

INFORMA

Special Eco edition

No. 17, Year 2009

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 **Trimo**

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Introduction

Don't just think green. Act green.

In Slovenia, where Trimo's headquarters are located, we have recently been helplessly witnessing the untameable power of mother nature. The image of a quiet and green country has lately all too often been tainted with the image of damaged buildings, fallen and uprooted trees, destroyed agricultural produce, flooded roads and tear-covered faces of people, who have lost everything in their battle with the untameable nature.

Grim predictions about the destruction of the natural environment are heard more and more frequently. Today, the issue of pollution is placed shoulder to shoulder with issues concerning poverty, hunger and wars. Our attitude towards nature and the environment is becoming the central point of global political discussions and economic development. Never before have we had such an important role in the preservation of nature as we do today. Up until now, our future has never been so dependant on us – as it is today.

The projects and reflections we are presenting in today's Informa represent the contribution that Trimo is making to the preservation of nature. We see our role in securing pure nature as an active one – as a developer of products that are made from environmentally friendly materials and are innovative, whose footprint on the environment is as invisible as possible.

We also see our role in encouraging others to be environmentally friendly – our suppliers, customers, architects, employees – people, who we know have the power and the opportunity to provide our

environment with a more beautiful and kinder future.

We therefore dedicate this issue of Informa to ecology – because we know that together we are capable of leaving for posterity a clean environment. Because we believe that green economy is not a matter of profit, but a matter of courage. The courage to think differently, progressively, and globally.

Mere rhetoric about green activities is a thing of the past. Today is the time to act green.

*Tatjana Fink,
General Manager of Trimo d.d.*



Green at Heart

How can companies be 'green' or more specifically environmentally friendly? Sure they can start sourcing products from sustainable sources and implement a whole list of actions and procedures that seek to reduce their carbon footprint, but is that what being green is all about?

Just fixes?

For some companies, being green is about the implementation of quick-fix measures that make a bold and very public statement of intent about their green credentials; to be seen to be doing something and which may even make an immediate impact. However, quick fixes are just that 'fixes'; and having not been built on any real strategy are all too often final and without the scope to go any further. Of course a quick fix is better than no fix and given the mounting evidence regarding climate change and global warming, few would argue the need for immediate action is not necessary.

Economically being environmentally considerate is advantageous too as customers seek to partner only those organisations that have shown some commitment to becoming green. Being green is certainly a band wagon worth jumping on financially.

Journey without an end

The fact is reducing your carbon footprint, sourcing sustainably and generally being considerate to the environment is really a journey without an end and this has to be accepted before any company can really consider itself green. No company can simply do something and then say it is now green as being green is a cultural way of life for businesses and individuals.

Thorough change

Working across many diverse markets and in many countries, Trimo recognised very early on that quick-fix solutions would not address the different environmental legislation that was in place, pending or likely to be adopted by each of these markets in the future. And if Trimo was going to continue its phenomenal growth it could not afford to find itself excluded from any

of these markets on the grounds of not being able to compete with other companies that may have greater sympathy for more local environmental concerns. Additionally, it was important that Trimo satisfy its own growing awareness of its social responsibilities to the community at home as this is how it will be judged and by the legacy it leaves for future generations.

The only real option for Trimo was to take the bold decision to place all matters green and the environment at the heart of its business strategy, building them in to every aspect of its business and operations. This approach had many advantages; firstly it elevated the environment issues to the top of its corporate agenda where its prominence and actions were there for all to see and could be subject to public scrutiny – the best critic! Sec-



only, it ensured that all environmental matters were scored against targets that were set out in the annual business strategy and that could be judged year-on-year over previous targets. An important aspect was to ensure that achieving a target was not considered a job done, but the motivation to do even better against ever higher targets the following year.

In affect what Trimo has is a 'green heart' that beats alongside all business elements and not just those that impact directly on the customer. Equally it addresses areas such as the company's own energy consumption, water usage and waste production, which all directly or indirectly contribute to Trimo's own carbon foot-

print. A product can only be truly green if there is the environmental motivation and considerations behind it. Having a 'green heart' also motivates innovation and much of the company's research and development is focussed on the development of products that are kinder to the environment but also on new production methods that require less energy and raw material.

Reduce carbon footprint

Its new EcoSolar PV Panel comes from such creative thinking and actually allows the generation of clean low-CO₂ energy from the sun. Innovation such as this allows Trimo's customers to reduce

their carbon footprint without compromising any of the functional qualities that have traditionally set Trimo's products apart from the competition. It also instils customer confidence that Trimo is a socially and environmentally responsible company, which helps maintain customer loyalty and promotes it as a company to do business with.

Culture of environmental responsibility

Trimo's green heart beats through the entire company and this has successfully established a companywide culture of environmental responsibility. Employees are engaged in the processes and encouraged and incentivised to work as environmentally considerate as possible. This approach benefits the company in the pursuit of its environmental targets as well as educating employees to think and act more responsibly with regards to energy use, waste, etc., both in the workplace and in their general day-to-day activities.

Environment is more and more important

Environmental issues are not going away and are in fact likely to be ever higher on the corporate agenda in the coming years. As nation-wide targets with regards to the environment are set the consequence is a cascade of strict legislation that will govern the way we work and how products are manufactured to ensure these targets are met. The financial and business impact on those organisations without any clearly defined strategy will be enormous and in some cases catastrophic. To be successful in the future means adopting environmental strategies now that are flexible enough to evolve alongside company growth and activities and which can be built gradually into all business areas and this may mean, like Trimo, Having a "Green Heart".



Interview: Stuart Barlow

Touching the earthy lightly



We talked to Stuart Barlow, practice's Director of Sustainability & Technology and oversees the practice's sustainability and technical issues, heading up both the Technical and Sustainability Expert Groups at 3DReid Architects in the United Kingdom.

How big an issue is the environment to designers and architects in design terms?

I believe the issue of the environment & the impact of climate change is the most significant issue facing architects today. The reason for this is that in the UK around 47% of all carbon emissions are building related, so architects have a unique opportunity to make a real impact on trying to reduce emissions and so help to address climate change.

What is "sustainable architecture"?

I think the Glenn Murcutt phrase about architecture 'touching the earthy lightly' is a very good philosophical description of what might be called sustainable architecture. By this I mean that its impact of the earth is slight is an overall holistic way - be it in reducing carbon emissions, improving bio-diversity or creating a healthy environment.

What is an environmentally friendly design in architectural terms?

An environmentally friendly design is one that responds to a site & the client's brief in a holistic manner. In this way it

needs to respond to the challenges of the site's location & transport implications; the bio-diversity issues of a site; create an inclusive design to both the building's occupants and surrounding community; reduce energy demand by being lean through the use of architectural passive measures, be mean through the use of energy efficient equipment an then using low and zero carbon energy; reduce pollution; use environmentally responsible materials; reduce water consumption & waste; finally the efficient management of the building should not be forgotten - it often is!

Is having to consider the environment a challenge / opportunity or a restriction for architects?

Having to consider the environment is a great opportunity for architects, and the whole design, team to create better buildings. Environmentally conscious buildings are usually more economic to operate & provide a healthier environment for the building's occupants.

What is driving the creation of environmentally friendly products - architects, contractors, investors, construction product manufacturers or a combination of all?



I think it is a combination of many factors. There has certainly been a move towards a desire to create more environmentally friendly buildings – but this not universal or gone any where far enough yet! Legislation is certainly driving designers & clients to looking at more sustainable responses to development opportunities (primarily through the influence of planning) though a number of leading developers & fund institutions have started to demand a more environmentally friendly response. With the suppliers of materials & products many are responding to this demand, although there is still much ‘greenwash’ about.

How are product manufacturers helping designers and architects meet their environmental obligations? Can they do more?

I think product manufacturers could help designers by providing a greater range of data on their products. This needs to be done in an honest & open way, and is probably best organised by a third party certification body (e.g. BRE etc.). Also sometimes manufacturers have the information but seem to make it difficult to find on their web sites

Can good design be environmentally friendly?

A good design solution has to be environmentally friendly. Any design solution which isn't environmentally friendly is a bad design.

Does a good environmentally friendly and sustainable construction have to cost more?

I think the honest answer to this is no & yes. There are many things you can incorporate into a design or its construction which do not have to cost more. But it is certainly true that at the moment if you wanted to achieve a zero carbon building (after sorting out what your definition of that term was) it would cost more at the moment. It is important that buildings are designed to not preclude the use of certain technologies in the future should they become economic to use.

What challenges do architects face as with ever more strict environmental regulation?

The greatest challenge architects face is they need to develop a better evidential understanding of design options, at early stages of the design process so they are able to make choices which will support the required reduction emissions etc.

What does the future hold and where will design trends be in say 25 years?

I think the big challenge is for architects to design zero carbon buildings (in operational energy terms). It has been said that it is quite possible to reduce energy demand by 50% through passive design measures & a further 50% of what is left through using energy efficient measures.

This will leave designers having to find only 25% of current energy demand through the use of zero carbon on-site, near site or grid energy.

How do you view Trimo?

I have always considered Trimo to be an innovative company, which is reflected in the co-operation undertaken between us on the Plug-In Office as a way to create office space through off-site production which is help to reduce waste etc.

1. Gerber Soft Drinks Ltd. Production Facility, Bridgewater, United Kingdom



Case Study: The first CO₂ Neutral

The distribution depot of the supermarket Sainsburys, which was built in the end of last year in Pineham in England, establishes Sainsburys as one of the world's most powerful chain stores and Prologis as one of the biggest developers in the area of real estate. Additionally it was the creation of the first carbon neutral building in the world. The centre establishes a new standard for environmentally friendly construction as it is the first centre that was entirely built in line with the provisions of the Planet Positive initiative, which aims to lower CO₂ emissions not only during construction but also later when the building is finished and in use.

The project initiators - the company dcarbon8 and the main contractor Prologis - managed to build an environmentally friendly supply chain by choosing the most environmentally friendly suppliers of concrete, steel construction, sandwich panels and installations, etc.

Each member of the chain conducted an analysis of CO₂ emissions throughout their processes, including the analysis for their suppliers in the supply chain, whereby it was important that all aspects of lowering emissions were considered not only for their part of the process but also that of the processes of their suppliers.

Trimo as one of the material suppliers for the first carbon neutral building

Being an environmentally friendly supplier, who has already conducted the first analysis of CO₂ emissions for their Trimo-term façade and roof panels, including the whole supply chain from the origin of the material to the supply of end products to the construction site, the Slovene company Trimo was asked and successfully chosen to become part of the project to build the first carbon neutral building in Pineham by supplying 3000 m² of façade panels.

Trimo's "ticket" into the project was facilitated by the fact that it has been operating as an environmentally friendly company for several years - by lowering energy use per product unit, sorting and recycling waste and developing a decomposition plan for panels after the end of their life expectancy (reforming them into secondary raw materials). The company's approach towards the Planet Positive initiative also played an important part - Planet Positive with the implementation of a complete analysis of CO₂ emissions for individual families of Trimo-term panels.

At the ceremony for the end of construction of the first carbon neutral building in the world that was held in London, the Director of dcarbon8 and a representative of Prologis symbolically gave the suppliers carbon offset credits. These represent the financial equivalent of the produced CO₂ emissions with the aim to ensure a negative outcome of emissions with their product. In the end the credits were worth 21,065 tons of CO₂, which was symbolically shown in a shape of a cheque that the end user would assign to projects that help balance the levels of the produced CO₂. The funds were used for investments into projects such as green energy and social projects in Africa. This helped balance the ratio between the emissions made in construction and the denial of profit for the benefit of maintaining the balance in nature in a relatively short period.



Planet Positive Protocol (planet friendly): business thinking of the new generation

Planet Positive is a certifying mark of change, a transparent and strict standard of companies and individuals ready and willing to expand and enjoy market commodities connected with a responsibility to the environment. The company, product, service and individual are Planet Positive if a positive effect of the association on our planet, its ecosystem and inhabitants was assessed and accepted. The Planet Positive status proves that the company or

individual measured and reduced carbon emissions of their service or product and reduced the rest under the status carbon neutral. Individuals or a company that wants to prove their identity to Planet Positive must respect the provisions of the protocol that orders them to measure their carbon emissions, work in the direction of sustainably reducing emissions and devaluating carbon emissions in their production and product or service use by 110 %. Members report on their annual reduction in their annual environmentally friendly reports.

The Planet Positive slogan: be part of the solution and not the problem!



Building in the World

1



Trimo EcoSolar PV

A photovoltaic panel

The needs for energy are on the rise, as well as the importance of exploiting renewable sources of energy and producing »pure« and »green« electric energy to the largest extent possible. One of the more important possibilities of producing pure electric energy is exploitation of the photovoltaic effect, under which solar energy is directly converted into electricity. This transformation takes place within a solar cell and no emission of harmful substances or noise takes place during the process.

Classical and thin-layer modules

Solar cells are linked into photovoltaic (PV) modules and divided into classical and thin-layer modules.

To install the classical PV modules an extra sub-construction is required, because of which new critical places on the roof are produced in the points of fixing, where there is a risk of deteriorated sealing. Besides, the classical PV modules with an extra sub-construction represent a load that is not of negligible importance.

Thin-layer PV modules allow integration directly on the outer surface of the building's lining without screwing, so there are no critical places. Production of thin-layer PV modules requires much less materials, so they are rather light and do not represent additional load.

Modul with many advantages

Furthermore, the use of thin-layer PV modules that do not stick out from the building's lining preserves the unchanged appearance of the building. Owing to the advantages of the thin-layer PV modules and their compatibility with panels, Trimo developed the panel Trimo EcoSolar PV, combining a thin-layer PV module and a roof panel.

Solar power station

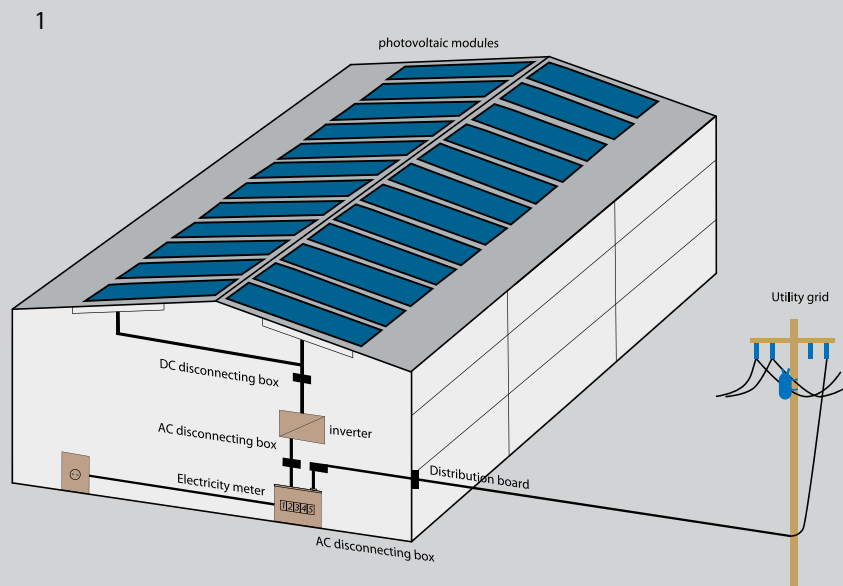
By joining Trimo EcoSolar PV panels we get a solar power station, which, if independent, produces electricity only for a particular building, machine, etc. The produced electric energy is stored in batteries to be used when solar radiation is less intensive

and at night. A solar power station is more frequently connected with the electricity distribution grid where it emits electric energy. However, before delivery to the grid, the direct current, produced in the solar power station, has to be transformed into the alternating current with an inverter. A competent distribution company buys the emitted electricity at a price substantially higher than the average price of electricity, which encourages investment into environmentally-friendly production of electricity.

Non-exploited surfaces – excellent potential

Buildings with non-exploited roof and façade surfaces offer excellent potential for fitting in solar power stations, which can produce more energy on the building's surfaces than the building uses. In this way buildings become 'positive' in terms of generating energy and do not damage the environment.

dr. Boštjan Černe



1. Principle of solar power generation

2

**TRIMO ECOSOLAR PV BENEFITS:****ECOLOGICAL**

- reduction of CO₂ emissions
- environmentally friendly power generation

ENERGY

- high energy efficiency in sunny and cloudy weather conditions
- low sensitivity to partial shadowing in terms of energy efficiency
- Highly efficient in higher temperature conditions
- Trimo EcoSolar PV roof panel is installable in the case of non-optimal roof pitch and orientation

ECONOMIC

- subsidized green power generation (feed-in tariff) shorter payback time of investment
- independence from existing energy sources
- increased market value of new and existing buildings
- power generation in remote locations without access to the grid
- long lifespan
- support and consulting

ARCHITECTURAL

- integrated solution with no additional elements spoiling the roof aesthetics
- no additional load bearing structure needed (lower weight loads, without roof penetrations and fewer critical points)
- appropriate for commercial, industrial, recreational and other types of buildings

2. Production hall Cajhen, Laško, Slovenia

Trimo Solar Power Station

With its operations and projects Trimo has been continuously proving that they are an environmentally-friendly company. One of such projects is the solar power station on the roof of a new energy-efficient production plant. It is built with EcoSolar PV panels, which is rather innovative and unique in Trimo's product mix.

The solar power station is comprised of 78 EcoSolar PV panels with 156 thin-layer photovoltaic modules that are integrated directly on the outer surface of a standard roof panel. The construction of the building is very good in terms of solar energy exploitation.

The building's roof, and consequently the solar power station, is inclined towards the south, which is an ideal direction, with a 15° inclination, which is slightly less than an ideal inclination, but still adequate for requirements..

The total nominal power of all photovoltaic modules is 21216 Wp, which will

produce 21,700 kWh of »pure« solar energy a year. This is as much energy as 6 average Slovenian families use in a year.

When operating, the solar power station does not produce emissions of harmful substances, especially not the greenhouse gas CO₂. If we produced the same amount of electric energy in a classical way, with combustion of fossil fuels, we would emit about 11,000 kg of CO₂ into the atmosphere in a year. This quantity of CO₂ is produced by an average car that travels 70,000 km a year.

The solar power station will be supplying its produced energy into the national grid, which will help Trimo increase the share of energy, produced from renewable sources.

dr. Boštjan Černe

1. Trimo solar power station, Trebnje, Slovenia
2. Inverters for transforming direct current into alternating current.



Trimo EcoClean panel

A dirty building not only looks poor aesthetically but brings with it a considerable cost burden from the time and money spent having to continually clean and maintain the construction to ensure it continues to look good. With cost-savings a priority Trimo has introduced Trimo EcoClean panel - a highly original and innovative solution.

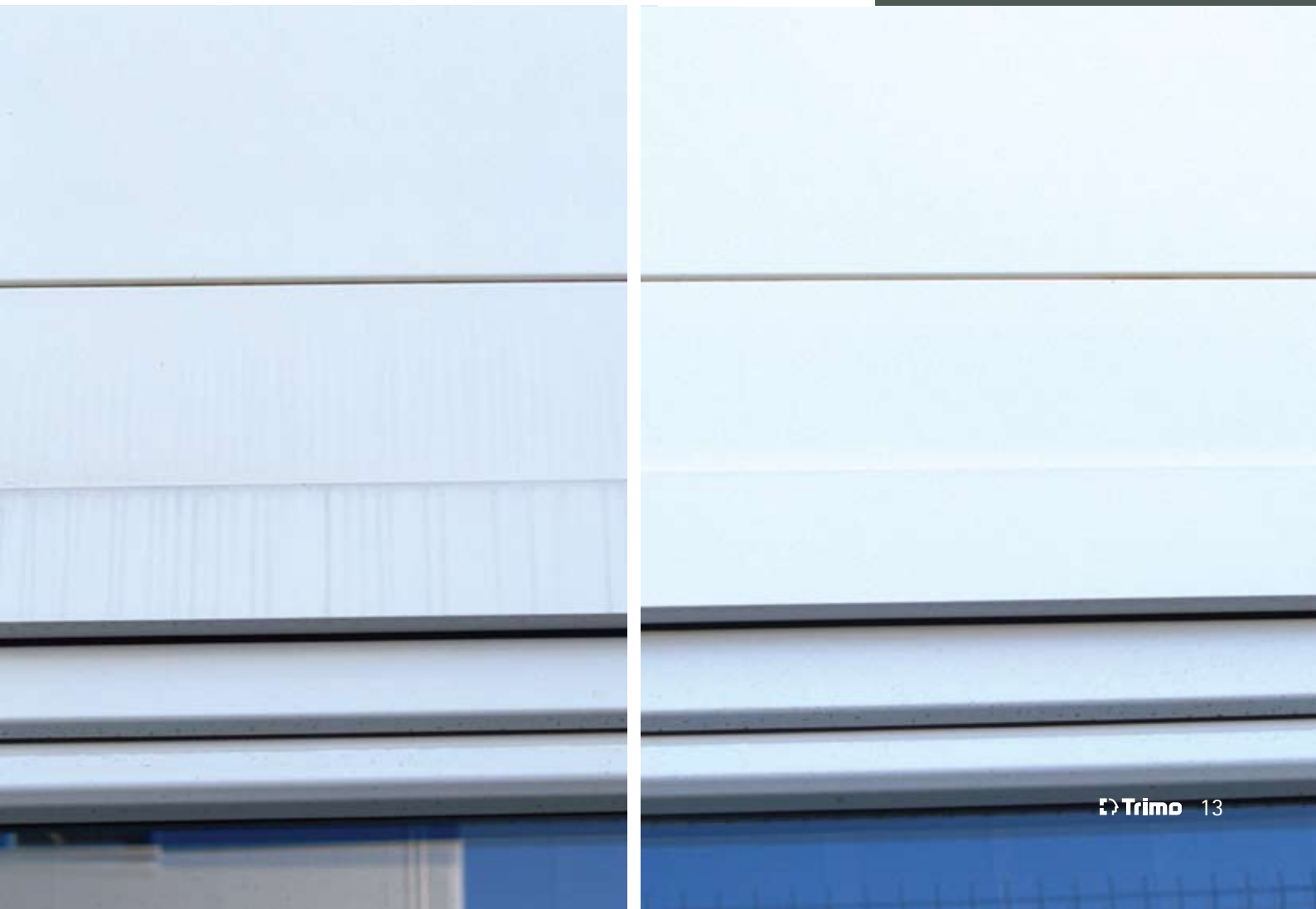
The Trimo EcoClean panel tackles costs differently. The clean coating incorporates a silicone additive that confers a hydrophilic property to the paint. It works so that rain water and dirt easily run off the surface without being able to adhere and build up over time, which not only looks unsightly turning the most architecturally pleasing building into a stain dirt covered construction, but reduces often costly cleaning and maintenance costs. Corrosion is also greatly reduced as contaminant that make up the dirt are washed away.

Trimo EcoClean panel is suitable for all building types including offices and com-

mercial premises, industrial buildings, retail and shopping centres, sports and leisure facilities and all manner of public premises. It is ideal for buildings where aesthetic considerations are important.

MAIN BENEFITS:

- The hydrophilic surface of the panel means dirt is easily washed off with rainwater, which means a more attractive building that is clean from the outset and which will remain clean.
- Lower building maintenance costs
- Improved protection against corrosion



Trimo EcoEnergy panel

Saving energy is not just good for the environment, it also reduces running costs, and that's good news for improving operating efficiency but more importantly impacts positively where it matters most - profitability. Trimo EcoEnergy panel provides costeffective, innovative and sustainable solution suitable for a variety of construction applications.

Trimo EcoEnergy panel uses an innovative, special pre-painted exterior and interior steel sheet material and is ideal for façades, walls, ceilings and roofs and on either the exterior or interior part of the panel.

The Trimo EcoEnergy panel works in two ways; the exterior paint coat, which is intended for external walls and roofing reflects incident solar energy that would otherwise be absorbed by the building and which would normally, through the processes of conduction, be transferred into the building. The reduced heat absorbance means the internal building temperature is lowered reducing the need for cooling and ventilation - a real benefit and an energy and cost saving bonus during the summer months.

When the weather turns cold, the interior-paint coat, which is intended for interior walls and ceilings, acts to reflect radiated heat from various sources such as occupants, machines and equipment, back into the building. This means much more heat is retained and reduces heating costs. When

constructed as a sandwich panel with the interior and exterior coatings encapsulating a non-combustible mineral wool core the result is the Trimo EcoEnergy panel which acts as a complete energy savings system for use on all building types.

Obviously energy savings will vary according to the building type, shape and usage as well as geographical location and so Trimo is using a sophisticated software package that can help estimate approximate energy savings - and therefore costs savings - allowing extremely accurate projections.

Of course whilst the benefits of energy savings bring true costs savings that impact directly and positively on the bottom line profitability of a company, the other benefits include a smaller CO₂ footprint, which is a benefit to the wider sustainability and environment issue. Also, the internal building temperature is more easily regulated and the lower surface temperature of the surface coating - with thermal solar radiation reflected away - extends the life of the coating and therefore the building.

MAIN BENEFITS:

- Reduces heating and cooling costs, although because the actual amount of energy saved is dependent on several factors, such as geographical location, building geometry and building application, Trimo uses a sophisticated energy modelling software package to help calculate potential savings.
- Helps maintain a consistent indoor climate all year round.
- Extends the working life time of the panel coating as the surface temperature is reduced.
- Reduces the CO₂ footprint and contributes to sustainability, as a direct result of reduced energy consumption.



2009

Trimo Architectural Awards

TRIMO ARCHITECTURAL AWARDS 2009
FOR MOST CREATIVE PERFORMED
SOLUTIONS, USING TRIMO PRODUCTS

WHEN?

15. 1.-31. 3. 2009

INFORMATION AND ENTRY:

www.trimo.si

Photo Gallery

SOLAR POWER STATIONS



CAJHEN REZILNA ORODJA d.o.o.
Laško, Slovenia



PLAN-NET d.o.o.
Presežje, Slovenia



ELEKTRO KOČEVJE
Kočevje, Slovenia



TRIMO,
Engineering and production of pre-fabricated buildings, d. d.

Prijateljeva cesta 12
8210 Trebnje
Slovenia
Phone: +386 7 34 60 200
Fax: +386 7 30 44 569
E-mail: trimo@trimo.si
Web: www.trimo.si