Attefall-house
- greater than the sum of its parts?

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*Tack!*
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What am I doing?

I am exploring how to create a space that is more than just a functional space, a space that provides an experience, a space with architectural atmosphere. I am using the Swedish Attefall-house as a case study. This small, permit free building provides a limited frame. It has clearly defined borders and limitations. The smallness of it opens up for experimentation, and in the normally hard regulated Swedish building climate, it provides an opportunity to try out ideas.

I am trying to create this sensory experience by fusing usage and context. I have chosen a specific site and client, the site is the plot where I live in the city of Sigtuna and the client is my family. This is based on an assignment\(^1\) the Swiss architect Peter Zumthor gave to architect students at Harvard while teaching there. He asked them to design a house without form, a house based on the experience of the house, not the actual shape of it. He had them start by choosing a site they knew very well and write a program for this house.

So beginning with the specific conditions of the plot, I then discussed with my wife how we would use a complimentary house. We agreed that we want it to be a place to relax, work or read without being disturbed. It should serve as a guesthouse when needed, a place for our children to play and a place for plants, especially during winter.

During the process I have been influenced by the surrounding context, the city of Sigtuna. Many inspirations come from within a couple of hundred meters from the site. The site specificity is crucial, this building would not have come out the way it has if it wasn’t located in Sigtuna. I believe knowing the site and the context well is key to creating relevant architecture that stands the test of time.

-Why does it exist?

I find this fascinating to study because I believe this is the way forward for architecture. The human experience of architecture is the main focus in my eyes. Almost equally important is usage and contextual awareness. For me, as a student in interior architecture, it’s also about trying to define my future role in the profession. I hope I can draw conclusions that help me form a working method for implementing architectural atmosphere in spaces that relate to everyday use.

-The clash between usage and sensory experience - is it a clash?

Yes, it is a clash. Is it a problem? Not in my mind. I see these two as working next to and with each other. Making it all about usage makes it to much like a soulless machine, making it all about sensory experience makes it too much like an art concept. For me it’s not either or, it’s both. I believe they strengthen each other. The contrast between them makes the space come alive and interesting. At least that is my theory, this thesis work will hopefully prove me either wrong or right.

-Function or usage?

In Zumthors view\(^2\), there is a difference between designing for usage or designing for certain functions in a building. In an interview he states: "So architectural education should try to always focus on the ‘use’ – in the broadest sense of the word. Not function, use. I always think that there is something very noble to this. It is a noble thing to think how a building is used, because it has to do with how people’s lives are staged and how they are loved.” I sympathize with this and have kept it in the back of my mind while working.

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1 Zumthor, lecture at the David Azrieli School of Architecture (Tel Aviv)
2 Zumthor, interview with Royal Gold Medallist Peter Zumthor
-How?

I have approached this in a way inspired by the Japanese architect Kazuo Shinohara. By first identifying certain aspects and qualities I want, I have then tried to combine these in a single space. By combining pure usage; a place to read, work, relax, sleep, cook, bathroom etc. with sensory experiences; tactility, smell, light, air, into a set frame - the Attefall-house - I want to see if I can achieve a space that is greater than the sum of its parts.

To evaluate if I have succeeded with my intentions, I want to use the spring exhibition as a way to let people from outside the school, laymen, explore and experience my work. By making short interviews or letting visitors write down a few words of their spontaneous reactions, I think I can get a sense of what people think.

To give people an immersive experience, I will build a scale model that is quite big, scale 1:5, and let them stick their head inside it, control lights and feel the materials.

The Attefall-house

In 2014 a law was passed in Sweden making it possible to construct a complimentary building in proximity to a main house, without a permit. It can be four meters high, from the ground to the top of the roof. It can be maximum 25 square meters big and be used for living, storage, guest house or garage. It got the nickname Attefall-house after the minister of housing who proposed it, Stefan Attefall.

I find this limited structure inspiring, partly because it’s something that will be built by many Swedish house owners and most of them will look to cost and function first. Considering the architecture will come further down in the list of priorities or maybe not at all. For me it is interesting to make this small space about architecture and usage. To maybe even make it appear to be more than it is, in terms of space, usability and the architectural value it adds to the plot or the main house. In my work I will apply my ideas to the rules of the Attefall-house, as a case study.

3 www.boverket.se/sv/byggande/bygga-nytt-eller-till/bygga-utan-bygglov/attefallshus/
Inspirations

Coming into this work, I have many inspirations. They consist of ideas and theories from architects and artists, places, history and cultural movements that have influenced me. Some are literal inspirations and some are more vague.

-Peter Zumthor

A Swiss architect that has built relatively few buildings. But the ones he have built are mostly uncompromising realizations of his ideas. In a lecture delivered on 1st of June 2003 at Wendlinghausen Castle entitled “Atmospheres, Architectural Environments - Surrounding Objects”, he speaks of his theories around architectural atmospheres. From this one can define several aspects of architectural and spatial design that he sees as contributing to atmosphere;

- Light

Light in a space can create different moods, serenity, exhilaration, gloominess etc. Peter Zumthor describes his interest in light, which is crucial in creating atmospheres within his architecture:

"...daylight, the light on things, is so moving to me that I feel almost a spiritual quality. When the sun comes up in the morning – which I always find so marvelous... and casts its light on things, it doesn't feel as if it quite belongs in this world. I don't understand light. It gives me the feeling there's something beyond me, something beyond all understanding."[5]

Working with light is of course also about working with the absence of light, using the shadows.

"The relationship between light and architecture occurs inevitably. Light, depending on how it is used can transform the spatial context. It can make a space seem pleasant or unpleasant, moving or ambiguous, light also plays with scale or it could be used simply to highlight elements within a space. Light makes space more enjoyable, comfortable, inhabitable and visible."

- Object

Zumthor’s view on objects within a space is that – “The idea of things that have nothing to do with me as an architect taking their place in a building, their rightful place... It’s a great help to me to imagine the future of rooms in a house I am building, to imagine them actually in use”.[7] Objects in a space give a sense of identity and expressiveness to place. Objects can acquire both tangible and intangible qualities, for example; an idea, memory, color, smell, light and texture.

- Air

Heat, odor, scent, fresh, stuffy, cool; air in a space is perhaps the most immediate sensory experience. All spaces inhabited by people have their own smell that the inhabitants themselves often aren’t even aware of. I remember playing with my friends as a child, it always struck me how different their homes smelled compared to mine and each others. The smell of a material, cold stone or warm wood will awaken memories long lost and muster vivid associations. Air is a large part of the architectural atmosphere. I also believe that, air in another sense, a space can allow for either more air; a large space or less air; a smaller space, which also sets the mood and the experience of a space.

- Materials

Carefully selected materials help create architectural atmosphere. Materials can be manipulated in many ways to obtain certain atmospheres in spaces. For example a stone can be split, cut, sawed, drilled, polished and with each process it will have a different quality. Materials are also combined with other materials in a building that play with texture, color, temperature and tone; all of which create an atmosphere and mood.

For Zumthor; “Materials react with one another and have their radiance, so that the material composition gives rise to something unique. Material is endless”.

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4 Zumthor, 2006
5 Zumthor, 2006, p. 61
6 http://en.wikipedia.org/wiki/Atmosphere_%28architecture_and_spatial_design%29
7 Zumthor, 2006, p. 39
8 Zumthor, 2006, p. 25
9 Zumthor, 2006, p. 29
• Sound

Zumthor outlines that, “Interiors are like large instruments, collecting sound, amplifying it, transmitting it elsewhere. That has to do with the shape peculiar to each room and with the surface of materials they contain, and the way those materials have been applied.”

“Sounds are associated with certain rooms, places and memories. Empty spaces still produce sound through the stillness and silence of scale and materials. Sound induces emotional and sensual responses. Material, scale, memory and familiarity all create a sense of sound inside a building. It is up to individuals within a space to identify and associate with the sounds present. Sound is both a tangible and intangible sensational atmospheric quality. It allows the individual to physically hear, as well as feel and sense the characteristics present in architecture.”

In a lecture at the David Azrieli School of Architecture (Tel Aviv) "Presence in Architecture, Seven Personal Observations"\(^{11}\), Zumthor says that “…for me, architecture is not primarily about form. Not at all. I actually never talk about form in the office. We, for instance, talk about construction….we can talk about site and so on, influences that come from the outside. And we talk about materials. If you come to a building, I think what surrounds the space in terms of material - makes its atmosphere.”

This is very inspiring and I have tried to work this way in my design process.

He continues in the same lecture, “…let’s do all the other things, construction, the right materials, the right light, the right shadows, and this formal thing we do with our left hand.”

With “formal” he means the form of the space or building.

In a conversation\(^{12}\), related to the acceptance of his 2013 RIBA gold medal, with Tony Chapman, Zumthor says; “…architecture is experienced by laymen without thinking. Architecture is not about arguments, in the end. I want an emotional reaction.”

This also seems very reasonable to me. I sometimes get the feeling that being in interior architecture school is to be in a constant argument. Words and how you say them, theories, are what matters. But in my mind, like Zumthor says, architecture is really about an emotional reaction and less about arguments or theories. It’s about emotions, memories, associations and spontaneous reactions.

He continues later in the conversation with; "I never start with a method or with a material or anything like that, I start with the idea, with the dream of a house. And then, afterwards, I find the right material and the right method and the right construction. This has to do with the site, the place always informs my buildings.”

In an interview by the British National Gallery called "Real and Imagined Buildings", Zumthor says; "….let's do a house which can be part of time…. …maybe if it is successful as a building, and successful for me would be loved by people, to use it or something, then you can tell that the building knows something about the time that was before and the time which might come. …A good building should have a soul.”

For me this is about connecting it to its site and context, in my case the city of Sigtuna and its rich history.

\(^{10}\) http://en.wikipedia.org/wiki/Atmosphere_%28architecture_and.spatial_design%29

\(^{11}\) Zumthor, lecture at the David Azrieli School of Architecture (Tel Aviv)

\(^{12}\) Zumthor, 2013 RIBA Royal Gold Medal Winner Peter Zumthor in conversation with the RIBA's Tony Chapman
The city of Sigtuna, founded around the year 980, is considered the first real city in what was then Sweden. Here they made the first Swedish coins and the city flourished as a royal, religious and commercial center for over 200 years, viewed as the first capital of Sweden. Wherever you turn in the city, there are remnants and reminders of its history. My own house is located a mere hundred meters from two church ruins from the 12th century, Sweden first brick building, a large church built by dominican monks in the 13th century, and a belfry from the year 1722. There are also several rune stones in the same proximity.

When the dominican monks came to Sigtuna to form a convent, they started building their monastery and church with bricks. They made the bricks themselves from local clay and burned it in ovens. The churches that was built before was made by local stone, and constructed by the locals. This tradition of building with local materials is something I wanted to pick up, like the stone walls for instance. I like the idea of the traditional church stone walls being a part of a modern building for living in.

Located less than 150 meters from the site of my space is a belfry, built in 1722. Its distinct roof and powerful construction is an inspiration. The roof is covered in wood shingles, a traditional cladding. The shape of the roof makes me think about its interior appearance, what if the interior would have the exact same shape as the exterior? It doesn't, in this case there are beams and supports on the inside. But the space, if it was open, would add a lot of character to the interior experience.

The playfulness of the roof makes me think that my small building could dare to be playful and different too. A roof that differs in height depending on where you are standing in the space. Important for me is that the roof also lets in light, through an opening. I like how light coming in from above defines a space. (Fig 1)
James Turell

I am inspired by his way of combining the natural phenomena of sunrise/sunset with artificial colored light, in spaces. In his Skyspaces\(^\text{13}\), with fairly simple means he creates a feeling of being immersed in light and connected to the outside through ceiling openings, while still being inside.

Adding the possibility of controlling the light and the color of the light in my space, I believe will further enrich the atmosphere. During the day, sun will move in the space, during evenings and nights, artificial light will give it life both inside and outside. I believe working with light in this way will having a calming effect on the interior. Turell claims his Skyspaces are a place to meditate, to leave the outside world for a moment and become completely immersed in an experience of light and space. This is also something I would like my space to provide.

Carlo Scarpa

His attention to details and how they enhance a space is an inspiration. His way of taking in traditional building and construction methods and tweaking them for a contemporary feel. His respect for history and his openness as to what inspired him. His working with craftsmen, having a dialogue with them. He respected their knowledge and let that inform his designs. This is all visible in his Olivetti\(^\text{14}\) showroom. Scarpa is an inspiration for my space, he shows how traditional methods can be put to use again, in a contemporary context.

Marcel Breuer

His Hooper House II from 1959, built in Baltimore, is an inspiration. Constructed mainly from local fieldstone and glass walls, it has a great presence and shows the beauty of using thick stone walls as a material in contemporary architecture.\(^\text{15}\)

Pantheon

I am inspired by they way light enters the building, the geometry of the building, how the light moves around the space, enhancing different parts during the day. The connection to the outside and closeness to the weather through the oculus\(^\text{16}\). (Fig 2)
**Kazuo Shinohara**

In his essay *Towards Architecture* he writes about seeing an elevation of a fighter jet airplane. An object associated with streamlined design, but in elevation the adjustable wings, square jet intakes and fuselage seemed “clumsily connected so that each could perform its function with maximum efficiency”. He makes the same observation on the space craft that brought man to the moon, he states it’s "Totally lacking in elegance, from an architectural standpoint the moon craft was extremely refreshing for me to behold and made me wonder if a similar architecture did not exist". He continues that this kind of architecture "would be a design based on the response relation between form and function that was a classical theme of modern architecture once".

In his meaning, assembling different parts according to their ability to perform a function will lead to a new and interesting type of architecture, a real way to once again let form follow function, unlike many buildings today where advanced technology has made architecture a shell, a container of technology, that performs its duty with the occupants rarely seeing it.

This is what I have been trying to do with my space. By analyzing the historical and present context and our intended use of the space, I have combined seemingly odd parts that I believe contribute by providing their unique characteristics and qualities.

In an aspiration to, in Zumthors words "leave the form to last", the form is a consequence of the efforts to construct a specific interior space.

**Postmodernism**

With postmodernism came the rejection of the modernist idea that one size, or rather one style, fits all. Architects became more interested in creating contextual, sensory architecture. They also began to incorporate classical elements as decoration. Greek pillars, roofs with pediments, suddenly buildings wasn’t just about concrete function again. They should give you an experience, an association, be decorative for the sake of being decorative. Architects rediscovered elements that had been used through centuries, their expressive and symbolic value. All which had been rejected by modernism and especially the International Style.

This is where it gets a bit complicated for me. My project is clearly influenced by postmodern theories, being contextual and focusing on the human experience. I don’t like the modernist idea that a house is a machine for living in. For me, a space is much more than that. Yet I really don’t like much of the postmodern architecture, especially the early examples from the 1980’s and 1990’s. Borrowing architectural elements purely for decoration is awful in my eyes. Some of my absolute favorite building are for example Mies van der Rohes Farnsworth House and Barcelona pavilion, both beacons of modernism.

I love visible constructions, buildings that are easy to read and understand. Yet in some examples, Corbusier and later modernist architecture from the 1960’s and 1970’s became very cold and impersonal. This idea of a machine didn’t leave any room for people, for their feelings and experiences.

So what I am trying to do is probably to merge what I see as the best from modernism with the best from postmodernism. With a carefully selected palette of materials, all there for doing what they are best at, connecting the context and usage of the space with ideas of how to provide a sensory experience for people. I claim that material, when used for its superior abilities to perform a certain task, is decorative in its own right. Letting the characteristics of the material show, is beautiful to me. When trusting the material, there is no need for fake greek pillars.

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17 Shinohara, 1982, p.11
I argue that this small, permit free house offers a lot of potential to be free, architecturally. The small scale let's the architect experiment with unconventional shapes and solutions. I see them as possible modern heirs to the turn of the 19th century gazebos/pavilions that used to be popular. I see my house as a 21st century pavilion. A house that is allowed to be quite different from the main building. Here I present my thoughts around the design of the space.

-A house without form

Inspired by the assignment from Peter Zumthor that I mentioned in the beginning. I tried to envision what the space should be like, without thinking about form. These are the notes I made:

- Natural materials, materials that come from the site. Stone and wood.
- Tactility
- Scent of the wood and the stone
- From small to big - hide and reveal, dark to light.
- Carefully framed views - as generous as possible, without exposing the inhabitant, aimed towards the surrounding trees/nature
- Natural light
- Few pieces of furniture, carefully selected, leaves room for different activities

Then I wrote a program for the space: (not in order of priority)

- Toilet/shower (outdoor shower also)
- Storage/workspace for plants
- Playroom
- Studio-space
- Provide secludedness, privacy but not a feeling of isolation - open to nature
- Addition to the garden - creating outdoor rooms
- Should sleep 4-5 people when needed
- Cooking possibilities
- Place to eat
- Easily cleaned
- Flexible, quick change of usage

With this in mind I started looking to the site. Where do I need isolation, where are the views? Where does the sun shine and when? (Fig 3)

From this, I then turned to the wider context, the city of Sigtuna for inspiration.
Located in a city with so much history, I want the space I create to reflect this while still being of its own time, the 21st century. Inspired mainly by the belfry from 1722, I started experimenting with roof shapes. (Fig 4) Simplifying the ornate bell fry roof, I soon ended up with a shallow dome. (Fig 5)

I then started constructing a dome made by glue beams and placed wardrobe storage, bathroom and kitchen under it.

I knew I wanted a roof window, an opening letting light into the middle of the house. Remembering a visit to the Pantheon, and how the light enters and how it moves inside the dome - why not make my own dome and oculus?

The building is allowed to be four meters high. With a dome shaped roof, the highest point is in the middle, and then it gets lower towards the walls. This way the room opens up and closes depending on where you move in the space. By the walls I placed beds, kitchen and bathroom, activities where you might be naked or feel vulnerable. I later added a loft bed, where the embrace of the dome, closer to your body, will provide a sense of protection. It will also be slightly less light up there.

As a person stands in the middle of the room, they will have a large oculus above. The largeness of it, 1.3 m in diameter, provides a powerful connection to the outside, the sky and the weather. As sunlight passes through the oculus, a circular light will move around the room during the day, highlighting different aspects, materials, objects and giving the person in the room a direct sense of time. Time passing over the course of a day and also a specific current time, depending on where the light falls.

The oculus is placed in the center of the dome. I experimented with having the oculus asymmetrically placed but I prefer to give all parts of the space the same opportunity to benefit from the sun. A central position should mean a more even light in the space during the day and not at least, it makes for a pleasing symmetrical geometry.
The dome continues over the walls of the space, creating overhangs on the outside of the building. According to Swedish Standards\textsuperscript{19} an overhang that is located 3-5 meters above ground is allowed to be 1.5 meters outside the facade without being accounted for in the building's total square meter count. This means that the space confined by walls is 25 square meters, but the dome, which is located 3 meters above ground and is 1 meter in height, extends the amount of square meters that is covered by roof. Thereby making the building feel larger than it is but still abiding to the regulations of the Attfall-house.

These overhangs work as outside roofs but also as light catchers. During the day they will reflect outside light into the building and during the night they will reflect interior light to the outside. This is possible since the dome rests on four steel pillars, about 40 centimeters above most of the walls, glass panes connect the top of the walls to the dome. Only above the toilet, where the sleeping loft is, are there taller walls. They too have glass walls connecting to the dome above them, but less than in the rest of the room.

This I hope will give a feeling of an almost floating dome, that the walls of the building stop, and hovering above them is this large dome.

An alternative idea (to the glue beams) I have for the construction is a sandwich of cross laminated plywood and insulation. Glueing sections of the dome and then screwing them together, with a white oiled birch plywood as the finished interior surface. (Fig 8)

The artificial light should also be available with colors. Taking inspiration from James Turell and his Skyspaces\textsuperscript{20}, letting the inhabitant control the artificial lights strength, but also color, they can turn the space into a meditative place that has a direct dialogue with the outside world through the oculus.

I see the light fixtures as being hidden, directed towards the dome and making it cast an indirect light.

Interestingly, on the site where my building would be constructed, there is already a pavilion today. With a particular roof, a six sided pyramid.

Across the street, the opposite neighbor has a house with a distinctive tower, with an eight sided pyramid roof. The pavilion (Fig 6) and the neighbor (Fig 7) isn't as inspiring as the belfry, but it shows that the neighborhood is no stranger to unusual roofs.

\textsuperscript{19} SIS, 2009, p. 11

\textsuperscript{20} http://jamesturrell.com/?s=skyspace
The entrance hall

I early on designed an entrance hall. (Fig 9) This delays the experience of the large space. If someone is in the main space, they will hear visitors come in the entrance first, taking shoes and jackets off, and then entering through a sliding door. The short procedure lets the first person be aware that someone is about to come in. This hopefully reinforces the sense of being able to be undisturbed in the main space.

The entrance hall I believe also provides for a richer experience. Coming from the large outdoors, into this little hallway with a fully glazed wall towards the garden. Then moving into the main space, first under the lofts overhanging bed forming a ceiling, and then experiencing the large room and seeing the dome, with its oculus and height. This hide and reveal trick is maybe the oldest in the architects handbook when it comes to creating a dramatic architectural effect, but nonetheless something that attracts the visitor to explore. That they don't get away.

One wall in the entrance will be covered in corroded copper, same as the front door. Here visitors can put shoes and hang their jacket. I have designed shelves and a hanger, also in corroded copper, that almost seem to grow out of the wall itself. The large window facing the lawn and the apple trees opposite the corroded copper, that normal only corrodes when exposed to the weather (i.e., outside), I hope will make the entrance hall feel like a true transition space between outside and inside. (Fig 10) The floor is covered in Kolmård-marble, a beautiful Swedish green marble. Standing on this firm stone will let your whole body know that you are in a separate space, not in the main room with its cork/linoleum floor or outside.

My intention is that the color scheme here, green marble floor, green corroded copper clad door and interior wall will seem as a continuation of the lawn coming up the the glass on the outside. Adding to the feeling of being outside but yet inside when being in the entrance hall.
-The loft

This has two main fields of usage; people can sleep here and use it as a way to explore the space in the third dimension. Climbing up here, one sees the shape of the dome embrace the bed, making it feel safe and intimate. The loft also provides a platform for getting closer to the oculus, at night a person can lie in bed and look out through the large roof opening and watch the sky. Finally, its shape provides the main floor with a hide and reveal feature together with the fact that it creates more space to move around in if the loft is further from the wall. Its outer corner is slightly rounded, as is the outer corner of the bathroom, though with a lesser radius. Rounded features appear in several places in the space, referencing the dome and the oculus above it all.

- The bay window greenhouse

Located in the building’s southwest corner, this is a steel framed bay window with glass shelves. It is open towards the inside and the outside consists of two glass doors, which means you can open up from the outside too, take out the plants and work with them from both sides. A space for storing/working with plants is part of the program for the house.

On the outside, below the bay window, there is a small reflecting water mirror. A shallow pool that reflects sunlight into the bay window and beyond, into the interior space. As the water in the pool is set in motion by wind, the reflected sunlight will play with the shadows of the plants projected on the dome and the rest of the interior.

The close connection between the plants and both the interior and exterior, the benefits they have on the air in the space and the way light will pass through them. This I believe in many ways will enhance the experience of the space. (Fig 12)
-The bathroom

A functional bathroom with toilet, basin and shower. Kolmård-marble floor and walls in the shower corner, the other walls are in birch plywood like the rest of the house. A sliding door disappears into the wall, leaving more space unoccupied than a regular door. High placed windows lets light in but still provide privacy in the most intimate space in the house. (Fig 13)

I have chosen to use the Swedish green marble in the space because I find it beautiful. Natures graining in stone and wood is the only architectural decoration I need. This is the same reason I chose the birch plywood with visible grain. (Fig 14)

-The curved glass wall

Between the wall with the bay window greenhouse and the stone wall is a regular closed wall that becomes glazed and curves as it connects with the stone wall. I have chosen to not have this wall fully glazed even though it is facing south-west. I want certain areas in the space to feel protected. With too much glass, the feeling of privacy disappears. One part of the glazing is a sliding door that slides along the curve, between the reflective mirror pool and the fixed curved glass. The door opens up to a terrace in the same level as the floor. The terrace is facing west and continues around the corner towards the entrance. The shape of the wall follows the curve of the dome. It also means that the stone wall continues past the interior to the exterior, the reasons for this I will soon explain. The curved wall makes room for an exterior reflective pool and is also following a small curve on the corner of the bathroom and a slightly larger corner on the loft above it. This means curves with gradually larger radius climaxing in the largest, the dome, throughout the space. (Fig 15, 16)
-Stone wall

Inspired by the 800 year old church ruins, two located within 200 meters of the site (Fig 17 & 18), I want one wall of my space to be built by local stone, in the same way as the old church walls.

My wall is 30 centimeters wide, and 2.3 meters high. Within the wall, which is facing north and the closest neighbor, there will be two small openings. On the exterior facade they are very small, but widening as the go through the wall to the interior. This means they spread the north light into the space through a funnel, at the same time giving a glimpse of the outside and a direct reference to the surrounding ruins that have the same kind of openings.

However, these opening will be water cut in the stone, giving them a 21st century precision. These two openings are divided by the connecting curved glass wall that is attached through a water cut slit into the stone. So the openings will be both inside and outside of the space, on each side of the glass wall.

The continuity of the interior wall, with it's opening mirrored on the outside, will hopefully give a sense of inside and outside flowing into each other. The top of the wall, 2.3 meters, will be continued by a glass pane that connects to the dome above. The light connection between the wall and the dome, and the light touch of the curved glass wall will make the stone wall feel like a solitaire, and perhaps enhance the sense that it is something that has been there for a long time.

The dome and the rest of the wooden walls are gently cuddling up the the massive stone wall. It being a protecting, impenetrable part of the building, anchoring it to the site. Less poetically, it will also act as a thermal heat storage. A passive system, gathering sunlight and heat during the day, keeping the interior cool, while releasing it during the night, helping to heat the interior.
The stone, the basic way it is put together, gives a strong and tectonic connection to the site. Its construction is easy to read for anyone, stone upon stone. Each stone from the site, each with a different shape and color, attracting people to touch it. The water cut parts will attract in a similar way, but here instead for it’s sharp precision, contrasting with the natural stone. I hope the construction will give a sense of robustness, while the water cut part will elevate the perceived value of the stone. A worked material, by modern technology, it will instead give a sense of preciousness.

Part of the wall will also feature a water cut opening for a bay window to sit and sleep in. More about this later in the text.

Another feature, on the outside of the connecting curved wall, there is a small reflective water mirror. Its form and width follows the stone wall along its length and then mimics the curved wall, leaving a gap for the sliding door. As sunlight, this faces southwest, hits the reflective mirror and then the stone wall, the shadows will move and play on the wall and in the interior space as the water is put in motion by wind.

My idea with this, more than making the shadows move and the meditative effect I see in reflected water, is that it’s a reference to lake Mälaren. The lake is visible from the main house, and located within 300 meters of the plot. Sigtuna is a city very much aimed towards the lake and its the reason it was founded here in the first place.

I also hope the scent of the stone will be a feature in the building. Paired with the scent of the wooden untreated birch plywood on the walls, it will hopefully provide a comforting feeling just by being instantly recognizable. Maybe on a primordial level, from the time we used to live in caves?

In the main room the floor is covered with linoleum/cork flooring in a grayish tone that is similar to the stone walls gray color scheme. This means that the floor and stone wall is similar color wise, but feels completely different. Standing on the floor feels gentle, thanks to the cork, while the stone wall is rock hard. The walls in the main room I want to clad in regular birch plywood, untreated, just sanded. The dome will have the same plywood but treated with white oil. This means there is a material consistency in the space. The sanded walls will have a certain scent and feel of birch wood. (Fig 19)
-The bay window

In the stone wall, there is a large two meter opening, here is a wooden and glass bay window with mattress and cushions in a turquoise fabric. The total depth is 800 mm, so it doubles as a bed when needed. The bay window lets you sit inside the building, yet on the outside of the stone wall. It provides not only extra space in the room, a room within the room, but also a place to watch the dome and the stone wall from the outside. The back of the bay window is covered with plywood, but the sides and ceiling are all glass. This is to keep the integrity of the stone wall, its view isolating qualities. The wall faces the closest neighbor and is therefore the most exposed wall.

According to Swedish standard, bay windows are allowed to extend 50 centimeters from the facade without being added to the total square meter count. It should be positioned at least one meter above ground. As a consequence the bay window on the inside is 50 centimeters above the floor. To this is added a mattress of 60 mm, for sitting and sleeping on. This means that the seat height is about 56 centimeters above ground. More than 10 centimeters above average chair seat height. To compensate for this, a water cut recess in the stone wall lets you rest your legs 10 centimeters above the floor. It also provides the necessary space to let your legs be at an angle under your seat. Without it would be very uncomfortable to sit for a longer time. With a foldable table in front, the bay window is perfect for eating or working by, opposite the minimal kitchen.

Double doors between the bay window and the kitchen open up to a terrace in the same level as the floor. Opening them up creates a close connection with the outside. The terrace is facing east and two apple trees. (Fig 19)

- The kitchen

A minimal kitchen with a sink, a couple of plates for heating food, a small refrigerator below and cupboards above. (Fig 20)
Process

Leading up to all the design decisions, I have had a process of sketching, 3D-modeling and foam board modeling. Ideas have been tested and rejected in small and large variations.

I started at first by trying to think about different variations of the plan. (Fig 21) I had 25 sqm to work with and divided that into 6.25 sqm squares that I combined in different ways, just to get an idea of what some possible layouts could be. Scattering the units too much I felt restrained the flexibility in the space. I realized I would rather go for a larger space that could be more versatile.

I then started to experiment with the third dimension and possible shapes of this larger space. (Fig 22)

I experimented with walls that protruded and created a shape on the outside (Fig 23), so that the exterior would be a very obvious consequence of the interior. Something I have kept, but in a more subtle manner.
I looked at breaking up a cube volume and separating the parts to create spaces. (Fig 24)

After deciding to go for the dome shaped roof, I had quite a large bathroom with washer/dryer and a larger kitchen that took up a lot of space. I had a bed coming down from the ceiling before choosing the loft I ended up with. I was saving space by putting the bed on top of the bathroom/kitchen unit. At this stage I was still considering the exterior and had a coaming around the dome. This was quickly scrapped as I decided to exclusively work with elements that had an effect on the interior. (Fig 25)
Early versions of the dome had wooden shingles on the interior, inspired by the shingles of the belfry roof. In this render (Fig 26) the larger kitchen/bathroom unit is visible, and the large wardrobes with overhead cupboards. Here the green bay window was on the same wall as the curved glass, which I realized reduced the effect of both.

In this version (Fig 27) there was much less free space, and less light coming in. I had only 40 cm glass panes above the walls and then a solid wall connected to the shingle clad dome. Something that would be very difficult to construct and gave a messy impression.

I deliberately went "over the top", including many ideas and inspirations at this stage. This way I would be able to scale it down as the work progressed. A design process of reduction rather than addition, after an initial brainstorming.
The loft bed here (Fig 28) was tucked all the way in the corner, and the cupboard provided the hide and reveal trick, though they where much more shallow then the overhanging loft bed I went for in the end. This set up made the bed space very small, especially with the shingles also taking up room in the space.

At this stage I also had a cork/linoleum floor in the main room that was orange/red, the idea was to have it in a complementary color to the green Kolmårds-marble in the entrance hall and bathroom.

In my next version (Fig 29) the shingles on the dome were gone, as were the wardrobes. The bathroom/kitchen was much smaller. Now the dome was plaster rendered with a thick structure that would add life to the shadows as light shone on it. The bay window greenhouse was moved to the wall where the wardrobes had been, a more fitting position since that faces south-west. The glass panes now went all the way from the top of the walls to the dome, letting in more light and highlighting the shape of the dome and its exterior continuation. The loft bed found its shape and the ladder to it was moved. Outer corners on the kitchen/bathroom unit where rounded to reflect the rounded dome and curved wall. The kitchen is now minimal and the bathroom only has the necessities, no washer/dryer anymore. The floor still had the same color though.

There was a magically floating stone beam above the bay window by the kitchen (Fig 30) which I soon removed while trying out different colors for the floor. (Fig 31, 32, 33, 34) Here I also changed the wall cladding to a more clearly defined birch plywood and experimented with solid wood paneling in one corner.
I had early on thought about where the windows should be, what views should be framed. (Fig 35)

To illustrate the view and one of the spaces main use, I used a resting chair that I designed a year ago. This chair fit the program well and stayed on in the space. An upholstered chair that can be adjusted to the person using it, made for resting and reading. Constructed of laminated birch plywood.

Working with the views also meant working with the situation plan and the buildings position on the plot. (Fig 36)
Throughout the process I was continuously studying the site (Fig 37a) and the surroundings (Fig 37b) to inform my decisions.
After extensive digital 3D-modeling I built a foam board model in scale 1:20 (Fig 38), as a pre study to the 1:5 model for the exhibition. Interestingly enough, the space turned out to be very similar to the space I had seen using digital 3D programs. For me, 3D digital tools are a great way to work with space. I can manipulate it in any way and I seem to be able to understand many aspects of how the real space will be. (Fig 39)
In my final version, I thought the dome would be clad with white oiled birch plywood. However, when building my model, I realized using plywood for a rounded dome would result in facets, and I wanted none of that. I therefore went back to my initial idea of having a white rendered dome. I have chosen a tone of the linoleum/cork floor that matches the stone wall.

View from the bay window towards dome, oculus, loft. (Fig 40)

View from the loft of the oculus, dome and the bay window below. (Fig 41)
West exterior elevation. (Fig 42) North exterior elevation. (Fig 43)
East exterior elevation. (Fig 44)
South exterior elevation. (Fig 45)
Exterior perspectives

Fig 46
Positioning

There are different aspects of my exam work that I try to position against what already exists.

- Attefall-houses

There are several Swedish companies that produce Attefall-houses. Most are not designed by architects, rather by carpenters or construction engineers without considering architectural qualities, especially not interior-wise. Externally they mostly look like mock log buildings with some kind of romanticized Swedish traditional cabin-style\(^21\)\(^22\)\(^23\). These cabins all have a pitched roof, which is traditionally how most roofs are constructed in Sweden.

Some companies aim at offering something more "contemporary". This usually means a house with a shed roof \(^24\)\(^25\). These houses seem a bit more considered, they are also more expensive than the traditional houses. I still doubt whether they are made by architects, they still feel like a product made by, although a bit more aware, carpenter or engineer.

Then there is especially one company that profiles itself with architecture\(^24\). They offer pitched, shed and flat roofs. All their models have a rectangular shape, a measurement of approximately 6,5x3,8 meters. These are mainly seen as shells, a shape for the customer to fill with their own plans. They do offer some variations of the plan, but these seem to mainly focus on function, not architectural experience. Few words are mentioned on their website about the interior qualities apart from the specifications of the materials used. Significant for this is the fact that they only show exterior renderings on their website, with open doors providing a small glimpse to the interior.

I see a lack of interest or understanding from these companies. They are extremely focused on function and prize. Most of them doesn't consider the architecture something to market the houses with. And if they do, they market the exterior, not the interior architecture.

So how is my space different from the ones I mention here? First, my space is created from the inside out, based on the intended usage, the site and the aim to provide an architectural experience for the senses. The houses I describe are miniature versions of normal houses, scaled down. They are mass-produced and meant to be put anywhere the buyer wishes. My space, on the other hand, is totally site-specific. The materials and design decisions, for example the dome ceiling, are influenced by the surrounding architecture at the site where my space would be constructed. All the openings, doors and windows, are positioned where they are because there are views that should be exposed or hidden. Places where the sun should enter and other places where a person in the space shouldn’t feel exposed.

I am putting the sensorial experience and the site specificity first. The examples I mention does neither.

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\(^{21}\) http://www.jomtra.se/Vara_hus/Bygglovsfria_hus/Attefallshus_med_loft
\(^{22}\) http://www.keostugan.se/produkter/categoryId/2158/productId/43795
\(^{23}\) http://sorselestugan.se/shop/produkt-kategori/attefallhus/
\(^{24}\) http://enkelrum.se/houses/e25/
\(^{25}\) http://25kvadrahus.se/
\(^{26}\) http://www.sommarnojen.se/co/attefallshus/
In 2014, the same year as these buildings became legal, a book was released\(^{27}\). It contains suggestions, from 25 Swedish architectural offices, of how to use these 25 square meters. It’s liberating to see that they cover the full spectrum, from extremely functional\(^{28}\) to poetic\(^{29}\). Although many of them also seem to focus more on the exterior of the building, leaving the interior mainly to functions.

A few offices have clearly focused on the interior. "A Blast" has with their contribution "Bland Molnen"\(^{30}\) created a house that ensures the privacy of the house owner as well as the tenant. With completely closed outer Leca-brick walls, the house focus upwards, towards the clouds, and towards a small atrium. The roof consists of lanterns, lighting up the inside. Their mistake, in my eyes, is that they cram too many rooms in this space. Hallway, kitchen, living room, library, bathroom, wardrobe, bedroom and a small garden. They try to fit in all the things usually found in a regular sized house. This means a lot of partitions and a great deal of the sense of space is lost in the labyrinth plan. So while they have more or less disregarded the exterior, they have also almost only focused on function in the interior. Too much function, in my view, and too little thought on the spatial experience.

Another office with a clear interior focus, and almost only one function, is Petra Gipp Arkitektur’s suggestion: "Ullhuset"\(^{29}\). With a similar exterior aesthetic as the previous office, a cube - this time in concrete, it does have windows, on one side of the building and a roof window. This is a place to just be. The inside is covered in wool, cast in the concrete. The architect sees the exterior as an armor, and the wool a place to get lost in your own thoughts, looking out through the two windows. They have deliberately separated the interior from the experience of an ordinary house where there are rooms, and "life is divided". This is a "cloud" to lose sense of time and space in. Similar between these two examples is that they almost completely shield off the exterior, they both work with the cube shape and use similar construction materials.

In the case of Gipp, I feel that it’s a bit too conceptual. This would never be built and if it was, the idea of the interior experience is probably quite different from what it’s actually like. It is a play with a concept, more than a possible architectural space.

A majority of the suggestions in the book emphasize the function of being able to sleep in the building. Often as many as possible. Or using the building as kind of a backdrop, opening up large parts to the exterior. Thus leaving the space inside, again, mostly for cooking, sleeping and bathroom.

The most interesting interior space is a suggestion from the office Happyspace. Their building "Ägget" is an egg shaped space where the construction is a big part of the architectural experience. A framework of glue beams are put together like a giant jig-saw puzzle. In the voids they’ve put plastic glass, polycarbonates. The shape of the space means that it closes and opens up depending on where you are standing. The transparent voids let in as much light as possible. They have a heavy, concrete, centerpiece which is a fireplace, seating and a passive heating system in one. It absorbs the heat during the day and releases it during night. The architects idea is to use the space as a greenhouse, to breed plants. They want the interior feeling to be like sitting in a bush. I salute them for remembering to make it outspokenly wheelchair accessible, something many others doesn’t seem to have taken in to consideration.

I have many ideas in my building in common with this space. A circular feature, light that shapes the interior, a massive part that absorbs solar heating. While others isolate themselves completely from the surroundings, Happyspace makes sure there is a visual connection to the exterior at all times, in all directions. Considering their intention, to make a greenhouse, it makes sense.

\(^{27}\) Wrede, Isitt, 2014
\(^{29}\) http://www.gipparkitektur.se/projekt/ullhuset/
\(^{30}\) http://ablast.se/25-kvadrat/
My largest inspiration, Peter Zumthor, has only designed a few buildings in the scale I am working in and even fewer of them are private buildings. In 2009 he built two smaller houses, completely in wood, that he and his wife rents out to visitors. They are built in the hamlet of Leis, 1500 meters over sea level, in the Swiss Alps.

Here it is clear how he takes in the local building traditions and how important construction is to him. The houses are built in the same manner as traditional log houses, only here the logs are perfect planks, joined together with an almost furniture quality precision. The slate roof and its beams and rafters are fully visible, letting the material and construction speak for itself. The plank walls are broken up by large windows, providing expansive views of the surrounding mountains. The construction of the roof also leaves an impression that the roof is merely put gently on top of the walls, resting there temporarily, almost not connected.

There are several bay windows providing room within rooms and focusing the views. Floors, walls and ceiling are made by wood, leaving a scent of the natural material present everywhere. Also the bathrooms are completely in wood, although a different species. He utilizes few materials apart from the wood. The kitchen is completely in brushed stainless steel. There is a stove in soapstone and then there are the large glass windows. He is very consistent in his material choices.

Personally I am not as consistent. For me, using the same material everywhere isn't as important as using the right material. I use stone where a person enters and bring in dirt, I use linoleum where they walk without shoes, I use a white oiled ceiling in the dome to reflect light. I use porcelain basin where Zumthor uses wooden. For me the usability almost always wins over the concept. From this example I do take inspiration from how light the roof sits on the building. Even though it's not visible from the inside as my dome, it is a gentle touch that I like. I also like how he uses traditional materials and methods in a contemporary way.

These houses seem to be an exemption in Zumthors production though. His most famous work for example, a spa in Vals, is praised for its architectural atmosphere and contextual connection. However it deals very little with the challenges of everyday life. It does one thing; provides people a place to bathe. In a sense you could accuse Zumthor of being unworldly. He often focuses on one singular thing. Chapels, an art hall, a museum - they are all about one main use. Surprisingly a recurring theme seems to be buildings that normally evokes a lot of emotions in people. Being naked, bathing. Going to a chapel. Visiting a museum. They all conjure spontaneous reactions, feelings, moods. I could argue that Zumthor is making it easy for himself, creating architectural atmosphere in spaces already so closely connected to the senses.

I try to make a small statement, to find a way to include architectural atmosphere in peoples everyday life, to make it a natural improvement to the spaces they use.

32 http://zumthorferienhaeuser.ch/
33 http://www.therme-vals.ch/en
34 http://de.wikipedia.org/wiki/Bruder-Klaus-Feldkapelle_%28Wachendorf%29
35 http://www.archdaily.com/418996/ad-classics-saint-benedict-chapel-peter-zumthor/
36 http://en.wikipedia.org/wiki/Kunsthaus_Bregenz
37 http://en.wikipedia.org/wiki/Kolumba
How do I know if I have succeeded?

Preferably I would build my space in full scale, on site, and have people with diverse backgrounds come and experience it.

Listening to their reactions would probably be the truest way of evaluating if I accomplished what I set out to do. This full scale way is not possible, but I created a large model for the spring exhibition. The model was placed inside a closed box, and elevated on a 1.5 meter high metal stand. Under the box was a hole for the visitor to stick their head into. Inside they found the space in scale 1:5, constructed with the right materials, set in a photographed context and with the possibility for the to change the interior light, and to see how the evening sun is entering the building. They were also able to change the color of the artificial light and to feel and smell the materials in the space. On the floor, outside of the model, I had used tape to mark the plan view of the space in full scale, 1:1.

The spring exhibition was perfect in the way that people with a lot of different backgrounds and diverse experiences attended. After they had experienced and experimented with the model, I tried to ask for a few spontaneous reactions, as a way to give me an idea of how the space was perceived.

Many people I talked to said that they experienced the space in the model as larger than what it seems when they saw the full scale drawing on the floor. This was a clear aim from my side, trying to make the space seem larger than it is, by the continuation of the dome and the stone wall from the inside to the outside. This also probably has to do with the model showing the third dimension, the height of the walls and the dome.
The model was popular, with young and old. Often there was a line in front of people wanting to get inside. (Fig 52-56)

People enjoyed the interactivity aspect of being able to change the lights, they claimed it totally changed the mood in the space. The model was considered well built and people liked the way they became immersed in the model. Several mentioned the smell of wood and linoleum present within. Most visitors asked where and when I would build the space in full scale. They wanted to visit.

However, interior architecture is no absolute science, especially if it tries to deal with sensorial experiences. All humans have different associations and backgrounds that make them experience spaces in different ways. So once again, to actually evaluate whether the space provides an architectural atmosphere through light, material, air, smell etc. The space must be built in full scale, on site. The model made it seem possible though, even with it’s limitations, for instance, in re-creating sunlight and the actual sense of scale and air.

By following the ideas of architects like Zumthor, who has demonstrated his ability to create atmosphere within built architecture through considering site, light, material etc, but combined with the usage of a family and the limits of the Attefall-house - I hope the model and the full scale drawing provided laymen with a decent idea of what it would be like in reality.
The interior of the model with sun and artificial light. (Fig 57-63)
Feedback from the opponents

During our main oral presentation, with opponents present, we were not expected to have finished our physical work. I therefore showed the frame and a few walls of my large model, a scale model in 1:20 of the whole space, the full scale taping on the floor with the oculus placed in the correct height and position above and lots of images showing my process, drawings and renders. I then explained what I was trying to do, my inspirations for this and showed the opponents around the space in the full scale plan drawing on the floor.

The critique from the opponents was that I talked to much about my inspirations, especially too much about Peter Zumthor and too little about my process. One felt she could not experience what I was talking about. Although they appreciated the full scale taping, there was critique that it wasn’t accurate according to architectural standards, mainly how the doors were represented in plan view. This was an obvious mistake from my side.

Since the presentation of our work was consisted of three parts, my aim was to focus on finishing the large model until the exhibition, and present it during the second oral presentation.

I was told to talk less of Zumthor, finish the model of the space and be more accurate in my plan drawing. So this is exactly what I did.

During the second presentation, held in the exhibition, the opponent Ian Higgins from the RCA was pleased to see the model and the full scale drawing. He was missing loose furniture though, and asked me about the aesthetics of the space. I explained that I was following the ideas of Kazuo Shinohara and that the aesthetics was mainly a consequence of trying to put together disparate parts for their ability to add a specific character or function to the space.

He also stated that he would have preferred the photos of the context, taped on the inside of the box, to be more of a large panorama. Now he was able to see the inside of the box, and that was a bit confusing, where the model ended and the box continued. He recommended I painted the inside of the box or got a larger panorama of the context. I agree with him.

During this presentation I didn’t mention Peter Zumthor once.
For the presentation in the exhibition, we were told to answer three questions:

(1) **What is the topic or concern of your investigation?**
I am exploring how to create a small scale space which is more than just a functional space, a space that also provides an architectural experience. I am using the Swedish Attefall-house as a case study. This small, permit-free construction comes with a frame and it has clearly defined rules and limitations. The smallness of it allows for experimentation and in the normally hard-regulated Swedish building climate, it provides an opportunity to try out ideas without having to be too serious. I am trying to create this sensory experience by fusing function and context together with selected architects’ and artists’ ideas. What happens when these seemingly disparate ingredients combine? Will the whole be greater than the sum of its parts?

(2) **How was that investigated?**
By choosing a site I knew well.
By writing a program for the house, based on the needs of a real family
How would they use it?
- place to relax
- place to work without being disturbed
- playhouse
- guesthouse
- storing plants

By being inspired by architects and artists work and their theories. Also by being inspired by the context of Sigtuna and carefully selecting the materials for the space.

By 3D modelling and building 1:20 scale model.

By combining these theoretical and contextual inspirations into a single space based on the program. Then by presenting it, aimed towards laymen, with a full scale plan drawing and an immersive 1:5 model constructed of the right materials with the possibility to change the lights.

(3) **Why is it relevant (beyond your personal interest) for the field or for society at large?**
Because architecture is mainly experienced by laymen. It's about spontaneous reactions. It's not about clever arguments, human experience comes first.

For my professional future - trying to find a method for implementing architectural atmosphere in everyday spaces.

**Reflections**

Finally, my critical reflection on the the work and the feedback.
My aim was to learn how to create a space that was about more than just function, a space that also provided a sensorial, architectural experience. Through this, I wanted to see if I could find a method that I could use in my future profession as an interior architect. I feel that working with site specificity and to dare combine seemingly disparate parts, based on their ability to add a certain property or a specific character, not only creates an interesting aesthetic but also could achieve that alluring feeling of a space that is greater than the sum of its parts. I wanted to present this in ways that reached non-architects, laymen, who are the majority of the people experiencing architecture.

Since architecture is experienced by humans everyday, putting them and their senses first makes sense to me. This might seem obvious, but in any given project there are often other forces, that wields greater power than the effort to focus on sensorial experiences.

I think that my project has been an interesting learning experience. I think my means of presentation at the exhibition was successful, the full scale plan combined with an immersive, large, detailed model made by the actual materials. The model itself could definitely have had a better panorama and the lights, especially the sun, could have been stronger and more exact. As a method to use in reality, it is not very practical. It took me four weeks, working full time and more to finish it. The full scale taping though, is a fairly quick and effective way to understanding and explaining a space. I think that a digital product, like the Oculus Rift-project will be a much quicker way to experience a space in the close future. Combined with material samples, it could act in the same way as my model.

The actual evaluation of my space would come when constructed in full scale on the actual site, like most architecture. Making something that should represent sensorial experiences is very difficult. It is something intangible.

I think that the method of combining contextual parts and theories of creating atmosphere leads to interesting architecture. I can’t wait to try it out on some real projects.
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