



Possibilities for Underground Cemeteries

Ilkka Vähäaho

Alef Geo-Consulting Ltd

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1. Why go underground?

Cemeteries are typically far from city centres, so memorial visits are usually made by private cars.

Cemeteries are often large regionally, and people also travel within cemeteries by cars.

Parish buildings locate in city centres and different parts of cities, and there are considerably more of them than cemeteries.

Underground cemeteries in connection with parish buildings make it possible to implement regionally small cemeteries with large capacities.

2. Catacombs of Rome and Paris



- Rome is home of some of the oldest and longest burial underground tunnels in the world
- Hundreds of kilometres of catacombs run underneath the town and its outskirts
- The oldest tunnels date back to the first century
- The Jewish community in Rome built them as cemeteries
- Christian catacombs came a century later
- They were not secret meeting places to survive persecutions, as historians thought in the past, but burial tunnels, like the Jewish ones
- They used to grow larger and larger around the tombs of saints because people asked to be buried near their religious leaders.
- All Christian catacombs in Rome are property of the Catholic Church, and no one is allowed to explore them without special permission from the Vatican

www.nationalgeographic.com/history/archaeology/rome-catacombs/

4 REASONS TO VISIT CATACOMBS

Twenty meters underground in a maze of galleries, visitors will discover an ossuary containing the remains of several million Parisians. This unique site recalls the history of these Parisians and invites visitors to take a timeless journey.



SITE HISTORY



THE OSSUARY



ARCHITECTURE



PRESENTATION BY THE DIRECTOR

Catacombs of Paris

Established 1810


Location Place Denfert-Rochereau, 75014 Paris


Type [Historic site](#)

Collections [Paris' former stone quarries](#), [ossuary contents of Paris' pre-18th-century *intra muros* cemeteries](#)

Visitors 480,000 (2018)^[1]

Public [Denfert-Rochereau](#)

transit 

access 

Website [Les Catacombes de Paris](#) 

<http://catacombes.paris.fr/en>

3. The History of Har Hamenuchot Cemetery in Israel



Published on Apr 11, 2013


- Israel has many tourist attractions, including the Dead Sea and Jerusalem.
- Of greater importance to many, however, is the Har Hamenuchot Cemetery just outside Jerusalem.
- Rabbi Leib Tropper recently returned from a trip to Har Hamenuchot, where he observed the first anniversary of his father's passing.

- Built in the aftermath of the 1948 Arab Siege of Jerusalem, Har Hamenuchot is located on a hilltop outside of Jerusalem between Givat Shaul and Motza.
- At the time it was built, the new cemetery was expected to cover three-tenths of a square kilometer.
- Today, the cemetery has expanded onto the north and west slopes of the hill and covers six-tenths of a kilometer.
- In the decades since its creation, more than 150,000 people have been buried there.

- Har Hamenuchot is divided into sections, each operated by a chevrei kadisha (burial society).
- However, Har Hamenuchot is also the official municipal burial ground, and as such accommodates free burials for Israeli citizens and tourists who pass away while on Israeli soil.
- However, between one-fifth to one-third of all burials in the cemetery are for people from abroad, as in the case of Rabbi Tropper's father, Rabbi Yehuda Tropper.

- About the Author:

A renowned religious scholar and educator, Rabbi Leib Tropper is the founder of the Kol Yaakov Yeshiva and Torah Center in Monsey, New York.



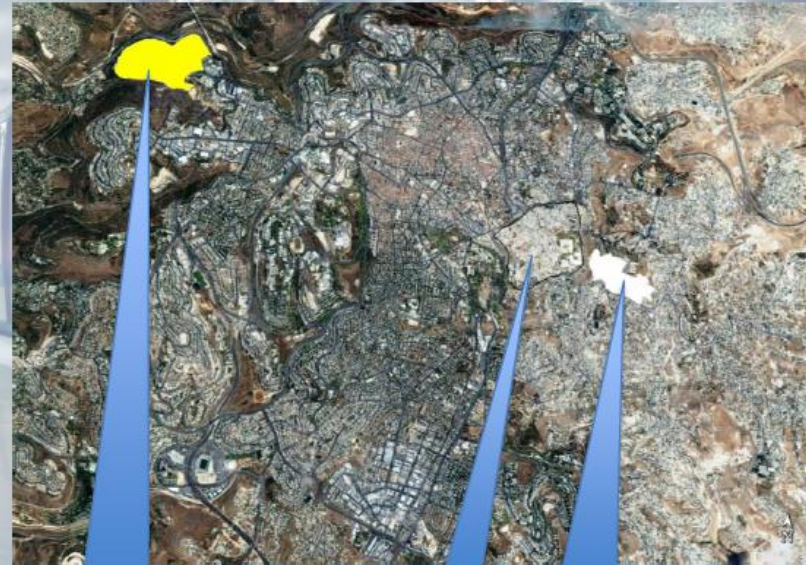
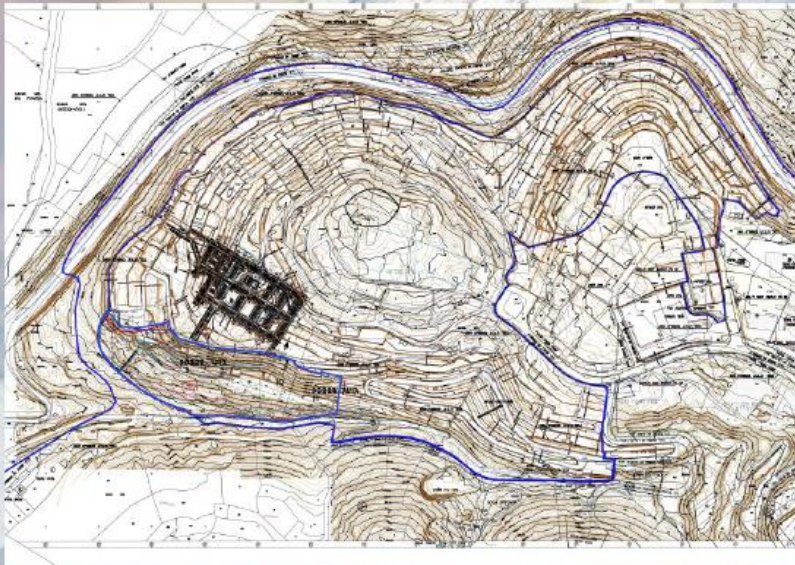
4. Underground Cemetery Jerusalem



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Underground cemetery – Jerusalem



Cemetery "Har Hamenuhot"

Old City

Mount Olives



PARIS – 15 November 2017

General Manager – Arik Glazer

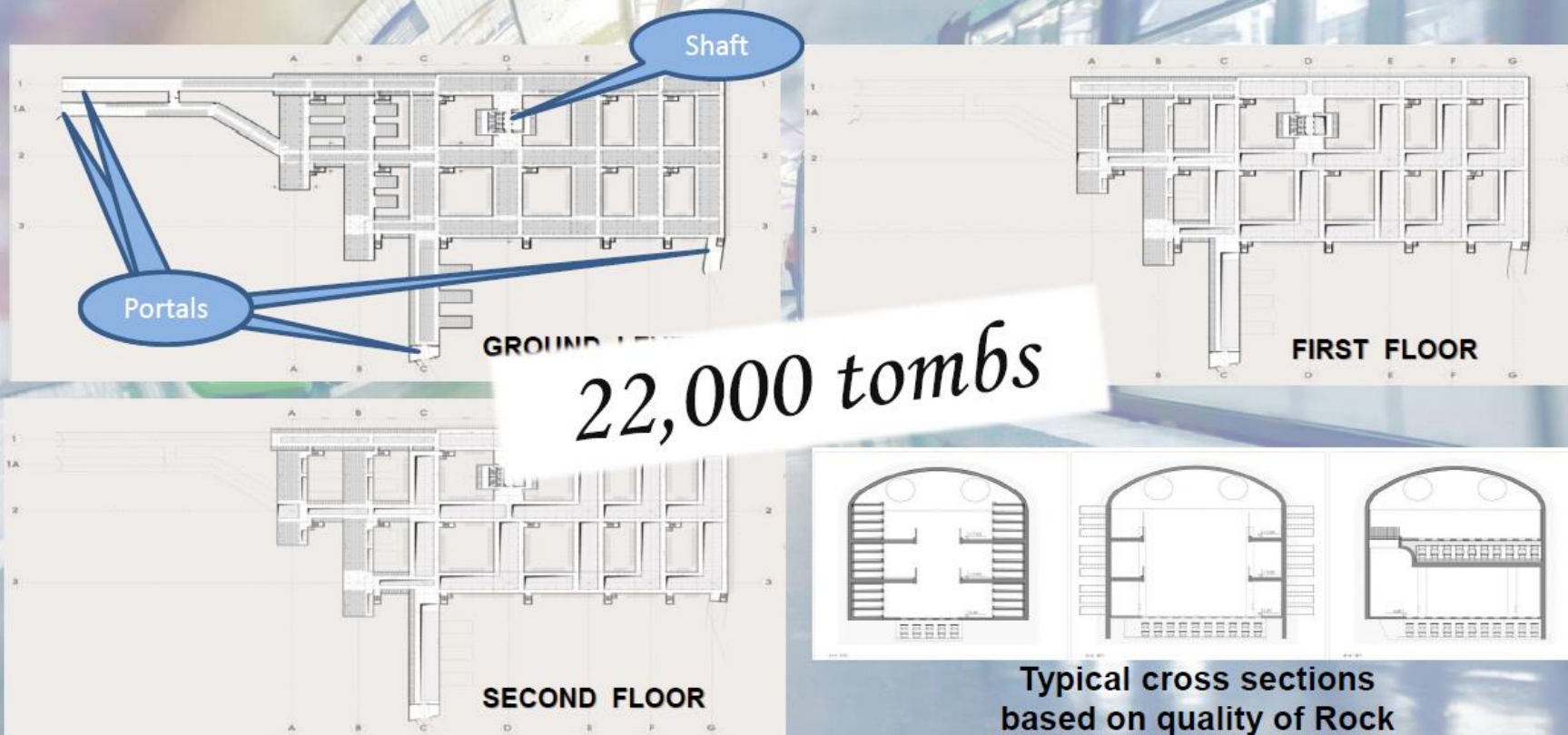




ITA TUNNELLING AWARDS 2017



The Jerusalem underground cemetery - Architecture



PARIS- 15 November 2017

General Manager – Arik Glazer

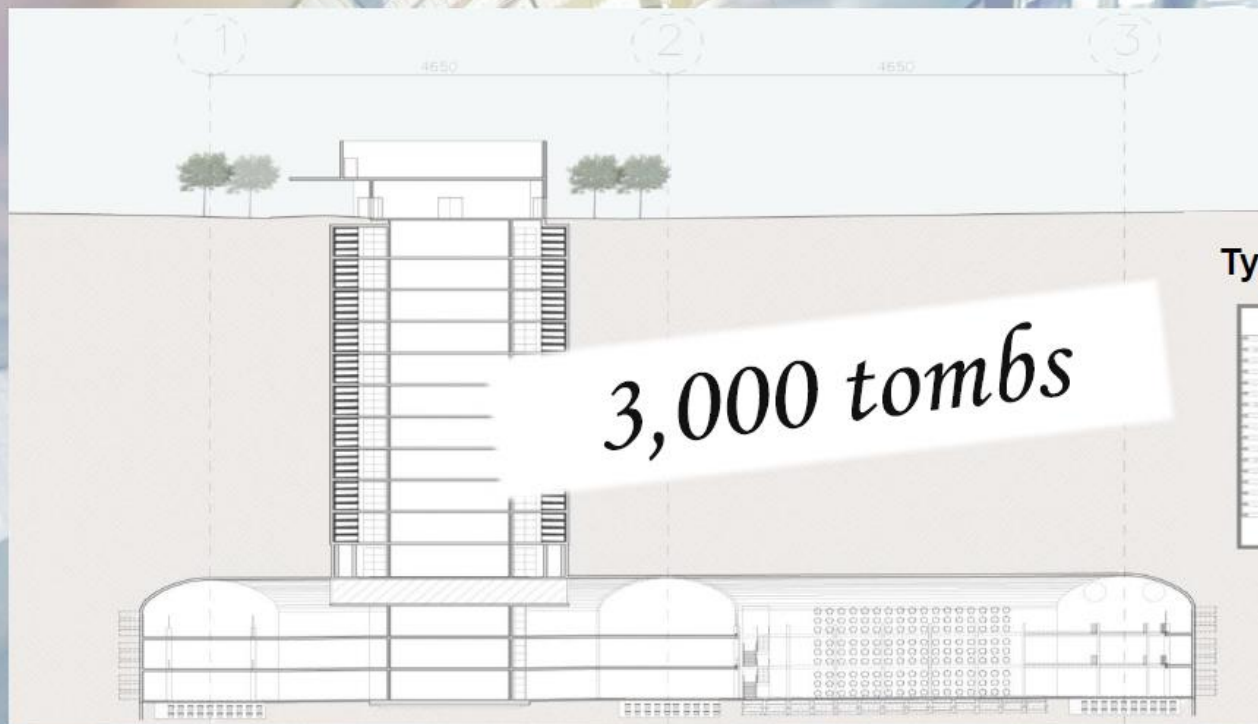




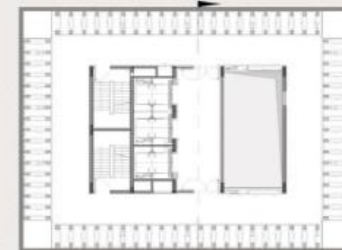
ITA TUNNELLING
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The Jerusalem underground cemetery - Architecture



Typical cross section





**ITA TUNNELLING
AWARDS 2017**



The Jerusalem underground cemetery - Illustration



**Types of
Burial**



Shaft Entrance



Museum



PARIS- 15 November 2017

General Manager – Arik Glazer

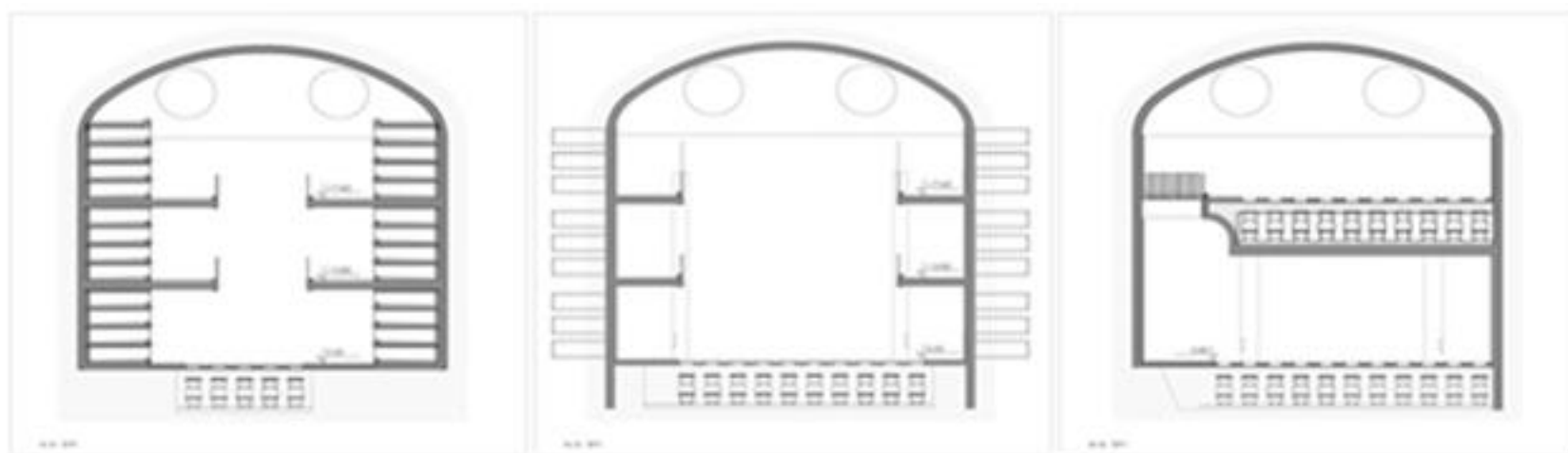


Prices in this project in dolomite rock

Arik Glazer 25 November 2018

- Precast Single grave in stack burial approx. 2,000 euros (12 graves in three floors)
- The burial niches are approx. 3,500 euros each
- Field burial (at the floor of the tunnel) is also approx. 2,000 euros

Arik Glazer 7 December 2023: Prices are related to many things, an average price for personal grave is 3,500 euro.



Typical cross sections
based on Quality of Rock

About Har Hamenuchot Underground Cemetery

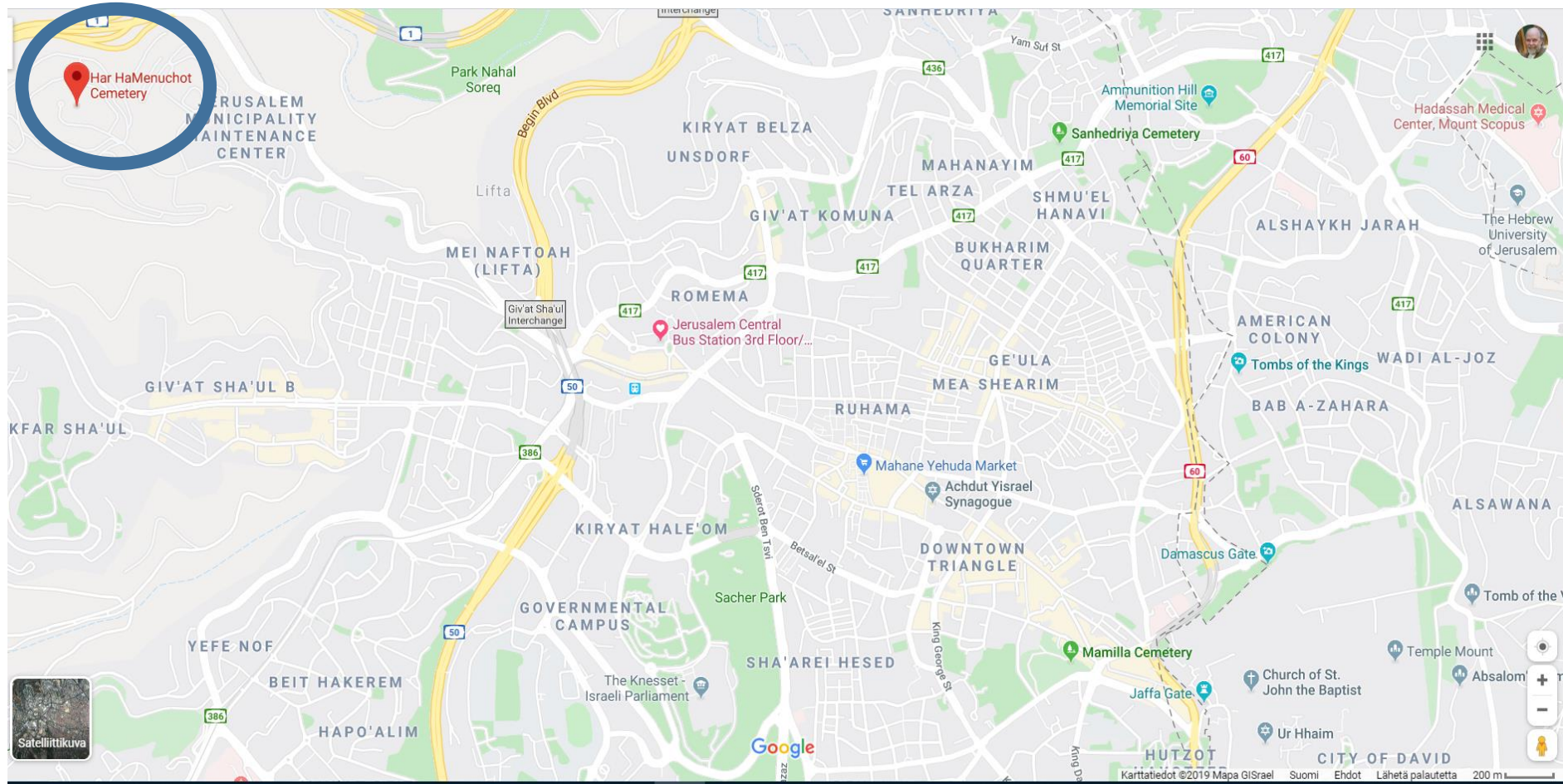
- Land is in short supply in Israel, and Jewish and Muslim burial customs require interring the dead in the ground and prohibit cremation
- Har Hamenuchot Cemetery is only for Jews, but divided into sections for 18 burial societies (Chevra Kadisha)
- Body is lowered into the ground wrapped in a shroud, but without a coffin
- The hilltop cemetery is almost at capacity, with nearly 250,000 graves despite multi-tiered structures rising several stories
- The first underground section was opened on 30 October 2019
- Underground cemetery consist of 1.5 kilometers of tunnels, but tunnels take only 5% of the total underground area of the mountain available for future tombs
- Underground cemetery provide 23,000 new graves for an increasingly crowded country
- The first underground section has capacity for 8,000 graves
- Even in the blazing summer heat, the labyrinthine vaults maintain their steady year-round temperature of 23 degrees
- The entire project cost an estimated \$50 million and took just over three years to complete
- News about Jerusalem underground cemetery:
 - <http://edition.cnn.com/2016/09/25/middleeast/jerusalem-underground-city-for-the-dead/index.html>
 - <https://www.timesofisrael.com/as-cemeteries-run-out-of-space-massive-modern-catacombs-to-open-in-jerusalem/>
 - <https://www.ynetnews.com/articles/0,7340,L-5577668,00.html>





© Getty Images

Site Visit 17th October 2019





מחלקת למבוקה יהודה
מחלקת ניהול פרויקט

The field grave opening in the concrete is 55cm/160cm whereas the actual burial place underneath is 50cm/200cm













The drill hole diameter is 73cm







דלת

30

From left:

Ilkka Vähäaho and Birgit
Palmén-Vähäaho
([Alefgeo](#))

Arik Glazer ([Rolzur](#))



Har Hamenuchot Cemetery today

Har HaMenuchot (Hebrew: הר המנוחות, "Mount of Those who are Resting", also known as Givat Shaul Cemetery) is the largest cemetery in Jerusalem. The hilltop burial ground lies at the western edge of the city adjacent to the neighbourhood of Givat Shaul, with commanding views of Mevaseret Zion to the north, Motza to the west, and Har Nof to the south. Opened in 1951 on 300 dunams (0.30 km²; 0.12 sq. mi) of land, it has continually expanded into new sections on the northern and western slopes of the hill. As of 2008, the cemetery encompasses 580 dunams (0.58 km²; 0.22 sq. mi) in which over 150,000 people are buried.



Cemeteries Underground? Modern Urbanism & Ancient Beliefs Unite

[Arnold Dix on LinkedIn: #underground #cemetery #cityplanning](#)

Arnold Dix,
President
International
Tunnelling and
Underground
Space Association



Arnold Dix  · 2nd

 ITA-AITES

President International Tunnelling and Underground Space Association (Geneva) - Geologist Engineer Lawyer Investigator, Emergencies, Disasters, Collapses, Fire Life Safety Justice Contracts Finance Approvals

Talks about #ethics, #underground, #socialeconomy, #economicsecurity, and #environmentalmanagement

Monbulk, Victoria, Australia · [Contact info](#)

[Arnold Dix](#) 

19,907 followers · 500+ connections

Underground Cemetery - Jerusalem

Drone Movies



<https://www.rolzur.com/>

[Design-Construction-Active](#) (1:30)

[Lower Tunnels](#) (0:45)

[General View](#) (0:06)

[Shaft View](#) (0:30)

5. Example of burial complex that is suitable for cremation
Each niche is connected to the ground



Arik Glazer
General Manager



6. Jewish Cemetery in Helsinki

- In Finland, Jews must be buried in accordance with local legislation:
 - Coffin burial (not just a shroud like in Israel).
 - Only one deceased in the same grave and a burial depth of at least 1.7 meters (in Israel, spouses can be buried in the same grave).
 - The burial place is eternal (as in Israel).
- The current Jewish cemetery in Helsinki is likely to have capacity until about 2050.
- There are approximately 1,800 Jews in Finland.
- Cremation urns cannot be placed in the Jewish Cemetery in Helsinki.
- For more information, please visit:

<https://jchelsinki.fi/en/services/jewish-cemeteries/>



Jewish Cemetery in Helsinki



7. About Muslim burials

- Question

- Is it permissible to bury the dead by digging a large underground chamber which can hold a number of dead, in which stones are placed like shelves and the dead are placed on them, and when this chamber is full it is closed up with a large rock?

- Answer

- There is nothing wrong with burying more than one deceased person in one grave, when there is a need to do so, although that is contrary to the basic principle that each person should be buried in a separate grave.
- If there is a need because there are large numbers of deceased and it is too difficult to place each one in a grave on his own, then there is nothing to prevent putting two or three together in one grave.

- <https://islamqa.info/en/answers/203334/ruling-on-burying-the-dead-in-a-large-underground-chamber-in-which-they-are-placed-next-to-one-another>

Islamic Cemetery, Altach, Austria (Completed 2011)

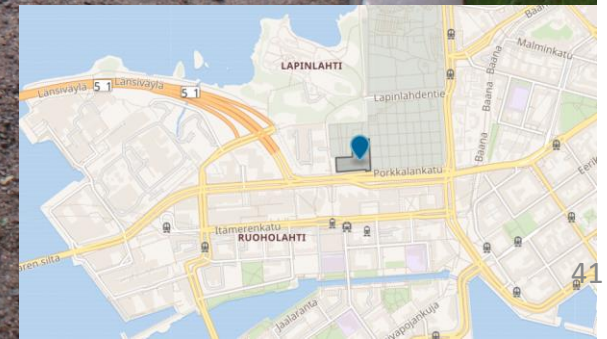
www.akdn.org/architecture/project/islamic-cemetery



8. Islamic cemeteries in Helsinki

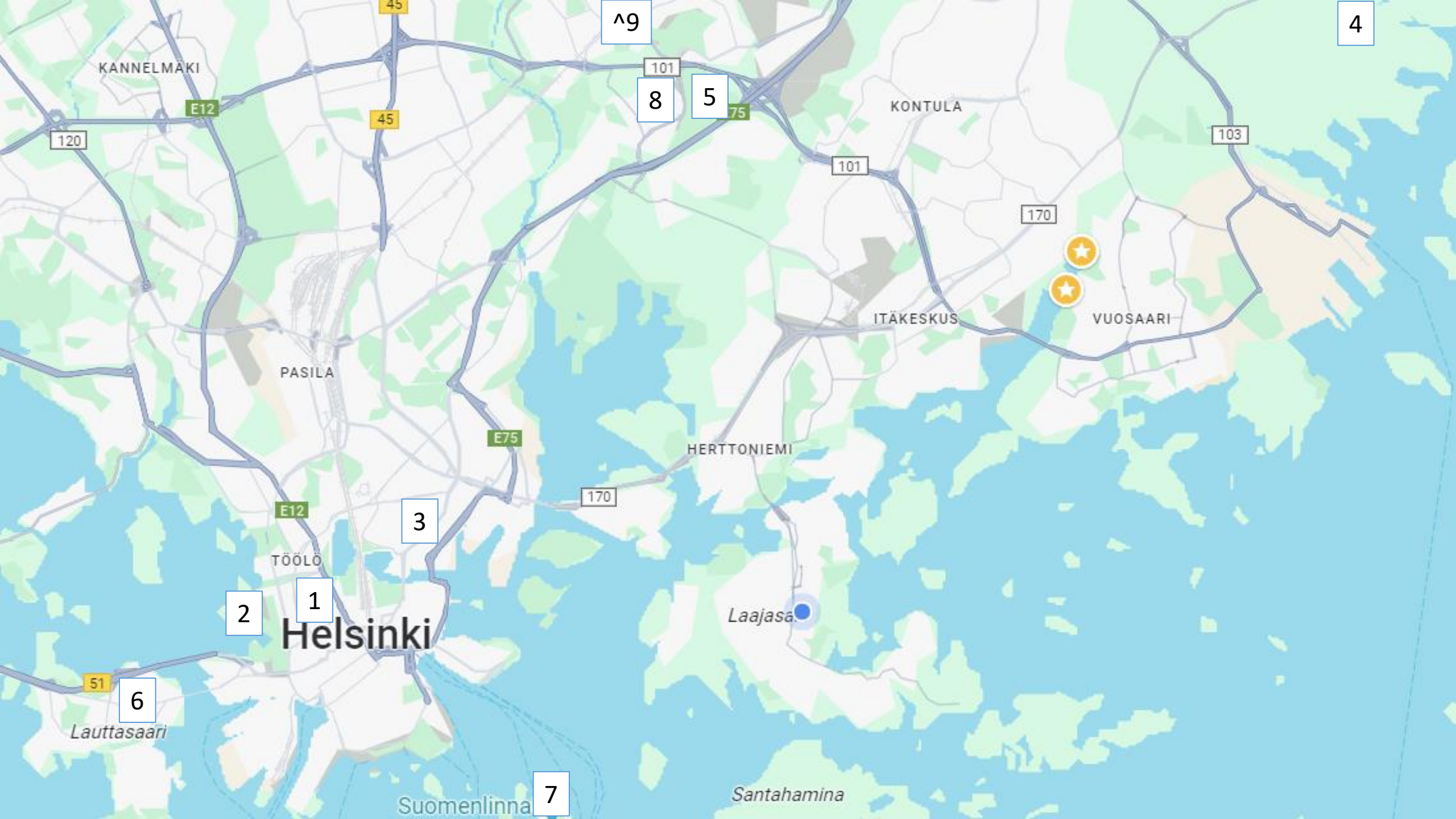
- Finnish law does not allow burial without a coffin.
- According to Islam, burning a corpse is forbidden.
- Burial in two floors is also out of the question.
- In 2020, the number Tatars in Finland was estimated to be around 600–700.
- There is an Islamic cemetery near city the centre of Helsinki, but only Tatars are buried there.
- There are tens of thousands of Muslims in Helsinki alone.
- Currently, Muslims are buried in Muslim quarters established in the cemeteries of the Lutheran Church.
- Deceased Muslims from Helsinki can be buried at Honkanummi Cemetery in blocks 76 and 77, which is in Vantaa (20 km from the city centre).
- The block is built in such a way that the dead are buried facing Mecca.
- The deceased should be lowered into the grave on his/her right side facing Mecca.

Islamic cemetery for Tatars in Helsinki



9. Possible new sites for underground cemeteries in Helsinki

1. Temppeliaukio Church
2. Hietaniemi Chapels
3. Extension of the columbarium of Kallio Church
4. The rocky area of Östersundom Cemetery
5. The rocky area of Malmi Cemetery
6. Lauttasaari Church
7. Suomenlinna Church
8. Pihlajamäki Church
9. Malmi Church



4

9

8

5

170

103

120

E12

45

75

101

PASILA

ITÄKESKUS

VUOSAARI

HERTTONIEMI

E75

170

3

TÖÖLÖ

2

1

Helsinki

Laajasaari

51

6

Lauttasaari

7

Suomenlinna

Santahamina

Example #3, Columbarium or urn vault of Kallio Church in Helsinki



- In 1991, an urn vault was built in the basement of Kallio Church.
- The urn vault can hold some 2,500 urns.
- After the 25-year period, the ashes are transferred from the urn to a 9 m³ rock grave.
- Alternatively, the ashes of the deceased can be directly tipped over into the rock grave.

Example #8, Pihlajamäki Church in Helsinki

Under Pihlajamäki Church there are excellent conditions for an underground cemetery



10. Conclusions

- ❑ It is possible to place underground cemeteries close to people's normal passages, for example under existing parish buildings.
- ❑ Underground cemeteries are significantly more efficient in terms of space use than aboveground cemeteries.
- ❑ Architecture plays a key role in the design and implementation of successful underground spaces.
- ❑ Jerusalem's underground cemetery is an excellent example of ideal use of space and superb architecture.

CONTACT INFORMATION

reliable
partner

Alef Geo-Consulting Ltd

Alefgeo.com

info@alefgeo.com

Business ID: 3311546-1

Ilkka Vähäaho, CEO, MEng

+358 500 464 132

ilkka@alefgeo.com

Postal address

Sarvastonrinne 13 C9

FI-00840 Helsinki

Finland

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