



ENGINEERED  
SOLUTIONS

# RAINWATER HARVESTING

SAVING WATER ACROSS CANADA

## Engineered Solutions

Canada's leading Supplier,  
Designer of Rainwater  
Equipment

Providing Assembled Skid  
packages or individual  
equipment, built to  
ESA approved Standards



ENGINEERED  
SOLUTIONS  
TOP RAINWATER  
DESIGNERS & PROVIDERS

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## Rainwater Harvesting:

is one of the most promising alternatives for supplying water in the face of increasing water scarcity and escalating demand. The pressures on water supplies, greater environmental impact associated with new projects as well as deteriorating water quality in reservoirs already constructed, constrain the ability of communities to meet the demand for freshwater from traditional sources. Rainwater harvesting presents an opportunity for augmentation of water supplies allowing for self-reliance and sustainability. Sustaining the environment contributes to the overall conservation of our precious natural resources, up pollutants from rooftops and pavement. This pollution is carried into storm drains and then into streams.

## Advantages of Rainwater Harvesting:

Rainwater harvesting systems are simple to install, operate, and maintain. It is convenient in the sense that it provides water at the point of consumption and operating costs are negligible. Water collected from the roof catchment is available for use in potable (per local approval) and non-potable applications such as toilet and/or urinal flushing, laundries, mechanical systems, custodial uses, and site irrigation. Since rainwater is collected using existing structures, i.e., the roof, rainwater harvesting has few negative environmental impacts.

## Benefits of Using Rainwater:

1. It is free; the only cost is for installation and use.
2. It lessens demand on the municipal water supply.
3. It saves money on utility bills.
4. It makes efficient use of a valuable resource.
5. It diminishes flooding, erosion, and the flow to stormwater drains.
6. It reduces the contamination of surface water with sediments, fertilizers and pesticides from rainwater run-off resulting in cleaner lakes, rivers, oceans and other receivers of stormwater.
7. It can be used to recharge groundwater.
8. It is good for irrigation and plants thrive because stored rainwater is free from pollutants as well as salts, minerals, and other natural and man-made contaminants.
9. It is good for laundry use as rainwater is soft and lowers the need for detergent
10. Adds life to equipment dependent on water to operate, as rainwater does not produce corrosion or scale-like hard water.
11. It can help achieve LEED® Green Building Credit under Water Use Reduction; Innovative Wastewater Technology; Stormwater Design: Quality Control; Stormwater Design: quantity

## Typical Usages:

- |                         |                    |                    |
|-------------------------|--------------------|--------------------|
| • Flushing Toilets      | Irrigation         | Hockey Rinks       |
| • Car/Train/Bus Washing | Custodial Services | Fire Suppression   |
| • Condensate Coolers    | Boiler Feed        | Green Houses       |
| • Cooling Towers        | Laundries          | Mechanical Systems |



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SOLUTIONS**

**SAVING WATER FOR THE FUTURE**

## **RAINWATER SYSTEMS**

### **CUSTOM DESIGN**

- ◇ Skid Packages Built in house
- ◇ ESA Certified and Approved
- ◇ Intewa Pre-Filters
- ◇ E S Micro Bag Filters
- ◇ Intewa Ultra Violet Filters
- ◇ 3-way 2-way Spring Return Ball valves
- ◇ Aqualoop Ultrafiltration down to 0.02 um
- ◇ Bacteria free systems
- ◇ Tank Electronic level controls
- ◇ Control Panels Built in house
- ◇ ESA Certified and Approved
- ◇ Judo Automatic Backwash Filters
- ◇ U V Pure Ultra Violet Filters
- ◇ DRAINMAX Tunnel infiltration trench
- ◇ Inground and External Storage Tanks
- ◇ Submersible, End Suction, Vertical, booster pumps
- ◇ Float switches, Float Filters, Tank accessories



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## Purain Pre-Filter

Unlike other self-cleaning filters, the INTEWA PURAIN filter allows the filtration of light rainfall of with 100% efficient collection. As 97 % of annual rainfall is mainly light rain, the overall efficiency is 98%. Heavy rain that contributes approximately 3% to water yield activates the self-cleaning **Patent** function, and the high energy from the resulting hydraulic jump is the optimal and natural way to rinse and clean the filters.

### Advantages:

- Optimal efficiency moreover, low maintenance costs
- This unique, patented, PURAIN filter is best demonstrated by nature, and you can see how it works at almost any stream
- We have designed the PURAIN Rainwater filter, “The hydraulic jump filter”, for roof areas ranging from 60m<sup>2</sup> to more than 15000 m<sup>2</sup>.
- This filter automatically cleans itself commonly known as a hydraulic jump. This resulting increase in water power is similar to a strong eddy, and any impurities are then forced over the next level and washed away
- Purain filters can be mounted above ground, below ground with some being installed inside the tank giving overflow protection and water level cleaning options
- Purain come in standard and extra heavy construction
- Purain units are available from 4” to 16” sizes

### Most importantly

- **Purain filters Capture 98% of the catchable water no matter the volume of rain, heavy fall or mist rain, Purain catches it all and sends the water to the storage tank.**







# ENGINEERED SOLUTIONS

## Filtration

Model 8 strainer/filter housings are made in 2 sizes and 2 pressure ratings, and can serve as basket strainers (for particle retention down to 74 micron size) or as bag filters (for particle retention down to 1 micron size). In all cases, covers are easily removed, without tools, and the basket or bag is easily cleaned or replaced

Features:

- NSF 61 listed
  - Low pressure drops
  - Permanently piped housings
  - Covers are O-ring sealed
  - Carbon steel, or stainless steel (304 or 316) construction for housings
  - All housings are electropolished to resist adhesion of dirt and scale
  - Easy to clean!
  - Adjustable-height legs, standard
  - Large-area, heavy-duty baskets
  - O-ring seals: Buna N, EPR, Viton®, Teflon®
  - ASME code stamp available
  - Two pressure ratings: 150 and 300
  - Duplex units are available
  - Pipe sizes 3/4 thru 6-inch, NPT or flanged
- Two basket depths: 15 or 30 inches (nominal)



## Automatic Backwash Filters

The PROFI and PROFIMAT allows water to flow and be filtered through a stainless steel filter sieve, which traps and retains all the physical impurities until an automatic backwash is initiated. During backwash there is NO interruption to the buildings water supply or to the filtration process due to the working principals of the filters patented backwash point-rotation-system allowing water to be filtered even during a backwash cycle.

The JUDO PROFI series is the first Self-Cleaning Backwash Point-of-entry water filtration system of its kind that is CSA and NSF 61 approved and certified for applications on domestic potable water supplies in North America!



- Protects the longevity of ALL mechanical / plumbing equipment, fixtures & controls
- Reduces mechanical / plumbing maintenance costs
- Helps optimize energy efficiency
- Upholds water conservation
- Protects plumbing products that help promote and obtain LEED project ratings
- Ensures the optimal performance of LEED plumbing & mechanical products
- Results in lower operational costs,
- Minimizes building maintenance repairs
- Works for you 24 hours a day - All year round



# ENGINEERED SOLUTIONS

## U V Systems

Use Intewa UV systems for the sterilization of water. The UV light reliably inactivates pathogens and functions without the production of disinfection by-products. The inserted UV lamps have a long service life, high disinfecting performance, and low energy consumption. The compact design allows easy removal and replacement of the lamps. All reactor chambers come with a sight window for fast, visual inspection.

Units are stackable, thick-walled, impact-resistant PE variant, stainless steel construction. Suitable for horizontal and vertical installation incl. ballast with fault detection with Phillips low-pressure UV-lamps



INTEWA UV-Systems		ES-UV UNIT 016W	ES-UV UNIT 030W	ES-UV UNIT 055W	ES-UV UNIT 110W	ES-UV UNIT 220W
Max. flow rate with radiation dosage:	Application	without sensor connection		with sensor connection		
400 J/m <sup>2</sup>	Drinking-water (EU), Greywater clarified discharge water	2 gpm	8 gpm	13 gpm	23.5 gpm	47 gpm
300 J/m <sup>2</sup>	Drinking-water (US)	2.4 gpm	10 gpm	16.1 gpm	27.3 gpm	54 gpm
250 J/m <sup>2</sup>	Pool water, Fish ponds	2.6 gpm	11.7 gpm	18.2 gpm	33.5 gpm	70 gpm
150 J/m <sup>2</sup>	Aquaculture	4 gpm	17 gpm	25 gpm	46.8 gpm	93.3

## U V Pure

### UV PURE'S PATENTED CROSSFIRE® TECHNOLOGY IS AT THE CORE OF ALL OUR SYSTEMS

- It is a better mousetrap. Proven since 1998 in over 12,000 applications, globally.
- It means effective treatment in conditions 10 times worse than conventional "light in a pipe" UV systems can handle.
- It means a disinfection dose 2.4 times greater than conventional UV systems for the same energy input and cost.
- It means no fouled quartz, no messy, costly, manual cleaning, and no broken quartz.
- It means easy lamp changes.
- It means no false alarms from overheating.
- It means no operator exposure to the water stream.
- It means Pure safe water. Always®.

### MOST EFFECTIVE UV TREATMENT

- Validated to reduce pathogens to safe levels – minimum of 99.99% reduction
- Elliptical reflectors focus energy 360° - ending UV shadowing.
  - Lamps are air cooled,
- **CROSSFIRE TECHNOLOGY IS SELF-CLEANING**
  - Automatic mechanical self-cleaning. •• No risk of false alarms due to fouling..
- **SMART TECHNOLOGY ENGINEERED TO BE FAIL SAFE AND RISK FREE**
  - Dual smart UV sensors continuously monitor UV Dose, Lamp Intensity (UVI), and net UV, Digital monitor, visual, and audible alarms and event notifications, On-board data logging and self-diagnostic trouble shooting logic.
- **ENGINEERED TO BE VIRTUALLY MAINTENANCE FREE**
- **LOW OPERATING AND TOTAL LIFETIME COSTS**
  - Industry leading Warranty.—• Quick and easy lamp replacement reduces labor costs.
- **QUICK AND EASY TO INSTALL**
  - Small footprint and compact size minimizes cost per square foot.

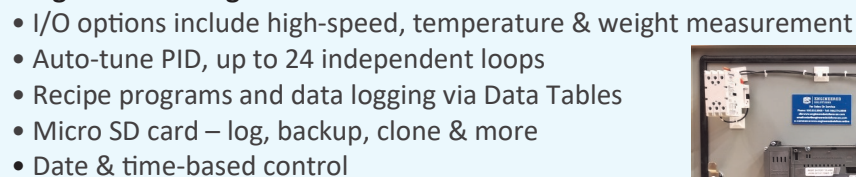




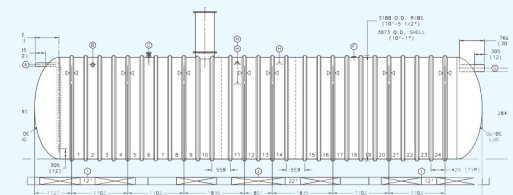
The Engineered Solutions **Model ES 7000** Control Panel monitors, adjusts, regulates and reports your data on the system operation through a BACnet, direct ip address connection or the color LCD display.

**All panels are CSA inspected and Certified by ESA**

- Steel Nema 4 Enclosure (other Nema casing available)
- On-off disconnect switch
- Manual key lock, • Red alarm light, • Green ok light,
- Circuit breaker fuses • 9' supply power cord for 120v/220v system,
- Built to CSA standards and tested and approved by ESA



A collection of five large, cylindrical, ribbed plastic water storage tanks. From left to right, the colors are tan, dark green, orange, light green, and a larger light green one on the far right. Each tank has a black circular access point on its side and a blue circular cap on its top. The tanks are arranged in a slightly overlapping row against a plain white background.





## ENGINEERED SOLUTIONS

### Drainmax Underground Stor-

The DIBt®-approval is one innovation of the DRAINMAX Tunnel infiltration system. It is with 1.6 m<sup>3</sup> a large capacity and light plastic tray system that creates a hollow space in the soil. With these, the rainwater can be directly retained at the source and will infiltrate through the open soil and side holes. It is possible to also restrict the water flow to only the pipe. This technology saves significant costs of laying complex piping systems. You can also use the DRAINMAX tunnel system for infiltration of effluent water from sewage plants.



### Aqualoop Systems Provides Greywater Solutions



AQUALOOP produces germ-free, high-quality water, irrespective of whether the input water comes from surface water, groundwater, runoff water from wastewater treatment plants, industrial wastewater or grey water from houses!\*

The AQUALOOP membrane station is mounted within the collection tank. This membrane station includes a platform for the mounting of membranes. A permeate pump, back-flushing pump, back-flushing tank, and blower connection are all integrated here. The AQUALOOP membrane station can be flexibly equipped with up to six membranes, depending on the required amount of water being recycled. Multiple membrane stations are used in parallel for even higher water volume requirements.

Patented AQUALOOP MEM membranes are the core of the water treatment process. The membranes individual hollow fibers are designed to retain bacteria and virus effectively.

AQUALOOP can improve the water quality without chemical additives such as chlorine, which has proven hazardous to health. This is equally good for the environment and for your wallet. AQUALOOP's special design and water treatment process allows for a long service life of up to 10 years with only minimal maintenance.





# ENGINEERED SOLUTIONS

## Accessories

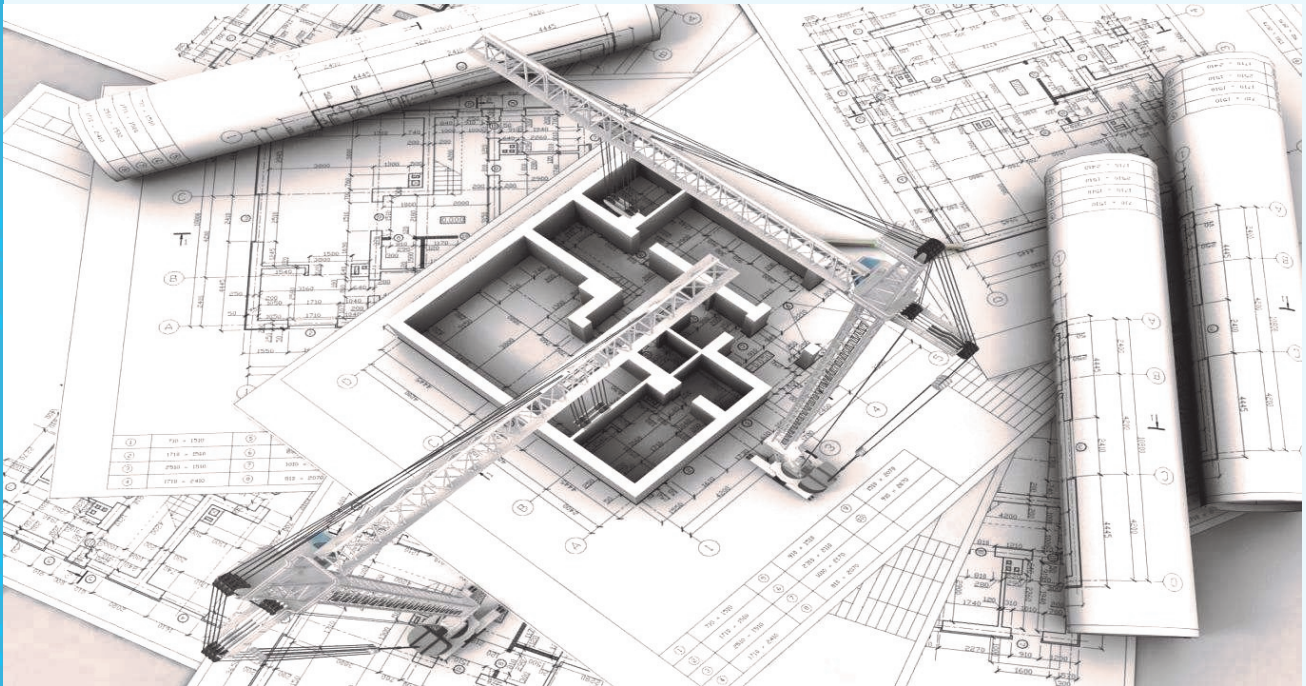
We offer quality industry standard accessory equipment to complement any designed system:

- Backflow Preventers
- Spring return Ball Valves
- Pumps & VFD's
- Floating Filters & Calming Filters
- Metering Flow Monitors
- Tank Overflow Devices





# ENGINEERED SOLUTIONS TOP RAINWATER DESIGNERS & PROVIDERS



## Our Pledge

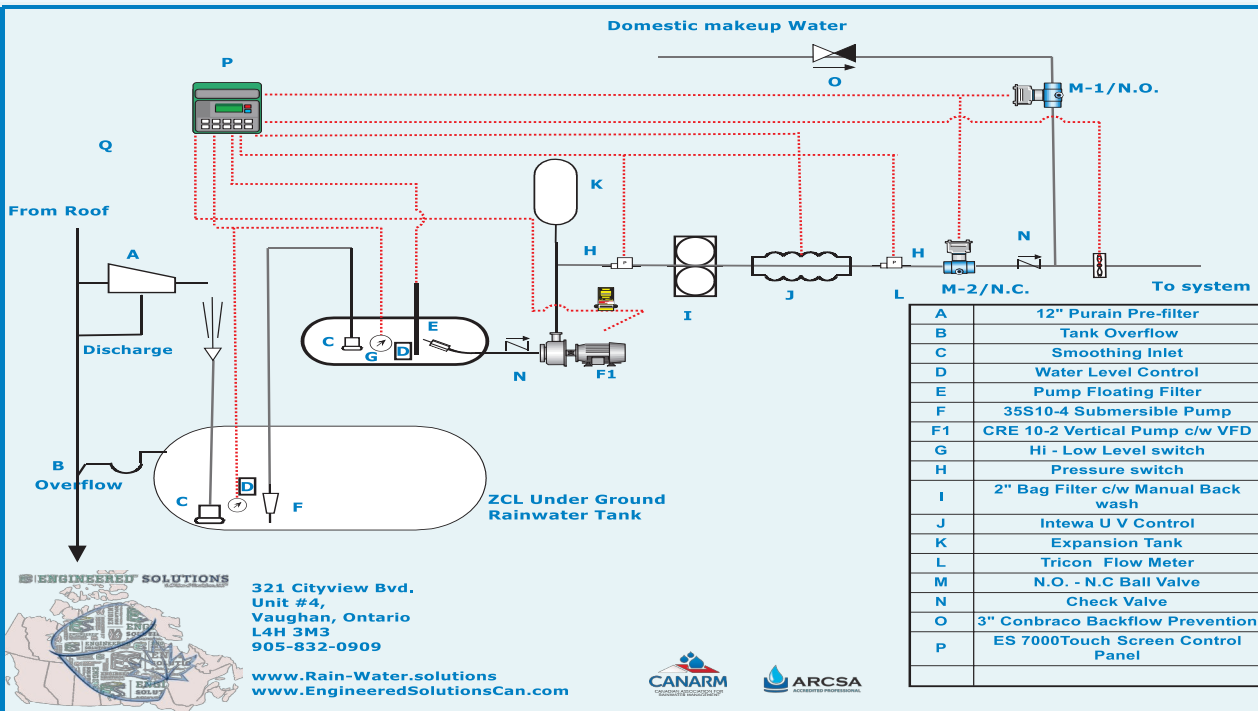
At Engineered Solutions, we pride ourselves by providing a multi-level approach when designing, building and supplying Rainwater or Greywater packages to our customers. We work hand in hand with the consulting engineer, helping with sizing loads, sizing of products, and product layout design. Every building is different in design, layout, and usage, so all of our systems are different so they can accommodate the requirements of each building.

Jobsite pre-visits with the contractor are extremely important as we can help foresee potential installation issues before they become a costly problem and need to be corrected.

We issue schematic or 3D drawings to the engineer during the design stage and to the contractor at the previsit before he starts working on the project.

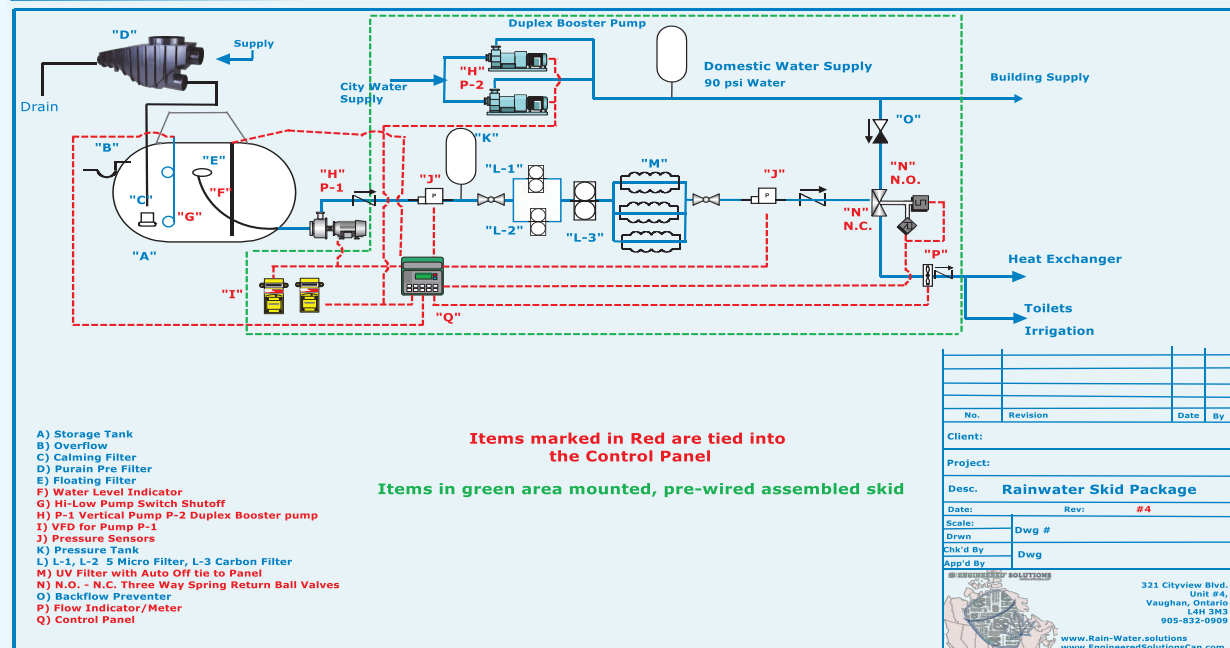
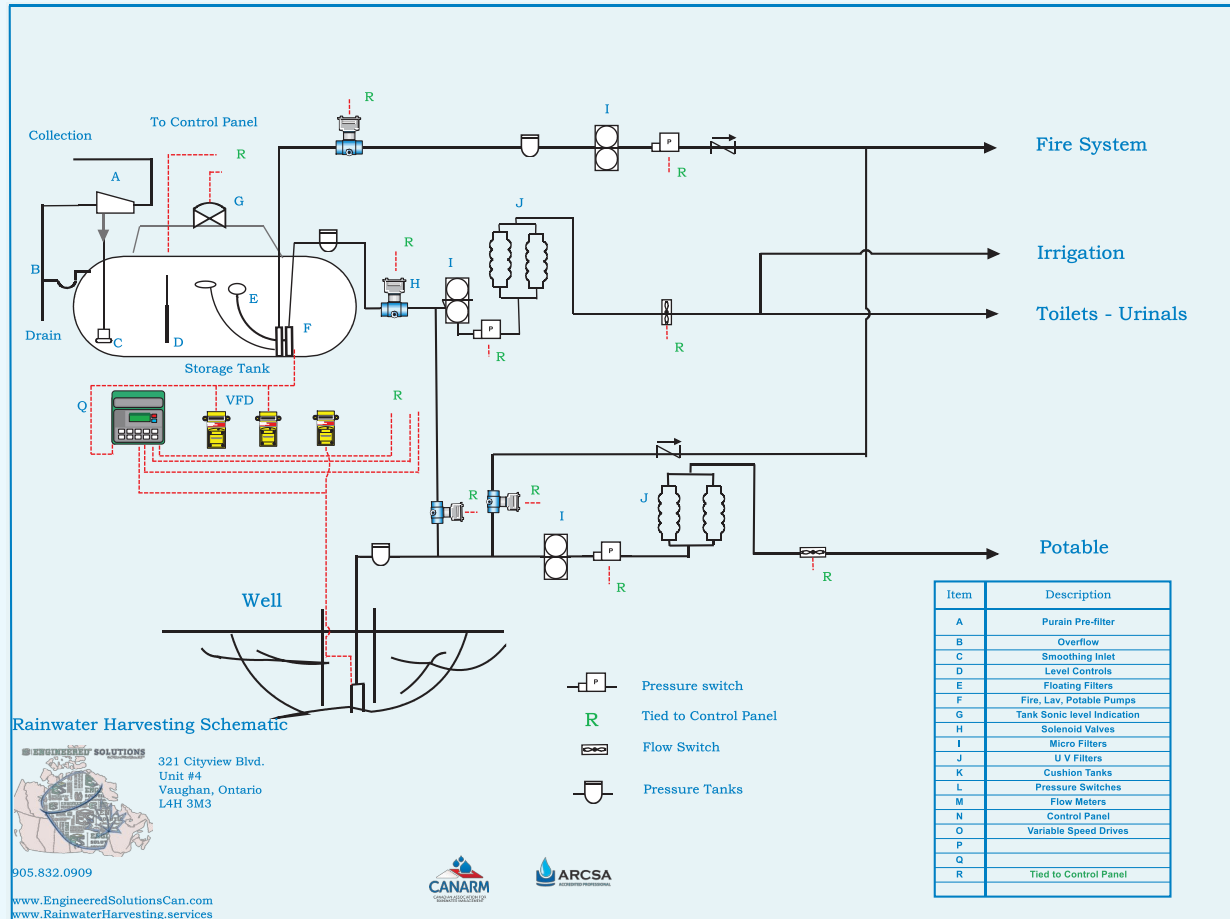
We supply only products which meet the highest manufacturing standards. We produce our skid packages and Control Panels in our facility. All systems and panels are 100% tested, and ESA approved before they leave our premises. Company principals are instructed on specific system operations and maintenance procedures upon commissioning.

***We're satisfied when you are!***

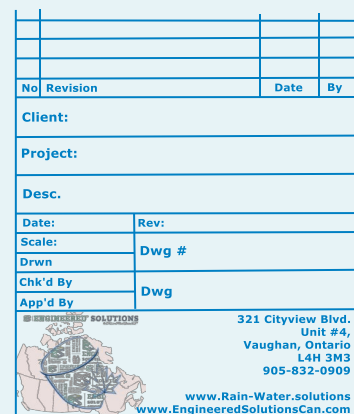
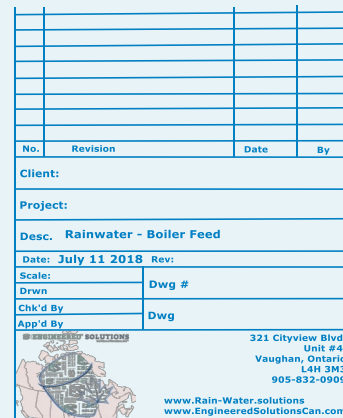




# ENGINEERED SOLUTIONS TOP RAINWATER DESIGNERS & PROVIDERS



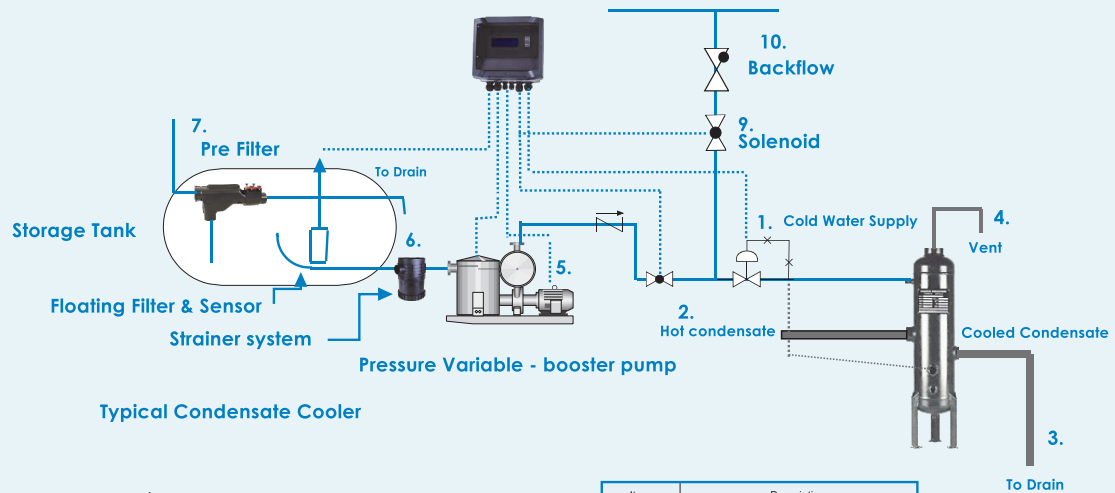






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CANADA'S TOP RAINWATER  
DESIGNERS & PROVIDERS



Typical Condensate Cooler



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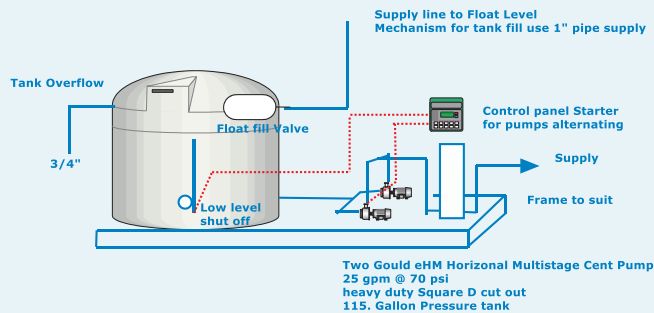
Your Partner in Engineered Design


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905.832.0909

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Item	Description
1.	Electro - Pneumatic Control valve
1a.	Hot condensate Supply
2.	Hot condensate Supply
3.	Condensate cooled below 140°F
4.	Vent to atmosphere
5.	Booster Pump c/w VFD
6.	Pre Filter - Strainer
7.	Rainwater Pre Filter
8.	Touch Screen Control Panel
9.	Solenoid Valves
10.	Backflow



No.	Revision	Date	By
Client:			
Project:			
Desc.			
Date:	Rev:		
Scale:	Dwg #		
Drwn	Dwg		
Chk'd By	Dwg		
App'd By	Dwg		
			
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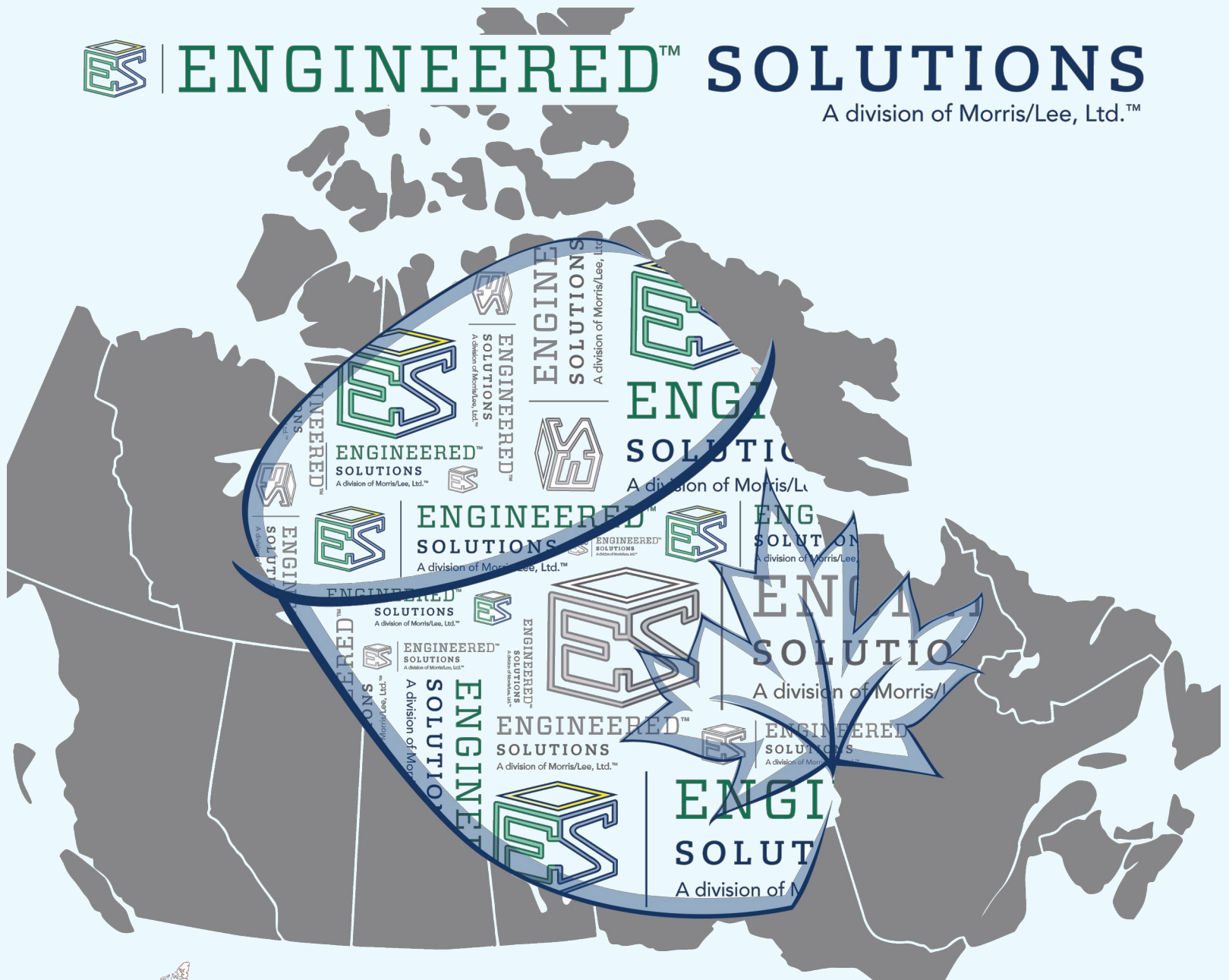
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**NOTES!**



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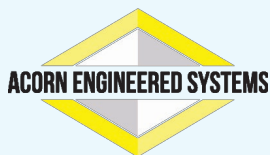
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## USA Distribution



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