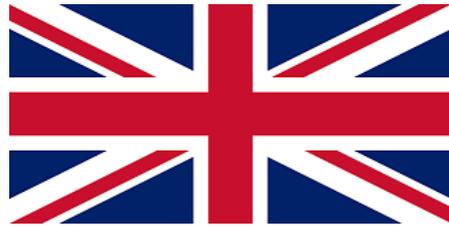


# GUIDE YOURSELF IN THE MOUNTAIN.



## The Aerozeum and the bunker's history.

In 1940 the newly established air component, the Royal Göta Air Wing, known as F 9 based at Säve came into operation. Immediately work started on blasting the rock to construct an underground hangar. The original size was 8,000 square metres, which was unique in the world. This installation came to be known as "the old ground level hangar". At the end of World War 2 and once the threat of nuclear weapons became a fact, it was realised that it would be necessary to provide protection for aircraft underground in a facility that would be proof against such a nuclear threat instead of leaving them above ground and vulnerable. Planning commenced and within the airfield area it was noted that there was another small hillock that would be suitable.

Work began in 1950 to blast within the new area and this time to make it proof against nuclear attack. The new installation covered 22,000 square metres in area and at its deepest was 28 metres below the top of the hillock. For the whole of the period of construction the utmost secrecy was maintained, and this persisted until 1998. Down inside the underground hangar one squadron of aircraft was stationed, consisting of 40 personnel and about 15 aircraft, initially J 29 "Flying Barrel". jet fighters. At its inauguration in 1955 the hangar had as not been fully completed. The remaining work of preparing a fuel store was in progress, and for this deep down under the floor and to the side of the hangar space two huge fuel tanks were installed. The larger could hold 700 cubic metres and the smaller 550 cubic metres. In other words a total of 1,250,000 litres of aviation fuel.

Since no operations were planned to take place outside the underground hangar, piping was run up to an area inside the tunnel where refuelling could take place. However once the tank installation was completed a test refuelling was carried out on an aircraft, but something went wrong and a large amount of fuel spilled on to the tunnel floor. Due to this dangerous situation, refuelling inside the underground hangar was immediately forbidden. Instead aircraft were refuelled outside on the "Ramp" from fuel tanker lorries that were filled up from the tank storage inside the hangar. After refueling, the aircraft were then towed into the underground hangar. The tank storage was ready for use in 1963, but soon after, in 1969, the Wing was disbanded. In the same year of 1969 the 2nd Helicopter Squadron moved over from Torslanda and took over the empty premises from the Air Force.

After 1969 the underground hangar was used for aircraft storage. At one time there were about 70 type J 35 "Draken" aircraft with their wings removed packed tightly inside. Some would be scrapped, while others remained stored inside the underground hangar. In 1998 the Ministry of Defence decided to stop using the hangar and shut it down. At this time the then Commanding Officer of the 2nd Helicopter Squadron was Commander Roger Eliasson , who learned about the Ministry's decision. Commander Eliasson had the idea of an experience centre catering for people who were fascinated by aviation, and he applied for the underground facility to be declassified and emptied. At the very last minute Roger received permission to try out his idea, and the rest is history. THE AEROSEUM BECAME REALITY.

Outside the entrances you can see how any attack on the installation would be dealt with. There are two entrances which would deflect away any pressure wave from a nearby detonation. The pairs of enormous sliding doors, each 70 cm thick and weighing 70,000 kilogrammes, run on rails so that the doors disappear inside recesses at the sides of the tunnels as they open.

In front of the doors you can also see a curtain. In the case of a nuclear alert the curtain would be closed to protect the underground hangar from radioactive particles and dust. After an attack the curtain would be flushed with water ready for further use. Inside the bunker the aircraft would stand in readiness, armed and fuelled, each with a tow truck attached in front. Pilots would be sat in the aircraft, each with a driver and assistant in the Volvo tow trucks.

As you go down the tunnel, on the left side are small recesses, which used to contain material such as armament needed to equip the aircraft for new missions. So as each aircraft returned to the tunnel, it could be prepared and rearmed for another mission. The green arches at intervals along the ceiling were to divide the tunnel into sections to form fire cells. Within the arches an asbestos curtain was fitted, which would be released to fall down in case of fire. Thus a fire cell would be formed between two hanging asbestos blankets. This would then be filled with foam and water to extinguish the fire; however the underground hangar fortunately never did experience a fire.

## **Objects and exhibitions**

### **1. Saab J 29 "Flying Barrel" and No. 9 Wing display**

The J 29 first flew on 1 September 1948. The type was withdrawn from service in August 1976. A total of 661 were built, in a number of versions. 220 of these aircraft were destroyed, with 99 pilots losing their lives. Swedish fighter pilots were at this time considered to be the most skilful in the world. In numerical terms, Sweden was the fourth largest Air Force in the world then. Next to the J 29 can be seen the type of engine that was installed in these aircraft, and in front is also a start/towing truck. This was used both to tow the aircraft out of the underground hangar, and also to

supply electric current from a generator (located at the very front of the truck) to start the jet engine in the J29.

## **2. The Cold War**

This exhibition provides the answer to how the period known as the "Cold War" began, and why this time was so important in respect of constructing the underground hangar and Sweden's future. The display reflects some of the most important events in the history of the Cold War.

## **3. Saab J 35 "Draken" ("Kite" or "Dragon")**

First flew on 25 October 1955. In all 615 "Drakens" were constructed in 10 different versions. Of these 63 were exported. The Swedish Air Force bought 533, in seven different versions. The first time a "Draken" went through the sound barrier was on 26 January 1956. They were withdrawn from service in 1999

## **4. Construction of the underground hangar**

It only took five years to construct the underground hangar. In this photographic exhibition, of original pictures you can see how it was done in such a short time, using methods and equipment of the time to complete an underground hangar measuring approximately 22,000 square metres.

## **5. AJ-37 "Viggen" ("Thunderbolt")**

The first flight of this type of aircraft took place on 8 February 1967, this being the first example of a total of 329 delivered to the Swedish Air Force up to 1971. They were withdrawn from service from 25 November 2005. This particular individual is an SH version equipped for maritime reconnaissance and has a camera for photographing foreign units at sea.

## **6. The atom bomb**

Nuclear bombs were the greatest threat during the Cold War. This exhibition helps to explain this terrifying situation, but also how nuclear energy could be used for peaceful purposes.

## **7. Helicopter Type 1**

The first military helicopter in Sweden was the Vertol 44, previously known as the Piasecki H-21 Workhorse in United States service. It entered service in Sweden in 1958, assigned to the newly formed Naval Air Service. It had already, in the USA, received the nickname of "Flying Banana", which followed it to Sweden as "The Banana" or "The Banana Helicopter"

## **8. Helicopter Type 2, the Aérospatiale Alouette 2**

The first helicopter to use turbine power, which reduced the engine weight to half, while carrying greater weight and climbing higher. In Swedish service between 1957-1988. Used for transport, reconnaissance and rescue missions.

### **9. Helicopter Type 3, Agusta Bell 204B**

Served Swedish Defence between 1962-2001 as, among other things, a transport helicopter. The Aerozeum examples were used as local rescue helicopters.

### **10. Police aviation**

Police helicopter operations have their main base at Säve airport. The display shows the history, development and tasking of helicopter operations performed since the foundation of Swedish Police aviation.

### **11. Helicopter Type 5A, Hughes 269 ("The Pencil Sharpener")**

In Swedish Defence between 1962-1971. Used for flying training and transportation as well as for Artillery direction.

### **12. Helicopter Type 6. Agusta Bell 206**

Served in Sweden between 1968-2004. Used for flying training and transportation. The helicopter seen here was stationed aboard the icebreaker Ymer during a Polar expedition in 1980. Each time a polar bear was anaesthetised for research purposes, a tiny polar bear symbol was painted on the helicopter's nose. One of these symbols is surmounted by a crown, signifying that HM the King of Sweden was aboard the helicopter. The last symbol bears a halo. In this case the polar bear drowned, which was an accident, and its body was recovered and stuffed. There is a photograph of it on the helicopter windscreen, showing its present location at the Stockholm Natural History Museum.

### **13. Helicopter Type 9A, Messerschmitt-Bölkow-Blohm B0105**

Among the tasks for this helicopter was anti-armour fighting, so that there are armour-piercing missile ramps on the sides and an infra-red sight on the roof. This helicopter was intended to go to Afghanistan for anti-armour fighting, but this model was phased out and the Aerozeum received it as a fully equipped helicopter. These were in defensive service between 1987-2009.

### **14. Helicopter Type 10P, Eurocopter AS 332 "Super Puma"**

This type replaced the Type 4 and was used for rescue missions and international tasks. It was in service between 1990-2015.

### **15. Now you have reached the lowest point of the underground hangar, which is 28 metres under the top of the hill**

Aircraft were towed here and placed on the turntable, where by using a crowbar the personnel could manually turn them to go in the desired direction. You can see underground hallways here where the aircraft could be placed for personnel to carry out minor repairs, service the aircraft or just keep them in reserve. The underground hangar has six of these halls. On the right side you can see a display about the Swedish Air Force and its history. A map shows where all 21 Wings were located. Today only 5 of these Wings remain. Here there is also a display explaining STRIL

(Stridsledning Luftförsvaret – Air Defence Command and Control). You can also go in and see what it was like for conscripts out in the field. On the left side is a J 35 "Draken". You can get into the cockpit and experience the workplace of a fighter pilot. Behind the aircraft is another display, showing the Swedish Coastguard and its work. The red cabin at ceiling height represents a rescue helicopter with a winch and a line down to a rescue basket. We can use this to lift children (and adults) who are visiting the hangar.

#### **16. In between the halls you can see a well-worn Alouette**

This helicopter saw service on the destroyer "Småland". Interestingly, this particular helicopter was used to carry Sweden's newly crowned world heavyweight boxing champion Ingemar Johansson on his return to Sweden, from Torslanda (at that time the international airport) to the Nya Ullevi stadium to receive the jubilation of a huge crowd.

#### **17. Police helicopter Bell 47G**

This was the first helicopter to be purchased by the Swedish Police. It is still airworthy, i.e. only needs minor servicing to fly once more.

#### **18. Saab A 32 "Lansen" ("Lance")**

In use by the Swedish Air Force between 1956-1997. The first flight of this type was on 3 November 1952. There were many problems with this aircraft, leading to the loss of aircrew; 55 pilots and 40 navigators died during the time these aircraft were in service. 134 aircraft were destroyed. Altogether 450 "Lansens" were constructed, in various versions. Further to the right you can see a jet engine. This is the Swedish-developed and manufactured "Dover" which was originally intended to equip the "Lansen", but problems arose and in the end it was decided to use the Rolls Royce Avon engine, that was already in use in the Swedish Air Force imported Hawker Hunters that once occupied this underground hangar.

#### **19. Simulator hall**

Here you can share the experience of "flying" a number of different aircraft, namely there are 8 different aircraft types available as simulators, for which we charge an additional fee. These range from propeller aircraft, jets and a helicopter to commercial passenger aircraft. Contact the staff and book a time to have a unique experience.

#### **20. Helicopter Type 4, Boeing Vertol 107**

We have here the only flying Vertol helicopter to be found in Europa. It was restored to airworthiness in November 2018. (Please note that it may have been taken out of the hangar "to flex its wings" during the summer months)

#### **21. Helicopter hall**

The Aerozeum is host to three Type 4/Boeing Vertol 107 helicopters. These had been used to search for submarines, for rescue at sea, forest firefighting and transport. They served the Swedish Defence Forces between 1963-2011.

## **22. Now you can see a "tube" similar to the one you used to descend into the hangar**

This tunnel is used to move items in and out of the underground hangar. When the Cold War was at its height, there were always at least two aircraft here, with their pilots at readiness and starter trucks attached to the aircraft. Each truck carried two people, a driver and a mechanic. These sat in place for a two-hour shift. If there was an alarm the doors would be opened and the aircraft towed out. Once each aircraft was at the doorway its pilot would signal the mechanic in the truck, who would start the truck's generator so that the pilot could start the aircraft's engine. When clear of the hangar exit the truck was disconnected from the aircraft, which could then enter the runway and within a few minutes be airborne.

## **23. The hall at the right is used by Göteborgs Veteranflygsällskap (GVFS) – the Gothenburg Veteran Aviation Society**

This is where work is carried out on renovating and servicing old aircraft to maintain their airworthiness. Among other things, the people who work here have brought a couple of GV-38 aircraft back to flight. GV-38 stands for Götaverken (a shipbuilder here in Gothenburg) 1938. This company licence-built 14 examples of the Rearwin Sportster. When they were complete, they were hoisted from the carpentry workshop on to a pontoon and towed to the airfield at Torslanda where they were test flown. The Veterans Society presently owns two complete GV-38s and another on which renovation has just started. This hall also contains a number of other renovation items, some of which are expected to eventually go on display. There are two gliders hanging from the ceiling.

## **24. Gösta Fraenkel's Gipsy Moth Major**

Here you can read about a Gothenburg resident who received this aircraft as a birthday present from his mother. Read also about how a whooping cough epidemic led to him becoming famous and ensuring that he flew a great deal.

## **25. A replica of the Thulin Type A**

This film prop "aircraft" was constructed for and used in a film about the first certified female pilot in Sweden, Elsa Andersson.

## **26. Café Markan**

This is where you can satisfy your thirst and hunger with a range of food and drink. Also on the shelves there are plastic model kits and toys, DVD films and books. In the corner is a second-hand aviation bookshop where you could find books that are long out of print.

## **27. On the second floor is where you can find the toilets**

Up the stairs and along the corridor to the toilets you will see a couple of open doors; in the first is a command centre and in the second a Combat and Air Defence centre.

## **28. Back down on the ground floor**

Here is the children's play area, with a variety of games providing fun for both large and small.

### **29. Space**

This display mainly concerns "How 12 men got to the moon". Pioneers from the 1950s to 1970s, and the present occupants of the ISS, International Space Station. This display also shows our nearest planets and why we have annual seasons.

### **30. If war broke out**

A small display showing how people lived during the Cold War. Information and preparations for war and evacuation, that were in every home.

### **31. Spies/Stasi**

Spies – During the Cold War spies were an important source of information for foreign powers. Every nation spied on every other nation. An exhibition of known spies in Sweden and explanations of how they were recruited by foreign powers.  
Stasi – An exhibition of the way the DDR (former East Germany) was subjected to comprehensive surveillance during the Cold War. "Everyone spied on everyone else" and reported to the State security police, the Stasi. How does society work today?

### **32. Film shows**

Films about flying are shown here all day. This hall is also available for major events and can accommodate hundreds of visitors.

### **33. "Climbing Viggen"**

Sit in the cockpit of a real "VIGGEN" to see how it feels. This also has the best hiding place in the whole Aerozeum; you are welcome to creep all the way through the engine space.

### **34. Viggen engine**

A "Viggen" engine is located next to the aircraft.

### **35. Plastic models**

Stop for a while and inspect the huge amount of work that volunteers have done in building these plastic models of all the world's aircraft through the ages.

### **36. SK 60 engine**

You can also inspect an engine that used to be inside the Swedish Air Force trainer, type SK-60. Unfortunately we don't yet have an example of this type of aircraft. This is also where the toilet for handicapped people is located.

### **37. Jerker Berg**

Here is a display concerning a man called Jerker Berg and his Trike. Jerker had to use a wheelchair after an accident, but that didn't stop him from flying. He finally flew himself in this machine to S ave and donated it to the Aerozeum. Unfortunately he passed away some years ago. Here is located another "Draken" aircraft for you to sit in the cockpit.

### **38. Air observation tower**

Also take a look at the "Air observation tower" that is a typical example. These were placed all round the country and were mainly manned by women, who were called "tower swallows".

Now that you have explored our underground hangar we hope that you have enjoyed seeing what we have to offer.

Please remember to put this folder back where you got it from at the entrance. Close by is a visitor's book in which you are welcome to write any comments you may have.

**Thank you for coming and we hope to see you again.**

