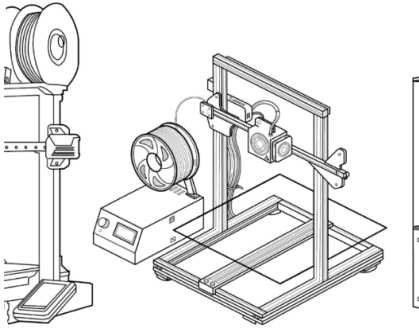


Prototyping with Recycled Plastic

ADDITIVE MANUFACTURING AND PILOT-SCALE PROTOTYPING FOR THE DEVELOPMENT OF RECYCLED PRODUCTS



KEY WORDS

3D PRINTING,
RECYCLED PLASTIC,
PROTOTYPING

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DESCRIPTION

The Laboratory for Exploration in Environmental Architectural Materials (LEMAA) develops a service that integrates 3D printing and process prototyping with recycled plastic to support the design, exploration, and validation of new products geared toward architecture, construction, and component design. The service includes additive manufacturing using FDM (PLA) and SLA (standard resin) for functional prototypes, along with the development of prototypes linked to mechanical recycling in accordance with ISO 15270, incorporating material preparation and transformation operations to evaluate technical feasibility, performance and manufacturability.

AVAILABLE TECHNIQUES AND/OR EQUIPMENT

- FDM 3D printing (filament, PLA)
- SLA 3D printing (standard resin)
- Mechanical recycling prototyping under ISO 15270
- Crushing/grinding of material
- Injection
- Extrusion
- Thermopress
- Thermoformed

APPLICATIONS

- Design and validation of functional prototypes for new products
- Development of components and parts from recycled plastic
- Evaluation of processing routes (injection/extrusion/thermoforming) for scaling
- Formulation and testing of masterbatches and mixtures (according to project requirements)
- Early design optimization for manufacturability and iteration reduction