

C2C

N E T W O R K

A JOURNEY FROM CRADLE TO CRADLE. C2C NETWORK INITIATIVES GUIDE



**A Journey from Cradle to Cradle.
C2C Network Initiatives Guide**

Colophon

'A Journey from Cradle to Cradle. C2C Network Initiatives Guide' was commissioned by the Cradle to Cradle Network, a project part-financed by the European Regional Development Fund through the INTERREG IVC programme. Under the Authority of the Province of Limburg, the Netherlands

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The authors owe many thanks to:

- all who reported their good practices, for working through the case form and answering further questions, and the C2CN project partners, for reporting and / or collecting the information from their region.
- the Norfolk branch of the Campaign to Protect Rural England (CPRE) for allowing the replication of some sections of text from 'Green Buildings in Norfolk, Volume II'.

Disclaimer

The Cradle to Cradle concept was developed by W. McDonough and M. Braungart. The term Cradle to Cradle is a registered trademark. The Cradle to Cradle Network project is not designed to develop a criteria-based evaluation tool to determine whether the applications are Cradle to Cradle. It considers that C2C is an approach designed to assist (the search for) better solutions (and ultimately (at) good solutions). Rather than being a score sheet for compliance, the Cradle to Cradle Network approach is oriented to help people understand what the wider implementation of Cradle to Cradle principles in the areas of industry, buildings, governance and area spatial development might look like; and, to disseminate and learn from current and emerging good practice.

www.c2cn.eu

Design

Magutdesign, Sesto San Giovanni (MI) Italy

Edited by:

Stafford Wadsworth, the Netherlands

Printed by

Gruppo Stampa GB, Cologno Monzese (MI) Italy

Publication date

January 2011

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1 Cradle to Cradle and the Cradle to Cradle network

1.1 Introducing Cradle to Cradle

1.1.1 From eco-efficiency towards eco-effectiveness

Over the last decades we can see a change from a defensive approach to ecological challenges (waste cost reduction, compliance with legislation) over a more collaborative stance (preventive measures, environmental management approach) to a proactive approach (product accountability, eco-efficiency, life cycle analysis). Recent years, and not the least through the influence of people like Michael Braungart, William McDonough and colleagues, sustainability thinking goes even a step further. It aims beyond the linear thinking in terms of material flows from 'Cradle to grave', which only leads to a reduction of effects, but does not take the causes of waste head on. A search has started for a real alternative, to go beyond eco-efficiency techniques, and to make use of cyclical thinking to conceptualize our production and consumption behaviour. Cradle to Cradle fits well in that search and offers a framework that stresses the need for a transition to a society with healthy, safe and reusable materials. The C2C approach therefore suggests working in an eco-effective way. It gives a central role to intelligent design and the cyclical manufacturing and recycling of products as well as supporting services. With this focus C2C calls for synergy between economic, ecological and social objectives and presents a positive agenda for the challenges of our generation. It does not only concern environmental challenges, but also the management of health issues, employment, and sustainable return on effort and investment.

The ambition of Cradle to Cradle is to create completely safe and healthy products and to maximize the positive impact of human activities. Its attractiveness towards business comes from its focus on adding value by enhancing quality. This makes Cradle to Cradle distinct from other interpretations in which sustainability and environmental aspects are rather seen from an efficiency or cost perspective and are therefore considered not or less compatible with economic progress.

1.1.2 More Good = Less Bad = Less Waste?

Although it is being debated, eco-effective measures are presented as not causing a consumption cut back, whereas eco-efficiency strategies promote smaller consumption of materials and energy in the first place. The 'Less bad, More good' slogan does appeal to our modern life style and attitude of absolutely free personal decision making and fulfilment of needs. It also adds to a positive atmosphere which is thought to stimulate human creativity and business innovation more than guilt does.

On a more factual level it can be said that eco-effective measures do not exclude nor promote an extension of the lifespan of products, but rather focus on shorter life spans that allow for immoderate consumption, given that the quality of raw materials is guaranteed and that renewable energy is used for production and consumption.

1.1.3 From Ownership to Usership

This nearly seems too good to be true, but the promise of C2C comes with equally ambitious challenges and these are currently being taken up. Among other things the high aspirations of C2C require a different way of product design and development but also an intelligent handling of materials after use. In order to realise this, partnerships and cooperation along the value chain and in related logistical chains as well as in the organisation of purchasing and consuming (or just 'using') are crucial. This new model shifting from ownership to 'usership' will hand over products to consumers only for the time needed, after which the product will return into the remanufacturing chain. This demands a completely new kind of cooperation between suppliers, producers, customers, consumers and material managers. An intensive cooperation between these parties is needed to come to Cradle to Cradle products and related systems. So this is a work of man, and not of materials themselves. It requires different stakeholders and actors to align their activities and efforts. This does not happen overnight and so most of these changes also require a growth path through which the newly set goals can be developed. In this respect the idea of continuous improvement is still an implicit requirement of engaging towards Cradle to Cradle. There's nothing wrong with gradual progress after all, but this time it's Kaizen (Japanese for 'improvement' or 'change for the better') on another level, for the better goals. The registered trademark of C2C and its high standards keep the process focused on eco-effectiveness and the right level of ambition.

1.1.4 Technical and Biological Cycles

In essence C2C tries to keep materials recyclable as long as possible, without reusing them in 'lower applications' (named 'downcycling'). Besides properly studying materials' characteristics and their related applications, this requires an effective way to separate materials at the end of their useful life span, especially the valuable ones. This will allow for recycling and avoids dumping materials in landfill sites

or incinerating them (with or without energy recovery). Another reason to find good ways to separate materials and keep them in a loop, is their potential hazard for the environment and for human health. Especially for the technical cycles that serve us with all kinds of consumer products, it is important that no toxic waste can enter the biological cycle, where our nutrients come from.

The distinction between biological and technical systems and the necessity to keep these in separate loops or cycles is a key insight that already existed earlier but is now strongly stressed in the C2C framework as being crucial for eco-effective solutions to material and waste problems. In this sense the C2C framework is developed in accordance with how nature has managed to evolve to a very diverse set of ecosystems and populations where waste is unknown. The definition of materials and products and their function within the Cradle to Cradle perspective then creates a new dimension of product quality, based on material that serves as nutrients for either biological or technical systems.

1.1.5 Cradle to Cradle Principles

Three principles are essential in the Cradle to Cradle framework:

- 1) 'Waste = food': Everything is a nutrient for something else. Biological and technological 'nutrients' are (to be) reused as nutrients for natural and/or human production processes.
- 2) 'Make use of current solar income': Power is (to be) used as much as possible from renewable sources.
- 3) 'Celebrate diversity': Biological, cultural and conceptual diversity are (to be) fostered, promoted and combined.

These basic principles also lead to the creation of a wider set of Cradle to Cradle principles such as the Limburg principles, Almere Principles or Hannover principles, which were all developed and 'tailor made' in and for regional contexts.

1.1.6 Applications

The Cradle to Cradle concept does not only apply to products but also to urban and regional planning and architecture. Here 'Doing right from scratch' means that from the design stage on the various functions of living, working, recreation, transport, nature, food production, etc. are fully integrated. The use of resources and renewable energy and water treatment is conceived from a life cycle perspective including production, use and recovery. The quality of the built environment has to ensure a safe, healthy and pleasant environment for its users. Making reference to how nature is managed, Cradle to Cradle stimulates to design our buildings as trees and our cities as forests.

The power of the Cradle to Cradle concept lies in its innovativeness and its ability to mobilise and inspire. It is also a holistic concept that integrates a design approach with system thinking. It covers production models and supply chains as well as logistic systems and the use of space and energy, all lined up and managed (f.i. through financial incentives, legislation and regulation etc) in order to recycle natural resources and to take maximal care of our ecosystem. In this way, C2C envisages a challenging future and incites for moving to a complete new way of designing and innovating.

1.2 Introducing The Cradle To Cradle Network Project

1.2.1 Background

The Cradle to Cradle Network (C2CN) is an INTERREG IVC capitalisation project that aims at reducing the use of raw materials to generate less waste and less environmental pollution, as well as to enhance innovation and economic development and social well-being. The network consists of ten partners and brings together ten EU regions to share and capitalise on regional good practices in implementing C2C principles in relation to waste prevention and ecological materials management. This fits into the EU Europe2020 strategy and strategies on waste and resource efficiency to make Europe a recycling society. The C2CN project is also awarded with a fast track status.

The Interregional Cooperation Programme INTERREG IVC is financed by the European Union's Regional Development Fund, which helps the Regions of Europe work together to share experience and good practice in the areas of innovation, the knowledge economy, the environment and risk prevention. From the ten C2C committed regions a wealth of knowledge and potential solutions for waste prevention and closed loops production is expected. These results from the C2C Network are then at hand for regional policy-makers and entrepreneurs to disseminate the insights and initiatives and to contribute to the Europe 2020 strategy of the European Commission. Good practices will be exchanged and implemented inside and outside the C2C Network.

1.2.2 Partners

- Province of Limburg (NL)
- Flemish Public Waste Agency (BE)
- Milano Metropoli Development Agency (IT)
- Department for Economics and Tourist Development of the City of Graz (AT)
- ARDI Regional Agency for Development and Innovation (FR)
- Kainuun Etu Ltd (FI)
- West-Transdanubian Regional Development Agency (HU)
- Suffolk County Council (UK)
- North-East Regional Development Agency (RO)
- Government Office for Development and European Affairs (SI)

1.2.3 Objectives

The overall objective of the C2C Network is to develop regional action plans, reflecting the principles of the Cradle to Cradle concept, systemising its regional interpretations and setting out how the good practices will be implemented within regional mainstream Structural Funds Programmes.

Within the overall more strategic objective the C2C Network project aims for the short term at the following practical goals or operational objectives:

- To create an enduring network of regions related to Cradle to Cradle;
- To promote regional stakeholder involvement;
- To disseminate and communicate to wider EU audiences outside the partnership (awareness raising) and into the European Commission (policy recommendations) on approved methods for waste prevention/reduction based on the Cradle to Cradle philosophy.

The network concentrates on waste management and materials management but it also has cross-cutting side effects on the important EU themes of entrepreneurship and SMEs, and innovation, research and technology development.

1.2.4 Time Frame and Expected Results

The C2CN project runs over 2 years (01/2010 – 12/2011) and is designed into two phases. Phase 1 mainly focuses on the inventory, the study and transfer of already existing good practices within the selected target areas, whereas phase 2 addresses the development of regional actions plans. During the time span of the project, expert seminars, study visits and transfer workshops are held, which together with studies of the prospects of each of the four predefined thematic target areas and the collection of cases in 'A Journey from Cradle to Cradle. C2C Network Initiatives Guide' will ultimately result in the transformation of good practice into plans of action.

As a result, the project is thus producing a general theoretical framework, in depth perspective studies for the four selected target areas, 'A Journey from Cradle to Cradle. C2C Network Initiatives Guide' (aka the Good Practice Handbook) in hand, a guide on waste management and C2C, a set of policy recommendations, and last but not least 10 regional action plans, well documented, thought through and aligned between the different stakeholders that are involved locally in the European project regions. The studies and handbook products are expected to be of great value also for other parties concerned outside the project partnership. Through regular newsletters and the project website the C2C Network flexibly organises information flows and communicates well with a broad audience.

1.3 Knowledge development

1.3.1 General Theoretical Framework

A general framework for the C2C Network project was developed by VITO (Flemish Institute for Technological Research) in Belgium, together with Sustenuto, a Brussels based consultancy office in sustainability and also partner of MBDC (McDonough Braungart Design Chemistry). The framework will serve as theoretical background for the activities, studies and exchanges within the European C2C Network. The main objective is to develop a common language for the Network. This helps the members of the Network in the selection of the good practices but also forms a solid background for the development of the regional action plans.

The framework does not include a list of eliminating criteria but builds on the conceptual characteristics that should underlie eco-effective solutions (beneficial for humans and the environment). It is not an evaluation tool such as the Cradle to Cradle certification system.

As a common framework it does not only enhance understanding and communication among the

project partners but also between the partners and other interested parties in the regions. The theoretical framework for the C2CN project also contains a list of frequently used Cradle to Cradle terms which can be a help to new readers to quickly understand the vocabulary.

1.3.2 Perspective Studies

While the theoretical framework focuses on the general description of Cradle to Cradle, also a perspective study was made on each of the four prioritized C2CN target areas: industry and product design, building design, area spatial development, and governance.

1.3.2.1 Industry

In industry C2C production processes focus on far-reaching recycling possibilities and the safety of materials. As a result product designs and production processes inspired by C2C use less raw materials, produce less waste and more recyclable materials, and are therefore less expensive. Using fewer raw materials means a lower purchase price and generally speaking less waste. The 'industry' target area also deals with product-service systems. The perspective study, as carried out by the Design and System Innovation for Sustainability (DIS) research unit from Politecnico di Milano, provides insight into the state of the art as well as future developments on how the Cradle to Cradle approach can be applied in industry.

1.3.2.2 Build

In build design C2C is about architecture and new ways of constructing that follow the design principles found in natural ecosystems as closely as possible. From the very start of the design phase, it looks explicitly at the added value of natural materials, sources of energy and ecosystems for property development. Building materials are recyclable as much as possible and/or they are chosen in an ecologically responsible way. Buildings have been wasteful on resources and materials. Being able to re-use buildings and their installations significantly reduces the cost of demolition, remediation and redevelopment. The perspective study on build has been prepared by Royal Haskoning, UK. The application of the Cradle to Cradle principles in buildings requires an extremely high level of ambition and holistic considerations that go significantly further than general current practice. The holistic nature of the approach also means that results cannot be achieved immediately, nor in isolation. Rather it will be the culmination of a long period of transition. However, through encouraging and promoting ambition, and by taking a broad look to identify the benefits that might be achieved by buildings, it could be possible to drive the necessary changes in society at large to achieve an eco-effective future.

1.3.2.3 Area spatial development

In area spatial development the dynamic force and strength of an area itself are tapped into, and the various levels of recycling that are locally possible are 'exploited' as well as the social energy that is present in the area. The waste, raw materials, energy and water cycles are being incorporated into the design of the area development, and this is linked to employment possibilities and the integration of local inhabitants. Area spatial development includes infrastructure, and regional and industrial networking. An element that returns in almost all area spatial developments inspired by the Cradle to Cradle concept is the use of 'guiding principles'. This means that the 3 main principles of the Cradle to Cradle framework are translated into specific principles at local or regional scale. As concluded by RO Groep and Ecofys in cooperation with the Province of Limburg, defining C2C-inspired principles at the start of an area spatial development and reflecting on them during the entire process, form a powerful tool to safeguard the original ambitions and mission of the area development in combination with ecological requirements and possibilities.

1.3.2.4 Governance

Governance is a broad topic, including all actions that stakeholders take to develop C2C practices and steer their field of work in a more sustainable direction. To put C2C into practice there is not only a need to close loops of material use, but one also has to (en)close a circle of actors around these flows, operating at different parts of the production and consumption cycle. These actors have to notice their interdependence and need to be willing to receive and deliver products to each other in the most eco-efficient and eco-effective way possible. The challenges, essential to the realisation of good practices in all of the target areas mentioned above, imply new governance mechanisms. Therefore governance was also included as a target area to be studied. It concerns organizational conditions that support the development of C2C, the changing role of government actors in making this happen, some of the tensions involved in doing so, and issues related to policy transfer. Governance requires new tasks and competencies for (local and higher level) governmental bodies, but also for other parties involved. Each of them has to establish new interrelationships, which will change their communication and management practices. This is well described in the work by the Cycloop Network for Action Research and

Facilitation in Multi-actor Collaboration: developing actual C2C practice calls on the collaborative efforts of diverse stakeholders, including designers and manufacturers, local authorities, researchers, educators, politicians, suppliers and customers through the entire material chain.

1.4 Knowledge Transfer

1.4.1 From Cradle to Cases

The C2C Network Project was instigated by several (regional) government bodies and regional development agencies who are committed to establish eco-effective projects showing that life cycle thinking, closed loop production, short supply chains and recycling have a future in Europe and may well work for Europe's future.

These policy makers and administrators want to find out where good practices (also called cases or initiatives) can be found and how they work. This in order to organise exchange and transfer between regions and learn from these cases and their implementation. In doing so they plan to install the promotion of C2C inspired practices and action plans in their mainstream policies.

1.4.2 Selection of the Cases

The cases in this handbook come from stakeholders who understand that we need to go beyond eco-efficiency and who are motivated and took initiative to go on the journey of C2C promises. The good practices that are gathered here were identified by the regional project partners. They were sent to them by different stakeholders in their region in response to the call to show living examples of how one can take the road towards eco-effectiveness. It concerns initiatives that at least try to make a difference. Each contributing region made its own selection of cases for this handbook. The project partners in each region collected the cases and edited them in a written form based on a template provided by the project's lead partner. All case owners were given the opportunity to check the text of their cases before introduction into the handbook.

The choice was to include as much cases as possible from the harvest within the regions. The argument here is that including more good practices can give a better idea of the variety of what C2C is or can be, while at the same time illustrating the limits of each and every case, and thus showing the challenges to reach a higher level of sustainability. Shifting from eco-efficiency towards eco-effectiveness paradoxically often seems to go in gradual steps, and several cases show where the tipping point is, or in other words, they illustrate what more can be done taking up more of the C2C principles or higher standards. Another reason to include more rather than less cases, is to show the diversity of fields in which C2C principles can be applied and/or in which the different project regions are active. Also the good practices come from all of the regions involved in the project, offering a broad variety across borders.

1.4.3 Quality Check of the Cases

Of course we want to stay far from 'everything goes'. Therefore a critical analysis of the cases was made so that the 'not so good examples' were not included in the handbook. A screening was done to see how each case was connected to (some of) the Limburg principles. This was done by the project partners and by the lead partner the Province of Limburg in the Netherlands.

They received all cases and reviewed them against the background of the guidelines that were developed earlier in, by and for their Province of Limburg in order to translate the C2C philosophy to their region. These Limburg principles are generative to conceive and set up local actions inspired by C2C. They are put forward in the C2CN project as an important inspiration to hold on to for other regions while trying to live and work in respect to the C2C theory. Again, they are not the same as the rigorous C2C criteria used to audit products. Also the translation of the C2C philosophy can always differ from region to region. For Finland for instance, using the sun as a permanent income proofs to be more difficult than for Italy for instance. Their projects then do not focus extremely strong on that particular principle, yet it can be water that offers more renewable energy in the higher North.

When the project lead partner could not see a connection with C2C or with any of the Limburg principles, the case was sent back to the partner region to ask for more explanation and arguments if they thought the 'C2C character' of the case was to be proven still. Therefore each case had to match with at least two of the six principles (although some four cases only match "Our waste is our food"). The result of these selection mechanisms - self-selection by case owners from the regions, communication and documentation by the regional project partner, editing by the project lead partner, and finally deliberation between the lead partner and project partners, is presented in this book. Some cases are still at the planning stage, some have already made their innovation happen or may even be called 'historic', in relation to a rather short past of course.

1.4.4 Status of the Cases

The good practices presented in this book do not describe C2C certified products or services. They are not pure examples neither are they the very best or ultimate examples of C2C applications. The good examples in this handbook are first and foremost examples of practical efforts, of practices aiming at real live implementation of C2C inspired thinking.

Certification is an important quality control. Consumers, willing to know the exact technical and ecological properties of their purchases, are entitled to be informed properly. Moreover, in order to really close biological and chemical loops, all steps in the production process of any kind need to be considered, including raw materials and semi-finished products. In order to make that happen, all components need to qualify to C2C standards. Only then the goal of eco-effectiveness can be attained. One could say that there should not be any leak of contaminated material in the biological cycle, nor a leak of not recyclable material in the technological cycle. On the other hand actors that truly understand this vision of C2C can most likely also produce their goods in an eco effective way without having all certification. Or in other words, certification should not withhold innovations.

As such the cases presented in this handbook are not to be considered 'C2C approved' or 'C2C certified' practices. Some of them do have certification. That is then indicated in the case fiche. But overall the collection of cases rather represents efforts that the C2CN project partners think go in the right direction. It concerns efforts from stakeholders to take the road of eco-effectiveness and go on the journey to C2C. The actors involved around the cases try to make a difference, each in their own way, taking into account the specifics of their context, the focus of attention of their initiative, and their own interpretation of C2C thinking. So the starting point and the realization of a case very much depends on the local actors involved. Their efforts can be connected to the Limburg principles. But as we are not in a position to determine the potential nor the need for C2C certification, we can not predict whether the cases described here will ultimately become C2C proof or not. We cannot predict either whether the cases might get a silver, gold or platinum C2C label. But then again this is not the aim of presenting this collection of cases. It is more to show where initiatives come from and illustrate how these cases want to deliver a first proof of their competence and quality. In that sense the enthusiasm for the undertaking and experimentation is as important at this stage as hard science proven results. We think this can be seen as in line with the positive message that C2C stimulates to 'Be good, not less bad'. Should good practice owners or partners within the C2C Network really want to know whether a presented case is Cradle to Cradle or not, an assessment at a later date and beyond the scope of this project will always remain possible. This can be done by universities or consultants who operate in close cooperation with the founding fathers of C2C. Such an assessment should, by the way, not be confused with the C2C certification process for materials and products, although it could mean the first step towards certification, should the good practice owner wish so.

1.4.5 The Use of the Cases

The aim of the good practices exchange in the C2C Network is to stimulate innovation and to learn from other people's efforts and experiences. Also the transfer of good practices within the regions and the development of solid local action plans is to be served by this collection of cases. It is then further up to the judgement of the case owners and surrounding parties involved how to proceed to make eco-effective innovation possible and demonstrate their results or the soundness of their procedures and way of working. In that sense our handbook does not describe just one best way to implement the C2C concept. It focuses not so much on the 'end result' of a case as on the 'initiative' taken for it, which we admit may not be a sufficient condition for eco-effectiveness, but is certainly a necessary condition. Project partners and other interested stakeholders or regions can use it as an inspiration for implementing particular practices themselves and for working out their own action plans and recipes for promotion and implementation of C2C inspired initiatives.

1.4.6 How to read this handbook?

This handbook can best be seen as a catalogue of C2C related practices that are being planned and/or happening in Europe. After this introductory chapter, case fiches are filed, presenting each good practice case in a short and flexible way in chapter 2. Thanks to great Italian design the lay-out generally portrays 2 cases per page offering the reader at a glance the country where the case comes from and usually also a picture illustrating the product, building, or area, or the people involved in the organisation or their logo. Furthermore the reader can quickly scan the essentials of a particular case: the title, the project partner for the region the case comes from, an indication of the thematic target area to which the case primarily belongs, a short description of the case, the Limburg principles to which the case relates, certification details, and contact information.

In chapter 3 an overview of all cases is listed, with the cases grouped by the Limburg principle to which they are faithful.

For more details the reader is referred to the contact details or a relevant website so that more in depth study becomes possible. The aim is then to link whoever who is interested in the specific area of work in which the presented case is operating to the case owners for further information and exchange. We also refer the reader of this handbook to the four thematic perspective studies, in which several of the cases are presented and analysed in some more detail, illustrating the importance of a case for the development of the target area at hand, while at the same time offering the broader picture of that target area against which a particular case can be positioned.

1.4.7 From Cases to Changes

The C2C Network wants to promote the way of thinking and the philosophy behind C2C, as well as the governance and steering mechanisms that help distributing and applying this way of thinking and its application. The project is about knowledge building and raising awareness and is as such an important governance mechanism in itself.

'A Journey from Cradle to Cradle. C2C Network Initiatives Guide' that you are holding right now, is in itself a dissemination strategy. This book should be read as a contribution to the C2C movement, offering examples of C2C thinking and doing in several European regions that have been inspired by the work of Braungart and McDonnough and have been stimulated by their local authorities, companies, educational bodies, and other organisations, groups or institutes. It can be a help for raising general awareness but besides that it certainly is a tool for promoting interest in specific applications. The handbook wants to help transferring good practices from one region to another so that the project's objective of actual change by transfer and adoption of cases will be met.

This book hopes to give voice to several good practices in sustainability and ecology, and to amplify the sound of the inspiring concept of Cradle to Cradle.

AT

Department for Economic and Tourism
Development of the City of Graz

Perludi

Perludi was founded in 2007 and to date has six products on the market: all are children's furniture including desks, bunk beds or rocking horses. The company sees itself in a start-up period and is currently pursuing the objective of bringing one innovative product per year to the market. The products are characterised by exceptional design, the managing director Thomas Maitz describes it as "functional, iconic and intelligent design." "Natural products that last" is the concept to be passed on to the children through the furniture. Environmental sustainability is reflected at perludi especially in the quality of the materials used and the natural mode of production. Objectives also include short transport routes, environmentally safe packaging and the use of recycled materials. Thomas Maitz does not believe in organic certificates and natural origins as a marketing strategy, but sees ecological awareness as a result of his high quality standards.

Principles

We are native to our place

Our waste is our food

We design enjoyment for all generations

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AT

Department for Economic and Tourism
Development of the City of Graz

Verpackungszentrum Graz

VPZ (Verpackungszentrum) Graz is a packaging wholesale firm (founded 1989). The range of products includes 600 items, mainly in the of food packaging sector. In order to make an active contribution to the future, VPZ specialises in biogenic packaging; and, since 1992 VPZ has been investing in Research & Development Projects for biogenic materials. At the moment VPZ is engaged in three research projects in cooperation with the Graz University of Technology. The projects deal with the production of foam based on algae, with the development of biopolymers made from agricultural waste and the production of bio-net-bags made from natural fibres for packaging. As a wholesaler, the VPZ contributes in the regional and national context, to reducing harmful emissions in the area of consumption. VPZ's R&D activity of is an additional contribution, of international importance, in the development of biodegradable materials sector.

Principles

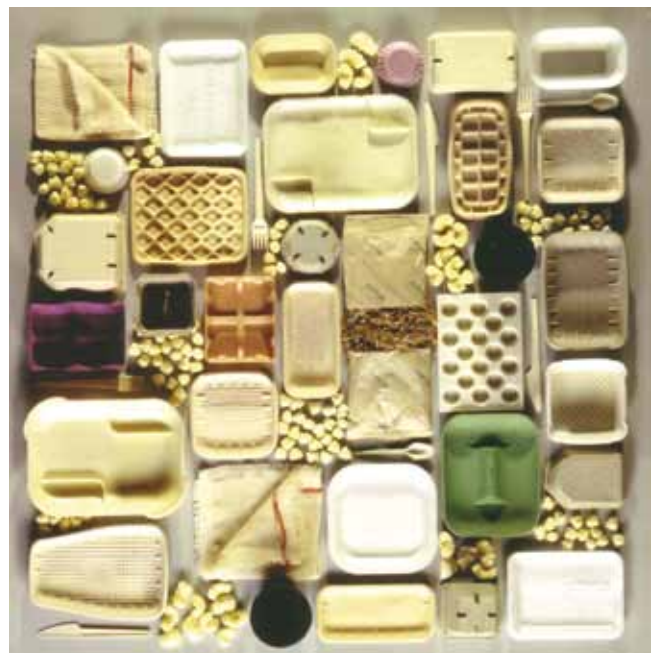
We are native to our place

Our waste is our food

Our air, soil and water are healthy

We design enjoyment for all generations

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Flemish Public Waste Agency (OVAM)

BEPSRA, closing the loop for Expanded Polystyrene (EPS)

The Belgian EPS manufacturers, who are members of the STYFABEL non-profit organisation, started an organisation for adding value to EPS waste in Belgium in 1995. This organisation is called "BEPSRA" and stands for "Belgian EPS Recycling Association". The organisation's goals are to co-ordinate and to add value to the EPS packaging waste streams in Belgium, together with all interested parties such as users, industry and government. BEPSRA takes EPS packaging waste back in special PE bags, located at specified collection points. The PE bags are available at collection points. The used bags can be returned to the same collection points free of charge, but transportation costs are not included. The Belgian EPS converters reuse pure EPS waste in the production process as expanded material (EPS) for new EPS products.

Principles

Our waste is our food
Our air, soil and water are healthy

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Flemish Public Waste Agency (OVAM)

Bio-based fibres at DS Fibres: helping to create more environmentally friendly textiles

DS Fibres is part of the DS Textile Platform, and is with its specialization in coloured fibres a famous partner principally for all important European automotive brands. DS Fibres produces polyester fibres made from bottle flakes and thus recycles waste into fibres. These fibres are used as raw materials for molded car parts. In 2008, DS Fibres launched BIO-based polyester fibre INGEO™ PLA. Ingeo™ represents an ingenious new material that's made from plants not oil. It is derived entirely from annually renewable plant resources. DS Fibres has a strong commitment to better environmental care on all levels. In addition to the bio-based polyester fibre, the company has an ongoing program for recycling, energy reduction through alternative sources such as windmills, and waste management.

Principles

We are native to our place
The sun is our income
Our air, soil and water are healthy
We design enjoyment for all generations

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BE

Flemish Public Waste Agency (OVAM)

BMA ERGONOMICS and the Axia® chair: C2C in practice

BMA Ergonomics develops and produces ergonomic Axia® chairs. These VDU chairs, 24/7 chairs as well as the ESD-safe chairs being the perfect synthesis of ergonomics, biomechanics and design. Because the Design for Disassembly principle was applied during the development of the Axia® VDU chair, is it possible to disassemble these chairs very efficiently with the application of the same tools used to assemble them. BMA Ergonomics operate a withdrawal guarantee. After years of intensive use, we come and pick up your old Axia® chair. In exchange, you will even receive 50 EUROS (2010/2011 amount)*. Your old Axia® returns to our factory. In our recycling shop, especially equipped for this purpose, the old chair is completely taken apart. Some of the components are directly reused in the manufacturing of new chairs. Others are sent back to our suppliers, who recycle the parts and use them in the production of new materials. Today, at BMA we guarantee that our products consist of at least 67% recycled materials.

*amount to be used when buying a new Axia® chair.

Principles

We are native to our place
Our waste is our food
Our air, soil and water are healthy
We design enjoyment for all generations

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BE

Flemish Public Waste Agency (OVAM)

BuzziSpace.com

BuzziSpace.com is a creative cell for the development of smart tools and accessories to upgrade your work and living environment. As well as a full grown commercial department, BuzziSpace.com acts as a think-tank for young designers and experienced business-people in which ecology and solutions are the main concern following the 'Cradle to Cradle' and 'waste is nutrition' philosophy as closely as possible.

Principles

We are native to our place
Our waste is our food
The sun is our income
Our air, soil and water are healthy
We design enjoyment for all generations

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BE

Flemish Public Waste Agency (OVAM)

Closed loop recycling at Gyproc is rewarded with C2C Silver Certificate

On December 1st 2010, Gyproc Belgium received its first Cradle to Cradle Silver certificate for its standard 12,5 mm plasterboard! C2C certificates are very exceptional, especially for standard products. 30% of Gyproc's production in 2011 will be C2C certified and therefore our standard plasterboard will be one of the best sold C2C products! The C2C silver certificate was obtained after a thorough screening of all the additives of all our ingredients. None of those are considered to be toxicologically significant. The C2C auditor was impressed by Gyproc's efforts to close the material cycle with its recycling project in partnership with New West Gypsum Recycling. They were also charmed by the recuperation of our process water. Gyproc Belgium will also sign the charter of a C2C company in January 2011. Although we're actively recycling our end of life plasterboards, we've learned a lot during the certification process. We've established better partnerships with our suppliers and obtained a better understanding of the toxicological aspects of all the additives in our ingredients. The C2C silver certificate is of utmost importance for the endorsement of Gyproc Belgium as a sustainable company and for its stakeholders.

Principles

Our waste is our food
Our air, soil and water are healthy

EPEA

Licensed by EPEA

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BE

Flemish Public Waste Agency (OVAM)

Closing the garden waste loop

We promote subsidised home composting systems such as wormeries, composting bins and tubs. A network of 200 volunteers, masters in compost, help the inhabitants by making home visits, their presence at fairs and events and their own demonstration sites. There are 16 civic amenity sites, so that inhabitants only have to travel a maximum 3 km (2 miles) to reach the nearest collection point. At these container parks the principle of 'pay-as-you-throw' is used through weighing balances. Imog also has a kerbside collection service with green waste containers, which can be collected every week or every two weeks with an annual commutation fee. In Moen ,we compost about 30 m. Kg of green waste into compost. We use membranes and active aeration, to achieve a better quality and reduce the risk of odour. Compost is a very good soil improver and is sold to residents, companies and communities.

Principles

We are native to our place
Our waste is our food

IMOG

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BE

Flemish Public Waste Agency (OVAM)

Derbipure, C2C on your roof

The Belgian company Imperbel is specialized in energy-saving and energy-producing roofing materials, branded under the name "Derbigum". Their baseline "Making Buildings Smart" reflects their strategy to provide high quality roofing solutions with a low environmental impact in production, use phase and end-of-life. The company already uses 25% recycled materials and recently introduced improved recycling processes and a reverse logistics system. Most of the current roofing systems are based on oil-based bitumen. In 2010, Imperbel launched the new product Derbipure®, a roofing material based on vegetable oils, pine resin and chalk. C2C certification is in progress. This roofing material has a white colour which helps to keep buildings cool in summer. This roofing product can be 100% recycled.

Principles

Our waste is our food

The sun is our income

We design enjoyment for all generations

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BE

Flemish Public Waste Agency (OVAM)

DotPot, a 3-in-1 non-hazardous and innovative product for your toddler

Your toddler is only small but he or she certainly requires a heap of accessories. Your home – and especially your bathroom – is suddenly full of plastic items that you need to find storage space for. BabyMatters develops and produces new and innovative products with a functional design for babies and toddlers. Their first product, the DotPot contributes to solving your storage problems by reducing the number of products that you need throughout the toilet training phase of your child. The DotPot combines three products – a potty, a toilet trainer and a stool – all combined in a smart design that provides all the necessary comforts. Today, the DotPot is 100% free of hazardous substances. The DotPot does not contain any phthalates or bisphenol a. At the end of its life, after many years of use, the DotPot can be recycled safely. This approach is part of the Cradle to Cradle philosophy.

BabyMatters was one of the winners of a Flemish competition in 2009, initiated by the Flemish Minister Van Brempt to encourage the C2C-principles among Flemish companies, organisations and students involved in product development. The product was also nominated for the "Design Award of the Federal Republic of Germany 2011", the highest official distinction for design in Germany.

Principles

Our waste is our food

Our air, soil and water are healthy

We design enjoyment for all generations

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Flemish Public Waste Agency (OVAM)

Ecobos: green office supplies

Ecobos is a wholesaler selling recycled and environment-friendly products. They mainly focus on office stationary (blocnotes, paper, pens, envelopes, ...) and wooden toys. True to their slogan, "good for you and nature too", ecobos-products have to respond to a number of criteria. They have to be of high quality, and made of recycled or environment friendly materials. Special attention is paid to the question of whether products can be recycled after use. Additionally, ecobos keeps a close eye on healthy and safe labour conditions during the production process. Ecobos maintains close relationships with all their suppliers to be able to know the exact origin of their products. For the packaging, the company is working with people with special needs, employed in social economy organisations.

Principles

Our air, soil and water are healthy
We design enjoyment for all generations

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Flemish Public Waste Agency (OVAM)

Ecolizer 2.0 tool, make the difference with this guide to ecodesign

The Ecolizer 2.0 was developed to help designers create more environmentally friendly products by making eco-design more accessible during the initial design phases. The idea behind the Ecolizer originated from the fact that despite the wealth of academic information and software on eco-design, it is rarely applied by Flemish designers or businesses. The Ecolizer 2.0 employs an updated set of eco-indicators based on the 'ReCiPe' method rather than the previous 'Eco-indicator 99' methodology – both single-score indicator methodologies based on Life Cycle Assessment (LCA). This new method is still used to express the environmental impact of the production materials and all the subsequent stages in one eco-indicator number. The Ecolizer 2.0, with its fan-like design, conveys complex academic content in a smart tool that is quick and easy to use in any design process and helps to incorporate environmental criteria into innovative products. To launch the Ecolizer several workshops were organised in collaboration with Design Flanders. OVAM intends to update the Ecolizer every three years from now on. With the Ecolizer 2.0, OVAM introduces a scientifically based tool that contributes to increasing the ecofriendliness of any product design.

Principles

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The sun is our income
Our air, soil and water are healthy
We design enjoyment for all generations

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BE

Flemish Public Waste Agency (OVAM)

Ecover, ecological cleaning products in a green packaging

Ecover offers a broad range of cleaning and washing products, each based on pioneering, ecologically sound, principles. Ecover's vision of sustainability takes ecological, economic and social aspects into account from the origins of the raw materials to the complete biodegradation of the final products. Ecover's environmental policy is not only demonstrated by the products it sells but it is also an integral part of all the company's business operations. Ecover products are manufactured in the unique ecological factories in Belgium and France. The factories are crowned with a green roof creating a temperature regulating throughout the year. Ecover will also launch a packaging bottle made from completely renewable HDPE, compatible with the Ecover Refill system. Moreover, these bottles can be recycled. Ecover is working on a project to close the packaging material loop, where the bulk packaging for the refill system is collected in a separate stream and being recycled into new bulk containers.

Principles

We are native to our place

Our waste is our food

Our air, soil and water are healthy

We design enjoyment for all generations

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BE

Flemish Public Waste Agency (OVAM)

Gargantua

The adjustable benches of Gargantua can be changed in height allowing people to sit at an equal level, achieving optimal communication. All used materials are suitable for outdoor use and are extremely durable. Let's start with ecological hardwood (with FSC-label): our wood suppliers have their own concession: an ISO-certificate can be presented in which the most important conditions have been integrated on ecological and socio-economic principles. The use of wood has been restricted to a minimum: only for the parts which are in direct contact with the body. The benches are made of small wooden slats instead of big parts and for the center of the table top stainless steel has been used. Moreover, the wood is untreated and thus perfect for recycling. Other used materials are stainless steel of maritime quality and galvanized steel, which both have a very long lifespan and if necessary can perfectly be recycled. All parts can be dismantled, which results in a minimal transport volume and the possibility of optimal recycling.

Principles

Our waste is our food

We design enjoyment for all generations

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BE

Flemish Public Waste Agency (OVAM)

Jaga, beautifully effective heating

Jaga is a manufacturer of safe, high performance energy-efficient radiators. It is the winner of many design awards for its products. Jaga has always been active in promoting environmentally responsible ways of building, living and heating. One example of this is the low-H₂O energy saver radiator, generally holding only 2 litres of water (only 10% of traditional radiators), with the same heating performance. Because of their quicker reaction time, they typically consume 12% less fuel. The use phase relates to more than 90% of the environmental impact. On the materials side too, Jaga invests in ecologically sound solutions. It works on ease of disassembly, and developed radiator housings in renewable materials like plaster (100% recyclable) and wood.

Principles

Our waste is our food

Our air, soil and water are healthy

We design enjoyment for all generations

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BE

Flemish Public Waste Agency (OVAM)

Jules Clarysse launches the first 100% biodegradable towel in the EU

Jules Clarysse is one of Europe's most innovative home textiles producers. It has been a family-owned company since it was established in 1953 and has its head office in Pittem (Belgium). The enterprise is vertically integrated and employs more than 400 people. Jules Clarysse has an annual turnover of EUR 50 million, mainly in Europe, which means a daily output of 100.000 towels. Design and innovation in ethical and ecological entrepreneurship are the company's trumps and the white collars consistently apply a durable strategy to remain a pioneering company in their branch/sector. The result of this is the launch of the very first Cradle to Cradle towel in the EU. This towel is built out of 100% natural cotton and dyes and therefore can be composted without harming nature.

But there is more! Jules Clarysse really wants to embrace the chain-thinking – the fact that you close the circle of resources; the basis of C2C thinking. The company is looking for ways to collect and compost discarded towels, according to the C2C motto "Waste is food". In this way, it returns its resources to nature, and the circle is completed.

Principles

Our waste is our food

Our air, soil and water are healthy

We design enjoyment for all generations

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Flemish Public Waste Agency (OVAM)

Li-ion battery recycling, an example of resource efficient use of raw materials

Rechargeable Li-ion battery applications in consumer products are growing fast, resulting in an increasing resource demand: it is, for example, estimated that battery applications account for nearly 25% of the worldwide cobalt demand for 2007. It is obvious that recycling of batteries may help save natural resources. However, it is not straightforward to quantify the extent to which rechargeable battery recycling saves natural resources, given their complex composition, and the complex international production chain. In this example, as implemented at Umicore (a Belgian based company: Materials for a better life!), a detailed analysis of a lithium, mixed metal oxide battery recycling scenario - where cobalt and nickel are recovered and re-introduced into the battery production chain - was compared with a virgin production scenario.

Based on detailed data acquisition from processes worldwide, a resource saving analysis was made. The savings are quantified in terms of exergy and cumulative exergy extracted from the natural environment. It turns out that the recycling scenario result in a 51.3% natural resource saving, not only because of decreased mineral ore dependency but also because of reduced fossil resource (45.3% reduction) and nuclear energy demand (57.2%).

Principles

Our waste is our food

Our air, soil and water are healthy

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Flemish Public Waste Agency (OVAM)

LOOPLA, a C2C approach to PLA recycling

GALACTIC is a leading supplier in the world market of lactic acid and lactates. All our products are made by natural fermentation of sugar and are 100% biodegradable. In addition to the traditional applications, our products in the Food, Feed, Industrial, Cosmetic and Pharmaceutical sectors, we offer an unique expertise in LactoChemistry – a new exploratory field where new natural molecules can be produced differently from the old petrochemical substances.

This expertise also led to the creation of the LOOP-PLA division. LOOPLA is a new and unique process based on a chemical recycling of PLA back into lactic acid. Starting from used PLA (post-Industrial or post-consumer), the process includes a mechanical pretreatment of the PLA before entering into a reactor. The product is converted back into a crude lactic acid through thermal depolymerization. After a couple of purifications, lactic acid is obtained and can be recycled to make a virgin PLA with a yield close to 100%. It justifies PLA when using chemical recycling (LOOPLA) as its end of life option, not as a simple biodegradable plastic but as a biorenewable plastic. So, LOOPLA opens the doors of the C2C concept for all the PLA applications.

Principles

We are native to our place

Our waste is our food

The sun is our income

Our air, soil and water are healthy

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Flemish Public Waste Agency (OVAM)

MDM upcycling to high-grade proteins

This case is about an upcycling route for a low-grade biological nutrient and keeping it in the biological cycle. MDM (Mechanically Deboned Meat) from the slaughter of chicken is produced by scraping the meat remnants from the carcasses after the high-grade meat has been removed. Enzymatic hydrolysis converts Mechanically Deboned Meat (MDM) and/or carcasses that previously went to MDM destruction into high-grade proteins, high-grade fats and a small amount of solid residue. The protein product has applications in sports and diet nutrition (nutritional supplements, energy bars ...) as well as in the sauce and soup industry, and the medical sector. The fatty part, 99% pure and of a high quality is also sold as a high-grade product. The solid residue is processed into animal feed. The new process presents opportunities for integration of the slaughterhouse and processing plant into an industrial symbiosis and will result in a sharp decrease of waste production, an optimisation of water consumption and an increase in energy efficiency.

Principles

Our waste is our food

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Flemish Public Waste Agency (OVAM)

Quarea certification of recycled aggregates

A certification system for the environmental quality of recycled aggregates, produced from mixed construction and demolition waste. This certificate allows the recycling of the aggregates into new construction materials, with clear certification of their high environmental and technical quality. Construction and demolition waste (CDW) is the waste stream with the highest volume all over the EU. Certification of recycled aggregates allows recycling of CDW by creating a high level of confidence in the material quality. It reduces the need for disposal of this waste in landfills. The management of CDW is a top priority in many MSs, when it comes to setting up a recycling strategy. Good recycling of CDW minimised the need for primary raw materials and prevents dumping of large quantities of inert material.

Principles

Our waste is our food

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BE

Flemish Public Waste Agency (OVAM)

TakeBack system at Desso

Within the Cradle to Cradle concept, it is vital that every part of each of our carpets and artificial grasses is completely integrated into a technical or biological cycle. Currently we are recycling the product in the cement industry where it is used as high caloric fuel, and the stabilizer we have (chalk) is used as raw material to produce cement. While carpets may be recyclable, it is vital to ensure that the recycling actually takes place. Under our Cradle to Cradle commitment, we will introduce a 'take back' system where we collect used carpets from our clients, thus ensuring that they can be properly reprocessed.

Together with our partners, we are working on rough separation based on yarn type and shredding. The backing can be reused as backing and the yarn can be remelted as colored yarn again and in a further process to depolymerize this fraction to obtain the raw material for yarn again to produce white yarns. The challenge we face is to use renewable energy and optimized transportation throughout the complete chain. DESSO is working on several possibilities: - Reinforcement of concrete - Road construction - Roofing industry - Recycling in carpet backing.

Principles

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The sun is our income

Our air, soil and water are healthy

We design enjoyment for all generations

EPEA

Licensed by EPEA

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The Floor is Yours

FI

Kainuun Etu Ltd

Kuhmon Lämpö Ltd (Kuhmo's Heating, bioenergy)

Kuhmo City is an excellent example of local co-operating enterprises using bioenergy. Heating of buildings is based on efficient use of district heating and thermal entrepreneurship. Kuhmon Lämpö Ltd. (local energy company producing electricity and district heat) was founded in 1980. Kuhmon Lämpö Ltd. is owned by the City of Kuhmo and Kuhmon Saha Ltd (local sawmill). Kuhmon Lämpö Ltd. produces heat energy for buildings located in Kuhmo, including different business premises and private houses in the city centre. The volume of heat is 750 000m³. District heat replaces light fuel oil (about 1 700 000 l/a). Kuhmo Saha Ltd. and Kuhmo Lämpö Ltd. act as pioneers in loss (waste) energy recovery (recycling) process. Companies use combustion gas (flue gas) resulting from reclamation. Saw-dust from the saw mill is dried using combustion gas, and the dried saw dust is compressed into briquettes. The combustion waste, ash, is now used as fertilizer in peatland forest nearby.

Principles

We are native to our place

Our waste is our food

The sun is our income

Our air, soil and water are healthy

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Kainuun Etu Ltd

St1 Biofuels turns waste into biofuel

St1 strives to cut down CO₂ emissions by developing and producing biofuel in an environmentally friendly way. Its plants are an excellent example of sustainable production. St1 uses its own Etanolix® production concept to turn waste and industrial side streams into sustainable bioethanol for transportation use. Etanolix® has a unique CO₂-balance for several reasons: use of waste as feedstock and renewable energy in production, a new energy efficient process and technology, and a reduced need for transportation because the production units are built near the sources of feedstock.

St1 Biofuels' next plant type, Bionolix, produces bioethanol from municipal and commercial biowaste. The Bionolix plant process biowaste collected separately or recovered biodegradable fraction from municipal solid waste into bioethanol for traffic fuels and solid biofuel for electricity and heat production. St1 Biofuels is also developing second generation ethanol production from cellulosic materials. The aim is to utilise household, agricultural, commercial, and industrial waste such as packaging materials and straw.

Principles

Our waste is our food

The sun is our income

Our air, soil and water are healthy

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ARDI Regional Agency for Development and Innovation

BtoGreen Experience

The BtoGreen® experience is a simple, enjoyable tool for learning and awareness-raising, based on a clever board game and a related educational programme (3 to 10 people per session). The BtoGreen® experience is a means of training or raise awareness among operational managers, company directors, technical managers, students, future engineers, technicians or marketing managers involving innovation and eco-innovation. The variables of the game can be adjusted to the target audience and can be regularly updated. The Experience includes 2 stages: 1 hour of the board game and 2 hours of integrated learning. This is an eco-innovation in its purest form: - The players act as innovation managers in rival companies and must generate the best turnover over 5 years by launching a new flagship product every year - To stand out, it can have different competitive advantages: breakthrough technology and innovation processes, strategic marketing and an efficient policy, environmental considerations incorporated in the design stage.

The winner is the person able to tailor an eco-innovation strategy to the economic context required by the company. Time scale: 1/2 day in inter- or intra-company but the impact of the game will actively raise awareness among company directors concerning environmental integration at a strategic level. The BtoGreen® experience is geared towards: Innovation, marketing, technical manager or directors of SMEs or groups, Sustainable Development managers; Continuous training teachers, University professors in engineering or management schools. You can also become a coordinator of the BtoGreen® experience after a training by the Pôle Eco-conception (Saint-Etienne, France) or Weenov, making you an independent coordinator for your audience or a training coordinator in European countries. The goal of the experience is to show that the environment provides real leverage for innovation, creating competitive advantages and letting those able to use them increase their market share. The standard governing use and transfer already exists and the board games have already been manufactured and translated into English.

Principles

Our waste is our food

Our air, soil and water are healthy

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B to Green L'EXPERIENCE®

FR

ARDI Regional Agency for Development and Innovation

BtoGreen Method

The method helps companies to build a new product and services offer, making the environment their new source of competitive advantage, and adding value, with a reduced environmental impact. The method has 3 stages: - Offering SMEs a personalized audit of their practices and their situation in terms of innovation, marketing and the environment in order to determine their environmental strategy (eco-design, eco-innovation or diversification), - Finding new ideas and coming up with innovative concepts according to the defined strategy, - Helping SMEs to set up action plans to prioritise ideas produced and to transform them into innovative projects. The method is implemented over several months. The consequences in terms of activity can be short, medium or long term according to the commercial life cycle of products affected and according to the scope of the strategy envisaged.

The BtoGreen method can be used by companies from all sectors and of all sizes, whether working in BtoB or BtoC. The implementation of the method requires the creation of a team including the Managing Director and a number of operational managers (Technical, Design, Commercial, Production, Logistics, Purchasing, Quality and Maintenance). The method is being used by a manufacturer, its transferable capacity is part of the business model established for its roll-out: the working documents are provided along with supporting documents to help the user (company or service provider) to roll out the method. The implementation of the method favours economic growth and cost effectiveness by overhauling the company's products and services offer. For instance, the tools used in the method enable the company to review customer expectations and perceive threats stemming from suppliers or regulations. During the creative phase, costs are optimised by the introduction of new technology or the reinvention of the product's service functions, the final objective is to promote its competitive advantages.

Principles

Our waste is our food

Our air, soil and water are healthy

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FR

ARDI Regional Agency for Development and Innovation

C2C Design Project

The C2C Design project (2007/2008) allows a group of companies to experiment with the Cradle to Cradle approach at a small cost to the companies (with financial support being available from the regional council). This collective action is to intervene at the very beginning of a product development project which means that only upstream stages of the project are involved with the activity. The objectives agree to develop new 'green' products, helping companies to work with designers on real product development projects using the C2C philosophy. This project also provides expertise from EPEA and researchers in different areas supporting the companies during the work on their projects : end of life hypothesis (design), impact of the raw materials to be used in the product (resources, toxicity), raw material flows (recycling, re-use), product architecture (Design), environmental value of the brand and design of service (dematerialisation potential).

This project has been followed by 9 companies from different sectors. The originality resides in the association between a designer and a company on each project. Following this action, ARDI Design Centre launched EcoBOOSTER with the objective of a major deployment, using the conclusions of this first experience.

Principles

Our waste is our food

Our air, soil and water are healthy

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C2C DESIGN

FR

ARDI Regional Agency for Development and Innovation

Eco-design preliminary diagnosis

The eco-design preliminary diagnosis is an awareness-raising tool for project teams, with a view to incorporating the environment into the product development process (notions of life cycle), by measuring the level of company control over eco-design, then by offering an applicable environmental strategy for the product. The preliminary diagnosis is disseminated to resource centres and companies in order to boost the economic development of a geographical area or a sector. It is a tool in checklist format based on the Pareto principle, which identifies the eco-design criteria that the company has never taken into account, in other words, the simplest and most likely potential improvements for an initial approach. The eco-design preliminary diagnosis is a 3-stage approach: - Inter-company meeting with the project team: ½ day - Incrementation of the tool and compilation of the report: 2 days - Delivery of the report within the company: ½ day

The eco-design preliminary diagnosis experience is geared towards project teams, keen to expand their awareness of eco-design within companies on the basis of an existing product or project. This methodology applies to all sectors of activity. This method has been transferred to over 20 centres throughout France and Canada. To date, over 400 preliminary diagnoses have been carried out.

Principles

Our waste is our food

Our air, soil and water are healthy

Pôle Eco-conception et Management

du Cycle de Vie

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**Accompagner les entreprises :
établir un pré-diagnostic**



FR

ARDI Regional Agency for Development and Innovation

EcoBooster

After the C2C Design collective initiative implemented in 2007/2008, the ARDI Design department developed a collective initiative called "EcoBooster" in partnership with economic and competitiveness clusters. The objective was two-fold: • to help companies to enhance their skills and improve their knowledge, incorporate environmental goals in the design of products and services and develop an approach based on a new business model (service vs. product); • to initiate and support a group of companies with their eco-design projects according to the methodology developed by Gaël Guilloux for his thesis supported by the Design Centre since 2004. Several projects are still ongoing and the results are somewhat varied according to the companies. An example is the creation of a position for a Sustainable Development Manager in a multinational company. More generally, there is a real awareness at different levels: toxicity, environmental values of concepts/ products; the importance of function compared with material considerations; the value of products which become waste at the end of their life cycle and importance of environmental communication.

Principles

Our waste is our food

Our air, soil and water are healthy

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fbercegeay@ardi-rhonealpes.fr

ÉcoBOOSTER

FR

ARDI Regional Agency for Development and Innovation

Innov'R

Innov'R is a permanent call for projects focusing on eco-innovation geared towards SMEs and functions as a one-stop shop to simplify the procedure and obstacles for companies: complexity of eco-innovation approaches, risk-taking, lack of time or funding... Innov'R is an original partnership tool pooling the Regional Government and State agencies (OSEO, ADEME); it involves eligible projects from the research and development programme to the demonstrator or prototype in the field of renewable energy, building and sustainable development, processes, products and services, management of polluting emissions or environmental measurement and assessment. Innov'R is a "Guichet unique Rhône-Alpes pour les éco-innovation" (a one-stop shop in Rhône-Alpes for eco-innovation), a unique gateway for corporate projects (facilitating the search for financing) which are entitled to a subsidy, a reimbursable prepayment or simply advice (cf. INPI). The extensive number of partners means that a project can be supported in a comprehensive and suitable manner.

The company simply has to submit a preliminary file to Innov'R (the "Guichet unique Rhône-Alpes pour les éco-innovation"). Each month, a technical committee selects projects and directs them to the appropriate financing system for support. The system is designed to respond to companies as quick as possible in line with the responsiveness requirements imposed on eco-innovative companies; the system was launched in June 2008. The launch of the INNOV'R system is based on the conclusions of work completed within the scope of the European project ECREINetwork (www.ecreinetwork.eu) on the financing of eco-innovations. 200 projects registered in approx. 2 years. Over 100 projects have been accepted and each year, a budget of around €3 million is allocated to the system. This one-stop shop is recognized for its effectiveness, particularly among trade associations in several sectors of activity.

Principles

Our waste is our food

Our air, soil and water are healthy

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INNOV'R®

Le booster des éco-innovations en Rhône-Alpes

HU

West-Transdanubian Regional Development Agency (WESTPA)

Healthy, worthy, Hungarian - Ecological farming at Hubai and Partners Ltd.

This family owned farm is managed by Imre Hubai. The area of land cultivated is more than 4 thousand hectares. The whole farming system is supervised by the Biokontroll Hungária Nonpr. PC, which is responsible for ecological certification in Hungary. The farm's activities not only include growing biological crops, but also processing a number of high quality ecological products, such as bakery goods, syrups or butcher's meat. Crop production is integrated with animal breeding. Most of the traditional Hungarian domesticated animal species can be found at the farm: Hungarian Gray Cattle, Mangalica Pig, Racka Sheep etc. The farming system is based on cyclical processes: crop production is strongly linked to animal breeding, and vice versa. Energy comes from renewable sources, they use thermal water for heating and use their own biomass "waste" to operate biomass furnaces. The company also built the first 100% Bio-Hotel in Europe (BioHotel Nimród****): the eco-building is furnished with eco-furniture and traditional Hungarian eco-food is served on hand-made dinner services.

Principles

We are native to our place

Our waste is our food

The sun is our income

Our air, soil and water are healthy

We design enjoyment for all generations

Hubai & Partners Ltd.

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Foto: Pálffyvárdy Ákos

HU

West-Transdanubian Regional Development Agency
(WESTPA)

Paper, Furniture, Horticulture – Sragner & Sragner Ltd.

Sranger & Sragner Ltd. is one of the leading firms in the furniture industry in Hungary. They have considerable experience in the design and production of the various kinds of furniture, used in offices, education or governmental buildings and event halls. The mission of the company is achieve the highest quality levels in all its services. The management have a strong sense of responsibility for the environment. They adopt the very best and truly green technology in every phase of the manufacture. Furniture factories use tons of paper for packaging. Using and recycling the paper waste was therefore an obvious management decision. They cooperated with horticultural engineers and invented dozens of new and innovative uses of recycled paper in horticulture and landscape planning. This is where furniture encounters gardens of flowers!

Principles

OWe are native to our place

Our waste is our food

The sun is our income

Our air, soil and water are healthy

We design enjoyment for all generations

Sragner & Sragner Ltd.

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IT

Milano Metropoli Development Agency

Azienda Del Mobile “RIVA 1920”

RIVA 1920 is a company located in Cantù, in the furniture district of Brianza (Lombardy region – Italy). RIVA 1920 incorporates several elements in its operations, inspired by C2C, such as: Use of renewable materials from certified forests. Use of non-toxic materials and assembled with metal parts using a reversible system, so that at the end-of-life components and materials of the products can be easily repaired (product life extension) and recycled or used as fuel at the end-of-life (materials life extension). Furniture is designed to be reconfigurable, to be adapted to different environments and to the physical and cultural change of the users. It is multifunctional and easy to maintain by the customers themselves or designed to improve home comfort and customized to the particular needs of specific groups of people (i.e. a kitchen for disabled). Renewable energy is used for the operations in industrial buildings of the company. Non-toxic materials and finishes are used and harmful environmental impact is reduced in the pre-production and production phases.

Principles

We are native to our place

The sun is our income

Our air, soil and water are healthy

RIVA1920

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simone.bellotti@riva1920.it





Milano Metropoli Development Agency

Bo.Mo. Project

Bosco Mobile is a project undertaken by "Progetto Lissone", a consortium including over 200 SMEs in the Brianza district, in collaboration with the University of Milano Bicocca and Consorzio Forestale Lario Intelvese. The aim was to create a short supply chain in the wood-furniture sector in Lombardy, applying eco-design principles (Lyfe Cycle Design, Cradle 2 Cradle) throughout the whole supply chain. The main aims were: to promote the use of certified regional wood stock to make the furniture; to optimize materials and energy flows and reduce the overall environmental impact; to integrate sustainability into the design and organization of the entire supply chain operation as basic environmental policy; to create a local system which is sustainable and competitive in the private and public markets (especially the green public procurement); to create and launch prototypes (school furniture pieces) inspired by the C2C principles of: fewer raw materials, no toxic elements, easy disassembly for repair, substitution and recycling etc.

Principles

We are native to our place

The sun is our income

Our air, soil and water are healthy

We design enjoyment for all generations

We provide enjoyable mobility for all

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 www.boscomobile.it



Milano Metropoli Development Agency

COVERLITE® – Antismog Photocatalytic Treatment

Impresa Bacchi is one of the leading Italian companies in civil, industrial and infrastructure building. Recently it has launched Coverlite, an innovative photocatalytic technology. Reducing harmful emissions from road traffic is a big challenge for public authorities and the measures taken to contain air pollution are not sufficient to meet the standards set at EU level. A result of more than 3 years of research and experiment on water-based emulsion with TiO₂ was Coverlite, a new anti-smog innovative, technology for road paving in asphalt. Coverlite is a micro-emulsion water-based polymer mixed with titanium dioxide, premixed and ready for use, which gives high photocatalytic properties to the asphalt flooring. The product does not alter the characteristics and peculiarities of the pavement or the life cycle of the pavement. In addition, TiO₂ is not toxic, does not cause harm to the environment during the production process. It did not generate waste, and in any case, the excess water coming from cleaning equipment is recovered and reused as a valuable basis for future production.

Principles

Our waste is our food

Our air, soil and water are healthy

We provide enjoyable mobility for all

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 www.coverlite.it
 info@coverlite.it





Milano Metropoli Development Agency

From Selling New Clothes to Services for The Shared Use, The Exchange And The Restyling of Clothes

The fashion supply chain is one of the most important economic features of Lombardy. The sector is not free from environment-related issues, starting with the heavy impact caused by the huge quantity of materials and processes involved in the production and planned obsolescence of its products. That is the reason why it is possible to witness the opening and the development of small and micro companies, handicraft-based and independent, that disrupt the traditional "fashion" concept, by offering services that target the shared use of clothes and not at their ownership, i.e.: shared wardrobes, a used clothing exchange, the restyling of one's own wardrobe and that of big names' past collections, use of production process waste and remnants (unsold from the previous years), in order not to use virgin materials, not transporting and making new items of clothing. In other words, a way of trying to complete the clothes life cycle properly, which, in the past, stopped well before their complete use, and to allow everyone to make a new wardrobe at low cost.

Principles

Our waste is our food

We design enjoyment for all generations

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New to you - Roberta Maglione
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By gentucca bini - Federica Florio
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www.by-project.com
info@by-project.com - buyer@by-project.com

ASAP as sustainable as possible - Delfina Capuzzo
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 T +39 02 659 81 57
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www.asaplab.it
contact@asaplab.it



Milano Metropoli Development Agency

Greenfluff – Industrial Plant for the Car-Fluff Recovery

The Greenfluff company started its activity in 2005 in some factories formerly used by Alfa Romeo in Arese (Milan province). The company is the only one in Italy dedicated to the treatment of the "fluff", i.e. the residuals of the scrapping of cars, but also of electrical and electronic products and home appliances (the "car fluff" is never less than 25% of the initial car weight). The plant, completely automated and robotized, is designed in order to recover as many components as possible from the "car fluff". In particular, it recovers about 80% of the material and what remains is inert material that can be dismissed in landfill. The whole process is without heating, without combustion and emission of harmful substances. The plant provides a set of competitive products included in the "car fluff", among which are: metals (ferrous and non-ferrous ones), plastic fractions, minerals (in the form of minute granules, used to realise road surfaces), iron oxides (to be used in steel plants) and other materials. These secondary recovered materials have a very high level of purity.

Principles

Our waste is our food

The sun is our income

Our air, soil and water are healthy

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Milano Metropoli Development Agency

Lampi di Stampa - Print-On-Demand

Lampi di Stampa, a company of the Messaggerie group, was the first publishing house in Italy to propose the “print-on-demand” (POD) system. Lampi di Stampa offers a book on demand service based on a digital process comparable with the off-set printing. The innovation implicates a transition from traditional off-set printing to the one, denominated, print-on-demand (i.e. digital). The two processes (off-set and print-on-demand) can be considered essentially analogous to the digital elaborations phases of texts and images. A radical difference between the two processes is in the subsequent phases. The off-set technology brings about the completion and assembly of the films, cyanographic production, the plate impression and logistics for the delivery and stocking of the books. The digital print technology entails only one operation: printing the book directly from the file very near or even at the sale point, hence allows to avoid a lot productive and logistical phases.

Principles

Our waste is our food

We design enjoyment for all generations

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Milano Metropoli Development Agency

OutIN project

The OutIN project aims at reducing waste products released by local industry and agriculture into the environment, by the creation of economic benefit for the companies reducing waste. What is a waste for a company could represent an asset for another company and the circulation of information on waste products will ease reintroduction of them into the production system, as secondary raw material, giving them a second life and reducing their disposal in the environment. OutIN projects is, first of all, a database of waste products classified by type, location, quantity, etc.; every subscriber company pays an annual fee to be included in the DB that works as virtual workshop. The OutIN project foresees the creation of a warehouse in which some selected samples are collected and used to: create new products, teach to students the potential of recovered secondary raw materials. The activity will also include a logistical service, to optimize the collection and transport of waste.

Principles

Our waste is our food

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Milano Metropoli Development Agency

Palm Pallet Company

Palm is a craft company that works with wood. The company's vision is to develop logistical solutions that decrease environmental impact with packaging/pallets that have a small footprint. This result is based on the strategy of the knowledge economy and on Life Cycle Thinking. The company has taken a number of active initiatives to transform the production chain into a sustainable process, certified at every stage. The company mission is to promote the Italian excellence in the field of pallet innovation, with a particular attention to sustainability and the ecological footprint, and to become a 100% sustainable company before 2020. Palm base its strategy on the market of the pallet and wooden packaging. Palm customized products designed to optimize weight and volume of packaging, with the use of less material and a reduction of waste. Palm launched a Bio sawmill, a short supply chain, incorporated in the territory, which means building a plant with a short supply chain called Biosegheria, an environmentally sustainable, closed loop. The concept of waste then disappears.

Principles

Our waste is our food

The sun is our income

Our air, soil and water are healthy

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a.contri@palm.it



Milano Metropoli Development Agency

Vezzola Spa - La Fabbrica dell'inerte

Vezzola SpA is engaged in researching and testing new, effective and alternative solutions to the problem of scarce natural resources, developing innovative materials for road-building industry and monitoring their impact on the environment. The "Fabbrica dell'inerte" (Factory of aggregate) of Vezzola SpA, based in Montichiari (Bs) is a new installation of high-performance hollow materials. This is an industrial innovation, capable of producing large quantities of selected building materials ensuring product quality, environmental friendliness and safety. The industrial area was located inside a worked-out cave. The large installation has a very limited impact on the surrounding environment, being entirely located in the mining basin. The perimeter and the slopes of the basin have been planted and restored to greenbelt. Sophisticated control, suction and humidification systems ensure the containment of noise and dust. The "Fabbrica dell'inerte" produces round materials for cementitious conglomerates; crushed products for asphalts, stored and separated into 13 distinct sections.

Principles

Our waste is our food

Our air, soil and water are healthy

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Province of Limburg

DSM. Polymer Materials for Cradle to Cradle Products

Royal DSM N.V. creates solutions that nourish, protect and improve performance. Its end markets include human and animal nutrition and health, personal care, pharmaceuticals, automotive, coatings and paint, electricity and electronics, life protection and housing. DSM manages its business with a focus on economic performance, environmental quality and social responsibility, which it pursues simultaneously and in parallel. DSM has annual net sales of about €8 billion and employs some 22,700 people worldwide. The company is headquartered in the Netherlands, with locations on five continents. DSM is listed on Euronext. The Cradle to Cradle concept fits in very well with DSM's sustainability activities. DSM currently has five C2C certified polymer products. DSM materials are already in use in several C2C downstream products in the market. DSM believes its work towards Cradle to Cradle, as part of its overall sustainability strategy, leaves it well-positioned to exploit expected increases in demand for these products in the future. DSM is member of several C2C contact communities.

Principles

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Our air, soil and water are healthy

We design enjoyment for all generations

EPEA

Licensed by EPEA

DSM Innovation Center

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Province of Limburg

ERUTAN®. First worldwide sustainable carpet with a closed biological cycle

Best Wool Carpets, James and Bond Textile Research aim to develop the first worldwide fully recyclable carpet, consisting entirely of natural materials and moving away from synthetic products such as latex, thus closing the biological cycle. This carpet has the name ERUTAN ('nature' backwards). Goals to be realised are the environmentally friendly washing and pre-treatment of raw wool, the colouring of wool at low temperatures, producing enzymatic binding of woollen yarn and other tufting materials from natural materials (new bioprocess), environmentally friendly production of C2C carpets on an industrial scale and the environmentally friendly maintenance of this carpet. Once a ERUTAN carpet has reached its end of life, it can become a substrate for the agricultural industry (for mushrooms as replacement for peat, countering desertification, landscaping). Development of the carpet will take place between 2010 and 2012. The total project will be completed in cooperation with biochemists/ chemists, textile engineers, environmental technicians, material engineers and economists.

Principles

We are native to our place

Our waste is our food

The sun is our income

Our air, soil and water are healthy

We design enjoyment for all generations

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Province of Limburg

EuroCeramic C2C Certified Clay Pipes for Drainage Solutions

EuroCeramic is a specialist in the production and development of stoneware pipes and fittings (drainage solutions, sewage systems) and is the only such producer in the Netherlands. EuroCeramic has two production locations in the Netherlands, at Belfeld and Reuver. As clay is the sole raw material used in their construction, clay pipes are sustainable products and last longer than other materials. All EuroCeramic products have an EPEA silver certificate. The company is aiming for gold. The first step in this direction is reducing its CO2 footprint. EuroCeramic has been purchasing renewable electricity since January 2010. The company also purchases natural gas, whose emissions are compensated for by forestry.

Principles

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Our waste is our food
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Our air, soil and water are healthy
We design enjoyment for all generations

EPEA

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Province of Limburg

Jalema C2C Filing Systems

Jalema BV is one of the largest producers and suppliers of professional filing systems and office products in Europe. Jalema has, among other things, developed, a complete product range for the health care sector, for the graphic industry, the public sector and many other clients. Jalema has defined a three-step program on the Cradle to Cradle principle. Step 1: Adapt current products to the Cradle to Cradle standards. Step 2: Design new products according to the Cradle to Cradle standards. Step 3 (long term): Close the materials cycles within the product chain. The level of renewable energies has risen from 1% to 50%. Emissions are low and no process water is wasted. The objective is a good social environment for its employees and those working in its supply chain. Thus far, Jalema has been awarded 4 C2C certificates in silver for 4 product groups that contain over 150 products. Jalema can now furnish complete archives of files and folders that meet the Cradle to Cradle guidelines.

Principles

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The sun is our income
Our air, soil and water are healthy
We design enjoyment for all generations

EPEA

Licensed by EPEA

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Province of Limburg

Knoops C2C Printing Process

Knoops Eco Printing is an offset printing company, which offers a wide variety of products, such as business cards, letterheads, envelopes, flyers, brochures and full colour printing for special journals and magazines. Knoops Eco Printing's printing process is Cradle to Cradle optimised in collaboration with EPEA. Knoops applies a natural, pure and transparent printing process. Ink, paper and fluids have been adapted or developed, which are reusable and biodegradable. For Knoops, the Cradle to Cradle principles go beyond a printing process adhering to EPEA standards. Knoops wants to present an EPEA certified printing process, a clean and improved working process for its employees and a fully equipped Cradle to Cradle office.

Principles:

We are native to our place

Our waste is our food

Our air, soil and water are healthy

We design enjoyment for all generations

EPEA

Licensed by EPEA

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Province of Limburg

MOSA C2C Floor and Wall Tiles

Royal Mosa is a tile manufacturer (8.000.000 m² of tiles p.a.). The company has made a deliberate choice to continue sustainable development and production in Maastricht. Mosa is the world's first ceramic tile factory to receive the Cradle to Cradle certificate (basic for unglazed floor tiles and silver for glossy wall tiles). Mosa has been consistently investing in purifying ceramic tiles and closing the loop. Mosa adapted its production methods where possible to make high quality tiles which are recyclable. Now Mosa tiles contain 10 to 40 per cent recycled material. Most tiles are being classified as 'to be used in the technical Cradle to Cradle cycle, but safe for the biological cycle'. Closely involved in the development process were Mosa, EPEA, a logistical service provider, an adhesive manufacturer, and regional and national authorities. The company has started pilot projects on recycling and return systems. Green energy is used. The long term objective is energy transition.

Principles

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The sun is our income

Our air, soil and water are healthy

We design enjoyment for all generations

EPEA

Licensed by EPEA

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Province of Limburg

Océ Sustainable Document Managing and Printing

Océ is one of the world's leading providers of document management and printing for professionals. The offering includes office printing and copying systems, high speed digital production printers and wide format printing systems for both technical documentation and colour display graphics. Océ is also a supplier of document management outsourcing. Many of the world's Fortune 500 companies and leading commercial printers are Océ customers. Océ is active in over 90 countries. It employs some 23,000 people worldwide. Océ's strategic objectives with regard to sustainability are to enable customers eco-efficient and eco-effective document management; to combine economic growth with a reduced environmental footprint and increased well-being of people; to require partners to adopt the same norms and standards with regard to sustainability as Océ itself. A strong performance in sustainability contributes to operational efficiency as well as generating stronger product propositions and a more powerful market image. Océ embraced sustainability as part of its core proposition decades ago.

Designers at Océ develop products with a total life-cycle in mind. Most of the systems stay under Océ control by lease or other contractual arrangements with its customers. That means that Océ has full control over the equipment during its entire lifecycle, taking responsibility for proper maintenance, and guaranteeing users a fixed, all-in cost. When lease contracts expire (after 3 to 5 years), equipment is returned to Océ factories under a closed loop principle. Systems and their components are well suited for reuse and remanufacturing to full new model status, for a second or even a third efficient lifetime. Four Océ facilities, spread across the globe, give a second life to thousands of Océ systems per year. Whenever equipment remanufacturing is not feasible, modules and parts are recovered for reuse.

Principles

Our waste is our food

Our air, soil and water are healthy

We design enjoyment for all generations

Océ N.V.

P.O. Box 101

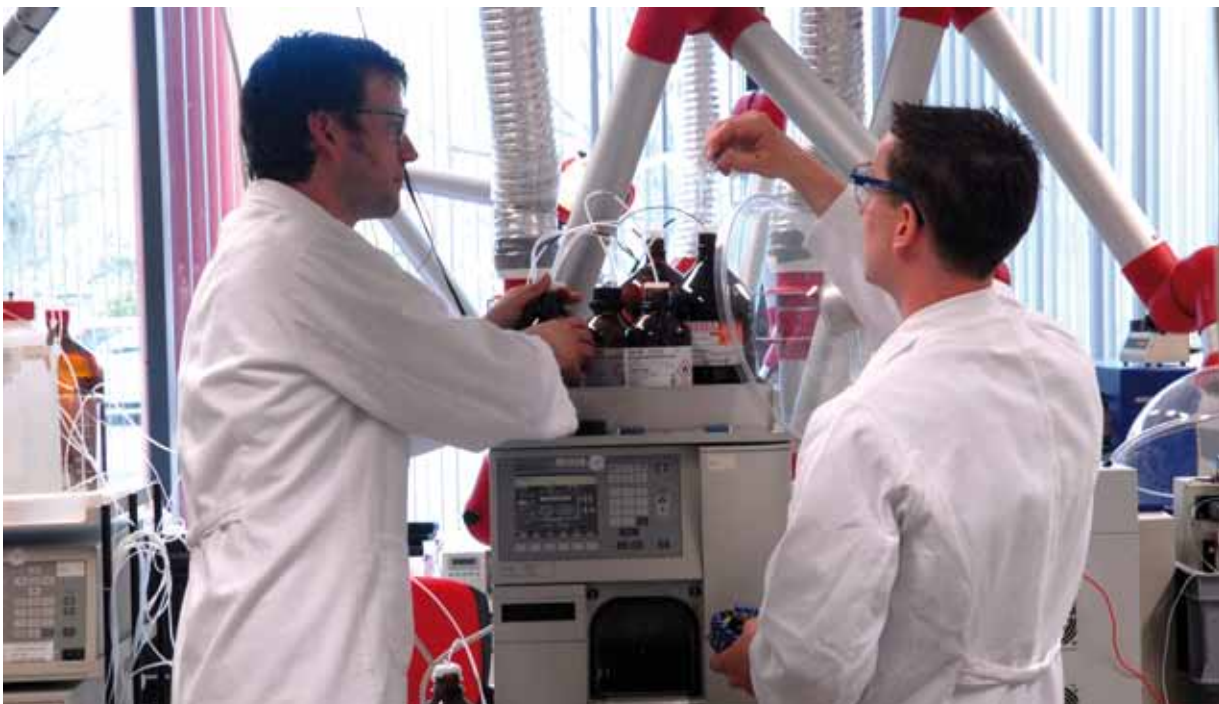
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NL

Province of Limburg

Rockwool Thermal, Acoustic and Fire-resistant Insulation

Rockwool is an international company headquartered in Denmark, and the leader in stone wool insulation material in the Benelux. The Dutch plant is the biggest in the world. Rockwool insulation products can also be used for green roofs and green walls. The products contribute to sound building and housing concepts. Rockwool Benelux and one of its main transporters have won a prize for their transport concept which saves energy and reduces CO2 emissions. Although natural resources (basalt) are abundant Rockwool has been recycling its own production waste into new stone wool since the end of the 90s and offers a recycling scheme to the market. In the current building system, recycling schemes are difficult for relatively small, lightweight waste streams like insulation. Technology is not the barrier for C2C concepts; impediments arise in logistics and economics. By developing more customised recycling schemes, the system can be optimised. Optimisation starts with specific streams and later extend to all. It is a cooperative process between Rockwool, its recycling partners and clients.

Principles

- We are native to our place**
- Our waste is our food**
- Our air, soil and water are healthy**
- We provide enjoyable mobility for all**

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NL

Province of Limburg

Usit Design Furniture

Usit Design is a new company based on the idea that residual materials (aluminium) from coachwork construction can be used in the design and production of new attractive and functional products. The first series of products is a complete line of garden furniture. Currently, Usit Design is working on designs for roof gardens and interiors, as well as focussing on materials other than aluminium. Usit Design will use residual material from the aluminium industry as raw material for its furniture. Aluminium is extremely profitable to recycle. The energy for recycling is only 5%, compared with the extraction and production of aluminium from bauxite. In making its products, Usit Design brings aluminium residuals back into the technosphere (upcycling). At the end of its life cycle, the product material can be reused without loss of quality.

Principles

- Our waste is our food**
- We design enjoyment for all generations**

Usit Design
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Province of Limburg

Van Houtum C2C Hand Towel and Toilet Paper

Van Houtum is an independent manufacturer of tissue products (45,000 t/a). Van Houtum develops innovative concepts for better washroom hygiene and a better washroom experience with exceptional environmental performance. All tissue paper is made from 100% recycled paper. The production processes comply with strict environmental standards. Van Houtum has developed hand towel and toilet paper, according to the Cradle to Cradle principle, which meets all the requirements of the biological closed loop. Development took place in close co-operation with EPEA, other researchers (DSM chemical company), material suppliers (mainly chemical), end users (used paper from authorities, banks, airlines, etc.) and distribution partners, thus creating local supply chains. Van Houtum's paper residue is used as raw material by Smurfit Kappa, a local corrugated board producer. Van Houtum buys the Smurfit Kappa packaging box for its tissue paper. As of 1 October 2010, Van Houtum is a Cradle to Cradle Charter Organisation, extending C2C to all aspects of its company.

Principles

We are native to our place

Our waste is our food

The sun is our income

Our air, soil and water are healthy

We design enjoyment for all generations

EPEA

Licensed by EPEA

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Province of Limburg

Waste No More

Van Gansewinkel is a European waste management company, with the Benelux countries as its home market and an ambition to expand into other markets. 'Waste no more' is the company's motto. It implies the constant move of waste to raw materials and energy, thus completing the cycle. One of Van Gansewinkel's milestones, in 2008, was the conclusion of a cooperative agreement with Prof Dr Michael Braungart, founder of the C2C concept, and his organisation EPEA. Van Gansewinkel will play an ever-increasing role in the collection and recycling of C2C-certified products, with the objective of bringing essential nutrients and raw materials back into use. For this purpose, the company provides return systems. Moreover, the company's wide-ranging understanding of waste and raw materials can benefit those who produce them. Van Gansewinkel has several C2C-certified partners - including Van Houtum Papier, Mosa (tiles), Desso (carpets), Philips (electronics) - with whom it closely cooperates in closing the product cycle.

Principles

Our waste is our food

The sun is our income

Our air, soil and water are healthy

We design enjoyment for all generations

EPEA

Licensed by EPEA

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Waste no more. van Gansewinkel Groep 

NL

Province of Limburg

Waste Paper Binder OPB

The Waste Paper Binder [NL: Oud Papier Binder, OPB] is a device, used to bind waste paper from households before collection. The OPB is made of reusable paper. The rope is biodegradable and made from 100% cellulose. The carrier itself is an FSC certified thin cardboard. It has been tested by Van Houtum Papier and Smurfit Kappa Roermond (paper industry) and can easily be incorporated into the paper recycling process. According to its supplier OoPéBé Concept the design of the binder invites people to collect - consciously or subconsciously - up to 10% more waste paper from within their households than is the case without without the binder.

Principles

Our waste is our food

We design enjoyment for all generations

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RO

North-East Regional Development Agency

Biophotonic Synergy Design: Ecological Innovations for Optimizing Human Well-Being

The main idea is improving human well-being by recreating a new biotechnological medium of life, implying eco-synergy through the use of natural / biological materials, harmonious natural volumes and decorative shapes, in natural colors and with stimulating accessories. The generation of this new and stimulating "living frame" is based on the biophotonic / bio-resonance of the human body with the above-mentioned synergetic effects of biotechnological products, by starting with the "architecture of light", optimally accorded to the bio-psychical necessities of the beneficiaries, and finishing with the energetic-informational properties of "biophotonic clothing", etc. Based on patents already registered under the "Biophotonic Concept" brand, valorization of these ignored biophotonic resources and mechanisms could be applied highly effectively at industry-level. The "Rainbow Collection" (designer Aritia Poenaru) is a result of research entitled Biophotonic nanotechnologies applied in the textile industry with beneficial effects on the human organism through "Biophotontex" clothing. Each piece of the collection is created to resolve a certain health problem, such as an organism's hypo- or hyper-function, in stimulating the immune system, etc. The biophotonic synergy effects of the organic materials, natural colorants, decorative shapes and volumes, biophotonics resonators etc., are amplified by specific invisible bio-technologies such as: cyclo-dextrine and therapeutic herbal treatments, laser and polarized light impregnation, etc., by using the know-how of an integrative Synergy Fashion Design.

Principles

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SC Biophotonic Synergy Design SRL

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RO

North-East Regional Development Agency

Eco-traditional furniture

Inspired by traditional Romanian furniture - the designer took over both its aesthetic and semantic forms, using an essentially popular and structural symbolism that offered him the opportunity of ingeniously shaping the so-called "spigot-based" or "multi-purpose plug" traditional joining systems with a three-dimensional layout of multifunctional qualities. The idea of joining the two functions - the serving and sitting areas - into one is absolutely innovative and was implemented by joining the composing boards using multifunctional spigots. The solution is original in terms of both the synthetic interpretation and Romanian visual load and the constructive structure of the furniture.

The product is environmentally friendly because of:

- The wooden material chosen, naturally semi-finished with reintegration into its original environment at the end of the product's lifetime;
- fully traditional processing technologies without involving any large-scale industrial equipment;
- its versatility and simplicity;
- the assembling carried out without using any additional joining elements (metallic joints, synthetic adhesives, paint, etc);
- the ongoing permanent respect for tradition and the environment.

Principles

We are native to our place

Our air, soil and water are healthy

We design enjoyment for all generations

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UK

Suffolk County Council

Closed Loop Recycling Plant

The Closed Loop Recycling Plant takes discarded PET drinks bottles and HDPE milk bottles and recycles them back into food-grade plastic. The resulting rPET and rHDPE is then sold to packaging manufacturers to make new bottles and food packaging. The plant is the first to use advanced technology to sort, wash and super clean both types of plastic meeting EU and US FDA standards. 875 million bottles that would otherwise have been exported for recycling, or sent to landfill, will now be processed and remain in the UK. This represents over 13% of the plastic bottles currently collected for recycling in the UK, saving approximately 52,500 tonnes of carbon dioxide per year. Recycling plastic bottles back into food-grade quality material requires a number of technologies and involves three key stages: • Sorting • Granulating and washing • Purification (to food-grade) In addition, they advise retailers on using recycled plastic, devise Closed Loop Recycling Programmes for venues and events and have established a Closed Loop Office Recycling Scheme.

Principles

Our waste is our food

Our air, soil and water are healthy

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Suffolk County Council

Cyberpac - Harmless Packaging

'Harmless Packaging' is a range of truly compostable packaging sourced ethically, produced efficiently and sold responsibly. The commercially viable range includes bags that will dissolve in water, will compost naturally or completely biodegrade into naturally occurring substances. The 'Harmless-Dissolve' bag is up to 3 times stronger than polythene and is made from a readily biodegradable, water soluble polymer which completely biodegrades in a composting environment, in a dishwasher or in a washing machine. It has no harmful residues and will biodegrade into naturally occurring substances. As well as other products such as harmless bubble wrap, Cyberpac have delivered an industry first: a clear, compostable bag, printed in biodegradable inks with a biodegradable peel and seal lip. Cyberpac claims to provide truly environmentally friendly packaging for today, tomorrow and for the future.

Principles

Our waste is our food

Our air, soil and water are healthy

We design enjoyment for all generations

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Suffolk County Council

Eastex Materials Exchange

A materials exchange actively exploits the principle that one company's waste is another's raw material. By matching these parties via the internet, unwanted materials can be efficiently passed on or sourced - either once or as an ongoing arrangement. It delivers real financial savings and keeps potentially useful materials in circulation. Eastex is a free online information service where organisations view and place information about redundant stock and surplus raw materials. It comprises eleven localised Exchanges, based in the UK. Each county Exchange comprises two distinct systems: a public interface and a manager facility that provides all the administrative tools required to manage membership, moderate entries, intervene in key transactions and measure results. Detailed realtime statistics and graphing provide significant insight and enable; - Benchmarking between the six county exchanges to provide an early warning system of any target slippage; - Rapid knowledge transfer through the identification of good practice and its rollout to other county exchanges.

Principles

Our waste is our food

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Suffolk County Council

Elvis & Kresse

Elvis & Kresse make use of materials that would otherwise go to landfill to create a range of life style accessories. Their pioneering first range utilizes de-commissioned fire hoses from Fire Brigades across the UK. Many of the peripherals are also reclaimed from old office furniture textiles, scrap sail cloth and waste parachute silk. They have a strong environmental philosophy which 'permeates the business' and all their packaging is reclaimed and includes tea sacks, tea bag paper, coffee sacks, air traffic control strips, shoe boxes, old newspapers and used jiffy mail pouches. Although the business was established in London, Elvis & Kresse now collect hose across the UK, and in order to thank Britain's Brigades, 50% of their profits from the fire hose line go to the Fire Fighters Charity. They scrub away all the soot, grease, and everything else that builds up after 25 years of active duty, and in the process reveal a truly remarkable, truly green textile. All of Elvis & Kresse's products have the environment at their core - industrial waste is the cornerstone of the brand.

Principles

Our waste is our food

We design enjoyment for all generations

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Suffolk County Council

National Industrial Symbiosis Programme (NISP)

The National Industrial Symbiosis Program (NISP) is a free business opportunity program that delivers bottom-line, environmental, social and economic benefits. Industrial symbiosis brings together traditionally separate industries and organizations from all business sectors with the aim of improving cross industry resource efficiency and sustainability through the physical exchange of materials, energy, water and/or by-products together with the shared use of assets, logistics and expertise. NISP is a national programme, delivered at a regional level across the UK. Each of the twelve regions has a team of dedicated industrial symbiosis practitioners working closely with businesses in the area to raise the profile of industrial symbiosis and to recruit members to the programme. NISP has a whole portfolio of case studies in which the program has enabled one organization or business to take another's waste and use it as a resource.

Principles

Our waste is our food

Our air, soil and water are healthy

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Flemish Public Waste Agency (OVAM)

Bio-Planet Leuven, the first "Green" supermarket of the Colruyt Group

The Bio-Planet mission states that we want our customers to enjoy life in a healthier and more conscious way, thanks to our tasty, complete and reliable assortment of organic products. Bio-Planet is a unique concept, as a separate supermarket selling only organic food and ecological non-food products. Our new shop in Leuven (Belgium) is designed according to the latest and best possible ecological performance indicators. In this way, it is a trendsetter with an integrated green approach combining product and infrastructure aspects in a business context. Additionally, we are taking a new step towards a 'passive' supermarket. Our first attention went to lowering energy consumption in general. For a shop that is already very energy efficient due to its concept (a closed cold-storage area instead of open refrigerated shelves, no air conditioning, no excessive lighting, no open freezers), the challenge was to cut energy consumption by another half. By monitoring the performance of the different techniques, we will evaluate its applicability for other stores within the Colruyt Group.

Principles

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We design enjoyment for all generations

We provide enjoyable mobility for all

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Flemish Public Waste Agency (OVAM)

Cameleon, first ecologically built retail store in Europe

For more than 15 years, Cameleon has been the privileged partner of famous brands and organizes their clearance of articles resulting from preceding collections. Cameleon is looking for stocks from famous labels that they offer at lower prices. During each sale, Cameleon presents a wide range of ready-to-wear clothes for men, ladies and children, as well as accessories, shoes, luggage, ... Started about 5 years ago by Cameleon, their new outpost in Woluwe (Brussels) screams 'Green with a Big G' all over - and let's face it - it is very much C2C. From the bees living up on the roof to the locally sourced wood used for the outer paneling, the materials used, the water recycled, the natural light and ventilation, etc. "We made a conscious decision to push the bar high", says Augustin Wigny, ceo of Cameleon.

Developed by Awaa (cwwarchitects) in partnership with Leuven's University and its Matriciel offspin, the building is a pure example of thinking-before-doing, a common sense project. Ecological and social issues were the first priority for Cameleon, so the intention was not to invest in the equipment in the end, but to take all ecological aspects into account in every step of the design, development and realisation. Since the project was realised in 2009, it received several awards and received the international Mapic Award 2009 (Cannes, France) for 'best sustainable retail development of the year', the Fedis Mercurius Price 2009 for 'business of the year' in Belgium and a Certificate of 'good practice in building design' from the Brussels Capital Region.

Principles

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Flemish Public Waste Agency (OVAM)

Duurzaamheidsmeter, a measuring tool for sustainability of city development projects

The City of Ghent has developed an instrument or system for measuring the sustainability of city development projects. It is based on international management tools such as BREEAM en LEED, in order to achieve a higher level and more integrated implementation in all sustainability aspects in the main city development projects in Ghent. This instrument is a quantitative approach to sustainability, to objectify the qualitative discussion. The measuring system covers themes such as in integrated project process, spatial planning and functions, mobility, water, materials and waste, the natural environment, energy, health and accessibility, the social economy, innovation and maintenance. The system comprises measures that are obligatory (minimum sustainability standards) and optional (offering freedom of design). This system is already being used in the requirements of a city development project: The Gas Site.

Principles

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We provide enjoyable mobility for all

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Flemish Public Waste Agency (OVAM)

Greenovating Howest (University College West Flanders), upcycling the Bruges campus

Students taking a Bachelor's degree in Applied Architecture from Howest have to formulate suggestions for the sustainable renovation of the existing buildings on their own campus. They are coached by their lecturers/architects Patrick Gryson and Marc Jacobs. The assignment aims at an ambitious and revolutionary 'eco-make-over of the campus', both of the buildings themselves and of the users' functioning and the perception of it and its surroundings. Transparency, communication, futuristic, functional design, "new working", "new learning" are keywords. Starting from the inherent qualities of buildings, we need to examine how buildings can be sustainably upcycled in order to become eco-effective buildings with an architectural quality and a new present-day character that could be appreciated both by users and environment. Special attention goes to the sustainability aspects in the broadest and most innovative sense. The draft proposals must offer solutions for the sustainability themes like: reuse of existing buildings, mobility, biodiversity, water, materials, energy, health, etc.

Principles

We are native to our place

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Our air, soil and water are healthy

HOWEST (University College West Flanders)

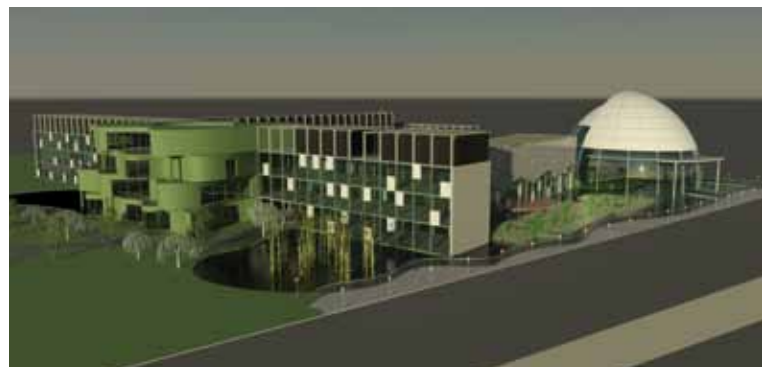
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Flemish Public Waste Agency (OVAM)

PIVO, a sustainable and social housing project

The Province of Flemish Brabant (Belgium) wants to build new and affordable housing in the periphery of the Brussels Capital Region, an area with very expensive housing. P.I.V.O. is a pilot project for social housing (1/3 for sale and 2/3 for rent). The three main principles put forward by the Province for the housing project are: sustainability (minimal ecological footprint), quality and affordability. Sustainability not only means meeting technical and energy requirements, but also the creation of an urban ecology. The project encompasses the construction of 86 housing units (single-family homes with a garden, what are called 'kangaroo houses', duplexes and apartments). The design of public spaces and housing units constitutes an integrated whole. It is important that every unit is able to enjoy the proximity of public spaces and specially provided green zones. The strong interweaving of components guarantees a diverse living environment as well as the necessary social control.

Principles

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We design enjoyment for all generations

We provide enjoyable mobility for all

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IT

Milano Metropoli Development Agency

3M Building

The new headquarters office building for 3M located in the outskirts of Milan (Piotello) is under construction and nearing completion. The building is the first to be built on the site as part of a masterplan completed by MC A in 2005. A linear building, 105m long and 21m wide, it has a terraced form stepping down from five to two storeys. The form and orientation of the building allow optimal environmental control. The north, east and west facades have specially designed glazing and shading systems. The south face of the building has steps, creating a series of terraces that provide shaded outdoor space for the office workers. The terraces act as an environmental buffer space that protect the building from climate extremes in both summer and winter. Environmental analysis of the building in context led to the choice of an active solution for the roof and facades. Photovoltaics are integrated into the design and produce energy while giving a shimmering technological beauty to the building. The 3M headquarters building won the 2009 US Award for Architecture.

Principles

The sun is our income

Our air, soil and water are healthy

We design enjoyment for all generations

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Milano Metropoli Development Agency

Autogrill Green Store

Autogrill is the world's leading provider of food & beverage and retail services for travellers. With this project, Autogrill aimed at building an eco-sustainable and all-sufficient service station store. The store (along the E45 highway), is the first totally all-sufficient building for heating and air-conditioning, thanks to geothermal energy and high technology and architectural solutions, following a new sustainable approach in building technology. The structure is completely covered by true grass and ivy to maximise natural perspiration and keep down surface temperature (a drop by drop watering system including recycling of the rain water). With windows and light wells for natural light, recyclable furniture material and a LED lighting system, with photovoltaic panels for signs and external lighting. A geothermal system is used to heat the building. Every detail of the interior is thought out according the "design for all" principles easily usable by the disabled. Materials and components are reduced to the minimum; everything is recyclable and easy to maintain.

Principles

Our waste is our food

The sun is our income

Our air, soil and water are healthy

We design enjoyment for all generations

We provide enjoyable mobility for all

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Milano Metropoli Development Agency

New playschool in Cologno Monzese

In 2007, the municipal administration of Cologno Monzese (Milan province) started the building of a new playschool for 60 babies, defining the partial reconversion of an existing building and its extension. The project answers a need for a proper local centre for babies, into which the playschool is integrated by services, such as a family centre/playroom, a documentation and an educational centre. The special characteristics of this structure include the attention paid to energy saving (improvement of insulation performances of the external shell of the building, use of photovoltaic energy, use of geothermal energy), environmental pollution reduction and living comfort, followed by a significant reduction of management costs while increasing the level of quality perceived by the users.

Principles

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We design enjoyment for all generations

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Milano Metropoli Development Agency

Public Residential Housing – Senior Citizens Housing “Bird”

BIRD is a public housing project, built in partnership by the Lombardy Region, Aler Brescia and the Municipality of Brescia, which set the conditions for building a residential complex for the elderly, powered with geothermal probes and with photovoltaic. The BIRD project includes 52 apartments for elderly people plus a service centre in Sapolino, a town in the province of Brescia. BIRD stands for Bioedilizia (bio-construction), Inclusion sociale (social inclusion), Risparmio energetico (energy saving) and Domotica (domotics). The buildings were made with the exclusive use of eco-friendly building material. The project is classified in class A + (Energy Agencies Casaclima and CENED Lombardia). The energy needed for heating/cooling is derived from a complex plant of geothermal heat pumps, photovoltaic and thermal energy. The project has been awarded several national awards including: L'intervento è stato premiato con vari riconoscimenti nazionali quali: Premio Palmares Federcasa, Premio Next Energy 2006, Premio Innovazione Amica dell'Ambiente 2009.

Principles

The sun is our income

We design enjoyment for all generations

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Province of Limburg

A New Building for Kringloop Zuid Recycling

Kringloop Zuid Maastricht is to build a new building pursuant to the Superuse principle (2012 Architects), making use of residues from the surrounding environment. The shorter the distance and the cheaper it is to obtain materials, the more likely they will be chosen. A 'harvest chart' (a matrix which shows the estimated costs of obtaining certain materials and the fall-back options) will be used in order to get an overview of the estimated costs and profitability. Where applicable, ingredients are defined through an ABC-X categorisation, and the path of each of these nutrients is defined. The nutrient, water and energy flows of the building are optimised. The building effectively utilises light, space and vegetation. The building facilitates the diversity and social needs of people, and provides a habitat that supports the diversity of wildlife on the outside. As far as is possible, the building will meet the EPEA Cradle to Cradle criteria for building. The objective is to achieve a BREEAM certificate.

Principles

We are native to our place

Our waste is our food

The sun is our income

Our air, soil and water are healthy

We design enjoyment for all generations

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Province of Limburg

City of Venlo - New Municipal Offices

The City of Venlo is currently designing and constructing a new municipal office building based on the C2C concept by using the features of the location itself (river Meuse, sunlight, etc.), new techniques and C2C materials. It will clean the air by using a green wall. Life-cycle cost analyses are detrimental, as are the interests of the employees. Venlo will also define C2C goals for the total exploitation-time of the building in a way that allows it to 'grow' into a better building during a period of 40 years by defining C2C objectives and qualities for 2020 and later. The office building will be energy-effective, in harmony with its setting, made of materials that can be reused after demolition, and above all people-oriented. The design process started early 2010 and will be concluded early 2012. The design team counts representatives of the City of Venlo, the architect, C2C experts, and specialists in building systems and other fields of engineering. The new municipal office building will open its doors in 2014.

Principles

We are native to our place

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Province of Limburg

Climate Neutrality of Museums Owned by the Province of Limburg

In order to speed up the energy transition process, all buildings owned by the Province of Limburg must be climate neutral by 2015. The Province owns three museums: the Bonnefantenmuseum in Maastricht, the Limburgs Museum in Venlo, and the Discovery Science Center 'Continium' in Kerkrade. 50% of the current energy use will be saved, or will be produced with sustainable sources. At the Bonnefantenmuseum: the excessive heat of the building is cooled by water from the river Meuse instead of an energy consuming cooling machine. Solar panels are planned, including glass containing solar panels. Window panes will be reused. No wind or biomass is planned. Continium will expand the use of a ground source heat pump for heating and cooling purposes, solar panels are on the roofs and optionally in the sunblinds. The Limburgs Museum will use a ground source heat pump for heating and cooling purposes, and solar panels on the roofs.

Principles

We are native to our place

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Province of Limburg

De Moennik, Helden

The De Moennik building in Helden is an agricultural school, which ceased to be active a few years ago. The Municipality of Peel en Maas held a contest for redevelopment of the site. The conditions on this were the preservation of the school building, affordable houses for newcomers on the housing market (starters) and the application of C2C guidelines in building the houses. The contest was won by Miba Groep (real estate). The group will develop six apartments and build 12 houses. In return, the group will own the site and, after redevelopment, it will receive the profits from the sale of the houses and apartments for which the municipality has set a fixed price (as condition under the contest). The houses will be built according to the passive house principle. Renewable energy sources include geothermal heat and solar energy. A grey water circuit is provided for. The soil balance will be closed. The decision to develop homes for young people will help to keep them in their region of origin and thus give a social boost to community life.

Principles

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Our waste is our food

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Our air, soil and water are healthy

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Province of Limburg

District of Tomorrow

The District of Tomorrow develops, implements, exhibits, and operates four energy-efficient, innovative buildings (a Passive house; Exhibition building; Exergy building; and Zero energy materials building) at the Avantis European Science and Business Park, Heerlen. The buildings are developed and constructed by students (university for applied sciences level) in collaboration with companies and local and regional authorities. The area will have zero fossil fuels. Transport is electrical, with solar energy for charging points. Sustainable management of resources is at the heart of the project: closing cycles and renewable resources. Ambitions in social and health issues are defined as requirements for the buildings design. The District of Tomorrow makes a major contribution to practice-based learning, sustainable development, open innovation and the 'upcycling' of neighbourhoods in the Meuse-Rhine Euroregion. It sets an example for investments in sustainable societies and is actively looking for cross border cooperation.

Principles

We are native to our place

Our waste is our food

The sun is our income

Our air, soil and water are healthy

We design enjoyment for all generations

We provide enjoyable mobility for all

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Province of Limburg

Ecoranch Uitspanning Zonedauw

The Uitspanning Zonedauw (Ecoranch) Recreational Park in the Municipality of Peel and Maas will show how 'new' and 'traditional' building materials can be used in architecturally desirable buildings with lower energy consumption (active house level). Eight holiday cottages are provided for, an educational centre (tea house) and B&B house, and the custodian's residence. The buildings will be situated to allow them to receive an optimal amount of sunlight. All buildings will be insulated with a variety of sustainable and C2C materials. Solar and wind energy will be used to produce hot tap water and electricity. Waste water will be purified and reused on site. Thermal (cold and heat) storage will provide heating and air conditioning. Loss of heat due to ventilation will be minimised by the use of heat recovery units. The project will make use of recycled materials; or, new materials will be selected that can be recycled later. The park is also meant to be a place where businesses can showcase their expertise and products.

Principles

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Municipality of Peel en Maas

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Province of Limburg

Geusseltbad Swimming Pool, Maastricht

A City Council decision was approved to build a new, sustainable swimming pool for the people of Maastricht. The design was by the Architects, Koppert & Koenis. The energy system is based on heat pumps, heat recovery and recycling water. The system will be 'all electric', coming from 'green' electricity sources (wind energy). There will be no gas connection. The concrete waste used in the construction comes from a site in Maaseik (Belgium). Tiles (interior and facades) are produced by Royal Mosa and all C2C certified. A timber framed house and three-layered glass will be used to guarantee maximum of isolation. A green roof and walls will be installed. Rainwater is re-used and filtered. Construction will begin in February 2011.

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Innova Complex (InnovaToren) - Floriade 2012/GreenPark Venlo

The Innova Complex is part of Venlo GreenPark/Floriade 2012 horticultural exhibition. Innova is one of the landmark buildings in Venlo GreenPark and the identifying icon and access gate to Floriade 2012. After Floriade, the Innova Complex will be the physical and online community for innovation in Fresh & Food in Europe. In addition to an office building, The Complex will primarily be a source of ideas for the future of Fresh & Food in Europe. The architecture of the Innova Complex, combined with the business model, will be an invitation to people to meet, make discoveries and develop. The design is by Jo Coenen Architects, with a focus on the Cradle to Cradle principles. Energy consumption for heating and cooling is 25% to 50% lower than in traditional office buildings. Building waste will be limited by means of flexible divisions of floor areas. During function changes, within the office building, floor constructions can be dismantled, prefab foundation beams and prefab support construction will be used.

This will also limit the amounts of building waste. Rainwater will be reused in a grey water circuit system. The waste water flow will be limited by utilising only C2C-certified cleansers during construction. Creating awareness of energy and water consumption among users of the building will take place by decentralised monitoring of energy and water consumption. The maintenance and service costs are consequently 30% lower than in traditional office buildings. Various construction elements (solar chimney, climate walls, heat/cold storage, floor concept, cleaning during construction, etc.) can be transferred directly to other projects with a similar construction configuration.

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Province of Limburg

Interior Planting (Interior Landscaping)

Interior planting (landscaping) is the practice of designing, arranging, and caring for living plants in enclosed environments. The Custers In Groen company advises on design, products, supply and maintenance. A responsible use of indoor plants will improve the quality of the indoor climate due to the plants' abilities to clean the air, create higher humidity, filter out particulates, and improve acoustics. Plants also have a positive psychological effect, giving a sense of well-being and thus leading to improved health, lower stress levels, greater inspiration, and healthier people. Indoor plants can be actual components of buildings (so called 'green walls'). Plants are also an alternative to humidifiers and ventilation systems. Custers In Groen is working closely with suppliers of plants, plant containers and suppliers of potting soil, substrates and other materials in selecting the most sustainable (biodegradable) materials.

Principles

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Province of Limburg

Jorden - Celebrate Life!

Jorden, the project to celebrate life, is a dwelling designed and engineered by EnviAA, Maastricht. It is very flexible and life-span proof, prefabricated, made of the most sustainable and renewable materials, and has very low running costs (energy, maintenance). EnviAA and the Municipality of Peel en Maas are negotiating on where and how the first Jorden (pilot and experiment) is to be built. At first, Jorden will probably function as an information centre, after which it will be used as a dwelling. As an information centre, it might be possible to allow potential owners to stay there for a few days to experience truly sustainable living. During the life-span of Jorden, EnviAA intends to monitor all its various aspects to be able to provide ongoing improvements for future systems and buildings. The object is to deliver a 'standard' Jorden at an affordable price for business start-ups in the Limburg region. The nature of the project allows the dwelling to be adapted easily to changing needs. Jorden is at its best in a community of 12, because then shared facilities can be optimised.

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Province of Limburg

Margraten - Conversion of Existing Home into Energy+ House

VCenK Architects's aim was to turn a house in the hamlet of Honthem (Margraten) with a low energy label and its sustainably built guesthouse/hobby area into a climate-neutral, sustainable energy producing home. VCenK made the conversion without any quality loss to architecture or comfort. They installed double glass and external insulation. A heat pump was installed in combination with ground collectors in the meadow, consisting of 550 metres of copper tubing filled with a refrigerant. This 'direct evaporation system' does not incorporate a heat exchanger and therefore has a higher efficiency. The heat pump replaces the gas-fired boiler. It produces hot tap water and provides low-temperature heating. The roof is equipped with 130m² of roof-integrated monocrystalline PV cells, capable of generating an average annual output of approx. 11,500 kWh. The amount of electricity generated is sufficient to cover the annual consumption of a household. Excess electricity can be fed to the grid. The gas stove is replaced by a halogen cooker and the gas connection is cut off.

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Province of Limburg

Province of Limburg - Government Building

The Province of Limburg's Government building will be reconstructed in a sustainable way and with low energy consumption. The Province will incorporate as many C2C materials as possible. It will build flexibly, adapting to the possible future use of the building. Demolition materials will be reused as much as possible. Remaining waste will be disposed of in a controlled manner, to make further recycling possible. The energy consumption will be reduced by 50%, compared with the current requirements for new utility buildings. 50% of the current energy use will be saved, or will be produced with sustainable sources. Rainwater is collected separately; sanitary installations will have water saving technology. The parking lot has charging points for electric vehicles (bikes, cars). There is a mobility program for employees to favour the use of public transport or bikes. All employees receive a business card for railway transport, to promote the free use of trains for business meetings.

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Province of Limburg

South-East Netherlands Building Centre

A feasibility study is being done on the transformation of the historic SIF factory building at the Panningen business park (Municipality of Peel en Maas) into a presentation, orientation, information, promotion, innovation, knowledge and training centre, with a permanent exhibition of everything associated with C2C and sustainable building (along the lines of Byggecentrum in Denmark). The aims are to introduce the potential target group to products that involve closed-loop recycling; to challenge potential suppliers to develop products that involve closed-loop recycling; to be an assembly point, presenting an overall concept for construction, making showrooms at different locations unnecessary and thus contributing to reducing the amount of transport movement required in order to provide an boost for the construction industry and to provide scope for start-up companies, with assistance available. All of this is intended to give encouragement to C2C and its application in the region.

Principles

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Province of Limburg

Venlo - Cradle to Cradle Social Urban House

Woningstichting Venlo Blerick (social housing) assigned the construction of a social house according to C2C principles in the Venlo neighbourhood Q4 to RO&AD Architects. Existing medieval building foundations will guide the shape of the building. Prefab walls with integrated window frames and floors of solid wood are used without glue or steel. Insulation material is made of woodfibre. The architects try to use locally grown wood, made durable by the C2C accoya method. Wooden Thoma Holz100 prefabricated building elements are used. Materials will be healthy, without toxic offgasing. There will be dual piping systems, low water impact appliances, and an infiltration system. The social housing project is meant for people with low incomes. It is build in the heart of the city so everyone can visit the C2C house. The ground floor of the house will get a permanent C2C exhibition. The building is financed by Woningstichting (at a 'normal' social housing budget), research costs are partly payed by Woningstichting and mostly by RO&AD Architects.

Principles

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Ad Kil and Ro Koster

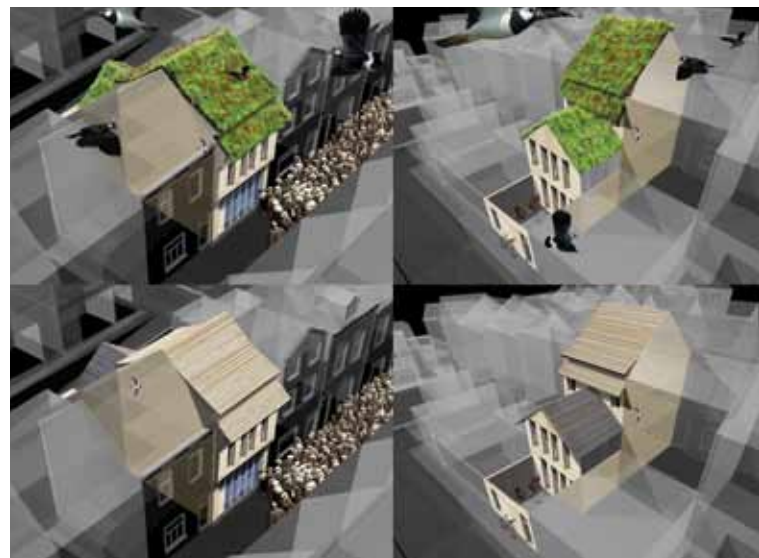
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Province of Limburg

Villa Flora - Floriade 2012/ GreenPark Venlo

Villa Flora is part of Venlo GreenPark/Floriade 2012 horticultural exhibition and is one of its landmark buildings. The building will serve as a greenhouse/landscape building and is a landmark for sustainability. The design is by the architect J. Kristinsson, in keeping with the Cradle to Cradle principles. The Villa Flora concept is an initiative of SIGN: Netherlands Foundation for Greenhouse Innovation. Villa Flora is at the centre of Floriade 2012. The ground floor will be used as the Floriade 2012 inner exhibition. After Floriade Villa Flora will be used as an office building (4000 m²) and exhibition space (6000 m²). The sun will be the driving force. There will be an optimum use of solar energy. No external energy is used. The building will be CO₂ neutral and energy self-sufficient. Because of the sloping roof, the building resembles a greenhouse. The concrete frame of the building can be dismantled and reused. This enables fast construction time and ensures also an easy integration of all techniques which have to be applied. The building can therefore easily adapt to new developments in the field of sustainability. The building reuses organic waste in a sustainable loop. There will be no discharge of waste water, rainwater will be recycled. By anaerobic digestion of organic waste into biogas and by means of a micro turbine the building provides itself with electricity. CO₂ exhaust fumes will be used as a fertilizer for the plants in the greenhouse. A healthy indoor environment will be created and green plants and separation panels will improve acoustic values.

Principles

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Province of Limburg

Villa Verde Sustainable Utility Building, Roermond

CITAVERDE College is a vocational school ("VMBO/MBO") with sites in Maastricht, Heerlen, Roermond, Nederweert and Horst, and a practice centre for agrologistics and e-learning for adults. An increase in pupil numbers required the school buildings to be enlarged and renovated. The intention was to construct a sustainable administration building in Roermond. Options were thoroughly investigated by the architect Nol Hermans and the school management. Villa Verde has now been built and is in use. The construction takes account of sustainability in the broadest sense. Recyclable materials have been used, a closed-loop water chain has been installed. CO₂ emissions have been reduced by 18,100 kg per year and the Energy Performance Coefficient of the building is excellent. Villa Verde uses solar cells, a heat pump, and a green roof. CO₂ pollution is constantly measured and grilles allow in fresh air from outside when necessary. Hybrid ventilation is 70% mechanical and 30% natural. The aquaflow system is used for parking. Cars drive on green grilles and layers under the parking spaces contain bacteria that break down oil drips. The water is collected and used to flush the toilets, to water plants, and to fill the pond around the building. Villa Verde is fully integrated in its surroundings. Locating the building close to an arterial road has reduced the amount of traffic entering the town. Villa Verde is easily accessible by car or public transport.

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Province of Limburg

Zero Energy House, Vijlen

A zero-energy house was opened at Groenenweg in the hamlet of Vijlen (Community of Vaals) in March 2010. Taken into account were the existing buildings and the house's surroundings. Local bricks have been used, as well as sustainable natural materials (for example Iroko wooden windows and door frames and bargeboards). The wooden pergola acts as a sunshade, partly because the open wall faces south. Hot water service (kitchen and bath) is comes from a heat pump unit, which also generates indoor heating and cooling. The house also features a balanced ventilation system with heat recovery (a yield of 95%). The heat pump heats and cools the entire house through the floor (up to 100% of total assets) and ventilation (up to 25% of total assets). Solar panels on the roof guarantee electric energy. The house also has a grey water circuit.

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Government Office for Development and European Affairs

Envelope systems TRIMOTERM and QBISS

Trimo's primary mission is to ensure original and complete solutions for steel buildings. The company was established 50 years ago and now sells the products in over 50 countries. It develops environmentally friendlier products and technologies, reduces emissions, manages waste, uses natural resources efficiently and develops new, original, eco-solutions. Trimo's aim is the reduction of CO2 footprint for the building envelope systems TRIMOTERM and QBISS in the entire product chain. Trimo have agreements with the suppliers of thin metal to use at least 60 % of recycled materials and, with the mineral wool, the share of recycled materials ranges between 10 - 15 %. The closed loop for the inbuilt materials and specified procedures for recycling is established as well. 99 % of components are recyclable. Part of Trimo's electricity requirements is covered by an installed PV system.

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Government Office for Development and European Affairs

Plus Energy Passive Prefabricated House

Lumar Ltd. has responded to the challenges of sustainable development, environmental protection and energy efficiency by developing energy efficient and passive prefabricated houses. Their products are entirely built from natural materials. Wood is the main load-bearing material in the structure, I-joist for walls, solid wood for the ceiling and roof truss. Insulation is via natural materials: cellulose made of recycled paper and wood-wool insulating material. The inside of the structure is finished with OSB panels, which also assure the suitable thermal insulation and airtightness of the construction. Even though wooden houses have very long life span, most of the build in materials can be reused or recycled. Most of the construction wood and I-joist can be reused, most of the insulation can be recycled. There is also engineering for the recuperation of waste air, heat pumps and solar panels and have possibility to incorporate rainwater collection system.

Principles

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Suffolk County Council

Adnams Distribution Centre

The Adnams Distribution Centre is one of the first industrial buildings to achieve a BREEAM 'excellent' rating. The structure has an outstanding thermal performance – there is no mechanical heating or cooling system in the warehouse. Savings of at least 450 tonnes of carbon emissions have been made by using lime and hemp construction. Hemp is a renewable resource – 1 hectare will grow enough in 14 weeks to build 5 houses. The hemp used in the Adnams Distribution Centre was grown in East Anglia, providing a benefit for local farmers. The huge curved roof is supported on glulam (glued and laminated) timber beams from sustainable Scandinavian sources. The massive glulam beams support one of the largest green roofs in Britain. A sedum green roof was chosen to enhance the setting and to promote biodiversity within the site. The green roof helps to regulate the internal temperature and provides a vast rainwater catchment area, enabling Adnams to collect most of the water needed on site. On the same site is an anaerobic digestion plant which is the first in the UK to use brewery and local food waste to produce renewable gas for injection into the national gas grid, as well as providing gas for use as a vehicle fuel. Alongside the plant, Adnams Bio Energy has deployed British solar thermal panels and will shortly install cutting edge photovoltaic cells, which will in effect create a mini energy park. This will ensure that all of the site, including the Adnams Distribution Centre, will be using renewable energy generated on-site with some surplus energy available for export.

Principles

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Suffolk County Council

Beaumont Primary School

Beaumont Primary School was designed and built on the principle that school is the ideal place to provide a living example of science and the environment working together. All sustainable features are connected to a Building Management System (BMS), which is connected to a display screen within the school. This allows pupils to learn about their immediate environment. The cedar clad building features a wind turbine and photovoltaic cells which power the lights in two classrooms. Surplus energy provides additional heating reducing the use of the gas boilers. When the school is not open, this electricity is sold back to the national grid. A sedum roof aids cooling and insulation and provides a rich habitat for birds and insects. Rainwater is harvested from the parts of the roof not covered by sedum, filtered and used to flush toilets. The building is timber-framed with external wall insulation that is totally breathable. Insulation consist of recycled newspaper; a product that is safe to handle and contains no CFCs.

The ability to demonstrate the benefits of sustainable design together with the use of renewable energy in a school building fuels the imagination of future generations and engenders an attitude of caring for the environment.

Principles

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Beaumont Primary School

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www.beaumontcpschool.uk.org/p_About_Beaumont_Community_Primary_School.ikml



Suffolk County Council

Cob Bale Round House - Edwards Eco Buildings

The Cob Bale Roundhouse is used as a studio for workshops and meditation and is exceptional in terms of its sustainability. Cob, a mixture of sandy sub-soil is a sustainable, recyclable, non-toxic, breathable, strong and load bearing building material. It also has excellent thermal mass qualities, absorbing heat during the day and slowly releasing it back into the building during the evening and night. The building is orientated to maximise solar gain and constructed to minimise heat loss. It is made of cob and glass on the south facing walls and straw bales in the north facing walls to maximise insulation. No heating is required in the building.

The walls were made entirely from on-site materials. The straw bales were from neighbouring fields, held together with hazel cut from the owner's wood. The shallow pitched roof is planted with sedum. All the materials used are recyclable, can be returned to the earth and or re-used. The project was worked on by a range of volunteers and also serves as a valuable educational example for those wanting to learn more about sustainable building techniques. The aim of Edwards Eco Buildings is to empower as many people as possible to build their own sustainable and affordable homes from cob/bale.

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Suffolk County Council

Disability Essex

Disability Essex is one of the first organisations in the UK to have achieved the PassivHaus standard and a BREEAM excellent rating. The building design addresses the needs of people; regardless of whether they have physical, sensory, cognitive, mental, and learning disabilities. All areas have been designed to offer ultimate physical accessibility. Light and airy spaces with tall open ceilings allow plenty of natural daylight to penetrate through the building. Open plan layouts create a sense of openness and inclusiveness for all those using the building. The building features a green roof, rainwater harvesting, passive ventilation via earth pipes and solar panels. The charity has also considered the impact of the development outside of the site boundaries. An electric buggy is provided at the local railway station which can be used by disabled visitors to make the short journey to the centre. On arrival, it can be charged whilst being stored undercover. The building will be used as a training and educational tool for low carbon building practices and technologies.

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Suffolk County Council

Eco Barns

Three new holiday cottages at Home Farm in Cranmer use 100% renewable energy. The cottages were created from the conversion of original farm buildings, together with a contemporary modern extension. The new extension is insulated well beyond standard regulations, clad in locally-grown green oak and maximises natural daylight by the use of heat retaining glass. On the internal walls, the owner has used environmentally-friendly, low VOC paints. The development is powered by a combination of a wind turbine, ground source heat pumps and solar panels. The wind turbine also supplies electricity for the swimming pool, other holiday cottages on the site and the farmhouse. The swimming pool and showers are heated by solar panels and all water on site comes from a borehole deep in the underlying chalk aquifer, while all gutters and terraces run off into the original Victorian drainage system and back into the land.

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Suffolk County Council

Mill Green Brewery

The Mill Green Brewery building is part of an aspiration to create a new business with minimal environmental impact including the production process, raw material sourcing and distribution. The original concrete floor was incorporated in the new foundations and no concrete was used in the entire building, only lime. The structure is wood rather than steel. All wall bricks were reused and new floor bricks came from a local brick maker with onsite clay. No hard plaster or plasterboard was used, only lime plaster on waste woodchip board and bare clay board. The building is clad in wooden weather boarding and all insulation is lambs wool. Solar panels cover 25 sq m on the roof whilst heat is produced from a biomass boiler. An on-site turbine also generates renewable energy. Waste materials from the brewing process are used as follows; brewers grains to local cattle, hops as compost/mulch, and waste beer for vinegar production. 80% of their ingredients are locally grown and organic. Mill Green Brewery believe they are the most ecologically friendly micro-brewery in the UK.

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Suffolk County Council

Tesco Zero Carbon Store

The world's first zero carbon supermarket is a Tesco store in Cambridgeshire, UK. A zero carbon footprint has been achieved through a combination of eco-efficient and eco-effective measures. Built on a timber frame, sourced from sustainable forests, the store includes many energy saving features such as air 'scoops' which naturally regulate air flow and reduce the need for air conditioning, LED motion sensed lighting in the car park and freezers that use refrigerant gases with minimal environmental impact. The store makes effective use of natural light through nano-gel filled skylights designed to scatter light throughout the store and sun pipes that negate the need for artificial lighting in the storerooms. A CHP (combined heat and power) unit fuelled by bio-fuel from renewable sources provides energy for the store with the excess sold back to the national grid and may be directed to an upcoming local housing development. A connected car wash, as well as the toilets, use rain-water harvesting with the grey-water run off being directed to a nearby reed-bed to be filtered.

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www.tesco.com/greenerliving/greener_tesco/what_tesco_is_doing/ramsey_eco_store.page
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Suffolk County Council

The Arc

The Arc is a self-build domestic property that was designed to minimise embodied CO2 and move towards carbon neutrality, without compromising normal activities of daily living. The use of high thermal mass and passive ventilation targeted a low humidity healthy living environment. It is oriented so as to maximise solar gain and wind capture, with extensive use of recycled and high density materials to enhance its heat-retentive capacity. The whole south face of the building is glazed using Pilkington energiKare, a double glazing unit that has an outer panel with high solar transmission and an inner panel with high heat reflection. During the building phase, excavated soil was reused in the landscaping of a local golf-course and materials were carefully considered and selected for use on the basis of their environmental impact although some concessions had to be made for practicality.

Primary space heating is passive and solar. There is no boiler-based system. Hot water is supplied by a 30 tube Thermomax DF100 solar collector. All roof water and some ground water is collected, filtered and supplies toilet cisterns, washing machine and garden tap. A vertical wind turbine is installed to provide other energy requirements. The performance of the development is telemetrically monitored as part of a university research project.

Principles

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The Arc

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Sudbury, Suffolk

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For enquiries please contact the Suffolk Green

Buildings Network: T +44 1473 264832

www.greensuffolk.org/green_buildings/case_study_list/the_arc_boxford



Suffolk County Council

The Foundry

An existing, redundant, timber-framed traction engine shed was dismantled, rebuilt and refurbished to provide an environmental education centre for the East of England. This provides meeting rooms and office space for community use and environmental education. The building features hemp and lime insulation in the roof, walls and floor. Lime mortar was used throughout, as it is more energy-efficient than concrete to process and manufacture and the hemp enables the building to breathe more easily. Timber windows are painted with linseed oil paint so that they can be recycled at the end of life. All soil and waste is treated using bark rings and a reed bed, breaking sewage down on site using natural biological processes. Water is heated by home made solar panels, whilst energy requirements are supplemented by an on-site turbine that produces an excess of around 6000 kWh of electricity which is fed back into the national grid. A woodchip biomass boiler provides heat that, it is estimated, in ten years time, will run solely on coppiced timber from a local community project.

Principles

We are native to our place

Our waste is our food

The sun is our income

Our air, soil and water are healthy

We design enjoyment for all generations

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Suffolk County Council

Unity Gardens - SEArch Architects

Unity Gardens comprises of a number of earth-sheltered two and three bedroom homes built to high standards of sustainability. They are naturally ventilated, require almost no heating and are self-sufficient in terms of their energy requirements. Photovoltaic panels allow each home to generate more electricity than it requires, with excess energy being sold to the national grid, generating income for the homeowner in the process. Homes are south facing and feature earth bunding. Heating is provided passively through the use of materials which absorb energy from the sun and slowly re-radiate it throughout the day. Underground water storage tanks form part of a rainwater harvesting system for toilet flushing with excess rainwater redirected to a balancing pool where reeds, sedge and mace are supported. As well as the buildings themselves the access road is designed to encourage sustainable methods of transport, allotments are provided to encourage the residents to grow their own produce and native trees and plants have been planted throughout the development.

Principles

- We are native to our place**
- The sun is our income**
- Our air, soil and water are healthy**

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Suffolk County Council

Victory Hall

The New Victory Hall in the village of Neatishead serves the communities of Neatishead, Irstead and Barton Turf. It has been designed to a high level of sustainability and built, in part, by the local community. The building faces due south and has roof-lights to ensure that it makes maximum use of natural light. It is timber framed using a high percentage of reclaimed timber and incorporates approximately 350 locally-harvested straw bales with the external walls rendered by hand using lime render. Local people, under expert tuition from the builders, helped move the bales on site and render the walls. Sedum has been planted on the main roof and harbours a variety of insects and bees whilst the roof over the toilet block is a 'brown roof' which is simply unplanted brick rubble which, over time, gets covered with weeds and other vegetation in a completely natural process. The underfloor heating system draws energy from a ground source heat pump and the rainwater drains from the roof have been positioned so as to constantly replenish the heat in the soil.

Principles

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- We design enjoyment for all generations**

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Department for Economic and Tourism
Development of the City of Graz

AEVG

AEVG carries out the complex task of waste disposal and recycling for the City of Graz. Since 1984, AEVG has been disposing and processing the waste of 110.000 households and 12.000 commercial and industrial enterprises. Of 135.000t of waste treated, processed and disposed every year, 68% is recycled and only 20.000t are dumped in a landfill. AEVG aims to start in 2010 with the first C2C subzone in waste management. AEVG-experts and members of Pilotprojekt, EPEA, met for a first-contact workshop in the company to learn about the Cradle to Cradle idea and to explore potential for the company. The Cradle to Cradle project aims at improving the sustainability figures of AEVG even more. In the best case, waste management will one day be entirely based on Cradle to Cradle principles.

Principles

We are native to our place

Our waste is our food

Our air, soil and water are healthy

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Department for Economic and Tourism
Development of the City of Graz

Ecoregion Kaindorf

Ecoregion Kaindorf in the Styrian district of Hartberg was founded in 2007 and is a cooperative project among six municipalities that want to work together employing ecological and sustainable principles. Ecoregion Kaindorf aims to become a model region, that has a recycling economy and meets its own energy needs with renewable energy. A key project in the direction of CO₂-neutrality is the production of humus. Measures for humus production should be combined in an optimal way to create fertile soils in a short period of time (target: 5 years). Accordingly the fertilisation is carried out exclusively with compost. At the same time, a series of humus producing activities are carried out, including: zero tillage, permanent green covering and pesticide-free fertiliser. Ecoregion Kaindorf wants to be a platform where knowledge is exchanged, merged and tested in practice.

Principles

We are native to our place

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The sun is our income

Our air, soil and water are healthy

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Ökoregion Kaindorf

Dienersdorf - Ebersdorf - Hartl - Hofkirchen - Kaindorf - Tiefenbach



Flemish Public Waste Agency (OVAM)

C2C as a tool for masterplanning: LET- Zuid, strategy for a Limburg Environmental Technology Park

Houthalen-Helchteren is a town with a legacy of waste disposal and waste handling industries. ARCADIS Belgium worked together with its sub-contractors HUB and Rasschaert Advocaten on a transformation strategy to turn an old industrial site into an ecologically sustainable area. The masterplan allows for a natural organic and flexible evolution from the current state to the desired sustainable and cleantech environment within a realistic time span. The infrastructure will enable and encourage these changes, offering companies easy access to sustainable solutions, while ensuring an economic advantage. Waste is to become a source of wealth and life. A central corridor will enhance and connect the habitat of rare species while providing employees with a place to enjoy the outdoors. The outdated site will ultimately be transformed into a park-like industrial setting with an optimization of ground-use and functional flows, a place where companies have flexible access to space, enjoy an open landscape and spatial quality, while serving as an important habitat for endangered species.

Principles

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- We provide enjoyable mobility for all**

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Flemish Public Waste Agency (OVAM)

Carpark d'Ieteren Kortenberg, reversible land use

In 2006 the Flemish government approved the land use plan for the extension of the carpark of d'Ieteren, an important car-import enterprise. d'Ieteren needed the extension of their carpark from 8500 to 15000 cars on a very short term. The spatial policy plan of Flanders does not promote large scale extensions of solitary companies in open areas. To tackle the problem, the land use plan provides a framework where the short term extension is possible, but it has to be returned to agricultural use on the long run. Top soil and land use patterns were preserved on site for future reuse. d'Ieteren plans to construct a multilevel carpark on their original site within the coming years.

Principles

- We are native to our place**
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- We provide enjoyable mobility for all**

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Flemish Public Waste Agency (OVAM)

Closing the Circle, an implementation of Enhanced Landfill Mining

Closing the Circle is an Enhanced Landfill Mining project, envisaging the total valorization of the waste stored at the landfill site of Group Machiels in Houthalen-Helchteren (Belgium), through recycling of materials and energetic valorization of the recycling residue, with sequestration or offsetting of the CO₂ generated. More than 16 million tons of waste are stored at the landfill site. A calculated 45% of the stored waste can be recycled as material. The recycling residue can be valorized as energy to fire a 75 MW electrical power plant based on plasma technology. Furthermore, an integrated green house project of around 50 Ha not only valorizes the low temperature heat generated in the power plant, it is also one of the methods to sequester the CO₂ generated. A very limited amount of the waste for which no valorization potential is yet identified, will have to be restored in a state of the art landfill.

This renewed storage will only be temporary, as it is envisioned that with the further development of recycling and energy technologies, the restored waste can be valorized in the future. Hence, Closing the Circle becomes part of the Cradle to Cradle closed materials loop. The waste-to-materials and waste-to-energy plants will be operational for 20 years to realize the total valorization of the waste stored. Over that period the landfill site will be developed into a sustainable nature park. Realizing the project requires an investment of well over € 230 million. It will generate 600 to 800 direct jobs during 20 years.

Principles

Our waste is our food

Our air, soil and water are healthy

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Flemish Public Waste Agency (OVAM)

Closing the cycle - horticulture under glass

In 2008 and 2009, the Flemish regional government approved the first land use plans in which the location of facilities producing residual heat and CO₂ is combined with horticulture under glass. Administrative organisations and private companies worked together to optimise the energy efficiency of waste incineration (Roeselare, 2008) or biomass fueled electricity production (Oostende, 2009). Current studies regarding the largest flemish horticultural area surrounding Mechelen aim to take the effort even further. New areas for horticulture under glass will be planned together with electricity supply, the use of residual heat and CO₂ from electricity production, and water management.

Principles

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Flemish regional administration (different departments)

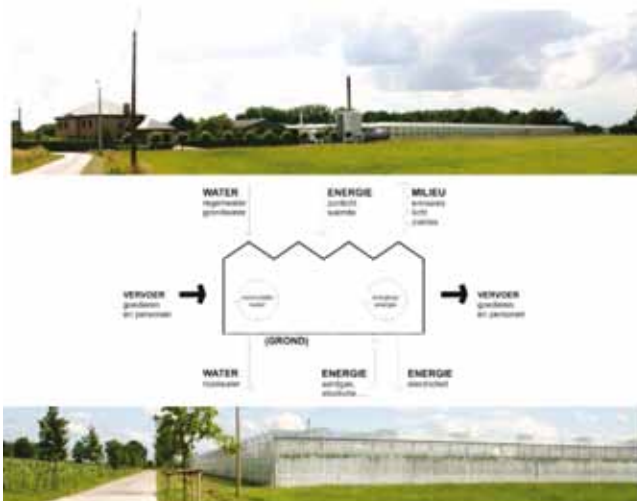
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Flemish Public Waste Agency (OVAM)

De Merode House Style

The Merode is the first rural development project in Belgium. A brand and baseline were developed for the region; this is important for communication and making the region known. Next to the brand we were thinking how we could make the region recognisable on the field, how can we bring uniformity in the region. This was the start of the development of a style for public furniture that will be placed in the region in the next years.

The Merode house style for public furniture is a very stable, sober design where the natural elements (wood) dominate. Larix is chosen as it is a very strong and sustainable wood that is available in the region. The wood does not need any treatment before use. The house style is a heavy construction made of wood and steel, very sustainable, strong against vandalism and easy to repair in case of damage. The multi layer structure in the Merode region (nature, culture, agriculture, people) is found in the design by the horizontal layers of wood that form the elements. The design is made that all elements can easily be put together and form a calm, consistent image. The house style elements contain picnic elements, shelters, benches, information boards, shelters for bicycles and horses, landmarks, waste bins, folding gates, etc.

Principles

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- We provide enjoyable mobility for all**

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Flemish Public Waste Agency (OVAM)

Sustainable city quarter De Vloei in Ypres

On the eastern side of the city of Ypres, a new district has been developed. Roughly 10 hectares and 250 dwellings are being developed. The project is to contribute to sustainable development pursuing the 3 P's (people, planet, prosperity) from the planning phase through the actual living phase. To achieve this, a sustainability guideline was agreed upon at the beginning of the project, covering all themes i.e.: energy, water, viability, use of space, materials, affordability,... In the INTERREG IVB project on Future Cities, the focus is on energy, green and blue structures that have to be "climate proof". An integrated planning approach is applied, in which the sustainable guideline and several studies are integrated. The basis is the masterplan (see figure). Broad conscious raising is important in all stages of the process and involves communication towards different target groups and their participation in the project.

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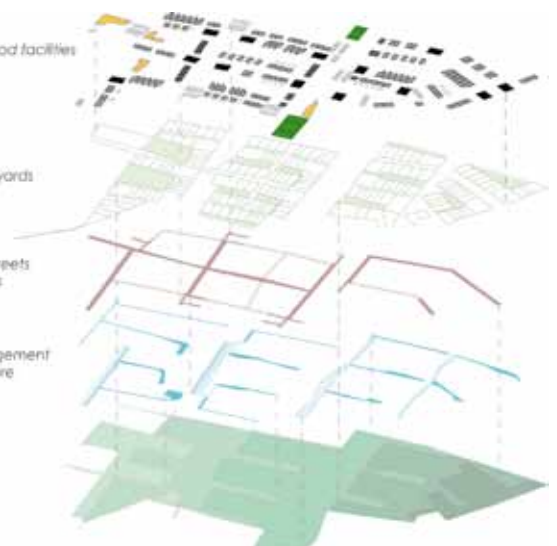
Housing
Neighbourhood facilities
Parking bays

Private plots
Shared courtyards

Slow traffic streets
Carfree alleys

Water management
Comb structure

Relief
4 Terraces





Flemish Public Waste Agency (OVAM)

Tweewaters, Belgium's most ambitious sustainable urban project

The community Tweewaters is the largest innercity development in Belgium. It relates to the conversion of an industrial zone: 1.200 dwellings and offices will welcome 5.000 residents. City developer Ertzberg has defined a holistic, sustainability vision where all aspects woven into our society are considered: compact buildings (maximum integration of sustainable materials) with a footprint of 30%, car free squares and a public parc, green energy, waste management (weighted individually), waterrecycling, mobility alternatives (e-solex network), consumption & services (local offer of local goods). The highly energy-efficient buildings decrease (-45%) their heat demand. The remaining energy needs are fulfilled with 100% green heat and power, locally produced (bio-CHP), distributed (local network) and supplied (demand response services at the dwelling level). The energy concept of the community reduces 82% of its primary energy consumption and results in the first CO2 negative quarter. Tweewaters is a demonstration project participating in the FP7 program of the European Commission (for energy efficiency at a district level).

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Kainuun Etu Ltd

ECO2 – Eco-efficient Tampere 2020

ECO2 – Eco-efficient Tampere 2020 implements the climate and energy objectives of the City of Tampere. The programme supports projects that promote a low-carbon and carbon-neutral urban structure. Objectives: - Implementing Tampere's climate commitments - Developing operation methods in urban development - Supporting the growth of the environment business - Assuming the role of a forerunner in environmental matters There are already dozens of energy and climate projects and initiatives running currently within the different units of the city. This indicates that energy and climate commitments are a part of customary activities. Now all of this has been collected into the project portfolio of ECO2. A central goal of the programme is to alter the ways of working within the city and develop tools, incentives as well as norms for creating a carbon neutral urban structure.

Principles

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West-Transdanubian Regional Development Agency (WESTPA)

How to manage a 1000 years old UNESCO site? - Pannonhalma Benedictine Monastery, Hungary

Pannonhalma Monastery was founded in 996. Following the Benedictine injunction "Ora et labora!" (Pray and work!), the mission of the monks was not only to pray, but to earn their living too: they were responsible for the development of the surrounding region. They ran farms and factories, and used the latest technologies. After the tragic decades of the communism, they had to start again. With the help of national and EU funds, the monastery and its surroundings were renovated, a new vineyard was planted and the entire tourist infrastructure was renewed. In 1996, it became a UNESCO World Heritage site. Annually, more than 100.000 tourists visit the site, which provides employment for more than 500 people. It has again become the most important player in the development of the region. The monks feel responsibility for their environment. The heating and warm water system at the monastery is operated by a biomass furnace, renewable energy is used in all of their buildings. All the systems are open to tourists, so that they can learn from it, if they visit the monastery.

Principles

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West-Transdanubian Regional Development Agency (WESTPA)

Treasure in Electronic Waste - Splendor Argentum Ltd.

Thanks to a unique, company developed technology, after collecting electronic waste, Splendor Argentum Ltd. is able to gain and separate the various precious and other metals from the garbage. After refining and homogenization processes have taken place, the separated metals are used in the filigree industry. Splendor Argentum Ltd. creates silver dinner sets, chalices, premium class jewellery and renovates antique metal objects. Since 2010 Splendor Argentum Ltd. has been developing a special technology to sustain former agricultural lands and endangered protected areas. All their methods are in harmony with the countryside and environmental protection regulations of Hungary and the EU.

Principles

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Milano Metropoli Development Agency

Feeding Milan. Energy for change

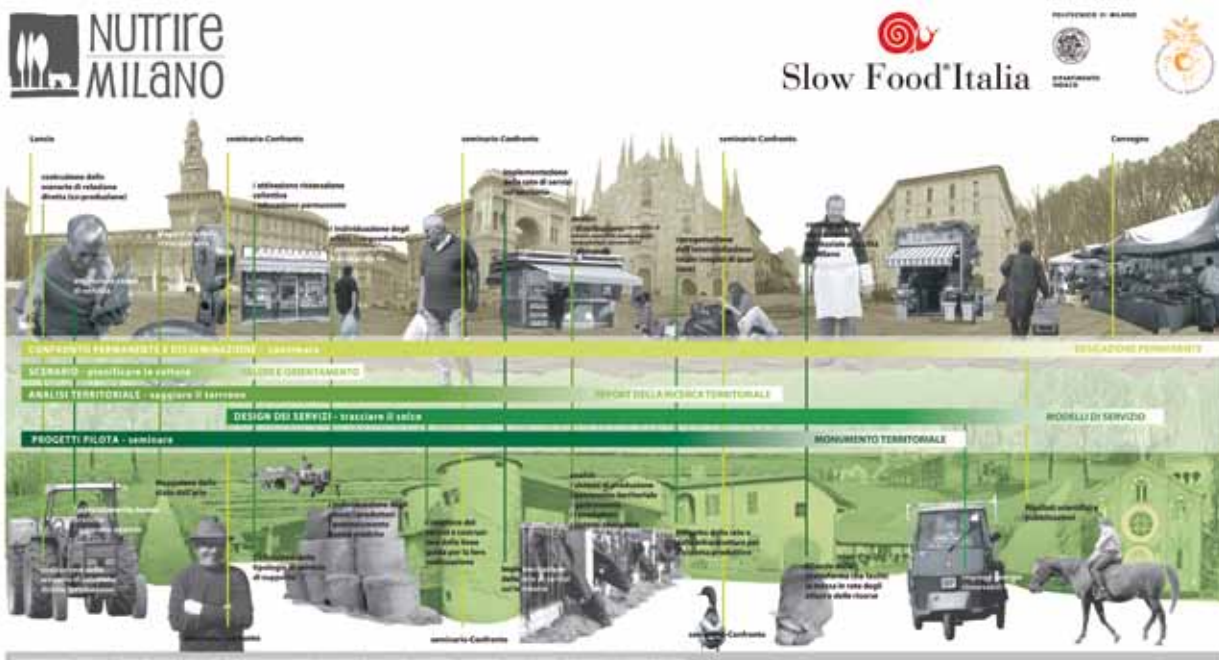
This project is a joint effort of 3 partners: Slow Food, Università degli Studi di Scienze Gastronomiche (University of Gastronomic Sciences) and Politecnico di Milano. The aim of the project is to design a system of services and infrastructures to develop a more efficient and effective Milanese agri-food chain (involving both the city and the Agricultural Park South Milano), in order to shape a scenario of sustainable and innovative metro-agriculture. The Strategic Design contribution is twofold: on one hand it focuses on multifunctionality and collaboration among producers to achieve economies of scope; on the other hand, it fosters the relationship between the city and the productive countryside through “de-mediation” of the agri-food chain. Today the citizens of Milan, who are in search for high quality products, can only find them outside the region, without taking advantage of the biggest European agricultural park available. Furthermore building speculation challenges the Park South area and the boundaries between the city and the periurban countryside are blurring

The project involves the construction of a metropolitan food chain and promotes the short supply chain, where it is possible to produce, purchase and exchange fresh, organic and local produce directly from farmers, retailers and catering operators, associations and organized groups (e.g. sustainable solidarity districts, purchasing groups, etc.). Nutrire Milano invites farmers to use natural fertilizers, coming from the waste of their own production, promotes renewable energy generation (from water, sun, biomass, etc.) and the short supply chain, thus reducing the environmental impacts resulting from transports in distribution, and it promotes a food chain supported by traditional farming practices without the use of pesticides and other contaminants in production

Principles

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Milano Metropoli Development Agency

Cohousing Projects in Milan

Usually a cohousing community comprises 20-40 living units, for families and singles, that chose each other and decided to live as a “neighbourhood community” in order to start off – through a participatory design process – the building of a “village” where private spaces (one’s own house) and communal spaces (shared services) coexist, where human relations help to reduce the complexity of life and where great attention is paid to sustainability and energy saving. Cohousing Ventures organised within its structure the wide range of professional proposals needed to realise cohousing projects. C2C principles usually applied: - the recovery and upgrading of the degraded or dismantled real estate and a careful waste management that turns into a reduction of the quantity of produced materials and waste. - a building strategy strongly oriented towards the reduction of the raw materials used and energy efficiency - the option of self-production of a share of the vegetables needed (use of locally available raw materials) - the selection of local and low environmental impact materials.

Principles

The sun is our income

Our air, soil and water are healthy

We design enjoyment for all generations

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Milano Metropoli Development Agency

La Cassinazza

La Cassinazza is a project run by Acqua&Sole, a private organisation owned by the Natta family. La Cassinazza can be considered sort of C2C “living lab” as the Acqua&Sole experience and philosophy mix-up re-naturalisation projects with economic development and the delivery of environmental services. The company owned large rural estates in the south Milan area and is engaged in the production, within rural areas, of a plurality of environmental services that are sought after in urban areas by the growing urban population, to overcome the deterioration of green areas. The basic idea is re-shaping the land through C2C inspired principles, producing landscape and biological diversity while promoting economic activities and services. In particular, its core business is the development of the so called: third-generation agriculture, production of non-material goods such as landscape and biological diversity by using agricultural techniques, with the objective of improving the quality of the rural environment and promoting non-agricultural activities compatible with the rural landscape.

Principles

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Milano Metropoli Development Agency

Pedemontana Lombarda Motorway: building a “green” and “sustainable” motorway

This new major infrastructure project, under construction in Lombardy Region, will connect 6 different Italian Provinces, over an area sharing heavy car traffic density and insufficient linking roads. PLM is conceived as an opportunity for re-building landscape and environment. It aims at promoting a new infrastructural culture, at generating positive and durable impacts on the territory. Starting point is the effort for integrating highway design, green productive technologies, environmental compensation and mitigation measures. C2C inspired elements are: the Greenway-a green linear system linking 30 local projects for landscape conservation and valorisation alongside PLM. It is the broadest environmental project ever developed in Italy; PLM will also be a huge “solar roof” with more than 60.000 sq. m. of solar panels installed and 9 Mega Watt hour of energy produced; PLM will implement a complete free flow system for toll payment, in order to reduce not just waste of time, but also acoustic and atmospheric pollution due to traffic and car queues.

Principles

The sun is our income

Our air, soil and water are healthy

We provide enjoyable mobility for all

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Milano Metropoli Development Agency

Public lighting in the city of Villa D'Ogna

The Villa d'Ogna (BG) municipality represents in fact the first example in Italy and Europe of a town free from light pollution. It has reworked the whole lighting system on its territory in terms of: optimisation of system performance, environmental impact reduction, maintenance cost reduction and optimisation, increased pedestrian and road safety, and increased accessibility of public spaces at night. The result has been the complete elimination of mercury-vapour lamps in the municipality area and the complete reduction of the luminous flux outside the areas in which it is needed, without altering the balance of the nocturnal ecosystem of the woods, grazing, farming and recreational areas. The project was completed in March 2004. The project was delivered in collaboration with Cielobuio, a not-for-profit organisation with the primary objective of promoting the culture of light in its area by promoting legislative initiatives, conferences and training courses and the development of solutions and technical standards for an eco-friendly lighting.

Principles

The sun is our income

Our air, soil and water are healthy

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Province of Limburg

4-Leaf Clover (Klavertje 4) - Venlo

4-Leaf Clover (Klavertje 4) will be the first large-scale spatial and economic area development program set up according to the C2C philosophy in the Netherlands. Klavertje 4 is an area measuring approximately 5400 hectares, in which the natural environment, the ecology, the landscape, water management, housing, commercial and business accommodation and primary production facilities (greenhouse horticulture and intensive cattle-farming) go hand in hand. A spatial Master Plan has been drawn up entirely in accordance with the C2C philosophy, and the area development program puts that philosophy into practice. Land will be used intensively by combining water management, nature conservation, landscaping and recreation, but also by means of collective parking facilities, an effective traffic system, placing traffic-intensive functions close to the main road, etc. Efforts are being made to make the facilities 'water neutral' by exchanging water between different functions (supply and demand) via the natural water system.

Water will therefore not be supplied to or drained from the site by supply and sewage pipes; instead, rainwater will be used and stored in the ground. The same principle will be applied with respect to energy. Maximum use will be made of energy sources such as solar energy, wind energy and the residual/miscellaneous sources (energy). The area development program will run until 2040 and after. The area will be developed with a view to its transience (unlike the customary approach in the Netherlands, which is to develop with a view to permanence). Each area will be redeveloped or tackled in a different way as time goes on (transformation). In this particular area, the transient nature of the development will be taken into account by building a solid shell and by employing various allocation models (ground lease, concessions and so on). Implementation will begin with a mixture of eco-efficient and eco-effective solutions and then moving on to eco-effectiveness.

Principles

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Our air, soil and water are healthy

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We provide enjoyable mobility for all

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Province of Limburg

A2-tunnel Maastricht

To improve access to Maastricht and the flow of local and international traffic, the A2 motorway will be tunnelled in a comprehensive and sustainable way over a length of 2,5 kilometres. The project will contribute to Maastricht as a compact city in green surroundings, removing the barrier of the highway and creating new options for the livelihood of current residents and future generations. The tunnel will be built on the location of the existing motorway. It will be a stacked tunnel (2x2x2 lanes) to reduce the working area and to minimize the demolition of existing buildings. Materials released during the works will be reused. These include limestone, asphalt and concrete. As a result of the project, the air quality in the city will improve. Measures will be implemented to increase the biodiversity and the specific Southern Limburg biotope of marl soil. Above the tunnel, new living space will be developed, with parks and green areas. The city districts on both sides of the road will be connected again by (sustainable) traffic routes like foot and bike tracks.

Principles

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Our waste is our food

Our air, soil and water are healthy

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Province of Limburg

Belvédère Maastricht

Belvédère is one of the largest urban development programs in the Netherlands. It includes 280 hectares divided in 5 subsections of districts and neighbourhoods, located in the north-west of Maastricht, adjacent to the river Meuse. The area is named after the former steam brickworks (1897-1982), and consists nowadays of business areas (largest part), neglected bits of countryside, hidden ponds, and enclosed fortifications. The Belvédère area spatial development programme aims to improve access to the area (e.g. 8,000 parking spaces), to provide more efficient and intensive use of space, to create new jobs, to relocate polluting businesses, to renovate industrial buildings, to enhance public space, preserve and reinforce characteristic historic, ecological and rural values and to construct sustainable homes, offices and shops. In 2004, a partnership agreement was signed between the municipality of Maastricht, an investment company and a bank, resulting in a public-private development company. Although the master plan (2004) was not designed with C2C as starting point, virtually all the objectives and measures to be taken for the project can be linked to the Limburg principles. The highlight may be the construction of a renewable energy power plant, consisting of PV-solar cells, wind turbines, a biomass power plant and a hydropower plant. The sustainable performance of the whole Belvédère area will be assessed with a new BREEAM-related labelling method of the Dutch Green Building Council.

Principles

We are native to our place

Our waste is our food

The sun is our income

Our air, soil and water are healthy

We design enjoyment for all generations

We provide enjoyable mobility for all

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Province of Limburg

Floriade 2012

Floriade 2012 is a World Horticultural Exhibition and will take place in 2012 in Venlo (Limburg). Floriade 2012 not only focuses on the development of horticulture, but also involves the entire spectrum of sustainable regional development and sustainable maintenance. After the Floriade event in 2012, the area will be used as an innovative, “green”, sustainable office and business park, Greenpark Venlo. The sustainable infrastructure (plant life, water, roads, pipelines, energy) will be used and further developed. In the post Floriade era, several sustainable buildings (Innovatoren, VillaFlora and World Pavilion) will remain in use as modern offices and exhibition spaces. In developing the infrastructure of the park, Floriade has invested in innovative technology in the field of sustainability and C2C. More than 1500 new trees and 80,000 perennials have been planted in the basic park. Archaeological and cultural heritage routes are maintained and strengthened. Floriade 2012 expects more than 2,000,000 visitors. Waste management is a critical link in the transition to eco-efficiency.

To this end, a waste monitoring system will be developed. The layout of the site is done with almost closed soil and water balances and the application of C2C materials in the infrastructure and buildings. All materials for Floriade will be reused by Greenpark Venlo. The buildings’ energy generation will come as much as possible from renewable energies (solar, wind, geothermal heat pump). The buildings will have a greywater system. Treatment of wastewater

on site is foreseen in the future. The application of the C2C-based Floriade Venlo Principles will improve the strength of the horticultural sector and its supply industries and represent an impetus for further regional development of the Venlo region. Floriade 2012 is an incentive for companies and research institutions to accelerate their innovations and demonstrate them at Floriade. Floriade’s reuse as a Greenpark will lead to a permanent demonstration of innovative technologies in the field of sustainability and greening the economy. The two main buildings (Innovatoren and VillaFlora) have a BREEAM-NL score of excellent. For access routes durable and C2C measures are foreseen.

Principles

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- We provide enjoyable mobility for all**

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Province of Limburg

Greenportlane Venlo

Greenport Venlo is the second largest horticulture region in Europe. Situated in the north of Limburg Greenport Venlo wants to become the leading food and flowers region in Europe. The new developments at the heart of Greenport Venlo (Four-Leaf Clover) will attract a great deal of traffic. A new access road will be constructed: the Greenportlane. It will have a four-lane (2x2) road with fly-over junctions and its own slip roads to the A67 and A73 national highways. The provincial Executive Council has established the design for the Greenportlane. Sustainability is one of the basic principles. An inventory has been made of how the application of the C2C principles can optimise and inspire the design of this road and the use of materials. This resulted in a number of measures, for example, the reuse of materials in the construction of the road and ecoducts. Further decision-making on these and other measures will continue. The 1st phase of the Greenportlane (the part between the A73 and the access to Greenpark Venlo) will be completed before the start of the Floriade in 2012.

Principles

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We provide enjoyable mobility for all

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Province of Limburg

Integrated Area Spatial Development Kerkrade-West

The Kerkrade-West (Municipality of Kerkrade) neighbourhood is to be restructured. The first step was to examine what sources there were in the area has for the supply of energy, materials and water and who the the neighbourhood users were. Now the potential has been identified, a feasibility study is being done to gradually apply the results. The targets include the transformation of existing housing into passive housing. The use of solar energy is related to the program for passive housing. The development of new houses for people already living in the neighbourhood is provided for. Where demolition is necessary, this will be done in a sustainable way and construction materials will be re-used. Energy, water and materials cycles will be closed. Community houses, green areas and sport facilities will be created. A new light rail station is also planned.

Principles

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We provide enjoyable mobility for all

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Province of Limburg

Regional development in Sarsven en de Banen

In area development planning, sustainability can provide a great opportunity. Instead of forcing sustainability on people by means of rules and standards, it is possible to find solutions which are financially rewarding, do not cause delays and produce results rapidly. In the Sarsven en de Banen area, it did not prove difficult to get the different parties on board. In this integral area development project in Middle Limburg (approx. 1600 ha, mostly nature and agricultural areas), a C2C approach is being used in the planning process, by looking at cycles (waste=food) and thinking in terms of added value (eco-effectiveness) instead of costs (eco-efficiency). The most significant measure is to retain the water within the area, in the place where it falls. This limits the amount of water drained away. If water actually needs to be drained off, the implementation of the plan ensures that water of the right quality (in relation to the relevant activity: countryside needs and agriculture) stays in the area wherever possible. Only water of a quality not required in the area is drained away.

This is by a surface water system. It is estimated that around 10% of the rainwater currently drained off can in due course be retained within the area. This water is used as a building block for nature (good quality water is not drained off via the watercourses, but transported to adjacent nature areas) and used as a building block for agriculture (a higher groundwater level makes more water available in the root zone).

Another important measure is the reuse within the area of construction materials released by the work, particularly those materials released above ground in protected areas. This provides added value for agricultural areas, in terms of land reclamation and soil structure. It is estimated that around 100,000 m³ of leaf moulds, released by the establishment of the nature reserves, is reused as a building material for agriculture. By taking C2C into account during the planning of the project, a broader approach (and more ambitious) was determined. Sustainability solutions were chosen at an early stage, with more scope for incorporating the principles later on. The C2C principles will also be applied in the project implementation, from the end of 2010 through end 2013.

Principles

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Our air, soil and water are healthy

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Province of Limburg

Ringovenpark Peel en Maas

Ringovenpark Peel en Maas is situated around a former brick-kiln (Ringoven). It will be developed as a sustainable residential district. Restoring the 'Ringoven' by using the original material as much as possible, is the heart of this plan. 'Ringoven' will be developed as a multifunctional building (school, daycare for seniors and disabled people). In the Ringovenpark district, 250 houses (mostly apartments), offices, rooms used for business and for social and welfare purposes will be built. Ringovenpark will have a public garden, with plenty of walking and cycling facilities and green open spaces. Some of the buildings will be energy neutral and easily adjustable for all kinds of users. Water will remain in the area, groundwater will serve for heating and cooling. Street light will be partly with LED-illumination. Street furniture will conform to C2C principles. Residents and users of the Ringovenpark will participate in the decoration of the district and in the discussion on the quality of life there (social component).

Principles

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Province of Limburg

Supplying the city – Towards a multifunctional landscape in Maastricht-Valkenburg

The Maastricht-Valkenburg area requires an economic transformation in order to enhance the quality of both the tourist and the social environment. The municipalities of Maastricht, Meerssen and Valkenburg cooperate with the Province of Limburg in developing and implementing projects to revitalise the (cultural) landscape, improve the tourist infrastructure (pedestrian and cycle tracks) and to extend outdoor recreation. The objective is to achieve these projects in public-private partnerships. One promising initiative relates to urban farming. The city and countryside have grown into two worlds apart; but, in fact, food is what connects the two. Small-scale agriculture, i.e. urban farming, can re-establish this relationship. It also enables the development of a lively and multifunctional landscape, by combining (slow) food production for the city with education, recreation, leisure, care and the redevelopment of housing estates. Several organizations have joined forces and formulated a plan of action to encourage local food production in the Maastricht-Valkenburg Country Estate Zone.

Principles

We are native to our place

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Province of Limburg

Transformation area ENCI Maastricht

ENCI Maastricht is the largest cement factory in the Netherlands. At the site in Maastricht, limestone (marl) is extracted from the 135-hectare quarry and burnt in a kiln to make clinker, which is then ground into cement. In the Plan of Transformation, the ENCI company, the City of Maastricht and the Province of Limburg have agreed on the termination of the limestone quarrying in 2018 and the future development of the area from 2010 onward. The quarry will be transformed into different zones for the countryside and recreation, including 60 hectares of natural biotopes. In October 2010, ENCI already transferred the ownership of several smaller parts of the area to the nature conservation organisation Natuurmonumenten. The now-closed ENCI business area will be revitalised and opened up (using the BREEAM system) for other green manufacturing companies. Although not the starting point of this area transformation process, the Limburg Principles are being used to structure activities, possibly including the construction of a biomass power plant, water reuse and PV cells.

Principles

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Government Office for Development and European Affairs

Environmental impact optimisation of ship waste treatment in a life-cycle perspective

Luka Koper is a public limited company, which provides port and logistics services in the Port of Koper. They have ISO 14001:2004 certification and are currently in the process of obtaining EMAS. Environmental protection represents an integral part of the company's development activities. Consequently, two fields of activity have become especially important. The first includes the construction of a solar energy power plant. The second entails the introduction of an efficient waste management system. In their own center for waste treatment, they collect and sort ship waste. Some is then processed within the center, the rest is destined for further processing outside the port. They are also collecting and processing biological waste collected by the Municipality of Koper (Komunala Koper). Biological wastes are processed in a compost facility, generating biogas as well as sellable compost for further use in gardening or agriculture. The port also runs the facility for the reception and processing of ship oil waste, which is currently burnt.

Principles

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plan van transformatie voor de ENCI groeve groen-planning maastricht b.v.





Suffolk County Council

Great Fen Project

The Great Fen project - one of the most exciting habitat restoration projects ever undertaken in Britain - will create a 3,700 hectare wetland between Huntingdon and Peterborough. At the heart of the Great Fen lie two important National Nature Reserves (NNRs) Woodwalton Fen and Holme Fen, home to many threatened fen species, increasingly under pressure from land drainage and intensive agriculture. The restored landscape, which will act as a buffer to the NNRs, will be achieved by managing water levels and using the topography to create a mosaic of habitat including open water, reed beds, wet pasture, dry pasture, hedgerows and woodland. Connecting these two vitally important nature reserves will provide a haven for wildlife and create a massive green space for people, opening new opportunities for access, recreation, education and business. Land restoration has started and new species of plants, animals and birds are already emerging. Also emerging are the beneficial partnerships with local farmers and businesspeople necessary to make the project viable.

The project is impressive in its ambition and vision. It aims to combine nature conservation and management with social benefits, tourism, and other income-generating activities. The Great Fen delivers national, regional and local policies and strategies including those relating to biodiversity, growth, planning, economic development, Green Infrastructure and water management. It will store flood water for the protection of the Middle Level System and the homes, farms and businesses that depend on the system.

Principles

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Our air, soil and water are healthy

We design enjoyment for all generations

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Suffolk County Council

Zero Waste Places (ZWP): Cathedral Square Redevelopment, Peterborough

Peterborough received funding from Government body DEFRA to become one of six Zero Waste Places (ZWP) in the UK. The ZWP scheme was run by the Peterborough Environment City Trust (PECT). The ZWP covers the city centre including all the key shopping streets and centres and resulted in; •A reduction in waste to landfill from participating premises; •An engaged general public and commercial sector in the ZWP ideal leading to a reduction in waste to landfill across the wider city; •A range of innovative solutions to sector specific barriers “Zero waste” is considered to be a simple way of encapsulating the aim to go as far as possible in reducing the environmental impact of waste. It is a visionary goal which seeks to prevent waste occurring, conserves resources and recovers all value from materials. A ZWP benefits from national recognition and a 5 year action plan which acts as a catalyst for sustained and further action. Councils are encouraged to apply for the standard for recognition of success in areas such as waste reduction and to motivate them to improve further.

Principles

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AT

Department for Economic and Tourism
Development of the City of Graz

Ecoprofit

Ecoprofit is a programme developed in 1991 in Graz by the Environmental Department of the City of Graz and the University of Technology. The approach provides cooperation between regional authorities and local businesses with the aim of improving the environmental sustainability of firms in the industrial and service sectors. Based on the concept that ecology and economy are of the same value, the programme's objective is to increase the ecological awareness and sustainability within companies, to implement environmental protection measures and to reduce emissions. The basic Ecoprofit programme lasts one year and includes workshops and individual advice from experienced experts. After the one year programme, Ecoprofit will assess progress and – where applicable – will award a certificate. Worldwide, 50 regions and cities have already adopted the Ecoprofit approach and more than 3.000 companies are participating in Ecoprofit.

Principles

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BE

Flemish Public Waste Agency (OVAM)

Cradle to Cradle Platform

The purpose of the Cradle to Cradle Platform (c2cplatform.be) is to provide companies and organizations with the opportunity to examine the feasibility of Cradle to Cradle for their products. The C2C Platform also has as an objective to further enable knowledge building and the exchange of experience. The Cradle to Cradle Platform is aimed at companies and organizations from different industries or different parts of the supply chain, e.g. a production company, a supplier or a waste processor. Workshops are organized for members of the Platform. As a result of the Cradle to Cradle Platform, concrete Cradle to Cradle projects for the individual product groups may be started. The platform is coordinated by Sustenuto, a Brussels based sustainability consultancy and also satellite partner for Belgium of Michael Braungart and EPEA, the Environmental Protection and Encouragement Agency (EPEA) Internationale Umweltforschung GmbH.

Principles

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We provide enjoyable mobility for all

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PLATFORM





Flemish Public Waste Agency (OVAM)

DuWoBo, a Flemish Transition Network for Sustainable Construction

If Flanders is to become a sustainable region, where people live in a sustainable way and construction of new buildings is to be sustainable, then a radical system change is required. So the administration has decided to use transition and system change methods to work towards a situation of sustainable living and building (DuWoBo). The 1st first phase of this process resulted in a 'transition agenda'. This agenda contains DuWoBo's vision, structured in 5 task groups: 'saving energy', 'sustainable materials', 'sustainable living', 'education & training' and 'innovation & building processes'. The agenda is not only a list of political recommendations, but also a social agenda in which industry, contractors, researchers, environmentalists, etc., agree on long term objectives and carry out their own tasks and projects, thereby operationalizing the transition agenda. The 2nd secondd objective is to learn about governance methodology and transition management in order to apply its potential in other domains, too.

To date, DuWoBo has set up an advice network on sustainable neighbourhood development and has played a vital role in putting smart power grids on the map in Flanders. It's involved in putting forward standards on sustainable buildings, by participating in the development of a Belgian Sustainable Building Council, and in the creation of a network of provincial support centres for sustainable building, offering advice to citizens, cities and companies. It contributes to the

development of a Belgian system for environmental product declarations (EPD) for construction materials. DuWoBo plays an important role in the recycling of construction and demolition waste: today Flanders recycles nearly 90% of this waste. It's acting increasingly as an intelligent network, solving problems for a wide range of stakeholders in the field and putting them into contact with relevant potential partners. The project is coordinated by the Flemish administration, the Sustainable Development team (Ilse Dries, ilse.dries@dar.vlaanderen.be) together with the Centre for Sustainable Construction (To Simons, b.simons@cedubo.be).

Principles

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- We provide enjoyable mobility for all**

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Flemish Public Waste Agency (OVAM)

Ecodesign PRO and Student Award

Environmental- friendly product development is of great importance to OVAM, the Public Waste Agency of Flanders. Ecodesign becomes more and more important when designing sustainable products. Accordingly, the OVAM Ecodesign Award PRO for professionals rewards designers or companies that pay attention to ecodesign. The Ecodesign Award PRO is added as an extra category to the existing Henry van de Velde Awards. The OVAM Ecodesign Award PRO has a category 'product on the market' and a category 'product in development'. For both categories there is one winner who receives a cash prize of EUR 4,000 and EUR 2,000 respectively.

Students who design while taking into account the environmental impact of the product and aim to reduce this environmental impact in their final work or year project, are eligible to compete for the OVAM Ecodesign Award for students. This award for students targets future Flemish designers with refreshingly new ideas and innovative products who

are taking environmental aspects into account. The winner in the category 'best final work' receives a EUR 1,000 prize, the second best gets EUR 500. In the category 'Design projects during the year', the first and second place are rewarded with EUR 600 and EUR 400 respectively.

Principles

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We design enjoyment for all generations

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Word jij de winnaar van de Ecodesign Award 2010?

Leg stevige ecologische accenten op je eindwerk of jaarproject.
Zo verwerf je eeuwig roem en vang je flink wat poen.

Ook dit jaar organiseert de OVAM de Ecodesign Award voor professionals en studenten. Het is een unieke kans om je ontwerp te laten zien en te winnen. Het prijzengeld is hoog en de OVAM is er voor je om je te helpen.

Wat kun je winnen?

Tijdens de presentatie zal er naast een mooie roemrijke foto en prijzengeld te verdienen. De winnaar in de categorie 'Studeerend' ontvangt 1000 euro. De tweede plaats is goed voor 500 euro. In de categorie 'Onderwijsinstelling' bedraagt het bedrag 4000 euro en de tweede plaats 2000 euro.

De tweede prijs is 600 en 400 euro. Per categorie zijn er ook speciale vermeldingen voor inspiratie ontwerpers die het buiten de prijzen vallen. De prijs is voor je te winnen.

How neem je deel?

Stuur je ontwerp naar de OVAM voor 31 juni 2010. Meer informatie over de criteria en de verandering, vind je in het reglement op onze website.



Weer info? Surf naar www.ovam.be/studentenaward of bel 015 284 181.



Flemish Public Waste Agency (OVAM)

Ecopolis, ecological and social spatial planning in Flanders

VIBE offers consultancy, training and sensitization to healthy and environmental conscious building and living. It starts from comprehensive view on energy, water, building materials, but also ecological urbanism. For this, we use the 'Ecopolis'-principles. The 'Ecopolis Vlaanderen' project was subsidised by the Flemish Government and several cities and communities which were consulted by VIBE and by external field and academic experts during the project. The project resulted in a website, with the Ecopolis theory, a 'do-tool', examples of good practices, policy tools, tips et al., the projects we consulted within the overall project, and an accompanying book (ed. Die Keure, Bruges). VIBE has also got its own LCA-tool (CAP'EM), its label for the building sector and represents the label 'natureplus' for building materials in Belgium.

Principles

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Flemish Public Waste Agency (OVAM)

Flemish NGOs network for advising sustainable area development

Within the Flemish transitional network for sustainable living and building (DuWoBo) a network of 12 NGOs was set up in order to advise local project initiators on more sustainable strategies from a multi-domain perspective. The network covers all aspects of sustainable urban planning: energy, materials, mobility, economy, etc. A guide supports the first strategic steps and is published on a website. Project leaders and investors get advice and tips within one month. The learning curve is mutual: NGOs are learning from each other and the cases; project managers learn in an early stage from the NGO's practical experience. NGOs give specific attention to the weak aspects of the urban, rural or rural project. The motive is as far as possible to inform all stakeholders about the essential first steps that offer local integrated solutions for creating more value in a real sustainable district with a minimum impact on the environment, answering real needs of a comfortable life.

Principles

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Flemish Public Waste Agency (OVAM)

Innovation System for System Innovation (ISSI), cross-system action towards sustainability

A transition towards a sustainable society requires the collaboration of governments, businesses, research institutions and civil society. Multi-stakeholder networks often focus on a specific 'system', eg : food, infrastructure, materials, energy, mobility... Many sustainable challenges that we face require cross-system action and collaboration. The ISSI project is a collaboration between two Flemish transition networks, Plan C and DuWoBo (see also p. 83 and 87) on topics like i) a common methodology to co-manage innovative experiments ii) a toolkit for the joint generation and management of networks (people) and ideas. iii) initiating new experiments through a open innovation trajectory.

Early in 2011, the knowhow will be handed out to 8 other innovation networks under a "creative common" license. The approach has been developed "hands on", using 'in the field' developments from DuWoBo, Plan C and other innovation networks. The methodology and toolkit on setting up structural, action oriented, cross-network collaboration for sustainable system innovation will be open for others to join – share – do – learn. By the end of 2011, the first results of the unique scale of this project will be visible.

Principles

We are native to our place

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Our air, soil and water are healthy

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Innovatie Systeem
voor
Systeem Innovatie



Flemish Public Waste Agency (OVAM)

Social forum to stimulate consumers towards a environmentally friendly behaviour

More than 80% of the everyday people want to consume in a more sustainable way, but only 20 % act accordingly. To change this, in 2007, the Flemish Public Waste Agency (OVAM) initiated a widely accepted 'social forum'. The aim of this forum was to explore different instruments which are the most effective in directing ordinary consumers towards more environmentally friendly behaviour. By bringing all the players in the system together (government, consumers, producers and retail) and making them co-operate, OVAM wanted to increase the supply of environmentally sound products and give a coherent message to consumers. This resulted in 2009 in the set up of three pilot projects (energy-friendly tumble dryers, low-energy light bulbs and detergents), organised in the stores of different retailers in Flanders. The pilot projects showed that an increased supply of environmentally sound products, together with a good and extensive communication, makes consumers buy more environmentally friendly products.

Principles

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Flemish Public Waste Agency (OVAM)

Plan C, a Flemish Transition Network for Sustainable Materials Management

OVAM, the Flemish Public Waste Agency, concluded in 2005 that a next generation of waste management – or ‘sustainable material management’ – requires room for changes in perspective and practice, for new structures and culture, for (failure-friendly) experimentation and social learning, and cannot be controlled or planned. From this deeper understanding and concern to make future progress, OVAM started Plan C in 2006. This is a transitional network that brings together individuals and organisations (from the public sector, the business world, academia and NGOs) to jointly create breakthroughs in sustainable material management. A specific approach was implemented to manage this complex process, known as transitional governance. Plan C shows that this approach towards system innovation really can make a difference. Plan C offers a visionary framework (leitbild) and initiates / assists in a coordinated effort for experimenting along selected pathways.

Experiments are ‘innovative projects with a societal challenge as a starting point for learning’, looking at the proper technological, legal, economical and social bottlenecks on our journey towards breakthroughs in the way we manage material resources. The methodology of Plan C to guide experiments from initial idea, to proof of concept and eventual to transition in materials management has been developed in a learning-by-doing approach. The methodology was developed in 2009 by coaching various projects within the Plan C network that envisions societal change with a focus on sustainable material management. Some examples of experiments are situated in the field of product-service systems, chemical leasing, landfill-mining, closed loops of materials, product design, local production and consumption, etc.

Principles

We are native to our place
Our waste is our food
The sun is our income
Our air, soil and water are healthy
We design enjoyment for all generations

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www.plan-c.eu
info@plan-c.eu





Milano Metropoli Development Agency

Action Plan for Municipal Waste Reduction in The City of Brescia

The actions of the Piano di Azione per la Riduzione dei Rifiuti – PARR (Action Plan for Solid Waste Reduction), designed by the Lombardy Region to prevent and reduce waste have been brought forward by the city of Brescia (the second largest city in Lombardy) in collaboration with the multi-utility A2A and its subsidiary Aprica Spa – Ufficio Sviluppo e Osservatorio Rifiuti (Office of Development and Monitoring of waste). The first six measures of project began in January 2010 and referred to “Riduciamo i rifiuti in città (reducing waste in the city) are as follows: 1 sale through vending machines in supermarkets and hypermarkets of detergents, food and pet food in bulk; 2 Recovery of unsold food to be allocated for social purposes; 3 home composting; 4 farm delivery, subscription service for weekly delivery of local organic produce in season; 5 using washable nappies; 6 organization of local markets for the exchange of unused products, but working to prevent them from becoming waste.

Principles

We are native to our place

Our waste is our food

Our air, soil and water are healthy

We design enjoyment for all generations

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Milano Metropoli Development Agency

Best Up

Best Up is a non profit-making organization which has set up the “Circuit for the promotion of sustainable living” intended for all those who supply products and/or services connected with living, aimed at a sustainable development from the social and environmental point of view. The founding principle is that aware and responsible design – based on the entire life cycle of a product – is a central factor in reducing environmental pollution introducing new models of wellbeing based on relationships between people, things, services and territories. The method suggested is that of progression and transparency (Step by Step): declaring where one is and imposing gradual objectives. The Circuit enables dialogue between the different players, improving the Life Cycle Design logic. Among Best Up’s achievements and activities are: • the public awareness campaign “+LCD -CO2” • The Data Bank for developing the “sustainable made in Italy” system • The “Step by Step towards sustainability. GOOD EXAMPLES: “Exhibition” and the “Right-house” Exhibition.

Principles

Our waste is our food

We design enjoyment for all generations

Best Up

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info@bestup.it





Milano Metropoli Development Agency

LeNS Project

Universities, schools, researchers and educators in the design field, should be able to provide the design students with extensive knowledge and effective methods/tools in order to enable a new generation of designers to play an active role in the transformation of current production/consumption systems. There's an urgent need for "mechanisms" able to operate at an education level, enabling the design educators to: - share and speed up knowledge provision in this area; - define an "educational agenda" to provide answers on local and global development issues. The Learning Network on Sustainability (LeNS) project is working in this direction. LeNS is a multi-polar, international network aiming at curriculum development in the field of design for sustainability (product-service systems, in particular). 7 European and Asian universities joined the project (funded by the EU Commission within the Asia Link programme) The main result of the project is the Open Learning E-Package, a web platform that allows decentralised and collaborative production and use of knowledge.

Principles

Our waste is our food

The sun is our income

Our air, soil and water are healthy

We design enjoyment for all generations

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fabrizio.ceschin@polimi.it



Milano Metropoli Development Agency

Premio all'Innovazione Amica dell'Ambiente - Environmental Friendly Innovation Prize

The "Environment Friendly Innovation Prize" is an annual award (first made in 2001) dedicated to innovation in process, product, service, technologies and management systems leading to important environmental improvements. The aim of this prize is to create a favourable context for research and innovations in the environmental field, rewarding those who do not consider the environment not as a constraint, but as an opportunity for development and growth in itself and for the whole community. Among the evaluation criteria are: - the decrease in the consumption of non-renewable resources (materials and energies) and the reduction of pollution and of waste produced (in quantity and in harmfulness), during an entire life cycle; - the use of renewable resources, the valorisation or regeneration of local resources, the best use of existing infrastructures (particularly in relation to transport); - the ability to involve different social players in the innovation (suppliers, producers, institutions, associations, consumers), changing styles of consumption.

Principles

We are native to our place

Our waste is our food

The sun is our income

Our air, soil and water are healthy

We design enjoyment for all generations

We provide enjoyable mobility for all

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www.premioinnovazione.legambiente.org

e.ricucci@legambiente.org





Milano Metropoli Development Agency

Public Initiatives in The Municipality of Carugate

Carugate is the first Municipality in Italy and the second in Europe to have approved (in 2003) an eco-sustainable Municipal Building Code, introducing regulations relative to energy saving, the use of renewable energy sources and the use of bio-climatic technology. In particular, it was the first to make the installation of solar heating systems on the roofs of new buildings, in order to produce hot water, compulsory. The code, updated in December 2008, also defined the rules for building lighting, the use of drinkable water, the collection of rainwater, boilers and air conditioners. Furthermore, in 2008, the Municipality of Carugate introduced a Model for municipal waste management that planned a series of activities to reduce the quantity of municipal solid waste (mainly unsorted), to strengthen and improve the quality of the waste collected and to reduce and rationalize the costs related to management services for municipal waste. In 2008 a Sustainable Mobility Plan was drawn up, providing for intervention in the critical points and for the main roads.

Principles

We are native to our place

Our waste is our food

The sun is our income

Our air, soil and water are healthy

We design enjoyment for all generations

We provide enjoyable mobility for all

Municipality of Carugate

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www.comune.carugate.mi.it

assessore.ecologia@comune.carugate.mi.it



Province of Limburg

C2C Community of Practice

C2C lunch meetings organised by the regional Chamber of Commerce were the start of the C2C community in Limburg. Out of these meetings grew a C2C community of practice, uniting more than 200 companies, government agencies and educational institutes. The aim is networking, sharing knowledge and experience on Cradle to Cradle issues; and creating crossovers between members. The C2C community now holds monthly meetings, where C2C cases can be presented and discussed or members can give an elevator pitch. A C2C online community started in September 2010.

Principles

We are native to our place

Our waste is our food

The sun is our income

Our air, soil and water are healthy

We design enjoyment for all generations

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www.kvk.nl

msmit@limburg.kvk.nl





Province of Limburg

C2C ExpoLAB Foundation

The C2C ExpoLAB Foundation, was founded by the municipal authority of Venlo and is giving shape and substance to the ambitions of the Municipality of Venlo with regard to Cradle to Cradle. The C2C ExpoLAB links organisations in order to document C2C applications in buildings, regional development and products, to validate them and present them to other parties in a knowledge- and documentation centre. For that purpose, the foundation supports the C2C chair of learning at the University of Twente, which is the basis for the C2C knowledge and educational infrastructure for in the region. C2C ExpoLAB offers support to parties planning to realise C2C projects. This can take the form of think tanks, presentations, workshops, advice and project support. C2C ExpoLAB documents working processes such that effects of process choices become visible. By doing so, project teams can achieve better results, respond more effectively and arrive at innovative solutions more quickly.

Principles

Our waste is our food
We are native to our place
Our waste is our food
The sun is our income
Our air, soil and water are healthy
We design enjoyment for all generations
We provide enjoyable mobility for all

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www.c2cexpolab.eu
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Province of Limburg

C2C Lunch Meetings ('Broodje Cradle')

C2C lunch meetings for the industry are organised by the regional Chamber of Commerce, with the aims of raising awareness about the Cradle to Cradle concept and looking for options to implement C2C activities in the business community. Meetings started in 2008 and take place each month.

Principles

We are native to our place
Our waste is our food
The sun is our income
Our air, soil and water are healthy
We design enjoyment for all generations

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Province of Limburg

Fontys Cradle to Cradle Masterclass

The Cradle to Cradle Masterclass is a starting point for SME's in Limburg to get acquainted with C2C. The social learning aspect is very important, as are the networking possibilities that are created. Fontys University of Applied Sciences developed the Cradle to Cradle Masterclass together with EPEA. The masterclass gives profound insight into the various aspects of Cradle to Cradle (principles, design, knowledge of materials, transport and logistics, energy, economical aspects, consumers and producers perspective). Theory and theorising are always linked to a company's working processes. A masterclass will be finalised with the making of an action plan for the participant's own company. Fontys also organises follow-up events and a network for alumni has been created.

Principles

We are native to our place

Our waste is our food

The sun is our income

Our air, soil and water are healthy

We design enjoyment for all generations

We provide enjoyable mobility for all

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Province of Limburg

Good Governance in the Municipality of Peel en Maas

In 2007 the Dutch municipality of Peel en Maas adopted a motion to check all policy guidelines and decisions in relation to the Cradle to Cradle principles. The main targets are: no more waste (through eco-effective design), renewable, preferably solar or geothermal energy, healthy air, soils and waters, a solid contribution of materials and logistics to closing the loops, positive stimuli to the environment and a just and honest world for everyone. To achieve its targets Peel en Maas will support knowledge and information centres such as the Cradle to Cradle Lab in the Venlo region. Eco-effective public procurement will be encouraged and a market for C2C initiatives will be created. C2C building guidelines will include those followed in the rebuilding of the seat of local government. The municipality is also targetting integrated area development with a sound balance between work, living and recreation. A budget is set to help support completion of the program; and, each year, the municipal executive has to report the program's progress to the city council.

Principles

We are native to our place

Our waste is our food

The sun is our income

Our air, soil and water are healthy

We design enjoyment for all generations

Municipality of Peel en Maas

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www.peelenmaas.nl

Gerard.boonekamp@peelenmaas.nl





Province of Limburg

HS Zuyd (Zuyd University) C2C Education for Professionals

In 2007 Hogeschool Zuyd, University for Applied Sciences, dept. Technical Faculties, developed an educational program for professionals called 'The technology of Cradle to Cradle in creating integral durability'. Duration: 2007-2009. The target was to develop a course which would allow qualified persons to start applying Cradle to Cradle principles in practice. Those involved were Zuyd University, the Province of Limburg, DSM (chemicals), Tebodien Consultants & Engineers, Essent Milieu, SGS Intron (consultancy and development), Van Gansewinkel (waste management), Artisjok (creative design) and Van Houtum / Satino (paper industry).

Principles

- We are native to our place**
- Our waste is our food**
- The sun is our income**
- Our air, soil and water are healthy**
- We design enjoyment for all generations**

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 F +31 46 443 49 29
 www.hszuyd.nl
 beenackers@HSZuyd.nl



Province of Limburg

Koekoek Qreamteam: A C2C Design Collective

Koekoek BV, an incubator for the creative industries with its base in Venlo, has taken up the challenge to design and make things based on the 'waste = food' paradigm. Koekoek heads the Qreamteam design collective (approx. 30 individuals and companies) that embraced 'C2C' as design philosophy. Through learning by doing, experience was built up. Now Qreamteam is one of the most experienced design teams in C2C in the Netherlands. The team supports and strengthens local industry. These activities tie in with the local sustainability agenda. Young and start-up creative talent has been retained for the province of Limburg against a background of braindrain and innovation. Over 100 articles and publications have been spun off from Qreamteam's activities. Reverse logistics and design for disassembly have been fully implemented. Those involved in Qreamteam include: Eindhoven University of Technology, Fontys, HS Zuyd and HS Niederrhein Universities of Applied Sciences, Passivhaus, Stiftung Zollverein, Düsseldorf design, Limburg and Venlo.

Principles

- We are native to our place**
- Our waste is our food**
- Our air, soil and water are healthy**
- We design enjoyment for all generations**

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 www.qreamteam.nl
 info@qreamteam.nl





Province of Limburg

Limburg Roundtables on Sustainability - Communities of Practice

The Province of Limburg established four Communities of Practice (CoP): sustainable industry; sustainable building; sustainable road construction, road building; and sustainable purchasing. Regional stakeholders are represented in each CoP. Partnership varies according to the CoP themes. The idea behind CoP is to raise the legacy of Cradle to Cradle and sustainable development to a higher level and put the principles into practice in joint projects. In order to share experiences and knowledge, the first step was to bring together the frontrunners within the different fields. Once CoP meetings started on a regular basis commitment strengthened and shared initiatives were undertaken to widen the circle of participants, etc. A CoP meeting takes place every two to three months.

Principles

We are native to our place

Our waste is our food

The sun is our income

Our air, soil and water are healthy

We design enjoyment for all generations

We provide enjoyable mobility for all

Province of Limburg

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Province of Limburg

Limburg; Sustainable Corporate Performance Management

If you require something from others, give an example of how things should be done. That is why the Province of Limburg is going to make its own corporate performance management sustainable. Three objectives were formulated. In 2011, the Province of Limburg is to be an organisation where managers and employees have sufficient knowledge and skills to responsibly weigh the economic, social and environmental aspects of their actions and decisions. In 2011, the Government office will be a building where people work in a sound environment, with respect for the environment, and in which the Limburg Cradle to Cradle principles will be an driving power for business. In 2011, the Government building will be climate neutral and in 2015 the other provincial buildings will be so. In 2010, 50% of the purchased goods, services and works will meet the requirements and criteria of sustainable procurement, in 2015, this will be 100%.

Principles

We are native to our place

Our waste is our food

The sun is our income

Our air, soil and water are healthy

We design enjoyment for all generations

We provide enjoyable mobility for all

Province of Limburg

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Province of Limburg

Limburg; Sustainable Development/Cradle to Cradle Policy Framework 2008-2011

The Sustainable Development/Cradle to Cradle Policy Framework serves as a guideline for the implementation of sustainable development by the Province of Limburg, up to and including 2011. Putting sustainable development in place is a difficult but challenging task. It requires an awareness and understanding of public interest, cross-border, future-oriented and comprehensive thinking, multi-disciplinary working, learning to deal with changes and uncertainties, and an ability to arrive at solutions critically, creatively and innovatively. And several solutions are justifiable. In specifying its aims, the Province has given a central place to the C2C concept. The Province of Limburg regards C2C as a sustainability concept in which new, more conscious methods of building and producing not only save the environment, but also improve the welfare of people and have economic benefits. For the implementation of sustainable development, the Province of Limburg opts for both the C2C cycle concept (= eco-effective) and for saving resources and energy (= eco-efficient).

Principles

We are native to our place
Our waste is our food
The sun is our income
Our air, soil and water are healthy
We design enjoyment for all generations
We provide enjoyable mobility for all

Province of Limburg
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Province of Limburg

LIOF Vouchers for C2C Scans in SMEs

The principle of using vouchers to acquire specific knowledge was developed and introduced by LIOF (Limburg Development and Investment Company) several years ago. The aim of offering EUR 7,500 vouchers (75% subsidy) to SMEs was to support them in carrying out C2C scans on their products, processes and/or services. This allowed SMEs to take the first step towards achieving C2C products and processes by introducing the C2C principles and executing a C2C scan to determine the extent to which their current products and processes met C2C requirements. EPEA developed a standardised C2C scan for this project. The result of this scan was a report to be used as a basic document for developing further plans for C2C products and processes. In total six scans were supported and made.

Principles

Our waste is our food
The sun is our income
Our air, soil and water are healthy
We design enjoyment for all generations

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cmevis@liof.nl

Beleidskader Duurzame Ontwikkeling/
 Cradle to Cradle 2008 - 2011





Province of Limburg

RiBuiT - Research Institute for the Built Environment of Tomorrow

RiBuiT was launched by HS Zuyd University of Applied Sciences. The institute's mission is to develop and disseminate knowledge to support the transition towards 0-impact buildings and built environments: both new and existing. The institute's mission was the basis for the International Sustainable Building Conference, SB10 Western Europe (held on 11-13 October 2010). During SB10 information was collected in market sessions to develop a Roadmap towards a 0-impact Euregion. The Roadmap will be developed further as a governance tool. Knowledge on the field of 0-impact, governance methods towards 0-impact and other results are continuously being researched and implemented in the projects of HS Zuyd, such as the District of Tomorrow building project, in which sustainable projects are undertaken with students, other educational and research institutes and local companies.

Principles

We are native to our place

Our waste is our food

The sun is our income

Our air, soil and water are healthy

We design enjoyment for all generations

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Province of Limburg

Sketch & Match = Inspiring & Having Fun

Sketch & Match is a method used to identify and visualise potential development paths and thus to facilitate the decision making process for managers, policymakers and local stakeholders. It is an intensive process that organisations and other interested parties can use in their own areas. The success behind sketching is that in this method people tend to think in different, alternative ways from those in spoken or written language. Sketching forces people to mull over the lines they're drawing on paper, slide or map. By using this method different layers and cycles in an area (environmental, social & financial) can be visualized. Participants can share their ideas on a designated development area. By sketching and drawing together people tend to overcome contradictions and differences. The Dutch Government Service for Land and Water Management (DLG) organised four Sketch & Match sessions to inspire, integrate and visualise C2C ideas in the the Province of Limburg (a.o. 4 Leaf Clover, Venlo; A2 Motorway (Maastricht) and the Community of Peel en Maas.

Principles

We are native to our place

Our waste is our food

We design enjoyment for all generations

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b.l.de.rooij@minlnv.nl





Province of Limburg

Windows on Sustainability (Vensters op duurzaamheid)

The Inspirational Tour, 'Windows on Sustainability in Venlo' aims to inspire and enthuse people about Cradle to Cradle in an easy and accessible way. The three components are a city walk, the exhibition (the 'windows') and a Guide Book. The inspirational tour includes a walk past shop windows of buildings that are for rent or for sale, in the half year period before they are re-rented or sold. Each window demonstrates a different Cradle to Cradle theme in an interactive, inspiring way. The basic components of the design of the shop windows are always the same so they look and feel equal. The exhibition is designed as a mobile exhibition and can also be used at events and meetings on Cradle to Cradle.

Principles

We are native to our place

Our waste is our food

The sun is our income

We provide enjoyable mobility for all

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Suffolk County Council

Sustainable Parish Energy Partnership

The Sustainable Parish Energy Partnership (SPEP) is a partnering of parish councils (the lowest tier of local authority in the UK) with commitment, confidence and experience to help to deliver what parishes feel will work locally to cut fuel bills and reduce carbon emissions. A comprehensive programme of assistance is offered to any of the district's parish councils that have established a commitment to helping their residents more sustainably manage the energy they use. The district council provides a 'menu' of support measures which parishes select according to their local circumstances and objectives. Examples include: specialist energy advice, training workshops, grant support, car sharing database, purchase options for insulation and renewable energy technologies, thermal imaging, bespoke parish energy booklets and energy mapping. There are currently 18 parish partners tackling the issues of climate change, sustainability and energy in varied and innovative ways. Information on what parishes are doing can be found on the website or requested.

Principles

We are native to our place

The sun is our income

Our air, soil and water are healthy

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sustainability@scambs.gov.uk



Suffolk County Council

FREdome Visionary Trust

The aim of the FREdome trust is to connect the collective goodwill and ingenuity of people in the community to what happens in society, for the sake of ourselves, our children and future generations. They address the issues of peace, well-being, tackling climate change and resource depletion through four main activities; • Diversity celebration events – engaging all sections of the community • Community Workshops – finding out what communities want to happen locally and further afield • Ideas website – to open up a dialogue on ideas for development • Putting the top ideas into action in partnership with authorities and businesses. They use I.T., and a network of partners to collect, discern and launch positive ideas with the aim of transforming the world into a more enjoyable, fair, prosperous and safe place to live.

One current project which is being developed by Fredome is 'carbon cycling'. Desert sand can be converted back into soil by adding processed bio-waste to restore the organic content. Supertankers transport oil to the west travelling from desert regions. They return, loaded with sea water as ballast. Meanwhile, in the UK, we outfall-pipe our sewage off our shore during heavy rainfall, creating a pollution problem. If the returning tankers took this waste back to desert shores, it would be treated anaerobi-

cally before departure and en route. Millions of gallons of liquid nutrient would then be available at the other end to nourish and irrigate coastal tree belts, rupture the thermal barrier and begin the halting and reversal of deforestation. This proposal concerns the practical integration of rapid, natural processes in order to capture carbon and cycle a proportion of it. This offers a solution far greater than the sum of its parts – a well-supported potential solution to the climate, energy and food crises.

Principles

We are native to our place

Our waste is our food

Our air, soil and water are healthy

We design enjoyment for all generations

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Suffolk County Council

Sustainability East

Sustainability East (SE) is the East of England's authoritative and independent sustainable development champion body. We bring together experts and provide space for discussion and debate in order to develop useful solutions to help put sustainable development at the heart of policy and decision making. SE analyses policy instruments and spending programmes and acts as a 'critical friend' to public, private and third sector bodies whose decisions affect the economic, environmental and social development of the East of England and beyond. SE members come from the public, private and voluntary sector, bringing together a broad range of experience and expertise on environmental, social and economic issues. This enables, SE to be fluid and energetic and to employ the best evidence to provide efficient, proportionate and enabling advice. Working collaboratively with regional partners, SE produced the sustainable development framework for the East of England to ensure regional policy and strategies were consistent with sustainable development principles.

The East of England is leading the way on developing the practical application of the ecosystem services approach (ESA). SE has worked with key partners to identify the value of some of the key ecosystems services in the East of England. The focus of current work is on developing the ESA as a practical sustainable development decision making

tool at sub-national and local levels. An ecosystems service approach is about valuing the benefits that humans derive from the natural interactions that comprise local ecosystems. Services such as pollination, the provision and maintenance of healthy soil and waste absorption and breakdown are all examples of ecosystem services. Ecosystem services are little understood and too sophisticated for us to reproduce even with the most advanced technology, yet the important roles of these natural services are not being recognised adequately in economic markets, government policies or land management practices. The work of SE and partners in the East of England aims to address this.

Principles

We are native to our place

Our waste is our food

The sun is our income

Our air, soil and water are healthy

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3 Limburg principles and their cases

3.1 Introduction

In chapter 2 we have given a description of all cases our network has gathered and linked them, where possible, to one or more of the Limburg principles. In the first part of this chapter we will look at each Limburg principle separately and see which cases connect to that principle (Table 1).

In Table 1 first the name of the principle will be given, followed by the four themes in the second bar. Under each theme are listed the cases which belong to that theme and the name of the country the cases originate from.

The Limburg principles are listed in this order:

We are native to our place

Our waste is our food (closing the cycles)

The sun is our income

Our soil, water and air are healthy

We provide enjoyable mobility for all

We design enjoyment for all generations

The four themes of our network are:

1. Industry
2. Build
3. Area Spatial Development
4. Governance

For the ten network partners we will use the ISO 3166-1-alpha-2 country code elements of the International Organisation for Standardization in alphabetical order, with the exception of the United Kingdom for which country we will use UK instead of GB. The countries are:

- | | |
|--------------------|----|
| 1. Austria | AT |
| 2. Belgium | BE |
| 3. Finland | FI |
| 4. France | FR |
| 5. Hungary | HU |
| 6. Italy | IT |
| 7. Netherlands | NL |
| 8. Romania | RO |
| 9. Slovenia | SI |
| 10. United Kingdom | UK |

In the second part of this chapter we will state which country contributed which initiative to the good practice handbook. The countries will be listed in alphabetical order, the cases originating from a country will be subdivided in Industry, Build, Area Spatial Development and Governance (Table 2).

3.2 Cases and initiatives; Limburg Principles

Whether a case can be linked to two or more of the Limburg principles was either indicated by the case owner or by the project partners wherever a fair estimation seemed possible. Please bear in mind that the number of times a case can be linked to a principle doesn't say anything about the quality of the case. Cases in Governance are more likely to be linked to each principle as, say, examples in Industry. For initiatives in Industry 'we are native to our place' will probably not belong to the core of the case, nor will 'we provide enjoyable mobility for all'. The latter will be more an issue in the Area Spatial Development theme and of course in Governance where planning and designing new ways of mobility and transport will go far beyond the exchange of a petrol engine or a diesel engine for an electric motor.

Table 1

We are native to our place

- integrate in your project the natural, historical and cultural assets that are already present in the area
- improve ecological quality
- maintain as much as possible, integrate natural areas with the structured landscapes
- make use of the added value of natural materials
- use materials cleared from the site in productive ways on the site
- encourage the use of local construction materials
- create area spatial quality

	INDUSTRY	BUILD	AREA SPATIAL DEVELOP.	GOVERNANCE
AT	<ul style="list-style-type: none"> • Perludi • Verpackungszentrum Graz 		<ul style="list-style-type: none"> • AEVG • Ecoregion Kaindorf 	<ul style="list-style-type: none"> • Ecoprofit
BE	<ul style="list-style-type: none"> • Bio-based fibres at DS Fibres: helping to create more environmentally friendly textiles • BMA ERGONOMICS and the Axia® chair: C2C in practice • BuzziSpace.com • Closing the garden waste loop • Ecover, ecological cleaning products in a green packaging • LOOPLA, a C2C approach to PLA recycling 	<ul style="list-style-type: none"> • Bio-Planet Leuven, the first “Green” supermarket of the Colruyt Group • Cameleon, first ecologically built retail store in Europe • Duurzaamheidsmeter, a measuring tool for sustainability of city development projects • Greenovating Howest (University College West Flanders), upcycling the Bruges campus • PIVO, a sustainable and social housing project 	<ul style="list-style-type: none"> • C2C as a tool for masterplanning: LET- Zuid, strategy for a Limburg Environmental Technology Park • Carpark d’Ieteren Kortenberg, reversible land use • De Merode House Style • Sustainable city quarter Ieper De Vloei • Tweewaters, Belgium’s most ambitious sustainable urban project 	<ul style="list-style-type: none"> • Cradle to Cradle Platform • DuWoBo, a Flemish Transition Network for Sustainable Construction • Ecodesign PRO and Student Award • Ecopolis, ecological and social spatial planning in Flanders • Flemish NGOs network for advising sustainable area development • Innovation System for System Innovation (ISSI), cross-system action towards sustainability • Plan C, a Flemish Transition Network for Sustainable Materials Management
FI	<ul style="list-style-type: none"> • Kuhmon Lämpö Ltd (Kuhmo’s Heating, bioenergy) 		<ul style="list-style-type: none"> • ECO2 – Eco-efficient Tampere 2020 	
HU	<ul style="list-style-type: none"> • Healthy, worthy, Hungarian - Ecological farming at Hubai and Partners Ltd. • Paper, Furniture, Horticulture – Sragner & Sragner Ltd. 		<ul style="list-style-type: none"> • How to manage a 1000 years old UNESCO site? - Pannonhalma Benedictine Monastery • Treasure in Electronic Waste - Splendor Argentum Ltd. 	
IT	<ul style="list-style-type: none"> • Bo.Mo. Project 		<ul style="list-style-type: none"> • Feeding Milan. Energy for change • La Cassinazza 	<ul style="list-style-type: none"> • Action Plan for Municipal Waste Reduction in The City of Brescia • Premio all’Innovazione Amica dell’Ambiente - Environmental Friendly Innovation Prize • Public Initiatives in The Municipality of Carugate
NL	<ul style="list-style-type: none"> • ERUTAN®. First worldwide sustainable carpet with a closed biological cycle • EuroCeramic C2C Certified Clay • Pipes for Drainage Solutions • Knoop C2C Printing Process • MOSA C2C Floor and Wall Tiles • Rockwool Thermal, Acoustic and Fire-resistant Insulation • Van Houtum C2C Hand Towel and Toilet Paper 	<ul style="list-style-type: none"> • A New Building for Kringloop Zuid Recycling • City of Venlo - New Municipal Offices • Climate Neutrality of Museums Owned by the Province of Limburg • De Moennik, Helden • District of Tomorrow • Ecoranch Uitspanning Zonnedaaw • Geusseltbad Swimming Pool, Maastricht • Innova Complex (InnovaToren) - Floriade 2012/GreenPark Venlo • Interior Planting (Interior Landscaping) • Jorden - Celebrate Life! • Margraten - Conversion of Existing Home into Energy+ House • Province of Limburg - Government Building • South-East Netherlands Building Centre • Venlo - Cradle to Cradle Social Urban House • Villa Flora - Floriade 2012/ GreenPark Venlo • Villa Verde Sustainable Utility Building, Roermond • Zero Energy House, Vijlen 	<ul style="list-style-type: none"> • 4-Leaf Clover (Klaverdje 4) - Venlo • A2-tunnel Maastricht • Belvédère Maastricht • Floriade 2012 • Greenportlane Venlo • Integrated Area Spatial Development Kerkrade-West • Regional development in Saraven en de Banen • Ringovenpark Peel en Maas • Supplying the city – Towards a multifunctional landscape in Maastricht-Valkenburg • Transformation area ENCI Maastricht 	<ul style="list-style-type: none"> • C2C Community of Practice • C2C ExpoLAB Foundation • C2C Lunch Meetings (‘Broodje Cradle’) • Fontys Cradle to Cradle Masterclass • Good Governance in the Municipality of Peel en Maas • HS Zuyd (Zuyd University) C2C Education for Professionals • Koekoek Qreamteam: A C2C Design Collective • Limburg Roundtables on Sustainability - Communities of Practice • Limburg Sustainable Corporate Performance Management • Limburg; Sustainable Development/Cradle to Cradle Policy Framework 2008-2011 • RiBuiT - Research Institute for the Built Environment of Tomorrow • Sketch & Match = Inspiring & Having Fun • Windows on Sustainability (Vensters op duurzaamheid)
RO	<ul style="list-style-type: none"> • Biophotonic Synergy Design: Ecological Innovations for Optimizing Human Well-Being • Eco-traditional furniture 			
SI		<ul style="list-style-type: none"> • Plus Energy Passive Prefabricated House 	<ul style="list-style-type: none"> • Environmental impact optimisation of ship waste treatment in a life-cycle perspective 	
UK		<ul style="list-style-type: none"> • Adnams Distribution Centre • Beaumont Primary School • Cob Bale Round House - Edwards Eco Buildings • Mill Green Brewery • The Foundry • Unity Gardens - SEArch Architects • Victory Hall 	<ul style="list-style-type: none"> • Great Fen Project • Zero Waste Places (ZWP): Cathedral Square Redevelopment, Peterborough 	<ul style="list-style-type: none"> • Sustainability East • Sustainable Parish Energy Partnership • FREDome Visionary Trust

Our waste is our food (closing the cycles)

- use materials that can be recycled in the future and that are either biological or technical nutrients
- use regional products: exploit the dynamic force and strength of the area itself and the various levels of recycling and social energy
- use materials with a low life cycle impact and low embodied energy
- evaluate and optimise the full life cycle of products and processes to approach the state of natural systems, in which there is no waste

	INDUSTRY	BUILD	AREA SPATIAL DEVELOP.	GOVERNANCE
AT	<ul style="list-style-type: none"> • Perludi • Verpackungszentrum Graz 		<ul style="list-style-type: none"> • AEVG • Ecoregion Kaindorf 	<ul style="list-style-type: none"> • Ecoprofit
BE	<ul style="list-style-type: none"> • BEPSRA, closing the loop for Expanded Polystyrene (EPS) • BMA ERGONOMICS and the Axia® chair: C2C in practice • BuzziSpace.com • Closed loop recycling at Gyproc is rewarded with C2C Silver Certificate • Closing the garden waste loop • Derbipure, C2C on your roof • DotPot, a 3-in-1 non-hazardous and innovative product for your toddler • Ecolizer 2.0 tool, make the difference with this guide to ecodesign • Ecover, ecological cleaning products in a green packaging • Gargantua • Jaga, beautifully effective heating • Jules Clarysse launches the first 100% biodegradable towel in the EU • Li-ion battery recycling, an example of resource efficient use of raw materials • LOOPLA, a C2C approach to PLA recycling • MDM upcycling to high-grade proteins • Quarea certification of recycled aggregates • TakeBack system at Desso 	<ul style="list-style-type: none"> • Bio-Planet Leuven, the first "Green" supermarket of the Colruyt Group • Cameleon, first ecologically built retail store in Europe • Duurzaamheidsmeter, a measuring tool for sustainability of city development projects • Greenovating Howest (University College West Flanders), upcycling the Bruges campus 	<ul style="list-style-type: none"> • C2C as a tool for masterplanning: LET- Zuid, strategy for a Limburg Environmental Technology Park • Closing the Circle, an implementation of Enhanced Landfill Mining • Closing the cycle - horticulture under glass • De Merode House Style • Tweewaters, Belgium's most ambitious sustainable urban project 	<ul style="list-style-type: none"> • Cradle to Cradle Platform • DuWoBo, a Flemish Transition Network for Sustainable Construction • Ecodesign PRO and Student Award • Ecopolis, ecological and social spatial planning in Flanders • Flemish NGOs network for advising sustainable area development • Innovation System for System Innovation (ISSI), cross-system action towards sustainability • Plan C, a Flemish Transition Network for Sustainable Materials Management • Social forum to stimulate consumers towards a environmentally friendly behaviour
FI	<ul style="list-style-type: none"> • Kuhmon Lämpö Ltd (Kuhmó's Heating, bioenergy) 		<ul style="list-style-type: none"> • ECO2 – Eco-efficient Tampere 2020 	
FR	<ul style="list-style-type: none"> • St1 Biofuels turns waste into biofuel • BtoGreen Experience • BtoGreen Method • C2C Design Project • EcoBooster • Eco-design preliminary diagnosis • Innov'R 			
HU	<ul style="list-style-type: none"> • Healthy, worthy, Hungarian - Ecological farming at Hubai and Partners Ltd. • Paper, Furniture, Horticulture – Sragner & Sragner Ltd. 		<ul style="list-style-type: none"> • How to manage a 1000 years old UNESCO site? - Pannonhalma Benedictine Monastery • Treasure in Electronic Waste - Splendor Argentum Ltd. 	
IT	<ul style="list-style-type: none"> • Azienda Del Mobile "RIVA 1920" • COVERLITE® – Antismog Photocatalytic Treatment • From Selling New Clothes to Services for The Shared Use, The Exchange And The Restyling of Clothes • Greenfluff - Industrial Plant for the Car-Fluff Recovery • Lampi di Stampa - Print-On Demand • Outin project • Palm Pallet Company • Vezzola Spa- La Fabbrica dell'inerte 	<ul style="list-style-type: none"> • Autogrill Green Store • New playschool in Cologno Monzese 	<ul style="list-style-type: none"> • La Cassinazza 	<ul style="list-style-type: none"> • Action Plan for Municipal Waste Reduction in The City of Brescia • Best Up • LeNS Project • Premio all'Innovazione Amica dell'Ambiente - Environmental Friendly Innovation Prize • Public Initiatives in The Municipality of Carugate
NL	<ul style="list-style-type: none"> • DSM. Polymer Materials for Cradle to Cradle Products • ERUTAN®. First worldwide sustainable carpet with a closed biological cycle • EuroCeramic C2C Certified Clay Pipes for Drainage Solutions • Jalema C2C Filing Systems • Knoops C2C Printing Process • MOSA C2C Floor and Wall Tiles • Océ Sustainable Document Managing and Printing • Rockwool Thermal, Acoustic and Fire-resistant Insulation • Usit Design Furniture • Van Houtum C2C Hand Towel and Toilet Paper • Waste No More • Waste Paper Binder OPB 	<ul style="list-style-type: none"> • A New Building for Kringloop Zuid Recycling • City of Venlo - New Municipal Offices • De Moennik, Helden • District of Tomorrow • Ecoranch Uitspanning Zonnedaauw • Geusselbad Swimming Pool, Maastricht • Innova Complex (InnovaToren) - Floriade 2012/GreenPark Venlo • Interior Planting (Interior Landscaping) • Jordan - Celebrate Life! • Province of Limburg - Government Building • South-East Netherlands Building Centre • Venlo - Cradle to Cradle Social Urban House 	<ul style="list-style-type: none"> • 4-Leaf Clover (Klavertje 4) - Venlo • A2-tunnel Maastricht • Belvédère Maastricht • Floriade 2012 • Greenportlane Venlo • Integrated Area Spatial Development Kerkrade-West • Regional development in Sarsven en de Banen • Ringovenpark Peel en Maas • Transformation area ENCI Maastricht 	<ul style="list-style-type: none"> • C2C Community of Practice • C2C ExpoLAB Foundation • C2C Lunch Meetings ('Broodje Cradle') • Fontys Cradle to Cradle Masterclass • Good Governance in the Municipality of Peel en Maas • HS Zuyd (Zuyd University) C2C Education for Professionals • Koekoek Oreamteam: A C2C Design Collective • Limburg Roundtables on Sustainability - Communities of Practice • Limburg Sustainable Corporate Performance Management • Limburg; Sustainable Development/Cradle to Cradle Policy Framework 2008-2011

SI

UK

INDUSTRY	BUILD	AREA SPATIAL DEVELOP.	GOVERNANCE
	<ul style="list-style-type: none"> Villa Flora - Floriade 2012/ GreenPark Venlo Villa Verde Sustainable Utility Building, Roermond 		<ul style="list-style-type: none"> LIOF Vouchers for C2C Scans in SMEs RiBuiIT - Research Institute for the Built Environment of Tomorrow Sketch & Match = Inspiring & Having Fun Windows on Sustainability (Vensters op duurzaamheid)
	<ul style="list-style-type: none"> Envelope systems TRIMOTERM and QBISS 	<ul style="list-style-type: none"> Environmental impact optimisation of ship waste treatment in a life-cycle perspective 	
<ul style="list-style-type: none"> Closed Loop Recycling Plant Cyberpac - Harmless Packaging Eastex Materials Exchange Elvis & Kresse National Industrial Symbiosis Programme (NISP) 	<ul style="list-style-type: none"> Adnams Distribution Centre Cob Bale Round House - Edwards Eco Buildings Mill Green Brewery Tesco Zero Carbon Store The Foundry Victory Hall 	<ul style="list-style-type: none"> Zero Waste Places (ZWP): Cathedral Square Redevelopment, Peterborough 	<ul style="list-style-type: none"> Sustainability East FREdome Visionary Trust

The sun is our income

- encourage the use of technologies which can reduce CO2 emissions
- encourage the use of energy from renewable resources
- be a sustainable energy producer
- percentage of renewable energies used/incorporated (solar, wind, bio-based); green roofs, green walls; on-site power generation, combined heat and power energy strategies; 100% renewable energy

	INDUSTRY	BUILD	AREA SPATIAL DEVELOP.	GOVERNANCE
AT			<ul style="list-style-type: none"> • Ecoregion Kaindorf 	<ul style="list-style-type: none"> • Ecoprofit
BE	<ul style="list-style-type: none"> • Bio-based fibres at DS Fibres: helping to create more environmentally friendly textiles • BuzzSpace.com • Derbipure, C2C on your roof • Ecolizer 2.0 tool, make the difference with this guide to ecodesign • LOOPLA, a C2C approach to PLA recycling • TakeBack system at Desso 	<ul style="list-style-type: none"> • Bio-Planet Leuven, the first "Green" supermarket of the Colruyt Group • Cameleon, first ecologically built retail store in Europe • Duurzaamheidsmeter, a measuring tool for sustainability of city development projects • Greenovating Howest (University College West Flanders), upcycling the Bruges campus • PIVO, a sustainable and social housing project 	<ul style="list-style-type: none"> • C2C as a tool for masterplanning: LET- Zuid, strategy for a Limburg Environmental Technology Park • Closing the cycle - horticulture under glass • De Merode House Style • Sustainable city quarter Ieper De Vloei • Tweewaters, Belgium's most ambitious sustainable urban project 	<ul style="list-style-type: none"> • Cradle to Cradle Platform • DuWoBo, a Flemish Transition Network for Sustainable Construction • Ecodesign PRO and Student Award • Ecopolis, ecological and social spatial planning in Flanders • Flemish NGOs network for advising sustainable area development • Plan C, a Flemish Transition Network for Sustainable Materials Management • Social forum to stimulate consumers towards a environmentally friendly behaviour
FI	<ul style="list-style-type: none"> • Kuhmon Lämpö Ltd (Kuhmo's Heating, bioenergy) • St1 Biofuels turns waste into biofuel 		<ul style="list-style-type: none"> • ECO2 – Eco-efficient Tampere 2020 	
HU	<ul style="list-style-type: none"> • Healthy, worthy, Hungarian - Ecological farming at Hubai and Partners Ltd. • Paper, Furniture, Horticulture – Sragner & Sragner Ltd. 		<ul style="list-style-type: none"> • How to manage a 1000 years old UNESCO site? - Pannonhalma Benedictine Monastery • Treasure in Electronic Waste - Splendor Argentum Ltd. 	
IT	<ul style="list-style-type: none"> • Azienda Del Mobile "RIVA 1920" • Bo.Mo. Project • Greenfluff - Industrial Plant for the Car-Fluff Recovery • Palm Pallet Company 	<ul style="list-style-type: none"> • 3M Building • Autogrill Green Store • New playschool in Cologno Monzese • Public Residential Housing – Senior Citizens Housing "Bird" 	<ul style="list-style-type: none"> • Cohousing Projects in Milan • Feeding Milan. Energy for change • La Cassinazza • Public lighting in the city of Villa d'Ogna • Pedemontana Lombarda Motorway: building a 'green' and 'sustainable' motorway 	<ul style="list-style-type: none"> • LeNS Project • Premio all'Innovazione Amica dell'Ambiente - Environmental Friendly Innovation Prize • Public Initiatives in The Municipality of Carugate
NL	<ul style="list-style-type: none"> • ERUTAN®. First worldwide sustainable carpet with a closed biological cycle • EuroCeramic C2C Certified Clay Pipes for Drainage Solutions • Jalema C2C Filing Systems • MOSA C2C Floor and Wall Tiles • Van Houtum C2C Hand Towel and Toilet Paper 	<ul style="list-style-type: none"> • A New Building for Kringloop Zuid Recycling • City of Venlo - New Municipal Offices • Climate Neutrality of Museums Owned by the Province of Limburg • De Moennik, Helden • District of Tomorrow • Ecoranch Uitspanning Zonedauw • Geusseltbad Swimming Pool, Maastricht • Innova Complex (InnovaToren) - Floriade 2012/GreenPark Venlo • Jordan - Celebrate Life! • Margraten - Conversion of Existing Home into Energy+ House • Province of Limburg - Government Building • South-East Netherlands Building Centre • Villa Flora - Floriade 2012/ GreenPark Venlo • Villa Verde Sustainable Utility Building, Roermond • Zero Energy House, Vijlen 	<ul style="list-style-type: none"> • 4-Leaf Clover (Klavertje 4) - Venlo • Belvédère Maastricht • Floriade 2012 • Greenportlane Venlo • Integrated Area Spatial Development Kerkrade-West • Ringovenpark Peel en Maas • Transformation area ENCI Maastricht 	<ul style="list-style-type: none"> • C2C Community of Practice • C2C ExpoLAB Foundation • C2C Lunch Meetings ('Broodje Cradle') • Fontys Cradle to Cradle Masterclass • Good Governance in the Municipality of Peel en Maas • HS Zuyd (Zuyd University) C2C Education for Professionals • Limburg Roundtables on Sustainability - Communities of Practice • Limburg Sustainable Corporate Performance Management • Limburg; Sustainable Development/Cradle to Cradle Policy Framework 2008-2011 • LIOF Vouchers for C2C Scans in SMEs • RiBuiIT - Research Institute for the Built Environment of Tomorrow • Windows on Sustainability (Vensters op duurzaamheid)
RO	<ul style="list-style-type: none"> • Biophotonic Synergy Design: Ecological Innovations for Optimizing Human Well-Being 			
SI		<ul style="list-style-type: none"> • Envelope systems TRIMOTERM and QBISS • Plus Energy Passive Prefabricated House 	<ul style="list-style-type: none"> • Environmental impact optimisation of ship waste treatment in a life-cycle perspective 	
UK		<ul style="list-style-type: none"> • Adnams Distribution Centre • Beaumont Primary School • Cob Bale Round House - Edwards Eco Buildings • Disability Essex • Eco Barns • Mill Green Brewery • Tesco Zero Carbon Store • The Arc • The Foundry • Unity Gardens - SEArch Architects • Victory Hall 		<ul style="list-style-type: none"> • Sustainability East • Sustainable Parish Energy Partnership

Our soil, water and air are healthy

- create soil balances and closed cycles of excavated soils by reuse, protection against erosion and avoidance of contamination
- create water balances and closed cycles by the use of rainwater, dual piping systems, low water impact appliances, infiltration and water retention
- prevent toxic offgasing in buildings
- prevent and/or reduce emissions into ambient air

	INDUSTRY	BUILD	AREA SPATIAL DEVELOP.	GOVERNANCE
AT	<ul style="list-style-type: none"> • Verpackungszentrum Graz 		<ul style="list-style-type: none"> • AEVG • Ecoregion Kaindorf 	<ul style="list-style-type: none"> • Ecoprofit
BE	<ul style="list-style-type: none"> • BEPSRA, closing the loop for Expanded Polystyrene (EPS) • Bio-based fibres at DS Fibres: helping to create more environmentally friendly textiles • BMA ERGONOMICS and the Axia® chair: C2C in practice • BuzziSpace.com • Closed loop recycling at Gyproc is rewarded with C2C Silver Certificate • DotPot, a 3-in-1 non-hazardous and innovative product for your toddler • Ecobos: green office supplies • Ecolizer 2.0 tool, make the difference with this guide to ecodesign • Ecover, ecological cleaning products in a green packaging • Jaga, beautifully effective heating • Jules Clarysse launches the first 100% biodegradable towel in the EU • Li-ion battery recycling, an example of resource efficient use of raw materials • LOOPLA, a C2C approach to PLA recycling • TakeBack system at Desso 	<ul style="list-style-type: none"> • Bio-Planet Leuven, the first "Green" supermarket of the Colruyt Group • Cameleon, first ecologically built retail store in Europe • Duurzaamheidsmeter, a measuring tool for sustainability of city development projects • Greenovating Howest (University College West Flanders), upcycling the Bruges campus • PIVO, a sustainable and social housing project 	<ul style="list-style-type: none"> • C2C as a tool for masterplanning: LET- Zuid, strategy for a Limburg Environmental Technology Park • Closing the Circle, an implementation of Enhanced Landfill Mining • Closing the cycle - horticulture under glass • De Merode House Style • Sustainable city quarter Ieper De Vloei • Tweewaters, Belgium's most ambitious sustainable urban project 	<ul style="list-style-type: none"> • Cradle to Cradle Platform • DuWoBo, a Flemish Transition Network for Sustainable Construction • Ecodesign PRO and Student Award • Ecopolis, ecological and social spatial planning in Flanders • Flemish NGOs network for advising sustainable area development • Innovation System for System Innovation (ISSI), cross-system action towards sustainability • Plan C, a Flemish Transition Network for Sustainable Materials Management • Social forum to stimulate consumers towards a environmentally friendly behaviour
FI	<ul style="list-style-type: none"> • Kuhmon Lämpö Ltd (Kuhmo's Heating, bioenergy) • St1 Biofuels turns waste into biofuel 			
FR	<ul style="list-style-type: none"> • BtoGreen Experience • BtoGreen Method • C2C Design Project • EcoBooster • Eco-design preliminary diagnosis • Innov'R 			
HU	<ul style="list-style-type: none"> • Healthy, worthy, Hungarian - Ecological farming at Hubai and Partners Ltd. • Paper, Furniture, Horticulture – Sragner & Sragner Ltd. 		<ul style="list-style-type: none"> • How to manage a 1000 years old UNESCO site? - Pannonhalma Benedictine Monastery • Treasure in Electronic Waste - Splendor Argentum Ltd. 	
IT	<ul style="list-style-type: none"> • Azienda Del Mobile "RIVA 1920" • Bo.Mo. Project • COVERLITE® – Antismog Photocatalytic Treatment • Greenfluff – Industrial Plant for the Car-Fluff Recovery • Palm Pallet Company • Vezzola Spa- La Fabbrica dell'inerte 	<ul style="list-style-type: none"> • 3M Building • Autogrill Green Store • New playschool in Cologno Monzese 	<ul style="list-style-type: none"> • Cohousing Projects in Milan • Feeding Milan. Energy for change • La Cassinazza • Public lighting in the city of Villa d'Ogna • Pedemontana Lombarda Motorway: building a 'green' and 'sustainable' motorway 	<ul style="list-style-type: none"> • Action Plan for Municipal Waste Reduction in The City of Brescia • LeNS Project • Premio all'Innovazione Amica dell'Ambiente - Environmental Friendly Innovation Prize • Public Initiatives in The Municipality of Carugate
NL	<ul style="list-style-type: none"> • DSM. Polymer Materials for Cradle to Cradle Products • ERUTAN®. First worldwide sustainable carpet with a closed biological cycle • EuroCeramic C2C Certified Clay Pipes for Drainage Solutions • Jalema C2C Filing Systems • Knoops C2C Printing Process • MOSA C2C Floor and Wall Tiles • Océ Sustainable Document Managing and Printing • Rockwool Thermal, Acoustic and Fire-resistant Insulation • Van Houtum C2C Hand Towel and Toilet Paper • Waste No More 	<ul style="list-style-type: none"> • A New Building for Kringloop Zuid Recycling • City of Venlo - New Municipal Offices • De Moennik, Helden • District of Tomorrow • Ecoranch Uitspanning Zonnedaauw • Geusseltbad Swimming Pool, Maastricht • Innova Complex (InnovaToren) - Floriade 2012/GreenPark Venlo • Interior Planting (Interior Landscaping) • Jorden - Celebrate Life! • Margraten - Conversion of Existing Home into Energy+ House • Province of Limburg - Government Building • South-East Netherlands Building Centre • Venlo - Cradle to Cradle Social Urban House • Villa Flora - Floriade 2012/ GreenPark Venlo • Villa Verde Sustainable Utility Building, Roermond • Zero Energy House, Vijlen 	<ul style="list-style-type: none"> • 4-Leaf Clover (Klavertje 4) - Venlo • A2-tunnel Maastricht • Belvédère Maastricht • Floriade 2012 • Greenportlane Venlo • Integrated Area Spatial Development Kerkrade-West • Regional development in Sarsven en de Banen • Ringovenpark Peel en Maas • Transformation area ENCI Maastricht 	<ul style="list-style-type: none"> • C2C Community of Practice • C2C ExpoLAB Foundation • C2C Lunch Meetings ('Broodje Cradle') • Fontys Cradle to Cradle Masterclass • Good Governance in the Municipality of Peel en Maas • HS Zuyd (Zuyd University) C2C Education for Professionals • Koekoek Qreamteam: A C2C Design Collective • Limburg Roundtables on Sustainability - Communities of Practice • Limburg Sustainable Corporate Performance Management • Limburg: Sustainable Development/Cradle to Cradle Policy Framework 2008-2011 • LIOF Vouchers for C2C Scans in SMEs • RiBuiIT - Research Institute for the Built Environment of Tomorrow

	INDUSTRY	BUILD	AREA SPATIAL DEVELOP.	GOVERNANCE
RO	<ul style="list-style-type: none"> • Biophotonic Synergy Design: Ecological Innovations for Optimizing Human Well-Being • Eco-traditional furniture 			
SI		<ul style="list-style-type: none"> • Envelope systems TRIMOTERM and QBISS • Plus Energy Passive Prefabricated House 		
UK	<ul style="list-style-type: none"> • Closed Loop Recycling Plant • Cyberpac - Harmless Packaging • National Industrial Symbiosis Programme (NISP) 	<ul style="list-style-type: none"> • Adnams Distribution Centre • Cob Bale Round House - Edwards Eco Buildings • Disability Essex • Eco Barns • Tesco Zero Carbon Store • The Arc • The Foundry • Unity Gardens - SEArch Architects • Victory Hall 	<ul style="list-style-type: none"> • Great Fen Project 	<ul style="list-style-type: none"> • Sustainability East • Sustainable Parish Energy Partnership • FREDome Visionary Trust

We provide enjoyable mobility for all

- support environmentally friendly transport
- demonstrate alternatives to fossil fuel
- provide eco-effective transportation ('green' public transport, bicycle, low/no-emission vehicles)
- promote reverse logistics/reduce transport kilometres
- integrated in the landscape, with use of sustainable materials and with contribution to energy production, and with minimal nuisance (noise, air), design sustainable infrastructure

	INDUSTRY	BUILD	AREA SPATIAL DEVELOP.	GOVERNANCE
AT	<ul style="list-style-type: none"> • Perliudi • Verpackungszentrum Graz 			<ul style="list-style-type: none"> • Ecoprofit
BE	<ul style="list-style-type: none"> • Bio-based fibres at DS Fibres: helping to create more environmentally friendly textiles • BMA ERGONOMICS and the Axia® chair: C2C in practice • BuzziSpace.com • Derbipure, C2C on your roof • DotPot, a 3-in-1 non-hazardous and innovative product for your toddler • Ecobos: green office supplies • Ecolizer 2.0 tool, make the difference with this guide to ecodesign • Ecover, ecological cleaning products in a green packaging • Gargantua • Jaga, beautifully effective heating • Jules Clarysse launches the first 100% biodegradable towel in the EU • TakeBack system at Desso 	<ul style="list-style-type: none"> • Bio-Planet Leuven, the first "Green" supermarket of the Colruyt Group • Cameleon, first ecologically built retail store in Europe • Duurzaamheidsmeter, a measuring tool for sustainability of city development projects • PIVO, a sustainable and social housing project 	<ul style="list-style-type: none"> • C2C as a tool for masterplanning: LET- Zuid, strategy for a Limburg Environmental Technology Park • Carpark d'Ieteren Kortenberg, reversible land use • De Merode House Style • Sustainable city quarter Ieper De Vloei • Tweewaters, Belgium's most ambitious sustainable urban project 	<ul style="list-style-type: none"> • Cradle to Cradle Platform • Ecodesign PRO and Student Award • Ecopolis, ecological and social spatial planning in Flanders • Flemish NGOs network for advising sustainable area development • Innovation System for System Innovation (ISSI), cross-system action towards sustainability • Plan C, a Flemish Transition Network for Sustainable Materials Management
FI			<ul style="list-style-type: none"> • ECO2 – Eco-efficient Tampere 2020 	
HU	<ul style="list-style-type: none"> • Healthy, worthy, Hungarian - Ecological farming at Hubai and Partners Ltd. • Paper, Furniture, Horticulture – Sragner & Sragner Ltd. 		<ul style="list-style-type: none"> • How to manage a 1000 years old UNESCO site? - Pannonhalma Benedictine Monastery • Treasure in Electronic Waste - Splendor Argentum Ltd. 	
IT	<ul style="list-style-type: none"> • Bo.Mo. Project • From Selling New Clothes to Services for The Shared Use, The Exchange And The Restyling of Clothes • Lampi di Stampa - Print-On-Demand 	<ul style="list-style-type: none"> • 3M Building • Autogrill Green Store • New playschool in Cologno Monzese 	<ul style="list-style-type: none"> • Cohousing Projects in Milan • Feeding Milan. Energy for change • La Cassinazza • Public lighting in the city of Villa d'Ogna 	<ul style="list-style-type: none"> • Action Plan for Municipal Waste Reduction in The City of Brescia • Best Up • LeNS Project • Premio all'Innovazione Amica dell'Ambiente - Environmental Friendly Innovation Prize • Public Initiatives in The Municipality of Carugate
NL	<ul style="list-style-type: none"> • DSM. Polymer Materials for Cradle to Cradle Products • ERUTAN®. First worldwide sustainable carpet with a closed biological cycle • EuroCeramic C2C Certified Clay Pipes for Drainage Solutions • Jalema C2C Filing Systems • Knoops C2C Printing Process • MOSA C2C Floor and Wall Tiles • Usit Design Furniture • Van Houtum C2C Hand Towel and Toilet Paper • Waste No More • Waste Paper Binder OPB 	<ul style="list-style-type: none"> • Public Residential Housing – Senior Citizens Housing "Bird" • A New Building for Kringloop Zuid Recycling • City of Venlo - New Municipal Offices • Climate Neutrality of Museums Owned by the Province of Limburg • De Moennik, Helden • District of Tomorrow • Ecoranch Uitspanning Zonedauw • Geusseltbad Swimming Pool, Maastricht • Innova Complex (InnovaToren) - Floriade 2012/GreenPark Venlo • Jorden - Celebrate Life! • Margraten - Conversion of Existing Home into Energy+ House • Province of Limburg - Government Building • South-East Netherlands Building Centre • Venlo - Cradle to Cradle Social Urban House • Villa Flora - Floriade 2012/ GreenPark Venlo • Villa Verde Sustainable Utility Building, Roermond • Zero Energy House, Vijlen 	<ul style="list-style-type: none"> • 4-Leaf Clover (Klaverkje 4) - Venlo • A2-tunnel Maastricht • Belvédère Maastricht • Floriade 2012 • Integrated Area Spatial Development Kerkrade-West • Ringovenpark Peel en Maas • Supplying the city – Towards a multifunctional landscape in Maastricht-Valkenburg • Transformation area ENCI Maastricht 	<ul style="list-style-type: none"> • C2C Community of Practice • C2C ExpoLAB Foundation • C2C Lunch Meetings ('Broodje Cradle') • Fontys Cradle to Cradle Masterclass • Good Governance in the Municipality of Peel en Maas • HS Zuyd (Zuyd University) C2C Education for Professionals • Koekoek Qreamteam: A C2C Design Collective • Limburg Roundtables on Sustainability - Communities of Practice • Limburg Sustainable Corporate Performance Management • Limburg; Sustainable Development/Cradle to Cradle Policy Framework 2008-2011 • LIOF Vouchers for C2C Scans in SMEs • RiBuiT - Research Institute for the Built Environment of Tomorrow • Sketch & Match = Inspiring & Having Fun
RO	<ul style="list-style-type: none"> • Biophotonic Synergy Design: Ecological Innovations for Optimizing Human Well-Being • Eco-traditional furniture 			
UK	<ul style="list-style-type: none"> • Cyberpac - Harmless Packaging • Elvis & Kresse 	<ul style="list-style-type: none"> • Adnams Distribution Centre • Beaumont Primary School • Cob Bale Round House - Edwards • Eco Buildings • Disability Essex • Eco Barns • Mill Green Brewery • The Arc • The Foundry • Victory Hall 	<ul style="list-style-type: none"> • Great Fen Project • Zero Waste Places (ZWP): Cathedral Square Redevelopment, Peterborough 	<ul style="list-style-type: none"> • FREDome Visionary Trust

We design enjoyment for all generations

- act socially responsibly
- create opportunities for cultural and educational improvement
- provide opportunities for innovation, creativity and sustainability
- promote social fairness by delivering competitively priced goods and services that
 - meet customer requirements
 - and contribute to the quality and convenience of life
 - and do not burden future generations with
 - requirements for maintenance
 - or vigilant administration of potential design due to the careless creation of products processes, or standards

	INDUSTRY	BUILD	AREA SPATIAL DEVELOP.	GOVERNANCE
BE		<ul style="list-style-type: none"> • Bio-Planet Leuven, the first "Green" supermarket of the Colruyt Group • PIVO, a sustainable and social housing project 	<ul style="list-style-type: none"> • C2C as a tool for masterplanning: LET- Zuid, strategy for a Limburg Environmental Technology Park • Carpark d'Ieteren Kortenberg, reversible land use • De Merode House Style • Sustainable city quarter Ieper De Vloei • Tweewaters, Belgium's most ambitious sustainable urban project 	<ul style="list-style-type: none"> • Cradle to Cradle Platform • DuWoBo, a Flemish Transition Network for Sustainable Construction • Ecopolis, ecological and social spatial planning in Flanders • Flemish NGOs network for advising sustainable area development
FI			<ul style="list-style-type: none"> • ECO2 – Eco-efficient Tampere 2020 	
HU			<ul style="list-style-type: none"> • How to manage a 1000 years old UNESCO site? - Pannonhalma Benedictine Monastery 	
IT	<ul style="list-style-type: none"> • Bo.Mo. Project • COVERLITE® – Antismog Photocatalytic Treatment 	<ul style="list-style-type: none"> • Autogrill Green Store 	<ul style="list-style-type: none"> • Pedemontana Lombarda Motorway: building a 'green' and 'sustainable' motorway 	<ul style="list-style-type: none"> • Premio all'Innovazione Amica dell'Ambiente - Environmental Friendly Innovation Prize • Public Initiatives in The Municipality of Carugate
NL	<ul style="list-style-type: none"> • Océ Sustainable Document Managing and Printing • Rockwool Thermal, Acoustic and Fire-resistant Insulation 	<ul style="list-style-type: none"> • District of Tomorrow • Province of Limburg - Government Building • Villa Verde Sustainable Utility Building, Roermond 	<ul style="list-style-type: none"> • 4-Leaf Clover (Klavertje 4) - Venlo • A2-tunnel Maastricht • Belvédère Maastricht • Floriade 2012 • Greenportlane Venlo • Integrated Area Spatial Development Kerkrade-West • Ringovenpark Peel en Maas • Supplying the city – Towards a multifunctional landscape in Maastricht-Valkenburg • Transformation area ENCI Maastricht 	<ul style="list-style-type: none"> • C2C ExpoLAB Foundation • Fontys Cradle to Cradle Masterclass • Limburg Roundtables on Sustainability - Communities of Practice • Limburg Sustainable Corporate Performance Management • Limburg; Sustainable Development/Cradle to Cradle Policy Framework 2008-2011 • Windows on Sustainability (Vensters op duurzaamheid)
UK		<ul style="list-style-type: none"> • Disability Essex 		

3.3 Cases and initiatives; their countries of origin

Some partners in the Cradle to Cradle Network have contributed more initiatives to the handbook than others. Without pretending to be exhaustive we can name a few reasons. In the first place the status of the partners varies. Some are regional or local public authorities, in the case of Slovenia the national government is represented in the network. Others are Regional Development Agencies, some with a broad task, some only erected to work in a specific field of interest. The consequences show both in the number of cases as in the chosen themes. Secondly, partners differ in their approach to eco-effectiveness and some have taken the transition path towards an eco-effective society earlier than others. We may assume that the frontrunners will have gathered more cases in their regions than other partners in C2CN. Thirdly, because this good practice handbook is not meant as an assessment tool, some partners will have looked more sternly into the initiatives originating from their regions than others and omitted some cases where other partners have included similar cases from their regions. Quantity does not equal quality. For further references to this issue, see chapter 1.

Table 2

	INDUSTRY	BUILD	AREA SPATIAL DEVELOP.	GOVERNANCE
AT	<ul style="list-style-type: none"> Periudi Verpackungszentrum Graz 		<ul style="list-style-type: none"> AEVG Ecoregion Kaindorf 	<ul style="list-style-type: none"> Ecoprofit
BE	<ul style="list-style-type: none"> BuzziSpace.com LOOPLA, a C2C approach to PLA recycling Jules Clarysse launches the first 100% biodegradable towel in the EU BEPSRA, closing the loop for Expanded Polystyrene (EPS) DotPot, a 3-in-1 non-hazardous and innovative product for your toddler TakeBack system at Desso Derbipure, C2C on your roof Ecolizer 2.0 tool, make the difference with this guide to ecodesign BMA ERGONOMICS and the Axia® chair: C2C in practice Gargantua Li-ion battery recycling, an example of resource efficient use of raw materials Jaga, beautifully effective heating MDM upcycling to high-grade proteins Ecover, ecological cleaning products in a green packaging Quarea certification of recycled aggregates Closed loop recycling at Gyproc is rewarded with C2C Silver Certificate Bio-based fibres at DS Fibres: helping to create more environmentally friendly textiles Ecobos: green office supplies Closing the garden waste loop 	<ul style="list-style-type: none"> Duurzaamheidsmeter, a measuring tool for sustainability of city development projects Cameleon, first ecologically built retail store in Europe PIVO, a sustainable and social housing project Greenovating Howest (University College West Flanders), upcycling the Bruges campus Bio-Planet Leuven, the first "Green" supermarket of the Colruyt Group 	<ul style="list-style-type: none"> C2C as a tool for masterplanning: LET- Zuid, strategy for a Limburg Environmental Technology Park Closing the Circle, an implementation of Enhanced Landfill Mining Tweewaters, Belgium's most ambitious sustainable urban project De Merode House Style Carpark d'Ieteren Kortenberg, reversible land use Sustainable city quarter Ieper De Vloei Closing the cycle - horticulture under glass 	<ul style="list-style-type: none"> Plan C, a Flemish Transition Network for Sustainable Materials Management Flemish NGOs network for advising sustainable area development Innovation System for System Innovation (ISSI), cross-system action towards sustainability Ecopolis, ecological and social spatial planning in Flanders Social forum to stimulate consumers towards a environmentally friendly behaviour DuWoBo, a Flemish Transition Network for Sustainable Construction Ecodesign PRO and Student Award Cradle to Cradle Platform
FI	<ul style="list-style-type: none"> Kuhmon Lämpö Ltd (Kuhmo's Heating, bioenergy) St1 Biofuels turns waste into biofuel 		<ul style="list-style-type: none"> ECO2 – Eco-efficient Tampere 2020 	
FR	<ul style="list-style-type: none"> C2C Design Project EcoBooster Innov'R BtoGreen Method BtoGreen Experience Eco-design preliminary diagnosis 			
HU	<ul style="list-style-type: none"> Paper, Furniture, Horticulture – Sragner & Sragner Ltd. Healthy, worthy, Hungarian - Ecological farming at Hubai and Partners Ltd. 		<ul style="list-style-type: none"> Treasure in Electronic Waste - Splendor Argentum Ltd. How to manage a 1000 years old UNESCO site? - Pannonhalma Benedictine Monastery 	
IT	<ul style="list-style-type: none"> Lampi di Stampa - Print-On Demand Azienda Del Mobile "RIVA 1920" Palm Pallet Company From Selling New Clothes to Services for The Shared Use, The Exchange And The Restyling of Clothes COVERLITE® – Antismog Photocatalytic Treatment Bo.Mo. Project Outin project Vezzola Spa- La Fabbrica dell'inerte Greenfluff - Industrial Plant for the Car-Fluff Recovery 	<ul style="list-style-type: none"> Autogrill Green Store Public Residential Housing – Senior Citizens Housing "Bird" New playschool in Cologno Monzese 3M Building 	<ul style="list-style-type: none"> Feeding Milan. Energy for change Public lighting in the city of Villa d'Ogna La Cassinazza Cohousing Projects in Milan Pedemontana Lombarda Motorway: building a 'green' and 'sustainable' motorway 	<ul style="list-style-type: none"> Public Initiatives in The Municipality of Carugate Action Plan for Municipal Waste Reduction in The City of Brescia Best Up LeNS Project Premio all'Innovazione Amica dell'Ambiente - Environmental Friendly Innovation Prize
NL	<ul style="list-style-type: none"> MOSA C2C Floor and Wall Tiles Van Houtum C2C Hand Towel and Toilet Paper Knoops C2C Printing Process Jalema C2C Filing Systems Waste Paper Binder OPB EuroCeramic C2C Certified Clay Pipes for Drainage Solutions ERUTAN®. First worldwide sustainable carpet with a closed biological cycle DSM. Polymer Materials for Cradle to Cradle Products Usit Design Furniture Waste No More Rockwool Thermal, Acoustic and Fire-resistant Insulation Océ Sustainable Document Managing and Printing 	<ul style="list-style-type: none"> Interior Planting (Interior Landscaping) Venlo - Cradle to Cradle Social Urban House Ecoranch Uitspanning Zonnedaauw Geusselbad Swimming Pool, Maastricht Margraten - Conversion of Existing Home into Energy+ House Innova Complex (Innova Toren) - Floriade 2012/GreenPark Venlo Jorden - Celebrate Life! A New Building for Kringloop Zuid Recycling Province of Limburg - Government Building Climate Neutrality of Museums Owned by the Province of Limburg De Moennik, Helden South-East Netherlands Building Centre District of Tomorrow City of Venlo - New Municipal Offices Zero Energy House, Vijlen Villa Verde Sustainable Utility Building, Roermond Villa Flora - Floriade 2012/ GreenPark Venlo 	<ul style="list-style-type: none"> Regional development in Sarsven en de Banen Greenportlane Venlo A2-tunnel Maastricht Supplying the city – Towards a multifunctional landscape in Maastricht-Valkenburg Transformation area ENCI Maastricht Belvédère Maastricht Floriade 2012 Integrated Area Spatial Development Kerkrade-West Ringovenpark Peel en Maas 4-Leaf Clover (Klvertje 4) - Venlo 	<ul style="list-style-type: none"> Good Governance in the Municipality of Peel en Maas C2C ExpoLAB Foundation Fontys Cradle to Cradle Masterclass C2C Community of Practice HS Zuyd (Zuyd University) C2C Education for Professionals Koekoek Qreamteam: A C2C Design Collective Windows on Sustainability (Vensters op duurzaamheid) LIOF Vouchers for C2C Scans in SMEs RiBUILT - Research Institute for the Built Environment of Tomorrow Limburg Roundtables on Sustainability - Communities of Practice Sketch & Match = Inspiring & Having Fun Limburg; Sustainable Development/Cradle to Cradle Policy Framework 2008-2011 Limburg Sustainable Corporate Performance Management C2C Lunch Meetings ('Broodje Cradle')

	INDUSTRY	BUILD	AREA SPATIAL DEVELOP.	GOVERNANCE
RO	<ul style="list-style-type: none"> • Biophotonic Synergy Design: Ecological Innovations for Optimizing Human Well-Being • Eco-traditional furniture 			
SI		<ul style="list-style-type: none"> • Envelope systems TRIMOTERM and QBISS • Plus Energy Passive Prefabricated House 	<ul style="list-style-type: none"> • Environmental impact optimisation of ship waste treatment in a life-cycle perspective 	
UK	<ul style="list-style-type: none"> • Elvis & Kresse • Closed Loop Recycling Plant • National Industrial Symbiosis Programme (NISP) • Cyberpac - Harmless Packaging • Eastex Materials Exchange 	<ul style="list-style-type: none"> • Disability Essex • Cob Bale Round House - Edwards • Eco Buildings • Beaumont Primary School • Unity Gardens - SEArch Architects • Victory Hall • The Arc • The Foundry • Eco Barns • Adnams Distribution Centre • Mill Green Brewery • Tesco Zero Carbon Store 	<ul style="list-style-type: none"> • Zero Waste Places (ZWP): Cathedral Square Redevelopment, Peterborough • Great Fen Project 	<ul style="list-style-type: none"> • Sustainable Parish Energy Partnership • Sustainability East • FREdome Visionary Trust

The Cradle to Cradle Network (C2CN) is an Interreg IV C capitalisation project consisting of ten partners from ten European regions which aims to reduce raw materials' utilisation, to generate less waste and less environmental pollution, as well as to enhance innovation and economic development.

Province of Limburg (NL)
www.limburg.nl

Flemish Public Waste Agency (BE)
www.ovam.be

Milano Metropoli Development Agency (IT)
www.milanomet.it

Department for Economics and Tourist Development of the City of Graz (AT)
www.wirtschaft.graz.at

ARDI Regional Agency for Development and Innovation (FR)
www.ardi-rhonealpes.fr

Kainuun Etu Ltd (FI)
www.kainuunetu.fi

West-Transdanubian Regional Development Agency (HU)
www.westpa.hu

Suffolk County Council (UK)
www.suffolk.gov.uk

North-East Regional Development Agency (RO)
www.adrnordest.ro

Government Office for Development and European Affairs (SI)
www.svrez.gov.si

Contact information:

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