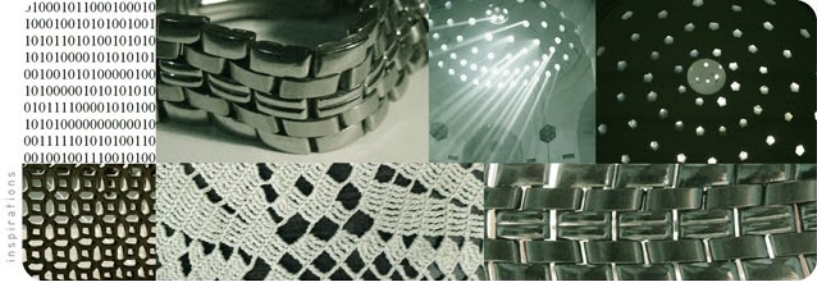


# Modular Plasticity... ...Variable Opacity



Concrete seems to be a very familiar material with its vast possibilities for use and application but indeed its unexplored characteristics are as many as its familiar aspects. Opacity and plasticity are two of the most crucial aspects of these unexplored attributes of concrete. A search of a new definition of plasticity and opacity will also mean a search of unperceived limits of concrete.

Concrete has a unique character of having the ability to retain its shape after it is casted. Although this brings to designers a wide range of possibilities for working on plasticity, one should realize that since this



unique characteristic is used over and over again, none has asked the question of attaining a different way of plasticity with concrete ever again.

Can plasticity only be attained by frozen, static, monolithic, still and statuesque forms?

If plasticity has also a definition as 'the capacity to vary ... according to changing conditions', then why shouldn't we question what plasticity is itself and try to push the limits of concrete further?

Likewise, can opacity have any other meaning than simply an 'absence of transparency'?

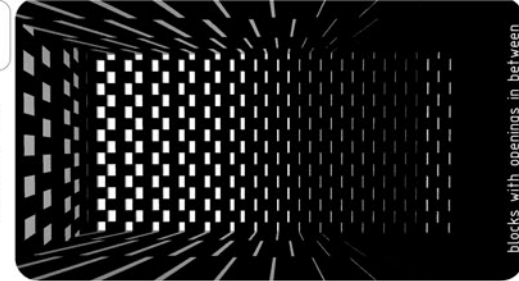
Can it bear a variation possibility in its characteristic? How could it be possible to render opacity different than its usual form and would it be

possible to attain variable therefore not static results in terms of transparency-opacity value degrees?

Is it possible to generate a new definition of plasticity and opacity via a new construction system?



In search of a new definition of plasticity and opacity, a flexible system is proposed accompanied by some project proposals which may be reproduced further.

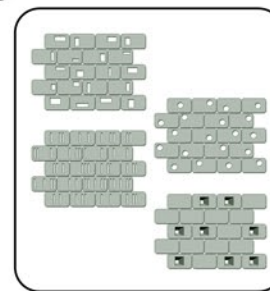
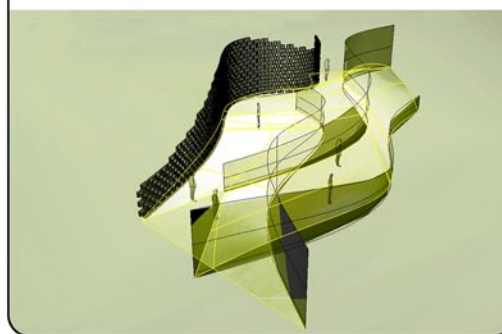
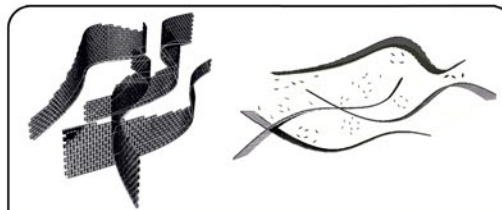


adjustable transparency  
demountable system  
extensive texture alternatives  
recyclable concrete  
unfrozen plasticity



## Proposal 1: Activity Zone

For temporary outdoor activity zones, the demountable wall system can be used with varying opacity degrees according to visual restriction preferences.

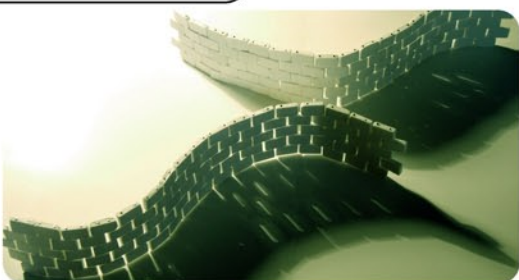


With such a flexible system allowing different plasticity and opacity values, a variety of projects can be designed in different scales, both for indoor and temporary outdoor uses. Here, a few are mentioned...

allow changing light rays to enter the space during different times of the day. In a demountable system, since the positions of the blocks are not fixed in advance, modularity will allow a wider range of opacity values.

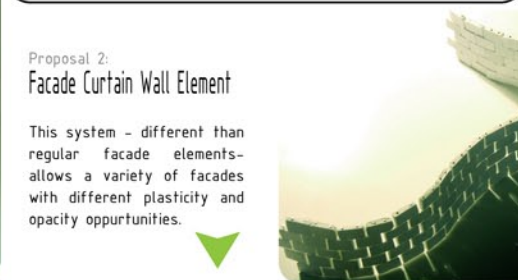
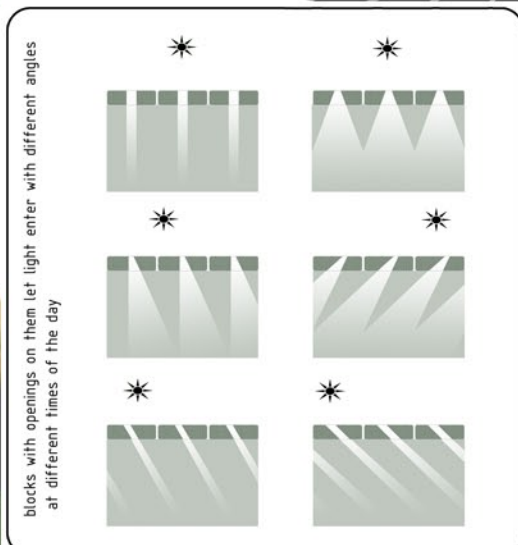
## Proposal 3: Temporary Outdoor Event Space

A system made up of lightweight concrete blocks can be used for temporary semi-open outdoor spaces. Curves covering wide spans are fixed to ground by external tension rods.



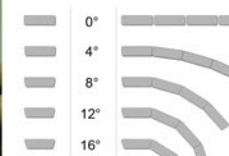
## Proposal 2: Facade Curtain Wall Element

This system - different than regular facade elements - allows a variety of facades with different plasticity and opacity opportunities.

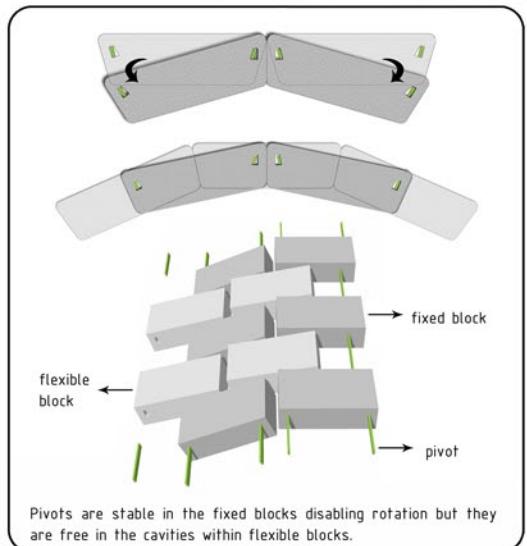


## Proposal for a Modular System

The basic unit of the system is made up of blocks 'fixing' the pivots in pairs and 'flexible' blocks connecting these pivot pairs. The motions of the system are categorized in three groups: moving in x-y, x-z, and x-y-z directions.



main block and alternative chamfered blocks

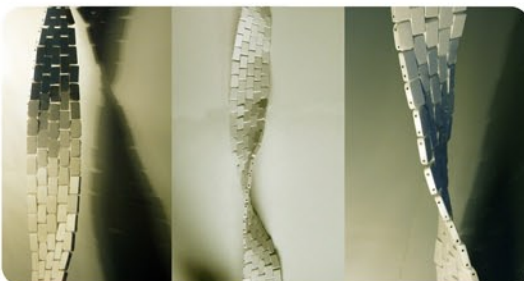


## Plasticity

Concrete is a material which can easily be mass produced.

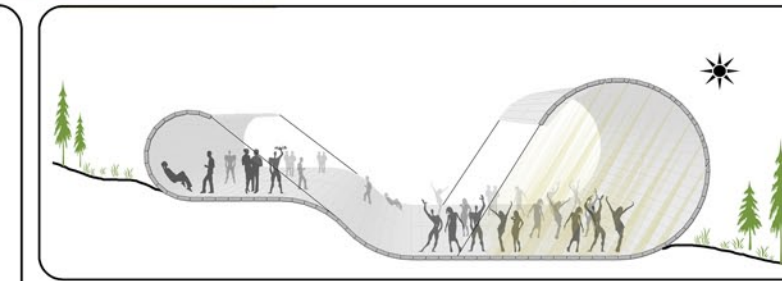
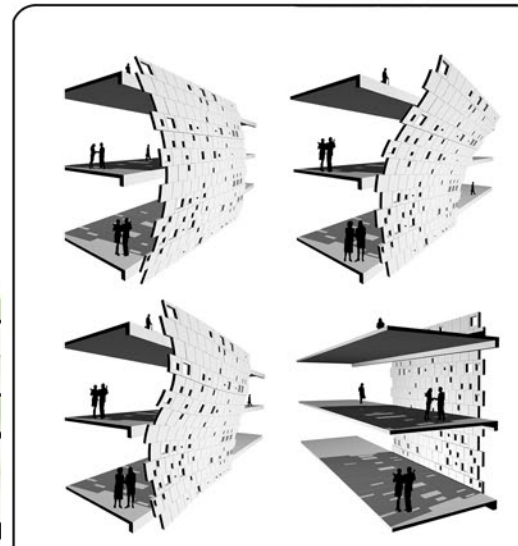
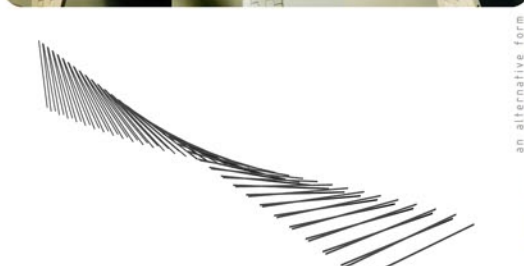
Can the ease of mass production of concrete be used to get an unstill, flexible, unfrozen plasticity?

With a modular system of which the elements are mass produced as concrete blocks varying in type and size according to changing needs and conditions, one can develop a flexible, modular plastic system and therefore expand the limits of concrete and the definition of plasticity further.



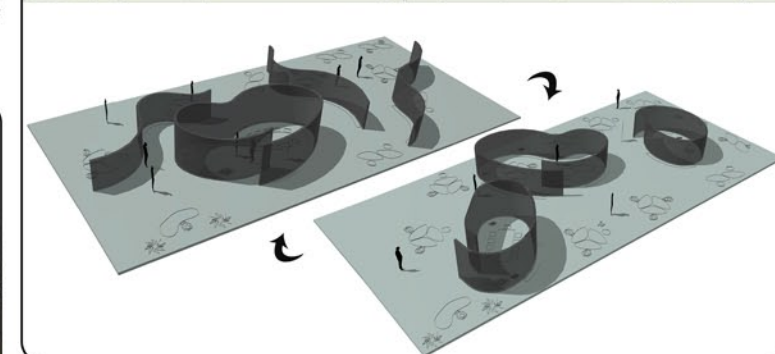
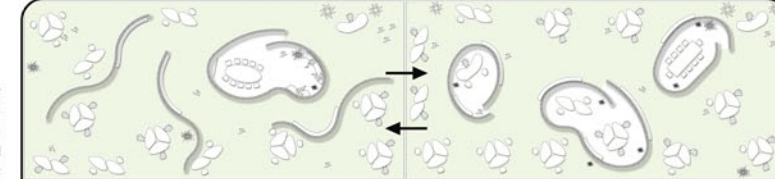
## Texture and Form Variation

Concrete is the most suitable material since it can be produced in different forms and textures. Many different effects and types of concrete can be applied to attain a different result each time.



## Proposal 5: Outdoor Furnishing

Furnishing designed as a band-like structure, has curves used as benches, and a wide arc used as a shed and to carry the lighting element. Some blocks can be taken out on the ground to be used as flower pots.



## Proposal 4: Partition Walls

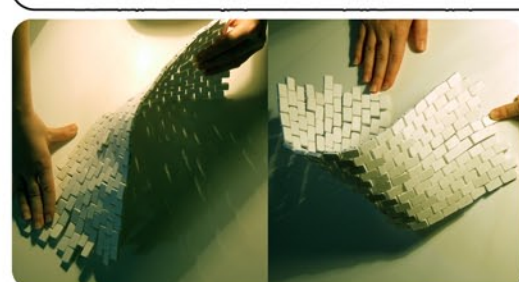
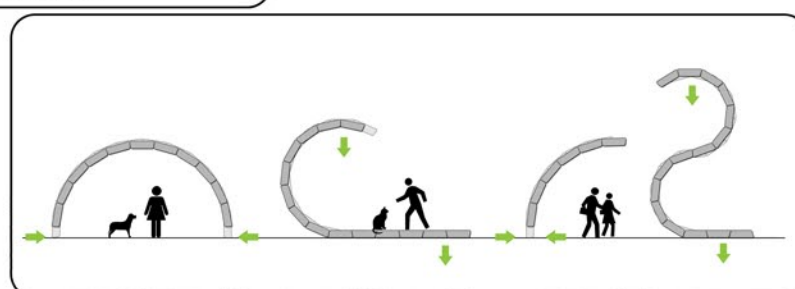
In office spaces, partition walls can be used as separators with different openings on them for visual communication and natural lighting needs. If the office use has to be changed, then the system easily allows a flexible functional shift since the system is demountable.

## How System Works - 1: x-y circular motion:

- factors appointing the motion: the position and the rectangular section of the pivot, width of the pivot cavity, the chamfered width of the rectangular block

- weight transfer to the ground with an arc-like system (via chamfered sides overlapping on one another)

- density and massiveness of the concrete reinforces the stability of the system

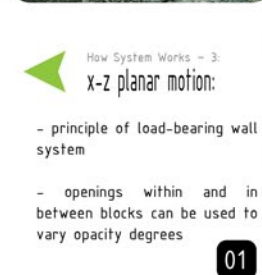
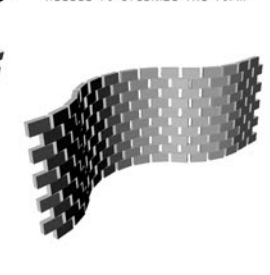


## How System Works - 2: x-y-z twist motion:

- based on the rotation of pivots

- flexible blocks define the maximum angle for the position of the pivots

- an external tension is needed to stabilize the form



## How System Works - 3: x-z planar motion:

- principle of load-bearing wall system

- openings within and in between blocks can be used to vary opacity degrees

## A Demountable System

With a modular system, the limits of concrete have been passed beyond not only in terms of its plasticity and opacity but also in terms of its capacity to be used as a recyclable material.

The casting of concrete is in most cases almost irreversible and a re-use of the same material is almost impossible. However, with such a system proposed here, the same concrete blocks will be able to be used more than once

by their newly-established demountable characteristics. One can easily demount a construction and rebuild a new one with a different plasticity and opacity with the same blocks once again.