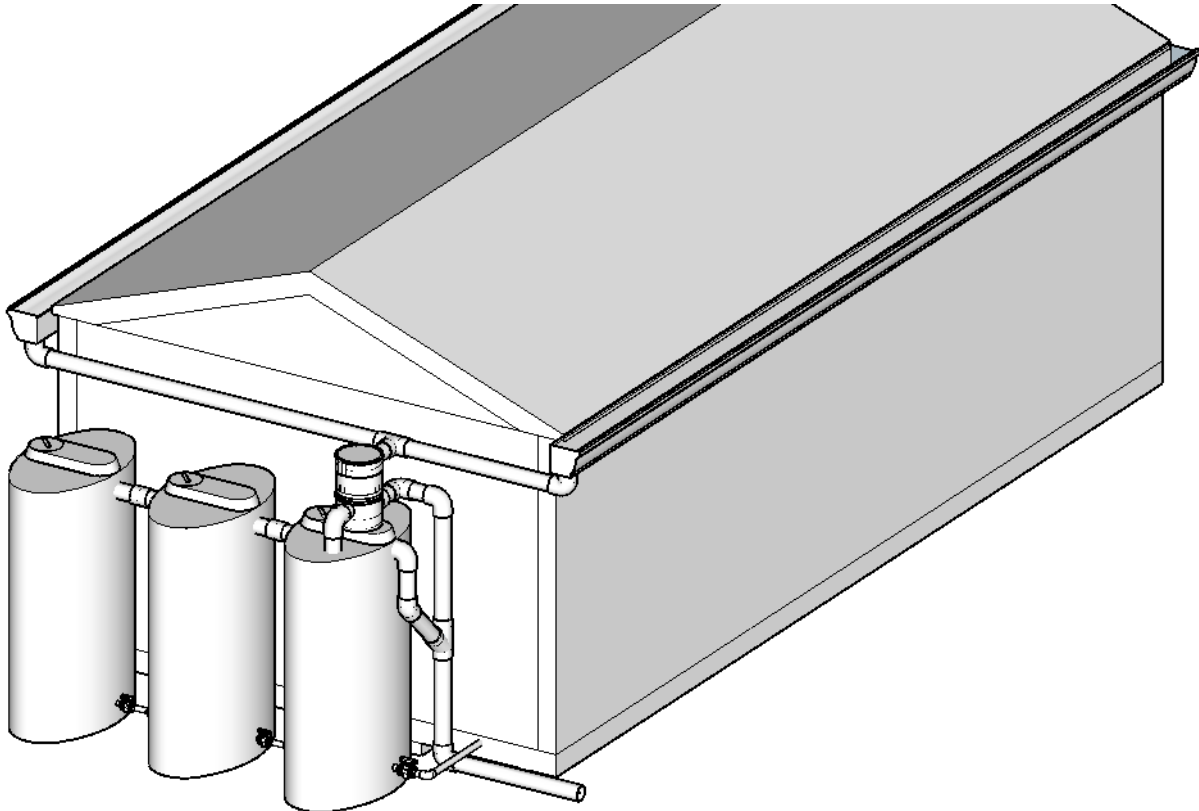


RAINWATER HARVESTING SYSTEM

YOUR - RAINWATER HARVESTING

YOUR ADDRESS



TAG	PIPE AND WIRE SCHEDULE	
A	GUTTER	EXISTING GUTTER
B	DOWNPIPE	EXISTING DOWNPIPE
C	UNDERGROUND	4" DIAMETER @ 1.5% SLOPE
D	UNDERGROUND	6" DIAMETER @ 0.75% SLOPE (OPTIONALLY 4" DIA. @ 4% SLOPE)
E	SUPPLY PIPE UNDERGROUND	1.0" DIAMETER (PVC, POLY OR COPPER)
F	SUPPLY PIPE INTERIOR	1.0" DIAMETER (PVC, PEX, POLY OR COPPER)
G	SENSOR WIRE	4 C - SHEILDED 16 AWG (4 CONDUCTOR)
I	PUMP POWERS	PROVIDED POWER CORD

TIERS	WATER USES
R1	NON-POTABLE, TRAP PRIMERS, FIRE SUPPRESSION, IRRIGATION
R2	NON-POTABLE, TOILETS/URINALS, LAUNDRY MACHINE
R3	NON-POTABLE, HOSE BIBS, PRESSURE WASHING, VEHICLE WASHING
R4	POTABLE, HUMAN CONSUMPTION, ORAL CARE, FOOD PREPARATION, DISHWASHING, BATHING/SHOWERING, POOL/HOT TUBS

CLEAN FLO WATER TECHNOLOGIES DESIGNED THE SYSTEM TO MEET THE CSA B805 STANDARDS TO PROVIDE A NON-POTABLE R2 RAINWATER HARVESTING WATER SYSTEM.

IF THE INSTALLTION IS IN ACCORDENCE WITH CLEANFLO WRITTEN INSTRUCTION THIS SYSTEM WILL PROVIDE NON POTABLE WATER. IT IS THE OWNER / OPERATORS RESPONSIBILITY TO ENSURE THE RAINWATER HARVESTING SYSTEM IS INSTALLED AND OPERATING PROPERLY. INITIAL AND ONGOING MAINTENANCE AND MONITORING IS REQUIRED AND MUST BE PERFORMED BY THE OWNER OR UNDER THE OWNER'S DIRECTION.

IF INSTRUCTIONS ARE NOT FOLLWED OR MAINTIANCE IS NOT PERFORMED OR UNKOWN SUBSTANCES ARE INTRUDCED INTO THE RAINWATER SYSTEM THE SYSTEM MAY NOT BE SAFE AND THEREFORE REGULAR MAINTENACE IS REQUIRED.

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3	WATER BALANCE	WATER HARVESTING POTENTIAL AND WATER USE
4	SCHEMATIC	RAINWATER SYSTEM SCHEMATIC
5	SITE PLAN	SITE PLAN DRAWING- LOCATION OF MAJOR EQUIPMENT.
6-10	DRAWINGS	DETAILED DRAWING OF RAINWATER SYSTEM
11-13	INSTALLATION	INSTALLATION SPECIFICATIONS

A1



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DESCRIPTION

THIS SYSTEM IS DESIGN TO MEET CANADIAN PLUMBING CODES AND CSA STANDARDS FOR RAINWATER HARVESTING CSA B805.

THE OVERALL SYSTEM DESIGN EMPLOYS A MULTI BARRIER APPROACH TO WATER QUALITY. THE FIRST STEP IS THE PRE-FILTER. THE SECOND STEP IS THE RAINWATER TANK DESIGN. THE THIRD STEP IS THE WATER TREATMENT SYSTEM.

CLEAN FLO SYSTEMS ARE DESIGNED FROM "ROOF TO TAP" ! WITH ATTENTION TO EVERY DETAIL OF YOUR RAINWATER HARVESTING SYSTEM. WHEN YOU PURCHASE THE COMPLETE SYSTEM FROM CLEAN FLO, IT IS PART OF A COMPLETE PACKAGE THAT WE WILL PROVIDE SUPPORT AND SERVICE FOR THE LIFE OF THE SYSTEM

THIS RAINWATER HARVESTING SYSTEM IS DESIGNED AS A SECONDARY SOURCE OF WATER FOR IRRIGATION PURPOSES..

THE SYSTEM WILL PROVIDE WATER FOR WATER USES
TIER: R1 - IRRIGATION PURPOSES

ROOF

THE SYSTEM WILL BE HARVESTING RAIN FROM ONE BUILDING WITH ONE ROOF.

GUTTER, DOWNPIPES AND CONVEYANCE PIPING

THE GUTTERS, DOWNPIPES, AND CONVEYANCE PIPING IS SIZED BASED ON SPECIFICATIONS FROM THE DESIGNS.

PREFILTER

THE SYSTEM WILL REQUIRE ONE (1) PRE-FILTER. THESE PRE-FILTERS OPERATE AS BOTH A FIRST FLUSH DIVERTER AND PREFILTER, WITH A FILTER MESH SIZE OF 320 MICRONS. THE FULL CROSS-SECTION (PIPE DIAMETER) OF THE RAINWATER DRAINAGE SYSTEM REMAINS CONTINUOUSLY OPEN, AND THERE ARE NO REDUCTION IN THE CROSS-SECTION OF THIS APPLIANCE IN WHICH DIRT OR WATER CAN COLLECT.

RAINWATER TANK / CISTERN

THIS SYSTEM WILL PROVIDE A TOTAL OF 1080USG OF RAINWATER STORAGE. WITH A TOTAL OF THREE (3) ABOVE GROUND TANK(S), MADE OF POLYETHYLENE. EACH TANK IS 360 USG.

THE RAINWATER TANK IS DESIGNED TO PROVIDE SAFE STORAGE OR RAINWATER, WHICH IMPROVES WATER QUALITY BECAUSE OF IT'S DESIGN AND FUNCTION. THE CALMING INLET PREVENTS AGITATION OF SETTLED FINE DUST, THE SKIMMING OVERFLOW REMOVES FLOATING PARTICLES AND THE FLOATING FILTER ENSURES WATER IS DRAWN INTO THE PUMP FROM APPROXIMELY 150 mm (6.0") BELOW THE SURFACE OF THE WATER.

WATER PUMPING CLEAN FLO DETERMINED THE WATER DEMAND TO BE 8 GPM @ 60 PSI. THIS WILL BE PUMPED BY MULTI STAGE BOOSTER PUMP.

WATER QUALITY AND TREATMENT

CLEAN FLO DESIGNED THIS SYSTEM TO PRODUCE WATER THAT IS SAFE FOR CSA B805 R2 USES; NAMELY NON-POTABLE NAMELY OIILETS AND LAUNDRY.

WATER TESTING

DANGER!!

IF THERE ARE ANY NOTICEABLE CHANGES IN WATER QUALITY (IE. COLOUR, SMELL, TASTE, ETC.) STOP USING WATER AND PERFORM BOTH BACTERIOLOGICAL AND CHEMICAL TESTS IMMEDIATELY.

BACTERIOLOGICAL TEST

THIS TEST SHOULD BE PERFORMED AT A FREQUENCY OF SIX MONTHS AT A LOCAL ACCREDITED WATER TESTING LAB. BACTERIOLOGICAL SAMPLES WILL RAPIDLY BECOME UNREPRESENTATIVE OF THE WATER SUPPLY IF THE TEST IS NOT PERFORMED SOON AFTER TAKING THE SAMPLE

THESE TESTS INCLUDE BUT ARE NOT LIMITED TO: E.COLI, AND TOTAL COLIFORMS

CHEMICAL TEST

THIS TEST SHOULD BE PERFORMED AT A FREQUENCY OF ONE YEAR AT AN ACCREDITED WATER TESTING LAB. WHILE CHEMICAL TESTS ARE LESS TIME SENSITIVE, IT IS ADVISED TO DELIVER YOUR SAMPLE TO THE LAB WITHIN 24 HOURS OF TAKING THE SAMPLE

THESE TEST INCLUDE BUT ARE NOT LIMITED TO: HEAVY METALS, TOTAL ORGANIC CARBON, PH, TURBIDITY, TOTAL DISSOLVED SOLIDS, NITRATES, HARDNESS, AND CONDUCTIVITY.

POTENTIAL LOCAL TEST FACILITY

WHEN USING THE SERVICES OF A LOCAL TESTING FACILITY THEY WILL ENSURE THE TEST RESULTS AND TOLERANCES CONFORM TO LOCAL REGULATIONS ON WATER QUALITY.

WATER TEST RESULTS

PLEASE KEEP A LOG OF TEST RESULTS IN THE TABLE AT THE BACK OF THIS DOCUMENT. PLEASE FILE THE ORIGINAL WATER TEST RESULT DOCUMENTATION IN THE FOLDER AT THE BACK OF THESE DOCUMENTS.

WATER TESTING LOG

PERFORM A BACTERIOLOGICAL TEST ON THE WATER EVERY 6 MONTHS
PERFORM A CHEMICAL TEST ON THE WATER EVERY YEAR

STORE THE ORIGINAL WATER QUALITY TEST RESULTS IN FOLDER AT BACK

THE FIRST WATER TEST SHOULD BE RECORED BELOW AS THE BASELINE WATER TEST.

BASELINE TEST DATE (DD/MM/YYYY)	TEST COMPLETE DATE (DD/MM/YYYY)	TEST RESULT



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SYSTEM NAME: YOUR- RAINWATER HARVESTING

SYSTEM TYPE: R2-NON POTABLE - TOILETS AND LAUNDRY
OWNERS: YOU
LOCATION: 123 ABC ST

EMERGENCY CONTACT

FIRST POINT - INSTALLERS Owners Contractors
SECOND POINT - DESIGNER CLEANFLO WATER TECHNOLOGIES, CANADA
1-877-306-2146

MAINTENANCE PERSONS OWNER

SCOPE OF SYSTEM SUPPLY

WATER USES TEIR: R2 TOILETS AND LAUNDRY
PRIMARY WATER SOURCE: RAINWATER
SECONDARY WATER SOURCE: OTHER
NUMBER OF PEOPLE SERVED: 2
ANNUAL WATER DEMAND: UNKOWN

NUMBER OF FIXTURES

HOSE BIBS: 1
YARD HYDRANT: 0
FAUCETS: 2
LAUNDRY: 0
TOILETS: 1
DISHWASHER: 0
BATH/SHOWER: 0
MECH. EQUIPMENT: 0
FIRE SUPPRESSION: 0

SECONDARY WATER SOURCE

TYPE: NA
AUTOMATIC BY-PASS SYSTEM NA

DESCRIPTION / COMMENTS: NA

SYSTEM DESIGN AND SPECS.

DESIGNER: CLEANFLO WATER TECHNOLOGIES, CANADA, 1-877-306-2146
DATE COMPLETED: FEB 08, 2023

SYSTEM SPECIFICATIONS

ROOF COLLECTION AREA: ~ 364 SQFT
ROOF MATERIAL: METAL
GUTTER MATERIAL: PAINTED STEEL
DOWNSPOUT MATERIAL: ALUMINUM, PVC SDR 35, OR PVC DRAIN PIPE
CONVEYANCE PIPING MATERIAL: ALUMINUM, PVC SDR 35, OR PVC DRAIN PIPE

STORAGE TANK SPECIFICATIONS

TOTAL VOLUME: 1080 USG
NUMBER OF TANKS: 3
VOLUME OF EACH TANK: 360 USG
TANK TYPE: ABOVE GROUND
TANK MATERIAL: POLY

TANK DIMENSIONS

LENGTH: 48"
WIDTH: 30"
HIEGHT: 74"
DIAMETER: N/A

PRE-FILTER SPECIFICATIONS

TYPE OF PREFILTER: WISY VORTEX 100
NUMNER OF PRE-FILTERS: 1
PRE-FILTRATION MESH SIZE: 320 MICRONS
MAXIMUM INLET FLOW RATE: 8 LITERS PER SECOND

PUMP SPECIFICATIONS

BRAND: CLEANFLO VFD CONSTANT PRESSURE SYSTEM
MODEL: DABS DTRON2
DESIGN FLOW RATE: 8 USGPM
MAXIMUM PSI @ 10 GPM: 50 PSI

POWER SPECIFICATIONS

HORSE POWER: 1.0
VOLTAGE: 120 VAC
AMPS: ~ 8 A
WATTS: ~1000 W

WATER TREATMENT SPECIFICATIONS

TYPE: CLEANFLO
BRAND: NA
MODEL: NA
AGE OF EQUIPMENT: NA

TOTAL DYNAMIC HEAD

DESIGN FLOW RATE: 10 GPM

SUPPLY PIPE
1.25" @ 10FT (0.92 PSI LOSS/100FT)
(NPSH MUST BE MET FOR BOOSTER PUMP) 0.092 PSI / 0.1 FT HEAD

TREATMENT SKID
PSI LOSS VARIES AS WATER FILTERS BECOME
CLOGGED 10 PSI / 23.3 FT HEAD

DISTRIBUTION PIPE
10 GPM - 1.25" @ 50 FT (0.92 PSI LOSS/100FT)
5 GPM - 1.0" @ 50FT (1.04 PSI LOSS/100FT)
TOTAL (0.46 + 0.52) = 0.98 0.98 PSI / 4.88 FT HEAD

MINOR LOSSES: VALVES, FITTINGS
~ 100 FT 1.25" (0.92 PSI LOSS/100FT) 0.92 PSI / 1.025 FT HEAD

ELEVATION HEAD
55FT (1.0 PSI LOSS/2.33FT) 23.61 PSI / 55 FT HEAD

STATIC PSI
30 PSI 30 PSI / 69 .9 FT HEAD

TOTAL 65.6 PSI / 153 FT HEAD

A3



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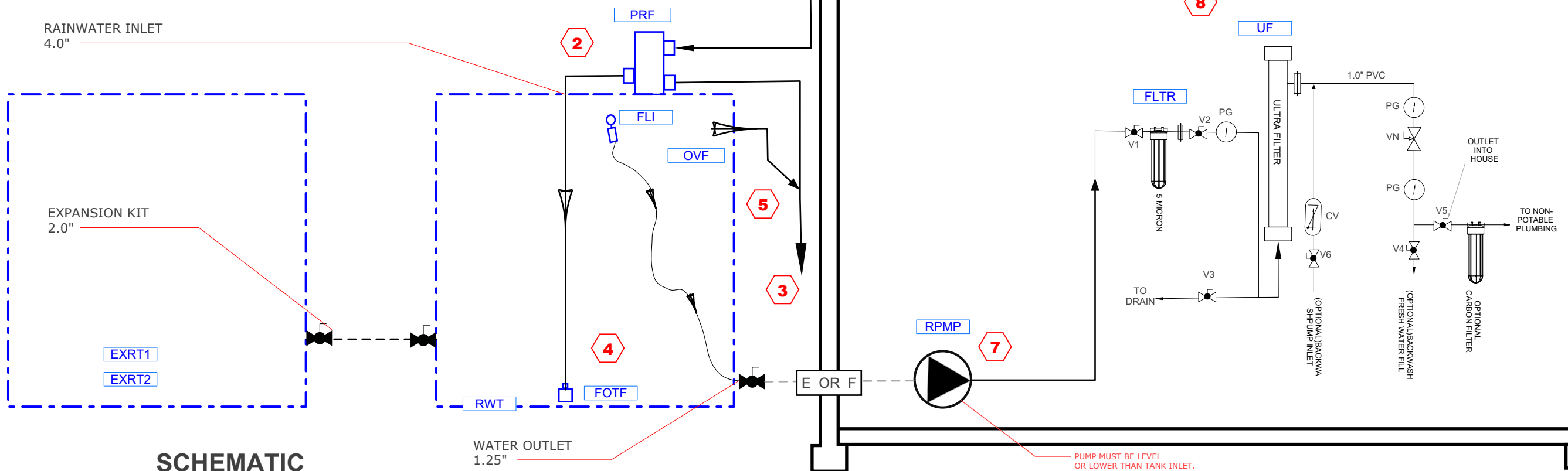
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SEQUENCE OF OPERATION

- 1** RAINWATER IS CAPTURED FROM THE ROOF. USING GUTTERS, ROOF DRAINS, AND PIPING RAINWATER IS CONVEYED TO THE PREFILTER. IF USING RAINWATER FOR POTABLE USE - REFER TO POTABLE ROOF AND GUTTER SPECIFICATION SHEETS.
- 2** RAINWATER ENTERS PREFILTER SELF CLEANING 3 IN1. PROVEN BASKETLESS TECHNOLOGY PROVIDES: 1) FIRST FLUSH ACTION 2) CONTINUOUS FILTRATION 320 MICRONS 3) AERATOR.
- 3** RAINWATER OVERFLOWS FROM PREFILTER AND RAINWATER TANK TO A SAFE LOCATION SUCH AS: GROUND, STORM SEWER, SWALE, INFILTRATION GALLERY OR SUMP PIT/ LIFT STATION.
- 4** FILTERED RAINWATER LEAVES THE PREFILTER AND ENTERS THE TANK VIA STAINLESS STEEL AERATOR AND CALMING INLET DEVICE. WHICH ADDS OXYGEN TO THE RAINWATER AND REDUCES VELOCITY OF INCOMING RAINWATER TO PREVENT AGITATION OF SEDIMENT ON RAINWATER TANK FLOOR.
- 5** WHEN THE RAINWATER TANK IS FULL OVERFLOWED RAINWATER IS DIRECTED THROUGH THE SKIMMING OVERFLOW, BACKWATER VALVE AND VERMIN GUARD THEN EXITS THE SYSTEM.
- 6** WHEN REUSING RAIN IT FIRST PASSES THROUGH A STAINLESS STEEL FLOATING INTAKE DEVICE. WHICH DRAWS IN RAINWATER TO THE PUMP FROM 150MM(6.0") BELOW WATER SURFACE WHICH IS THE CLEANEST LENS (LAYER) OF WATER IN TANK.
- 7** WHEN THERE IS A DROP IN PRESSURE IN THE PLUMBING SYSTEM THE RAINWATER PUMP IS ACTIVATED ON. THE PUMP WITH ADJUST SPEED TO MAINTAIN A CONSTANT PRESSURE AND MINIMIZE ENERGY USE. RAINWATER IS SUCTIONED INTO THE BUILDING BY THE PUMP SYSTEM. ENSURE A CHECK VALVE IS INSTALLED ON SUCTION PIPE INSIDE RAINWATER TANK.
- 8** RAINWATER UNDER PRESSURE FROM THE PUMP WILL FLOW THROUGH TWO STAGES OF FILTRATION. THE FIRST FILTER IS 4.5" DIAMETER x 20" LONG. STAGE 1 IS 5 MICRON SEDIMENT FILTER. RAINWATER IS SANITIZED BY A UF ULTRA FILTRATION MEMBRANE SYSTEM.

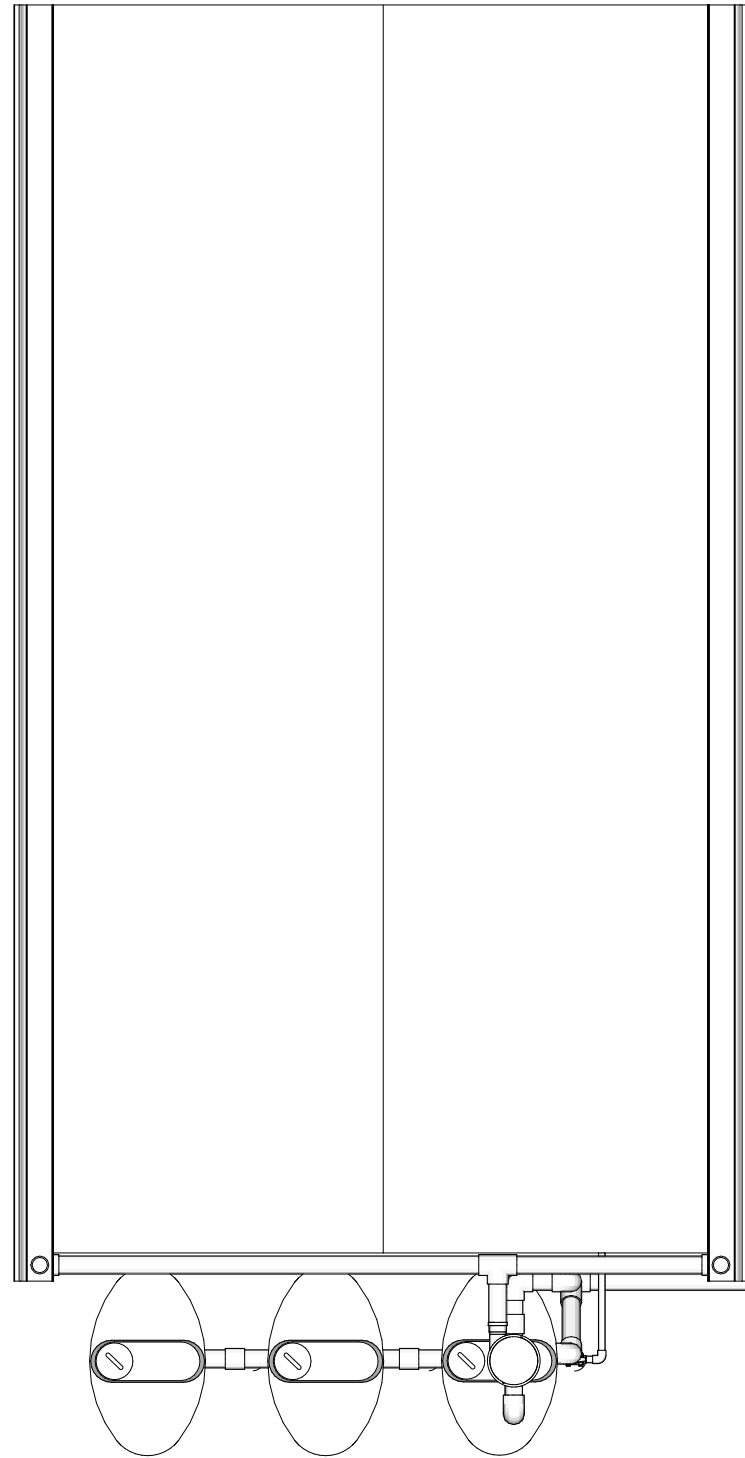
TAG	PIPE AND WIRE SCHEDULE	
A	GUTTER	EXISTING GUTTER
B	DOWNPIPE	EXISTING DOWNPIPE
C	UNDERGROUND	4" DIAMETER @ 1.5% SLOPE
D	UNDERGROUND	6" DIAMETER @ 0.75% SLOPE (OPTIONALLY 4" DIA. @ 4% SLOPE)
E	SUPPLY PIPE UNDERGROUND	1.0" DIAMETER (PVC, POLY OR COPPER)
F	SUPPLY PIPE INTERIOR	1.0" DIAMETER (PVC, PEX, POLY OR COPPER)
G	SENSOR WIRE	4 C - SHEILDDED 16 AWG (4 CONDUCTOR)
I	PUMP POWERS	PROVIDED POWER CORD

TAG	EQUIPMENT SCHEDULE
RSM	RAINSEEKER MAXIMUS 1080 USG SYSTEM - ABOVEGROUND
RWT	- RAINWATER TANK 360 USG
PRF	- RAINWATER PREFILTER
ACL	- SMOOTHING INLET
FLI	- FLOATING INTAKE
OVF	- SKIMMING OVERFLOW BACKWATER VALVE
RPMP	RAINWATER PUMP
EXRT1	EXPANSION RAINWATER TANK # 1 - 360 USG
EXRT2	EXPANSION RAINWATER TANK # 2 - 360 USG
FLTR	SEDIMENT FILTER
UF	ULTRA FILTER

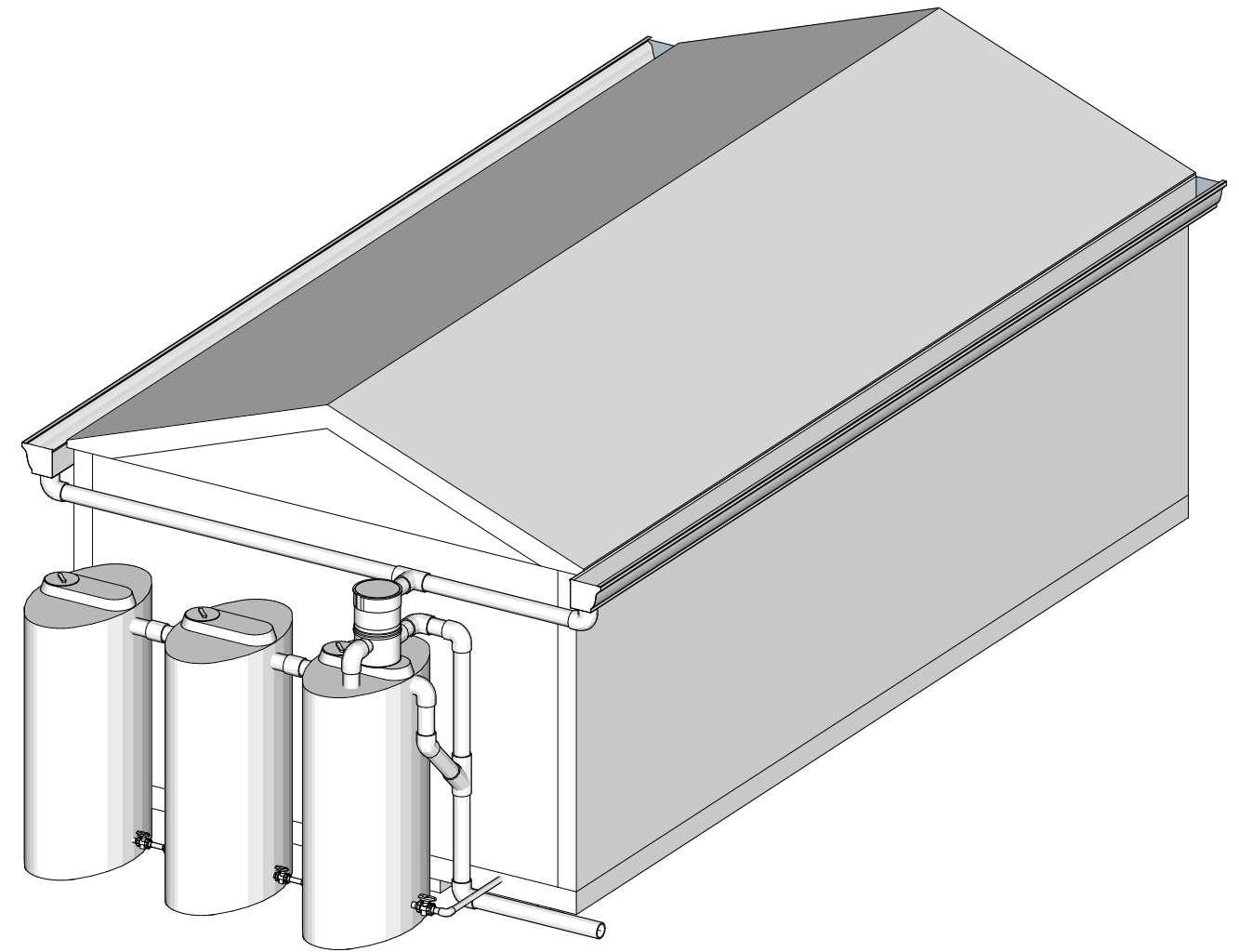


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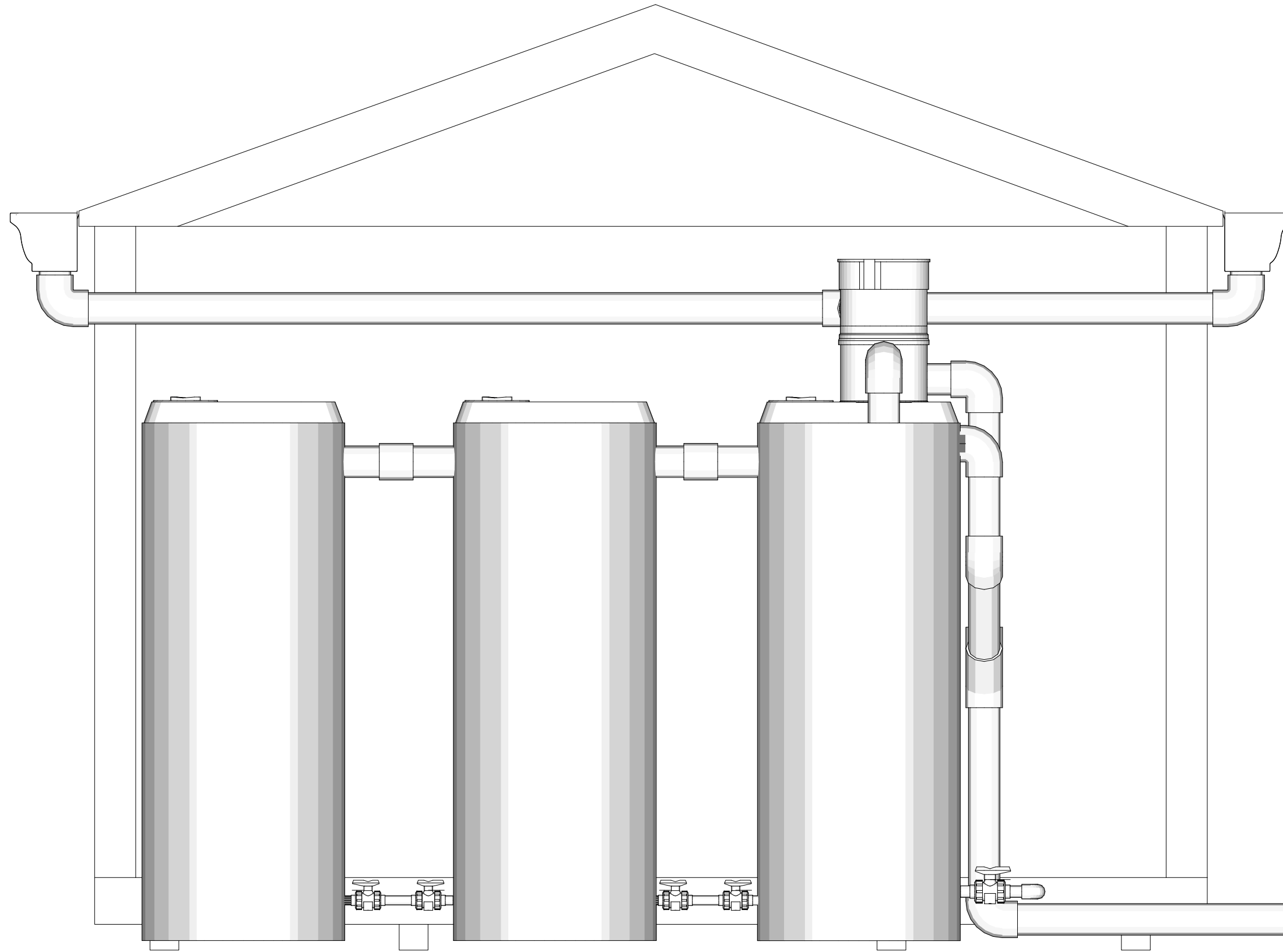
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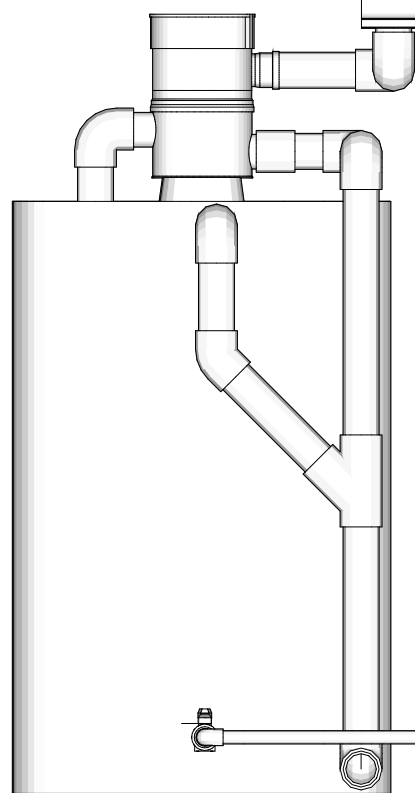
ROOF PLAN
(SCALE 1:48)



ISO VIEW
(SCALE 1:48)



FRONT SIDE
(SCALE 1:16)



FRONT SIDE
(SCALE 1:32)