provides historic and realtime data of the stormwater management efficiencies of the Blu-Smart System. Via a login and password encrypted website and an application that can be integrated into building management software, users are able to reap the full benefits of Blu-Smart. Whether you need to verify the total stormwater managed on your project to receive stormwater billing reductions, confirm to your stormwater utility or municipality that you are meeting your stormwater management requirements, sell stormwater credits or receive grant dollars for your project, our Dashboard provides all the verification you will need.

The Dashboard provides the data how you need it, when you need it. The Dashboard is available on three platforms: Web Browser, Mobile Application, and through integration with your building operating system. The Dashboard is easy to navigate and your layout is able to be designed to meet your specific needs. Full integration is available with our Constant Monitoring Leak Detection System that provides a single place that both manages and informs you on how the system is performing.

■ Real Time Monitoring

■ Historic Data

■ Downloadable

■ Customizable for the data you need

■ Building Operating Systems API integration available



• Special order product



• Per Unit



• Provides data for all Blu-Smart components

TECHNICAL DATA

Wired Internet Connection:

- 10/100/1000 Mbps

Wireless Internet Connection (Complete Blu-Smart System):

- 802.11b/g-compliant device

Dashboard Options:

- Web Based
- Application
- API Development for Building Operating Systems

Application User Consoles:

- HTML
- Android,
- iOS
- Symbian
- Tizen
- Windows phone OS

Conditions Tracked:

- Temperature (Optional)
- Humidity (Optional)
- Wind Speed (Optional)
- Barometric Pressure (Optional)
- Precipitation to date
- Storage Capacity
- Total Stormwater Managed
- Stormwater Managed Year-to-date
- Total Running % of Stormwater Managed
- % of Stormwater Managed Year-to-date
- Total Stormwater Released
- Stormwater Released Year-to-date
- Flow Rates at Release
- Releases during precipitation events
- Water tightness of waterproofing systems

185-SMD

Product #



Systems ▾ Products ▾ About ▾ News & Media ▾

800-333-5406

THE LAST HOTEL - SAINT LOUIS, MO

[GENERATE REPORT](#)

LATITUDE: 38°37'57"N
LONGITUDE: 90°12'01"W

SYSTEM CHARACTERISTICS

RETENTION AREA: 13,956 SF	PRECIPITATION/YEAR 375,224 GALLONS
AVERAGE RETENTION DEPTH : 3.43 INCHES	PROJECTED MANAGED PRECIPITATION/YEAR: 305,924 GALLONS
RETENTION VOLUME: 29,812 GALLONS	PROJECTED % MANAGED PRECIPITATION/YEAR: 82%
LEAK DETECTION: DRY	



CURRENT CONDITIONS

THURSDAY MAY 5, 2022, 18:15 CDT

TEMPERATURE

62.6°F

HUMIDITY

72.42%

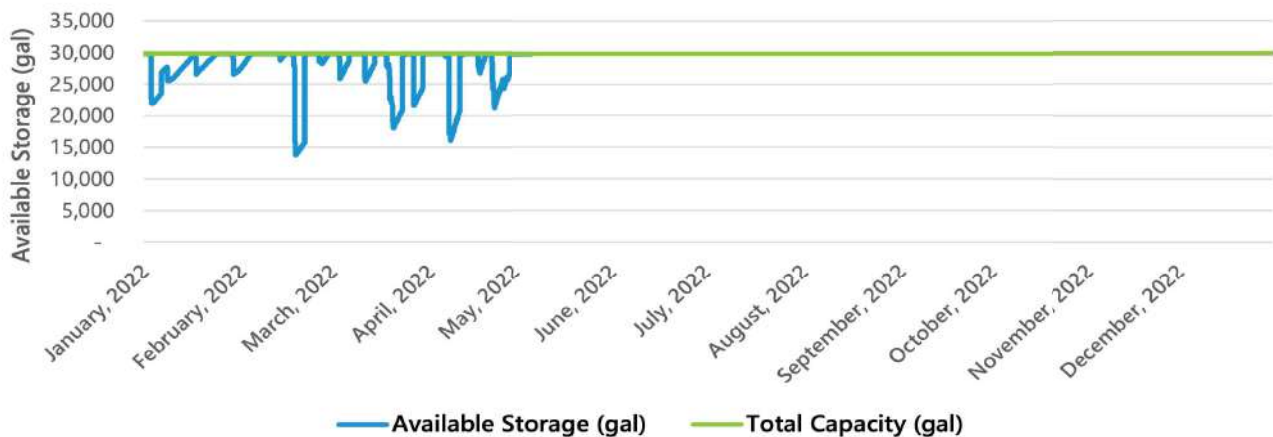
WIND SPEED

NW 8 Mph

PRESSURE

29.83 IN HG

Year 2022: Daily Available Storage to date



Precipitation to Date

124,944 Gallons

Managed to Date

89,815 Gallons

Released to Date

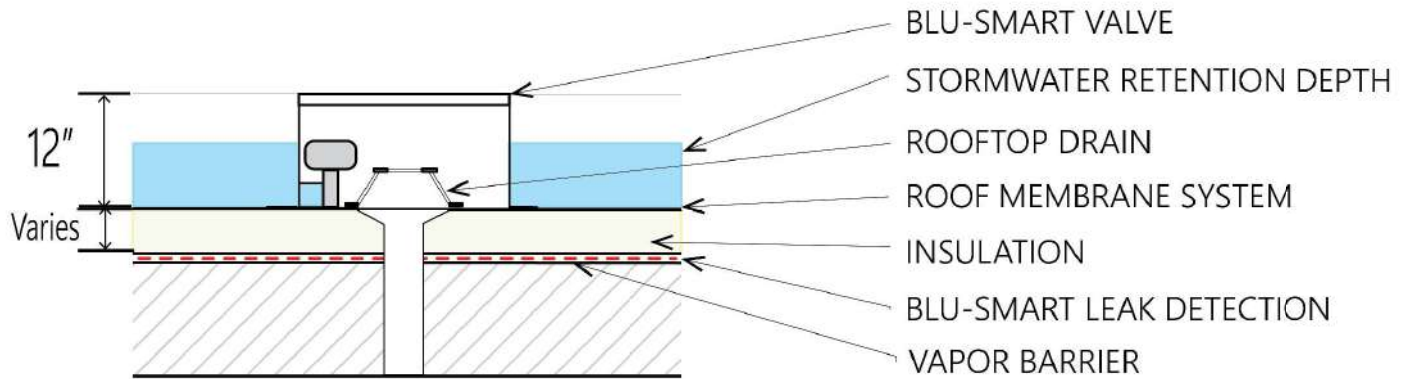
35,129 Gallons

% Managed to Date

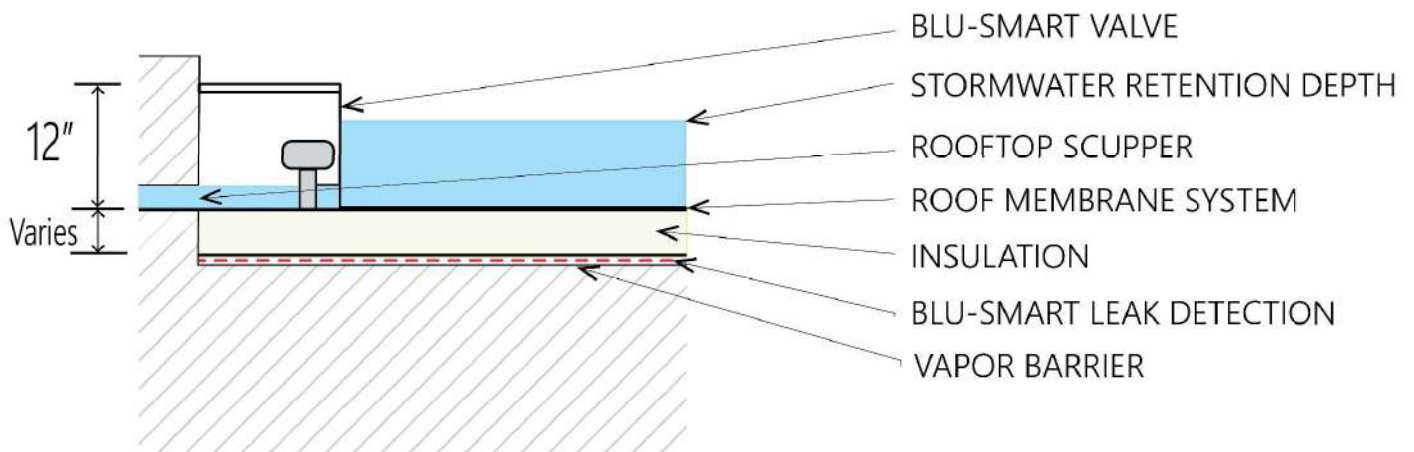
71.8%

BLU-SMART - ASSEMBLY STANDARD DETAILS

CONVENTIONAL ROOF BLU-SMART ROOF DRAIN ASSEMBLY

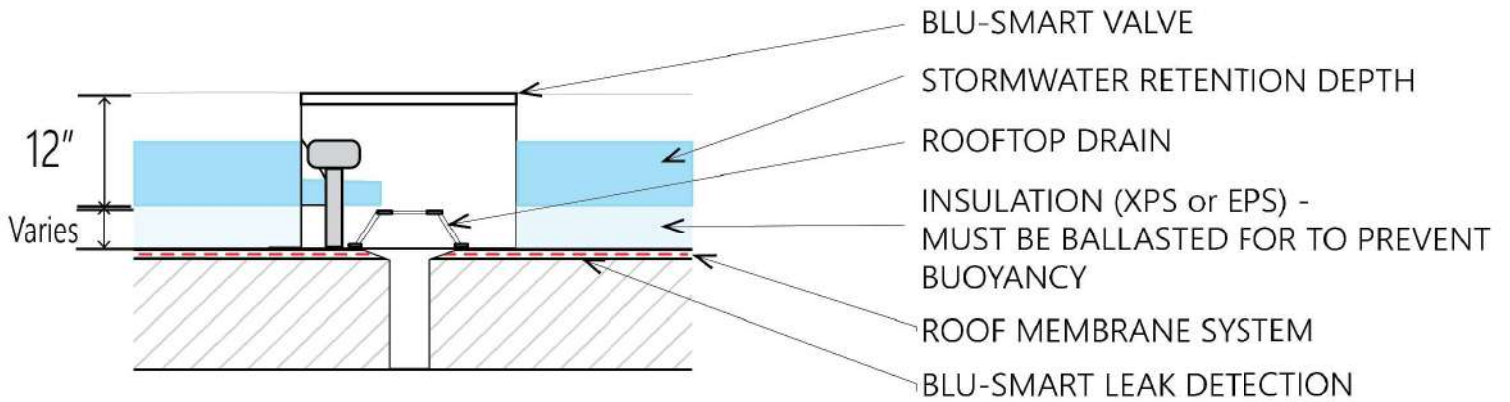


CONVENTIONAL ROOF BLU-SMART SCUPPER ASSEMBLY

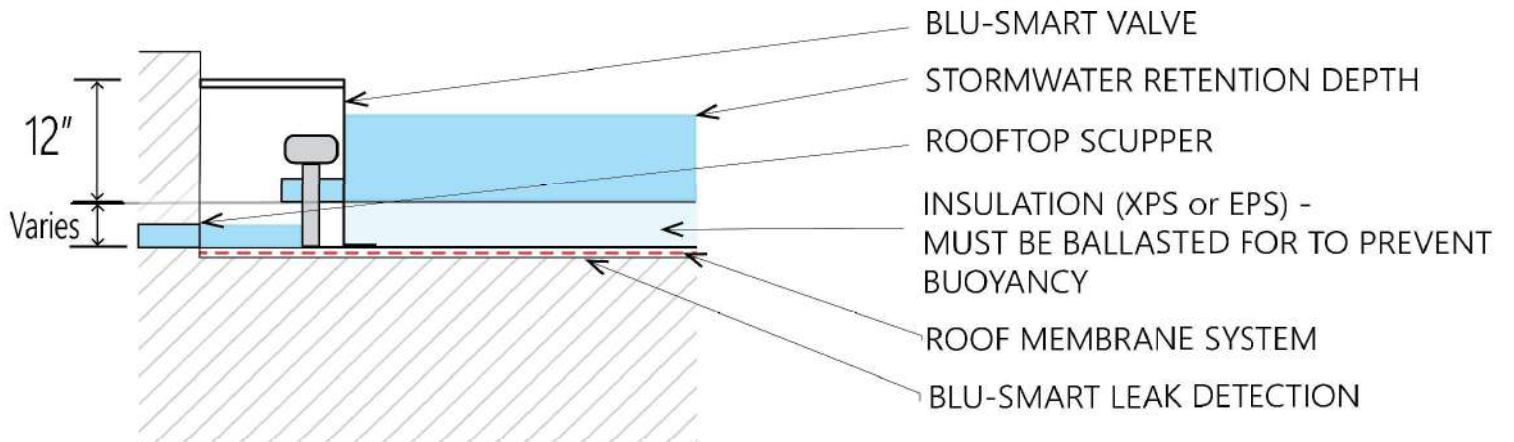


BLU-SMART - ASSEMBLY STANDARD DETAILS

INVERTED ROOF BLU-SMART ROOF DRAIN ASSEMBLY



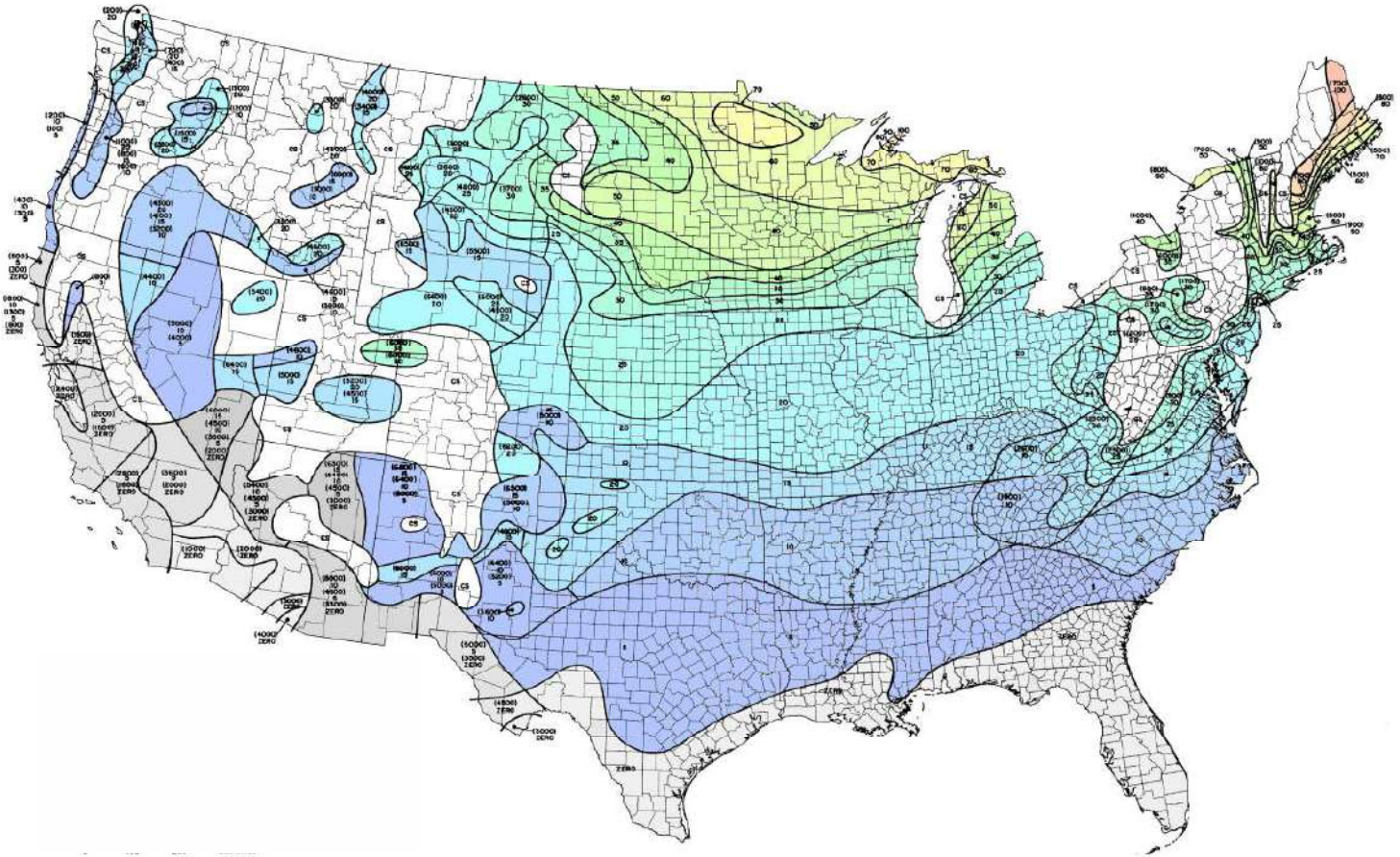
INVERTED ROOF BLU-SMART ROOF SCUPPER ASSEMBLY



BLU-SMART PLANNING GUIDELINES

1. Determine Structural Load Capacity (Dead Load + Snow Load):

United States Snow Load Design Calculation



2. Calculate the remaining availability of Dead Load (X) and add that to the applicable Snow Load, i.e. for Philadelphia, PA $X+30 \text{ PSF} = Y$
3. Multiply Y by a factor of safety of .85 and divide by 5.2 (The weight of 1" of water) or $(Y * .85)/5.2 = Z$
4. Determine the amount of stormwater in gallons that needs to be managed. A Civil or Environmental Engineer or Municipal Contact will be able to provide this information if it is not already available.
5. Contact Sustainablu, LLC at ve@sustainablu.us and provide a project address, a roof plan with section details, the value of "Z" in inches and the total amount of stormwater that needs to be managed.
6. Sustainablu, LLC will provide three (3) approved installers from our approved roofing/waterproofing manufacturers that will provide budget pricing for your project.
7. If pricing is approved, a downpayment on the product will be required. Once the downpayment is received, a tentative schedule will be provided and the project will then complete as quickly as possible.

BLU-SMART INSTALLATION GUIDELINES

1. If Blu-Smart Leak Detection is used, a Vapor Barrier is required. Install per manufacturer's requirements.

2" Master Valve with 4" overflow example



2. If Blu-Smart Constant Monitoring Leak Detection is used, install per Sustainablu's project specific shop drawings for the project. Please allow thirty (30) days for shop drawings prior to installation date.
3. If Blu-Smart Constant Monitoring Leak Detection is used, a minimum of R-20 insulation is required for a twenty (20) year warranty. If R-20 is not possible, contact Sustainablu, LLC for alternate warranty options.
4. Install waterproofing and/or roofing system as designated by Sustainablu Waterproofing and/or Roofing manufacturing partner.
5. Install Blu-Smart Systems per Shop Drawings and Sustainablu Waterproofing and/or Roofing Partners Requirements. Allow thirty (30) days for shop drawings prior to the installation of the Blu-Smart System.
6. Press activation buttons on the valve side of the Blu-Smart System. These buttons will activate all units.
7. Email ve@sustainablu.us when activated. A response e-mail will be provided to confirm receipt.
8. An email will be sent within five (5) business days to owner with instructions on how to set up their Dashboard (if Subscription is current).

BLU-SMART OPERATIONS & MAINTENANCE GUIDELINES

Blu-Smart System Definition and Standard Disclaimer:

SustainablU's Blu-Smart Systems manage stormwater on an approved roofing or waterproofing system. It optimizes roof storage for periods when the storm is at its most intense and when runoff is at its peak. Blu-Smart uses proprietary optimization algorithms to ensure storage is used at the most critical periods of a storm, thus providing exponentially more stormwater management capacity than passive collection system(s) of the same size.

For Blu-Smart to qualify for specified warranties, the system specifications and design must completely follow SustainablU's Smart-Blu design and installation criteria. Warranties from roofing/waterproofing manufacturers may additionally require inclusion of SustainablU's Blu-Alert Constant Monitoring Leak Detection System. Please check with specific SustainablU partner roofing/waterproofing companies for warranty requirements. There are no exceptions to this disclaimer.

Blu-Smart Operations:

Blu-Smart automatically opens and closes roof drains and scuppers as directed by a remote server through cellular communications. Each roof requires a master valve, which resides as the hub of the Blu-Smart System and directs in parallel all other Blu-Smart units. The server directs the following steps:

- Every 10-minutes, analyzes the weather environment of the roof and Blu-Smart conditions.
- During precipitation, the system is instructed to collect water at the calculated, optimized time.
- The system remains in the collection state until instructed to release the collected water and will not release water while precipitation is occurring.
- Per project design requirements, the system provides continual updates, through web interface, status of all Blu-Smart drains and scuppers.
- Server continuously collects and tabulates all environmental data, including the percentage of total precipitation managed and total volume managed.
- When Blu-Smart Constant Monitoring Leak Detection is required, it communicates with the Blu-Smart Server on the leak-free status of the roofing and/or waterproofing systems. If there is ever a sign of a leak, the system will automatically open the Blu-Smart valves, document and notify owner of issue. The Blu-Smart System will not operate until leak is repaired.

Blu-Smart Maintenance:

Although maintenance is minimal as the Blu-Smart self-monitors, it is required to have ongoing maintenance throughout the lifetime of any roofing/waterproofing warranty; including but not limited to roofing/waterproofing, Blu-Smart components and accessories.

Bi-annual physical observations in the Spring, within 30 days after last freeze and in the fall 30 days after first freeze are required. It is recommended that ownership budget accordingly for maintenance and maintenance inspections during project planning stages and identify a contact responsible for that maintenance. Owners are responsible for having adequately trained personnel, either internal or external to maintain Blu-Smart System.

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Registered Contact:

A registered contact, as designated by the Owner, shall be in place during the warranty period. This person is responsible for all access to the Blu-Smart System. The Registered Contact shall oversee all maintenance and inspection personnel that have access to the warranted roofing/waterproofing system.

The Registered Contact is also responsible for any personnel, unrelated to Blu-Smart Maintenance that could negatively impact any parts of the roofing and/or waterproofing system. Personnel unrelated to the Blu-Smart System shall understand how their work could impact roofing and/or waterproofing system(s), leak detection system(s) and/or smart valve components and accessories. Such activities may include, but are not limited to, maintenance to rooftop equipment, swing stages, use of any cleaning agents or other chemicals, etc.

No personnel shall access the roof unless they sign-off and check in with Registered Contact. Prior to access to the roof, all personnel that access the roof must note in writing, with the date and time that they are accessing the roof and their purpose. The Registered Contact is responsible for keeping this log of activities.

Maintenance Inspections:

BELOW IS THE NECESSARY DOCUMENTATION THAT WILL NEED TO BE SUBMITTED TO SUSTAINABLU, LLC ON AN BI-ANNUAL BASIS TO ENSURE THAT YOUR WARRANTY REMAINS VALID.

Full inspections should be conducted twice (2) times each year, in the Spring and the Autumn and never more than two-hundred ten (210) days between inspections, unless last freeze and first freeze extraordinarily deviate from norm. Additionally, intermittent inspections after high wind, 100-year precipitation days and/or damage from acts of God occur.

Make note that additional inspections may be required if the roof is not meeting project requirements or if monitoring detects issues. Additional inspections shall be at the sole discretion of Sustainablu, LLC. Written reports of prior inspections should be reviewed prior to each subsequent inspection.

Information to be included on all Blu-Smart maintenance/inspection reports (Inspection templates may be downloaded from www.sustainablu.us/inspection-reports):

- 1.. Date of inspection:
2. Project name, address and Registerd Contact Name (or 3rd party inspector)
3. Type and quantity of Blu-Smart systems:
 - a. Master, Water Level and/or Sattelite Valve and if the the units are for a drain or a scupper
4. Site conditions during inspection:
 - a. Cloud conditions, i.e. Sunny, Partly Cloudy, Mostly Cloudy, Cloudy
 - b. Is there water on roof and amount, or not.
5. Have action items from last inspection been addressed (If applicable)?

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Inspection item checklist for Blu-Smart Maintenance reports:

- Is there any visible damage or clogging of Blu-Smart Valves and/or adjacent drain or scupper outlets?
- Is there any visible damage to roof, inc. but not limited to stretching, holes, punctures, blisters, etc?
- Is there any damage to any chimneys, vents, skylights, fascia, drip edges, and decking?
- Is there an accumulation of excess debris and dirt?
- Is there color fade or chalking?
- Are there signs of mold, mildew & rot on interior roofing components, such as rafters and trusses?
- Is there excessive movement of expansion joints?
- Are there signs of water damage on interior walls?
- Is there a sign of moisture on the ceiling below the roof area?
- Are there signs of leakage on the exterior walls?
- Is there deterioration of roof edges?
- Is there discoloration of lap joints?
- Are there soft spots in the substrate or does firmness appear inconsistent?
- Are there any items not on this list that should be reported?

General maintenance items for ALL Blu-Smart Maintenance inspections:

- Blu-Smart Systems, gutters and drainage systems should be cleaned of all debris during each maintenance inspection

Photographical record checklist:

During each maintenance inspection photograph each Blu-Smart unit. Always take photos from the same perspective. Additionally, photograph all areas in need of maintenance, both before and after maintenance and/or repairs are completed.

Documentation submittal for warranty:

If the answers to ALL checklist items are “no”, within five (5) business days of the inspections, submit all reports and photography to via email to ve@sustainablu.us and cc the Registered Contact. Sustainablu will keep record of all maintenance inspection reports.

If ANY answers to the checklist items are “yes”, immediately call Sustainablu and then call the roofing contractor that installed the system to set an appointment for them to review and repair the issues. If the system DOES NOT have Blu-Smart Constant Monitoring Leak Detection, Blu-Smart will not be operable until roofing contractor provides an all-clear to Sustainablu, LLC via email. Additionally, within five (5) business days of the inspection, submit all reports and photography to via email to ve@sustainablu.us and cc both the Registered Contact and the Roofing Contractor. Sustainablu will keep record of all maintenance inspection reports.

Sustainablu support:

Our technical support team may be contacted at 800-333-5406 or via e-mail at ve@sustainablu.us. All emails and voicemails will be responded to within 24 hour(s).

BLU-SMART MATERIALS LIMITED WARRANTY

The offer to sell Sustainablu, LLC products is expressly limited to acceptance of the warranty terms set forth in this LIMITED WARRANTY. By purchasing a Sustainablu, LLC product, you accept the LIMITED WARRANTY terms herein. THIS LIMITED WARRANTY AND REMEDIES HEREIN ARE EXCLUSIVE AND INSTEAD OF ALL OTHER WARRANTIES AND REMEDIES, WHETHER ORAL, WRITTEN, STATUTORY, LEGAL OR EQUITABLE, EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION, WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE AS WELL AS WARRANTIES AGAINST HIDDEN OR LATENT DEFECTS. ALL WARRANTIES ARE EXCLUDED EXCEPT THOSE EXPRESS WARRANTIES STATED ON THE FACE OF THIS LIMITED WARRANTY. REMEDIES FOR ANY BREACH OF THIS LIMITED WARRANTY ARE LIMITED TO SUSTAINABLU' ABSOLUTE OPTION TO REPAIR OR REPLACE THE DEFECTIVE PRODUCT AND THERE IS NO OTHER REMEDY AVAILABLE. SUSTAINABLU, LLC SHALL NOT BE LIABLE FOR DAMAGE TO PROPERTY BEYOND SUSTAINABLU' PRODUCT; AND, SUSTAINABLU, LLC IS NOT LIABLE FOR DIRECT, SPECIAL, INCIDENTAL, CONSEQUENTIAL, OR PUNITIVE DAMAGES FOR ANY CLAIMS, INCLUDING BUT NOT LIMITED TO TORT, STRICT LIABILITY, STATUTORY, BREACH OF EXPRESS WARRANTY, BREACH OF IMPLIED WARRANTY, AND BREACH OF CONTRACT. NO PERSON IS AUTHORIZED TO MAKE ADDITIONAL STATEMENTS, PROMISES, GUARANTIES, WARRANTIES OR REPRESENTATIONS REGARDING PERFORMANCE OF SUSTAINABLU' PRODUCTS. Terms that are either additional to, conflicting with or different from those herein are excluded unless specifically agreed to in a separate writing and signed by a corporate officer of Sustainablu, LLC. This LIMITED WARRANTY is for the benefit of the original purchaser of the Sustainablu, LLC product who may transfer this LIMITED WARRANTY to the owner of the real estate where the warranted product is originally installed.

Blu-Smart Valve (181-183) products are generally open to the environment and with that will be in contact with airborne debris, e.g., leaves, dust, etc., and in the case of combo roofs such as Blu-Amenity and Blu-Garden, etc. can be in contact with man-made debris, such as garbage, etc. Maintaining and inspecting the roof valves from clogging as damage are the responsibility of the owner. Sustainablu, LLC will issue from time-to-time electronic correspondence to the owner about routine maintenance check that will need to take place. These maintenance checks can be random or with imminent purpose. Owner needs to follow all maintenance directives, otherwise this warranty will be immediately voided.

- Product Line 181 - Blu-Smart Master Valves are warranted for (5) five years if properly installed according to specifications and maintenance is adhered to.
- Product Line 182 - Blu-Smart Water Level Sensor Valves are warranted for (5) five years if properly installed according to specifications and maintenance is adhered to.
- Product Line 183 - Blu-Smart Satellite Valves are warranted for (5) five years if properly installed according to specifications and maintenance is adhered to.
- Product Line 184 - Blu-Smart Constant Monitoring Leak Detection is warranted for (20) twenty years if properly installed per specifications and maintenance is adhered to.
- Product Line 185 - Blu-Smart Dashboard is not a warrantable product as it is a subscription-based. The guarantee of this product is that the data provided will be accurate within a 95% confidence interval. Furthermore, although a requirement for system warranties, the inclusion of a Blu-Smart Dashboard subscription will extend the warranties of product lines 181, 182 and 183 from five (5) years up to twenty (20) years as long as upgrades are completed and subscriptions remain current.

NOTE: As part of operations and maintenance of Product Lines 181-183, optional system upgrades every (5) five years will extend these warranties an additional (5) years with each upgrade.

NOTE: Placing any Smart-Blu System on an unapproved roofing or waterproofing product voids this LIMITED WARRANTY.

If any Sustainablu, LLC product fails to perform due to a defect in workmanship or materials within the applicable warranty period, then Sustainablu, LLC, at its sole option, will either repair or replace the defective product. The dollar amount of warranty coverage under this LIMITED WARRANTY shall not exceed the invoiced price for the defective product itself, excluding, installation, sales tax and freight. This LIMITED WARRANTY is void if the product is not maintained as recommended by Sustainablu, LLC. Sustainablu, LLC's warranty does not cover cosmetic scratches, dents, normal discoloration or fading. Due to inherent properties of aluminum and stainless-steel products, it is normal for variations in shading or color to be present in a finished product or occur over time due to sunlight exposure or other environmental factors and such variations in shading or color are not covered by this LIMITED WARRANTY. Sustainablu, LLC's LIMITED WARRANTY does not cover the disconnection, cracking, or unsealing from membrane or damage caused as a result of, by: (a) settling or other foundation movement or failures regardless whether caused by man-made or natural environmental (such as flood, hurricane, earthquake, lightning, fire, et al) and environmental conditions (such as air pollution, mold, mildew, et al), (b) Improper installation of Sustainablu, LLC's products and/or failure to abide by Sustainablu, LLC's installation guidelines, including but not limited to failure to install the Blu-Smart Systems as approved by Sustainablu's approved roofing and waterproofing partners, (c) failure of non-Sustainablu, LLC products, (d) Use of Sustainablu, LLC's products in an application not recommended by Sustainablu, LLC's guidelines and local building codes, (e) Improper storage or handling after delivery, (f) Ordinary wear and tear, AND FOR ANY PRODUCT IN WHICH SUSTAINABLU, LLC HAS NOT BEEN PAID IN FULL (This will be based on Sustainablu, LLC's records). There is no warranty for damage caused by impact, neglect, and vandalism; acts of third parties or natural disaster. Alteration of Blu-Smart Systems voids this LIMITED WARRANTY. Removal or alternation of Blu-Smart Systems without prior written approval from Sustainablu voids this LIMITED WARRANTY.

It is not Sustainablu, LLC's responsibility to determine the effectiveness, fitness, suitability and safety of the Sustainablu LLC's products in connection with its use in any application. No person or entity is authorized by Sustainablu LLC to make any statement or representation as to the quality or performance of Sustainablu LLC products other than as contained in this warranty and Sustainablu LLC shall not be bound by any such statements or representations. This warranty may not be altered or amended except by means of a written document signed by both Sustainablu LLC and owner of said warranty. As a precondition to validate any warranty claim, purchaser must present written notice of a warranty claim to Sustainablu, LLC within 30 days after a warranty claim accrues or within 30 days after purchaser first notices an alleged defect, whichever is earlier. If purchaser or its installer believes a defect exists, do not install the product; instead, contact Sustainablu, LLC within 24 hours after notice of alleged defect and make a warranty claim to Sustainablu, LLC. While this LIMITED WARRANTY is in effect, Sustainablu, LLC and its agents shall have free access to inspect, test, repair or remedy the warranted product and Sustainablu shall have the first opportunity to remedy any alleged defect.

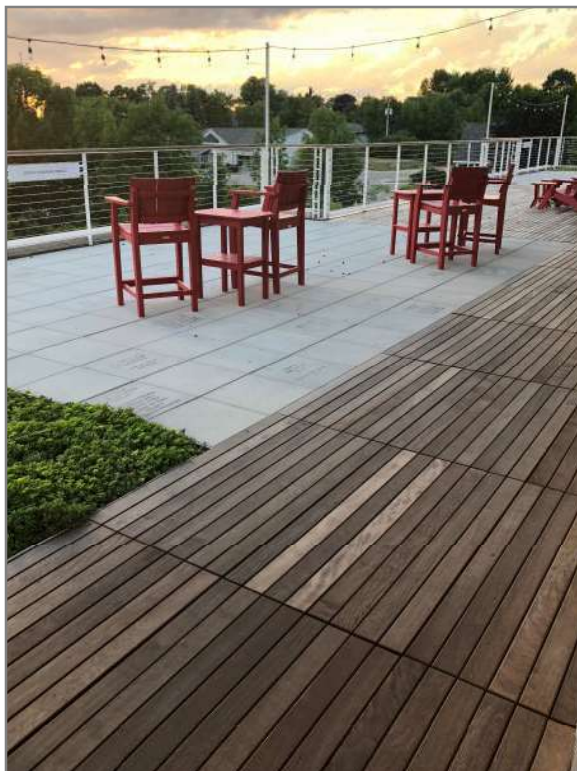
In any dispute as to the LIMITED WARRANTY or defective product, the purchaser or Owner making a claim (Claimant) has the burden of proving all elements under applicable law plus: (1) the product was installed according to applicable industry and project specifications, (2) the product was maintained according to applicable maintenance recommendations, and (3) the product was defective within the meaning of this LIMITED WARRANTY. In the event a civil action is filed, Sustainablu, LLC and Claimant shall attempt mediation facilitated by a mutually agreed upon neutral mediator before conducting formal discovery. At mediation, Sustainablu, LLC and Claimant shall each have a designated representative attend who has full authority to settle the civil action. Sustainablu, LLC and Claimant shall be responsible for their own attorney fees and any other expense associated with mediation as well as paying for an equal share of the mediator's fee. To obtain installation or maintenance recommendations, request information on extended warranties or make a warranty claim contact: Sustainablu, LLC, c/o Chief Financial Officer, by mail at 531 S. Water Street, Milwaukee, WI 53204.

This warranty shall only be applicable and enforceable in the United States of America and Canada.

BLU-SMART FLOW CONTROL PRICING

Product #	Product Description	Contractor Price	Distributor Price
181-ACM	Blu-Smart - All Climate Master Valve - 2"	\$21,451.30/Unit	\$13,943.35/Unit
181-WCH	Blu-Smart - Warm Weather Climate Master Valve - 2"	\$13,056.24/Unit	\$8,486.56/Unit
182-WLS	Blu-Smart - Water Level Sensor Valve - 2"	\$13,056.24/Unit	\$8,486.56/Unit
183-BVA	Blu-Smart - Satellite Valve - 2"	\$10,438.96/Unit	\$6,785.32/Unit
184-SMA	Blu-Smart - Constant Monitoring Leak Detection	\$1.97/SF	\$1.64/SF
185-SMD	Blu-Smart - Dashboard	\$490/Unit/Yr.	\$455/Unit/Yr.

Note: Pricing as stated above is based on an optimal design for roof drains. If perhaps 3" of 4" valves are necessary, which is uncommon, pricing will increase. Alterations to roof drain design may be integrated to minimize the amount of Blu-Smart units needed. Detailed plans and specifications provided to Sustainablu will provide us with the necessary information to provide the most cost effective system.



SUSTAINABLU

SUSTAINABLU focuses on design integration, project delivery, and products for on-structure stormwater management and green infrastructure. Capabilities range from amenity decks, green roofs, blue roofs, solar roofs and smart leak detection systems, providing the most complete line for effective On-Structure Stormwater Management systems and products available.

With on-staff experts and a network of landscape architects, contractors, architects, engineers, and developers, SUSTAINABLU is the common thread from idea conception to completion. The company provides products from top vendors around the world, tailoring products to each unique design. Product lines offered include paver pedestal, concrete roof pavers, wood deck tiles, procelain tiles, green roofing solutions, smart drains and leak detection systems, with SUSTAINABLU bringing them together with total system warranties supported by numerous roofing manufacturers.

SUSTAINABLU has completed projects in cities across North America and has representation and warehouses throughout the United States.

SUSTAINABLU

800.333.5406

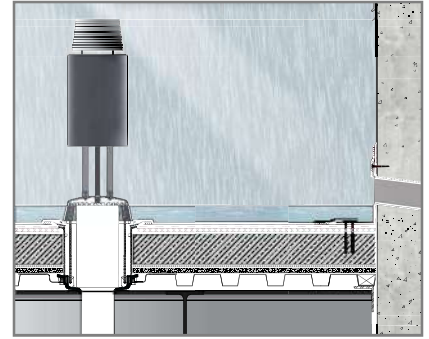
VE@SUSTAINABLU.us

www.SUSTAINABLU.us



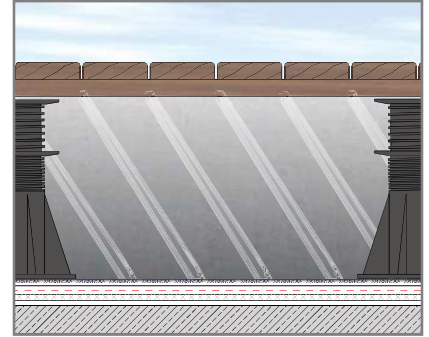
BLU-SMART

180 - BLU-SMART SYSTEMS



BLU-TERRACE

300 - BLU-TERRACE SYSTEMS



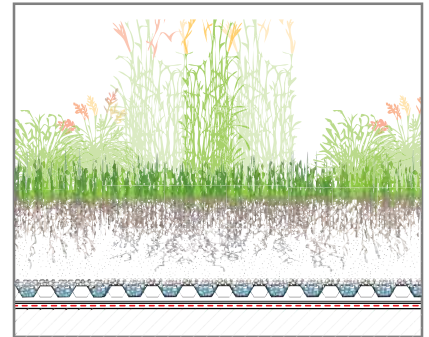
BLU-VAULT

350 - BLU-VAULT SYSTEMS



BLU-GARDEN

400-2400 - BLU-GARDEN SYSTEMS



BLU-SOLAR

5000 - BLU-SOLAR SYSTEMS

