

Quasi-Crystal Pavilion

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Artist

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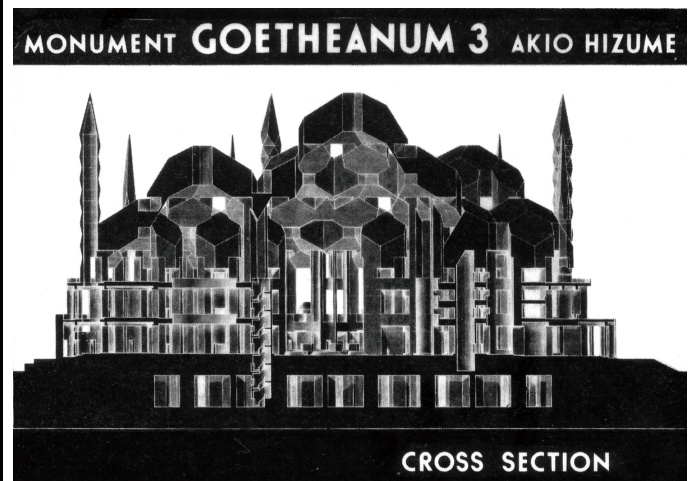
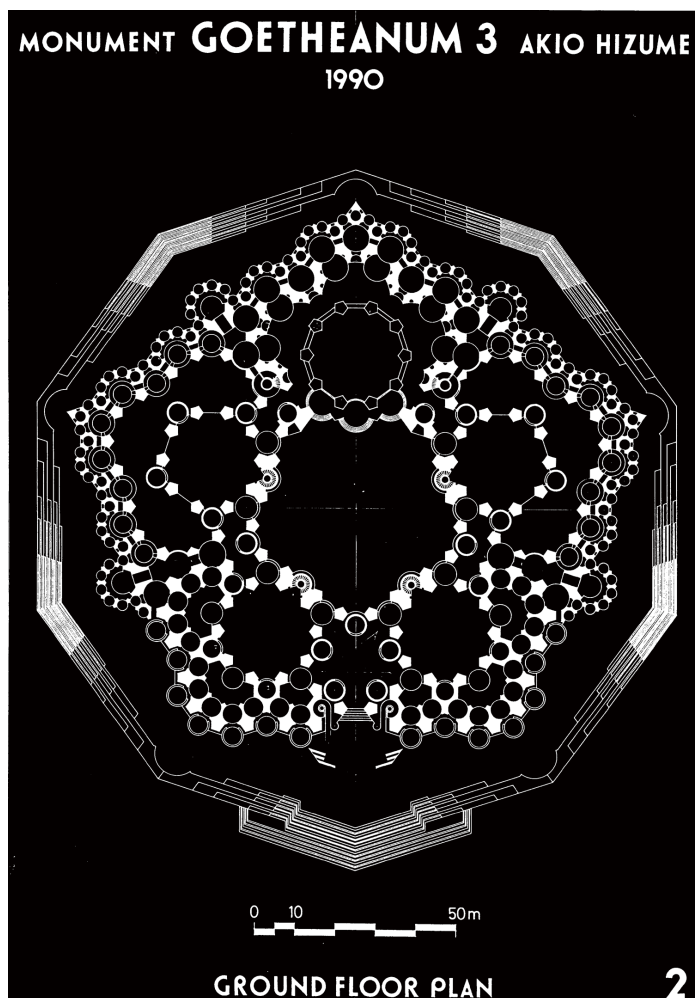
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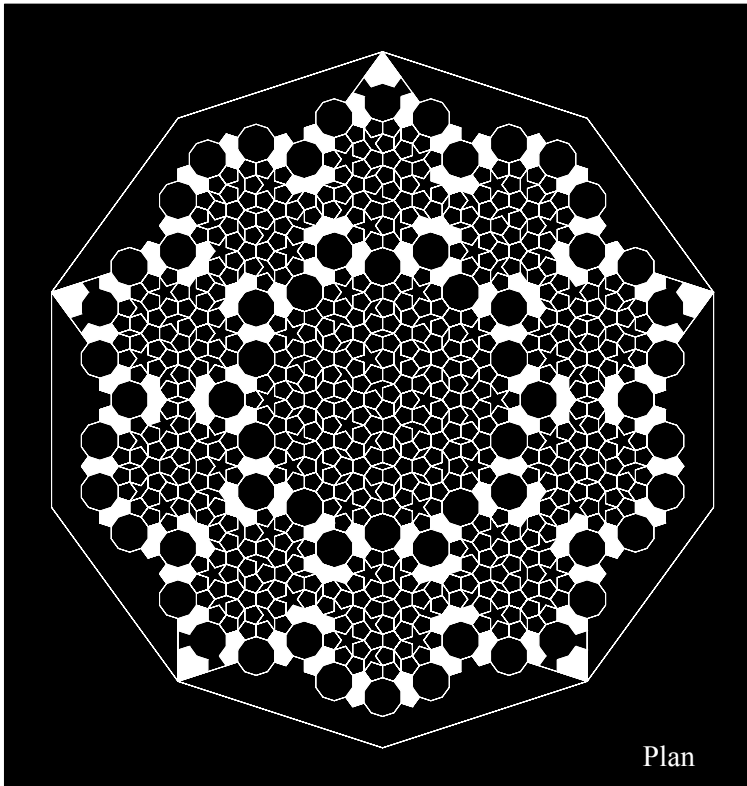
I designed huge Architecture based on the Penrose Tiling in 1990 on the same scale as The Saint Peter's Basilica, the Vatican. It was an imaginary quasi-periodic architecture because of too big scale. But last year, I re-design more compact pavilion under the same mathematical concept. Some of the proposals should be realized somewhere in the world before long.

0. The Goetheanum 3 : MATRIX of the six dimensional architecture (1990)

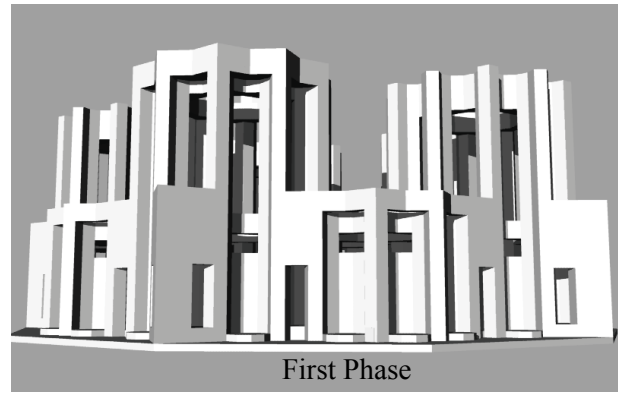
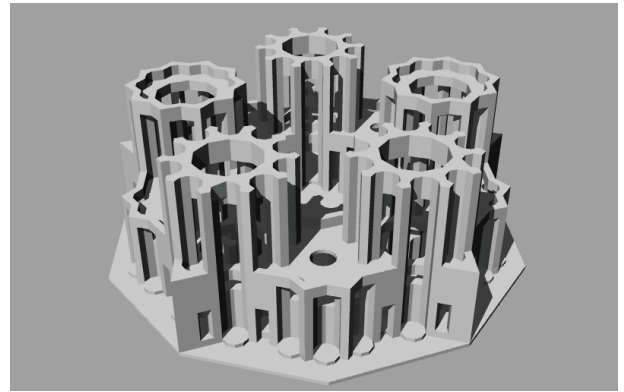
In 1990, I published architectural design called the Goetheanum 3. The figures below are just three of the 17 drawings by hand. It took more than four years to draw. This work follows through the pentagonal Penrose Tiling. I must handle six coordinate axes. There are a lot of novel forms of architecture in detail. Of course it is not realized yet. It is too huge scale to build today. Anyway I could success to prove that the Penrose Tiling must be applied for architecture.

Recently a family of origami artist offered me to design a private museum in Japan. I accepted the request, and started to design. I extracted some elements of design from the Goetheanum 3, and reconstructed them compactly. Then I got four proposals like pavilion. In general, successful pavilion must be prototype for the futural architecture. The Goetheanum 3 is its pregnant matrix. There are still a lot of possibilities.

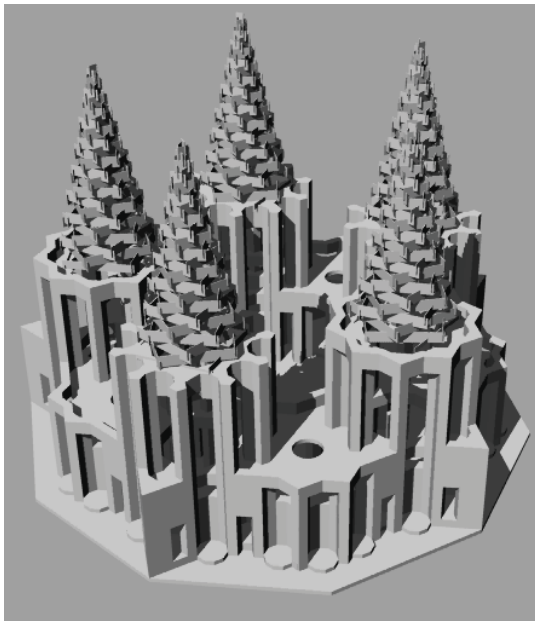




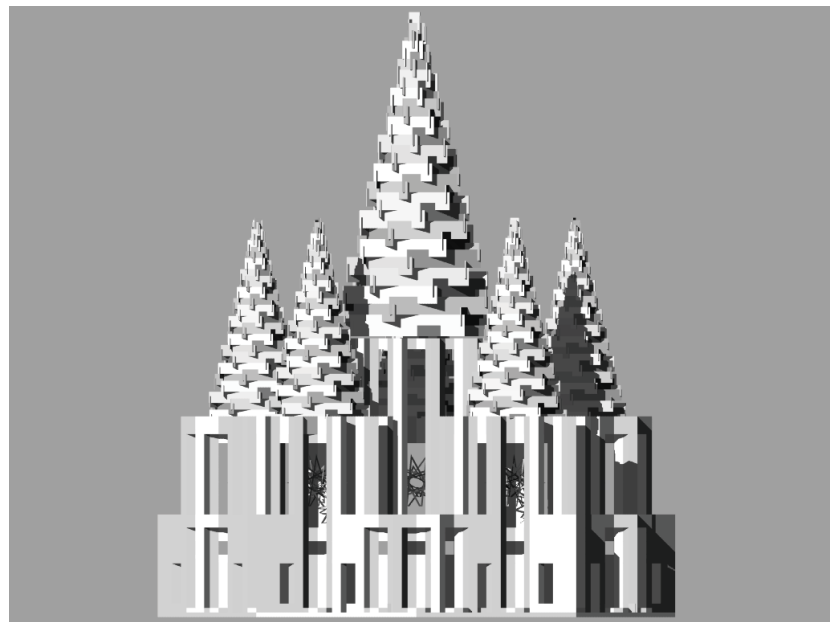
Plan



First Phase



Second Phase



Third Phase

1. Gothic Type (2011)

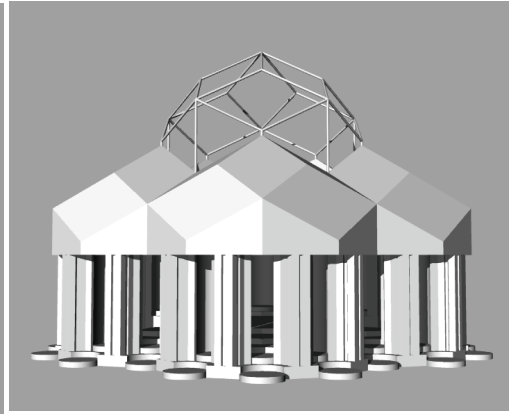
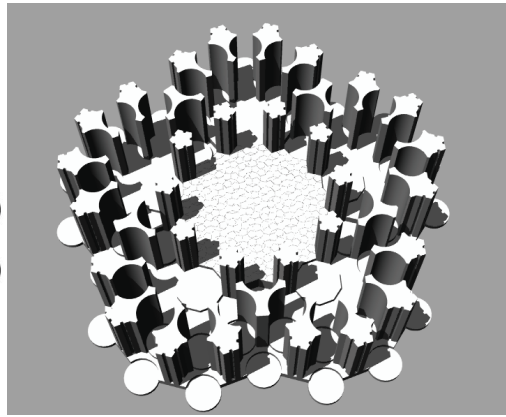
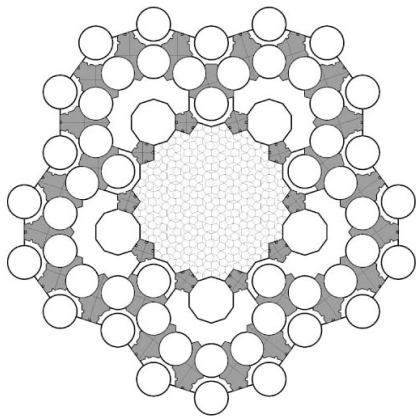
First proposal called the Gothic Type. It should need several phase of construction. The first phase, there are only wall and flat slab. This structure was designed as flying buttress for the Goetheanum 3.

Second phase, five towers cover the roof. The tower is also my invention called Fibonacci Tower which is based on the Phylotaxis. The Star Cage structures called Pleiades are hung from the top of each tower. The hanging Star Cage is not only symbol but also illumination and pendulum. It makes the tower stable against earthquake.

Third phase, the biggest Fibonacci Tower covers the central court.

The structure can follow the method of Gothic Cathedral in medieval Europe but there is no square and right angle at all. If the Freemason still alive, they should construct this pavilion with pleasure I believe. The sound and light effect should be unique and beautiful.

I like this proposal best. In this occasion, it was not realized but it should be realized somewhere in the world because it is the mathematical destiny.



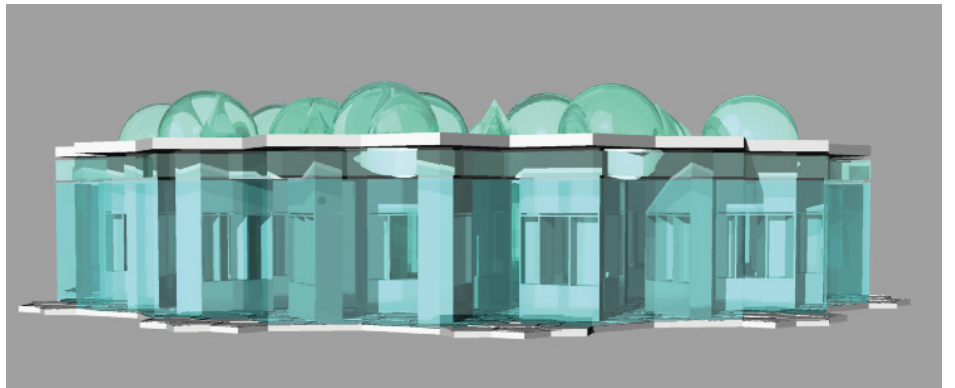
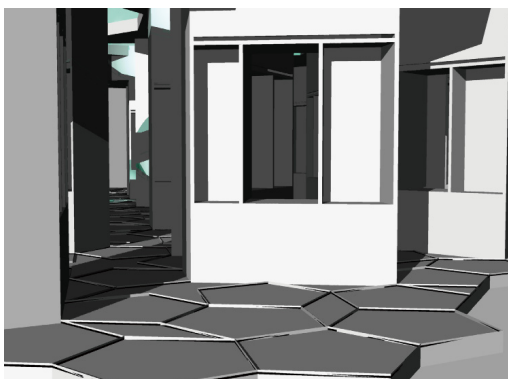
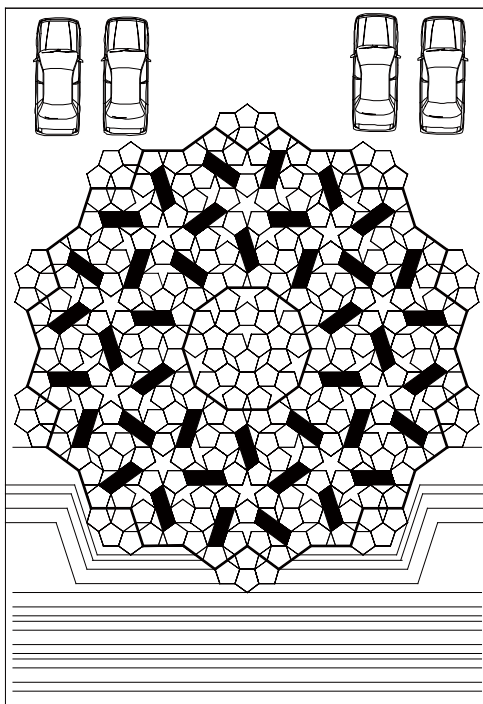
2. Rotonda Type (2011)

If the Renaissance Architect Andrea Palladio had known about the Penrose Tile, he should build such Pavilion I believe. That is why I call the proposal as the “Rotonda”.

The Rhombic Triacontahedral roof can cover on the pentagonal Penrose Tiling compatibly. I found it in 1986 then I started to design the Goetheanum 3. It was not always easy to find, but after the discovery, everybody may feel that it is very simple and elegant solution.

3. Bookshelf Type (2011)

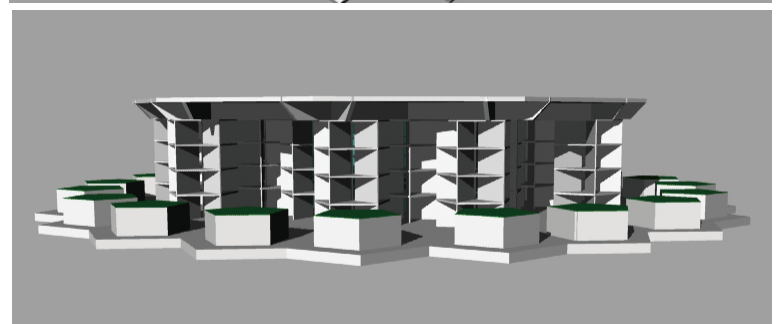
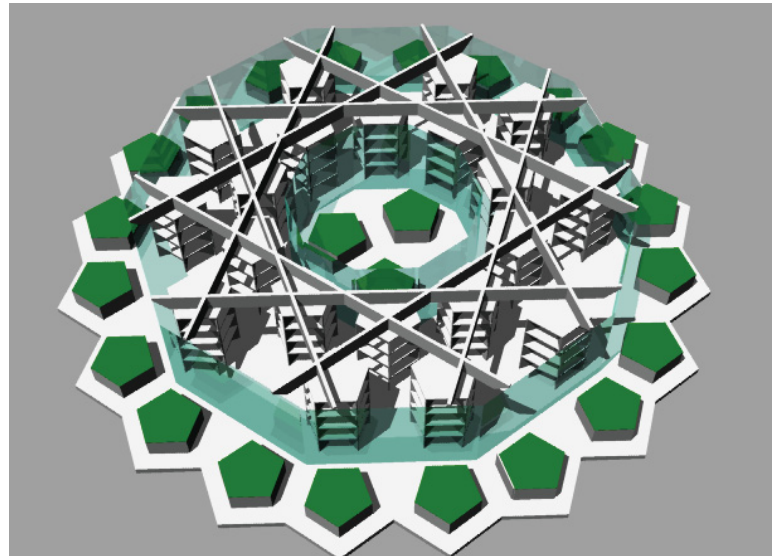
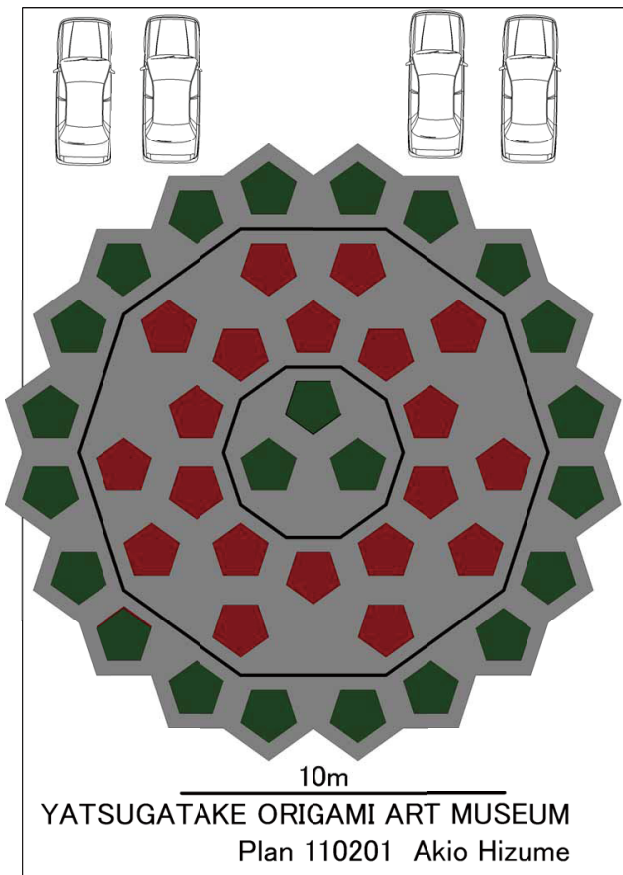
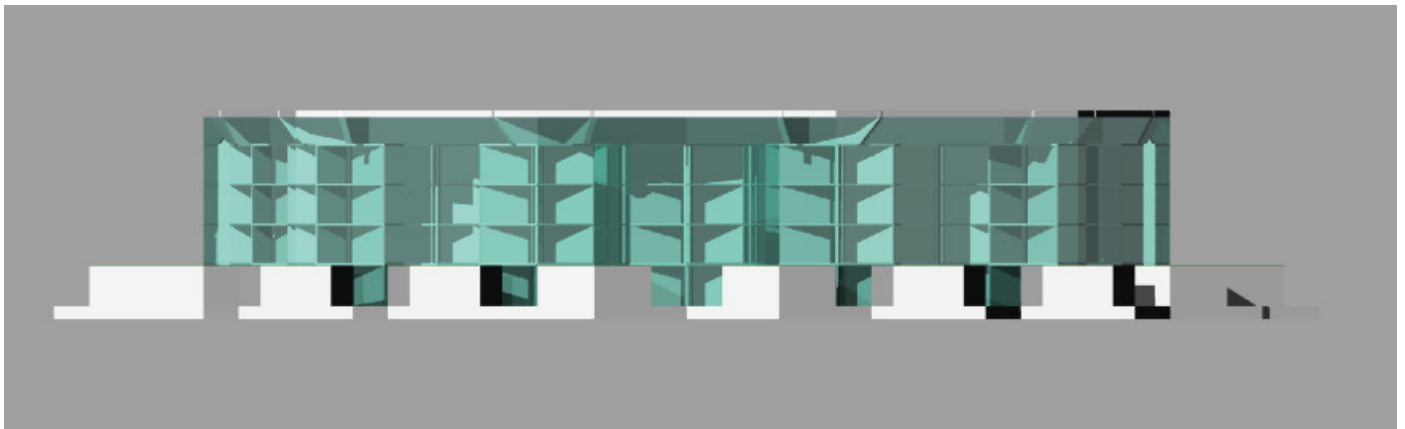
The third proposal was only the bookshelves supports the flat roof as post. There is neither other post nor bearing wall.



If Ludwig Mies van der Rohe had known about the Penrose Tiling, he might build such glass house. The labyrinth of the bookshelves should be suitable for library or museum because many different fields of culture should encounter each other in such library, for example mathematician and artist. Compared to this, existing library seems to obstruct such interdisciplinary events I always feel. By the same token, the existing city design keeps people from interacting with each other. If Jorge Luis Borges had known this architecture, he might wish to rewrite "The Library of Babel".

4. Penta-Booth Type (2011)

Every Penta-Booth is not only bookshelf and display table, but also posts supporting the flat roof. The top of each Penta-Booths are connected by pentagonal basket structure that is also my invention called "GOMAGARI" in 1986. The Penta-Booths make exciting labyrinth based on the Penrose Tiling. I have built many such installation as an experimental city planning. The audience seemed to really enjoy living in such city temporary. The clients like this proposal best. We decided the direction. But they prefer pitched roof to flat roof. So I must change design dynamically.



5. The Latest Proposal (2012)

After surveying ground, I redesigned new proposal. The Penta-Booth labyrinth supports the decagonal platform. It is a kind of very stable artificial ground. I will make permanent exhibition there with sound and light controlled by computer with the quasi-periodic rhythm and metallic tone generated by the Golden Ratio. The labyrinth is not only permanent exhibit space but also residence room for gestic.

The triple spiral Fibonacci Tower is placed on the platform. It is an open multi-purpose space. One lamp is hung from the top of tower as a pendulum, which makes the tower stable against earthquake. Just one lamp should be enough for the space because the roof structure perfectly diffusely reflects the light. There are some ways to cover roof. We might use some ORIGAMI technique.

I added new element on the latest proposal, that is, outdoor staircase based on the "Fibonacci Cascade" I called. Children and monkeys can't help shinning up, sitting and playing there. You can find the same staircase on the platform of the Goetheanum 3. Underneath the staircase there is utility room.

On the gentle slope of natural ground, I will build the Democracy Steps based on the Fibonacci Lattice, that is, I built the same one in Tom Rodgers' and Sarah Garvin's garden in G4G8. Even the Democracy Steps was also contained in the Goetheanum 3 already. That is why the Goetheanum 3 is MATRIX.

The Quasi-Crystal Pavilion is literally a quasi-crystal of the Golden Ratio. There is nothing except the Golden Ratio.

