# Pinko Takes Off: Parametric Retail Design at Rome Fiumicino Airport

At the heart of Rome Fiumicino Airport, the womenswear brand Pinko has introduced a flagship retail concept that redefines the boundaries between fashion, design, and advanced digital fabrication. Conceived by External Reference Architects and brought to life through a synergy of Rhino, Grasshopper, and robotic manufacturing by LAMÁQUINA, this store is more than a shopping destination—it's an immersive spatial experience shaped by computation and built with speed, sustainability, and precision.

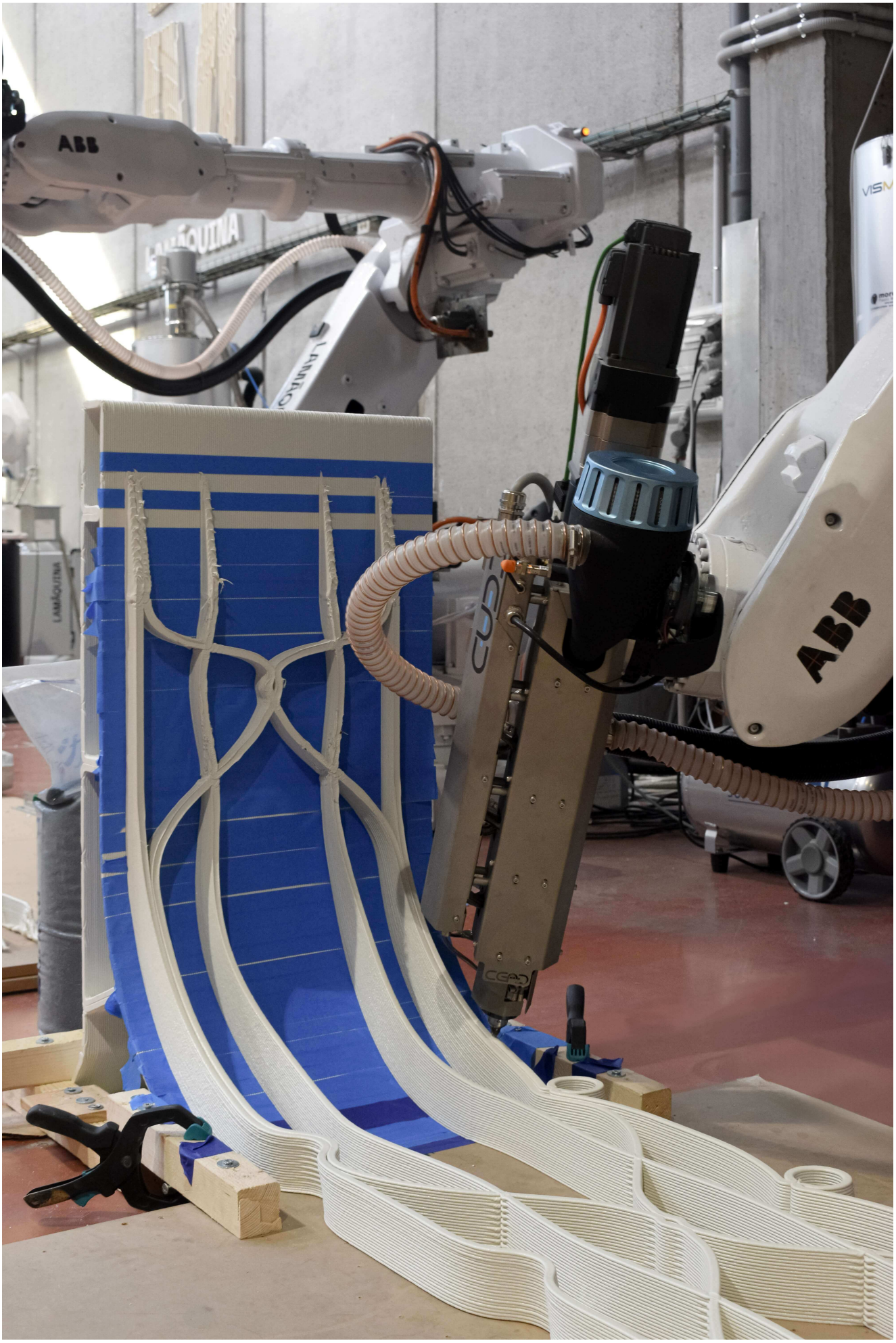
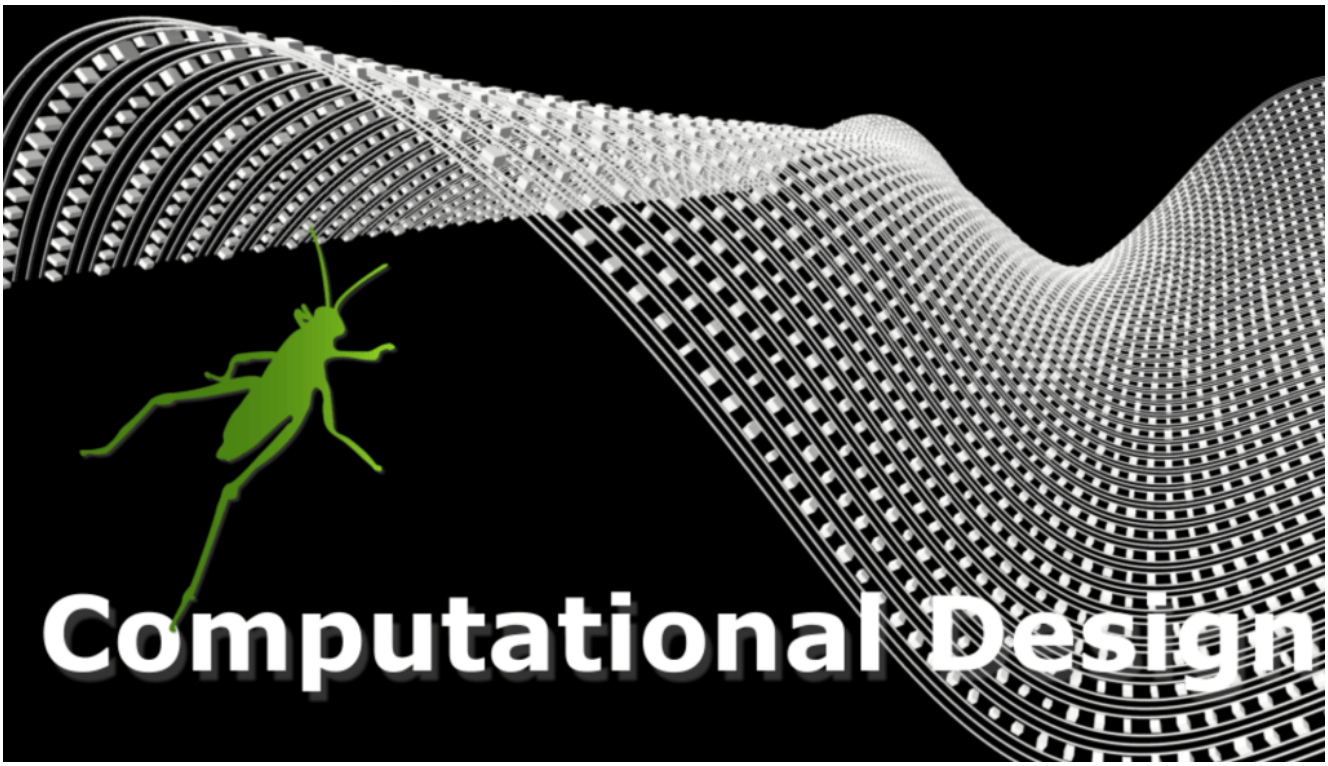


ABB
ABB

# PARAMETRIC PRECISION MEETS FASHION IDENTITY

External Reference’s team, directed by Dr. Carmelo Zappulla, drew inspiration from Pinko’s distinctive style, transforming the brand’s patterns into a three-dimensional architectural skin. This envelope evolves from straight lines to flowing curves, adapting dynamically to functional requirements and enhancing the customer experience. With more than 50 unique pieces manufactured through robotic 3D printing, the entire installation was defined using parametric code—ensuring structural soundness, aesthetic coherence, and rapid execution.

---




See Also

COMPUTATIONAL DESIGN WITH GRASSHOPPER

---

Using Rhino as the primary modeling and visualization tool, and Grasshopper for algorithmic control, its geometry was meticulously translated into robotic instructions. This workflow enabled the real-time simulation of toolpaths, extrusion control, and collision avoidance—key to producing such intricate forms with non-planar 3D

printing.

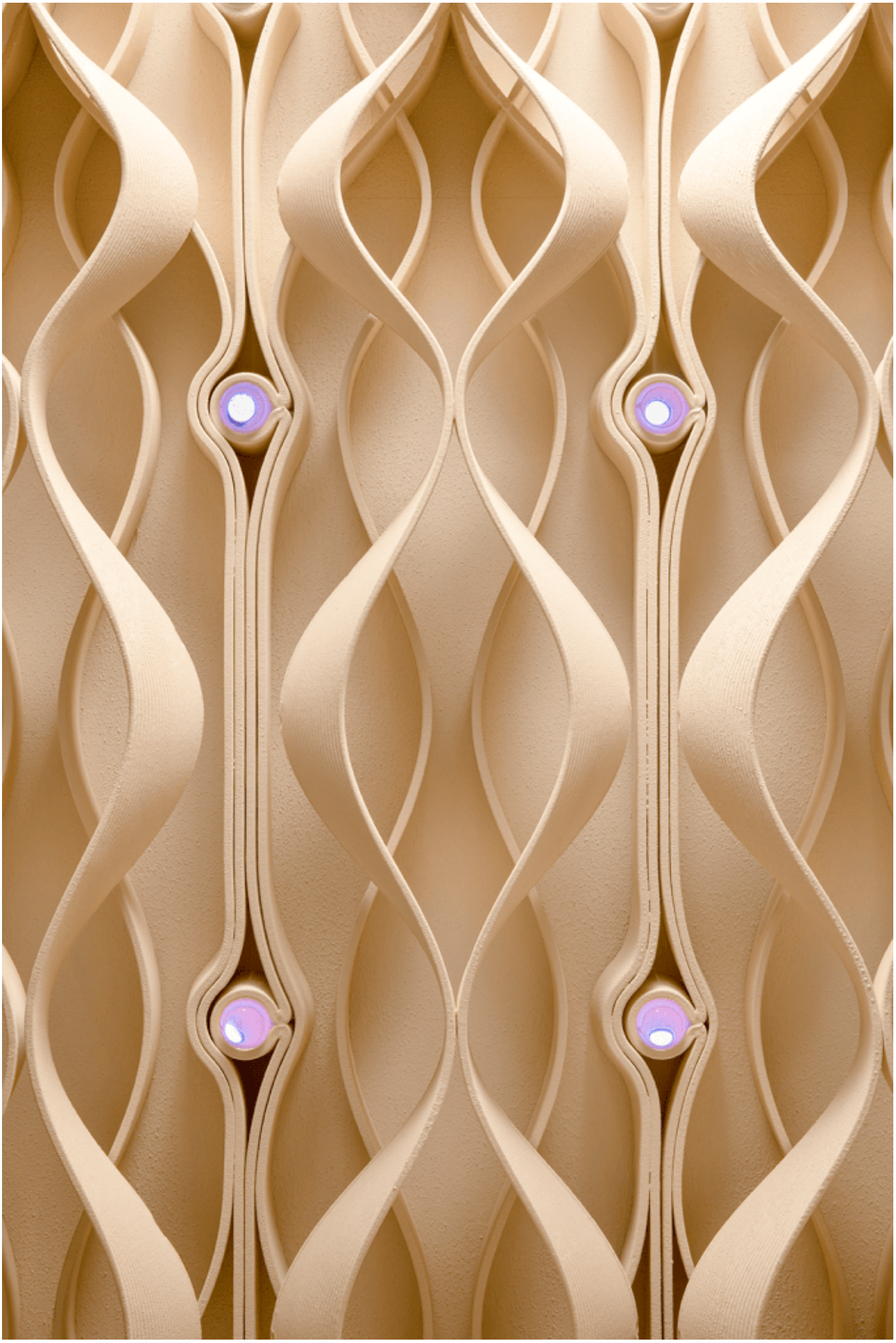

# FROM SIMULATION TO FABRICATION IN RECORD TIME

Due to strict airport regulations, the team was only allotted 3 days for an on site assembly, which meant the design had to be modular, lightweight, and precise.. LAMÁQUINA met the challenge by conceiving a highly optimized fabrication strategy, completing all components in just 2 weeks. Developed with PURE.TECH, the cellulose-based material aligned with circular economy principles yet also complied with BS1DO fire safety regulations – a first for a 3D-printed retail store in an airport.

In order to execute the design envisioned by External Reference Architects, LAMÁQUINA employed a custom mold system that enables fine control over the angle and deposition of material layers. The result is a vertical landscape that rises from the floor and curves into the ceiling, forming a sculptural, welcoming threshold for visitors.

# DISTRIBUTED DESIGN & LOCAL FABRICATION

As part of a broader mission to revolutionize manufacturing, LAMÁQUINA operates as a 3D printing ecosystem, decentralizing production while maintaining its engineering core in Barcelona. This model allows for local, on-demand manufacturing — reducing costs, lead times, and carbon impact. In the Pinko project, this ecosystem approach played a critical role in delivering a complex, regulation-compliant, and expressive retail environment on a tight schedule.



# A GLIMPSE INTO RETAIL’S FUTURE

The Pinko shop at Fiumicino is more than a statement piece – it’s a proof of concept for a new era in retail design. It showcases how parametric design, robotic fabrication, and sustainable materials can converge to create spaces that are efficient, beautiful, and adaptable to the most demanding contexts. From algorithm to assembly, this project embodies the evolving relationship between architecture, fashion, and digital technology.

# CREDITS

**Design By**: EXTERNAL REFERENCE
**3D Printing:** LAMÁQUINA
**Material Technology:** PURE.TECH
**Client:** Pinko