TRANSIENT URBAN FORMS

MANIFESTATIONS OF IMPERMANENCE VS PERMANENCE

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SYRACUSE UNIVERSITY SCHOOL OF ARCHITECTURE

MASTER OF ARCHITECTURE THESIS – MAY 2021

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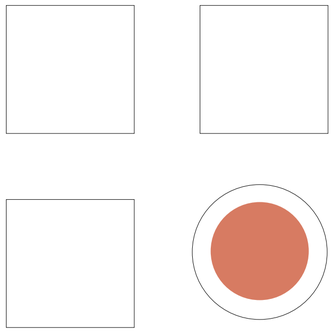
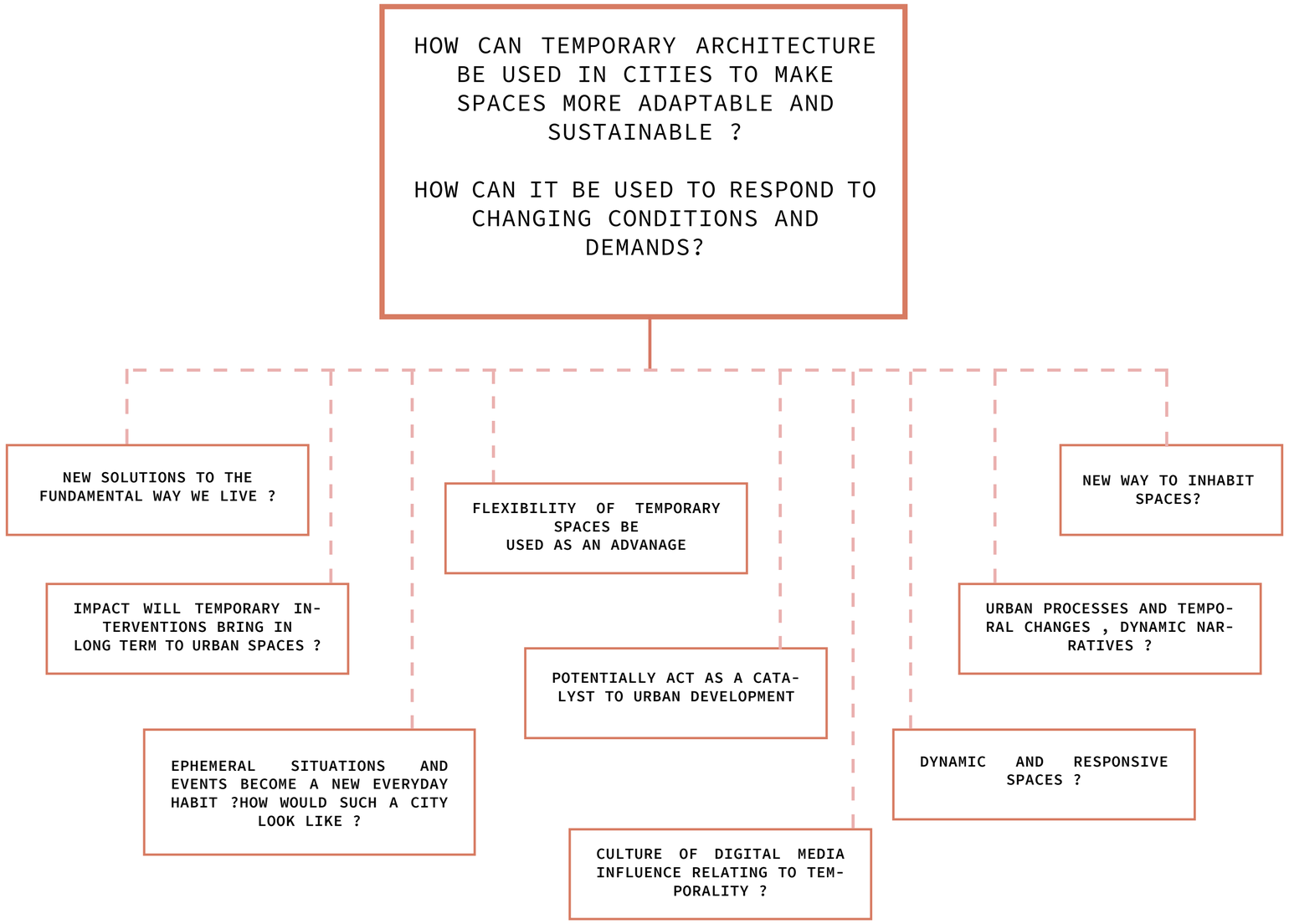
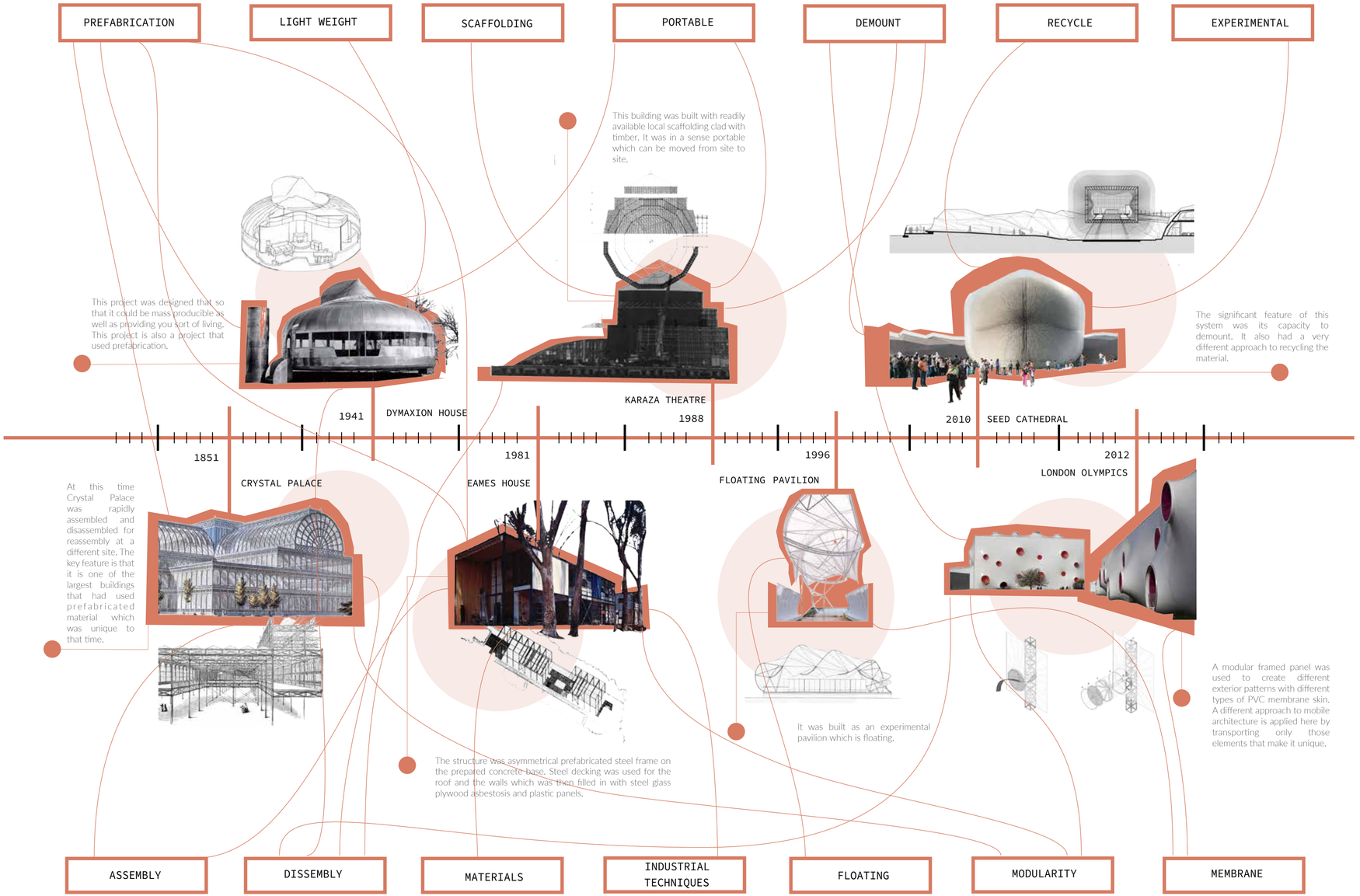


Temporary architecture has thrived through the history of time. From prehistoric times we have seen temporary architecture being used for emergent situations, wartime, pop-up, and exhibition spaces. But today we see projects that have been developed with temporary architecture that show innovative ideas for the future of architecture and urbanism. Through time we have established ways to unconsciously follow different architectural settings and methods of permanence. This thesis explores the idea of Temporary architecture and the potential where it could be a space that can appear and disappear, a space that is more flexible and adaptable, a space to test scenarios and possibilities, a space that is easy to assemble, dissemble and transport, a space that can easily accommodate movement, growth, and change. My thesis will be an investigation of various manifestations of the possibilities of “transience and impermanence” in architecture and urban spaces. It aims to question and challenge the accepted assumptions of architecture in terms of time and permanence in a context of urban landscapes to develop new relationships with the urban environment. This thesis will explore how much potential temporary architecture has to become a new model in developing cities and will formulate new models to examine its capability to give new answers to changing urban dynamics and urban processes alongside conventional architectural approaches.





Through this study understand earlier practices of temporary architecture and what impact they had at that point of time. Investigate its earliest manifestation and to understand temporary architecture's aesthetic and production. Crystal Palace was built in six months with completely new methods. It was innovative in terms of achieving large spans and the use of iron and glass. Key takeways from the Dymaxion house are how. This project used prefabrication. The building was made of duralinium which is a very lightweight material that is air transportable and could be manufactured on the set-up assembly line. Eames house is a good example of how industrial techniques and material choices that can be used in a very beautiful simple form. Karaza theater is a great example of how scaffolding can be architecture itself. The seed cathedral rods were supposed to be dispersed after the building was dismantled. The significant feature of this system was its capacity to demount. It also had a very different approach to recycling the material.

Fig 4 Timeline collage (by author) image references linked in Mediography

From this method I understood different terms associated with temporary architecture. I broadly categorized these terms into four categories namely, assembly, disassembly, fabrication and materiality. I was interested in looking at my casestudies more objectively against these terms to understand how such structures were assembled , dissembled and what materials were used.

ASSEMBLY + DISASSEMBLY

MATERIALITY

FABRICATION

LIFECYCLE

Fig 5 collage (by author) image references linked in Mediography

PHYSICAL

USE
SITTING - Sit | Lay
NATURE
OPENINGS
DAYLIGHT
PRIVACY
Private|Public|Semi Public
SCALE
Human|Child
MONUMENTAL
CLIMATE RESPONSIVE
FURNITURE|OBJECTS

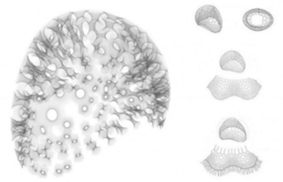
SENSORY

SAFETY
COMFORT
INTEREST

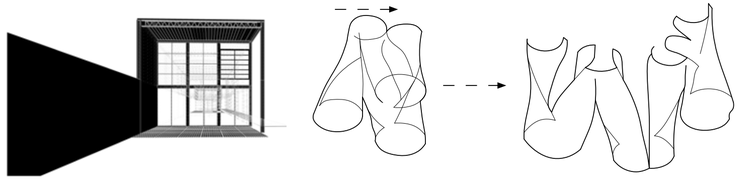
URBAN QUALITIES

STREET CONNECTIONS
VIEWS
ENCLOSURE
IMAGEABILITY
TRANSPARENCY
LINKAGE

ARCHITECTURE IS NOT ONLY ABOUT THE SOLID, MATERIAL ELEMENTS OF THE SPACE; IT IS ALSO INVISIBLE, IMMATERIAL AND INTANGIBLE ONES. CAN TEMPORALITY ADDRESS THESE CONCERNS ?

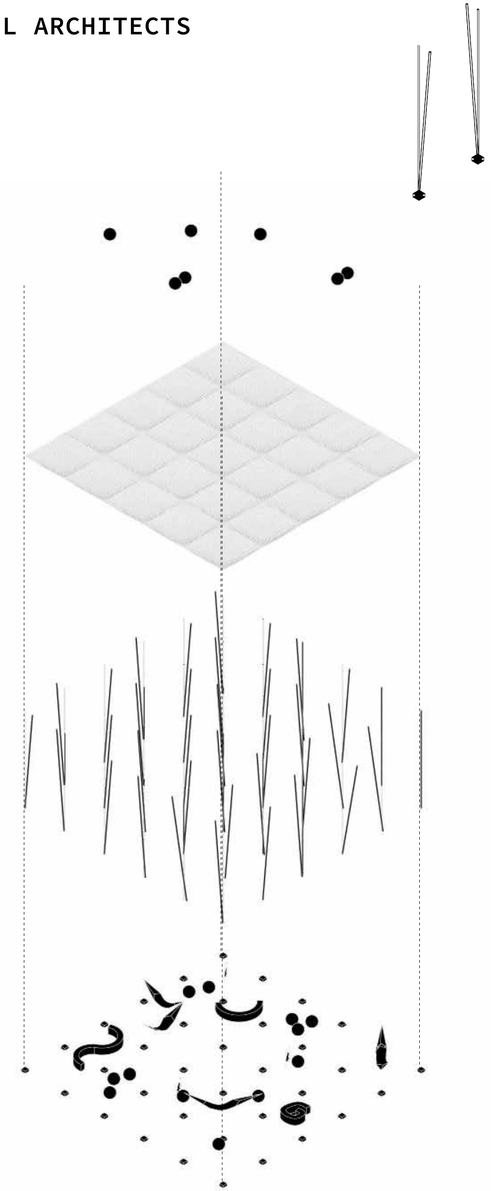


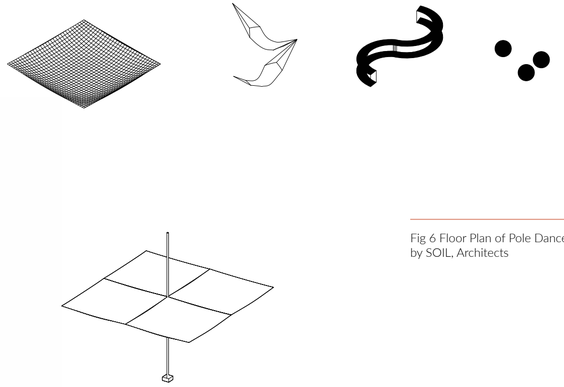
CAN THE SPATIAL QUALITIES BE EXAMINED THAT THESE ELEMENTS CREATE THROUGH EPHEMERAL STRUCTURES. ?



WILL INVESTIGATING THE FACTOR OF IMPERMANENCE AND TIME SCALE OF A STRUCTURE CREATE NEW POSSIBILITIES IN CITIES AND IN THE WAY WE DESIGN BUILDINGS ?

POLE DANCE -
BY SO-IL ARCHITECTS





PHYSICAL

GATHER
SITTING -
Sit | Lay
NATURE
OPENINGS
DAYLIGHT
PRIVACY
Private|
Public|
Semi Public
SCALE
Human|Child
MONUMENTAL
CLIMATE
RESPONSIVE
FURNITURE|OBJECTS

SENSORY

SAFETY
COMFORT
INTEREST

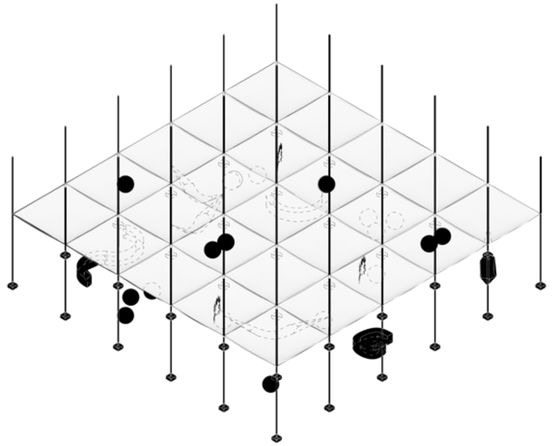
URBAN QUALITIES

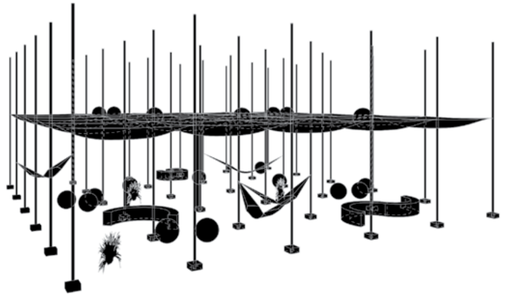
STREET
CONNECTIONS
VIEWS
ENCLOSURE
IMAGEABILITY
TRANSPARENCY
LINKAGE

Fig 6 Floor Plan of Pole Dance by SOIL, Architects

Fig 7 Pole Dance by SOIL Architects

Fig 8 MOMA ps1 competition project, SOIL Architects





ASSEMBLY = DISASSEMBLY

Rubber Pivot bases + Poles + Nets + Seating (benches + hammocks) + Gym balls + Pulleys + Rain collecting plants

FABRICATION

All readily available materials. Bungee cords are used to control movement and elasticity for the poles.
16X16 ft grids
30 ft poles
Used to physical models to help understand the tactility and elasticity between poles.

MATERIALITY

Rubber, Steel, Fabric, Ready to use objects

LIFECYLE

3 months
All material reused in a different location after the installation.

ADA FOR MICROSOFT

BY JENNY SABIN STUDIO

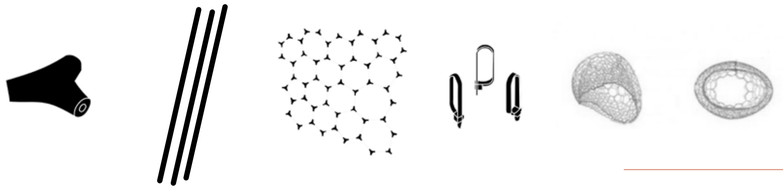
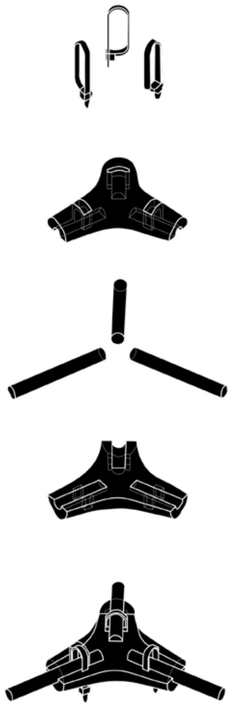
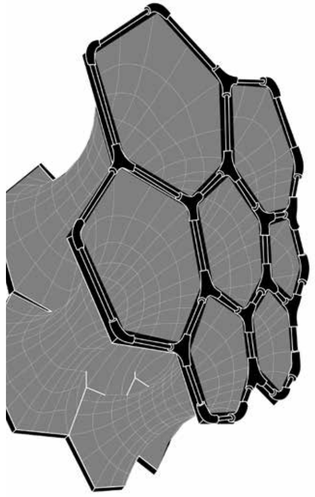


Fig 13 Ada by Jenny Sabin studio, Microsoft office





PHYSICAL

PAVILION
SITTING - Sit | Lay
NATURE
OPENINGS
DAYLIGHT
PRIVACY
Private|
Public|
Semi Public
SCALE
Human|Child
MONUMENTAL
CLIMATE
RESPONSIVE
FURNITURE|OBJECTS

SENSORY

SAFETY
COMFORT
INTEREST

URBAN QUALITIES

STREET
CONNECTIONS
VIEWS
ENCLOSURE
IMAGEABILITY
TRANSPARENCY
LINKAGE

Fig 9 Ada by Jenny Sabin studio, Microsoft office

Fig 10 connection detail, Ada by Jenny Sabin studio, Microsoft office

Fig 11 Knitted textile by Ada by Jenny Sabin studio, Microsoft office

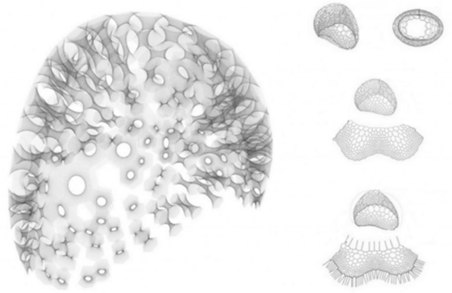


Fig 12 Ada by Jenny Sabin studio,

ASSEMBLY = DISASSEMBLY

shell structure, unique 3D printed nodes,shell structure with fiberglass rods, zip tie cables, knit cone with white and photo luminescent polyester yarn, nylon webbing

FABRICATION

computational design and digital fabrication,

MATERIALITY

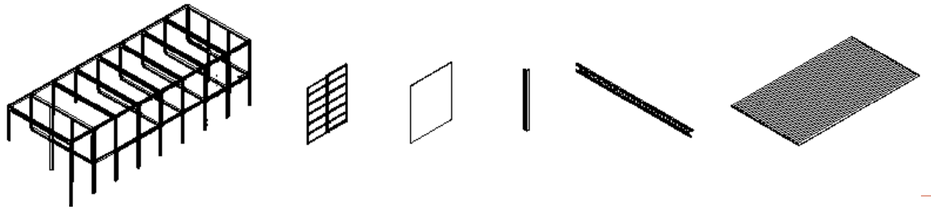
steel, textiles and photo-luminescent fibers , fiberglass

LIFECYLE

indoor architecture pavilion, 1 year

EAMES HOUSE-

BY CHARLES AND RAY EAMES



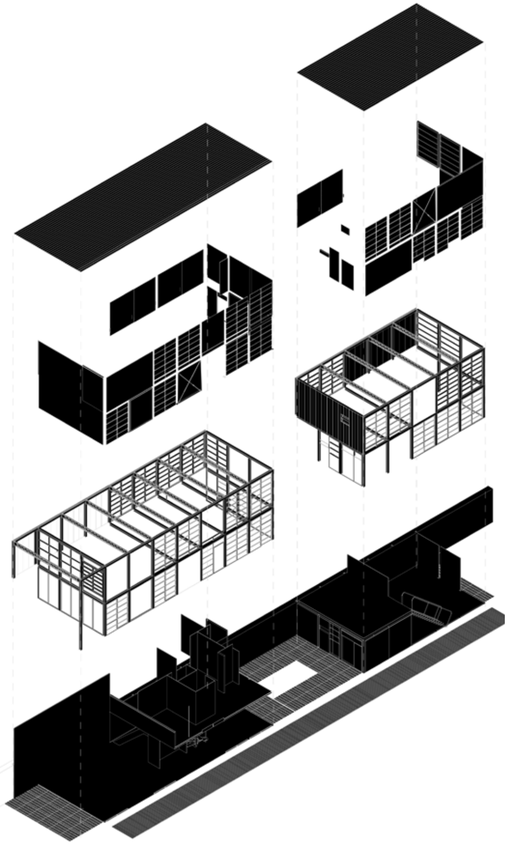
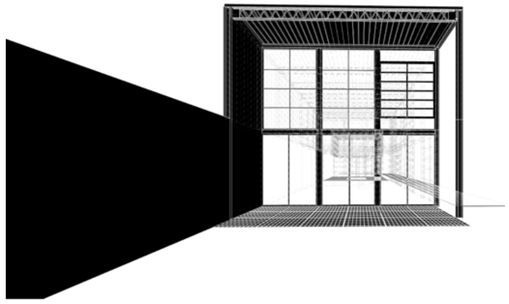
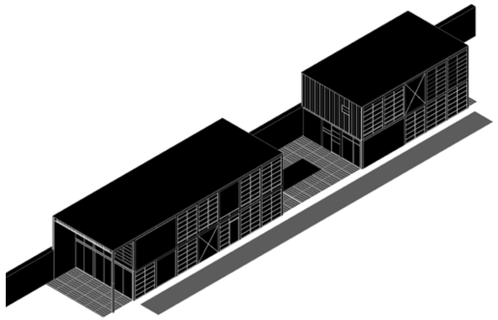


Fig 14 Eames House exterior view

Fig 15,16 Ear
details and fa





PHYSICAL

HOUSE
SITTING -
Sit | Lay
NATURE
OPENINGS
DAYLIGHT
PRIVACY
Private|
Public|
Semi Public
SCALE
Human|Child
MONUMENTAL
CLIMATE
RESPONSIVE
FURNITURE|OBJECTS

SENSORY

SAFETY
COMFORT
INTEREST

URBAN QUALITIES

STREET
CONNECTIONS
VIEWS
ENCLOSURE
IMAGEABILITY
TRANSPARENCY
LINKAGE

ASSEMBLY = DISASSEMBLY

Concrete retaining wall, Steel in H beams interlocking decking, open webbed joists of the roof, as the sashing for windows and doorways, and as exterior wall siding. Cemesto panels, glass, Paint, wall-tex, Pylon, plywood, tallow wood, vinyl tiles

FABRICATION

use of off-the-shelf components, pre fabricated, mass produced materials.

MATERIALITY

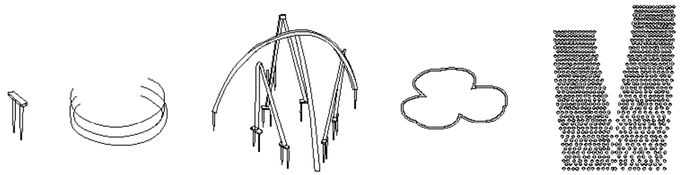
Concrete, steel , plywood, wall panels, glass, paint, wood

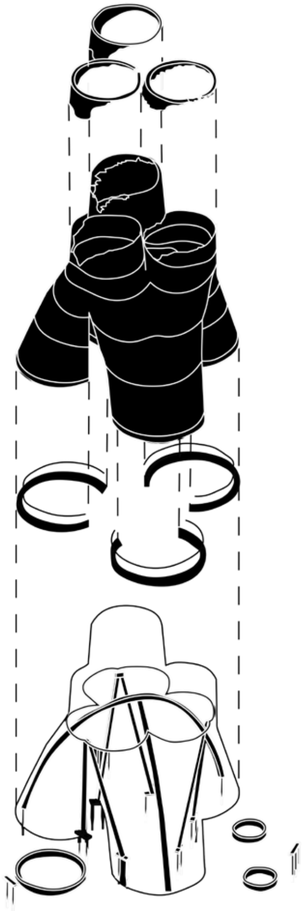
LIFECYLE

built as a permanent structure.

HY FI

BY THE LIVING





PHYSICAL

PAVILION
SITTING - Sit | Lay
NATURE
OPENINGS
DAYLIGHT
PRIVACY
Private|
Public|
Semi Public
SCALE
Human|Child
MONUMENTAL
CLIMATE RESPONSIVE
FURNITURE|OBJECTS

SENSORY

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COMFORT
INTEREST

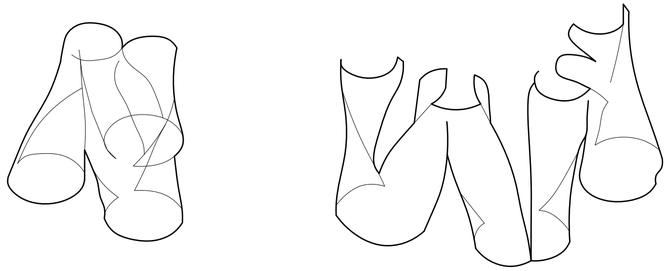
URBAN QUALITIES

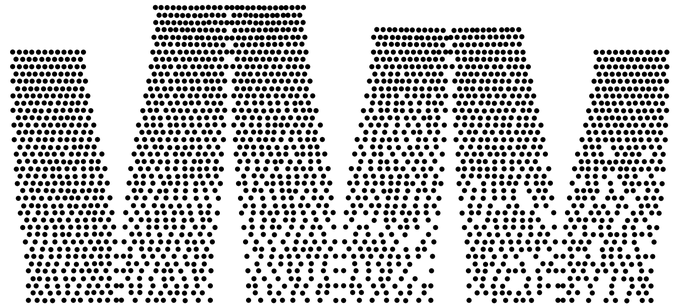
STREET
CONNECTIONS
VIEWS
ENCLOSURE
IMAGEABILITY
TRANSPARENCY
LINKAGE

Fig 17 Hy Fi by The Living architects

Fig 18 Hy Fi by The Living architects

Fig 19 Hy Fi by The Living architects





ASSEMBLY = DISASSEMBLY

Reusable ground screws for foundation, reclaimed timber used for scaffolding, steel diaphragm, Hempcrete foundation blocks, sustainable mortar, organic bricks,

FABRICATION

fabrication process includes bio-technology, agriculture, and industrial manufacturing. Computation is used in the design and simulation process
can be deconstructed, the bricks are composted and the resulting soil is used by local community gardens.

MATERIALITY

Bio compostable materials such as mortar, brick blocks. steel , wood

LIFECYLE

3 months, bricks are composted after the structure is disassembled.

KUMBH MELA

PHYSICAL

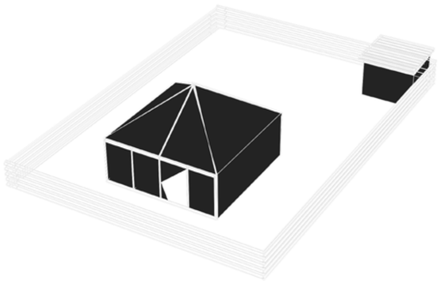
HOME, COMMUNITY
Sit | Lay
NATURE
OPENINGS
DAYLIGHT
PRIVACY
Private|
Public|
Semi Public
SCALE
Human|Child
MONUMENTAL
CLIMATE
RESPONSIVE
FURNITURE|OBJECTS

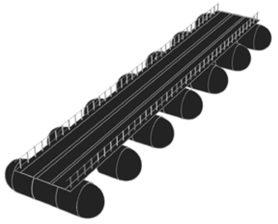
SENSORY

SAFETY
COMFORT
INTEREST

URBAN QUALITIES

STREET
CONNECTIONS
VIEWS
ENCLOSURE
IMAGEABILITY
TRANSPARENCY
LINKAGE





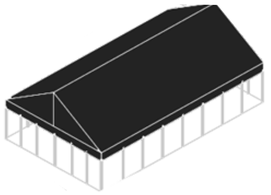


Fig 20 Kumbh mela overall view

Fig 21 Kumbh mela pontoon bridge

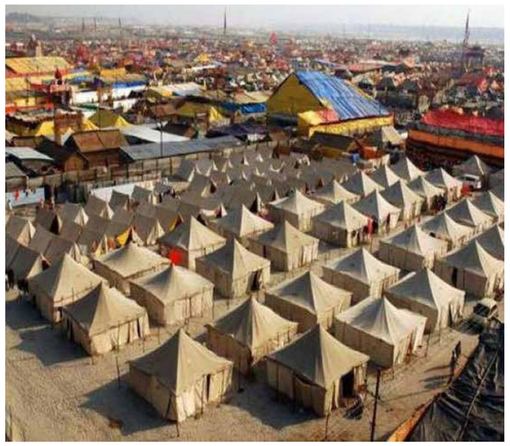
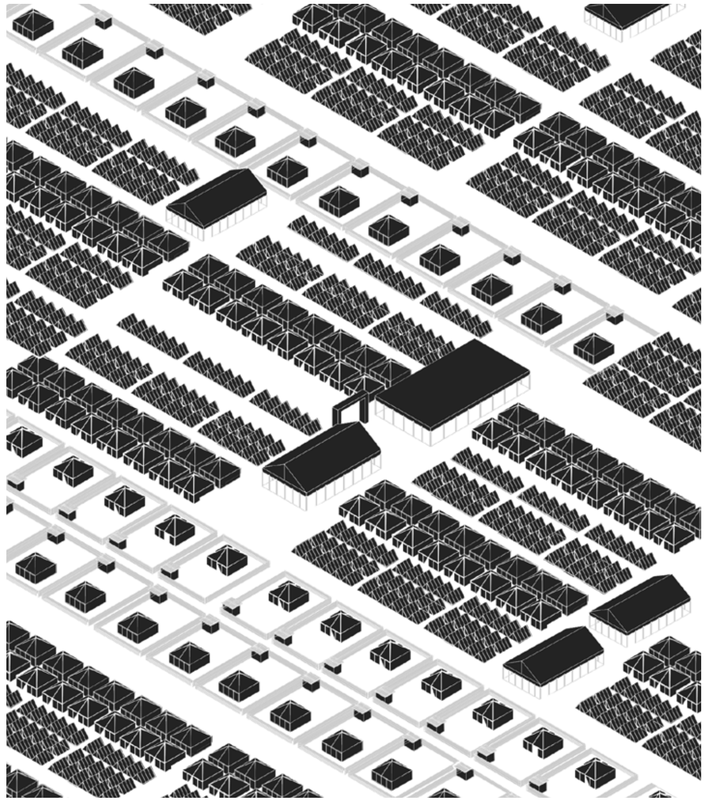


Fig 23 Kumbh mela overall view



ASSEMBLY = DISASSEMBLY

metal handrails, metal plates, pontoon, metal beams, metal corrugated sheet, metal , bamboo poles, textile for tents, connectors like nuts,tie wire, nails

FABRICATION

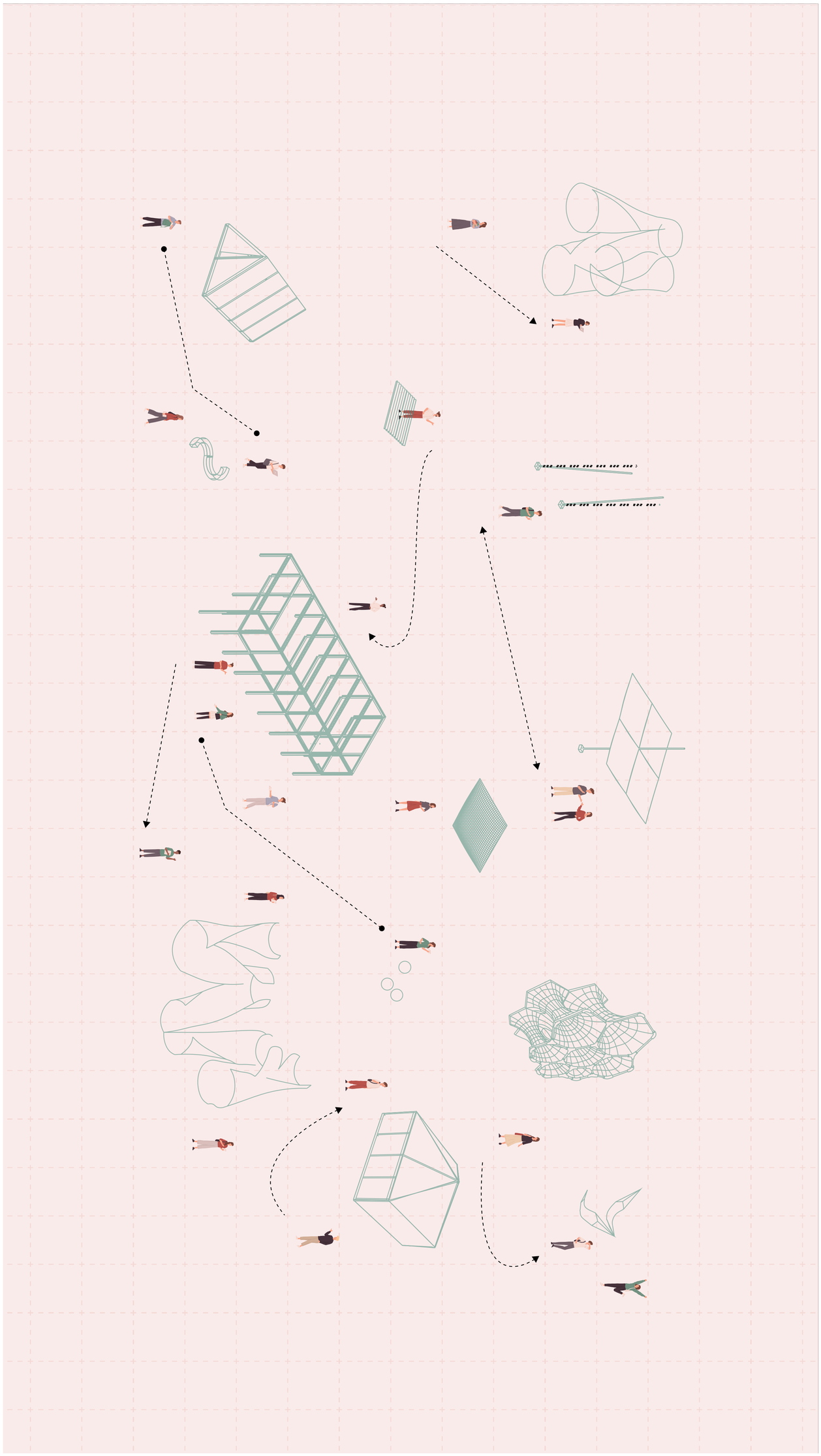
mass produced components

MATERIALITY

metal, bamboo, textile

LIFECYLE

all structures are transported and assembled in a span of 2 months. The ephemeral city is used for 6 months and is disassembled again in a span of a month.



FRAME

Fig 24 Eames house
Roof detail

Fig 25 Hy-Fi by the living
architects frame detail

Fig 26 Eames house
Roof detail

Fig 28 Pole dance by So-
IL architects

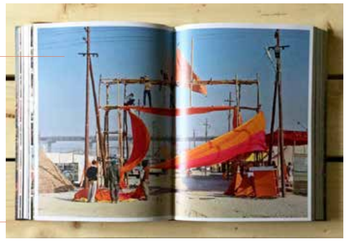


Fig 30 Kumbh mela
frame construction

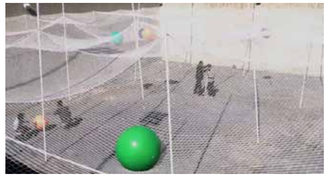


Fig 36 Pole dance by So-
IL architects

Fig 29 Kumbh mela
frame construction

Fig 38 Kumbh mela
frame construction

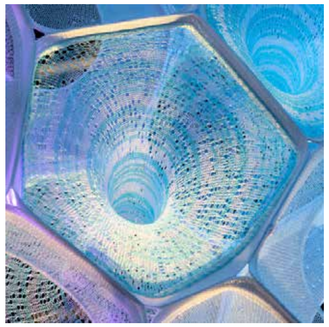


Fig 37 Ada by Jenny
SAbin studio

Fig 31 Ada by Jenny
SAbin studio

Fig 32 Pole dance by So-
IL architects

From these studies I tried to diagram them against pre-established terms to understand the process of assembly and disassembly better and which have helped me create a catalogue of techniques that can be used to develop prototypes.

From looking at more closely into these studies I started to look at their elements as frame, openings, enclosure and translucency and tried to achieve these characteristics in the prototype development. Keeping these ideas in mind I also started to think about bottom up approach to urbanism where in abandoned and vacant spaces could be used for temporary structures where in temporary use can be alternatively used for more flexible planning. Local community can participate in planning and building of these structures which would result in a more culturally inclusive design and can also directly address the needs of the community

TRANSLUCENCY

OPENINGS

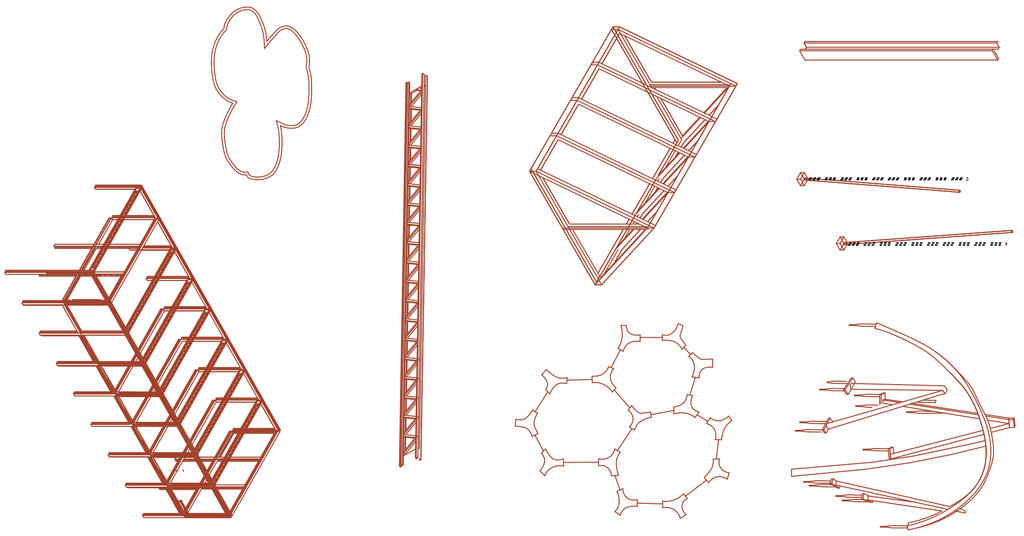
Fig 33 Eames House by
Charles and Ray Eames

Fig 34 Hy fi by the Living
architects

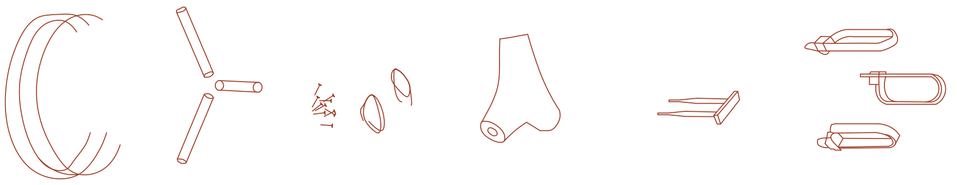
Fig 35 Hy-fi by the Living

ENCLOSURE

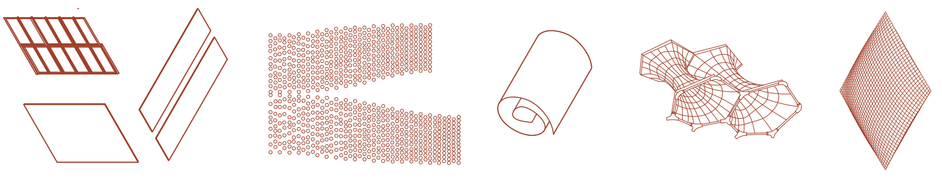
FRAME



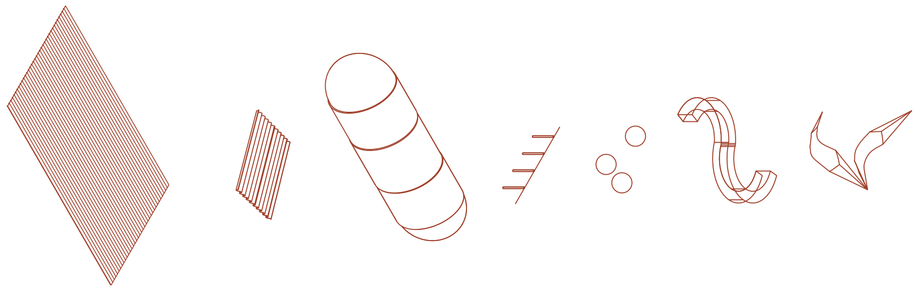
CONNECTION

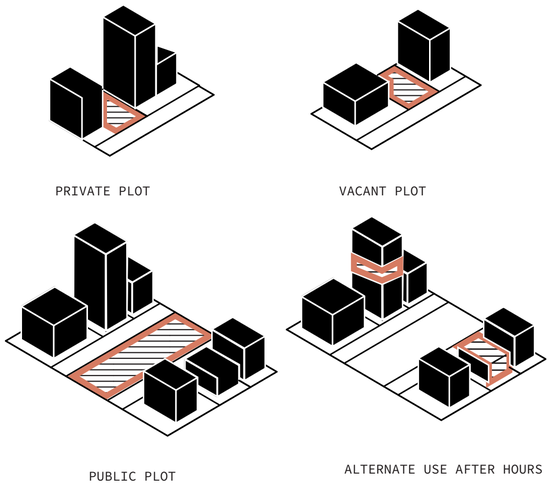


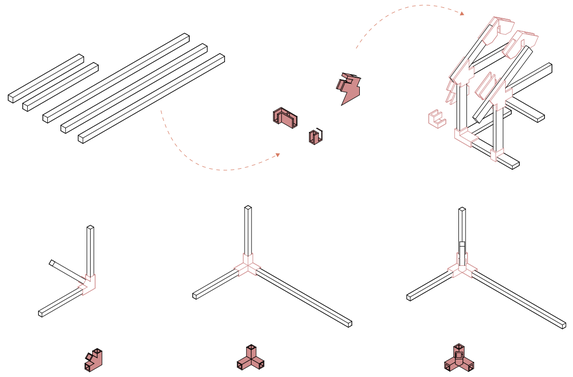
ENCLOSURE



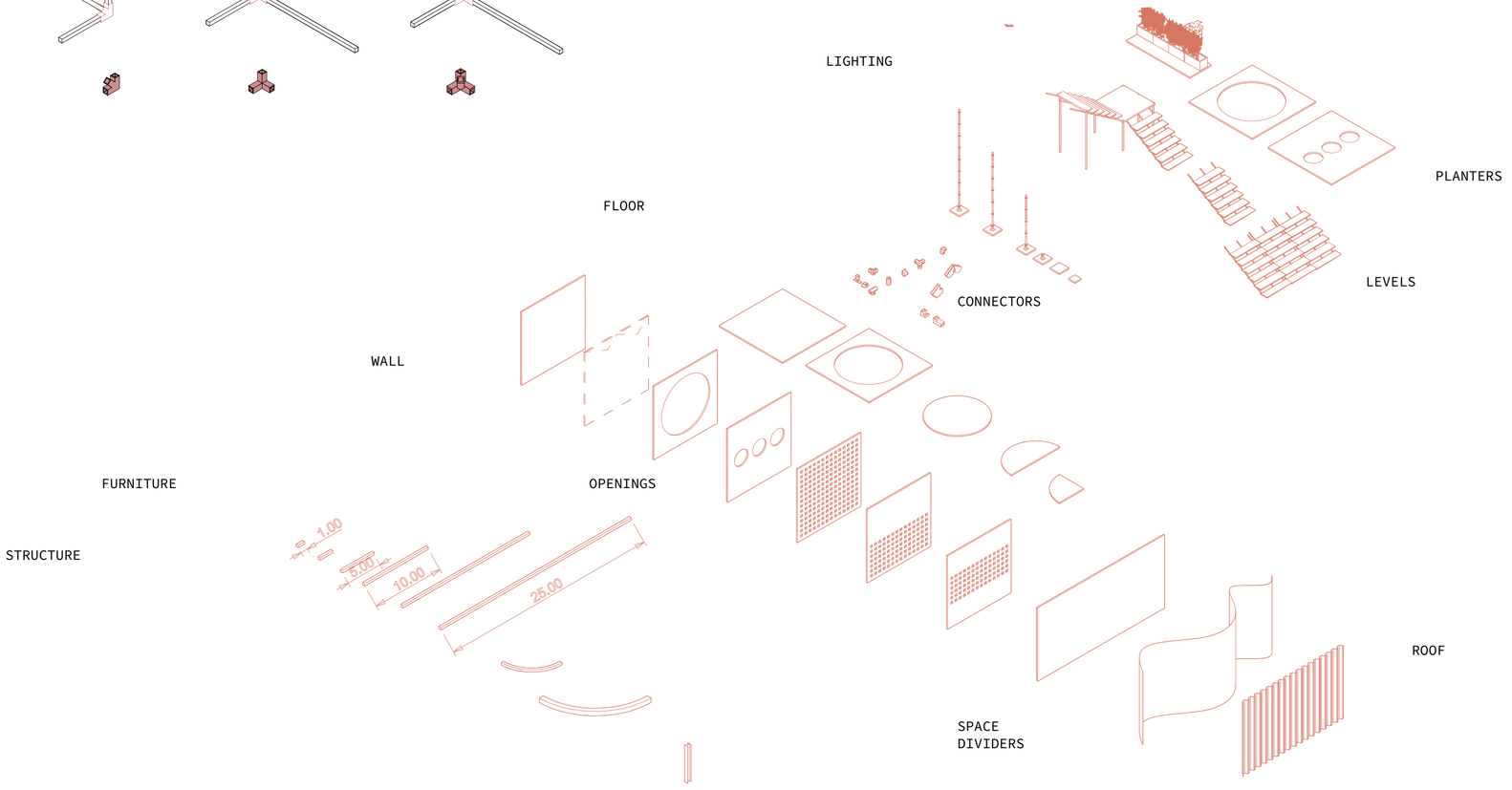
OBJECT







From the research I have done I started to develop a kit of parts that can be used in multiple ways to by assembling and dissembling these structures without material degradation. The parts are modular which can be connected in multiple ways by constantly changing the nodes. The nodes can be 3d printed for each use or the available nodes can be used.



I then started to play around with these parts to understand how can function in different ways. These parts can be used to on a regular basis wherein temporary architecture becomes an everyday thing in today's cities. Some examples of pop spaces could be exhibition or gallery, restaurant pop-up, reading or play, bar or theater pop up space.

EXHIBHITION / GALLERY

PHYSICAL

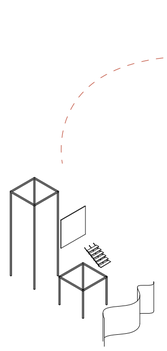
EXHIBHITION
Sit | Lay
NATURE
OPENINGS
DAYLIGHT
PRIVACY
Private|
Public|
Semi Public
SCALE
Human|Child
MONUMENTAL
CLIMATE
RESPONSIVE
FURNITURE|OBJECTS

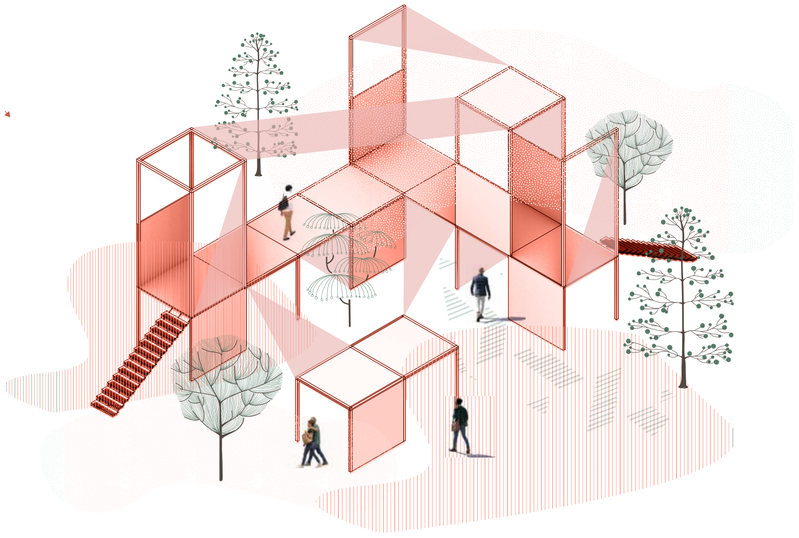
SENSORY

SAFETY
COMFORT
INTEREST

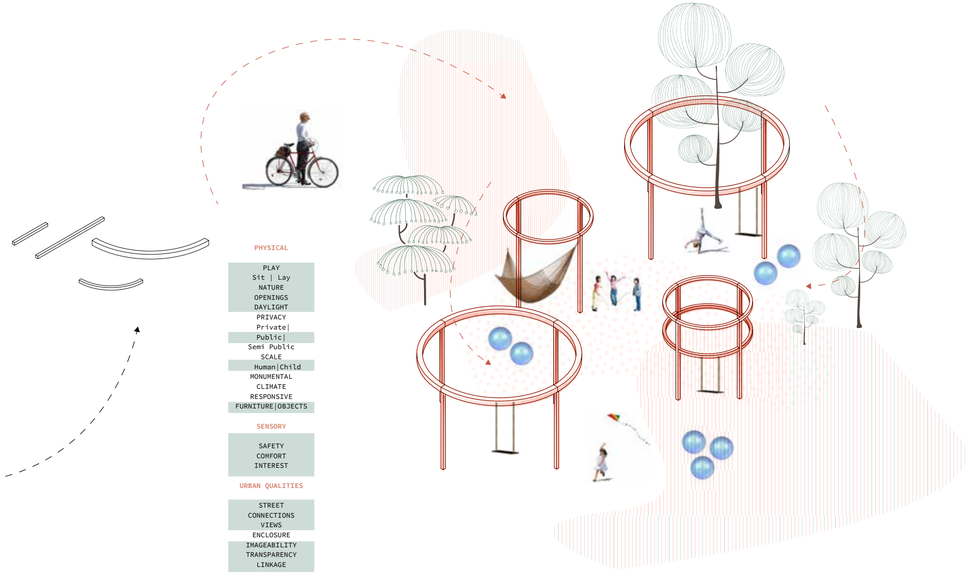
URBAN QUALITIES

STREET
CONNECTIONS
VIEWS
ENCLOSURE





PLAY



PHYSICAL

PLAY
Sit | Lay
NATURE
OPENINGS
DAYLIGHT
PRIVACY
Private|
Public|
Semi Public
SCALE
Human|Child
MONUMENTAL
CLIMATE
RESPONSIVE
FURNITURE|OBJECTS

SENSORY

SAFETY
COMFORT
INTEREST

URBAN QUALITIES

STREET
CONNECTIONS
VIEWS
ENCLOSURE
IMAGEABILITY
TRANSPARENCY
LINKAGE

GARDEN POP- UP

PHYSICAL

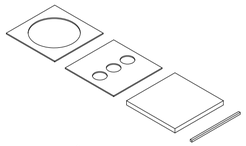
GARDEN
Sit | Lay
NATURE
OPENINGS
DAYLIGHT
PRIVACY
Private|
Public|
Semi Public
SCALE
Human|Child
MONUMENTAL
CLIMATE
RESPONSIVE
FURNITURE|OB-
JECTS

SENSORY

SAFETY
COMFORT
INTEREST

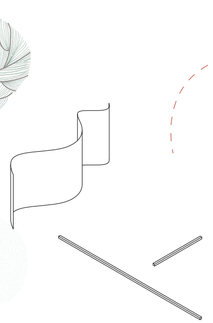
URBAN QUALI-
TIES

STREET
CONNECTIONS
VIEWS
ENCLOSURE



I have used the same kit of parts to develop different unique moments that can be part of the constantly changing environment

PLAZA



PHYSICAL

PLAY
Sit | Lay
NATURE
OPENINGS
DAYLIGHT
PRIVACY
Private|
Public|
Semi Public
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Human|Child
MONUMENTAL
CLIMATE
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SENSORY

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URBAN QUALITIES

STREET
CONNECTIONS
VIEWS
ENCLOSURE
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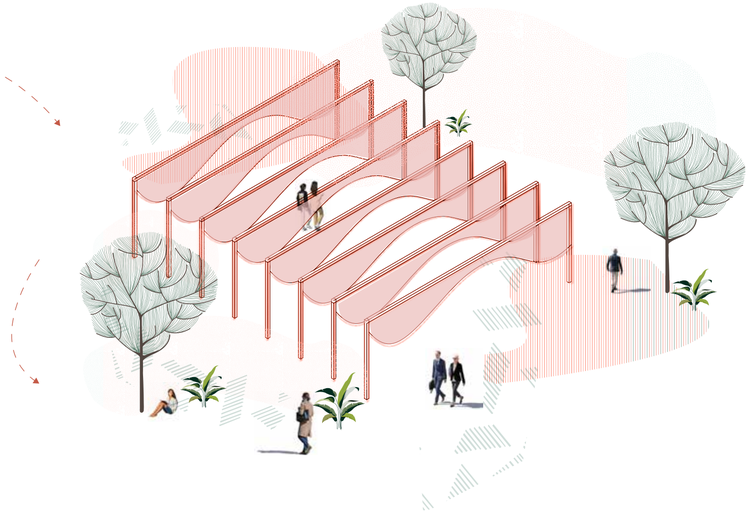
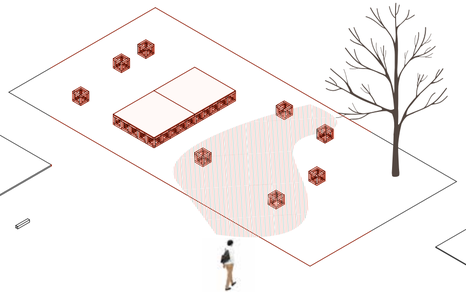
LINKAGE

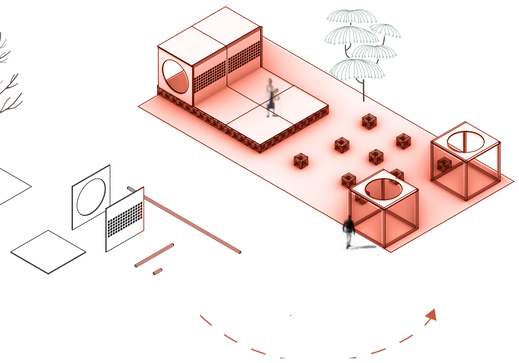


BAR POP UP

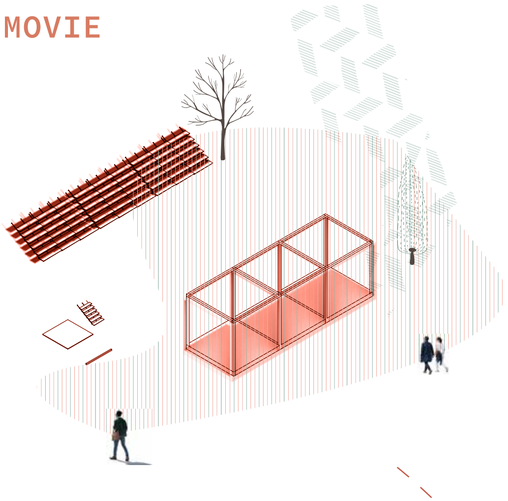
THEATER



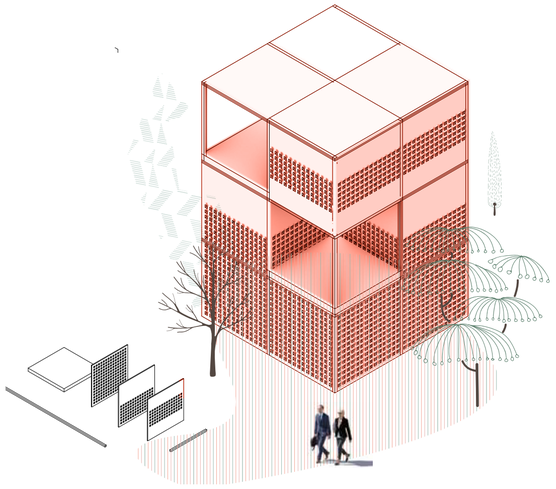
CONCERT



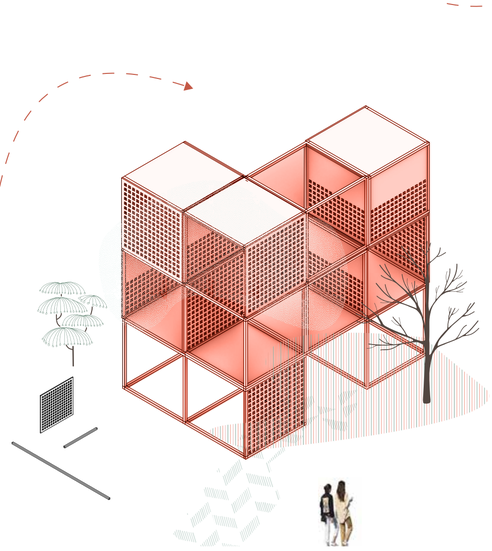
MOVIE



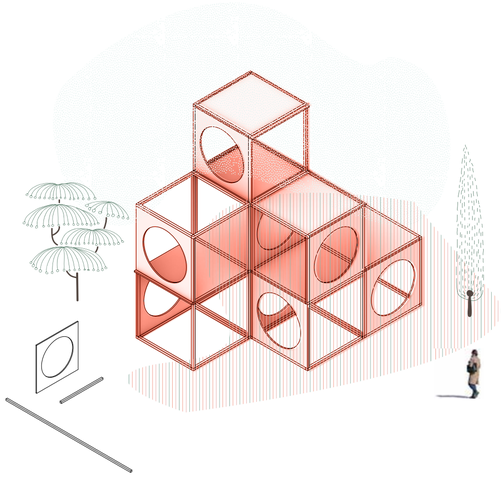
READ POP- UP



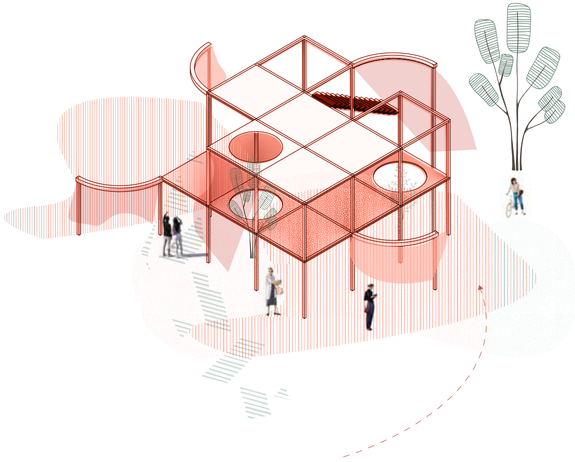
OFFICE



RETAIL



RESTAURANT POP UP



To test this out in a real time scenario I have chosen the Livonia Ave in NY along the Triboro corridor as my site.

As part of the regional plan Association of New York a competition was floated do demonstrate what region of New York would have additional opportunity to become more equitable, affordable and healthy while at the same time adapting to the future. That Triboro city corridor was part of this proposal. This corridor proposal will come into picture with an introduction of a new train line called that triboro line. It's an initiative for dual purposing an existing freight line that interconnects the outer boroughs of Brooklyn Queens and the Bronx. my thesis investigates the catalytic potential within the corridor at different locations through temporary architecture. It tries to draw emphasis on the in between spaces within these potential moments.

The triboro corridor is over 24 miles in length with an increase in population estimation by 2040 in this area. This corridor is based on existing freight line. The structural identity of this corridor is highly fragmented with some of it running on bridges some of it being raised some of it being sunk in. My thesis aims to investigate these potential moments to give different and unique solutions at different places. The existing land use and the local character would be the driving factors for my design.
Livonia Ave
This intervention could be a hub for cultural and community facilities. This area connects three different subway routes in addition to the tribunal line with a significant amount vacant lots parking and scrap yards which can be utilized to develop temporary cultural activities.

Bibliography

1 On the Significance of Temporary Architecture Author(s): Barbara Chabrowe Source: The Burlington Magazine , Jul., 1974, Vol. 116, No. 856 (Jul., 1974), pp. 384- 388+391 Published by: (PUB) Burlington Magazine Publications Ltd. Stable URL: https://www.jstor.org/stable/877732

2 Introduction Source: Perspecta , 2003, Vol. 34 (2003), pp. 5-6+8 Published by: The MIT Press on behalf of Perspecta. Stable URL: https://www.jstor.org/stable/1567309

3 St Hill, C. (Ed.). (2019). This is Temporary: How Transient Projects are Redefining Architecture (1st ed.). RIBA Publishing. https://doi-org.libezproxy2.syr.edu/10.4324/9780429346545
4 May, John. 2019. Signal. image. architecture.: (everything is already an image).

5 Bishop, Peter and Williams, Lesley. The temporary city. Routledge,1957

6 Karandinou, Anastasia.No matter : theories and practices of the ephemeral in architecture. Burlington : Ashgate Publishing Company, [2013]

7 Kumbh Mela : mapping the ephemeral megacity / edited by Rahul Mehrotra & Felipe Vera ; with texts by Diana Eck, Tarun Khanna, Jennifer Leaning, John Macomber ; photographs by Dinesh Mehta supported by Dipti Mehta. Ostfildern, Germany : Hatje Cantz, [2015]

8 Madanipour, Ali.Cities in time : temporary urbanism and the future of the city. London ; New York, NY : Bloomsbury Academic, 2017.

9 9 Hill, Cate St. This is temporary : how transient projects are redefining architecture. Newcastle upon Tyne : RIBA Publishing, [2016]

10 Kronenburg, Robert. Architecture in motion : the history and development of portable building / Robert Kronenburg. London ; New York : Routledge, Taylor & Francis Group, 2014.

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Mediography
Fig 1 New living in Transient Mediations (by author)

Fig 2 Infographic of interrelating architecture, time, and permanence (by author)
Fig 3 Infographic of interrelating urban framework, Accommodation of change and resilience (by author)

Fig 4 Timeline collage (by author) image references linked in Mediography
Reference images from left to right

Crystal Palace
https://blog.inoxstyle.com/en/crystal-palace/
Accessed Feb 2021

Crystal palace Perspective
https://en.wikisource.org/wiki/The_Crystal_Palace
Accessed March 2021

Dymaxion House by Buckminster Fuller.
https://www.archdaily.com/401528/ad-classics-the-dymaxion-house-buckminster-fuller/51dee1f6e8e44eb808000010-ad-classics-the-dymaxion-house-buckminster-fuller-image, Accessed Feb 2021

Eames House, The Eames House, as photographed by Julius Shulman in 1950. Image credit: J Paul Getty Trust. Getty Research Institute, Los Angeles (2004.R.10
http://www.designcurial.com/news/at-home-with-the-eameses-7786932/
Accessed Feb 2021

Eames house axonometric
http://www.all-art.org/Architecture/25-15.htm
Accessed March 2021

Karaza theater, Tadao Ando
https://www.jstor.org/stable/pdf/1567160.pdf
Accessed Feb 2021

Karaza theater elevation by Tadao Ando
http://petreece-studio4-2010.blogspot.com/2010/08/formal-arrangement-of-theatre.html
Accessed March 2021

Floating Pavilion by Fumihiko Maki
http://adcitymag.ru/fumihiko-maki-and-associatesfloating-pavilion-plavuchaya/
Accessed Feb 2021

Floating pavilion elevation
https://www.tensinet.com/index.php/projects-database/projects?view=project&id=3853
Accessed March 2021

Seed cathedral section
https://www.detail-online.com/article/designing-the-seed-cathedral-14225/
Accessed March 2021

London Olympics 2012
https://www.archdaily.com/244370/olympic-shooting-venue-magma-architecture
Accessed Feb 2021

London Olympics Shooting range structure detail
https://www.archdaily.com/244370/olympic-shooting-venue-magma-architecture/axonometric-37?next_project=no
Accessed March 2021

Fig 5 collage (by author) image references linked in Mediography
Same images as used in Fig 4

Fig 6 Floor Plan of Pole Dance by SOIL, Architects
https://archello.com/project/pole-dance
Accessed Feb 2021

Fig 7 Pole Dance by SOIL Architects
https://www.metalocus.es/en/news/pole-dance-so-il
Accessed Feb 2021

Fig 8 MOMA ps1 competition project, SOIL Architects
https://www.metalocus.es/en/news/pole-dance-so-il
Accessed Feb 2021

Fig 9 Ada by Jenny Sabin studio, Microsoft office
https://www.jennysabin.com/ada
Accessed April 2021

Fig 10 connection detail, Ada by Jenny Sabin studio, Microsoft office
https://www.jennysabin.com/ada
Accessed April 2021

Fig 11 Knitted textile by Ada by Jenny Sabin studio, Microsoft office
https://www.jennysabin.com/ada
Accessed April 2021

Fig 12 Ada by Jenny Sabin studio, Microsoft office
https://www.jennysabin.com/ada
Accessed April 2021

Fig 13 Ada by Jenny Sabin studio, Microsoft office
https://www.jennysabin.com/ada
Accessed April 2021

Fig 14 Eames House exterior view, Photography is by Leslie Schwartz and Joshua White, courtesy of Eames Office., https://www.dezeen.com/2019/05/09/eames-house-conservation-management-plan/
Accessed April 2021

Fig 15 Eames house interior details and facade
Photography is by Leslie Schwartz and Joshua White, courtesy of Eames Office., https://www.dezeen.com/2019/05/09/eames-house-conservation-management-plan/
Accessed April 2021

Fig 16 Eames house interior details and facade
Photography is by Leslie Schwartz and Joshua White, courtesy of Eames Office., https://www.dezeen.com/2019/05/09/eames-house-conservation-management-plan/
Accessed April 2021

Fig 17 Hy-Fi by The Living, where the bricks are made of agricultural waste (courtesy The Living architects)
https://www.inexhibit.com/case-studies/hy-fi-summer-installation-moma-ps1/
Accessed on April 14,2021

Fig 18 Hy-Fi by The Living, where the bricks are made of agricultural waste (courtesy The Living architects)
https://www.inexhibit.com/case-studies/hy-fi-summer-installation-moma-ps1/
Accessed on April 14,2021

Fig 19 Hy-Fi by The Living, where the bricks are made of agricultural waste (courtesy The Living architects)
https://www.inexhibit.com/case-studies/hy-fi-summer-installation-moma-ps1/
Accessed on April 14,2021
Fig 20 Kumbh mela overall view
https://worksthatwork.com/4/constructing-the-worlds-biggest-disassemblable-city
Accessed Feb 2021

Fig 21 Kumbh mela pontoon bridge
https://worksthatwork.com/4/constructing-the-worlds-biggest-disassemblable-city
Accessed Feb 2021

Fig 23 Kumbh mela overall view
https://worksthatwork.com/4/constructing-the-worlds-biggest-disassemblable-city
Accessed Feb 2021

Fig 24 Eames house Roof detail
https://www.metalocus.es/en/news/pole-dance-so-il
Accessed Feb 2021

Fig 25 Hy-Fi by the living architects frame detail

https://www.inexhibit.com/case-studies/hy-fi-summer-installation-moma-ps1/
Accessed on April 14,2021

Fig 26 Eames house Roof detail
https://www.eamesoffice.com/blog/npr-covers-charles-and-rays-eames-house/
Accessed April 2021

Fig 27 Ada by Jenny Sabin studio frame construction
https://www.jennysabin.com/ada
Accessed April 2021

Fig 28 Pole dance by So-IL architects
https://www.metalocus.es/en/news/pole-dance-so-il
Accessed Feb 2021

Fig 29 Kumbh mela frame construction

Kumbh Mela : mapping the ephemeral megacity / edited by Rahul Mehrotra & Felipe Vera ; with texts by Diana Eck, Tarun Khanna, Jennifer Leaning, John Macomber ; photographs by Dinesh Mehta supported by Dipti Mehta. Ostfildern, Germany : Hatje Cantz, [2015]

Fig 30 Kumbh mela frame construction

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Fig 31 Ada by Jenny SAbin studio
https://www.jennysabin.com/ada
Accessed April 2021

Fig 32 Pole dance by So-IL architects
https://archello.com/project/pole-dance
Accessed Feb 2021

Fig 33 Eames House by Charles and Ray Eames
https://www.archdaily.com/66302/ad-classics-eames-house-charles-and-ray-eames
Accessed April 2021

Fig 34 Hy fi by the Living architects
https://www.inexhibit.com/case-studies/hy-fi-summer-installation-moma-ps1/
Accessed on April 14,2021

Fig 35 Hy fi by the Living architects
https://www.inexhibit.com/case-studies/hy-fi-summer-installation-moma-ps1/
Accessed on April 14,2021

Fig 36 Pole dance by So-IL architects
https://www.metalocus.es/en/news/pole-dance-so-il
Accessed Feb 2021

Fig 37 Ada by Jenny SAbin studio
https://www.jennysabin.com/ada
Accessed April 2021

Fig 38 Kumbh mela frame construction

Fig 38 Kumbh mela frame construction
https://worksthatwork.com/4/constructing-the-worlds-biggest-disassemblable-city
Accessed Feb 2021

Fig 39 Eames House by Charles and Ray Eames
https://www.archdaily.com/66302/ad-classics-eames-house-charles-and-ray-eames
Accessed April 2021