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POLYNESIA FLIGHT INFORMATION REGION

The Flight information region (FIR) is a specified region of airspace in which a flight information service and alerting service are provided and it is the biggest division of airspaces for now. Through research the relationship between colonialism with the current FIR system were identified. The FIRs of Spain, France and the United States have expanded to outside their main territories, and these three countries are getting the airspaces above their collectivities, which can be interpreted as a contemporary vestige of colonial legacy. The governments of those mainland countries are getting revenue from the overflight fee.

The proposal located in the high sea near French Polynesia concerns an initiative of an Air Traffic Control center, that has its own FIR above, breaking and subverting the current FIR. It can be considered as a gesture that pierces layers of ocean, atmosphere, outer space and the existing order of airspace with its form and function. It forms as a whole, but it also consists of distinctive parts.

The initiative addresses alliances of polynesian communities and environmental organizations. The proposed service center will be funded by them, and the revenue collected by overflight fees will be shared with the indigenous communities. It reconstructs the power structure by organizing the operating system and revenue model.
This research drawing is a timeline on technologies that refer to air occupation. They are arranged concerning the maximum height in km that each one of them can reach. They start from the sea level and move to outer space. Also, it describes how inventions of air occupations have been paralleled with the development of the power dynamics of the global.
The proposal is located at Bush Terminal – A historic intermodal shipping, warehousing, and manufacturing complex that prospered at one point due to its proximity to the water. The proposal consists of three projects that focus on the factory as a complex. They are distributed across the area and from an urbanistic point of view, they try to revive the defunct rail line into a new green spine. The spine acts as a connecting element between them, thus a linked workflow between the projects is created. The aim is to bring back the intermodal complex that used to exist but also the urban regeneration of the area. The projects explore and respond to the site by sharing the concept of “Under one roof”, using the roof as a main performative element with different activations of roof and ground.

The first part of the proposal refers to a rubber recycling factory whose architecture opposes the ordinary factory and its conservative organization of workflows. The products produced are rubber crumbs, rubber membranes, and rubber tiles. It’s a building made out of a steel structure and glass that unveils different aspects of the manufacturing processes to the public. The proposal follows the logic of boxes inside a box. A large suspended roof defines underneath a series of sculptural volumes that organize the workflow, and the space creating connections and relations among the manufacturing processes. The plan represents a ground of flows. The volumes that exceed the perimeter of the building function as inputs (importing raw materials) and outputs (distribution of final products). Additionally the building makes use of the rail line. Within the built form, four green voids are located. On the rooftop, a green landscape connects the roof with the level inside the space frame, thus creating an integration of public spaces, administration/office spaces, and manufacturing processes. This hybrid building develops a new factory model in the area of Bush Terminal that relocates the public realm to the top and covers under one roof volumes that emerge from the ground. It’s a factory that is integrated into society, not segregated.
Within the built form, four green voids are located. They afford daylight, natural ventilation, and its continuous vegetated ramps enables greenery to flow from the roof’s garden down to the first floor. Also, they can potentially harvest rainwater and surface water as a part of the building’s water recycling system.
The landscape of the sculptural volumes is interrupted by openings between them. A design decision made to create a relationship between the inside working environment to the outside urban environment so that workers don’t feel disconnected from time and space while working. On the second floor, there are some elevated working spaces along with green spaces.
In the philanthropic work of the Ford Foundation is observed its close relation and perception of labor. Over the years Ford has supported projects whose presented philanthropy is based on different practices of organized labor; closely connected to vocational training of people in need, to create productive citizens or rather the skilled workforce needed to meet the evolving needs of the businesses. It is noted that Ford usually funds Self-Help housing projects, an act that tries to face poverty around the world by providing a method for mass construction of houses, based on “Self-Help housing manuals”. Ford’s attention to manpower reveals its desire to spread a vision for an industrial political economy.

CASE: FREEDOM CITY

The project investigates Freedom City, a Self-Help housing project that Ford Foundation funded, along with other institutions and organizations. In July 1966 Freedom City was formed in 400 acres of land in Wayside, Mississippi, by ninety-four displaced African American families that had turned into plantation refugees due to the rise of new agricultural technologies. An act of community development hoped to be an exemplary model for struggling black people, thus eliminating poverty and inequality. The vision for a self-sufficient community didn’t flourish and the project stopped in 1973 without significant results.

PROPOSAL

As an intervention, a renegotiation of the Freedom City is proposed. A diagrammatic map unfolds of how Freedom City could have been developed over time if it hadn’t failed. A more loose system of articulation, border definition, fund redirection, and program reorganization is being suggested. Houses formed in groups function as a “core”. Around them, the communal entities of outdoor living, outdoor showering, and outdoor dining are formed. In the middle, a zone of leisure activities appears. The rest of the space is used for gardening. The activities are being separated into productive and non-productive, with the most non-productive prevailing. The project is seen as a try for community development based not on labor but on self-determination, sharing, freedom of spaces, leisure, and flexibility for unexpected events to occur.
The project explores the creation of out of this world spaces, atmospheres, and conditions. It experiments with materiality, reflection, and sunlight. The created world intends to create a sense of movement in a space that looks as if time has paused.
“Way to the top” is an axonometric view game where the player guides a moving ball (character) up a never ending series of moving platforms emerging from a geometrically complex vertical wall. The goal is to reach the top without falling into the gap. The character faces difficulties on its way to the top such as being trapped between the moving geometries, getting pushed by them, leading the player to the edge of the wall and also the unexpected change of the world’s scale.
The project is about a study that explores versatile wall designs through generating and rotating openings in the wall. It's an investigation of a wall that could be used in various circumstances, contexts and settings. The walls are generated through rotating multiple openings in the wall. The rotations could be horizontal or vertical, and could be along any vertical or horizontal axis within the openings, and at any angle. The project defines three different circumstances: exhibition, outdoor dining and duty-free shelves- ads / information spot for airports. In each circumstance, certain restrictions are applied to make designs suitable. A total of five input parameters are used to generate random options. Discover was used to optimize the designs towards different goals according to the circumstances. In the circumstances, designs with maximum usage tend to have fewer openings. So, the number of openings is set as another optimization goal to make more openings in the designs for more versatile results. From Discover the optimal designs were selected. The project explored the possibilities of creating space through rotating openings of a wall in three different circumstances. The circumstances have different restrictions and generate different optimization results, while the third circumstance had no restrictions on rotations. More restriction options and optimization goals could be further explored to generate different designs towards different functions and under different circumstances.
The project was inspired by STOREFRONT FOR ART AND ARCHITECTURE by Steven Holl Architects, and thinking of further possibilities and usage of this design prototype.

Dividing the wall

The designs are generated on a wall with a preset dimension of 10 feet * 45 feet. The generation of the designs of the walls mainly includes two parts. Firstly, the wall is divided into multiple rectangular parts, from which the openings are generated. Secondly, the openings are rotated to make up the use of the wall.

Algorithm for Wall Division

```python
import Rhino.Geometry as rh
from scriptcontext import doc

tol = doc.ModelAbsoluteTolerance

def Divide(cv, d, s):
    bb = (cv, rh.BoundingBoxBox(True))
    dim = [x, y]
    vec1 = [Rh.Vector3d(1,0,0), Rh.Vector3d(1,1,0)]
    vec2 = vec1[0:2] * dim[0:2] * 5
    new_pt = rh.Point3d(base_pt)
    new_pt.Transform(rh.Transform.Translation(vec1))
    other_dir = abs(9-1)
    vec2 = vec2[0:2] * dim[2] * other_dir
    new_pt = rh.Point3d(new_pt)
    split_line = rh.Line(new_pt, new_pt.TurnToCurves())
    Inter = rh.Intersect.Intersection.CurveCurve(cv, split_line, tol, tol)
    p = [1 if Parameter for i in inter]
    pieces = cv.Split(p)
    curves = []
    if pieces:
        line = rh.Line(pieces.PointAtStart, pieces.PointAtInd)
        curves = rh.BezierCurve.JoinCurves([line, line.TurnToCurves()])
        curves += curve
        return curves
    else:
        curves = [b]
```

1. Optimization Goal for Exhibition

For the exhibition, the area from which people could see the exhibition is evaluated. In this circumstance, all openings are rotated around a vertical axis, and the maximum distance of seeing the exhibition is set to 15 feet. Circles are drawn from the edge of the openings, and the area of a combined region is evaluated. The optimal design is expected to provide maximum area.

The optimization is run on Discover with 35 designs for each generation and for 25 generations.

According to the optimization result, the options with maximum area tend to have less number of openings. An option with 14 openings was chosen as the optimal design.
2. Optimization Goal for Outdoor Dining

For outdoor dining, the number of seats provided is evaluated. In this circumstance, each opening is rotated around a horizontal axis and by 90 degrees. An opening is considered to create a place for dining only if its height is between 2.5 and 3.5 feet. Then a seat is generated every 2.5 feet along the combined edge of the qualified openings. The optimal design is expected to provide most seats.

According to the optimization result, the options with maximum outdoor dining seats tend to have less number of openings. An option with 11 openings was chosen as the optimal design.

3. Optimization Goal for Duty Free Shops / Info Points

For duty-free shops, the maximum area for showing goods is evaluated. In this circumstance, the openings are rotated both horizontally and vertically, and by any angle. The height range of showing goods is here considered from 3 feet to 6 feet, and the parts of openings that fit into that range are counted. The optimal design is considered to provide maximum space for showing.

According to the optimization result, the options with maximum showing space tend to have less number of openings. An option with 13 openings was chosen as the optimal design.