

# Creating Closed Loop Systems in Meanwhile Construction

A report by The Architecture Foundation for the London Legacy  
Development Corporation, December 2012

**The**  
**Architecture**  
**Foundation**

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# Introduction

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Through its twenty-year history, The Architecture Foundation has been involved in a broad portfolio of interim-use projects, activating a variety of vacant sites, buildings and spaces across London. From the creation of a 120-seat theatre made entirely of recycled and reused materials, to the transformation of a mundane portacabin into a series of studio spaces offering creative traineeships to local young people - we have, as an organisation, prided ourselves in pushing boundaries and testing new ideas through the use and activation of vacant sites.

It is for this reason that we were delighted to build on our interim-use experience through the London Legacy Development Corporation's (LLDC) Learning from Others research initiative. We were keen for our project to be relevant and contribute to the work that the LLDC will be carrying out in years to come on the sites in and surrounding the Queen Elizabeth Olympic Park; building on the momentum of the 2012 Olympic Games and creating meaningful and long-term interventions that will encourage the Park to integrate with its local context and engage with those who currently live there and those who will move to the area in the future.

Our Creating Closed Loop Systems in Meanwhile Construction research project, which examines a range of international case studies of the creative re-use of waste materials, aims to set the framework for the creation of a re-use project in East London that would aid with the legacy of waste and surplus construction materials created through the transformation phases from Games venue to an active and integrated part of the city.

It is our belief that the lessons learnt and the approaches taken by our case study protagonists can be applied to a live project to be realised on an interim-use site owned and managed by the LLDC.



The Oikos Project, a 120-seat theatre made entirely from recycled and reclaimed materials produced by The AF in collaboration with theatre production company the Red Room and artists Koeberling & Kaltwasser. Courtesy: the AF



South Kilburn Studios produced in collaboration with Practice Architecture for the South Kilburn Neighbourhood Trust and Bren Council. Courtesy: Mike Massao

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# Executive Summary

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## **Brief**

The Architecture Foundation proposed to examine a selection of international case studies of creative re-use and conduct research into reuse examples in the UK in order to assemble a series of lessons learnt to inform the potential creation of a Materials Reuse Centre in East London on an interim-use site. This facility would potentially aid the construction of future meanwhile projects on or around the Queen Elizabeth Olympic Park and also offer building materials and components for sale to the wider public for reuse.

## **Approach**

We chose to conduct in-depth interviews with key individuals associated with our case study projects. We wanted to present a variety of models - from not-for-profit organisations such as Rotor, Re-Biennale and the ReBuilding Centre, to profit-making businesses such as 2012Architecten (now Superuse Studio) and Urban Ore Eco Park.

We were keen to speak with organisations that engage with the reuse of materials in the broadest sense from designing using waste materials to re-selling products for profit. This would allow for a variety of creative responses that could inform a site-specific project in East London.

Alongside our case studies we also undertook site visits and research looking at examples of businesses and projects in London that were dealing with reused materials. These included visits to SITA's<sup>1</sup> Reuse and Recycling Centre and to Emmaus Greenwich<sup>2</sup>, as well as conversations with Bioregional,<sup>3</sup> who have undertaken research into the building materials reuse market in the UK. In addition, we initiated conversations with people who had been involved in waste management for the Olympic Park during its construction in order to assemble lessons learnt from this phase of works.



Olympic waste at SITA's East London depot. Courtesy: the AF.

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1 SITA is a recycling and resource management company that was employed by the Olympic Delivery Authority to manage all waste during the construction and delivery of the 2012 Olympic Games. [www.sita.co.uk](http://www.sita.co.uk).

2 Emmaus Greenwich is a charity that works with homeless people. The charity operates a second-hand furniture shop, which provides for 70% of its income. Emmaus offers homeless people a place to stay and trains them to work in the shop. [www.emmausgreenwich.org](http://www.emmausgreenwich.org).

3 <http://www.bioregional.co.uk/news-views/publications/viability-of-building-material-reuse-centres-in-the-uk/>.

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## **Case Studies - Overview**

### **2012Architecten, Rotterdam, the Netherlands**

2012Architecten is a Rotterdam-based architecture office that uses reused and recycled materials as the starting point for their creative practice. The office views reuse as an integrated design strategy called 'superuse'. The reuse concept applies to building materials as well as energy supplies, human resources, water, transport and food cycles. 2012Architecten develop strategies for cities to connect different closed loop systems, while integrating these processes into the existing urban environment. This concept is called 'Recyclicity'.

[www.2012architecten.nl](http://www.2012architecten.nl)

### **Industri[us], London, UK**

Situated opposite Canning Town DLR, the Industri[us] Festival of Upcycling, organised by an architect-led consortium, supported a number of existing upcycling businesses and start-ups – many directly from Newham – making and selling products from furniture and art, to jewellery and fashion. Created entirely from borrowed, used or reusable materials – from pavers from nearby Olympics roadworks to plants from the Chelsea Flower Show – the site was 'packable' and could be broken down and recreated on another site. During its lifetime, the project provided paid training and work experience opportunities.

[www.industri-us.org](http://www.industri-us.org)

### **Re-Biennale, Venice, Italy**

Founded in 2008, the Venetian organisation Re-Biennale, which operates as a collective, seeks to reuse the materials left behind after each edition of the Venice Biennale of Architecture and Art closes. In 2010 the 'Wonderland Pavilion' was created by a collaboration of practitioners including Re-Biennale at Morion in Venice. This saw a fully functioning workshop and community space built using the left-over materials from the 53rd International Art Biennale. Though initially working on an-ad hoc basis to reuse materials, it is hoped that in 2013 Re-biennale will be able to work more formally with the Biennale to reuse materials to the benefit of socially engaged projects in Venice.

[www.rebiennale.org](http://www.rebiennale.org)

### **ReBuilding Center, Portland, Oregon, USA**

Founded in 1998 as part of a community-based non profit Our United Village, The ReBuilding Center carries a large volume of used building and remodeling materials. It provides resources that make home repairs affordable to everyone, with the goal of promoting the reuse of salvaged and reclaimed materials. Three hundred visitors come to The ReBuilding Center every day to browse the ever-changing inventory that includes sinks, tubs, tiles, lumber, doors, windows, trim and much more. In addition to the reuse warehouse, The ReBuilding Center includes DeConstruction Services, a sustainable alternative to conventional demolition, and ReFind Furniture, which offers a diverse line of green furniture and home accessories. All proceeds are reinvested in community outreach work.

[www.rebuildingcenter.org](http://www.rebuildingcenter.org)

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## **Urban Ore Eco Park, Berkeley, California, USA**

Founded in the 1980s, Urban Ore is a for-profit salvage-and-sales operation, incorporating a General Store and Building Materials Exchange. To serve the community's interest in diverting waste from landfill, the City of Berkeley incubated Urban Ore by providing the company licensed access to resources – scrap metals and reusable goods – and a sales location that was rent-free until it brought in more than US\$11,000 a month in income.

Throughout its long history, Urban Ore has worked to establish and expand the reuse and recycling industries. It has been active in the politics of recycling, participating in regional and national organisations as well as countless activist and advocacy actions. It has helped write several influential pieces of legislation that became law by votes of either citizens or elected officials. It has also designed community-scale Zero Waste facilities domestically and abroad.

[www.urbanore.com](http://www.urbanore.com)

## **Rotor, Brussels, Belgium**

Founded in 2005, Rotor is a not-for-profit organisation with a common interest in the material flows in industry and construction. On a practical level, Rotor handles the conception and realization of design and architectural projects. On a theoretical level, Rotor develops critical positions on design, material resources, and waste through research, exhibitions, writings and conferences. Rotor has created projects as diverse as the curation of the Belgian Pavilion for the Venice Architecture Biennale 2010 and OMA's Progress exhibition at the Barbican Art Gallery, London, a project for Grindbakken (Ghent, Belgium) and the creation of an online reuse platform: [opalis.be](http://opalis.be).

[www.rotordb.org](http://www.rotordb.org)

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## **Summary of Recommendations for the LLDC**

1. Be clear internally on the aspirations and objectives of the project.
2. Agree internally on a relevant budget that the LLDC is able to assign to the project.
3. Procure a relevant delivery partner; one that may have previous experience of setting up a Materials Reuse Centre or has a strong background in material reuse and one that can develop a clear and strong business and communications strategy for the Materials Reuse Centre.
4. Allow the project to grow and evolve over time. A three-to five- year gestation period is suggested before any significant 'pay back' can be expected.
5. Evaluate the project at relevant stages as required.

## **Summary of Recommendations for the Materials Reuse Centre**

1. Select a business model that is appropriate for the budget and timeline set by the LLDC. Benefits of both a profit-making and not-for-profit structure can be seen.
2. Diversify the offer of the Materials Reuse Centre to include services such as training, events, delivery/ collection services and if possible dismantling services.
3. Select an appropriate site that allows for both interior and exterior storage space. Recommended site range would be between 2,500 m<sup>2</sup> and 3,900 m<sup>2</sup> with a large proportion undercover (approximately half of the space should be undercover).
4. Ensure the site is in an area that could attract passing trade and relevant potential clients.
5. Allow for parking spaces for both both public visitors and for Materials Reuse Centre vehicles that will be used to collect and potentially drop off materials.
6. At start up phase the recruitment of a core team of five is recommended: Site Manager (mid-career) and Site Coordinator (early to mid career) who had significant experience in materials and waste management, supported by a front-of-house community liaison, delivery/collections driver, and two materials processors.
7. A clear inventory of materials will need to be put in place that logs the materials that come in and go out.
8. Build links with other contractors to ensure a strong supply of stock.
9. Be selective with what you take on as poor materials will not be sold.
10. Be competitively priced so that people are incentivised to buy from the Materials Reuse Centre rather than other cheap building material suppliers.

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11. Display your materials in an orderly and attractive way to make it easy for customers to navigate stock.
  12. There is real potential to offer training and apprenticeships on a multitude of levels and this is seen as an integral part of what the Materials Reuse Centre can offer.
  13. Build strong community links and be present within the local context where the business is located.
  14. Develop a clear and attractive brand for the Materials Reuse Centre that communicates through a variety of different means, including online and print.
  15. Consider how materials can be showcased and potentially sold online as well as on site.

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# 2012 Architecten

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*The case study below is based on an interview conducted by Moira Lascelles (AF) with Jan Jongert, Co-Director and Head of Research of 2012Architecten on 9 October 2012.*

Company Name: 2012Architecten (Now 'Superuse Studios')

Company Status: Private Company

Annual Turnover: €400,000

Size of Office: 200 m<sup>2</sup>

Established (date): 1997

Based in (country): Rotterdam, The Netherlands

Website: [www.superuse-studios.com](http://www.superuse-studios.com); [www.superuse.org](http://www.superuse.org)

Number of employees: 15 (including full-time, part-time and interns)

Brief Description of Business:

2012Architecten is a Rotterdam-based architecture office that uses reused and recycled materials as the starting point for their creative practice. The office views re-use as an integrated design strategy called 'superuse'. The reuse concept applies to building materials as well as energy supplies, human resources, water, transport, and food cycles. 2012Architecten develop strategies for cities to connect different closed loop systems, while integrating these processes into the existing urban environment. This concept is called 'Recyclicity'.



Wikado playspace, Rotterdam, NL. Courtesy 2012Architecten



Villa Welpeloo, Roombeek, NL.  
Courtesy 2012Architecten

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## **Start-up Story**

Jan Jongert and Cesare Peeren established 2012Architecten in 1997 after they were awarded their first commission to renovate the interior of a shop. In 2005 they were joined by partner Jeroen Bergsma.

Both partners had already been experimenting with recycled materials through architectural model making and were both interested in exploring this way of working on 1:1 scale architectural projects.

Jan and Cesare found that at the time of establishing 2012Architecten many architects were dealing with green issues, but were focusing primarily on the energy and carbon consumption of buildings rather than investigating material reuse in buildings.

From the very beginning 2012Architecten were interested in merging research with design and investigating re-use and material flows both in theory and in practice. Their client base was genuinely intrigued by the concept of working with recycled materials and it is through their projects that their theories and ways of working have evolved.

When establishing 2012Architecten, Jan and Cesare wrote a manifesto for the company setting out their principles of site-specific architecture based on locally sourced materials – this was published on their website and is still very close to the way they work today.

The creation of the business was aided by a grant from the Art and Architecture Foundation in Amsterdam, in addition to a start-up fund from the Dutch government who also offered tax reductions to new businesses for the first three years in operation. During their existence 2012Architecten have also been awarded numerous grants from the Dutch government for various research and build projects. It is estimated that the company has received in the region of €350,000 over its 15 years in operation from the Dutch State.

No set business plan was conceived of when they started the company; rather it evolved over time as they won more and more commissions. They also have actively sought out commissions that they felt would be relevant to their work and complement the research they were keen to undertake. The government in the Netherlands was reported to be very supportive in terms of financing research projects and 2012Architecten have received both state grants and commissions to undertake projects.

## **Changes Over Time**

The ethos of the practice has stayed true to their original ethos and 2012Architecten's commitment to working with reused materials has not changed. The company has, however, grown in size and has acquired a PR and HR department. As the practice has grown the three partners have specialised and now lead different aspects of the business (Jan Jongert, Research; Cesare Peeren, Design; Jeroen Bergsma, Architecture).

This year 2012Architecten will be setting up an Urban Planning Department and also offer a consultancy service; most recently they have worked with the Dutch government to offer advice on vacant buildings – an issue that is very prevalent in Holland at the moment.

Growth has come gradually with the acquisition of new clients; most of whom are predominantly attracted by 2012Architecten's approach to building. The company has also been very successful in

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attracting media attention and has been widely published which has helped with new business and has raised its profile internationally.

## **Customer Base**

2012Architecten predominantly attract clients who are sympathetic to their approach and who are keen to pursue a project that works with reused materials.

Clients have varied from private to public sector, and the types of projects produced by the office reflect a diverse way of working, from publications to residential developments.

## **Suppliers and Stock**

With a strong belief in site-specific architecture, 2012Architecten often produce 'harvest maps' of materials for projects that they undertake. This way of working can be time-consuming; it involves researching and making contacts with interesting waste streams in the particular area in question. This phase is, however, vital to the process of working with re-used materials and means that the design process invariably goes hand in hand with the materials research. Often what is available will inspire the final outcome of the project.

2012Architecten are currently working on an online harvest map for the Netherlands that provides four user groups (designers, builders, waste suppliers and 'scouters') with the opportunity to list or search on materials in their local area.<sup>1</sup> Users of the site create their own profile page and can upload information of materials that they have available or materials they may wish to receive. The website will eventually be combined with the 'Superuse' website, also run by 2012Architecten, that lists international precedent projects that work with reused or recycled materials.

Once built and launched 2012Architecten will use their extensive suppliers and contact database to encourage people to start using the site. Users will be able to register for free, but should they wish to purchase or find out more about a particular material available they will be required to pay a subscription fee. In addition it is hoped that once the website is more extensively used revenue can be generated through advertising.

It is envisaged that the website will be invaluable to larger companies who will be required to prove efficiency with their waste streams. By matching problems with solutions it is hoped the site will also encourage greater reuse of materials in design and build projects.

## **Marketing and Messaging**

2012Architecten have enjoyed wide ranging media coverage and the partners are often invited to lecture internationally. The strong ethos and committed approach of the company is seen as vital to its success in attracting attention. Even so, it seems hard to measure the success or 'return' for the publicity received as very little new business has historically been generated through media attention. The company has a PR department and produces research publications that offer further means of communicating to a broader public and potential clients.

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<sup>1</sup> 'Scouters' act as brokers within the material reuse chain. They can be individuals or companies that either have a variety of clients or contacts that wish to receive or supply materials. They will use the website to source materials for their networks as required.

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## **Challenges and Lessons Learnt**

Working with reused materials can produce some challenges which 2012Architecten have had to negotiate over their 15-year history. Certain materials require special permissions and licences before you are able to use them – this can take time and a strong knowledge in this area is required. In addition there are 'hidden costs' relating to preparing materials for reuse (de-nailing, treating, testing etc.), which can often accumulate and increase costs for projects.

The harvest mapping required for projects can also be time-consuming and thus costly, something that clients do not always understand at the beginning of the process.

In previous years, 2012Architecten had taken on space to store stock and materials. This proved incredibly costly and it was hard to organise and manage what materials they had. They now work with a materials library that contains samples of materials they frequently use and know they can source. This library is housed within their office and is consulted regularly during the design process. More specific materials are then highlighted on the harvest maps that are created for individual projects.

## **Additional AF Analysis**

### What Works

- Utilising online platforms to promote material sources.
- Having a clear usp and manifesto stating how your practice works and your motivations for working with re-used materials.
- Starting small and gaining prominence with each project/commission you take on.
- Producing harvest maps of local sources of materials in the area you are working in and building strong contacts with suppliers.

### Cautions

- Hoarding materials can be expensive and the cost of storage cannot be underestimated.
- Certain materials require permissions and may need treatment before use, which can be time consuming.

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# Industri[us]

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*The case study below is based on an interview conducted by Moira Lascelles (AF) with Christina Norton (Director, Fluid), Katherine Davis (Project Manager, Fluid) and Clare Richards (Freelance Project Manager) on 12 October 2012.*

Company Name: Industri[us]

Company Status: Company Limited by Guarantee

Project Cost: £150,000

Size of site: 5,500 m<sup>2</sup>

Company established: October 2011

Based in: London, UK

Website: [www.industri-us.org](http://www.industri-us.org); [www.fluidoffice.co.uk](http://www.fluidoffice.co.uk)

## Brief Description of Business:

Industri[us] was a project set up by Fluid Architects and Urban Strategists and collaborators in the summer of 2012. It was a winning entry into the Meanwhile London competition, run jointly by Newham Council and the London Development Agency. The project initially proposed to occupy three vacant sites in East London, collaborating with designers and up-cyclers to rework and revalue found materials. In its final iteration Industri[us] occupied a vacant Council-owned site opposite Canning Town tube station, launching on 27 July 2012. The project ran for a brief period of time before it decided to close. During its time in operation, a Festival of Upcycling was run that supported a number of existing upcycling businesses and start-ups, making and selling products from furniture and art, to jewellery and fashion. There is still a desire for Industri[us] to run future projects.



Visitors to Industri[us] relax and enjoy lunch from the on-site market. Courtesy: James Tarry Photography



Live music event, showing main structure with an illuminated facade of discarded objects. Courtesy: Clare Richards, Industri[us]

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## **Start-up Story**

Industri[us] was conceived by Fluid, in collaboration with Dare branding and marketing, Buro Happold Engineers, social venture advisor David Barrie, green expert John Thackara and artist Michael Pinsky.

The concept was produced in response to the Meanwhile London competition brief, run by Property Week in collaboration with the Mayor of London and the London Borough of Newham, which called for creative ideas for a series of vacant sites in East London. Sites were offered rent free to the winning entries, which were required to provide or raise their own project funding in order to realise their proposals.

Initially the proposal was to occupy three vacant sites across the Royal Docks in East London, collaborating with the growing community of designers and makers working with waste materials and needing better access to the market. This also linked to the vision for a Green Enterprise District spearheaded by the arrival of Siemens on the Royal Docks. It sought to connect this network with a supply of waste materials in Newham, coupled with innovation and education programmes. Developed in collaboration with local organisations and delivery partners, the project provided work experience and paid training opportunities for a number of young people and long-term unemployed. In March 2011 Industri[us] was named as one of the winning proposals, along with three others.

Industri[us] was registered and set up as a company Limited by Guarantee in October 2011 managed by Fluid. Fluid believed that Industri[us] needed an entity beyond that of a normal architectural practice, which could effectively operate as a social enterprise. The initiative was not focused on income generation or commercial aspirations, rather it was looking to build on aspects that Fluid Architecture had been exploring for many years, such as participatory design, communities and urban regeneration.

## **Changes Over Time**

Though initially conceived to work over a series of sites, the project was later restricted to one site in Canning Town, which was awarded to Industri[us] after another project pulled out. The site was awarded for a 16-month period in the hope that the project could become established and in time provide a revenue stream to start seeing a return on this investment.

The Industri[us] project opened to the public on 27 July and ran until 11 August 2012. Initially it was envisaged that the project would run for a much longer period of time, however, due to a variety of factors (please see lessons learnt section below) the decision was taken to close the site. Industri[us] still remains as a company to this date, and there is a desire to create further projects under this name.

During its time in operation in Canning Town, a Festival of Upcycling was run that supported a number of existing upcycling businesses and start-ups, making and selling products, from furniture and art, to jewellery and fashion, to create a showcase. The festival's launch coincided with the start of the 2012 Olympic Games, and ran for a week on site before closing to the public due to the lack of projected Olympics visitor footfall.

## **Customer Base**

The Industri[us] project was aimed at engaging the local community and visitors – in particular those who had come to London for the Olympic Games. A broad audience was sought from those with an

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interest in re-use and design, to those who wished to buy their lunch from the street food market. A number of gig nights were staged, which attracted large audiences to the site from the local area and further afield.

During the construction phase, a number of young people from the local area were engaged in traineeships with Groundwork London and Serco to deliver the built elements of the project. Ten of these young people have gone on in to full-time employment. Other local people from Newham's volunteer bank donated their time to help with site clearance and watering of plants.

Outreach was also required to find stallholders for the Festival of Upcycling, which attracted people from across the UK. Stalls were given for free initially and it was envisaged that once the market was more established vendors would pay rent for their stall.

### **Suppliers and Stock**

All aspects of the site build were created using found or re-used materials, including a large robot created entirely from reclaimed timber. In addition, a host of training opportunities were created during the construction period that allowed local young people the chance to get involved in making the project a reality.

Industri[us] accepted materials from a variety of different sources across London. Strong links were forged with waste and construction companies which supplied them with materials for the build. Those mentioned were The Wombles, Bikeworks; Conways, highways contractor working on the Olympic roadworks and waste companies in Cody Lane. In addition the project allowed people to donate materials, dropping relevant items onto the site. Landscaping and planting elements were donated from left-over materials from the Chelsea and Hampton Court Flower Shows.

The products sold at the upcycling market were produced using a variety of reused materials sourced by the designers themselves. The products were not produced on site, rather were sold at the market for retail prices.

### **Marketing and Messaging**

Industri[us] had its own project website and produced a newsletter that was circulated to a wide-ranging distribution list. In addition, the project received press coverage predominantly in the architectural and design trade magazines, which raised awareness of the initiative.

Flyers were distributed locally, and due to the projects strong connections in the area word of mouth was also a good communication tool.

The tag line 're-use, re-work, re-value' which was later adapted to 'Something from Nothing' which was suggested by a local young person who was engaged with the project.

### **Challenges and Lessons Learnt**

The Industri[us] project was awarded the site in Canning Town in October 2011 after another project pulled out. Though fenced off, the site, which was 5,500 m<sup>2</sup> was not particularly secure and had a

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number of security issues, which required additional security services to be employed at additional costs to the project. A number of thefts also took place over the course of the project.

As there was no start-up funding offered, all revenue needed to be regenerated by the project managers. This proved incredibly difficult in the timeframe that the project had for delivery (October 2011 – July 2012). A great deal of in-kind support was raised and some very successful partnerships were established with Groundwork London and Serco construction, however, much of the capital was supplied by Fluid Architecture, which financed the set up of the project.

It was envisaged that revenue from the stallholders would allow the project to become self-sustaining; breaking even on the investment required to establish it. Unfortunately the site proved to be located where the predicted footfall during the Olympic period failed to materialise and hence the project did not manage to attract the target audience figures it had hoped to achieve. The footfall promised for the Olympics did not materialise in this area of London and though located directly opposite Canning Town tube station, its users seemed to be passing through the area, rather than engaging with activities and services available.

When Fluid became aware that footfall to the site was proving difficult to achieve, a large event was planned to attract an audience and potential customers for the Upcycling market. The event was very successful, with over 300 people coming to the site and engaging with the project. Live music was staged and food and drinks were served. Even so, visitors did not seem to buy products from the upcycling market, and though it raised awareness of the project it was not considered appropriate to use an events programme to generate income as this was not the core aspiration of the project, nor what sponsors had agreed to. It is believed that should the project be created again seed funding and a smaller, more manageable high-profile site would greatly contribute to the success of the project. With a better location, a strong programme of events that would attract new and different audiences to the site would be highly beneficial.

## **Additional AF Analysis**

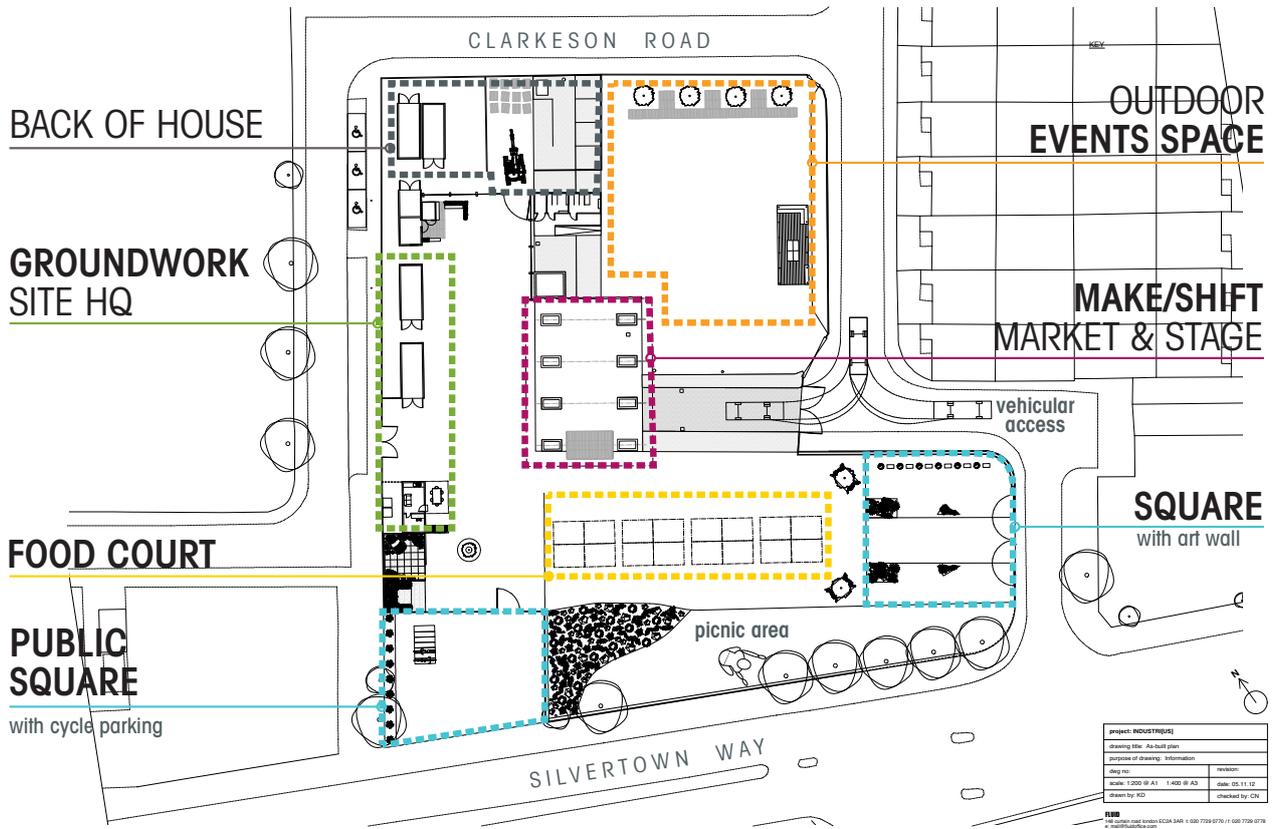
### What Works

- Building strong links with the local community.
- Offering training opportunities at construction phase and throughout the project.
- Producing complementing events and public programmes to attract new audiences.
- Hosting a series of different functions on one site to increase the offer.
- Working with partners you can rely on to offer additional support.

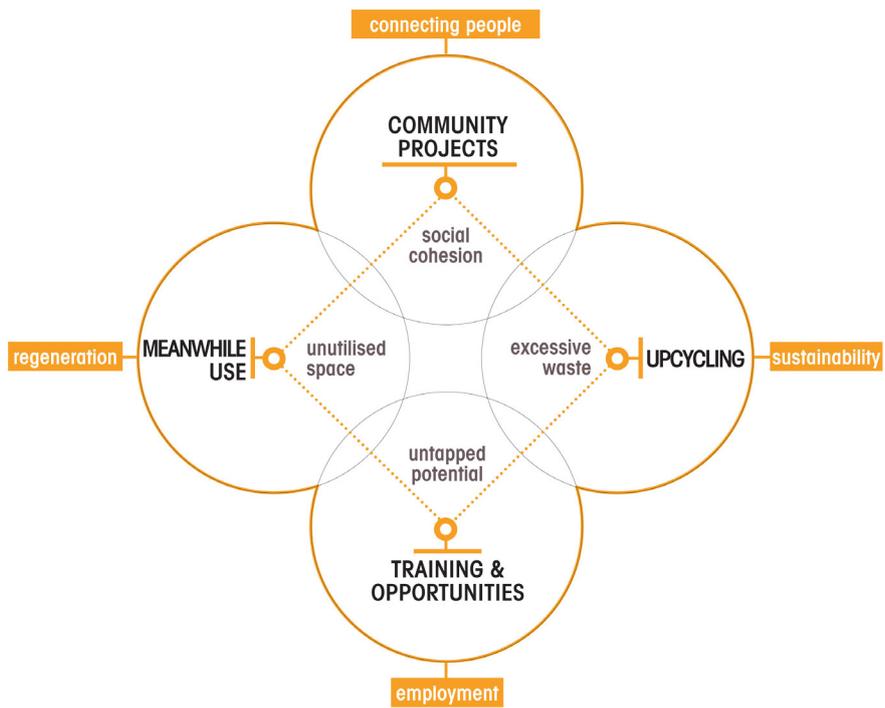
### Caution

- It is vital to have a well-located site that has the potential to raise the profile of the business and has the opportunity of attracting passing trade.
- It is virtually impossible to start a project without start-up funding of some sort.
- Allow yourself enough time to set up and market your project.
- Be realistic about potential obstacles and hidden costs you had not thought about - leave a healthy contingency in your budget.
- Be clear on who your target audience is and market directly to them. Remember that if revenue is required to be generated your target audience may need to shift.

# Industri[us] Site Plan and Project Diagram



 **CANNING TOWN STATION**



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# Re-Biennale

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*The case study below is based on an interview conducted by Moira Lascelles (AF) with Giulio Grillo, Co-Founder of Re-Biennale on 5 November 2012.*

Company Name: Re-biennale

Company Status: Collective

Size of office: N/A

Established: 2008

Based in: Venice, Italy

Website: [www.rebiennale.org](http://www.rebiennale.org)

Number of employees: Run on a voluntary basis with large network

Brief Description of Business:

Founded in 2008, the Venetian organization Re-Biennale, which operates as a collective, seeks to reuse the materials left behind after each edition of the Venice Biennale of Architecture and Art closes. In 2010 the 'Wonderland Pavilion' was created by a collaboration of practitioners including Re-Biennale at Morion in Venice. This saw a fully functioning workshop and community space build using the left over materials from the 53rd International Biennale. Though initially working on an ad hoc basis to reuse materials it is hoped that in 2013 Re-biennale will be able to work more formally with the Biennale to reuse materials to the benefit of socially engaged projects in Venice.



Morion Community Space under construction, Courtesy Re-Biennale



Material debris from the Architecture Biennale, Courtesy Re-Biennale

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## **Start-up Story**

Re-biennale was formed by a collective of Italian architects based in Venice following their involvement in a series of discussions that were held at the Venice Architecture Biennale in 2008. Practices such as 2012Architecten were included in these discussions along with a number of other organisations that were engaged in working with reused materials and had a strong background in creatively working with waste streams.

At the time the Venice Biennale did not have a re-use strategy and did not have a strong waste management system. Materials employed in both the art and architecture biennales were often being skipped or independently removed by the different curators involved in the exhibitions. There was no emphasis or awareness of the possibilities of reuse.

The Re-Biennale collective were interested in engaging with the Biennale to re-use left over material for the benefit of community and socially engaged projects in Venice. They were keen to work closely with the organisation behind the Biennale and to develop strong local links. At the beginning it proved difficult to establish a strong dialogue directly with the Biennale so Re-Biennale began entering into conversations with the different international pavilion curators to identify opportunities.

In 2010 they worked with the British pavilion and with collective, EXYZT and others to use waste materials to create a community centre and workshop space in Morion, Venice. The space which became known as the 'Wonderland Pavilion' ([www.wonderland.cx](http://www.wonderland.cx)) also now acts as home to a number of the Re-biennale collective who squat the property with the permission on the Venetian government.

## **Changes Over Time**

Through realising the project at Morion, Re-Biennale built a name for themselves both internationally and in Venice. In 2011 this led to another project at s.a.l.e Docks with artist, Thomas Klipper. An empty building close to the Punta della Dogana was taken over by Re-Biennale and transformed, using discarded material from Thomas Klipper's Biennale installation, into a public art space to host independent art exhibitions. The space remains today and the Venetian government has granted Re-biennale permission to run the space for the foreseeable future.

It is also hoped that in 2013 Re-Biennale will be working on a more formal basis with the Biennale to manage the re-use of materials after the festival comes to a close. At the time of this report Re-Biennale has only ever operated on a voluntary basis transporting and re-using materials from the Biennale for free. No fee is charged for the service that they provide.

## **Customer Base**

Re-biennale works on an informal basis to create socially orientated projects in Venice. It is their wish to reuse material from the Biennale to benefit the local community in the city in which the festival takes place.

Their projects such as those in Morion and s.a.l.e have a public facing function running exhibitions, events and club nights. All profits are put back into the initiative.

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## **Suppliers and Stock**

Re-Biennale's emphasis is on the materials that are discarded after the Art and Architecture Biennale that take place in Venice. Materials vary greatly depending on the exhibitions that are staged but the quantity can be vast and no re-use strategy has been formalised with Re-biennale, who offer a voluntary service.

## **Marketing and Messaging**

There have been some international recognition for the work that Re-Biennale does focusing primarily on the projects that have been realised. The organisation has a website and a strong presence on social networks. In Venice they rely on their networks and word of mouth in order to attract their strong volunteer base.

## **Challenges and Lessons Learnt**

Re-Biennale are limited in what materials they are able to take due to their lack of affordable storage space and their lack of transportation (Re-biennale own one large boat which they use to transport materials).

The collective has also worked up until now (2012) on a purely voluntary basis, which means they are reliant on the good will of their volunteers to help them remove materials and build projects. It is hoped that in the future a more formal relationship with the Biennale can be formed that would allow the collective to be compensated for the service they deliver and thus allow them to become more efficient.

## **Additional AF Analysis**

### What Works

- Knowledge of the local context and a desire to work for the good of the community.
- Subsidising projects with alternative revenue streams (events, workshops etc.).
- Working with a strong network of volunteers who are passionate about the cause.
- Being clear on what you are looking to achieve and the limitations that are involved.

### Cautions

- Relationships with material sources are most efficient when formalised and clear agreements are in place.
- Transportation is a major requirement and sufficient resources will need to be allocated to this.
- Relying heavily on volunteers and a voluntary service may not always produce the most efficient and optimum way of working. Paid staff will be vital in rallying the troops!
- Low-cost storage is vital.

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# ReBuilding Center

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*The case study below is based on an interview conducted by Sarah Ichioka (AF) with Shane Endicott, Founder and Executive Director of Our United Villages (with further information supplied by Assistant Director Chris Bekemeier) on 5 November 2012.*

Company Name: ReBuilding Center (a business subsidiary of the non-profit Our United Villages)

Company Status: 501c3 non-profit

Annual Turnover: c. US\$3million annual turnover, of which c. US\$125,000 profit

Size of site: c. 3,900m<sup>2</sup> covered space, with additional external space (car and bike parking, drop-off/collections driveway, drop-off landing)

Established: 1998, opened on current site in 1999

Based in: Portland, Oregon, USA

Websites: [www.rebuildingcenter.org](http://www.rebuildingcenter.org); [www.ouvcommunityoutreach.org/](http://www.ouvcommunityoutreach.org/)

Number of employees: c. 35 employees plus 2,000 volunteers a year

## Brief Description of Business:

Founded in 1998 as part of a community-based non-profit Our United Village, The ReBuilding Center carries a large volume of used building and remodeling materials. It provides resources that make home repairs affordable to everyone, with the goal of promoting the reuse of salvaged and reclaimed materials. Three hundred visitors come to The ReBuilding Center every day to browse the ever-changing inventory that includes sinks, tubs, tile, lumber, doors, windows, trim and much more. In addition to the reuse warehouse, The ReBuilding Center includes DeConstruction Services, a sustainable alternative to conventional demolition, and ReFind Furniture, which offers a diverse line of green furniture and home accessories. All operating expenses are covered through earned income and excess proceeds are reinvested in community outreach work.



Vehicular entrance to the ReBuilding Center. Courtesy: Ichioka



Customer service desk at the ReBuilding Center.  
Photo: Ichioka

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## **Start-up Story**

Our United Villages (OUV) was initially set up in 1996 in response to petty crime and a shooting in a neighbourhood of east Portland. The tragedy caused neighbourhood residents, including Shane Endicott, to seek new vehicles to encourage local social cohesion by creating opportunities for both economic uplift and positive community interactions.

Previously, Endicott had worked for another charity (St Vincent de Paul). Shane left St. Vincent de Paul and in his own time and using personal funds he conducted research to investigate the possibility of setting up a building materials reuse centre. He toured many other materials salvaging/ recycling operations across the United States, through which he gained useful insights into what worked and what could be improved upon in such operations.

In 1997 Our United Villages incorporated as a 501(c)3 non-profit, with the stated mission of 'Inspiring people to value and discover existing resources to strengthen the social and environmental vitality of communities'.

In 1998, the ReBuilding Center (TRC) and later in 1999 DeConstruction services were opened on a temporary site. They had more passion than cash in these early days. This initial set-up was funded through a start-up loan of US\$15,000 against a volunteer's credit card plus a municipal waste diversion grant of US\$32,000 for capital costs, such as key equipment essential for displaying, storing and collecting building materials.

OUV's off-site DeConstruction service, priced competitively against traditional demolition services, increased income stream, while also providing a steady source of donated material for re-sale. Their free pick up service was also essential to generating a steady flow of stock.

It soon became apparent that a permanent site was necessary, and OUV secured a federal loan to create jobs in underserved communities for US\$700,000 and a grant from the Meyer Memorial Trust, a Portland-based private foundation, of US\$200,000. Seeing the non-profit's dedication to the cause, the landlord donated the remaining value of his land (US\$322,000) to subsidise their purchase of the buildings already on site.

In 1999 the ReBuilding Center bought and opened for business on the current site. It is located in North Portland on North Mississippi Avenue near Interstate 5; it is accessible by vehicles, bikes and pedestrians for donations and collections from South side (primary for vehicles) and East side (primary for pedestrians).

The ReBuilding Center staff proudly emphasise that since their foundation they have used grants for capital costs only, and have taken virtually no grants for revenue/operation costs. What they have done successfully is to negotiate discounts on key elements like capital equipment, stretching their modest grant money as far as possible; they found that people are much more willing to sell capital equipment at a discount than donate outright.

It was always important to OUV to provide a living wage to employees, and medical and dental benefits are also extended to team members and their families. In addition, each role is valued, allows room for progression, and is given an appropriately aspirational title (e.g. 'Reuse Specialist' not 'Clerk').

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## **Changes Over Time**

Despite a few unexpected costs, like high insurance costs, Endicott views it as an almost entirely positive trajectory. Revenues have grown annually, starting around US\$300,000 in 1998, to US\$1.7 million in 2002. In the past year, they saw a c. US\$3million annual turnover, of which c. US\$125,000 profit.

Staff size has fluctuated between 35 and 45 team members in recent years. This currently includes the following roles: Executive Director, Assistant Director; Outreach Department Manager + Community Outreach Assistance + Outreach Office Administrator; DeConstruction Department Manager + Job Site Crew Leader + Five DeConstructionists; ReFind Furniture Specialist; Driving Department Manager + four drivers; The ReBuilding Center Manager + Salvage Specialists (six full-time, four part-time), Assistant Manager. Communications and Accounting functions, which were once in-house roles, are now contracted out for efficiency and cost effectiveness. In addition to employed staff, nearly 2,000 volunteers contributed a total of nearly 20,000 hours in the last year.

The non-profit is governed by a Board of Directors, whose seven members have backgrounds in construction, finance, small business management, community building, and marketing. The board meets monthly to review financials and reports from each department.

Although his outlook was consistently positive and upbeat, Endicott did express disappointment that the positive changes to the broader community, which were OUV's initial goal, did not come as quickly as had been hoped.

## **Customer Base**

The ReBuilding Center processes the Portland-Seattle-Vancouver region's largest volume of used building and remodelling materials. It provides resources that make DIY home repairs affordable to everyone, with the goal of promoting the reuse of salvaged and reclaimed materials. About three hundred people visit the ReBuilding Center every day to browse the ever-changing inventory that includes sinks, tubs, tile, lumber, doors, windows, trim and much more.

Profits from Our United Villages' constituent businesses fund initiatives by their Community Outreach department, which is a key means by which the non-profit fulfils its charitable mission to strengthen local community bonds. Around 80% of staff live locally, a result of a positive recruitment policy. TRC frequently donates materials to local non-profits and arts groups (through a formal application process), valued at c. US\$60,000 . They intentionally conduct no off-site sales, in order to keep benefits local, and avoid carbon emissions caused by long-haul transport.

## **Suppliers and Stock**

The ReBuilding Center diverts almost 6 million pounds of reusable building materials from landfills every year. Stock comes through the DeConstruction and free collections services, and through on-site donations. Donors are eligible for tax deductions. Which types of materials can be accepted are clearly signposted across the premises and on the website. Reuse specialists are trained to sensitively handle would-be donations that must be declined because the TRC cannot successfully give them to a new home (if for example it is suspected to contain lead paint). They provide some onsite recycling for items that cannot be sold via a wood box.

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Materials at the ReBuilding Center are offered at 50% to 90% off comparable retail costs at other stores. For simplicity of administration, stock is only recorded (type and price) when it leaves the premises. The materials providing the highest profit margins are lumber and component carpentry pieces such as kitchen cabinets.

### **Marketing and Messaging**

The TRC employs multiple marketing channels, including their website, business cards, newsletters, bumper stickers and t-shirts, limited print advertising (i.e. the ReDirect Guide—annual Portland/Vancouver regional green business guide, local high school publications), and presence at trade shows (e.g. neighbourhood fix-it/DIY fairs). A freelance consultant assists with PR, although the Executive Director leads on a lot of high-level outreach, and each team member is trained to prioritise a positive experience for the customer, whether they are donating, buying, or just popping in to have a look around.

### **Challenges and Lessons Learnt**

The organisation was founded at great speed, and with no initial capital and requires a high level of staff commitment (particularly long hours worked in start-up mode). However the narrative from senior leadership is one of positive progress rather than of 'challenges met'.

The ReBuilding Center's slogan (on t-shirts and bumper stickers) is 'I Love That Place', which neatly sums up the sentiments of both visitors and staff. In terms of more formal acclaim, the ReBuilding Center is the winner of the Oregon Ethics in Business Award, the Oregon Entrepreneurs Forum Award and the City of Portland's BEST Business Award.

The ReBuilding Center has a very local mission, so does not plan to expand outside of North Portland, but is very happy to act as an exemplar project, and very generous in facilitating knowledge transfer to other non-profits or anyone who wishes to learn from their experience.

### **Additional AF Analysis**

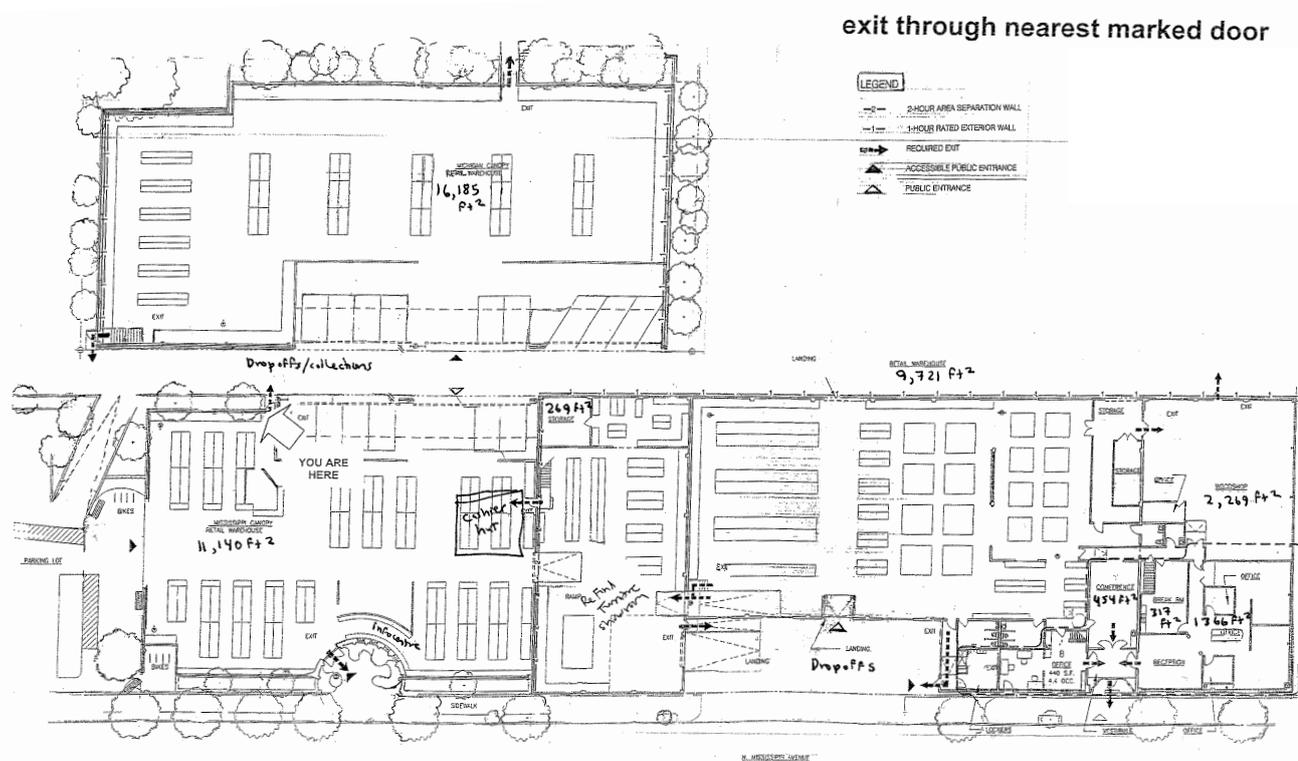
#### What Works:

- Specialisation in building materials.
- Complementary dismantling service (at rates competitive to demolition).
- Friendly, easy-to-navigate retail environment in a changing residential neighbourhood.
- Generous employee benefits and hire-local policy create loyalty and enthusiasm.
- Host building and on-site upcycled furniture business offers multiple examples of reuse architecture in practice.
- All proceeds are invested in local community.
- US tax code allows for portions of donation value to be deducted.
- Location in one of the 'greenest' cities in the country.

Caution:

- Initial start-up funded by a personal credit card (high risk).
- Learnt need to set clear donation guidelines and intensively train staff to create as positive as possible an experience for the customer (whether donor or purchaser).

**ReBuilding Center Site Plan**



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# Rotor

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*The case study below is based on an interview conducted by Moira Lascelles (AF) with Maarten Gielen, Co-Founder of Rotor on 10 October 2012.*

Company Name: Rotor  
Company Status: Not-for-Profit  
Size of office: 225m<sup>2</sup>  
Established: 2005  
Based in: Brussels, Belgium  
Website: [www.rotordb.org](http://www.rotordb.org)  
Number of employees: 12

## Brief Description of Business:

Founded in 2005, Rotor is a not-for-profit with an interest in the material flows in industry and construction. On a practical level, Rotor handles the conception and realisation of design and architectural projects. On a theoretical level, Rotor develops critical positions on design, material resources, and waste through research, exhibitions, writings and conferences. Rotor has created projects as diverse as the curation of the Belgian Pavilion for the Venice Architecture Biennale 2010, and OMA's Progress exhibition at the Barbican Art Gallery, London, a project at Grindbakken (Ghent, Belgium) and the creation of an online reuse platform; [opalis.be](http://opalis.be).



Belgian Pavilion, Venice Architecture Biennale, 2010. Courtesy: Rotor



Interior renovation by Rotor. Courtesy: Rotor

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## **Start-up Story**

Rotor started as a collective of friends who were interested in the idea of re-use and working with waste materials for design and architecture projects. Rotor was very research focused, although has evolved to take on and deliver a series of projects acting as architects and curators, as well as researchers and thinkers.

The company was set up as a not-for-profit organisation as a way of sharing knowledge of industrial and waste sources as well as research and contacts. The original founding members had visited over 150 companies producing different kinds of waste and had built up connections with them.

A loose mission statement was set out when they began, but Rotor are keen to keep their remit quite flexible, allowing them to work on a wide variety of projects. Rotor has a board of trustees and is run by project staff who report to senior coordinators.

Rotor's first commission was for Zinneke, a cultural organisation based in Brussels which organises a big participatory parade every two years in the city. They asked Rotor to source and design all aspects of the Festival from the stage setting to the parade costumes, which involved 2,500 participants. The first time they partnered with the Festival they tried to secure relationships on an ad hoc basis with relevant waste suppliers. They encountered a number of issues, such as companies not wishing to supply waste in small quantities or not communicating internally, so waste that had been put aside for Rotor would have been disposed of by the time they came to collect it.

In the second edition of the Festival Rotor set up a 1000 m<sup>2</sup> warehouse that was filled with waste materials that could be used for the Festival. In addition members of the public were able to visit the warehouse and buy products/materials at set prices. However, they found it very hard to make the warehouse financially viable, as individual customers would buy such small quantities at low prices that the profit was minimal, and those customers who were looking to buy in bulk would invariably contact the source directly to receive the materials for free, or for a lower rate. Storage rent costs were too high and made the project unsustainable. In the end the warehouse was closed and given to Zinneke to run purely for the benefit of the Festival.

Rotor is currently formed of eight members, four of whom are architects. No start-up grants were awarded to Rotor and they have only last year [2011] received their first grant from the government to support one of their research projects.

## **Changes Over Time**

Rotor has grown from project to project and often one commission will lead to a series of new commissions. This was the case with Rotor's exhibition for the Belgian pavilion at the Venice Biennale, which resulted in their contribution to the Fondazione Prada and the OMA Progress show at the Barbican Art Gallery in London.

The organisation runs largely on income from project-based initiatives - be these architectural or research initiatives – and the organisation expands and contracts accordingly.

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## **Customer Base**

Clients have varied from private to public sector and the types of projects produced by the office reflect a diverse way of working from publications to residential developments.

Clients vary greatly depending on the project. Rotor has worked for cultural organisations, private clients and governmental bodies.

Rotor's projects engage with many different audiences and industries, including those in construction, salvage, design and architecture, as well as large companies that produce waste streams.

Users may be interested in a project because of its ethos or because of its function – a pure motivation in re-use is not always what attracts audiences to Rotor's work.

## **Suppliers and Stock**

Rotor has a strong network and knowledge of suppliers and material sources. They are currently working and have recently (2012) launched an online platform called Opalis, which in essence is a yellow pages of the salvage industry in and around Brussels. This site investigates two different types of materials for reuse – those that serve a specific technical purpose and those that once reconditioned are worth more – commonly known as antiques or high-end salvaged goods such as ornate staircases or large pieces of expensive hardwood.

For small-scale projects they can work on a very ad-hoc basis, finding discarded materials and incorporating them into their designs, such as the staircase in their office, which was found on the street.

According to Rotor there doesn't seem to be a market for purely functional construction items, such as lifts and escape route signs in Brussels. There are examples of companies that specialise in one item such as salvaged ceiling tiles, although Rotor has struggled to find many companies that are turning a profit from purely working with construction materials of low value.

Great potential is seen for the professional traders who are able to reclaim materials relatively easily and who are often involved in the demolition of buildings. These traders can then also add value to reclaimed stock, offering services such as cutting to size. This would be a useful system for small design practices or individuals who may wish to use smaller quantities of materials. Adding additional services to the provision of reclaimed materials seems to be a useful way to deal in salvaged goods.

It appears also that offering guarantees on reclaimed stock will become increasingly vital. In Brussels contractors are required to offer a guarantee on materials for ten years after a building has been constructed. If salvaged building material suppliers could offer such guarantees to contractors this would go a long way in convincing them to use recycled materials.

## **Marketing and Messaging**

Rotor has received a lot of international press coverage and has published four books in the last seven years. They actively pursue media opportunities through contacting the press, and also reach out to

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local audiences through workshops and engagement with schools and educational bodies.

They keep their messaging broad with a focus on re-use in order to be able to work on a variety of projects; the company does not wish to limit its potential of branching out into other ventures or projects.

### **Challenges and Lessons Learnt**

The cost of space has been a challenge for Rotor. This refers both to the cost of rent for their office in Brussels as well as storage space for materials. They no longer rent storage space, as it is has proved to be too costly. Instead they prefer to keep a record online, or house a small sample library of what materials may be available and apply these to projects on a case-by-case basis.

Ensuring the quality of materials can be a problem and being sure that they are fit for purpose. Rotor work with partners who are experts in specific fields.

### **Additional AF Analysis**

#### What Works

- Building strong contacts and knowledge with waste suppliers.
- Creating comprehensive online databases of materials and material sources.
- Working effectively with your online presence.
- Keeping your remit broad enough for you to take on additional projects/revenue generating work in the future.
- Having a good knowledge of materials and the way they can and perhaps more importantly cannot be reused.
- Opportunity seen in demolition services.

#### Cautions

- Working on a project-by-project basis as a business model can be quite unreliable and mean that you are needing to grow and retract regularly.
- Paying for storage can be very costly.
- Beware of selling low-value goods that can be bought new cheaper or at the same cost. There will be items that people will just not buy second-hand - examples of these are health and safety related construction materials and signs.
- Adding value to reused materials can often mean that products sell better - though there is a cost involved in this 'upcycling': it may mean that products are easier to sell in the long run.

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# Urban Ore Ecopark

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*The case study below is based on an interview conducted by Sarah Ichioka with Dr Daniel Knapp, Founder, President and CEO of Urban Ore on 14 November 2012, and also draws extensively from documents published by Dr Knapp and his business partners and associates. Some passages are quoted directly.*

Company Name: Urban Ore Ecopark

Company Status: Privately-owned Company; C Corporation (for profit)

Annual Turnover : US\$2.6 million

Size of site: c. 12,000 m<sup>2</sup> campus; four buildings

Established: Partnership, 1980; incorporated 1981 as S Corporation (for profit)

Based in : USA, State of California

Website: [www.urbanore.com](http://www.urbanore.com)

Number of employees: c. 38 paid employees; no volunteers; skilled contractors include a gardener, electrician, and builder; paid professionals include architects, accountants, engineers, financial consultants, and lawyers.

## Brief Description of Business:

Founded in the 1980s, Urban Ore is for profit salvage and sales operation, incorporating a General Store and Building Materials Exchange. To serve the community's interest in diverting waste from landfill, the City of Berkeley incubated Urban Ore by providing the company licensed access to resources – scrap metals and reusable goods – and a sales location that was rent free until it brought in more than US\$11,000 a month in income. Throughout its long history, Urban Ore has worked to establish and expand the reuse and recycling industries. It has been active in the politics of recycling, participating in regional and national organizations as well as countless activist and advocacy actions. It has helped write several influential pieces of legislation that became law by votes of either citizens or elected officials. It



Materials for sale at Urban Ore. Photo: Ichioka



Interior layout of Urban Ore. Photo: Ichioka

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## **Start-up Story**

In 1976, facing a mandate to close its decades-old landfill, the City of Berkeley approved a Solid Waste Management Plan that called for improving salvaging for reuse at the City-owned landfill. A bidding process in 1978 led to the formation of a new non-profit with the exclusive rights to onsite salvage from incoming loads. But the salvage entity, Bay Cities Resource Recovery Depot, had difficulty paying its bills and its governing board dissolved after less than a year. Some site workers, including Dr. Knapp, kept salvaging and selling going while they discussed how to reorganize. In the fall of 1980, the new for-profit company Urban Ore registered with the state for purposes of collecting sales taxes. Urban Ore hired a good bookkeeper, found insurance, controlled employee skimming, and grew rapidly by recovering and trading resources as a regulation-compliant scavenger organisation. Three partners who were actively involved in Berkeley's burgeoning recycling movement took control and responsibility. One of these was Dr. Daniel Knapp, Urban Ore's current President.

Urban Ore's only assets at first were permission to exist, and a place to sell recovered materials. It had no capital, no equipment, no shelter, and it paid no rent, building its cash flow from the reusable goods and scrap metals it could divert from or rescue from the tipping face. It signed a contract with the landfill operator covering such business essentials as liability and workers' compensation insurance, who to contact in case of emergency, and hours of operation. Its suppliers and retail customers were people who had already paid to waste, so staff had to spend time explaining to disgruntled customers that Urban Ore was not part of landfill management and had no access to the dumping fees that the landfill charged. Wages were very low at first, starting at \$4.00 per hour. No sales meant no wages. Staff learned what customers were looking for, and how to set prices and close sales. Working conditions were very primitive, with windblown dust in summer and rain and mud in winter. But the scenery was magnificent: five miles to the west was the iconic Golden Gate Bridge, with unrestricted views of San Francisco to the southwest, the Marin headlands to the northwest, the East Bay Hills to the east, and San Francisco Bay on all sides.

## **Changes Over Time**

Urban Ore has changed its current facility and systems as a consequence of moving many times in its early days. In the first two years the landfill salvagers' processing and sales moved frequently because the place where incoming vehicles unloaded (the tipping area) changed every few months. The in-town receiving and sales operation, which evolved into the Building Materials Exchange ('BMX'), moved twice between 1981 and 1983 because landlords found other uses for their properties. The hardships of moving offered opportunities to rethink facility organization, and to build racking systems and display protocols that were portable. This emphasis on facility redesign continues today, with smaller parts of the business undergoing change almost all the time.

Urban Ore followed the resources when Berkeley closed its landfill in 1983 and moved its dump function to a new Solid Waste Transfer Station on Second Street. Urban Ore's salvage-and-sales operation, which became today's General Store, was allocated 66,000 square feet of paved property, with a former office building for sales. This space had been left vacant because in 1982 Berkeley voters rejected a plan to build a garbage-burning incinerator there.

After the burn plant was defeated, the goal became eventually to replace wasting by landfilling or incineration by recycling all or nearly all discards. To serve the community's interest in having an upgraded municipally-scaled reuse salvaging operation, the City of Berkeley incubated Urban Ore by

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providing the company licensed access to incoming resources – scavenging rights to scrap metals and reusable goods – and a sales location that was rent-free until it brought in more than US\$11,000 a month in income. Then the City charged rent calculated as a percentage of income over US\$11,000. The entrepreneurial Urban Ore staff built their sales volume until the Store could afford commercial rent, and in 1989 the company voluntarily vacated the City property to let another green business recycling processor expand. Urban Ore’s General Store moved to a warehouse on Sixth Street next to Building Materials, where it stayed until 2002, when it moved to its current location.

BMX’s first site on San Pablo Avenue was sold, and Urban Ore was evicted. The second site, unfavorable for retail in a little-trafficked street, was flooded in 1982. A third site proved excellent for retail and had expansion potential. BMX thrived there. As neighboring businesses failed (a bus garage and an auto graveyard) Urban Ore paid more rent and took over the properties. It gradually grew from about a half-acre to two acres in size.

Board members Mary Lou Van Deventer and Michael Casady became actively engaged in the endeavor at this time as Directors, along with Dr. Knapp, who was President. Starting in 1989, when the General Store moved away from the Transfer Station and into the warehouse next to BMX, the unified 2.2-acre operation attracted many new customers. The company developed as a full-service retail operation with dropoff and buyback functions. Then in 1999, the landlord who owned the BMX land cancelled the lease and refused to sell to Urban Ore. The State, the Alameda County Recycling Board, and the City of Berkeley helped financially and administratively to keep the company alive and serving the community.

Urban Ore found its current location in 1999 and moved the Building Materials and the Salvaging and Recycling departments in 2000 but couldn’t occupy the building until it was seismically upgraded. Architect Mark Gorrell designed the initial layout. The large build-out that ensued in 1981 required about US\$1million in contracts and materials, including innovative uses of recycled materials. Financing and construction took a year and a half. Operations were split and the company paid rent to two landlords. The business suffered substantially. When the General Store finally rejoined the other departments at the new location in August 2002, the reunified enterprise thrived again and has grown consistently even during the Great Recession.

In May 2009, again with help from the Alameda County Source Reduction and Recycling Board, Urban Ore was able to purchase its current property. Buying the site has been a life-changing event, and the company looks forward to continued growth at a stable location.

## **Customer Base**

Urban Ore has two operational faces. They are a disposal service so people can let go of unwanted but still-useful goods without wasting them, and a retail store where other people can find things they want at a low price. The company serves the San Francisco Bay Area – or as far as customers are willing to drive, which is sometimes a hundred miles or more. They are also consultants who design Zero Waste resource-recovery facilities both domestically and abroad.

The current facility is located in West Berkeley bounded by Murray Street, Folger Street, and 7th Street near Interstate 80, the eight-lane Bayshore Freeway. The site is accessible by vehicles, bikes, public bus and pedestrians, and is also conveniently close to a range of complementary businesses, including virgin lumberyards, artists’ studios, tinkers’ workshops, hardware and plumbing supply stores, and furniture

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showrooms. A small urban tree reclaimer operates across the street, sawing up slabs from large urban redwoods and hosting woodcarvers who use chainsaws to make sculptures from sections of tree limbs.

## **Suppliers and Stock**

In its current incarnation, Urban Ore has two main components: the “General Store” retail warehouse containing: cabinets, hardware, lighting, sports, furniture, arts and media, bookstore, gallery, clothing, and household goods; and the “Building Materials Exchange” (BMX), with a mix of covered and outdoor space containing: salvaged doors, trim wood, windows, tile and stone, metals, lumber, garden supplies, bathtubs, toilets and sinks. Looking at current sales, about 15% of Urban Ore’s income comes from recycled doors and 10% from windows. These commodities and many others are managed from an on-site office space comprising reception, conference room, office and desk space, and toilets.

Urban Ore sells about 7,000 tons of reused and recycled goods per year, sending only 120 tons (c. 2% of inventory) to landfill each year. They pay for some of what is brought in, but not all, and pay only a small percentage of what they sell things for. Even when they get things for free, they invest a lot of labor into cleaning up people’s unwanted things and making them presentable, then merchandising them and helping customers find what they are looking for.

People in the community bring in about 75% of the merchandise; often coming to one or both receiving areas before going to the dump, where they will be charged a hefty fee, usually \$128 per ton. Many suppliers are carpenters, remodellers, property managers and dumpster divers. Urban Ore pays them in cash or store credit. The trade credits are in lieu of cash, and help suppliers who also want to buy to extend their purchasing power. The other 25% of merchandise is collected either by the Outside Trader Department, which makes pickups in response to calls; or by the Salvage and Recycling Department, which sends three people to the transfer station tipping area every day it is open. Daily tonnage from the transfer station ranges from two to six tons. Saving still-useful goods from being wasted even after people have paid to dump them is now going on its 33rd year, with no significant interruptions or problems. The salvaging function is fully insured under Urban Ore’s liability insurance and worker’s compensation policies, which are renewed each year with little fanfare. The company has a very low experience modification percentage, which means it has very few accidents, so its insurance is cheaper than that for businesses with higher losses. Salvage and Recycling workers also convert un-resalable objects into commodities for recycling. They regularly send nonferrous and ferrous metals and glass to market, and other materials such as ceramics to non-income-generating recycling.

Drop-off and buyback functions occur at two specialised receiving areas for BMX and the General Store. Things accepted must be reusable as-is, and able to survive in the retail environment long enough to find a new home. Receiving staff accept many things other places turn away, and so are presented at times with more volume than they can handle. At times they have to turn away some things that either can’t be sold quickly or trade for enough value to pay their handling and space costs. All sellers must provide picture ID such as a California Driver’s License or a California identification card. All sellers must sign a declaration that they are the rightful owner of the property being traded. In the unlikely event of a dispute over ownership, Urban Ore always cooperates fully with police in any investigation.

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## **Marketing and Messaging**

In addition to being a very well known player within the San Francisco Bay Area reuse, recycling, and composting community, the company uses multiple online outlets to reach its customers, including its own Website, Twitter, Facebook, and a very active eBay account. Daniel Knapp has also disseminated a significant body of work about his and his workers' experiences in the early days of the zero waste movement.

## **Challenges and Lessons Learnt**

In its early years, Urban Ore had to operate in a context of powerful political opposition caused by waste professionals who advocated for wasting by landfill or burning and who were sceptical that recycling could ever grow big enough to threaten wasting. But wasting has declined recently in Berkeley and in many other jurisdictions in this region known for high-volume landfill diversion rates in the range of 60% to 80%. This has compelled many jurisdictions to start searching for a new model. The old solid waste management system assumed that wasting should pay for recycling's costs. This doesn't work when there is no longer enough waste.

Governments and disposal service providers are having to rethink their pricing assumptions. The emerging trend is to create commodity-specific disposal pricing based on the idea that recycling is a method of disposal just like wasting, and must be able to compete for disposal service fees. Urban Ore recognized this distinction very early in its history, and now finds itself in a position to help in the transition to resource-based disposal service pricing.

Being forced to move could have ended Urban Ore, but in retrospect it proved a blessing in disguise. In their own assessment:

"Moving early, often, and sometimes in forced circumstances has influenced Urban Ore's development in three major ways:

1. Much of Urban Ore's equipment and trade fixtures are portable. The company can modify its site plan and layout quickly in response to changing conditions.
2. Staff viewed each move as a chance to create a better, more effective layout by correcting mistakes and finding better ways to serve both supply and demand customers.
3. With the outright purchase of the largest piece of the current site in May 2009, the company is confident that it will not have to move again anytime soon. But staff are still engaged in site modifications to handle more incoming materials more efficiently."

Urban Ore is also interested in helping people develop salvaging and scavenging as an essential part of any Zero Waste operation on any scale anywhere in the world, and offers consultancy at competitive rates. They have completed over two-dozen Zero Waste resource recovery park designs around the world, some of which have been built, some of which have not.

One of the designs not implemented was done by an Urban Ore design team for Lowestoft, England.

## Additional AF Analysis

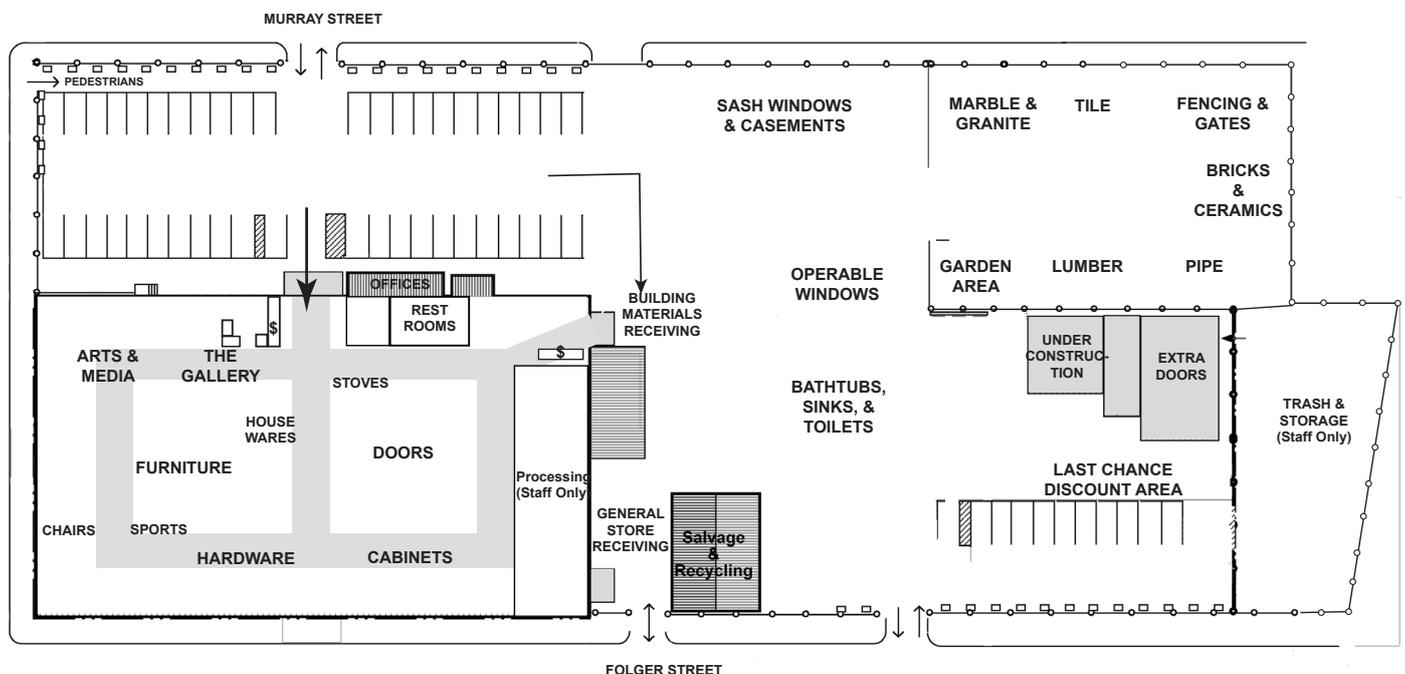
### What Works

- Multi-decade early-adoption: created and secured a position in the municipal ecosystem.
- Everything under one roof campus.
- Proximity to complementary businesses.
- Subsidy-to-threshold rental agreement with city on an early site.
- Loyal network of local scavengers and salvagers (offering discounted vouchers—incentive to return).
- Durable and mobile component parts to allow ease of relocation.

### Caution

- Long, hard struggle in first two decades to change municipal culture of waste versus reuse.
- Too many divergent projects at certain times has proven untenable (e.g. need to spin off composting business).
- Frequent relocation caused disruption.
- Large size and rather messy feel (compared with a standard retail outlet) perhaps off-putting to some potential users.
- Intense personal commitments of leadership team perhaps difficult to replicate.

## Urban Ore Eco Park Site Plan



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# Recommendations

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Through our in-depth conversations with the international case study protagonists, key local stakeholders, and LLDC representatives, we have compiled the following list of lessons and advice intended to inform the future creation of an interim-use project that examines and enables the broad reuse of materials from the Olympic site during its transformation phase and beyond.

It is suggested that a Materials Reuse Centre be set up on an appropriate interim-use site that offers materials from the Olympic site for sale. It is also suggested that links with other developments in and around the East London area be formed in order to diversify the range of materials available.

It is envisaged that the Reuse Centre should have a strong community outreach programme allowing other organisations and members of the public to donate materials to the Centre and volunteer their time and services.

A key potential of the Reuse Centre is to offer additional services, including, but not limited to a strong training programme, allowing for on-the-job experience, and a strong public programme of events to attract and involve new audiences.

In addition it is advised that the Centre develop a clear and attractive brand that is communicated to the public and that has a strong online presence offering opportunities to promote the materials and services on offer.

## **Business Model**

For our research we chose to examine a variety of business models, which ranged in structure from cooperatives, online databases and ephemeral festival-style activities, through to those perhaps more aligned with traditional formats of architectural practices and retail outlets; they varied in size from 6 to 40 employees; and in financial models from grant-supported to entrepreneurial, encompassing both not-for-profit and profit-making models.

The approach the LLDC decide to take will be dependent on budgets available and the wider aspirations for the project. This will determine whether a profit or not-for-profit making model will be best suited. Should the new business obtain charitable status, there will be opportunity to claim tax via Gift Aid. On the basis of the more successful examples we saw, we would advise a model that combines the main strand of reused materials for sale with complementary businesses that could provide additional services, bringing more footfall and revenue. Additional services could include: deconstruction, collection and delivery services, workshop spaces and tools for loan/use, training, up-cycling and repair events, and a range of goods for sale.

- Choose a business model that is appropriate to the budget available for the project and the longer term aspirations for the Building Reuse Centre.

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## **Location**

The location of the chosen site is vital to its success. It is important to find a site that is located in an area that is easily seen and accessed by those groups we would identify as the core target audience: small scale builders/contractors, residential DIY-ers, small design, architecture and other creative practices and charities. A street-facing site with good transport links, and that enjoys regular footfall is recommended to make visiting convenient and raise brand awareness among passing trade customers. In the LLDC context, a site on the edge rather than the centre of the area of jurisdiction would be ideal. The site should be available for continuous occupation for a minimum of five years.

- Choose a site that is visible, has good transport links and is appealing to your key target audience.

## **Size and Access**

A minimum recommended site range would be between 2,500 m<sup>2</sup> and 3,900 m<sup>2</sup> with a large proportion undercover (approximately half of this space). The site must contain both open and covered space to ensure that materials can be kept dry and safe, as well as insulated and secure spaces for staff, and it must be easy to secure the perimeter of the site outside business hours. Off-site storage could be explored as an option, but prototype products should then be made available on display at the Materials Reuse Centre.

It is essential to include a reasonable amount of parking (a minimum of ten short-term parking bays, ideally off-street) to facilitate the drop-off or collection of bulky items. It is anticipated that the centre will require at least one dedicated van for collection of donated materials. This van can also be used to facilitate an additional drop-off service to be charged at a profitable rate or offered to those placing substantial orders. Inclusion of a delivery service and establishing referral relationships with local van-hire and/or man-with-van services would help to minimise customer use of individual vehicles.

- Choose a site that has space for both interior and exterior storage and display.
- Allow for vehicular parking as well as loading and offloading.

## **Employment and Training**

The centre offers great potential to create jobs and training opportunities, with a multitude of both high and lower-skilled learning opportunities. These range from preparation of materials for sale (de-nailing etc.) to front-of-house, community outreach/marketing, workshop management, and pick-up/delivery roles. Training would be an integral output of the centre from its inception and would be built into its ethos of the centre, creating strong local links. There is a potential to combine core, paid roles, with apprentice and/or volunteer support, potentially linked to the local construction industry.

At start-up phase, a core team of five is recommended: the site would require leadership by a Site Manager (mid-career) and Site Coordinator (early- to mid- career) who have significant experience in materials and waste management, supported by a front-of-house community liaison, delivery/collections driver, and two materials processors.

- Training opportunities should be offered at the Material Reuse Centre in a variety of different positions.
- Initial staffing is key - chose people with previous background and knowledge of materials.

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## **Inventory and Merchandising**

The selection and pricing of materials is also key to the business's potential for success. If materials are to be offered for sale, it is important that they are sold at a rate discounted relative to similar products and outlets already on the market. Building relationships with other local contractors or large manufacturers who may be producing usable waste is an advisable means to ensure a constant turnover of new stock and a sufficient range of interesting and useful products for sale. The ReBuilding Center model derives much of its success from its integration with the residential demolition market, and this opportunity should be explored for the neighbourhoods adjacent to the LLDC site. Bioregional have drafted guides on pricing reused building materials, but this study is slightly out of date and it would be advisable to conduct local market research before beginning.

It will be important to select materials carefully - vetting them for their resale potential and eliminate any materials that may cause health and safety concerns. It is suggested to be clear that not all donations of materials will be accepted by the Materials Reuse Centre and that quality and future usefulness of the materials are key.

A reliable and precise materials inventory/database would need to be put in place allowing the business to track stock. If it is deemed essential that the business report back to the LLDC and other partners on specific waste-diversion targets. It is advisable that the details of materials' purchasers is taken and if possible the materials' intended new uses be recorded. This will also be a condition should the business look to claim Gift Aid from individual donations of materials, or if the ability to conduct online sale is desired. However it should be noted that item-by-item receipt-to-transferral tracking would necessitate investment in more complex database infrastructure and administration time. Some successful models that rely upon disparate donation streams, like the ReBuilding Center, record materials at point of sale only.

Presenting the materials in well-ordered and clearly labelled groups is useful for all groups using the centre. In addition it would add value to showcase ideas of how materials can be creatively reused to inspire customers. It would be desirable to offer workshops or event evenings, inviting designers or inspirational speakers to demonstrate the potential of working with waste materials. Any bulky products could be displayed in a materials library and be stored off-site at another location if required.

- Price your materials competitively.
- Clearly record materials coming in and going out.
- Be selective in the materials you accept at the Material Reuse Centre.
- Take care when merchandising and displaying materials.

## **Marketing and Community Links**

It is key to create a strong brand and message for the centre using visual communication that appeals to key target audiences. Both print and online marketing will be essential (including a dedicated website and social media accounts).

It will be vital to build strong local links in order to embed the business within the area. We believe that East London provides the core target market of people who would be interested in using/engaging with a reuse centre. It would be recommended to incorporate ways that people can get involved with

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the centre such as donating materials, volunteering, attending events and participating in hands-on workshops and activities.

The Internet is increasingly being harnessed to promote and support reuse; from examples referenced and delivered by Rotor and 2012Architecten to more mainstream methods such as eBay and freecycle. It is recommended that the Materials Reuse Centre have a strong online presence that lists materials and products on sale (with the caveat cited above that this will require additional dedicated resources). It is also advised that customers are able to engage with the centre online through expressing interest to donate or volunteer and (potentially) to purchase products for sale. The website would be designed in line with the rest of the centre's brand. It could also include stories of where materials have been reused and link to other relevant sites.

- Create a strong brand that is attractive to your key target audience.
- Build strong local links to build loyalty - a strong volunteering scheme is suggested.
- Use online platforms to promote the Materials Reuse Centre.

### **Start-up Support**

As shown in the case of Urban Ore, subsidy in the form of rent-free (or peppercorn rented) land is a vital aspect to starting a similar project (and one, fortunately, that is within the LLDC's gift). An agreed income threshold should be set before rent payments are required. From our research, it appears that it could take between three and five years before a significant return on investment (in the form of rent receipts) should be anticipated. In addition, as cautioned by the Industri[us] case study, free space is not necessarily sufficient on its own – a modest amount of seed funding is important to ensure that the project can start operating and trading to a standard that will allow it to flourish. The LLDC may wish to help the operating partner seek match funding from other companies/government bodies with interests in growing the green economy and creating new jobs locally. The need for start-up funding will be especially pressing if the available site needs to be modified/built out before it is fit for use.

- A modest amount of seed funding will be essential to start up the Materials Reuse Centre.

### **Next Steps**

On the basis of this research we would suggest that the Materials Reuse Centre become one of the first LLDC commissioned interim use projects - set up on a relevant LLDC owned site in East London. We feel that the project has potential as both a viable business and as a resource for current and future residents of and visitors to the area.

The LLDC would be advised to select an operating partner who can aid with the set up and management of the project over the course of a determined timeframe (a recommended minimum of five years). A partner with previous experience and knowledge of re-use management will be vital from conception through to implementation. It would also be highly recommended to contract a partner with a strong track record of community engagement that the LLDC feels could carry out the engagement and communication related to the project in a sensitive and proactive way. It is our belief that the project will be most successful if the community links are forged, making the business a key asset and a unique contribution to the area.

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# About The AF

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## **Our Background:**

Established in 1991 as the UK's first independent architecture centre, The Architecture Foundation has organised hundreds of design initiatives, events, exhibitions and education programmes in public venues across Britain and internationally.

## **Our Mission:**

The Architecture Foundation is a non-profit agency that advances architecture and urbanism to enrich life now and in future. We are independent, agile and influential. We bring together the public and professionals to cultivate new ideas and talent, stimulate discussion, and improve the quality of the built environment.

[www.architecturefoundation.org.uk](http://www.architecturefoundation.org.uk)

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