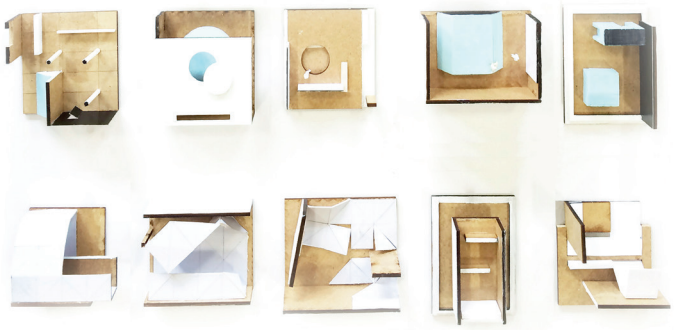
ORGANISING SPACE

A few basic architectural terms, notions and ideas regarding ways to organise architectural space, such as using a grid in a layout or a centerpiece.



ORGANISING SPACE

The first chapter is an introduction to a number of basic architectural terms, elements and ideas we can use to organise space, such as a grid, walls, floors and ceilings or roofs, as well surfaces and volumes.

Depending on the proportions, dimensions and position (layout) of the architectural elements we use, our space can be broken down into different zones and areas, creating corridors and ciculation areas, collective spaces, more private zones and rooms.

Basic architectural space qualities and characteristics, such as creating a collective space, are demonstrated through a number of physical model examples, the most appropriate way to explain 3D space.

These physical models have a unique design language and specific architectural qualities through the elements used to compose the discussed space.

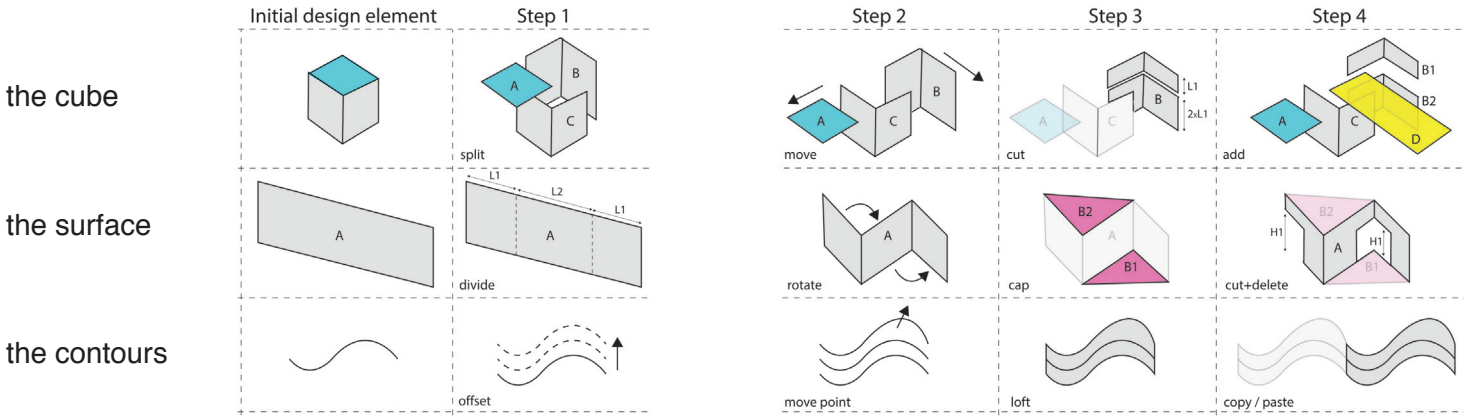
In order to understand how to compose architectural space, each example is followed by a design exercise. The exercise shows how to extend the initial space while following its main design principles used for the initial physical model.

COMPOSING SPACE

PREFACE: THE CONTROLLED TRANSFORMATIONS DESIGN LOGIC

After understanding some of the basic terms and notions of architectural space, this chapter focuses on different ways of composing space through a few steps of controlled transformations of basic geometries. These geometries are a cube, a single surface and a curve. The transformations are done through physical modeling.

The controlled transformations design logic allows to compose architectural spaces step by step, with the ability to go back to any step and iterate / change the design. This approach imitates the generative / parametric architectural design software logic, as a way to introduce designers to computational design thinking. Notice that the verbs used below, are the basic commands used in any digital software.



COMPOSING SPACE
A. THE CUBE

BUILT PRECEDENT

A "follie" building in the La Villette park, Paris
Bernard Tschumi Architects, 1987

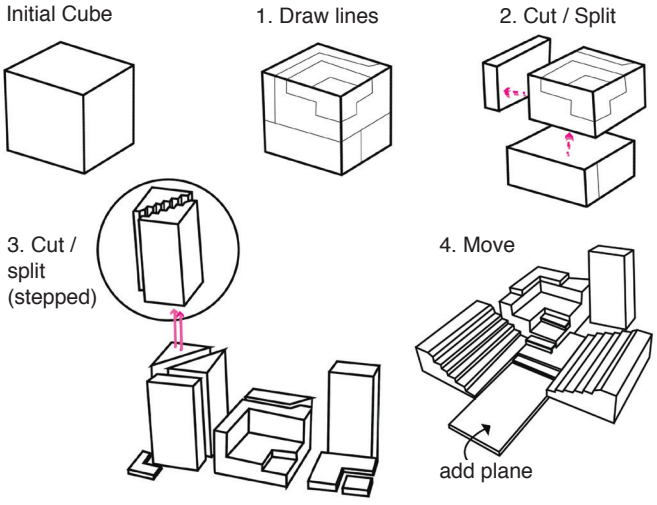
There are many built examples globally that follow the design logic of transforming any geometry, while also adding complexity by adding secondary elements. Maybe the most recognizable buildings that follow this architectural approach in composing space are buildings which are based on the cube geometry.

One of the most architecturally notable examples -and also globally acknowledged- is the La Villette Park in Paris, by Bernard Tschumi architects. It can be found in a number of diverse publications, from contemporary architecture history academic books, to magazines and online sites. It is already a "classic", a point of reference and a must-know for all architects.

All 41 buildings in the park which are placed on a grid and organise the overall park space, are successful and diverse examples of architectural compositions based on a cube geometry.
The examples that follow in the next pages cannot compare to the depth of thinking and architectural quality of such built projects. They are basic and simple examples of a fundamental architectural way to compose space that is explained simply, in order to make it comprehensible to any practitioner or student.

A2. Transformation steps one by one

How can we understand the design logic of this example? The exercise starts by drawing lines on the cube and then using those lines to split the cube into smaller parts:



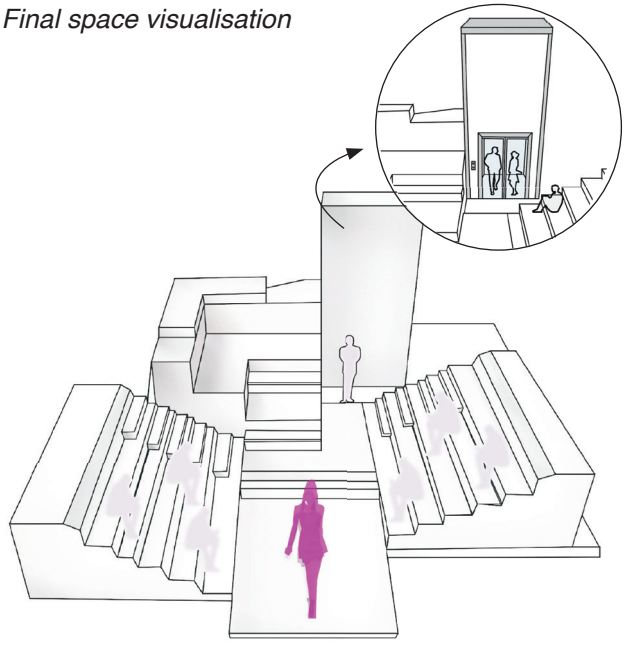
1. Draw lines on the cube. The lines can be rectanglular or have any geometry, such as curves.

2. Cut parts of the cube. A variation would be to cut different parts of the cube or different sizes.

3. Cut / split smaller box into stepped forms.

4. Move parts. Add a rectangular plane. A variation would be to move parts to different locations or to add a different plane size or different geometries, such as a circle.

Final space visualisation

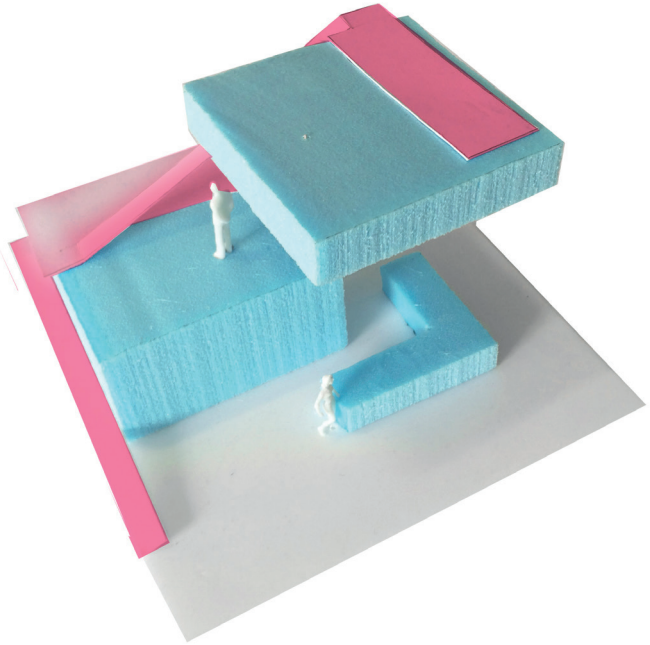


visual & diagrams by:
Natalia Nedzi

Notice that like before, taking photogaphs of the final physical model allows to produce a number of visuals. You can use tracing paper over a photograph and trace / draw the main lines of each geometry.

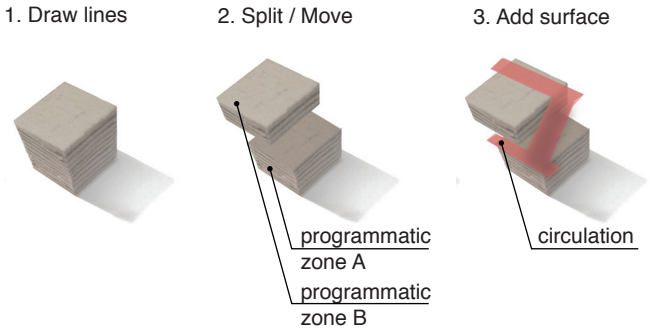
You can then draw details that do not appear in the physical model. In this example, drawing details on the vertical rectangle, can signify it as an elevator.

A4. Volumes as programmatic zones



mock-up by:
Natasha Crowe

Initial space transformation steps (working / concept model)



keywords: draw / split / move / add surface

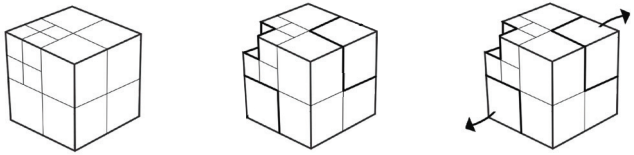
This example focuses on volumes that can be placed on different levels and signify different programmatic zones. Those zones can be anything from a room, to a whole building block.

Depending on the function of each volume, its size and proportions can vary. This is a very fundamental way to compose space, that can be used for projects with different scales, from designing a bar to urban design.

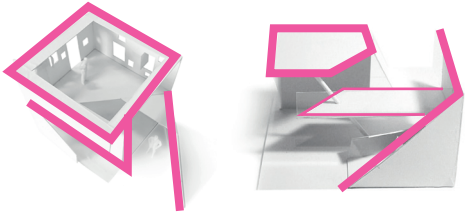
In any project, one can start by modeling the volumes of the programmatic zones that need to be designed. Starting with the area of the programmatic zones in plan drawn as rectangles, one can extrude those rectangles to create volumes. A simple way to allow access from one zone to the other, is by adding a continuous surface, that will act as circulation.

COMPOSING SPACE

A.THE CUBE conclusions



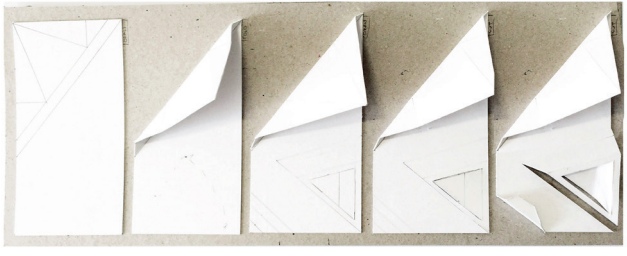
The previous examples show some of the possible ways of transforming a basic geometry such as a cube, using controlled transformations, in order to compose and organise space. These will now be summarised.



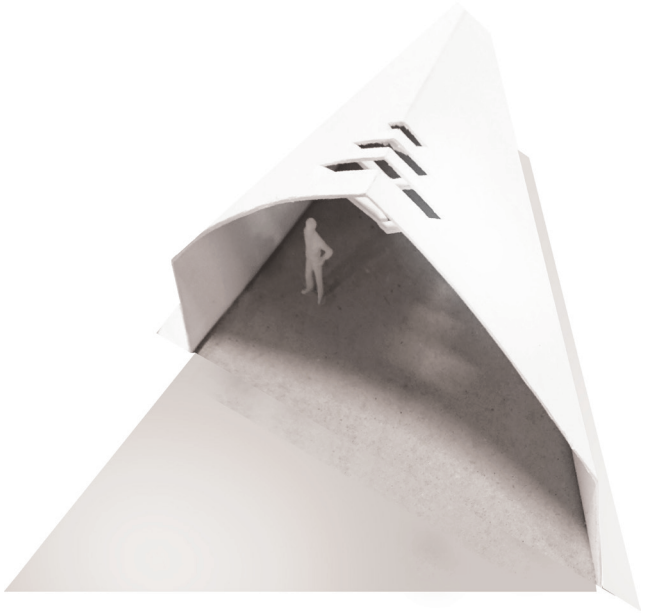
COMPOSING SPACE

B.THE SURFACE

How can we compose architectural space through steps of controlled transformations using a basic geometry such as a surface?



B1. A single space fold

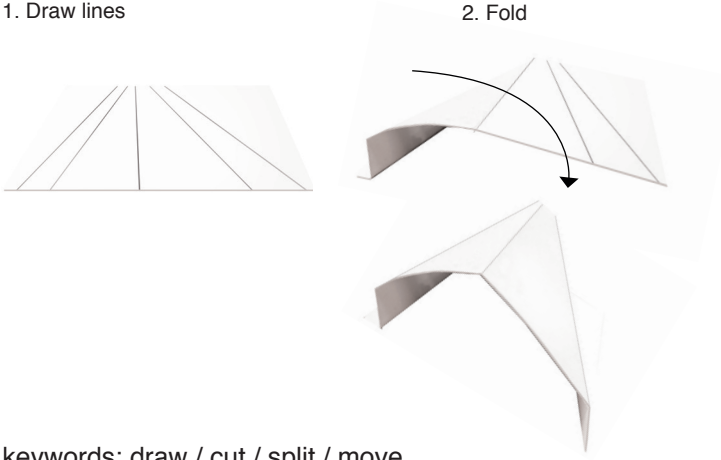


mock-up by:
Nicole Wiseman

Initial space transformation steps *(working / concept model)*

1. Draw lines

2. Fold



keywords: draw / cut / split / move

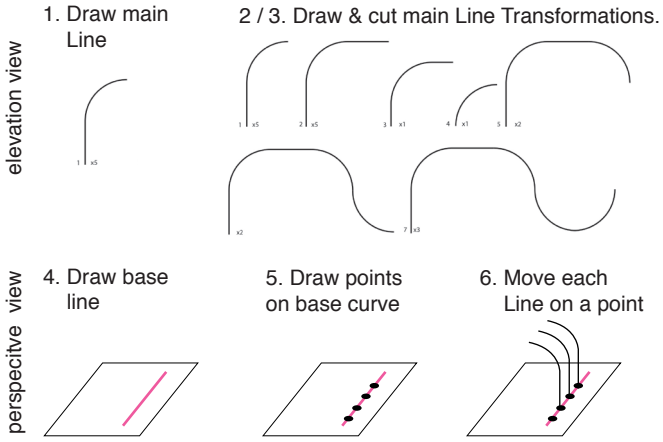
This example, like all examples of this chapter, is using folding in order to form and organise architectural space.

Maybe the most simple and understandable folding technique to start with, is a single space fold. In this case, the folded surface acts as a funnel, attracting and guiding visitors inside the single space.

Like in the first chapter of this book, Organising Space, where walls and floor guided visitors within space, architectural elements such as a folded surface, are used in the same way. Their geometry and form might be a bit more complex than a mere wall, but they can still serve the same cause.

C2. Transformation steps one by one

How can we understand the design logic of this example?
The exercise starts by drawing the main line and
then copying and pasting it a number of times :



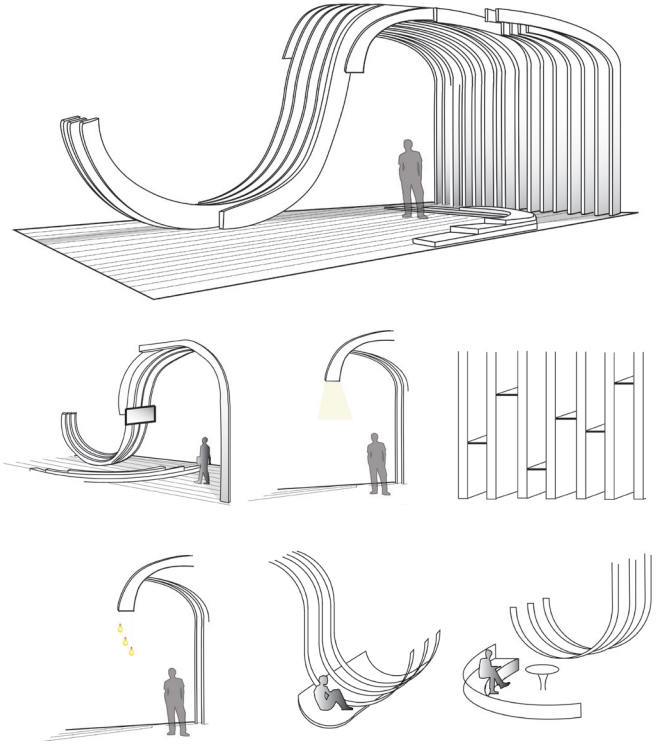
1. Draw main Line using specific dimensions. The Line can have any geometry, from a straight line to a curve.

2. Transform / draw the main Line if you need to test different overall forms.

3. Cut out each main Line copy.

4 / 5 / 6. Draw base curve and points on specific distances on which the main Line copies will be placed. Move copies on base line.

Final space visualisation

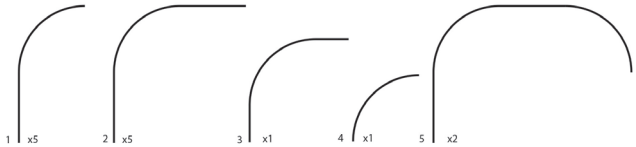


visual & diagrams by:
Hannah Rand

A number of design elements should also be shown since the overall form and space has to be explained and designed down to its details.

COMPOSING SPACE

C.CONTOURS conclusions



The previous examples show some of the possible ways of transforming curves using controlled transformations, in order to compose and organise space. These will now be summarised.