POLITECNICO DI MILANO

Corso di Laurea Magistrale in Design
Laboratorio di Sviluppo Concept
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RIFIUTI & RISORSE

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RIFIUTI & RISORSE _MAPPA 1#

PRODUZIONE SOSTENIBILE

Produzione distribuita

Renewable Energy

Energy Independence

Technology

Free energy

co-generazione

Marciapiede piezoelettrico

ENERGIA

FRUIZIONE SOSTENIBILE

Green Environments

City farming

Green Building

Eco city

shared habitat facilities

shared energy

lodging student

home laundry

P2P, elettricità peer-to-peer

micro nursery

mutual support

Eco-village

ACCESSIBILITA'

case dell'acqua

futuro dell'acqua?

Depurazione Biologici

RISORSE

Urban community

RIFIUTO --> ENERGIA

CO2 converter

Domestic gasification

OTTIMIZZAZIONE SPRECO

'From food to fertilizer, from fertilizer to city farming' ristorante Tokyo

self-organisation

education

Smart Growth

H2O no profit

Eco-games platforms

Riuso acque reflue

Water management

Tesco carbon labelling

VALORIZZAZIONE

Embodied energy

RIFIUTO --> RISORSA

Urban Revitalization

soluzioni per rifiuti discarica?

Reflective Materials

Reuse

elettronica come concime

Recycle

compostaggio distribuito

RIFIUTI

RIDUZIONE

LCA

Zero Packaging

Struttura di Packaging

OTTIMIZZAZIONE RACCOLTA

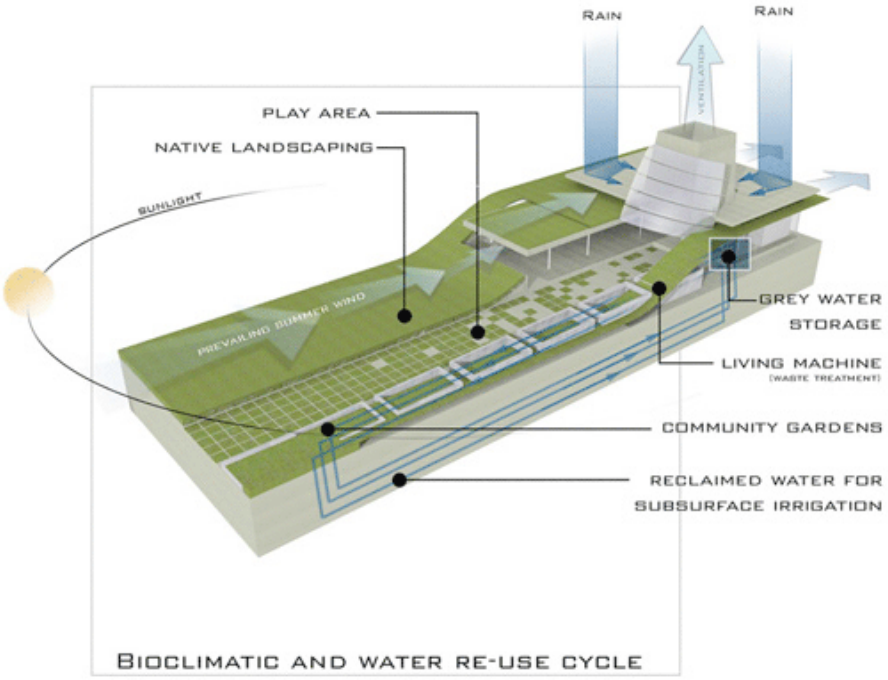
Incentivazione

Trattamento delle Acque Reflue

Recycle bank

RIFIUTI & RISORSE _CASI STUDIO 1#

Green Building



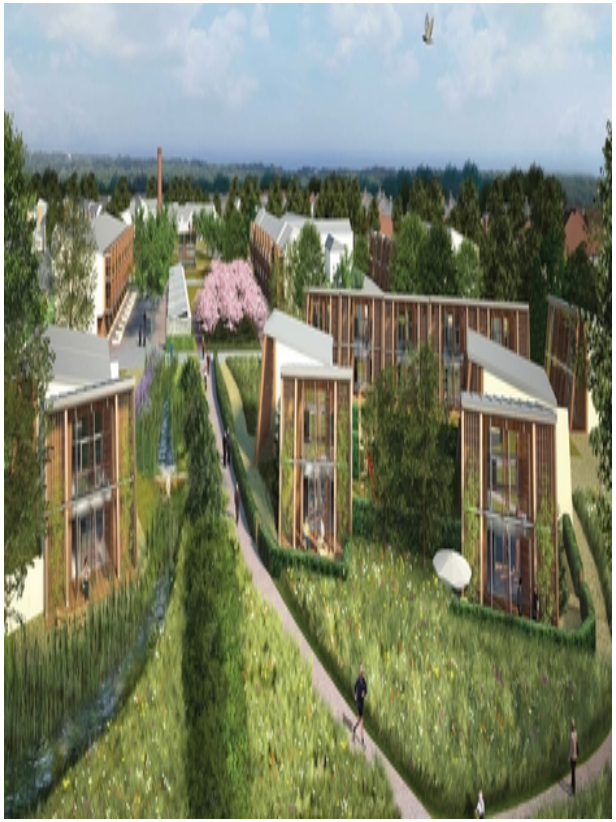
Cradle to Cradle (C2C) House of the Future Runs on Spinach

The winning entry to the Cradle to Cradle C2C Home Competition is an incredible single family dwelling by Matthew Coates and Tim Meldrum that goes right to the core fundamentals of the Cradle to Cradle principles. Not only does the building run a photosynthetic and phototropic skin made with spinach protein, but it also produces more energy than a single family's needs, allowing the excess to be distributed to neighbors. This radical shift, from centralized energy systems today, fosters community interdependence as neighbors benefit from the resources of others.

RIFIUTI & RISORSE _ CASI STUDIO 2#

Eco-village

Housing and regeneration specialist HTA Architects has revealed detailed images of Hanham Hall, England's first eco-village, proposed for a 6.6ha site near Bristol.
The 188-unit scheme, for housebuilder Barratt with engineering by Arup, is the first Code level 6 scheme in the country.
HTA aims to allow a family occupying one of its homes to cut its carbon footprint by around 60% without lifestyle changes. Further reductions in CO2 emissions will be encouraged through a management regime that promotes car sharing and growing food on site.
"The design wants to encourage neighbourly behaviour through shared spaces in front of dwellings and in the streets," said HTA's project director Simon Bayliss.
"This is to encourage getting to know your neighbours, which should lead to sharing the growing of vegetables and car sharing.
"We hope that the typical Barratt homebuyer will be tempted by this, and will come to live in a home they wouldn't normally have thought of."
The timber-clad houses — a mix of mix of private and affordable — are expected to achieve an energy performance 100% above that required by current Building Regulations.
The development also has a biomass combined heat and power plant, along with gas boilers and a connection to the national grid.
HTA was selected by English Partnerships to build the development as part of its Carbon Challenge in 2007, after beating competition from Feilden Clegg Bradley Studios, Acanthus Ferguson Mann, Proctor & Matthews, PRP and Broadway Malyan.



Hanham Hall eco-village

RIFIUTI & RISORSE _ CASI STUDIO 3#

Arizona State University (ASU) and the New America Foundation hosted a panel on U.S. energy independence at the National Press Club. Michael Crow, President of ASU, said while there's been a lot of discussion on the idea of energy independence, the goal was to outline the "revolutionary steps" needed to actually achieve energy independence.

RIFIUTI & RISORSE _ CASI STUDIO 4#

Depurazione Biologici

Metropolis **magazine wrote about the Omega Institute of Sustainable Living in Rhinebeck, New York, one of the world's greenest buildings. According to *Metropolis*, the institute creates its own energy through on-site geothermal and solar systems, and uses local, non-toxic materials – "there's virtually no PVC, lead, or mercury to speak of." The building was created using the International Living Building Institute's living building standard. Certified living buildings must consume zero energy and water, consist of non-toxic materials, restore habitat, and produce food (all of these are actually required).**

One of the more interesting features is the building's "eco machine," a system that clearly demonstrates for visitors how plants and fish remove human waste from water. The system was described as "a self-contained sewage system that mimics nature's self-corrective principles by freeing plants, bacteria, micro-organisms, algae, and fish to feast on human waste, thus purify-ing it, much as a stream cleanses its own ecosystem."

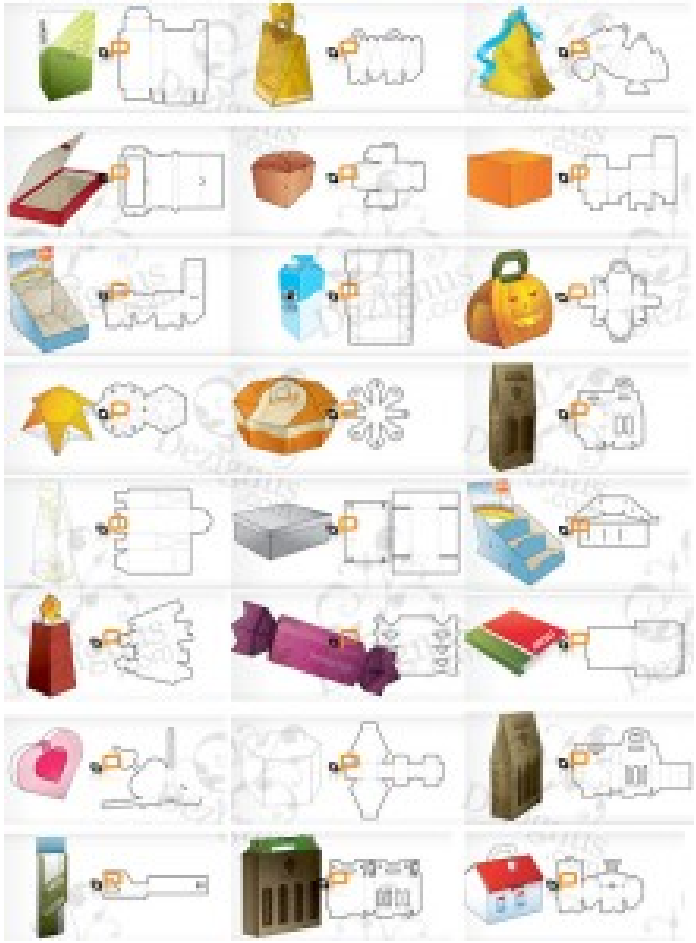
RIFIUTI & RISORSE _ CASI STUDIO 5#

Technology

Dalla frutta alla penna

Si utilizza polvere di frutta, semi, vari tipo di cibo, per fare penna colorati speciali, ha coroli natulari e profumo di cibo, e un modo per riutilizzare rifiuti di cibo, senza produrre inquinamento.

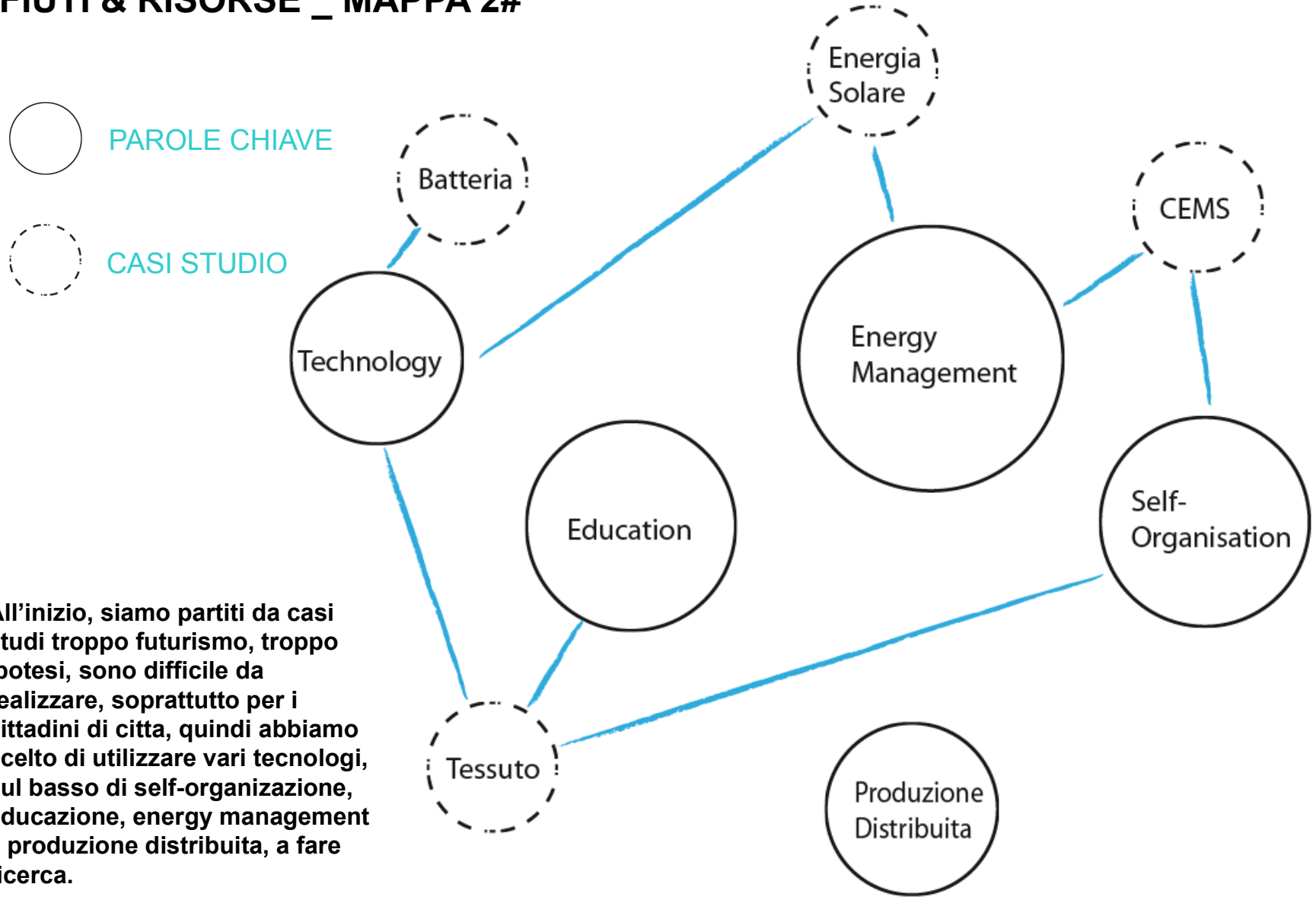
RIFIUTI & RISORSE _ CASI STUDIO 6#



Struttura di Packaging

Il packaging veicola la comunicazione del prodotto, tale comunicazione è essenziale per invogliare l'acquisto e dunque ottimizzare il profitto.
Mai nessuna realtà aziendale orientata al profitto rinuncerebbe dunque al packaging.. Per questo motivo ci troviamo di fronte a packaging che pur arrampicandosi sugli specchi tentano in tutti i modi di allungare la propria vita utile, anche se purtroppo spesso la loro vita è proprio inutile..

RIFIUTI & RISORSE _ MAPPA 2#



All'inizio, siamo partiti da casi studi troppo futurismo, troppo ipotesi, sono difficile da realizzare, soprattutto per i cittadini di citta, quindi abbiamo scelto di utilizzare vari tecnologi, sul basso di self-organizazione, educazione, energy management e produzione distribuita, a fare ricerca.

RIFIUTI & RISORSE _ CASI STUDIO 1#

The Caulfield McCarthy Super Valu group

The Solution

The first step was to install the Cross energy management system [CEMS] which would provide very detailed information on exactly how much energy was being used and where it was being used.
This installation involved fitting 9 No. CT meters to the following points for monitoring: High temperature Pack 1 & 2, Low temperature Pack 1, the refrigeration sub board, the air conditioning system, the shop lighting, the Bakery, the entire first floor area and the store mains supply.
All CT's relay constant energy data back to our CEMS which tabulates the information into simple easy to read reports which can either be printed out in the store or accessed on line from any pc anywhere.
Initial findings
After analysing the first month's data Cross energy was in a position to go back and meet the store owners with detailed recommendations on how to reduce the stores energy consumption. It was found that 50% of the energy being consumed in the store was from the refrigeration and of that 50%, 60% was from the plant and 40% from the cabinets.

The Result

Prior to making any changes the store was consuming 30314 units [KW's] per week. Once all the changes we made the store was consuming 25471 units [KW's] per week which represents a saving of 4843 KW's. In monetary terms this represents a weekly saving of over €500.

Energia Solare

Limerick County Hall, Co. Limerick

28.6 kWp of Solar PV

Pictured is the first phase of Limerick County Hall's solar PV system during installation on the atrium roof. Now completed, this grid-connected solar electricity system includes ninety-nine 180 Wp Sharp modules and three Fronius IG 60 inverters, giving a total of 17.8 kWp.

A second system has been installed on Limerick County Hall's restaurant roof. This comprises sixty 180 Wp Sharp modules, with a total output of 10.8 kWp.

In terms of emission reductions, the Limerick County Council solar electricity systems (28.6 kWp at County Hall and 10.7 kWp at Limerick Library) are the equivalent to taking 800 cars off the road for a year.

Flexible installation

The one solar PV system can have modules in different locations: they don't have to be on the one roof, wall or piece of ground. The Limerick County Hall solar PV system takes advantage of this feature by siting modules on both the atrium, and restaurant roofs (pictured right and below)

RIFIUTI & RISORSE _ CASI STUDIO 3#

Tessuto

Plastitex è una azienda che segue ed interviene direttamente in tutte le fasi produttive, dal granulo in PVC al filato, al tessuto e infine alla confezione, garantendo in ogni singola fase ampi margini d'innovazione che le permettono di raggiungere i risultati prefissati.

RIFIUTI & RISORSE _ CASI STUDIO 4#

Batteria

Celle a Combustibile:Nuovo Slancio per una tecnologia sostenibile da scoprire

Le celle a combustibile sono una tecnologia che potrebbe e dovrebbe facilmente competere con i tradizionali metodi di creazione e distribuzione di energia elettrica. Le celle a combustibile possono essere paragonate ad una batteria alimentata continuamente e che opera utilizzando le proprietà chimiche dell'idrogeno e dell'ossigeno per creare corrente elettrica utilizzabile.