Hill Study:
Reenergize Highly-programmed Hill Study Space
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A thesis submitted in partial fulfillment of the requirements for the degree Master of Design in Interior Studies [Adaptive Reuse] in the Department of Interior Architecture of the Rhode Island School of Design

By
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Abstract

Sloping sites present a variety of difficulties to the structures on which they are built: difficulty in access, difficulty in delineating the space, difficulty in reaching specific functional areas. These problems aren’t caused by the sloping site itself; the sloping site is a natural terrain. The problem lies in the contradiction between the natural sloping site and the traditional hillside architectural forms which evolved from flatland architecture. The College Building of the Rhode Island School of Design exemplifies the use of flatland architectural typology on the hillside. During the expansion of Rhode Island School of Design in 1935, RISD bought five buildings along College Street and joined the group into a single mass, now known as the College Building. Situated within the campus core, adjacent to the RISD museum, 3D store and Metcalf building, the College Building encompasses the entire block of College Street between Main and Benefit Street and houses six different departments: Textiles, Liberal Arts, Painting, Apparel, Architecture and Design, and the Writing Center. The building is erected on a 20 percent slope with 5501SF of inefficient interior space, mainly used for circulation. The College Building calls for a renovation to address efficiency and accessibility, a renovation that acknowledges the needs of a sloping site. In order to effectively work with and not against the College Building during this renovation, it is necessary to address the obvious juxtaposition between what is created by man and what is organic. Respecting the natural typology of a sloping site is necessary and the interior renovation must reinforce the same topographic language as the sloping site. Slope and stairs are similar when you want to be led up or down to a different point. They help you to reach the very top, to attain the peak. The rules of stairs on one hand is dictated by the shape and proportion of the human body, on the other hand, it is dominated by the force of gravity. The relationship between a tread and a riser necessarily determines the angle of the stairs as much as the angle of a climbing body is determined by the angle of a hillside or cliff face. College building is highly programmed, its instinctive anticipation awaits an alteration in adding unprogrammed space. Stairs is the medium that can be manipulated as the “in between” space so as to reenergize the existing building and motivate positive changes. Here, undefinable also signifies infinite possibility.
Precedents

Engineering and Technology University - UTEC
Grafton Architects + Shell Arquitectos

Architects: Grafton Architects, Shell Arquitectos
Location: Barranco, Peru

Grafton Architects: Yvonne Farrell, Shelley McNamara,
Ger Carty, Simona Castelli, Joanne Lyons, Ivan O’Conell

Local Architects: Shell Arquitectos [“Shell Arquitectos”, “Shell Arquitectos”, “Shell Arquitectos”] Alejandro Shell, Rafael Mispireta, Carlos Yagui, Vladimir Condor, Pamela Higa, Margaux Eyssette, Luis Tomassini, Franco Elias, Diego de la Vega

Project Area: 33945.5 m²
Project Year: 2015
Photographs: Shell Arquitectos, Iwan Baan
Manufacturers: Eternit

Claude Parent

Claude Parent, the creator of Oblique Architecture, was one of France’s most influential and subversive 20th-century architects, despite only designing a small number of completed buildings. He worked for Le Corbusier when he was young, but eventually, he rejected the older architect’s idea to develop his own theory. Parent’s theory was called oblique architecture, and championed a move from horizontal and vertical architecture into spaces defined by slopes and ramps. His primary concern was unbalanced spaces.

“Rejecting the vertical city, he imagined the oblique cities where the inhabitants live mainly as the mountaineers on the slopes, a new organisation of space based on the health and enjoyment of the body in motion.”

Chongqing Taoyuanju Community Center / Vector Architects

Architects: Vector Architects
Location: Chongqing, Sichuan, China
Architect in Charge: Gong Dong
Area: 10000.0 sqm
Project Year: 2015
Photographs: Su Shengliang, Xiaokai Ma
The Hanging Temple, also Hanging Monastery or Xuankong Temple, is a temple built into a cliff (75 m or 246 ft above the ground) near Mount Heng in Hunyuan County, Datong City, Shanxi province, China. The closest city is Datong, 64.23 kilometers to the northwest. Along with the Yungang Grottoes, the Hanging Temple is one of the main tourist attractions and historical sites in the Datong area. Built more than 1,500 years ago, this temple is notable not only for its location on a sheer precipice but also because it is the only existing temple with the combination of three Chinese traditional religions: Buddhism, Taoism, and Confucianism. The structure is kept in place with oak crossbeams fitted into holes chiseled into the cliffs. The main supportive structure is hidden inside the bedrock.[1] The monastery is located in the small canyon basin, and the body of the building hangs from the middle of the cliff under the prominent summit, protecting the temple from rain erosion and sunlight. Coupled with the repair of the dynasties, the color tattoo in the temple is relatively well preserved. On December 2010, it was listed in the “Time” magazine as the world’s top ten most odd dangerous buildings.

History
According to legend, construction of the temple was started at the end of the Northern Wei dynasty by only one man, a monk named Liao Ran. Over the next 1,400 years, many repairs and extensions have led to its present-day scale.
Site Analysis

Topography of RISD Campus

01 CIT/Mason Building
02 15 WEST
03 Market House
04 Auditorium
05 Design Center
06 Illustration Study Bldg
07 20 Washington Place
08 College Buildings/Bank Building
09 Chace Center
10 Metcalf Building
11 Central Power Plant
12 Waterman Galleries
13 Waterman Building
14 Museum Complex
15 Radeke Building
16 Memorial Hall
17 Farago Wing
18 Pendleton House
19 Carr House
Entrance Typology of RISD Campus

Assembly Typology of RISD Buildings

Free-Standing
- Alone
- Surrounded by Buildings

Cluster
- Separate but Grouped
- Joined / Overlapping

CIT Fletcher 15 west(Library) 20 Washington Place Market House Woods Gerry

123 Dyer(Career center) Auditorium
College building BEB
161 South Main(ID Building) Refectory (The Met)
3D STORE
MUSEUM
FURNITURE
N MAIN ST.
COLLEGE ST.
BENEFIT ST.
IT ST
LEG
MA
RISD
MUSEUM
PAINTING GALLERY
& PRINT MAKING
STUDIOS
3D STORE &
FURNITURE
WORKSHOP

College Building Analysis
The proportion of the original program

- Information Technology
- Facilities
- Faculty Association
- Shared Faculty
- Fine Arts
- Liberal Arts
- Textiles
- Painting
- Writing Center
- Apparel
- Architecture and Design
- Fine Arts
- Faculty Association

Original Total GSF: 76975SF
Original Total NSF: 46458SF

\[
\frac{46458}{0.65} \approx 71474SF
\]

Inefficient Area: 76975 - 71474 = 5501SF
Design Concept

existing condition

multi-functional center stairs concept 1

existing condition

multi-functional center stairs concept 2
The beauty of the natural slope is that we can freely choose and explore the possible path for the summit, but the traditional hillside architecture is likely to make you lost in a single linear space. Give the user a choice for multiple pathways rather than force them to accept a simple guide is what I want to achieve in my intervention. Reconsider stairs and use the stairs to create space.
Bibliography


