

# Art Center on the Lake

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ART CENTER ON THE LAKE XU ZHANG

**Thesis submitted to the faculty of the Virginia Polytechnic Institute and State University in partial Fulfillment of the Requirements for the Degree of Master of Architecture in Architecture Paul Emmons, Chair Marcia F. Feuerstein**

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Matthew Dreher December 12th, 2019 Alexandria, Virginia KEY WORDS: Art, Nature, Daily life, Architecture, View, Multi-function Hall, Lake, Gallery BLOOM / ART CENTER ON THE LAKE 2 ART CENTER ON THE LAKE XU ZHANG ABSTRACT The water's shore, used for defense, trade, transportation and industry, always plays an important role in a city's development. Buildings were built there to fulfill related practical functions, such as barns, factories or piers. However, at the present time, the functions mentioned above are not the only purpose of the shore, now more entertainment activities happen along the water's edge. Therefore, architecture's roles are changing. The site is in a small town called Riva San Vitale, which is located at the south end of Lake Lugano, Switzerland. For this small town, lake's shore is usually used by local people as a place for relaxation. Based on my four-month long living experiences there, I decided to design an art center on the lake to enrich residents' daily life. A folding method was used in form processing to reflect the mountains' shapes surrounding the town. Through this whole process, my thesis explores how the architecture is used as an instrument to bring art into people's daily life and, at the same time, extend people's life into nature. As a result, the Art Center will become a new plaza of Riva San Vitale. ART CENTER ON THE LAKE XU ZHANG GENERAL AUDIENCE ABSTRACT This thesis explores what role architecture can play in people's daily life. After four-month's experiencing local people's life in Riva San Vitale, a multi-function hall, a cafe & restaurant, a gallery and an entertainment space for birds, those four main functions were included in art center's designing process. Those functions of this art center not only were built to satisfy basic necessity of residents' life there, but also to enrich people's daily life with art. At the same time, architecture plays like a bridge connecting people's life with nature by extending humans' activities to the lake. DEDICATION Deeply grateful to my mom, without your constant support I cannot follow my dream. And my friends, who are always on my side, listening to my complaints as well as encouraging me to chase my dream. IX ACKNOWLEDGEMENTS I would like to thank Heinrich Schnoedt at the very beginning, for leading me to the right track, and for letting me have a good start in Riva San Vitale, Switzerland. Then,

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Residents c o m e t o t h e l a

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directions. They drink and talk, their children play in the playground there. Two Main Churches Musical places Small concerts or performances were usually held in Municipality's backyard. Bars Elementary School Children love drawing and post their works in school. Virginia Tech Residential & Others PEOPLE FLOW LOCATION SCHEMES SCHEME 1 SCHEME 2 SCHEME 3 02 FORM THE VISION Inspired by Eugene Viollet- Le- Duc's geometrical drawings of mountain peaks, form was extracted from the peaks surrounding Riva San Vitale. MASSING PROCESS The form was developed by folding papers. As a result, the Art Center has a continuous roof surface which is like the continuous mountain peaks. Then, through further development, the entrance bridge location was defined. CONCEPT DEVELOPMENT 1. EXTRACT from the mountain 2. CRACK to let people come through 3. LIFT middle part as an outdoor stage 4. CUT & TILT the roof to get better view, make access to different parts of the center. ACTIVITY PROGRAMMING Each triangle piece of the building has a certain function to satisfy residents' affection for arts. At the same time, the art center also provides local people a place for their own performances or art shows, thereby, it will enrich their lives with art. MULTI-FUNCTION HALL ENTERTAINMENT FOR BIRDS &

PEOPLE OUTDOOR STAGE CAFE & RESTAURANT GALLERY 03 MULTI-FUNCTION HALL DESIGN Wrap ceiling FORM DEVELOPMENT & ACOUSTIC ANALYSIS HALL BACK SECTION MULTI-FUNCTION HALL,SPECTATORY Interior walls and ceilings were designed according to acoustic analysis. Taking advantage of available space, offices and green rooms were located under audience seating. A large storage space is located under the stage. Suspended-canopy Tilting rear wall HALL SIDE SECTION Side wall was designed to avoid fan-shaped wall's bad lateral sound reflection. MULTI-FUNCTION HALL, CURTAIN CLOSED HALL PLAN MULTI-FUNCTION HALL, CURTAIN OPENED 12 04 FINAL DESIGN FLOOR PLANS\_Roof 1/2' 0' 12' FLOOR PLANS\_1st Floor CHANGING ROOM OFFICE STORAGE & REHEARSAL DUCK AND DOCK & ASSEMBLY AREA WATER LEVEL MEASUREMENT CAFE CHANGING & GALLERY REHEARSAL ROOM 1/16"=1'-0 FLOOR PLANS\_Mezzanine Floor 1/16"=1'-0 FLOOR PLANS\_2nd Floor INDOOR MULTI- PURPOSE HALL OUTDOOR STAGE CAFE GALLERY 1/16"=1'-0 CIRCULATION ROOF SEATING OUTDOOR STAGE RESTAURANT GALLERY MULTI-FUNCTION HALL OFFICE & GREEN ROOM FOYER STORAGE & REHEARSAL DUCKS & KAYAKS WATER LEVEL MEASUREMENT KITCHEN CAFE STORAGE ROOM GALLERY SECTIONS\_Section A-A A B B A SECTIONS\_Section B-B A B B A

**EAST ELEVATION NORTH ELEVATION WEST ELEVATION SOUTH ELEVATION** 05 EXPERIENCES 1ST  
**FLOOR**

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MULTI-FUNCTION HALL LOBBY 2ND FLOOR RESTAURANT 1ST FLOOR GALLERY 1ST FLOOR GALLERY STAIR BRIDGE VIEW FROM THE SHORE 30 VIEW TO THE KAYAKS AND DUCKS SIDE 31 NIGHT VIEW FROM ROOF SEATING 32 NIGHT VIEW OF CAFE 33 NIGHT VIEW FROM LAKESHORE 34 SECTION MODEL\_View of the West to East Section SECTION MODEL\_View of the South Elevation 06 DETAILS STRUCTURE CONCRETE BEARING WALL STEEL STRUCTURE PLAN WALL DETAILS MARBLE EXTERIOR TILE SINGLE-PLY ROOFING MEMBRANE ROOF INSULATION FLASHING 1/2" RIGID INSULATION AIR SPACE WATER BARRIER THE HOOKS CAST-IN ANCHOR HOOKED BOLTS CAST-IN-PLACE CONCRETE STRUCTURAL TRUSS FOR SUSPENDED- CANOPY GYPSUM BOARD WOOD ABSORPTION PANEL FIBERGLASS FOR SOUND ABSORPTION CONCRETE BEAM AS REQUIRED WAFFLE SLAB FLOOR FLOATING TANKS FLOATING COLUMN DETAIL This floating column is inspired by windmill's structure. The footing (monopile) could dig into the seabed's bottom. The head part of the column was connected with whole building's floor. The whole building supported by those floating columns could go up and down, while the water goes up and down.vv WATER LEVEL WATER LEVEL FLOATING COLUMN TRANSITIONAL PIECE GROUTED CONNECTION SEABED SEABED MONOPILE BIBLIOGRAPHY Gene Leitermann. Theater Planning Facilities for Performing Arts and Live Entertainment. New York: Taylor & Francis, 2017. Michael Ermann. Architectural Acoustics Illustrated. Wiley, 2015. Snohetta. Snohetta: Collective Intuition. Phaidon Press, 2019. Lisa Baker. Built on Water: Floating Architecture + Design. Braun, 2014. Zoë Ryan. Building with Water: Concepts Typology Design. Walter de Gruyter GmbH, 2010. Charles Willard Moore, Jane Lidz. Water and Architecture. H.N. Abrams, 1994. Daniel Savoy. Venice from the Water: Architecture and Myth in an Early Modern City. Yale University Press, 2012. Michael Forsyth. Buildings for Music: The Architect, the Musician, the Listener from the Seventeenth Century to the Present Day. Cambridge University Press, 1985. All images are created by the author. 1 2 3 4 5 7 8 9 10 14 15 16 17 18 19 20 21 22 23 24 26 27 28 29 35 36 38 39 40 41

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