



Rainwater Management

Return to nature

it's so simple

連順科技(馬)股份有限公司 Lian Shun Technolngy (M) Sdn

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Leif

Introduction

Established in 2003, Lian Shun Technology started in manufacturing, alongside with its mother company – Feiti (M) Sdn Bhd, a metal stamping company founded in Taiwan since 1969.

Being a green lover and determined to become a green contributor, Lian Shun is revamping its business in providing green living concept and lifestyle to more people. Therefore, a new label "LEAF" is set up under Lian Shun to offer solutions and consultations to obtain affordable green homes.



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INTELLIGENT GREEN BUILDING



Intelligent Green Building

Let the combination of technology and nature brings us the best out of our livings, to achieve the basic six major requirements of green living: Safety, Convenience, Healthy, Energy Efficiency, Comfortable, Everlasting.

Our engineering team in Lian Shun Technology endeavors to simplify the vague understanding of green concepts, to be more conceptual based on product design, so that it can easily be understood in terms of its functions and how can it be achieved. With the application of statistical function of the smart home system, performance analysis and reports of solar energy, LED lighting, green vertical walls, green roof, heat pump water heater, and even rainwater harvesting system as well as water retention, all can be demonstrated and reflected directly on your screen, either by using a smart phone or an IPAD. Just touch a few buttons and you are able to experience and enjoy the most comfortable natural environment.

To return to nature and enjoy greener livings, the four key words say them all: Lifestyle, Easy, Advanced and Fun.

LEAF will provide all you need in green living.

<u>Lifestyle</u>

Pursuing ideal natural living with elegance lifestyle....that's what we insist on lifestyle living. It is also our commitment to provide you the best lifestyle living.

Easy

Just touch a few buttons and let the intelligent system takes over the duties. Let your finger do the job.

Advanced

Combine the nature and advanced technology to create a futuristic new living lifestyle. You will be surprised how much you can enjoy, once they are put together.

<u>Fun</u>

When things are under your control, life will be more meaningful and interesting. Enhance your lifestyle and experience a new, yet very different atmosphere.

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Products & Services

We offer various types of green products and attempt to package them together, and ultimately, sell them as a concept i.e. Intelligent Green Building. Our products include:

- Solar Panel
- Green Wall
- Green Roof
- Smart Home
- LED
- Rainwater Harvesting
- Water Retention System
- Heat Pump



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Intelligent Green BuildingConsolidation of Green ProductsExperience the Genuine FeelingsPractical Test of the Reality

LEAF solves your psychological Doubt

We will take all the green recycle products, researching each and every one of the product's features, and will examine all the details, efficiency and investment benefits, display and put it in figures, to inform you of the differences, and using the high-tech , wireless scientific equipment, to monitor all the green recycle products, we strongly believe "seeing is believing" !

We know which details you are particularly mind. In fact, what we mind and concern isyour satisfaction

• Solar energy , how much electricity being generated, how much money has been saved ?

Take it easy, the wireless control panel will explain to you accurately how much electricity has been generated, and also the monthly effect of the electric generated. This result will be compiled through the internet passage and then send to our monitor centre (with your permission), and if there is anything unusual, we will keep you informed immediately and you need not worry!

- *LED* really saves electricity ? What's the bill for this month? How long it takes to recover the cost? The wireless electricity meter panel will notify you in advance your electric bill, in fact, right at the moment the meter is installed, you could even notice the bill differences instantly!
- The Smart Home wireless system is so coo ? Is it save to use and cost effective?

Just press the buttons with your fingers slowly, all the pictures, all the figures, will instantly displayed – "safety", "healthy", "convenient", "comfortable", "energy savings", "sustaining"

Visit LEAF showroom and experience yourself directly the demonstration, by processing you a full set of information.



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• Green wall, Green roof, what is the value ?

Beside compliments from friends around, you will get the room temperature reading being disclosed to you that your indoor temperature has reduced.(according to statistics, every drop of 1 degree is equivalent to a 5% reduction of air-conditioner electricity consumption)

• Rain Water Harvesting, what are the benefits?

When the water supply stops, and your house is the only one that still has water to flush the toilet, then you may imagine how convenient it is! At this crucial moment of activating your rain water harvesting system, you will be most satisfied, LEAF wireless remote control system will notify how much water has been conserved , as well as how much has been saved !

• The concept of Water Retention/Conservation System

Check this out, why is it that there is no drain in the jungle? Why is it that the trees in the jungle are thriving prosperously with without watering? The answer is, when the nature rains, the soil retains the water ,when the soil is full of nutrients, plants will definitely prosperous; so, when you walk through the jungle, the feeling of serene environment , the soil cooling effect takes place . To make your backyard similar to the jungle absorbing

water module, and even adjusting the temperature, just let LEAF proves to you, your backyard will become like the jungle with flourishing living plants.

• Is Heat Pump a cheaper option?

Don't worry, we are more concerned how it can save you even more, through the remote control of the wireless meter, a complete report of the electricity usage well be presented, and we ensure you will be deeply satisfied.





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Rainwater

Harvesting

Rainwater Management

What do we do with the rainwater? Nothing.

What should we do for rainwater? Not Sure.



How shall we go about it? LEAF has the

Please read on for more details.











solutions.



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Shit remember when was the last lime you slepped on natural solf. Today, our soli is being replaced by cement and roads, which has destroyed the natural ecology and significantly affect the planet's temperature, which contributes to global warming. Water retention system can help retain cumulated water and flow back to the soli evenly. Bring back the nature, bring back the ideal femperature, bring back the environment we used to live in.

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Rainwater Harvesting

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Rainwater management

- Recycle of Rain Water System Briefing
- Rainwater Harvesting 雨水回收
 - Water Tank 水撲滿
 - Water Release Board 排水板
- Water Retention System 基地保水
- GEO MESH PIPE 加勁地工網管
 - SUBSOIL DRAINAGE 地基排水
 - PERMATE IRRIGATION 渗透灌溉(半月型網管)





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Rainwater Harvesting Brief

1. Preface

Generally due to wide-spread of insufficient drinking water resources facing many localities around the world, and gradually contaminated and damaged. To reach sufficient drinking water supply to all the people in this world, 7 issues were specially brought up for discussion at the Conference of the Earth Summit in 1992, which included the management and development of drinking water, supply and hygienic of drinking water, the textures of water, and the protection of eco system of the environment. Even in 1997, the United Nations also passed through a report regarding the water resources evaluation and warned if no proper measures are taken, by 2050, two third of the world population will face acute shortage of water resources and will endanger the economics, agriculture, development of eco system, and cause public health epidemic and food famine. With this, in 1997, the world organization UNOECD, held a meeting in Australia to discuss the water sustainability usage, technically promote and restraint methods regarding water usage.

2. Special Environmental features of Malaysia...

A. Eco system of an island mode

Taking Penang for example, the special feature of this island is that the resources is limited and thus restrict further development. And therefore, proper management of land forms a prime continual project for the island. Sometimes, heavy rain will cause flood and proper collection of this extra water in our rain water system is of great help to reduce flood risk

B. . Expansion of economics development mode

Malaysia and international economy are greatly linked together. Each and everyone is inter-related. Because of uncertainty and complexity of the current situation, the views of international eco system, and the trend of free trade have put great pressure to every nation

So, it is of great priority for us to strike a balance to take corrective measures to handle the great imbalance of the economy before it is too late. We need to see overall social balance and value in advance, so that we can assist the country's development plan to a greater extend.

The objectives and background of research

The definition of rain water reservation system is to collect back the rain water in an artificial and natural ways. After simple process of filtration, it can be use for our daily water uses . By keeping the rain water in an underground water tank, after simple water treatment, it can be used in building and residential home like

Houses	400	800	1200	1600
Water-storage area (m2)	5000	10000	15000	20000
Tank capacity (m3)	300	600	900	1200

Although using rain water system is an ideal way to save water usage, it is not feasible as the cost of it is quite high. But , with the planning corporation of the government, then , cost control over water consumption to all parties will then

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The using of rain water in cities or buildings is the best way to economize water usage and the most effective method.

Looking from the usage of water point of view, toilet water

makes up 35% of the total volume of water usage. So, if the organizations, schools, houses, hotels, restaurants and so on are using the rain water system, the rain water collected on the spot, treated, and recycled consecutively, then, a substantial amount of water can be saved. so, the rain water conservation system is to recycle the rain water when it is raining, using the natural landscape or man-make technique to store back and recycle it. The main way to collect rain water is through the roof top and centralizing method. In this way, to temporary restore the rain

water, it can reduce and relief part of the floods occur in the city

Planning and Designing of rain water usage

In cities or buildings, using rain water system is the best way to save water usage. From the daily water usage point of view, flushing of toilet water makes up 35% of the total volume usage. So, if public corporations, schools, residents, hotels, restaurants installed rain water system, whereby rain water is collected, treated, recycled, can then be put to use in flushing toilets, cleaning cars, watering cleaning streets, or fill up the public pools, or lakes, all these will help to save a lot of water which otherwise would be ruined.

1. Planning & Principles of Buildings rain water usage

A complete rain water conservation system must include at least the following components.

- A. centralize water-collection region : following the different water storage modes, rain water from the building collection comes from the roof top, and permeated soil as regional water storage
- B. centralize piping system : t his refers to the joining of water pipes to he water storage facility
- C. preliminary handling of rain water : normally the rain falls to the ground is unclean and simple filtration is set up to counter it.
- D. simple filtration facility : for better water quality, sand ,charcoal and live charcoal can be used to remove the residual from the water. Regular cleaning of the facility is required.
- E. water storage facility : the size of the water storage facility determines the success of the rain water recycle system

Recycle and planning of natural rain water usage

- A. complete usage of existing water drainage region : using existing drainage system to collect rain water.
- B. centralizing water flowing system :directing all drainage pipe to sizable water storage tank.
- C. simple filtration facility : using PE filter system to ensure the user of quality water.
- D. water storage facility : the size of the water storage facility determines the success of rain water recycle system

In the rain water storage system, the volume of the water storage facility greatly influence by the water area in a region. Usually, the size of the building will limit the amount

	表2 雨水利用之處理流程等	級分類
連理等 - 极	而木處理波程	
A	集水→ <u>由進民王</u> → <u>此砂待</u> → 法 <u>取待</u> →日 → 町留利用	[送浆至]→[消毒浆至]
В	集水→ [決進装置] → [沈砂//] → [沈風//] →町留利月	► [i] ♣ R. E.
c	第水→ [許道褒重]→[注移待] → 許留利用	► [4 & K I]
D	售水→ (休達芙葉) 町留利用	•



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of rain water collected; and it is at this point that water storage system becomes vital. The amount of rain water collected has direct effect on the size of water storage

facility.

- Attention must be taken for building or regional rain water recycle using rain water storage system as below :
 - A. prevention of leaking in the rain water storage system.
 - B. regular checking of rain water storage system to prevent objects blocking the flow of water.
 - C. while designing, the height of the water tank should be lower than the centralize regional water collection centre to avoid over loading and easy operation.
 - D. Use lip to cover the water storage tank to prevent dirt, insects from entering. It should be strong. Alien objects should be checked at all points of entering and exiting .



. The flow chart and management of rain water usage

The flow chart and management of rain water usage is shown below in the figure below. The intention is focus mainly on floating objects, leaves, rubbish, small particle of sand and so forth whereby filter nets and sand bed layers are setup.

4. The designing process of rain water usage

The designing of rain water usage can be divided into 4 stages. First stage, recognize the location structure and plan design. Second stage, evaluate the benefit of rain water uses which include tap water replacement percentage and rain water replacement percentage. Third stage, arrangement and planning of piping route. Finally, repair and maintenance and actual work performance.

. Filter Installation

The use of sand, live charcoal are to help to remove any small particles in the rain water. It is install after the precipitation tank. The purpose is to upgrading the rain water texture which is the final filtration. The filter installation chart is shown here.,

In the process of treating rain water system, filter installation is the final stage to consolidate and up grading the texture of the rain water. So, it is not necessary to utilize all the precipitate tank water after filtration process. Only those amount of required water will be treated at this stage. Installation of rain water filter is restricted by the space of the building. Filter tank can be divided into partial and fully sealed types. Both have merits . For fully sealed type, the cost is higher but it provides better prevention of contamination of water.



Rain water is normally used for flushing the toilet, floor cleaning, gardening, and it is not for consumption purpose. But, some people drink it by mistake. Wrongful consumption still happened. To prevent contamination by any bacteria breeding in the rain water storage, air-pump installation is fixed or chemical is added to prevent any sea weeds from thriving in the water and so to keep hygienic and safe level. Therefore the final stage in the rain water treatment is to chlorinate it to kill any tiny germ and attend safe water consumption. After

remember when was the su stepped on matural y, our soil is being replament and roads, which significantly affect of a temperature, which induces to global warm retarbor system can be the soil aventy. Br the nature, bring back temperature, bring back temperature, bring back temperature, bring back

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treatment, the water is clean and better quality. In general, the amount of chlorine added between 2-4mg/1 +- is an ideal level and can meet everyone requirement. But, if chlorine is added too much, it will affect the growth of plants and will cause dead to fish. So precaution must be taken care.

(reference) Evaluation and Design of Rain water Re-circulation

Rain water recycle system includes rain collection, treatment, storage and supply of water facilities. At the preliminary stage of recycle rain water, one must take into account and evaluate the rain water collection and usage frequency. Then, the area of water surface and the capacity of the storage facility determines the earlier two factors. The calculation of the rain water collected is simple. It is the depth of rain water times the area of rain water .

Normally, taken from the meteorological report, evaluation of rain fall can be divided into sporadic, daily, monthly, and yearly rain fall. Using of yearly rain fall record and consumption frequency could be used for preliminary rain water recycle consulting purpose. Any wide variation will cause hard decision in the size of rain water storage system. Normally, daily record of rain fall is taken to be the key for evaluation uses.

Calculation of frequency in rain water usage and accumulation

depend on the relationship among the four factors of the rain water storage tank. These four factors include the inflow portion of the volume of rain water, supplement supply of tap water, outflow portion of the consumption water, and the overflow portion of the water. This can be shown with the diagram.

For calculation purposes, one needs to confirm the location of the rain water usage and yearly assessment. Then, decide the area surface of the rain of the rain water size, and frequency usage of the water as mentioned earlier. Refer to the figure 4 below which shows the flow chart that carry out the evaluation .

Rain water Treatment and Procedures

Ra subsection of the sector of

Places	Cleaning and flushing of toilet	Supplement	Watering	Washing car,general	Cleaning bathroom and floors	Drinking water
Uses		Cold water	Plants and water scenery	cleaning		
Roof top	Simple removal of rubbish for	Consumption after natural resi	idues and simple treatment	Low and the state	Use after residues and pebble	Chlorinate
Park	consumption			L Reality (Self	filtration	after all water
Car park, road, tarred road	Use after natural residues and simple	treatment	Use after pebble filter		Natural residues plus filter	treatment
Complexes, road, tarred road	1 Mar	and the second			filtration process	
Working place for water penetration	Use after simple removal of rubbish	Use after natural residues and	l simple water treatment		Residues and pebble filter and	
					use	



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* Underground Water Reservoir ----- Water Tank

The work process involves : First lay the PE sheet onto the pre-dug ground bed , then lay the double deck H.D.PE pipe accordingly. Firmly fix the H.D.PE pipe. After covered it with soil, the tank possesses high pressure resistant, erosion proof, besides using non-poisonous material , the whole unit still can be used if it is moved to other places. It is recyclable and entails environmental friendly features .





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Water Tank **Rainwater Harvesting**

Work in Progress Display

A. Digging pre-assigned soil bed B. Using sand to strengthen the foundation

C. Laying permeated cloth-sheet

D. Layig another impermeable PE double cloth-sheet on top







pipes as the main structure



I.Laying consolidate triangular

instrument



K.Complete work covered with soil





F. Installing water entry point

portion

L. Add the water pipe

6 60

J. Laying permeate sheet on top



G. Add in pipes to counter over-



H. Finish Water Tank Structure





A completed green project





Wellcan Enterprise Co., Ltd.

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Rainwater Harvesting

Low cost , high performance , easy to install , can use in all civil

Water Tank

Water Retention Tank

Wellcan Enterprise Co., Ltd.

(1) engineering work Light weight, can apply in many plastic PE mesh nets, small (2)

pebbles and mud can quickly being filtered,

Measurement for Reference (3)



Product no.	Tank diameter	Inner radius	Outer radius	length	
TK1000P-5	40in(1000m/m)	1000 <u>+</u> 5%	1125 <u>+</u> 5%	5m	

Products Requirements (4)

Items	Colors	Pull-resistance	Elasticity %
Numerical	Black	230kg/cm2 +	330% +
standard	Sight	ASTM D638	ASTM D638

















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Rainwater Retention

Water Release Board

• TECHDRAIN--PP

Products Briefing



Wellcan Enterprise Co., Ltd

During the construction in progress, permeated drainage pipe has a great influence on the quality and safety of the work. The traditional water drainage used mostly the crushed-rock standard to construct. Due to material supply shortage, highly increasing cost; delay in work, and product's quality control. This is how the Techdrain-pp comes into place and provide confidence to the construction work. It actually makes the construction easier, swiftly solve the water over-flow problem, and thus assure the quality of the work.

Material Briefing

TECHDRAIN PP of water release board is made up of high pressure resistant HDPE plastic material. Water Release Board comprises of 3 dimensional rules of an empty frame and square shape supporting stand or glass shape. It can withstand acidic test, resist biological effect, can stand direct ultra-violet light exposure. TECHDRAIN PP water release board has high pressure resistant element and drainage volume, can be used in various construction compound, to assure over-flow water flowing out . The water release board is applied at the surface of the construction work to filter out the debris and mud which may cause blocking. TECHDRAIN PP water release board uses construction melting method or needle stitching method. Its components are 100% made of HDPE (PP) which produced through high melting and stitching method. It is ultra-violet resistant, high filtration excellent, and piercing proof. No need to worry denting, drainage

blocking and cause drainage problem.

Merits of the material

- 1. Trustworthy : manufactured from factory, quality dependable, no trouble in construction work later on
- 2. Easy to work : Product is light weighted, parts fixed are stable; using only simple tools to operate.
- 3. Low cost : Operation is simple and technician is not required.

4. Long life span : High HDPE extruded plastic material which can endure high pressure, and special selected filter n ot easy to get blocked.

Range of operation

- 1. Park , sports avenue, drainage block
- 2. Golf playground drainage block
- 3. Road side drainage
- 4.Garbage ground drainage, gas pipe block
- 5. Sky garden/Garden in the air
- 6. Middle backyard gardening
- 7. Balcony







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Rainwater Harvesting W

Water Release Board

• Explanation of various components of Water Release Board



Leaf



B. Double sided Water Release Board C. Water

C. Water Retention Water Release Board





	Contraction of the second	. 4									-	
	Material	Colour	Type1	Type2	Туре3	Compressive	Type1	Type2	Square Hole	Frame	Water Release	Water Release
						Strength			Measurement	Measurement	Capability	Volune
											(Flexibility)	
Single	High	Black	30mm	35mm	50mm	Above 70ton/m ²	32cm×32cm/		1.2cm×1.2cm	7.5mm	Above 0.02m³/m²	Above100L/min
Sided	PresssurePropylene						pieces					/m
	(PP)											
Duble	High	Black	28mm	35mm		(PP)above100ton/	33.2cm×33.2	40cm×40cm×3.5cm				
sided	Pressure ,Propylene					m²	cm/2.8cm/pi	/pieces				
	(PP),High Density					(HDPE)Above	eces					
	Polyethylene(HDPE)					10ton/m²						
Water	High Pressure	Black	35mm				40cm×40cm×					
Retention	Propylene(PP)						3.5cm/pieces					

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in extruded plastic

netting

R

P

Water conservation system

Ten square meter conserves two hundred million tons of underground water. The permeated basement well water conservation system provides the best economical and simple method...

The background of permeate basement well water conservation system

At highly developed city region, the impermeable surface include roof-top, streets, pedestrian crossing, and car parks and so on. The increment of this type and impermeable surface has a direct relative ratio. An increase of non-permeated surface will definitely reduce the rain water to penetrate into the soil and thus causing reduction to replenish the underground water. At the same time this will cause more tributary rapid water-flow volume and less river flowing.

Therefore, using vast rain water drainage system to drain away the excess water out of the city, will cause insufficient water to replace back the underground reservoir. So, if using designed rain water drainage system, taking land usage and considering surface conversion such as permeate basement well water conservation system to let the rain water penetrates into the underground catchment area. Rational use of the underground rain water will reduce the risk of scarce resources that the city is facing, and also increasing the moisture content of the soil, modifying the weather condition, which will also improve the eco-environment of the city life. Moreover, the need for rain water system volume is reduced too ! Investment on the rain water drainage system and operation expenses are also reduced. Furthermore, the water pollution and flood will be decreased further.

However, at this fast pace of city development, it is very difficult to supply sufficient open land to let rain water to penetrate or permeate surface to let the rain water to sip through to the underground. At this time, it needs the man-made facility water conservation system to assist the rain water to sink into the ground . This method is also known as "man-made permeate method", to compliment the natural deficiency.

The Essential of Installing Permeable system is the trend

The function of keeping rain water and recycle is fading away because of the impermeable ground in the city region, plus the increasing demand for water volume by the increasing population, and the post effect of the city development projects . All these factors are taxing the eco-environment in the city. It is of utmost priority needs to improve the soil eco-environment, modify the weather condition, lowering natural water-hazards, reducing the rate of floods, providing rain water conservation system and permeable well water design. That is why the man-made supplement facility such as "permeable water conservation system" to help the rain water to get penetrate into the soil. This system helps to restore the rain water under the ground which otherwise will be wasted.





5%~100%高度開發。 Comparison of a typical

issue of a modern world.

undeveloped forest with a develop

city on how drainage becomes an



Picture 1 City during pre-development period, there is sufficient open space to permit water to penetrate. The eco-system was very balance.



Due to high development projects there is insufficient open space for rain water to sip through and result to flood.

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Permeable well water conservation system restores the surface water and the middle layer of the soil by directing the rain water into the permeable underground drainage pipes. "Permeable well water" is a man-made vertical facility which only effectively collect permeable soil rain water, but also can be connected to the horizontal "semi sphere mesh drain pipe ", which then can track down pollutant and mud . It facilitates periodical cleaning and ensures smooth flow of water. Normally, "permeable well water" and " semi sphere mesh drain pipe" form as "Permeable well water conservation system" which will collect and direct the rain water from the surface, as well as the water-saturated soil in the middle layer to the catchment area.

• Principles of Permeable Well Water Conservation System

• Special Features of the Permeable Well Water Conservation System

Permeable Well Water Conservation System uses HDPE as components, and three dimensional T-shape screw-type ,together with the gear-liked tools , extruded to form the shape. The catchment area can collect up to 80%. The space can be increased, and the mesh pipe can hardly get blocked. HDPE mesh pipe spreads through all over the water layers and the effect is very impressive. And the T-shape dimensional mesh pipe structure can withstand high pressure, light weighted, endurable, pro-acidic test , erosive-proof, and breakable-proof. The cost is low, easy to operate, high performance, and possesses revolutionary high economical value in this conservation system.

• Special Features of The Semi-sphere Mesh Drain Pipe

The Semi Sphere Mesh Drain Pipe applies the weight separation theory of water and soil, table formulation is not required, Sand and pebbles, stitch-less material, and other filter parts will not cause blocking easily. This product can be installed and used directly.

Traditional permeable drain pipe is made up of the top part is opened for water to flow in , and the lower part is impermeable. So, when the water flows in with the soil particles, it will accumulate and gradually blocking the small opening .Our T-shape screw type mesh drain applies semi sphere design. This half round portion is impermeable layer. The

flat portion of the mesh drain will allow water to pass through. When installing, the flat portion of the mesh drain will face down. This will allow the weighted soil particles sink down and only the water is allowed pass through the pipe. There will be no accumulatives occurring at the water entry point. The face down mesh pipe is permeable. It can also direct the water to flow away. The effect of siphonage will apply when water reaches the entry point. That is due to the uneven volume of water flow.





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Structural diagram on how the entire system works

ATA



廖遗井盖地保水东航播出





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The Main Function of The Permeate Well Water System

• Rainwater Harvesting

Generally, rain water is a fairly clean source. Rain water catchment areas from the building, roof tops can be processed and restored to form a big underground water dam.

Basement water conservation

Rain water conservation, promotes rain water to sink through, replace and filling the underground water. To promote water sink into the soil, trying to retain the rain water temporarily, and monitoring the water flowing speed through the water permeate recycle environment. When the efficiency of the basement water conservation





is at its peak, the replacement of the subterranean rain water will get better, and the flow in the rivers and streams will naturally back to its normal. The conditions in the bio-environment will also improve. More importantly, the land will not sink.

• Prevent Deluge, Reduce Rain Water Drainage Pipe Facility

Following the city development, the radius of the water flowing volume will lengthen, rain water drainage pipes, rain water pumping stations and so forth will follow suit. This is a great burden to the city development. "Permeable Well Water Conservation System" will bring together the over-flow water into the pipes and also into the catchment area where the soil is permeable. Then, further into the underground water reservoir. This will absorb some water volume to counter the power of deluge. This Permeable Well Water Conservation system needs only small piece of land, and can be conveniently installed. It can combine with rain water drainage and permeable pool operation as well as be used independently to reduce rain water drainage facility.

• Adjusting land warming

The large ,underground water reservoir forms from rain water can affect the temperature of the land and thus counter the effect of the global warming.

• Removal of rain water and accumulated water can prevent mosquitoes breeding ground, and reduce contagious diseases

The permeable well conservation system can be installed to collect the catchment rain water and swiftly draining away the stagnant water and rain water at the low-lying region where dormant water is easily formed.

After raining, the cumulated water will become breeding ground for mosquitoes. Using the permeated well water conservation system, the rain water will penetrate into the underground water reservoir and thus no breeding ground for the mosquitoes, and that will prevent mosquito related disease from spreading .







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Operation of the Permeable well system

A. Drain way system to prevent deluge

Separation of rain water and impurities water using the drainage system is a huge public project faced by the government which taking environmental protection into account. To construct another releasing rain water into the drainage system requires land, deep into the small lanes, will encounter great difficulties.

The permeable well water conservation system can complement the defect of the rain water falling into the drain system in draining the water out. There is no addition of the size of the water falling into the drainage module. Another portion of the rain water can penetrate straight into the underground soil. No extra land is needed. Permeated well and semi sphere mesh net can be laid down directly, convenient to operate and cost-sphere .

B. Pedestrian crossing cement road drainage supplementary system and basement water conservation system

Rain water cannot penetrate through the pedestrian crossing and tar road. That is the main cause of wasting the rain water in the city. The permeated well water conservation system can quickly collect the sinking water, easy to operate and maintain, the cost of construction is low, and can be considered to be the best system for the proposed pedestrian crossing water conservation system.

C. Foundation of the Public Road (Divider) supplementary permeate drainage system

Damaging the road structure is normally caused by the presence of water . A good roads drainage system will prolong the life span of the road. By comparing the life span of those roads having good design of drainage system and without any drainage system , it is concluded that those having drainage systems can last two to three times longer. The permeated well water conservation systems swiftly draining out the water from the road and the saturated soil water, and it is able to prolong the life span of the modern public road as per stated.

D. Industrial rain water drainage system

Industrial area is considered to be the most polluted place. System that can separate contaminated water and the rain water is of priority and very important. The low cost of permeable well water conservation system can be easily constructed and reduced the rain water flowing into the contaminated water pipe and thus, helps to reduce the water treatment plant burden.

E. Roof top rain water drainage system

The roof top is a big ,non-permeable platform area for the rain water. When it rains, huge volume of water gathered and flowed down to the ground. With no excellent drainage system, stagnant water could cause flood.









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F. Golf course Basement Water Conservation and drainage system

Apply directly the permeated well system, use no crush rocks, cloth-less, wire net etc as filter parts, no blocking of drainage system, no unwanted waste soil delivery problem, cost saving construction and filter parts, is the best consideration for sand dug-hole, ball lane, etc.

G. Permeate well water conservation - irrigation system

The permeable well water conservation-irrigation system, when being installed, the semi sphere mesh pipe is facing down, to let the water flowing mthrough the buried pipe, and moisturized the soil, then from the soil hair-size space, spread the moisturized water particles, nourished minerals to the surrounding soil, for the plant's roots growing proposers. The air passage through the mesh pipe flow into the soil will make a good soil ventilation. The soil will not clog together, and therefore provide more air into the soil. And the excess water will flow out from the other end. This will remove high water level in the underground. The functions of T shape screw shape mesh pipe in farming offer drainage , save water, save energy, increase output, ,with high efficiency rate

Below the ground 10cm -60cm (at the depth of the plants root), bury the mesh pipe, through the effect of the soil hair size pore, nutrient will be constantly supplied to the roots region. Effective consumption of water rate, will make a good ventilation for the soil , no soil clogging, no blocking, retain water quality, the shape of the permeable soil forms a ladder form. Normally, it takes 15 minutes to permeate an area width of 15-20cm, and the soil drops to 15cm+. The permeated area then reaches 50-60cm.

Basement Permeable well water conservation system

This system is the combination of vertical "permeable well" and horizontal "semi-sphere mesh pipe" to form the "basement permeable well water conservation system", the permeable well collects the falling rain from the surface, flows into the semi sphere mesh pipe, and then flow to the underground water reservoir.



Semi- sphere Mesh Pipe









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Rainwater Retention System

• Water Conservation System

- Subsoil Drainage
- GEO Mesh Pipe

*Mesh Drain Pipe

- *Rainwater Chamber Pipe
- *Rainwater Conservation Module



Mesh Pipe is Made of Extruded Plastic Material, HDPE. Rupture and impact-resistant even at low temperatures Durable and easy to recycle.



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NSH-1/2 不透水型



NST-2/3 不透水型

NSC-全不透水型

標準管徑		內徑*外徑	螺距	長度
英寸	型號	±3.0%mm	±3.0%mm	m
11/2"	NSO-40A-4 NSD-40A-4	34*48	11.0mm	5m
2"	NSO-50A-4 NSD-50A-4 NSH-50A-4 NST-50A-4 NSC-50A-4	47*60	11.5mm	5m
2 ½"	NSO-65A-4 NSD-65A-4	61*76	12.5mm	5m
3"	NSO-75A-4 NSD-75A-4 NSH-75A-4 NST-75A-4 NSC-75A-4	74*89	12.5mm	5m
4"	NSO-100A-4 NSD-100A-4 NSH-100A-4 NST-100A-4 NSC-100A-4	98*114	12.5mm	5m
5"	NSO-125A-4 NSD-125A-4	123*140	14.0mm	5m
6"	NSO-150A-4 NSD-150A-4 NSH-150A-4 NST-150A-4 NSC-150A-4	148*165	14.0mm	5m
8"	NSO-200A-5 NSD-200A-5 NSH-200A-5 NST-200A-5 NSC-200A-5	193*216	14.5mm	5m
10"	NSO-250A-5 NSD-250A-5 NSH-250A-5 NST-250A-5 NSC-250A-5	239*267	14.5mm	5m
12"	NSO-300A-5 NSD-300A-5 NSH-300A-5 NST-300A-5 NSC-300A-5	290*318	14.5mm	5m
16"	NSO-400A-5 NSH-400A-5	390*420	14.5mm	5m

標準型 (A-TYPE)

1	連管徑	戊酮★水酮	16835	長度
英时	型號	±3.0%mm	±3.0%mm	cm
11/2"	NS-40PA	48.5*60.0	11.5mm	12cm
2"	NS-50PA	61.0*76.0	12.5mm	12cm
21/2"	NS-65PA	77.0*90.0	12.5mm	12cm
3"	NS-75PA	90.0*105.0	12.5mm	15cm
4"	NS-90PA	115.0x130.0	12.5mm	20cm
5"	NS-125PA	141.0x160.0	14.0mm	20cm
6"	NS-150PA	166.0x183.0	14.5mm	25cm
8"	NS-200PA	217.0*240.0	14.5mm	30cm
10"	NS-250PA	268.0*290.0	14.5mm	35cm
12"	NS-300PA	320.0*342.0	14.5mm	40cm

高抗壓型(C-TYPE)

	標準管徑	內徑*外徑	螺距	Entr
英吋	型號	±3.0% mm	±3.0% mm	m
3"	NSO-75C-5 NSD-75C-5	70*89	14.0mm	5m
4"	NSO-100C-5 NSD-100C-5	93*114	14.0mm	5m
6"	NSO-150C-5 NSD-150C-5	145*165	15.5mm	5m
8" NSO-200C-5 NSD-200C-5		191x216	15.5mm	5m







半月型渗透绷管规格表



半月型滲透網管規格

	標準管徑	內徑*外徑*高	螺距	長度			
英吋	型號	±3.0%mm	±3.0%mm	m		外徑	
2"	HP-50A-5	47*60*54	11.5mm	5m		内徑	
3"	HP-75A-5	74*89*74	12.5mm	5m	4502		_ 透水孔
4"	HP-100A-5	96*114*92	12.5mm	5m	高		-
6"	HP-150A-5	146*165*140	14.0mm	5m	<u>+</u>	Surger for the state of the sta	
8"	HP-200A-5	193*216*170	14.5mm	5m	1		

半月型渗透網管平接頭規格表

į	標柄管徑	內徑*外徑*高	螺距	長度 cm
英时	型號	±3.0%mm	±3.0%mm	
2"P	HP-50PA	61*76*72	11.5mm	12cm
3"P	HP-75PA	90*105*91	12.5mm	15cm
4"P	HP-100PA	115*130*108	12.5mm	20cm
6"P	HP-150PA	166*183*162	14.0mm	25cm
8"P	HP-200PA	217*240*193	14.5mm	30cm

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Contract Procedure



Lecf-

Business negotiation procedure

Residential categories: Understanding and identify customer needs, budget, usage purposes Commercial categories: Company Overview, future growth rate, budget, philosophy and etc.

Preliminary proposal

Budget setting, product proposal and quotation submission. Site surveying, analysis and photos taking for reference. Preliminary planning and preparing the draft of design.

• Contract

Advance payment of 50% total amount upon contract signed. Draft reviewing for necessary



amendments, final verification on the construction details and explanations, construct Gantt Chart of Progress.

Construction site

Launch construction according to design drawings and progress schedule. Advance payment of 40% of total amount upon shipment of equipment along with installation of equipment, program setting and testing.

Completion

Verification and acceptance of work completion with issuance of guarantee letter. Final settlement of 10% of total amount upon completion.







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Return to nature it's so simple



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