

ZERO WASTE FASHION

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GISELA FORTUNA

She is the leader of the Fashion Alive project. Always on the move, she started as a fashion designer, then specialized in the field of training. After more than 15 years of experience in the public and private sector, she joined other designers and entrepreneurs to create Creamodite, the association responsible for this event.



The need for sustainable fashion

Through the course of history, many cultures have been known to produce clothes in a way that wastes little or no fabric. Yet, since the industrial revolution, the economic system has focused on expanding production and consumption without consideration of the impacts of these behaviours on resource extraction and waste production.

This concept is based on the idea of a linear economy, where the life cycle of resources begins at extraction of raw materials, which are then processed and transformed for consumption and end up discarded as waste.

In the fashion industry, this translates to a vast scale of oil and raw-materials extraction, processed through waste-inducing production schemes at a scale that leads to some not ever being purchased and result in an astounding accumulation of textile waste.

Textile waste falls under two broad categories: pre-consumer and post-consumer waste. Pre-consumer waste originates during the manufacture process of fibres, yarns, fabrics and garments whereas post-consumer waste is a result of consumer disposal.

The harmful impact of linear resource-extraction-to-waste behaviours are becoming evident, causing devastating biodiversity loss and global warming of 1.5°C above pre-industrial levels according to the IPCC's 2018 Summary for Policymakers (IPCC, 2018).

The circular economy, as opposed to its linear counterpart, addresses the issue of waste by proposing a regenerative system where resource input and waste, emission, and energy leakage are minimised by slowing, closing and narrowing material and energy loops (Geissdoerfer et al., 2017).

On this regard, the European Environment Agency affirms the need for a shift towards circular business models to achieve a circular textile sector via pathways of longevity and durability optimization of resource use collection and reuse recycling and material use.

In recent years, Stahel identifies the fashion industry has been more pre-occupied with "waste management policies instead of efficient use of resource use and waste prevention".

This translates into circular-economy concepts of upcycling, recycling and down-cycling pre- and post-consumer waste being applied, but no tangible efforts are being made at a large scale to eliminate waste at the source.



Source: created by the author

The rise of Zero Waste Fashion

According to National Geographic report: "A scrap of difference: why fashion offcuts don't need to end up in a landfill", one of the most unspoken culprits of pre-consumer waste production is hidden in the manufacturing process. Traditional pattern-making, based on organic body shapes, can produce up to 15% of textile waste during the marking and cutting process.

This evidence points to the fact that the fashion industry's current policy for resource use is inefficient, especially when considering that fabric consists of roughly 50% of a garment's cost (Cooklin, 1997).

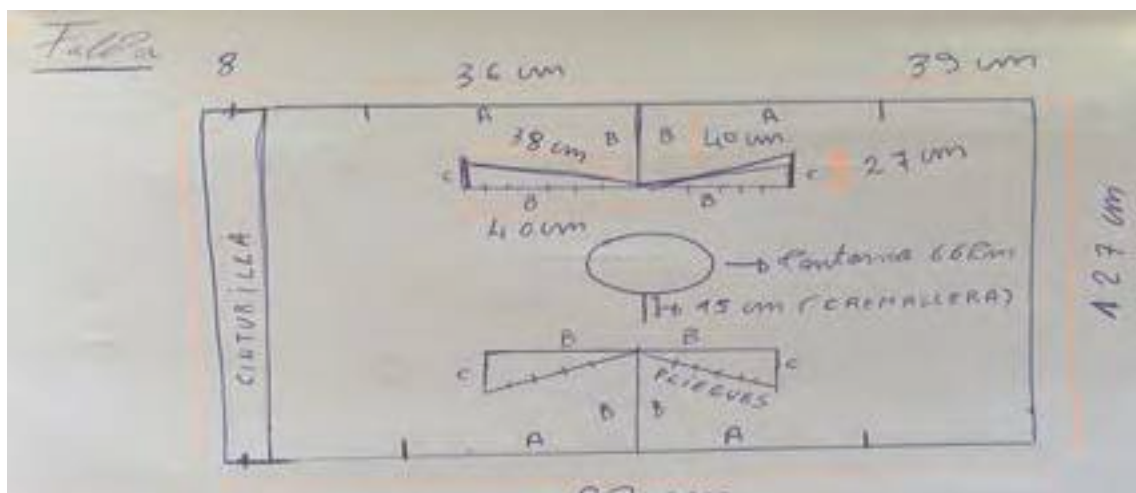
Zero Waste Fashion emerges as an opportunity for designers and manufacturers to implement creative project design methodologies that have a positive impact on waste production, by rethinking conventional design, pattern-making and construction techniques to work with a global context and take advantage of the entire fabric width.

Therefore, Zero Waste Fashion design methodologies require unlearning traditional notions of silhouette and pattern-making. The main focus is shifted to the raw material, the backbone of any garment, factoring in the width of the fabric to maximize material utilization.

Design is no longer based on a body or a mannequin, nor are fashion figures drawn as a source of inspiration. Rather, the design is based on the optimization of the fabric through the geometric figures that will form the volumetric body grid on which the design will be based, which requires a three-dimensional approach, to visualize the planes fitted on the grid of the human body and transformed into volume.

Designing without generating waste poses considerable improvements on the creative process. The resulting silhouettes will not be restricted by body shape or the latest trends, but rather by the need to prevent wasting textiles, as well as ensuring the garment's comfort, durability and versatility.

In addition, Zero Waste Fashion introduces a new way of designing, pattern making and tailoring, thus making brands and designers feel more protected from counterfeiting and copying that haunt the fashion industry. Patterns have new shapes and fit together in unconventional ways, construction requires technical specifications of operation sequences in order to build the garment, but at the same time they are straightforward to construct if one has access to these specifications. This method can not only provide a solution to real sustainability in the fashion sector, but could be a great breakthrough for the recovery of local manufacturing and the solution to the great problem of copying as a protectionist policy.



Source: sketches by Santiago Iglesias Alonso

Zero Waste Fashion method and experimentations

The challenge behind Zero Waste Fashion design is creating patterns that can both fit the body, while not producing waste and generating an attractive design considering shapes, volumes and silhouettes.

This poses a significant difference to conventional design methods where designers draw inspiration from moodboards, create illustrations and flats etches which are later handed over to patternmakers to interpret.

Zero Waste Fashion designers must have a thorough understanding of the design fundamentals, raw materials, and different methods of pattern making and construction. In addition, they must be armed with a set of tools to project how the entire width of the fabric can be transformed into a design. To do this, various methods and techniques for creating shapes based on moulage can be applied and combined: body grids, subtraction and folding.

Body grids

Body grids consist in a prior selection of the type of garment type (trousers, dresses, tops, outerwear) or area of the body the designer wants to target, and then interpreting its dimensions and proportions.

The objective of this process is to provide a reference for scale in the fabric width, resulting in a grid that the designer may later divide and transform to create their desired style and silhouette.

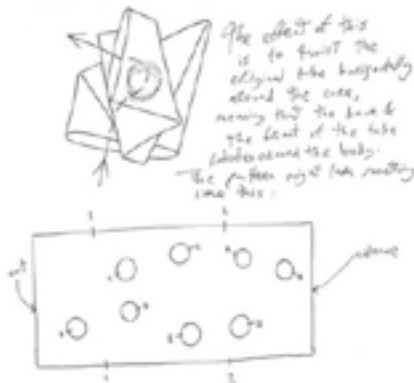


Source: created by the author

Subtraction

Subtraction methods are based on negative space. In this sense, the piece of fabric is intervened by the designer, creating subtractions or “holes” which allow for the material to be twisted or transformed by

draping and joining, or constructing conventional garment elements such as armholes and necklines. This technique was popularized by Julian Roberts’ “School of subtraction cutting”.



Source: Free cutting by Julian Roberts



Source: Free cutting by Julian Roberts

Folding

Folding techniques are based on origami, where the width of fabric is transformed into a garment by strategic folding procedures that result in the creation of

different planes, held together by seams, trimmings or hand stitching. Used in its pure form, this method uses the fabric in its totality in a manner similar to draping.



Source: created by the author

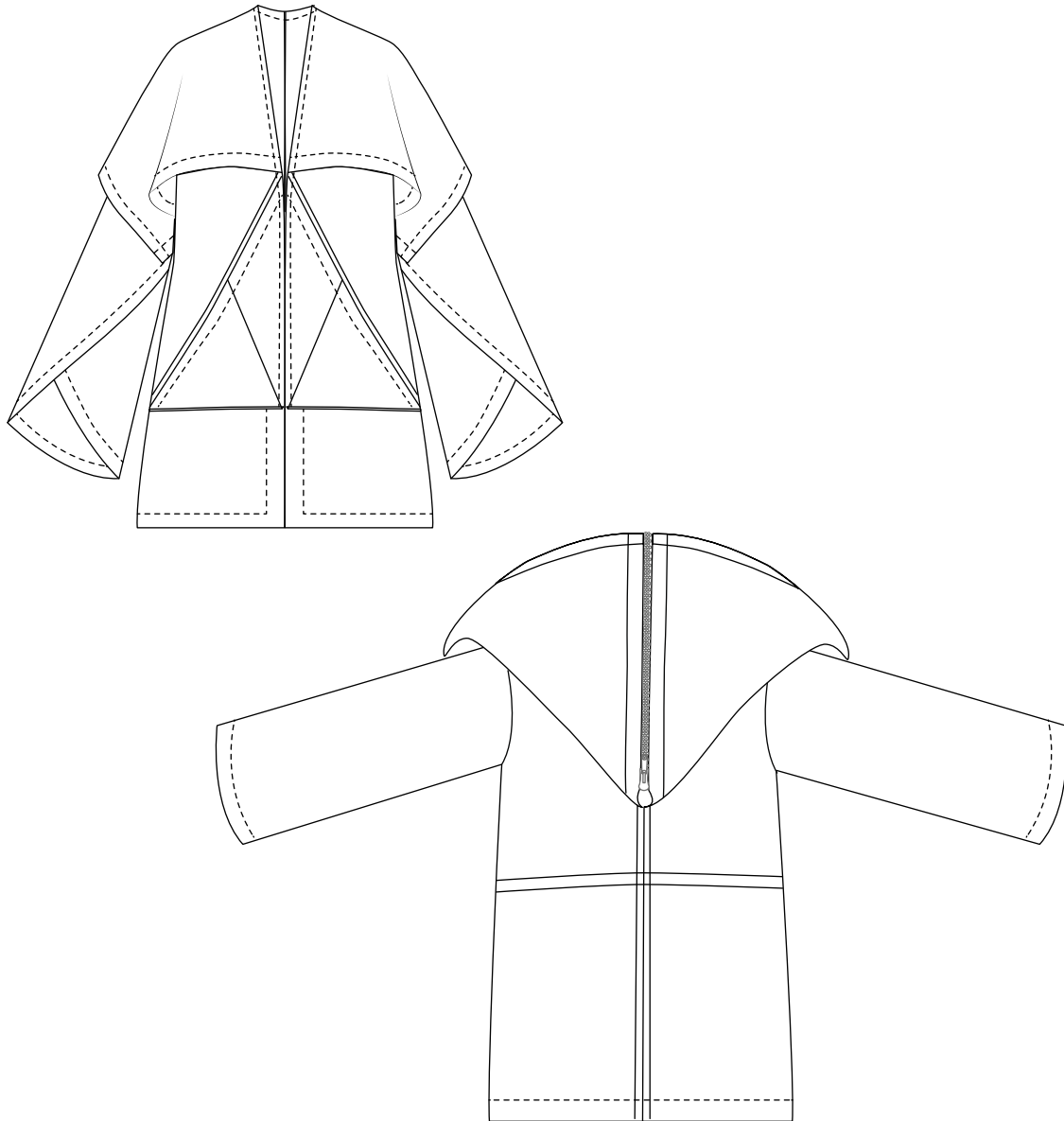
ZERO WASTE JACKET WITH TRANSFORMABLE HOOD





ZERO WASTE JACKET WITH TRANSFORMABLE HOOD

Technical sketch

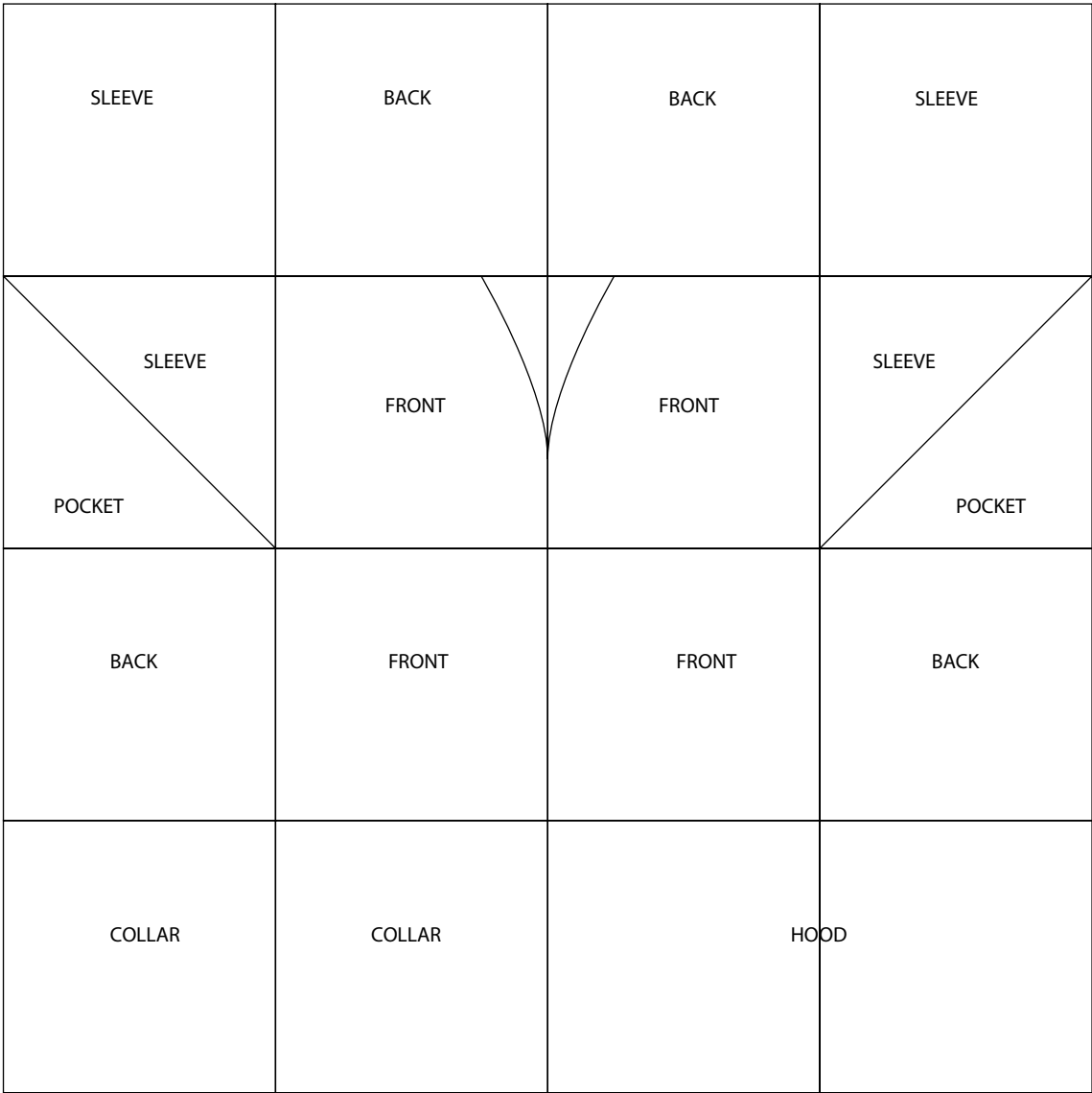


Zero Waste Method: Body grids

Design description: oversize, geometric-shaped jacket, with long sleeves and an open front. It features a transformable hood that can be worn open as a collar or closed, via a zipper.

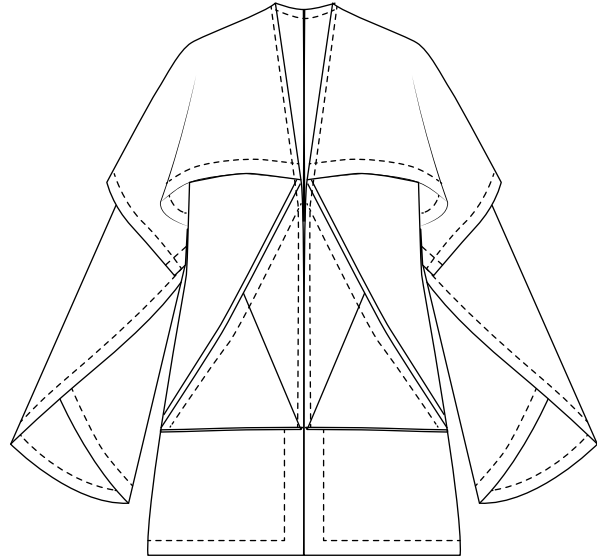
ZERO WASTE JACKET WITH TRANSFORMABLE HOOD

Zero Waste Pattern

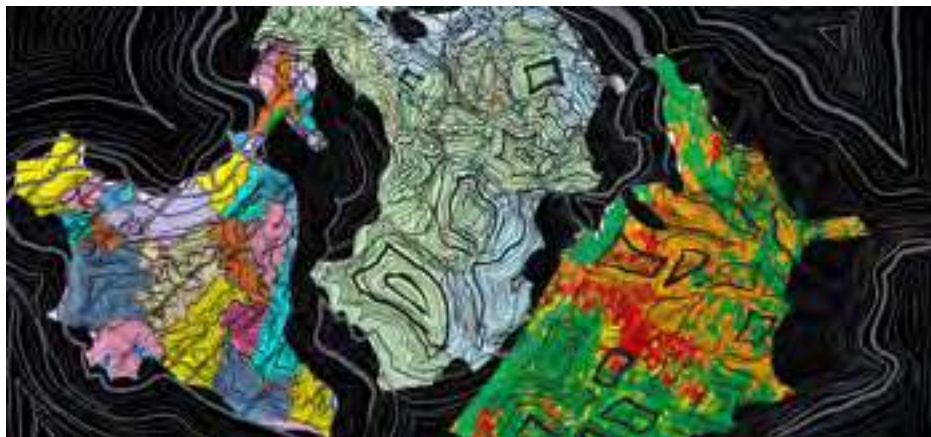


ZERO WASTE JACKET WITH TRANSFORMABLE HOOD

Print details



Print design by Florencia Lomelí Martín



ZERO WASTE GEOMETRIC TRANSFORMABLE TROUSERS

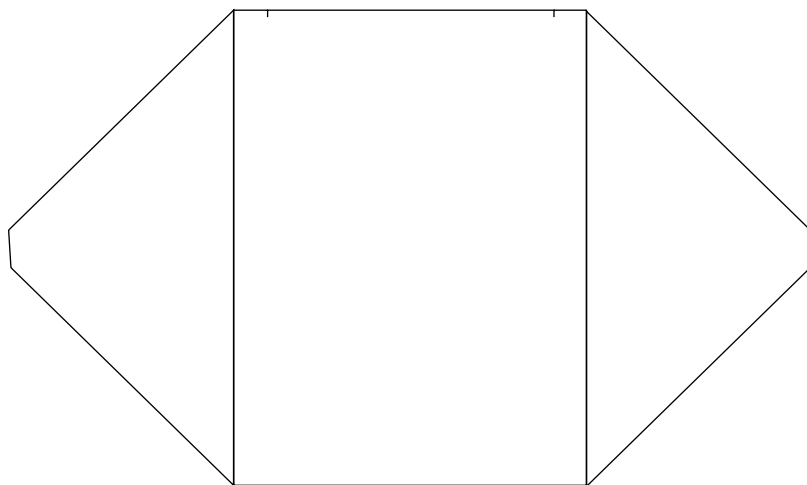
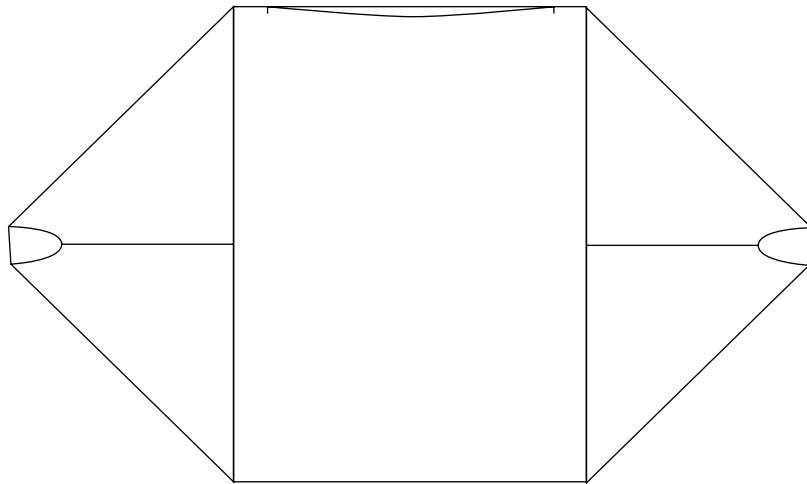






ZERO WASTE BOX-CUT BLOUSE

Technical sketch

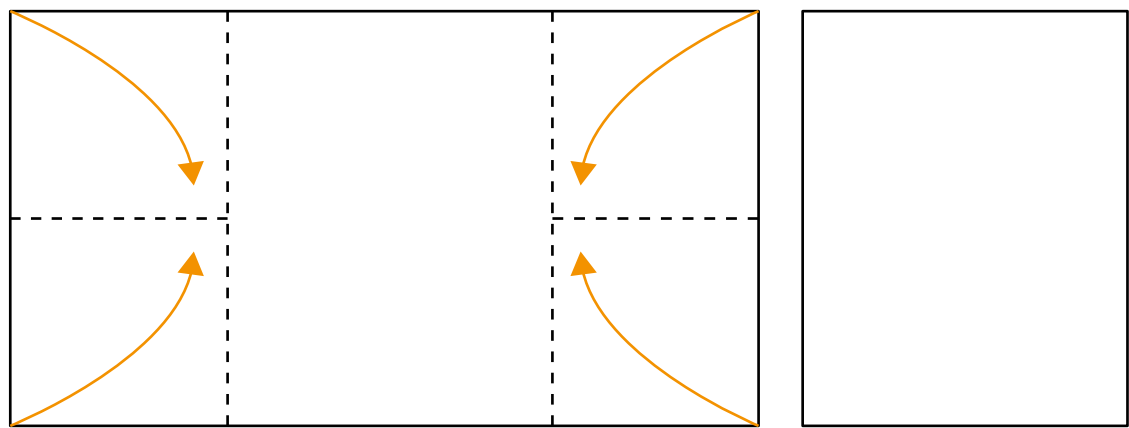
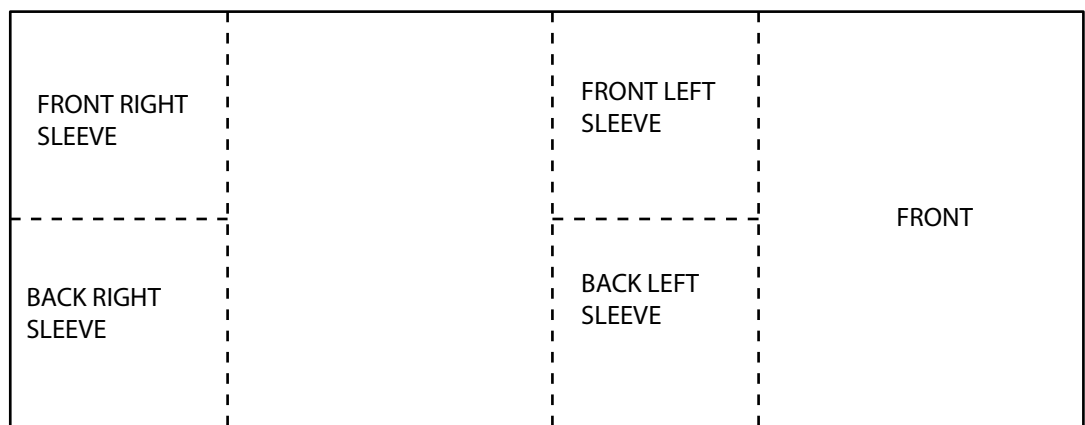


Zero Waste Method: Folding

Design description: Short-sleeve box-cut blouse with a geometric design generating by adapting rectangles to fit the shape of the body. It was tested in knit and woven fabric of different weights to obtain different silhouette types.

ZERO WASTE BOX-CUT BLOUSE

Pattern



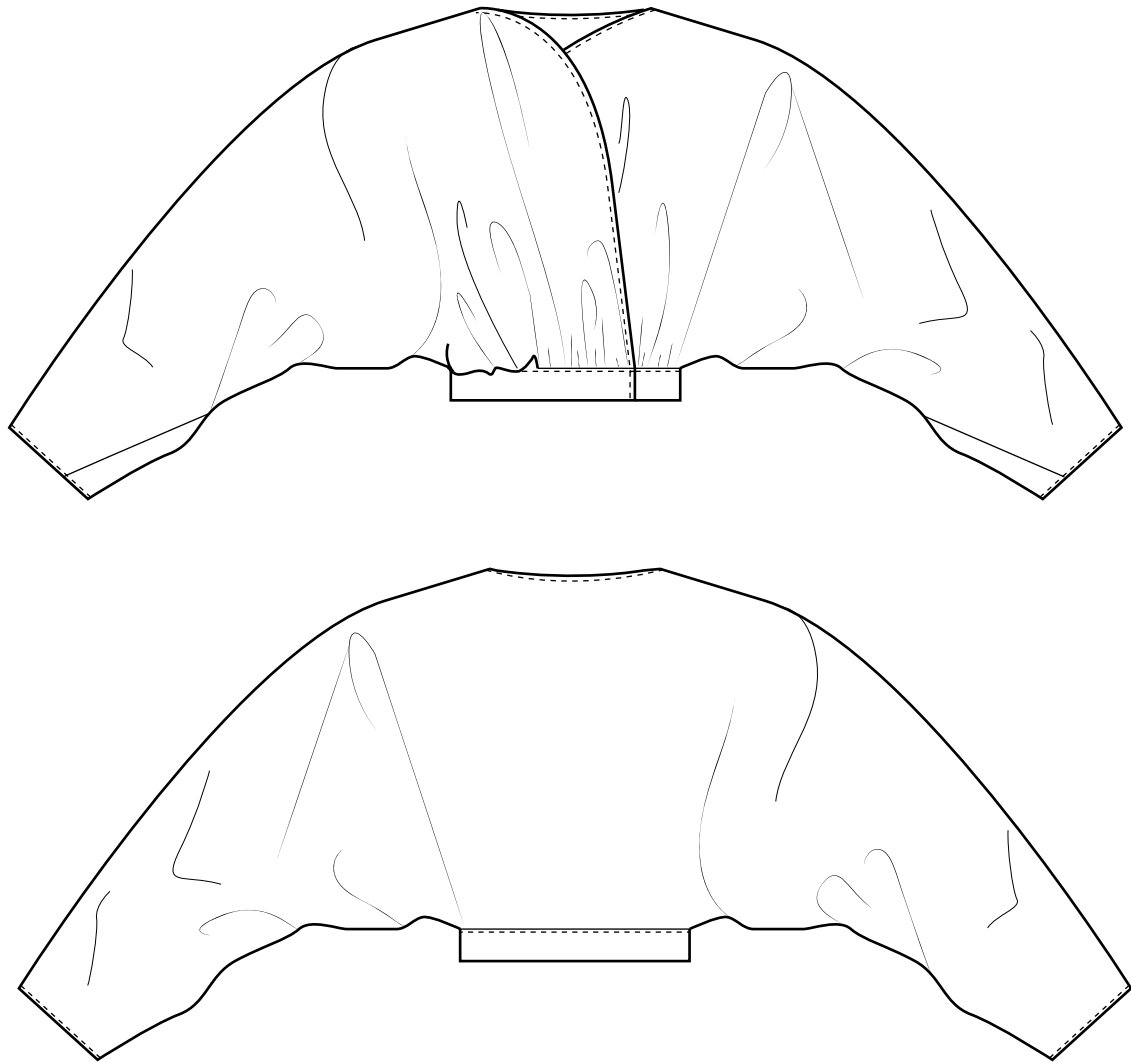
ZERO EASTE FASHION COLECTION





ZERO WASTE RUCHED BLOUSE

Technical sketch

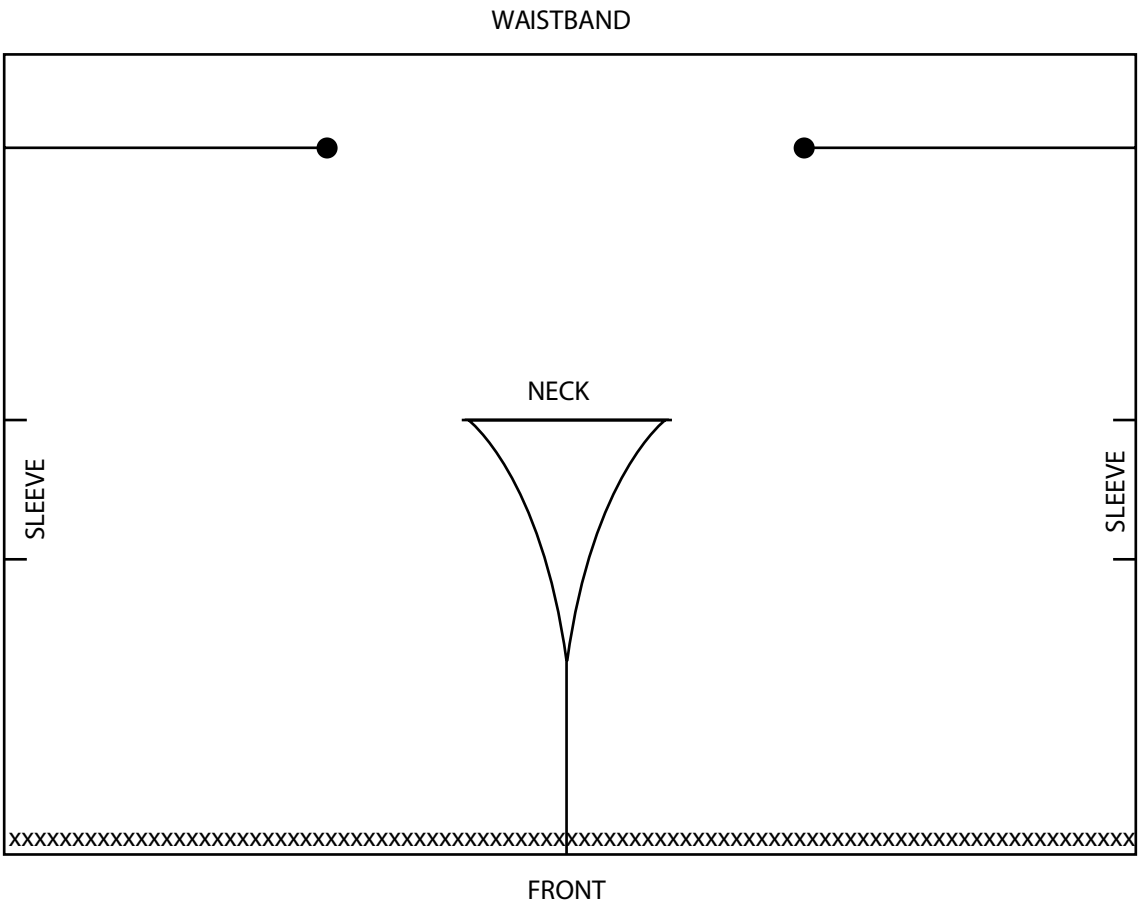


Zero Waste Method: Substraction

Design description: Crop-length long dollman sleeve blouse with overlapping front v nec . The textile is adapted to fit the body shape by incorporating ruching. It can be worn front or back, and the pattern was tested in knit and woven fabric obtaining different volumetric results.

ZERO WASTE RUCHED BLOUSE

Pattern



ZERO WASTE GEOMETRIC TRANSFORMABLE TROUSERS

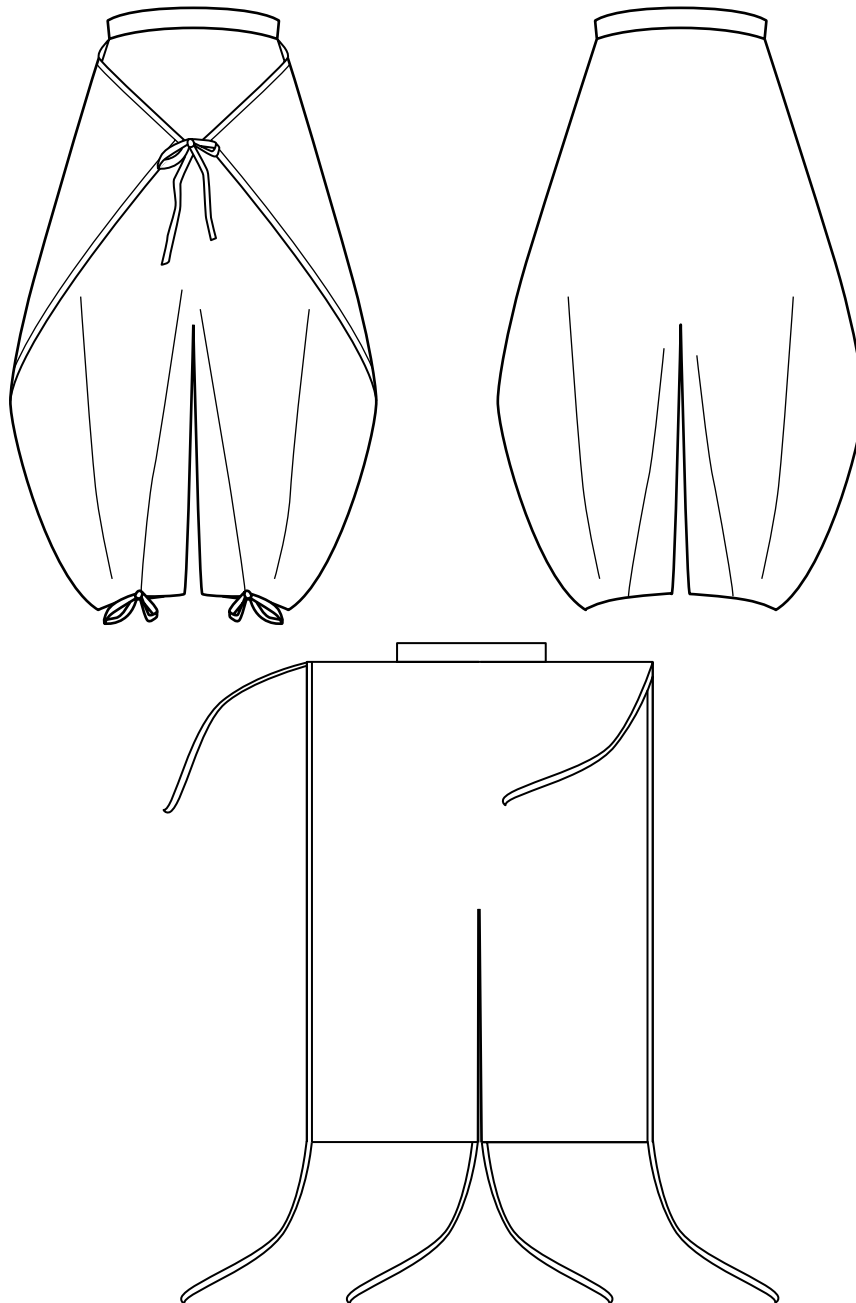






ZERO WASTE GEOMETRIC TRANSFORMABLE TROUSERS

Technical sketch

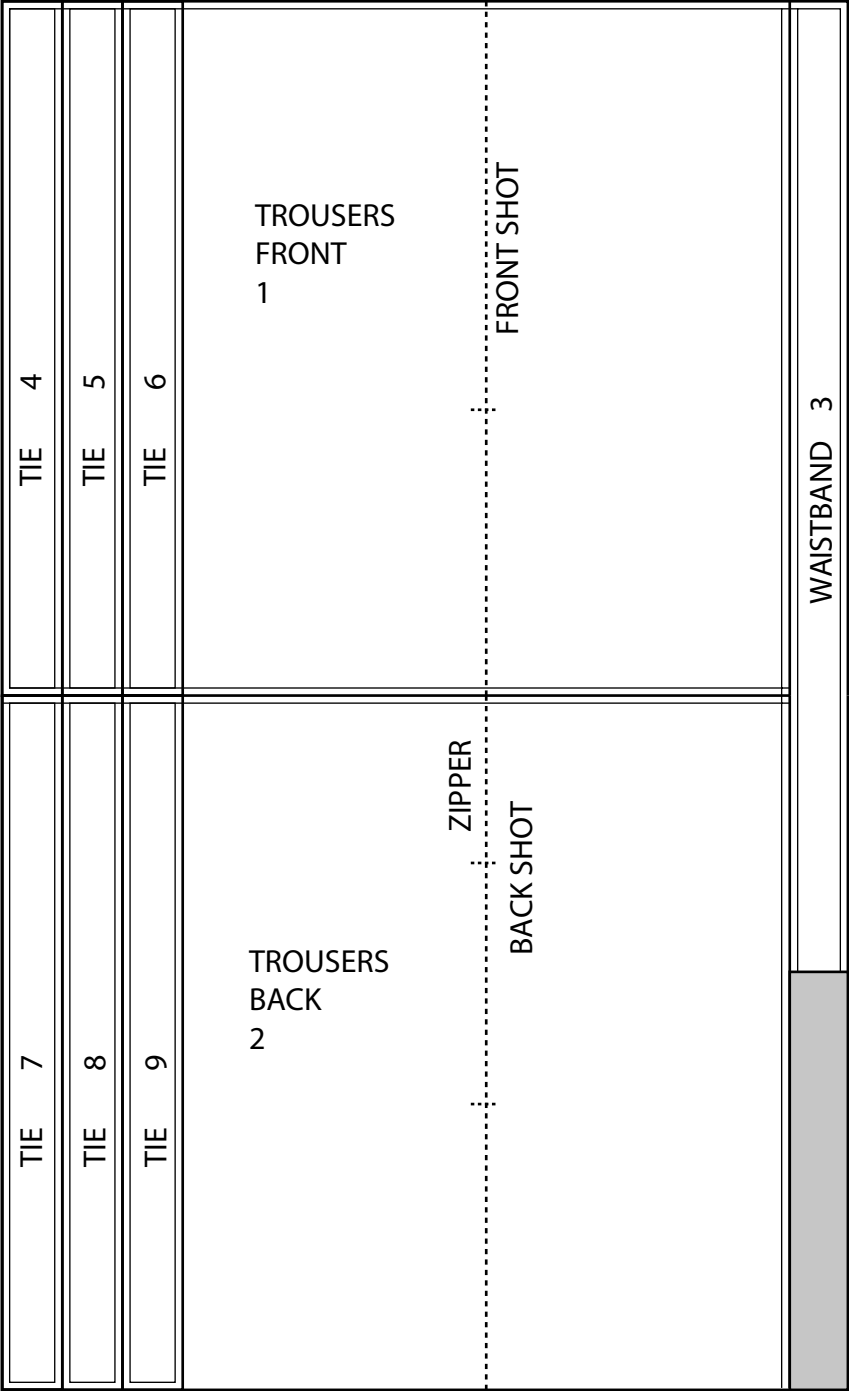


Zero Waste Method: Body grids

Design description: olumetric trouser that offers infinite combinations to style, provided by the straps included in the waist-line and the bottom. The pattern was tested in knit and woven fabric of different weights to explore different silhouettes and styles.

ZERO WASTE GEOMETRIC TRANSFORMABLE TROUSERS

Pattern



PREVIOUS EVENTS



EXPO DUBAI

Creamodite was invited to participate in the World Expo held in Dubai in 2021, which was aimed at “connecting minds and shaping the future”.

Within this premise, it presented the Fashion and Method performance catwalk project in representation of the Spanish creative power, being part of the Spanish Pavilion.



CENTRAL DE DISEÑO

The III edition of the Moda y Método experimental patternmaking performance catwalk was an international gathering for creative methods that took place at DIMAD, the design center in Madrid, Spain.

It was sponsored by the Madrid City Council.

Evidence

First Zero Waste Fashion show at the Matadero in



Second Zero Waste Fashion catwalk at the Dubai Universal Expo representing Spain



Third Zero Waste Fashion show at the Ateneo de Madrid





[Fashion film 2021](#)

[Fashion film 2022](#)

[Fashion Film 2023](#)



