International Journal of Innovative Technology and Exploring Engineering (IJITEE)
ISSN: 2278-3075 (Online), Volume-4 Issue-12, May 2015

Elevator Capsules-Types of New Generation Panoramic Elevators

Liudmila Aleksandrova, Yanko Aleksandrov, Magdalena Mihaylova

Abstract— Annotation Main elements of the elevator capsules concept: integrated internal multi-level park, internal transparent elevator capsuleand internal high-speed elevators, situated outside the capsule.

Key words: types, new generation, panoramic elevators.

I. INTRODUCTION

This conceptual innovative design of buildings has the main objective to develop and implement concepts for competitive architectural solutions, based on the principle of unity of different technical characteristics and innovative components, according to the leading tendencies in architecture development worldwide. The suggested competition projects have been preceded by the analysis of cutting edge achievements in world architecture from the point of view of the unity of innovation and composition, function and construction, integrating contemporary building materials and technologies. As a result, original architectural forms that can create new market niches have been developed, thus solving various problems, posed by different projects.The exploitation of modern buildings requires their adaptation to the use of solar energy and other renewable sources of energy, e.g. rainwater; grey wastewater; wind energy; the integration of facade and floor greenery; technologies facilitating the protection of environment; transport facilitation, etc. Another factor improving the competitiveness of a given design project is the adequate implementation of the idea for unity of different technical characteristics and innovative components in one architectural solution. Therefore, the integration of innovative architectural and constructional details is of extremely high importance. Practically, the emotional and psychological “adaptation” of a given space depends directly on the implementation of these details. Thus, these details have to be regarded as an integral part of the aspiration for innovative unity of architectural solutions.
The projects presented in this publication are innovative solutions for high-rise buildings designed for the Super skyscrapers - “Elevator Annual-2014”. The integration of various inventive steps has increased the competitiveness of the mentioned projects.

Manuscript published on 30 May 2015.
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II. VARIANTS, [1, 2]; (Fig. 1-28).

This concept has the aim to show that the “elevator trip” could be changed from an everyday routine to a very pleasant and enjoyable experience.

1. A panoramic vertical elevator with **three** central internal lifts and **four escalators** or **two staircases** with intermediate platforms, internal courtyard, transparent double external walls, vending machines and tables; dimensions 6.90 x 6.90 meters; **(Fig. 2, 13, 23).**
2. A panoramic vertical elevator with **two** central internal lifts and **two** escalators or **two** staircases with intermediate platforms, internal courtyard, transparent double external walls, vending machines and tables; dimensions 6.90 x 6.90 meters; **(Fig. 3, 14, 24).**
3. A panoramic vertical elevator with **three** peripheral internal lifts and **two** curved escalators or **two** curved staircases, transparent double external walls, vending machines and tables; dimensions 5.40 x 5.40 meters; ; **(Fig. 4,16, 25).**
4. A panoramic vertical elevator with **two** peripheral internal lifts and **two** curved escalators or **two** curved staircases, transparent double external walls, vending machines and tables; dimensions 5.40 x 5.40 meters; **(Fig. 5, 6, 7).**
5. A panoramic vertical elevator with **one** central internal lift; curved escalators or staircases, transparent double external walls, vending machines and tables; dimensions 6.00 x 6.00 meters ; **(Fig. 8, 10).** In this variant, one or more high-speed elevators ensure the faster transportation, while the panoramic elevator is a slower means for transportation which ensures a more relaxed and enjoyable environment.
6. A panoramic vertical elevator with one central internal lift; two curved escalators or two staircases, transparent double external walls, vending machines and tables; with aquarium and four external high- speed elevator; dimensions 6.00 x 6.00 meters; **(Fig. 9, 26).**
7. A panoramic vertical elevator with three peripheral internal lifts and two curved escalators or two curved staircase, transparent double external walls, vending machines and tables; dimensions 5.40 x 5.40 meters; **(Fig. 11).**

III. HIGH-SPEED ELEVATORS, SITUATED OUTSIDE THE TRANSPARENT ELEVATOR CAPSULE; (Fig. 9, 26).

The high-speed elevators in contrast to the slower panoramic elevator ensure the faster, yet comfortable transportation to any given floor. They are situated in groups of two or three and each of them has a capacity of 2-3 passengers.

IV. ENERGY SUPPLY

Beneath and above the transparent elevator capsule are mounted wind generators, set in motion by the air flow, caused by the movement of aerial masses in the vertical transparent lift-shaft. **(Fig. 17, 20, 21).**
The building where the panoramic elevator is integrated has a roof wind turbine and a facade envelope which represents a network of tubular water- heating serpentines, using the solar energy to heat water. **(Fig. 29).**

V. FUNCTION

The panoramic elevators serve the vertical park complex. **(Fig. 27, 28).** At every level of the park, the vertical panoramic elevator can be stopped, i.e. in case of emergency. By using remote controlling devices the permanent inhabitants of the building can call the high-speed elevators in case a faster transportation is required. As well, in case of need, more high-speed elevators could be integrated and serving the building.

VI. THE PARAMETRES OF THE OWR PROJECT

PROJECT DETAIL REQUIREMENT (EXAMPLE FOR ONE TYPE OF THE ELEVATOR, SEE TYPE 5.1. IN THE TABLE)
Name: SuperSkyScrapers Competition
Project: ELEVATOR ANNUAL 2014
Site:
Title of Project: ELEVATOR CAPSULES - THE NEW GENERATION PANORAMIC ELEVATOR
Site Use - Site Area (m²): -
Building Area (m²): 2826
Gross Floor Area (m²): 84780
Building Coverage Ratio (%): -
Gross Floor Ratio (%): -
Building Scale (if different from the actual size**)**: 1:500
Stories above Ground: 30
Stories below Ground: 5
Structure: CONCRETE AND STEEL
Maximum Height (m): 120
Landscape Area: 25434
Interior Finish: GLASS, POLYKETONE, WOOD
Exterior Finish: GLASS, STEEL, ALUMINIUM, TITANIUM
AWARD DETAIL REQUIREMENT
Registration Number: 1000001476

VII. CONCLUSION

1. Skyscraper complexes situated in the central parts of megapolises should have connecting modules, also skyscrapers.
2. Such modules could be multistory park gardens served by panoramic elevators.
3. The connections between the skyscrapers are carried out in the air without reaching the ground level.

REFERENCE

1. L. Aleksandrova, Y. Aleksandrov, M. Michailova, I. Aleksandrov. Registration Number: 1000001476. Finalist.
2. Aleksandrova L., Y. Aleksandrov etc. Reg. № 111889. Application for Patent of innovation. Espacnet. EPO.

Assoc. Professor Aleksandrova and Professor Aleksandrov are authors and co-authors of more than 100 patents for inventions, whereas a significant part of them solves problems in the sphere of the energy efficiency of buildings, e.g. active-energy walls, energy-accumulating panel connections, systems for solar heating of buildings, sectional medical modules with autonomous energy supply for use in extreme situations, i.e. natural disasters, etc. The authors are winners of the "Genius Grand Prix" and a Gold medal from the International Invention Fair in Budapest. Their papers have roused high interest at numerous international conferences on architecture and sustainable development, e.g. in Tokyo, Seoul, Hong Kong, Kuala Lumpur, Cape Town, Florence, etc. They have been guest lecturers at the Faculty of Architecture of the Institute for Building Management in Belgrade, Serbia as well as "Erasmus" lecturers at the Riga Building College, Latvia in 2012, 2013 and 2014.The authors teach the course "Innovative design of buildings, constructions and details" at the Faculty of Architecture of the Civil Engineering Higher School "Liuben Karavelov" in Sofia, Bulgaria. They have been finalists of several international Superskyscrapers competitions with the participation of some of their students, e.g. Hong Kong – 2013, Singapore – 2014, London – 2014, "Elevator annual design competition" – 2014, etc.

ANNEX

Finalist Notification - Elevator Annual 2014 Competition (2)
People
elevatorannual2014@superskyscrapers.comDear Participant, Congratulations! on making it to the final list of the Competition. This list will form the basis for the next stage of the deliberation. May we kindly request that you send in HIGH
To
elevatorannual2014@superskyscrapers.com
Nov 13
Reply, Reply All or Forward | More
meOn Thursday, November 13, 2014 8:20 PM, "elevatorannual2014@superskyscrapers.com" <elevatorannual2014@superskyscrapers.com> wrote: Dear Participant, Congratulations! on making it to the final list of
To
Yanko Aleksandrov Янко Александров Ivan Aleksandrov
Nov 14
Hide message history
On Thursday, November 13, 2014 8:20 PM, "elevatorannual2014@superskyscrapers.com" <elevatorannual2014@superskyscrapers.com> wrote:

Dear Participant,
Congratulations! on making it to the final list of the Competition. This list will form the basis for the next stage of the deliberation. May we kindly request that you send in HIGH RESOLUTION (min 300dpi) of INDIVIDUAL ELEMENT of your board and also the FINAL

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BOARD by Tuesday 18th of November 2014 as detailed in the file attached at the latest using a file transfer service such as wetransfer.com.We at Superskyscrapers will like to take this opportunity to congratulate you on your achievement so far in the Competition.

Regards,
Superskyscrapers Team
Superskyscrapers Awards
www.superskyscrapers.com

FIGURES

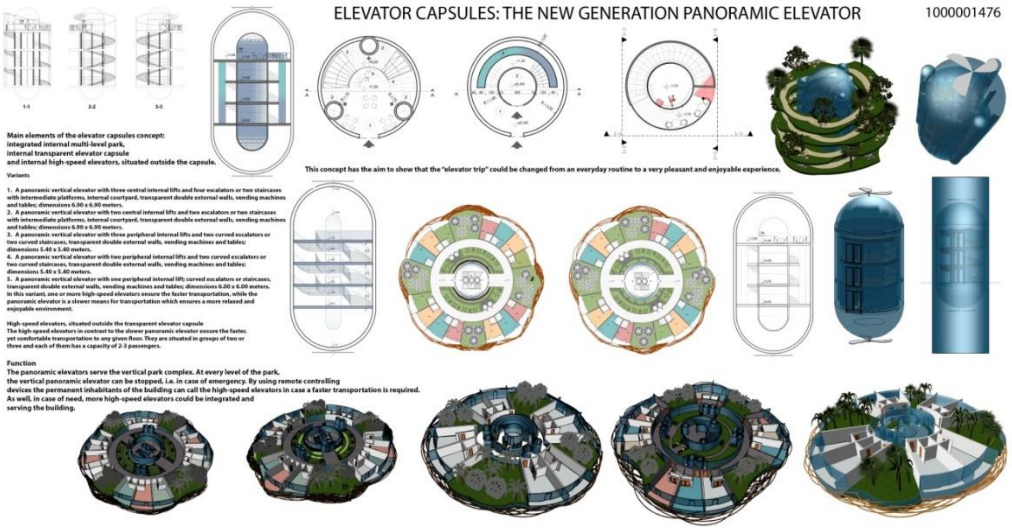

FIG.1. View of the board with № 1000001476. Finalist.

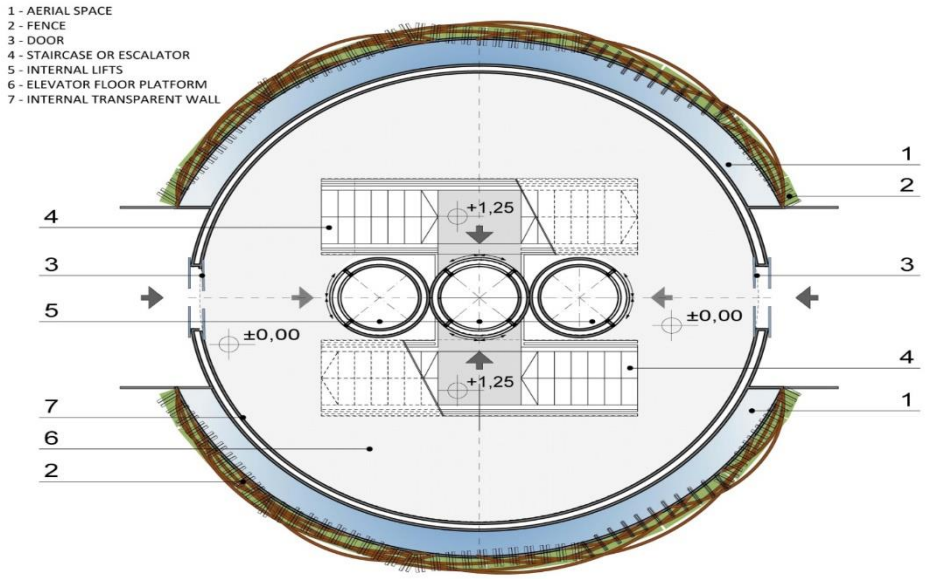

FIG.2. A panoramic vertical elevator with three central internal lifts and four escalators or two staircases with intermediate platforms, internal courtyard, transparent double external walls, vending machines and tables; dimensions 6.90 x 6.90 meters.

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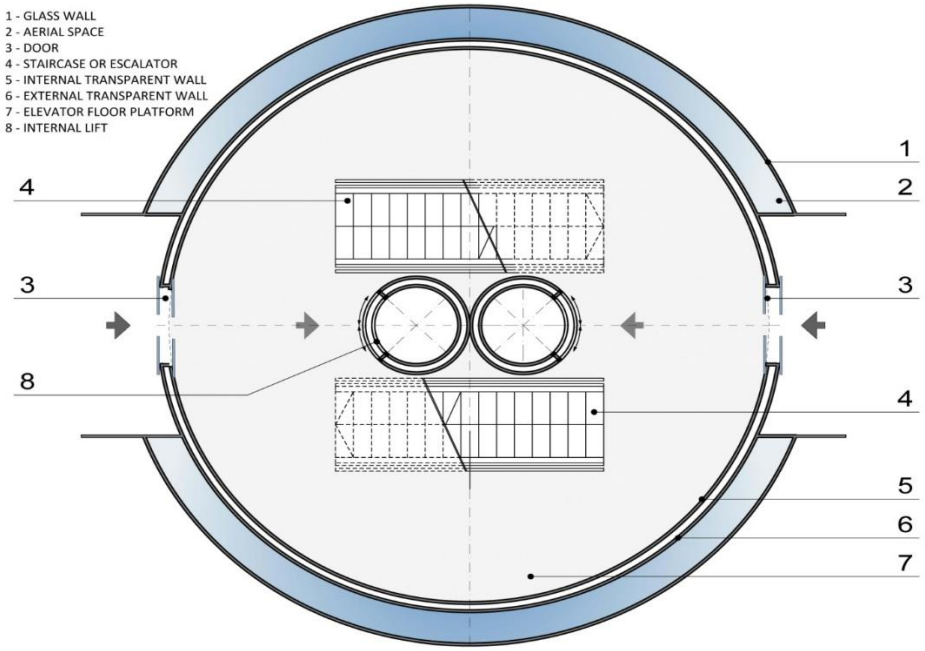

FIG. 3. A panoramic vertical elevator with two central internal lifts and two escalators or two staircases with intermediate platforms, internal courtyard, transparent double external walls, vending machines and tables; dimensions 6.90 x 6.90 meters.

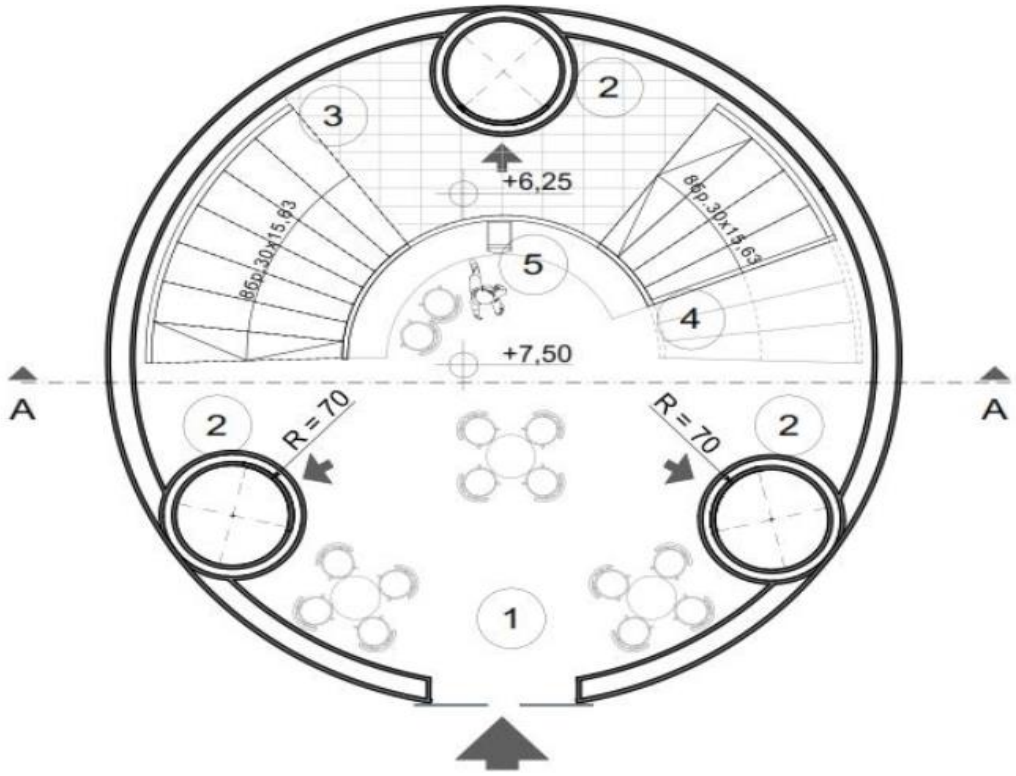

FIG. 4. A panoramic vertical elevator with three peripheral internal lifts and two curved escalators or two curved staircases, transparent double external walls, vending machines and tables; dimensions 5.40 x 5.40 meters.

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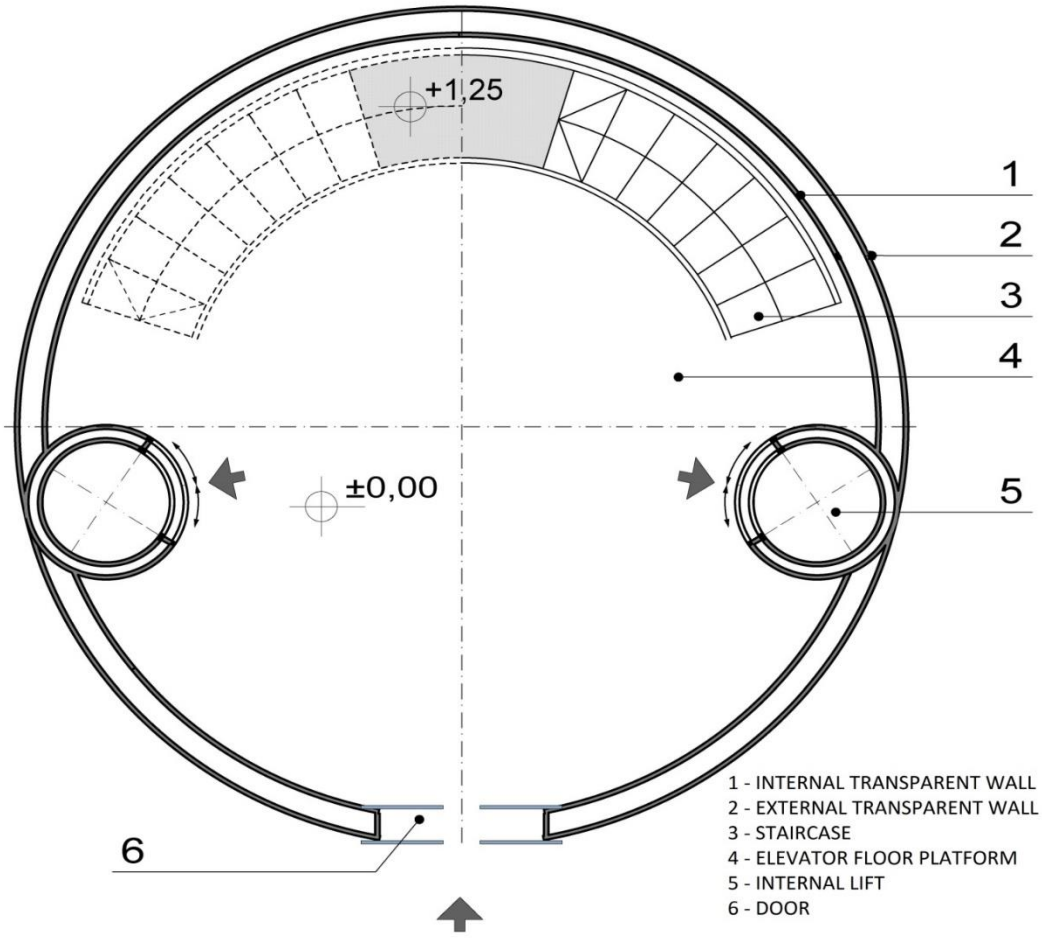

FIG.5. A panoramic vertical elevator with two peripheral internal lifts and two curved escalators or two curved staircases, transparent double external walls, vending machines and tables; dimensions 5.40 x 5.40 meters.

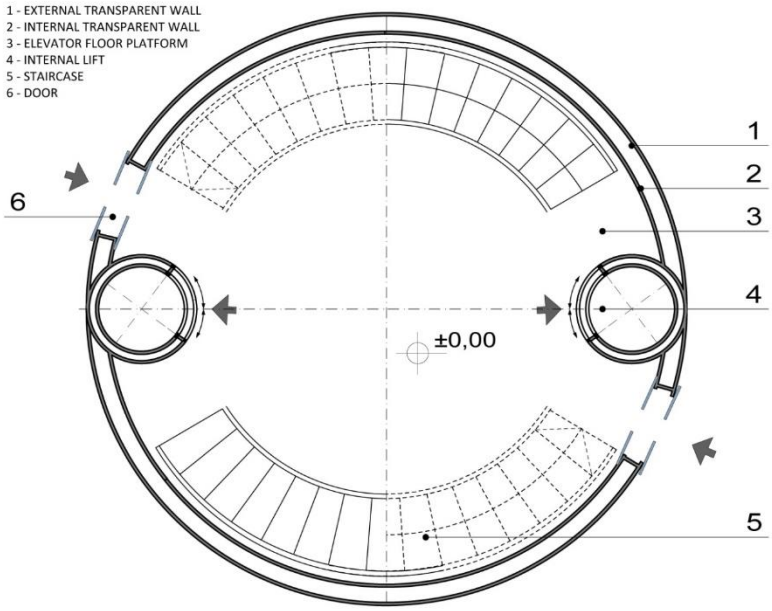

FIG.6. A panoramic vertical elevator with two peripheral internal lifts and two curved escalators or two curved staircases, transparent double external walls, vending machines and tables; dimensions 5.40 x 5.40 meters.

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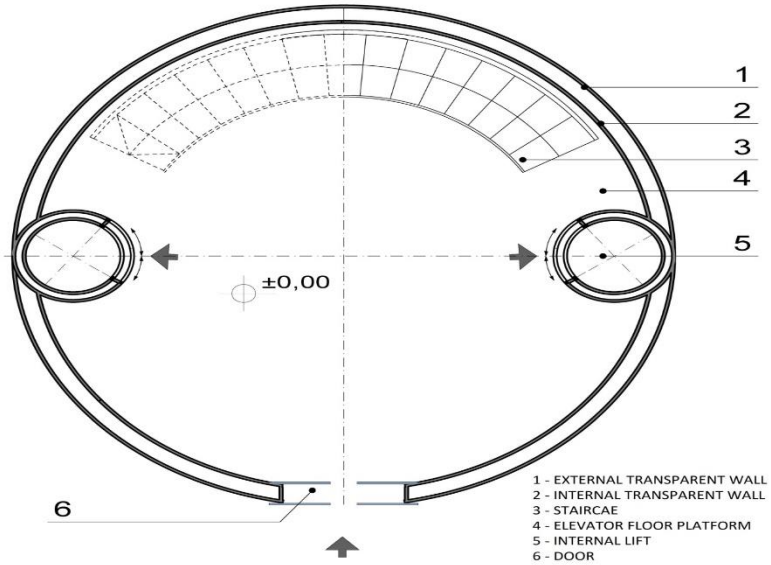

FIG. 7. A panoramic vertical elevator with two peripheral internal lifts and one curved escalators or one curved staircase, transparent double external walls, vending machines and tables; dimensions 5.40 x 5.40 meters.

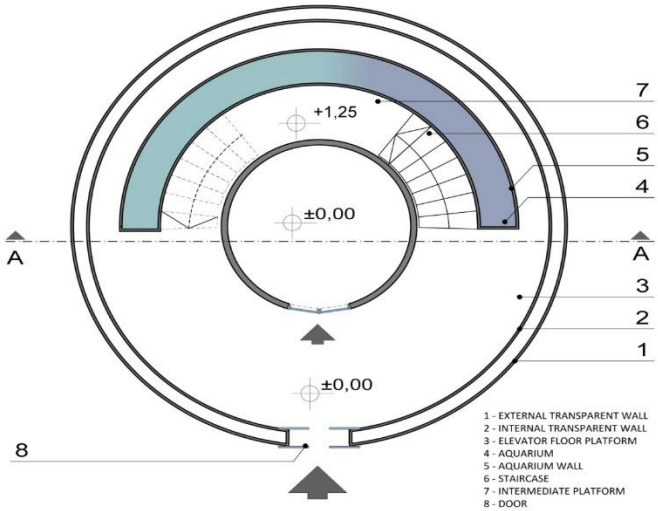

FIG.8. A panoramic vertical elevator with one central internal lift; curved escalators or staircases, transparent double external walls, vending machines and tables; dimensions 6.00 x 6.00 meters.

In this variant, one or more high-speed elevators ensure the faster transportation, while the panoramic elevator is a slower means for transportation which ensures a more relaxed and enjoyable environment.

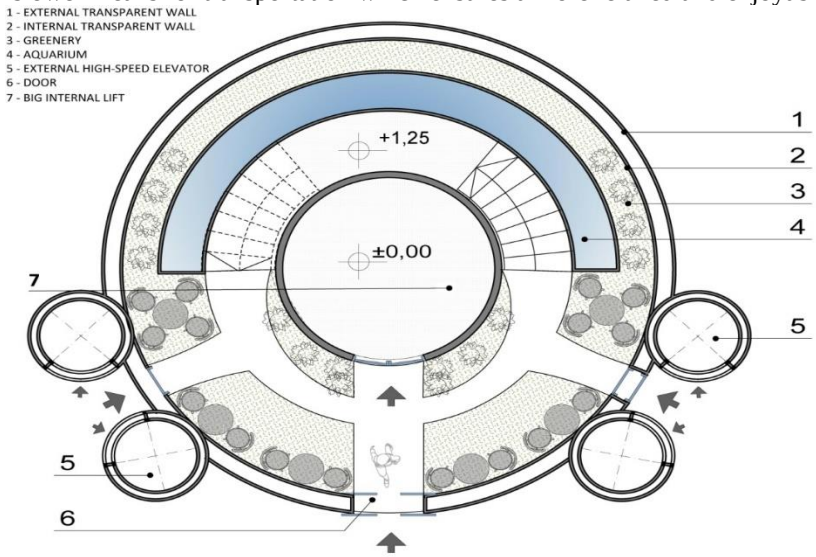

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FIG.9. A panoramic vertical elevator with one central internal lift; two curved escalators or two staircases, transparent double external walls, vending machines and tables; with aquarium and four external high- speed elevator; dimensions 6.00 x 6.00 meters.

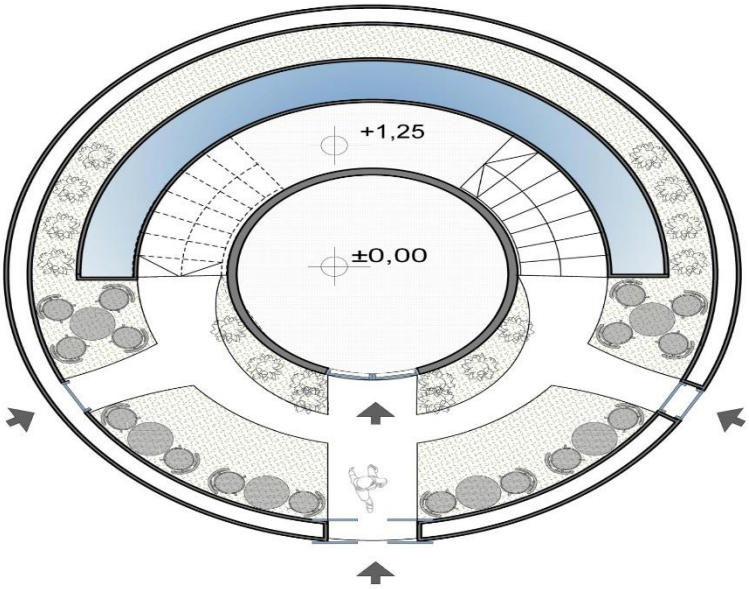

FIG.10. A panoramic vertical elevator with one central internal lift; two curved escalators or two staircases, transparent double external walls, vending machines and tables; dimensions 6.00 x 6.00 meters.

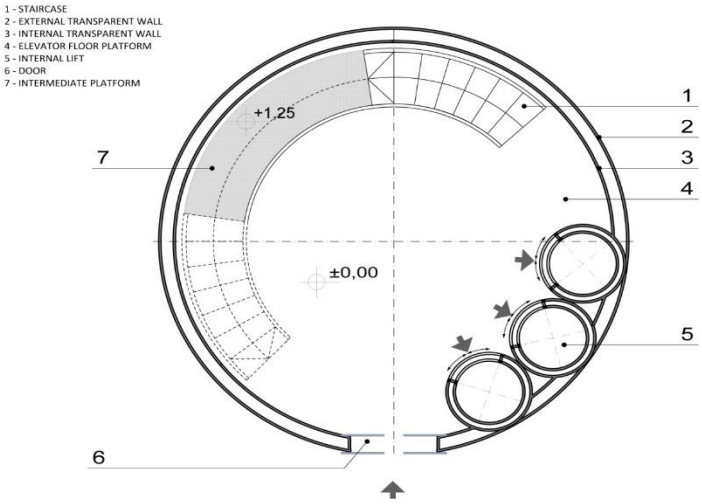

FIG.11. A panoramic vertical elevator with three peripheral internal lifts and two curved escalators or two curved staircase, transparent double external walls, vending machines and tables; dimensions 5.40 x 5.40 meters.

FIG.12. Plan of the floor with one capsule-- there is three internal elevators and nine external elevators.

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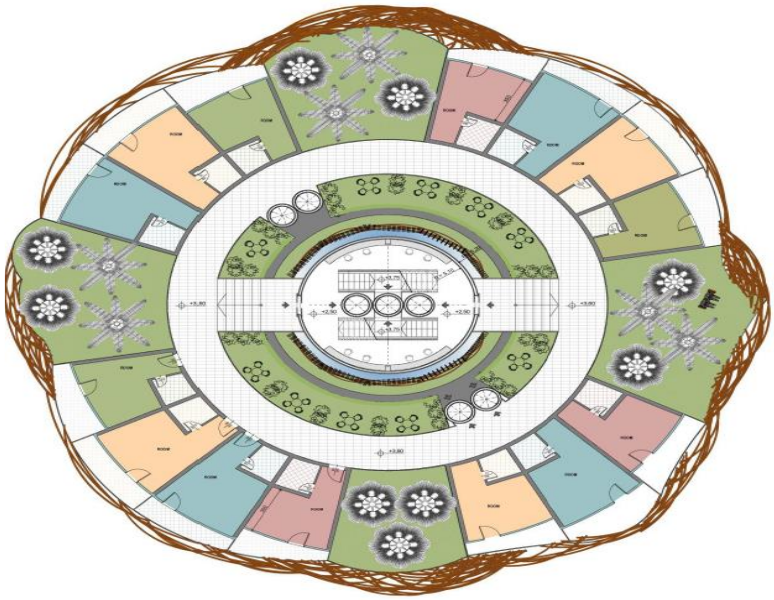

FIG.13. Plan of the floor with one capsule - there is three internal elevators and four external elevators.

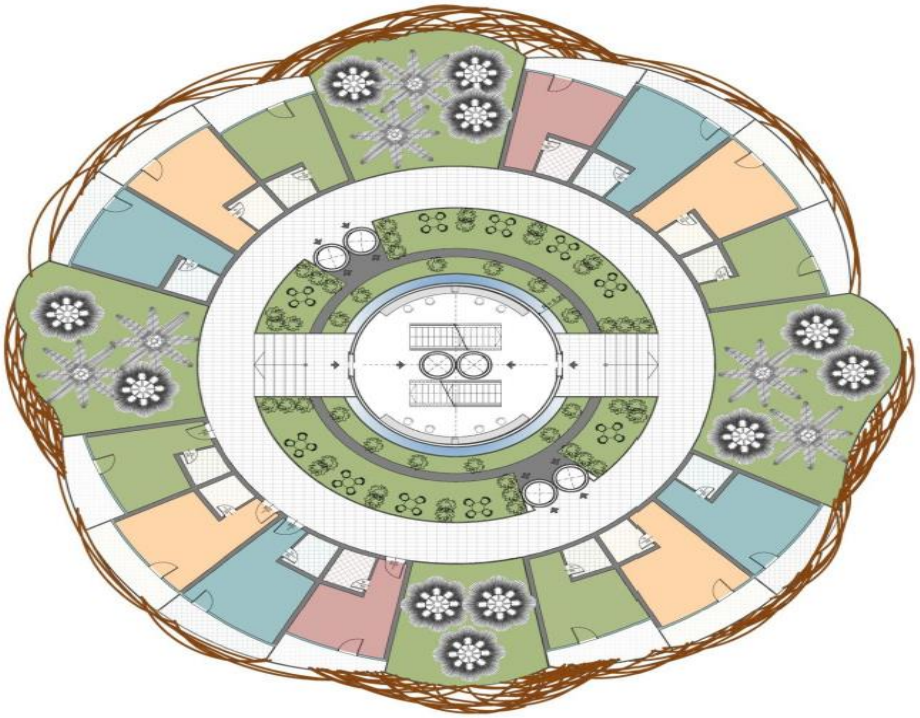

FIG.14. Plan of the floor with one capsule - there is two internal elevators and four external elevators.

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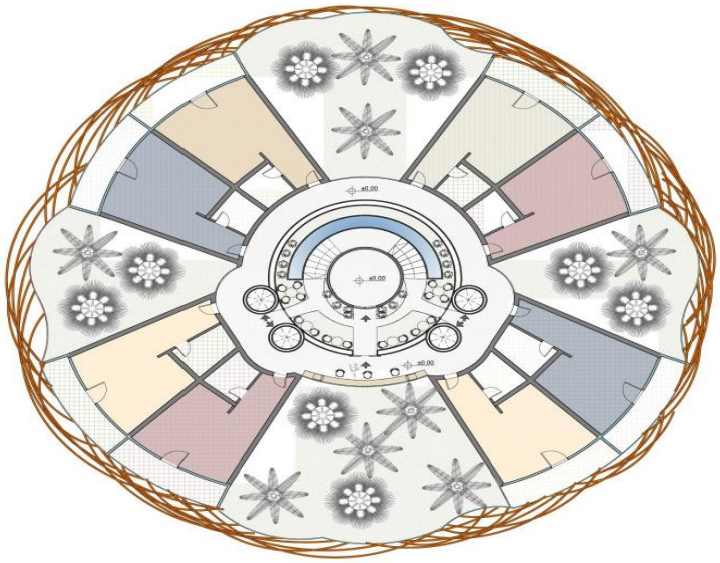

FIG.15. Plan of the floor with one capsule - there is one central internal elevators and four high- speed external elevators.

FIG.16. Plan of the floor with one capsule - there is three internal elevators and nine high- speed external elevators.

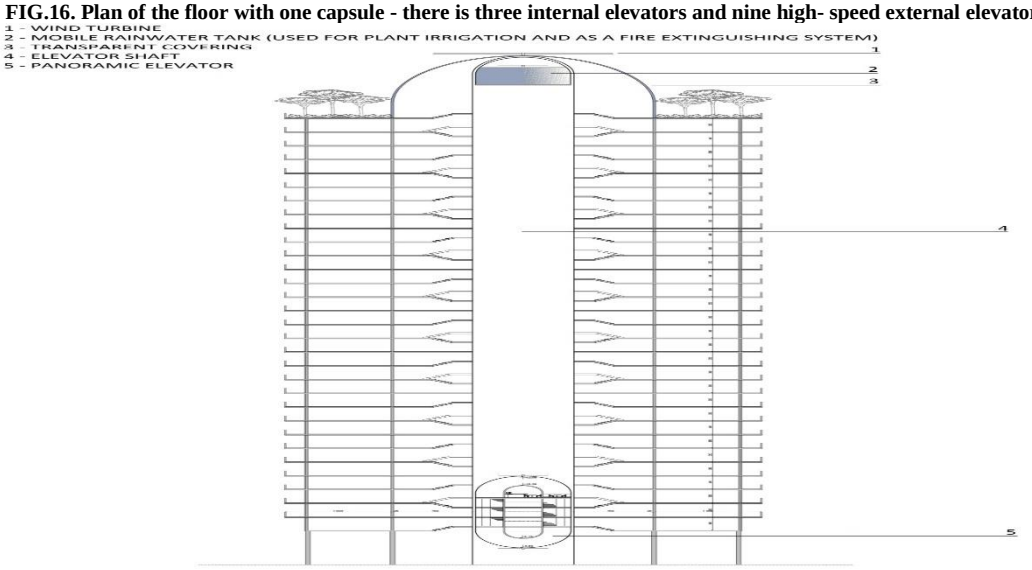

FIG.17. Section.

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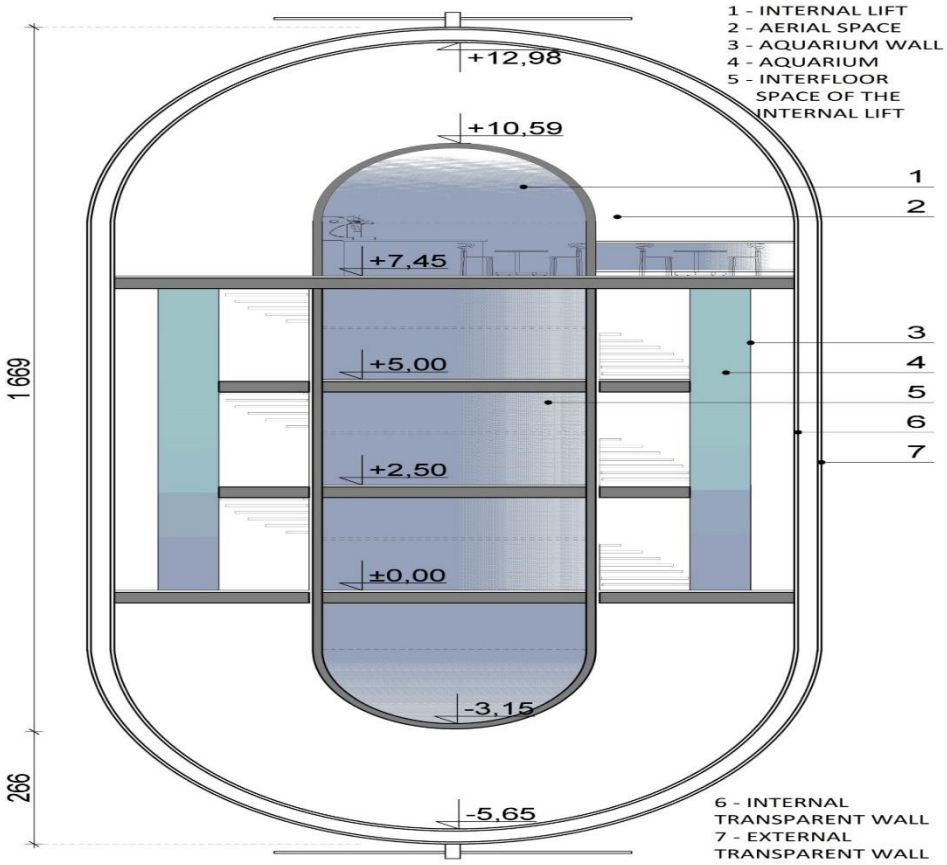

FIG.18. Section through elevator capsule.

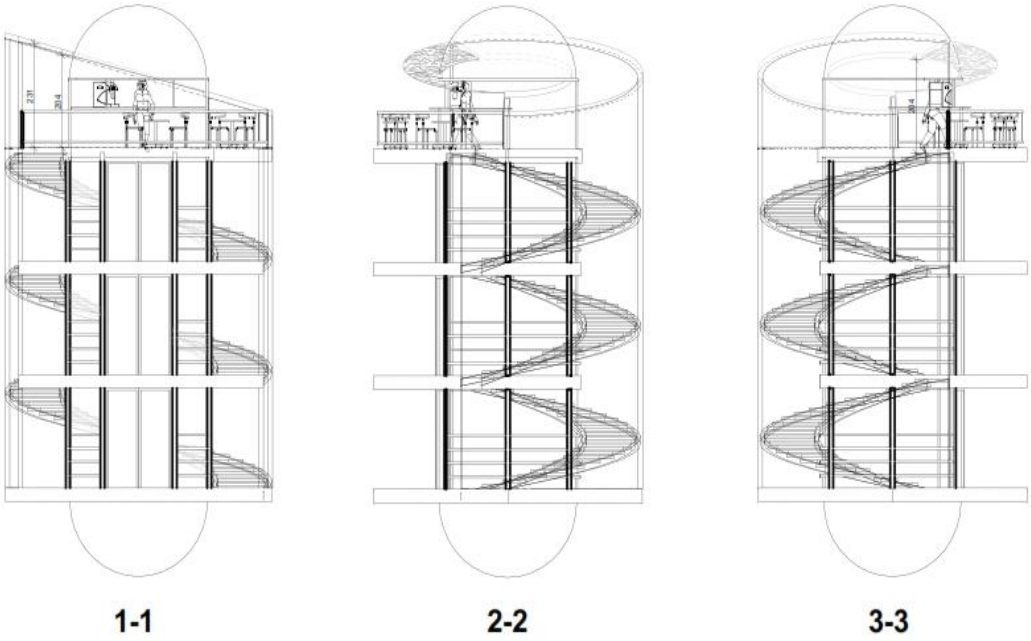

FIG.19. Three variants of the elevator capsules.

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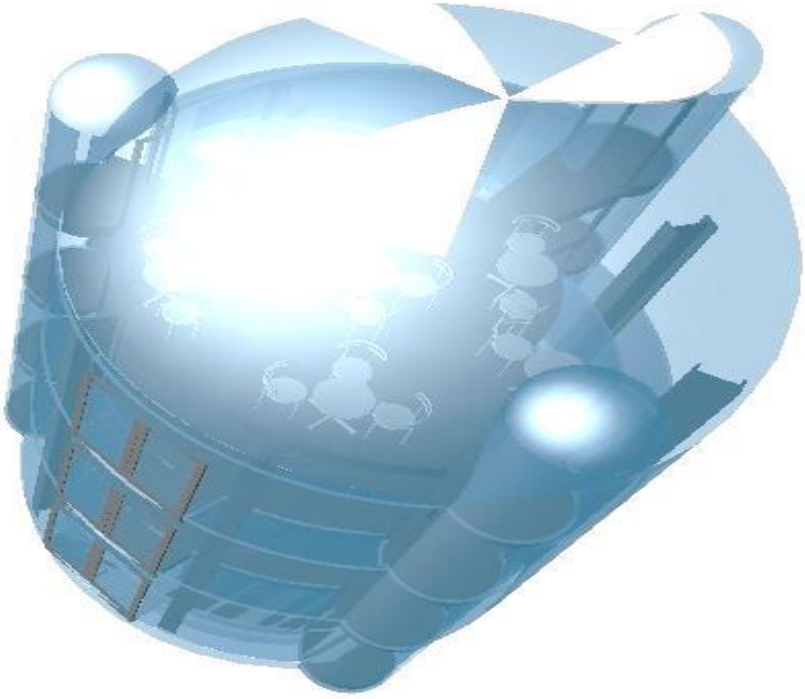

FIG.20. View of the elevator capsule.

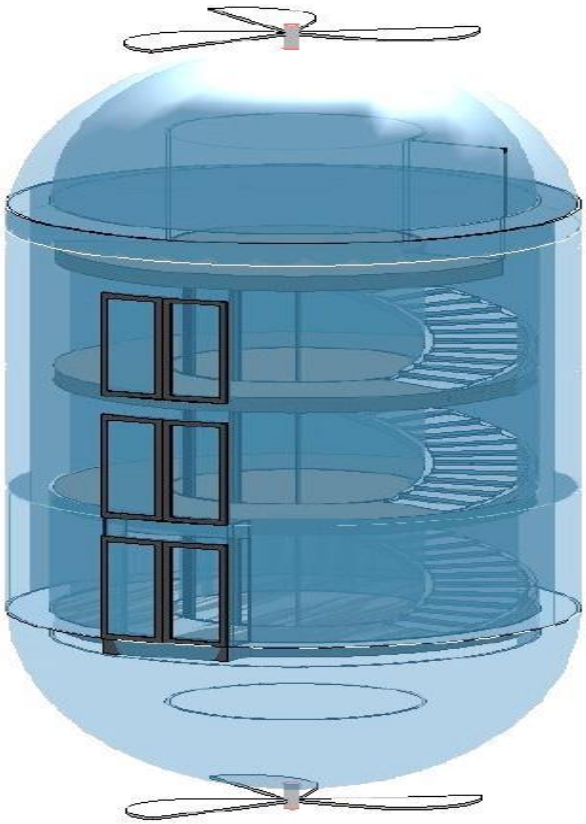

FIG.21. Frontal view of the capsule.

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FIG.22. Facade.

FIG.23. View of the floor with three internal elevators and four external elevators.

FIG.24. View of the floor with two internal elevators and four external elevators.

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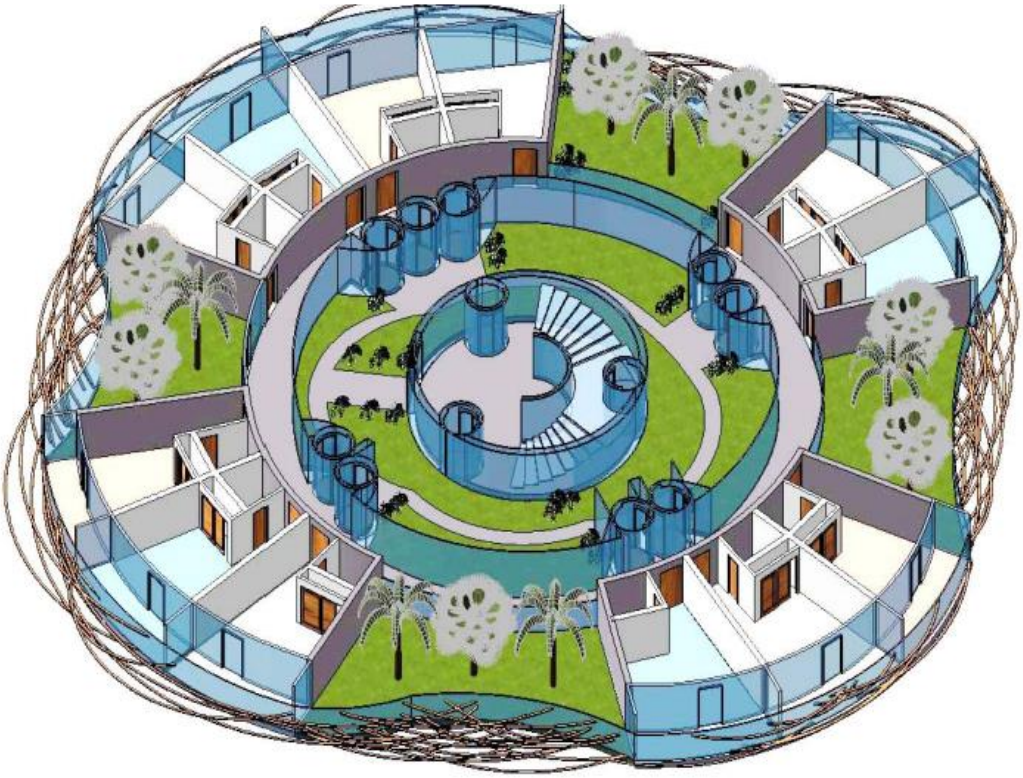

FIG.25. View of the floor with three internal elevators and nine external elevators.

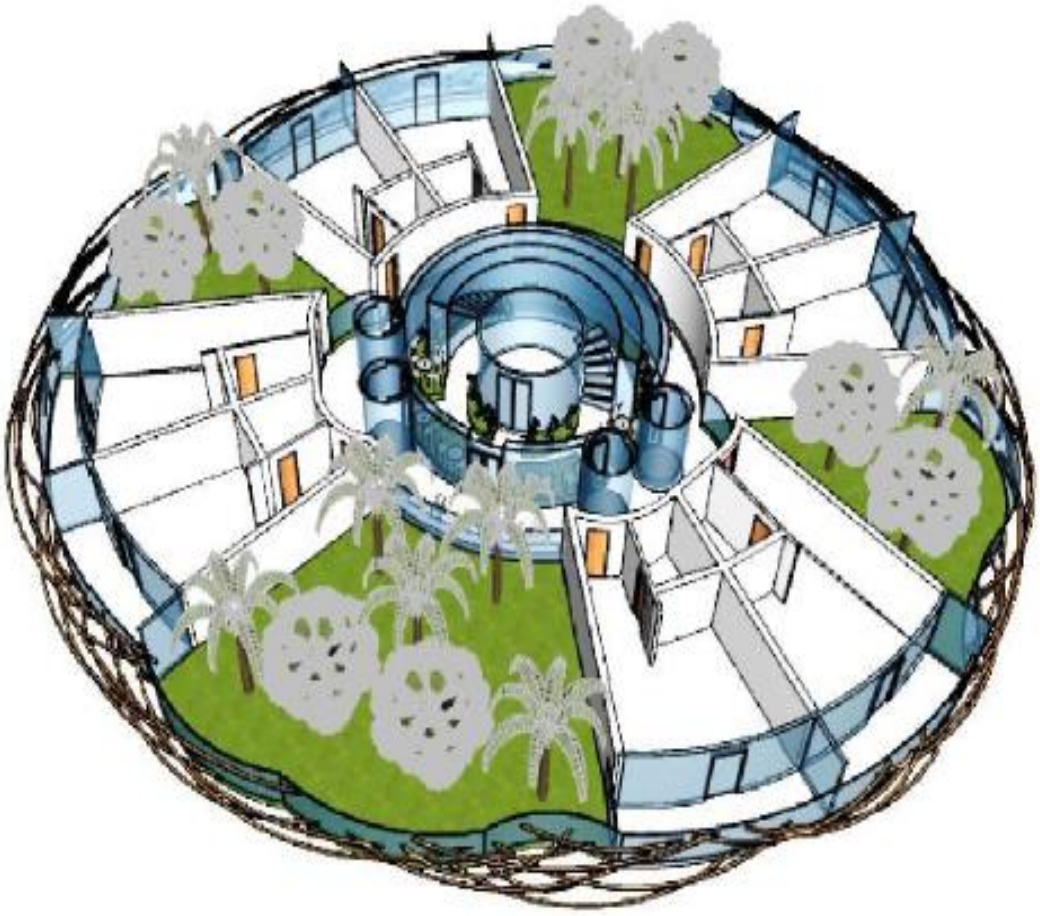

FIG.26. View of the floor with one central internal elevator and four high- speed external elevators.

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FIG.27. Four floors with one transparent elevator capsule.

FIG.28. Fragment of the roof with a transparent dome.

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