

GreenFinn Zero

Building Management



Solutions for Villa's & Apartments

Advanced technological solutions

Smart technology GreenFinn Zero Integrated Building Management System is an intelligent, modern solution for villas and apartments. It has been designed with several years of experience in Building Automation, HVAC and Security Integration Projects.

Several international organizations have defined new objectives for buildings and the construction industry. These rules emphasise sustainable technology, reduced use of natural resources and energy efficiency. These goals can only be achieved with new way of thinking and with new technical solutions. These technical solutions are a culmination of innovative invention and dynamic expertise.

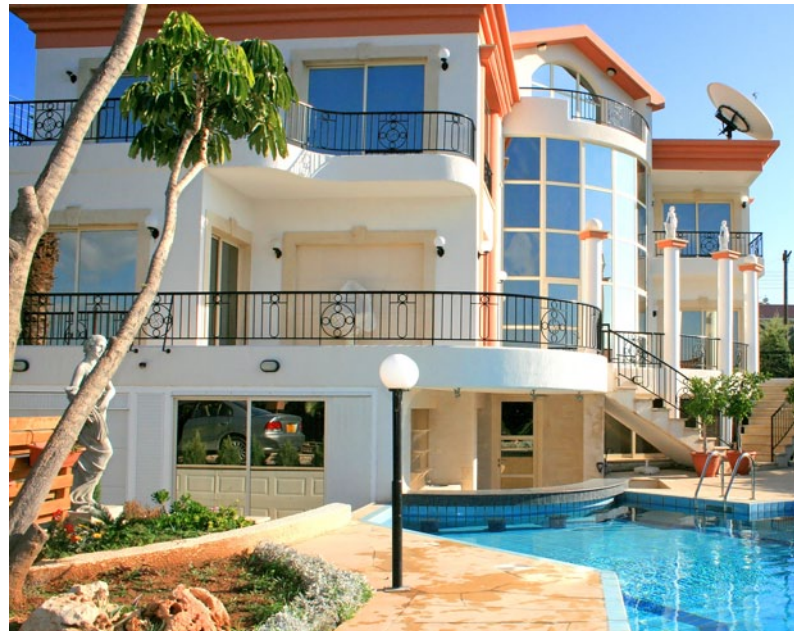


GreenFinn Zero helps to save on energy costs, increase comfort and enhance security. All this is achieved in one integrated system to ensure compatibility and ease-of-use.

Solutions The GreenFinn system actively monitors energy consumption via air flow, lighting use, temperature differential, humidity, and can even monitor and alert security breaches.

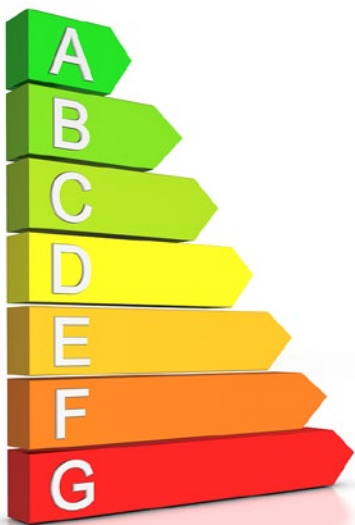
The information gathered is analyzed and used to control the homes functions such as HVAC control via fan speed and cooling pump temperatures and can offer security process control also.

In addition to automated functions, users can also alter their living environment actively with the system. Detailed reports, graphical user interfaces (GUI) and remote controllability ensures that the users are always in control and aware of the current status.



Visible benefits

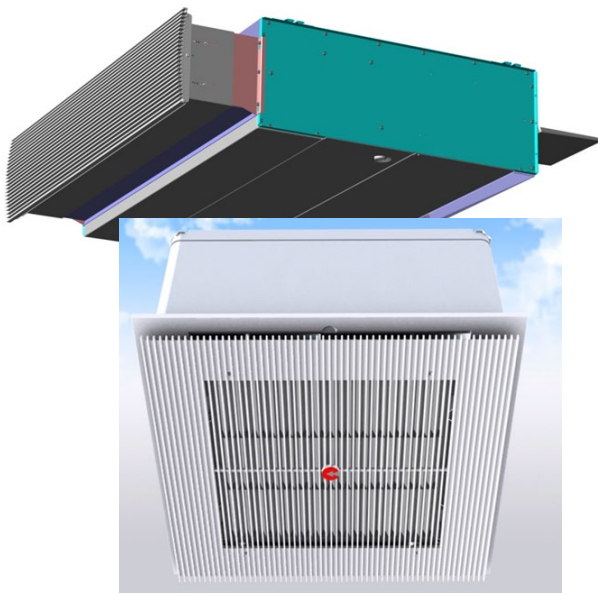
- Significant reduction in energy costs (30 - 70%)
- Prevents condensation and mold
- Improves indoor air quality
- Improves safety
- Remote control, logging and metering
- Whole life cycle cost savings
- Meets LEED requirements
- Reduction on environmental impact



A new approach to air conditioning

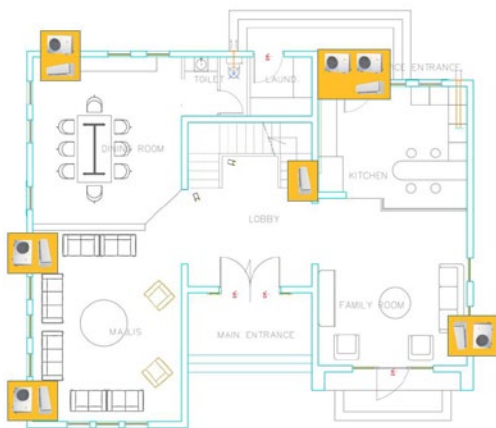
Advanced air handling Without removing the excess humidity that the warm air outside contains it is not possible to cool incoming and ambient air. The Enervent TwinTropic air handling unit (AHU) filters the supply air and reduces the humidity for the air conditioners. Patented dual heat recovery wheel technology enables over 70% energy saving compared with conventional split unit technology. The unit also creates a small overpressure that prevents moisture from outside entering into the building structure. A by product of process is the generation of condensate water which can be utilized for toilets or irrigation.

Comfortable cooling Centralized water chillers on the roof produce chilled water for the AHU and room air conditioning. This solution by Chiller Ltd saves energy and provides increased comfort for indoor air quality. The energy efficient chilled room air conditioning system provides a silent and draught free cooled environment for you to enjoy.



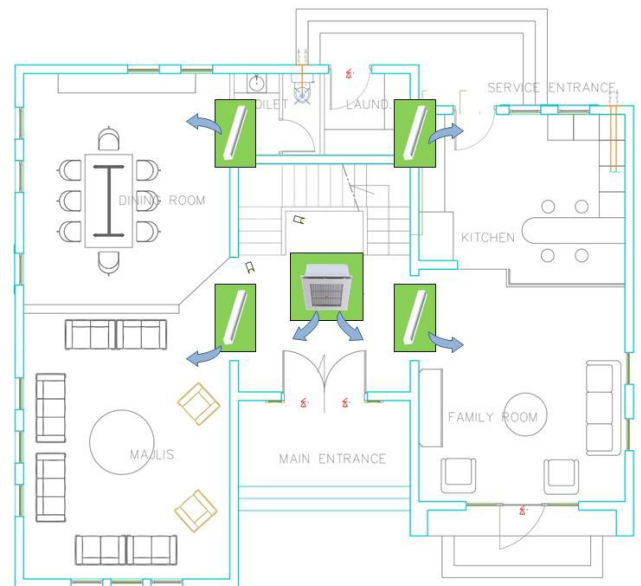
Typical challenges in villas and apartments

- High Energy Consumption as a result of inefficient cooling products
- Poor indoor air quality
- Condensation and Mold Growth
- Mechanical noise from cooling pumps



Conventional method

- Individual room units supplied
- Each unit has an external split module which is unaesthetic and noisy



GreenFinn Zero advanced method

- Each room has its own all-in-one cooling unit and controller with no need for a separate external unit
- Cooled air is distributed centrally together with dehumidification
- All-in-one cooling units are quiet and discrete
- Cooling can be centrally controlled
- Dehumidified air – no moisture issues
- Reduced maintenance and servicing requirements
- Reduced energy consumption

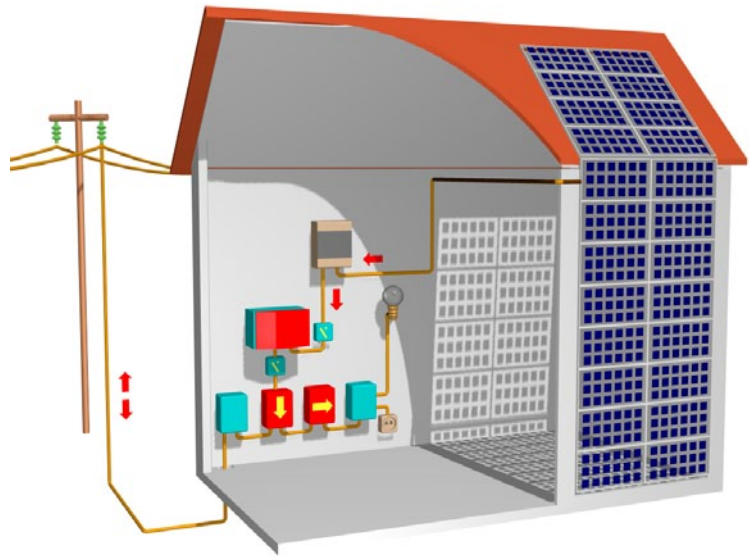
Harvesting the power of the sun

Cutting edge technology For over 30 years Naps Systems have been in the forefront of delivering systems and technologies that take into account end-users values and needs along with environmental issues.

Naps Systems supply high-quality custom-designed solar electric solutions on a turn-key basis – from design and engineering to after-sales services.

Clean and easy Solar electric systems are clean, maintenance free and long-lasting energy producers. Traditional building materials can be replaced by electricity-generating elements in almost any kind of new building, with a minimal increase in capital cost.

Design flexibility There is a wide selection of solar modules for many differing applications – roofs, facades, canopies, shading devices etc. Not only do they offer interesting design options, but by reducing the building's daytime electricity demand, they also reduce the emissions of greenhouse gases and reduce expensive energy consumption.



Converting solar energy to electricity is one of the fastest growing renewable energy production methods - and for a good reason



Intelligent wastewater management

Reducing water foot print The Evac solution minimizes the use of fresh water for toilet flushes. At the same time it offers you the ability to locate pipework to meet the design requirements. Additionally, the reuse of grey water contributes to a smaller consumption within your building. The Evac vacuum toilet uses only 1.2 liters per flush as opposed to 6 -7 liters for the conventional toilet. This results in dramatic reduction in water consumption, savings in water rates and also a reduction in the amount of sewage produced. The Evac solution also makes it possible to recycle grey waters to be used as toilet flush water.

Clean technology During each flush the Evac solution consumes 60 liters of air. This removes viruses, bacteria and odors from the bowl and simultaneously enhances hygiene and personal comfort in the sanitary facilities.

Flexible design Evac gives the building designer complete freedom from the restrictions of gravity fed pumping. Bathrooms and toilets do not need to be tied into a services core but can be located where they best suit the design.

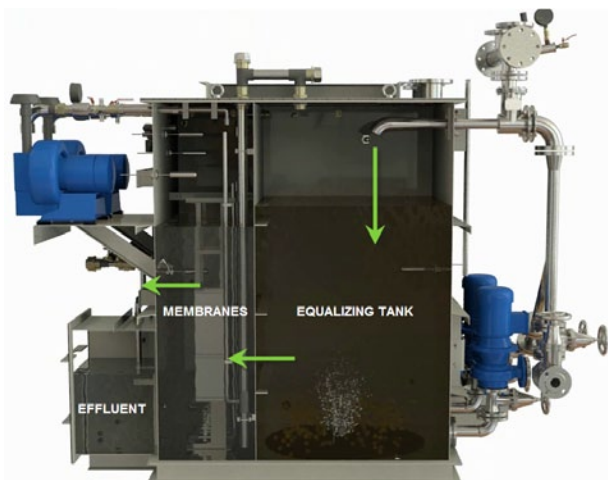


Benefits

- Significant reduction in water consumption (up to 80%)
- Increased design flexibility
- Health and hygiene benefits
- Bacteria, virus and odor reduction due to vacuum air system

Evac advanced wastewater treatment

Evac Membrane Bio-Reactor (MBR) combines biological and ultra-filtration membrane processes. It provides an extensive removal of contaminants allowing various reuse applications. Evac MBR removes more than 99% of bacteria, solids and organics, and more than 85% of nitrogen and phosphorous compounds. Average flow capacity ranges between 1.5 and 45m³ / day.



Evac MBR advantages

- Very high effluent quality
- Simple and automated operation
- Minimized sludge operation
- Energy conservative operation
- Robust and reliable
- Odor less
- Small footprint
- 10 years life membrane

Intelligent coordination

Fidelix BMS is a freely scalable technical monitoring control system for buildings of all sizes. The Fidelix BMS represents a new generation of system designed to meet the needs of modern construction and building technology requirements.

The integrated and networked system can be used for several applications such as controlling cooling, ventilation, air conditioning, energy consumption measurement, water consumption measurement, burglar alarms, access control, CCTV system and fire security.

Improved comfort The Fidelix BMS controls the air conditioning and air handling system optimizing its function to provide the best living conditions with the lowest possible energy consumption. The system automatically controls all subsystems based on usage, occupancy and preset modes.

Easier maintenance Information about issues and / or faults are directed to the maintenance personnel via email or SMS. Detailing fault information efficiently leads to faster response times. By using a remote access maintenance feature Fidelix BMS helps to solve problems even faster and with lower costs.

Building Management Systems are used to control over 70% of buildings' energy costs. BMS controls all subsystems to operate for common objective.



Centralized monitoring With the help of Fidelix BMS all alarms, fault indications, usage information and reports can be automatically directed to the correct receivers. Remote connection via a computer or a mobile phone makes it possible to manage the system from wherever a network connection is available.

Enhanced security In addition to managing living conditions, the Fidelix BMS is also packed with security features such as access control, burglar alarm and CCTV integration.

Integrated management systems are essential in improving the energy efficiency of buildings.

Efficient Cost Management Temperature, air conditioning, lighting, alarm systems - all connected subsystems are controlled according to need, time-of-day, preset modes, occupancy, outdoor conditions or user input. The Fidelix BMS monitors energy consumption constantly and at the same time informs and reports to the user in different ways.

Support and additional services

Full service The GreenFinn Zero system can connect to a service center providing specialist assistance and additional services. The service center receives fault and alarm notifications from the system and forwards the information to appropriate receivers such as maintenance personnel or a security company.

Additional features and services In addition to assistance and remote monitoring of the GreenFinn Zero system the customers can request optional services such as cleaning or gardening.

Useful information A service center is capable of creating various reports about energy- and water consumption and other useful statistics.



Expert service ensures that the users can concentrate on enjoying the features - not looking after them.



What is GreenFinn Zero? GreenFinn Zero is a concept founded and created by Finnish technology companies with innovative and fresh solutions to improve buildings' energy efficiency. We are actively taking part in leading the development in Smart Green Building Technology.

Our goal is to develop technologies to help buildings achieve **zero energy consumption** and **zero annual carbon emissions**.

