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CURE+

CENTRES FOR URBAN RESOURCES, REUSE AND REMANUFACTURE

Material Depot – Elisava

Barcelona / Spain

RIGA ENERGY AGENCY

Amsterdam University of Applied Sciences

ELISAVA

TARTU

1. Objectives of the URC

Elisava Material Depot aims to improve material management within Elisava, Faculty of Design and Engineering of Barcelona, by providing a solution for on-site reuse. Donated materials from various university activities and projects are centralized in the Material Depot. The system is designed to be simple and interactive to facilitate the reuse of the resources that are currently available in the school and to involve the community in new cooperative and circular systems. By serving the school's students and teachers, the project's motivations extend to:

- Promote Circularity and a Sustainable Waste Management : To provide opportunities for students and teachers to donate and access reusable items by creating a free access storage center and distributing donation points within the university, avoiding material abandonment and disposal.
- To Build a Cooperative Community: Facilitate access to materials at no economic cost through resource exchange among students, fostering a culture of shared responsibility for waste prevention.
- Educate for Individual Responsibility and strengthen Reuse: Raise awareness and encourage Individual action and responsibility by getting involved in school's activities and implementing workshops and conferences focused on new ways of creating based on material reuse and repurposing.
- Establish Collaborative Networks in the City: Establish relations between the University and other organizations in the city, such as other material hubs, design studios, companies, or public actors. Elisava Material Depot accepts material waste donations from external local companies.

The center's main goal is to transform local discards into accessible resources for the Elisava community and to engage students and teachers in material reuse and repurposing.

2. Services provided by the URC

Material Depot offers several services to provide accessibility and ease in waste prevention. It aims to integrate reuse as a regular organic practice by creating a usable and interactive system.

1. **Materials Distribution and Storage:** The materials collected and donated from various university activities and student projects are centralized and organized by typology at the Material Depot. All reusable items are available free of charge, promoting community participation and resource exchange, thereby reducing local waste. Due to high demand, most items are taken within a week. A student assistant is responsible for ensuring efficient circulation of resources and a constant flow of material input and output.

2. **Collection of Donated Materials:** Discarded materials from various university activities are collected at several locations. These act as a distributed network between the Material Depot and the university workshops and labs: BioLab (which contains solvents, glues, oils, and other types of waste, with its security reviewed by the lab manager), Technology and Interaction Lab (electronic waste; technological project prototypes, accessories, and cables), Graphic Workshop (paper, prints, textiles, and others), Prototyping Workshop (wood, metal, polymers, paint, varnish, and others), and Space Workshop (physical model waste such as paper, wood, and others). Each lab or workshop has a Material Donation box, and students can use the items there directly. When these are full, they materials are taken to the Material Depot storage.

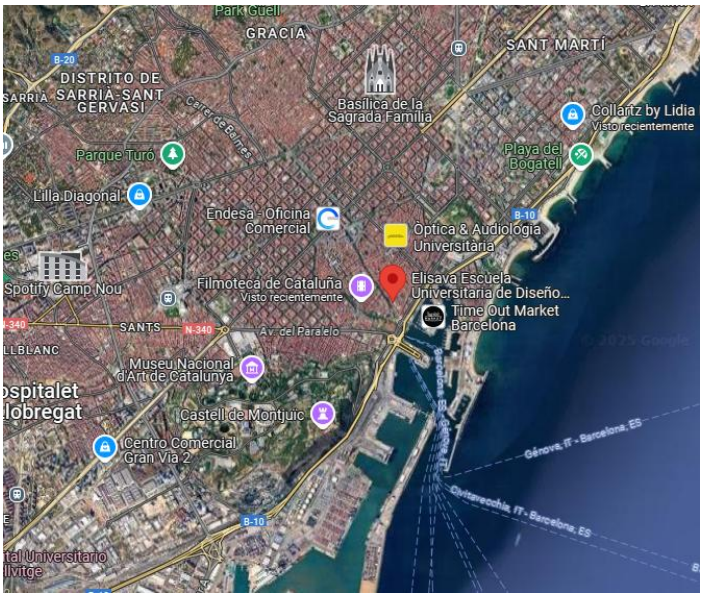
   There are two additional donation points located at the university where students can bring a variety of residual materials from their ongoing or previous projects. Hazardous materials are not accepted. Students are expected to ensure that the material is in good condition to be reused without pre-treatment. Assemblies must be disassembled into components to facilitate cataloging and storage. The Material Depot offers a disassembly space equipped with a table and tools for this purpose.

   Material Depot also accepts donations from external entities, such as local companies and creative offices.

3. **Online Inventory and Catalogue:**
   An online inventory is updated weekly, linked to an interactive catalog that allows users to explore and obtain details about the available materials. Offers for the week are published to give visibility to overstock materials. In the catalog, users can also find suggestions for taking other, less popular materials, facilitating their reuse in the Elisava community. The Material Depot student assistant is responsible for registering the input and output of materials. To keep track of the flow of materials, when picking up a material, students are asked to fill out a simple form with a QR code to register the material exit. Later, the inventory manager updates the catalog based on the reported material withdrawals.

4. **Community Engagement and Education:** the Material Depot actively promotes proper waste sorting practices by engaging in schools' activities, such as establishing collaborations with the teaching team to include Material Depot resources in courses and implementing workshops and conferences focused on new ways of creating based on material reuse and repurposing.

3. Operational model

	Description
Ownership	Elisava, Faculty of Design and Engineering of Barcelona
Team	The Material Depot operates with at least one on-site operator (student assistant, part time) who manages daily tasks such as evaluating items for reuse and cataloging. Materials are managed with the help of the university's maintenance team.
Location	Address: La Rambla, 30, 32, Ciutat Vella, 08002 Barcelona  Elisava is located at the heart of the city, in Rambla Catalunya. 

The Material Depot is located inside the university.

The Material Depot is organized with drawers identified by rows (A-F) and columns (1-11), which are used to identify the location on the online catalogue.

Material Depot is located in an open space. In front of the third-floor terrace.

Inner Space: 12.65 m2

Strenghts:

- **Strategic Accessibility:** Situated in an open space and transit area, its location makes it easily accessible for the Elisava community.

	• **Efficient Layout:** Clear sorting areas and space line delimitations facilitate order in the entry and exit of materials and ensure accessibility for workers and users. • **Space versatility for usability:** Being an open area, the space is adaptable; the furniture can be moved according to needs. The shelves can be added or removed depending on requirements. Each material is saved and labeled within a category, allowing users to know where to find what they seek, as they can consult the catalog or read the labels. **Downsides**: • **Limited space for Storage:** Having limited space capacity, not all materials can be accommodated. Sometimes it is necessary to wait for the removal of materials to empty shelves and add new donations. There is extra space to save stock in other areas facilitated by the university; a solution to prevent flow stagnation. • **Materials accepted are limited:** Only materials in good condition for reuse and separated by components are accepted. Only disassembled furniture can be stored. Hazardous materials are not accepted, as there is no service for waste handling. (However, users have an enabled space equipped with tools for disassembling.) • **Need for an elevator for material transportation:** As the Material Depot is located on a third floor, using the elevator becomes essential to transport the materials at the university.
Material flow	**<u>Supply</u>** • **Source:** Materials brought to the Material Depot are supplied by the Elisava community, the university's workshops, and external entities such as design companies or individual creatives. • **Types of Waste accepted:** o Prototyping materials: Metal, wood, glass, plastic, varnish and others o Products from Lab: Solvents, glues, resins and others. o Products from the Graphic's Workshop: Paper, prints, textiles, paints and others o Electronic Waste: Functional and non-functional materials such as cables, old prototypes, LEDs, LCD screens and other materials from project prototypes. Non-functional materials are for repairing or for project mock-ups. o Reusable items: Disassembled furniture, old prototype mock-ups, house accessories, craft tools and others.

- **Monthly variations:** Supply fluctuates, with an increase after evaluation periods due to project deliveries, as it is the peak moment for work in the workshops and the creation of prototypes.

Demand

High demand for construction materials such as wood or metal, materials for agile prototyping such as cartons or plastic bottles, and furniture items exists. Materials from the prototyping workshop are the ones that generate the most flow.

Logistics

- **On-Site operations:**
  1. Preparing waste for donation:
     - Students pre-sort waste before dropping it off. Items that contain various components are disassembled on the worktable with the provided tools before being left at the donation point, facilitating future storage.
     - Each Elisava workshop and lab has its own donation point. The person responsible for the space selects the reusable waste and leaves it in the designated area.
  2. Material Depot's team inspect materials to determine if they are reusable or not.
- **Transport**
  - The materials are removed from the donation points weekly by the material depot team and transported to the Material Depot.
  - Non-reusable materials are discarded. The university's maintenance team will be responsible for delivering waste for transport to the waste containers in the faculty.
- **Storage and Redistribution:**
  - Materials are stored in the Material Depot area. The person responsible for the space does a weekly sorting of materials by category. Materials are added to the online catalog, indicating its physical location.
  - Material removal is registered weekly. The team reviews the forms completed by the user through the website. The items taken are removed from the inventory, and the catalog remains updated with the current offer.

4. Budget

Operation (yearly)	CURE+ funding (EUR)	Municipality's budget (EUR)	Other
Operator procurement costs	-		-
Increasing URC capacity	CURE+ funding (EUR)	Municipality's budget (EUR)	Other
Setting up and furnishing the PVC hall			-

5. KPIs and impact assessment of the URC

The depot tracks few key performance indicators (KPIs) to measure its impact on waste diversion, reuse, and community engagement. These KPIs are based on the interns day to day observations and on long-standing operational data provided by the Material Depot's online inventory register.

The primary focus is on outcomes, such as the volume of reusable items distributed and the efficiency of material turnover in the Material Depot. These metrics highlight the centre's success in retrieving waste from disposal and promoting circular economy practices.

KPI	Sources of information	Results
Visitors	Daily counting	15-20/day, peak season can go up to 70/day
Bulky waste flow	Daily counting	-
Reusable items distributed	Reuse room turnover reports	25-50 per week Peak weeks in February 45/week

6. Implementation

The CURE+ project allowed for Elisava to count several interns to help setting up the Material Depot. The first step was to understand where most materials were generated, how they were originally managed, and what did the waste management costs to Elisava. This resulted in an initial waste generation inventory, listing frequently generated waste items per the different labs and workshops the faculty has.

To define how the URC would work, interns coordinated some co-creation sessions with all the staff responsible for the labs and workshops, and a staff from the communications

department that would help develop the logos, and graphics to be used. These sessions were used to jointly develop the description of the system for material reuse in the school, and after some 4 sessions the final system started to take form. Each space accepted to have some storage box, and a joint graphics would be applied to tie together the different parts of the system. In parallel, the description of the system, graphics, and online catalogue platform were made, coming together in the Material Depot webpage.

To define the location, the staff that participated in the co-creation sessions made some suggestions that were presented to the director and managers. Finally, the department of communication of Elisava defined that the best place would be the 3rd floor, by the terrace exit. Three student assistants were tasked with setting up the final space, in collaboration with staff from maintenance and communication.

7. Visitors' testimonies

"My experience is very positive, as it offers a lot of variety, allowing you to choose the material that best fits your project while also participating in reuse" Olga Juanola- 3rd grade student.

"We love it!" - Anonymous 3rd grade student.

"You will never run out of material. If you need more, we can provide it." - Industrial partner participant of the open Co-Creation session to ideate an URC for Barcelona, co-hosted with the Catalan Waste Agency.

8. Ensuring continuity

The continuity of the project has been contemplated on two scales:

- In the university, the general management has assumed the commitment to maintain the space, promote its proper use and designate people responsible for carrying out the different tasks related to the operation of the material depot. Management has agreed to continue to finance a part-time intern position (20 hours/week). These internships will be coordinated through the internship department at Elisava and can be considered curricular or extra-curricular internships for students in both degrees offered at the faculty. Isabel Ordoñez, as the researcher involved in reuse and waste prevention will continue to monitor the activities, together with the support from the communications and maintenance departments.

- At the city level, this internal pilot will be maintained as a working example and trigger for a future URC that hopes to bring together the most relevant stakeholders in Barcelona. This process began with contacts and collaborations that have been developed as result of the CURE+ project and the co-creation day that took place on December 3, 2024 in Elisava, where 40 participants (from government, private sector, social sector and citizens) began to conceive the project of a URC for the city.

9. Lessons learnt and conclusions

Topic	Learning points
Objectives of the URC	• Facilitating a space for the exchange of materials has allowed for greater cooperation and participation among students and teachers by donating materials and rethinking their use in projects. • Clear communication and accessible reuse options encourage more active community participation.
Operational model	
Budget	
Staff	• For proper functioning, it is essential to involve the university staff: teaching team, workshop managers, and maintenance team. It is a system that operates on a network. • Existing staff have successfully supported innovation and new initiatives
Daily work	• Announcing offers and suggestions of the week helps less popular materials be removed. • Developing an intuitive form and creating a drawer numbering system is key for the user to record what has been taken and to facilitate the operator's work. • Simplifying the process of giving away reusable materials has significantly improved convenience for citizens, increasing reuse rates. • Simplifying the process of donating reusable materials has significantly enhanced convenience for citizens, increasing reuse rates.
Tracking KPIs and impact assessment	• Monthly monitoring of material turnover has provided and will continue to provide valuable insights into reuse efficiency, highlighting the need for continuous data tracking. • Establishing clear and detailed KPIs ensures a better evaluation of the URC's performance and impact.

10. Contact details

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