SHOUT OUT LIGHT

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Presentation Report

What if your voice could create **energy**

Do you have the courage to try something exceeding your limits; to do something you did not think was possible? You are now able to create energy by shouting in a new installation in Danfoss Universe, a science park where everything is possible.

Through hands-on interaction you can create energy from your own voice and maybe even discover a scream you did not know you could produce.

Shout Out Light provides you with a complete WOW experience combined with educational content, which gives you a possibility for delving deeper into a whole new way to harvest energy.

Why Shout Out Light

An intense experience
Shout Out Light provides you with the possibility of doing something new that has not previously been possible and which you cannot try anywhere else.

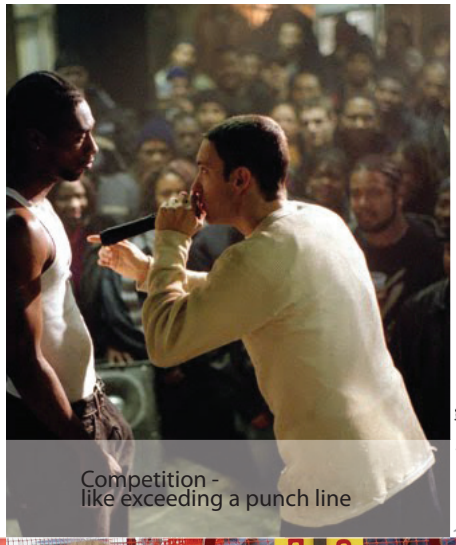
Inspire children and young people with science
A hands-on interaction where you use your own body to learn about a future energy source encourages you to want to know more. Thereby, *Shout Out Light* supports the goal of Danfoss Universe and gives you an insight into a new area of knowledge.

Anexciting technologystagedin a new way
The integration of the piezo technology where sound waves are used to create energy has not been seen yet. But the piezo technology can be used in different settings, which is why this installation provides you with a perspective on how energy can be produced in the future.

A whole installation, which can also be included in a larger context
As a result of the installation's distinctive design it can easily stand alone but the idiom also provides the possibility to integrate *Shout Out Light* in a context as a small part of a larger exhibition.

An intuitive interaction that works every time
The installation will work immediately as you enter the cabin. The different elements are managed without the use of controls and thereby ensure an easy and intuitive interaction which will work each time.

Understanding -
like seeing things in different layers

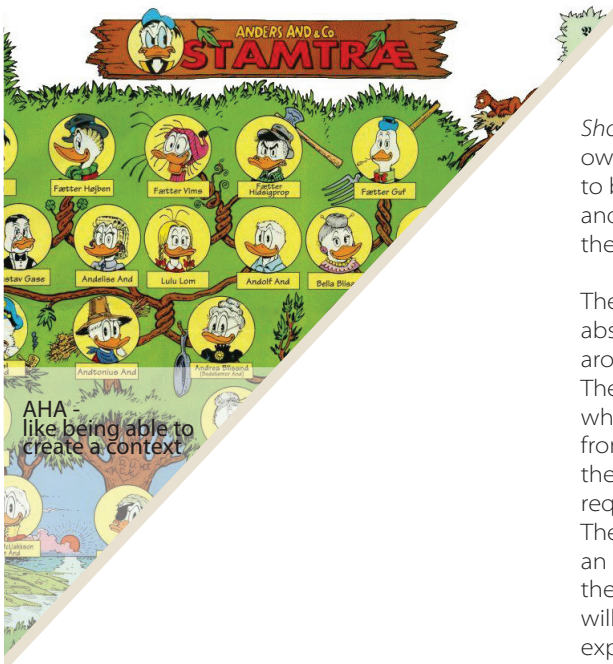


Competition -
like exceeding a punch line

WOW - like doing something you never thought you could

Visibility -
like playing the king's successor

Reading -
like asking directly and expecting a response



AHA -
like being able to create a context

The chosen direction

Shout Out Light is thought as part of a larger exhibition, where the guests' own sound production is used as the theme. The exhibition is planned to be launched as a new area, ZEROcity in Danfoss Universe, where new and creative solutions to future energy sources are to be displayed in the new exhibition building Future House from the season of 2015.

The installation is based on the guests' experience, defined by six abstract parameters that all relate to the guests' interaction with and around the installation.
The installation is going to be used by a large number of people, which is why different means are used to secure an understanding from both children and adults. In order to involve as many people in the experience as possible, a focus on the visibility of the interaction is required.
The interaction within the installation should be undertaken to achieve an emotional response from the guest and at the same time provide the guest with new knowledge which consciously or unconsciously will create a new frame of reference for the guest to use later on. The experience should inspire competition among the guests through intuitive interaction.

How

Shout Out Light

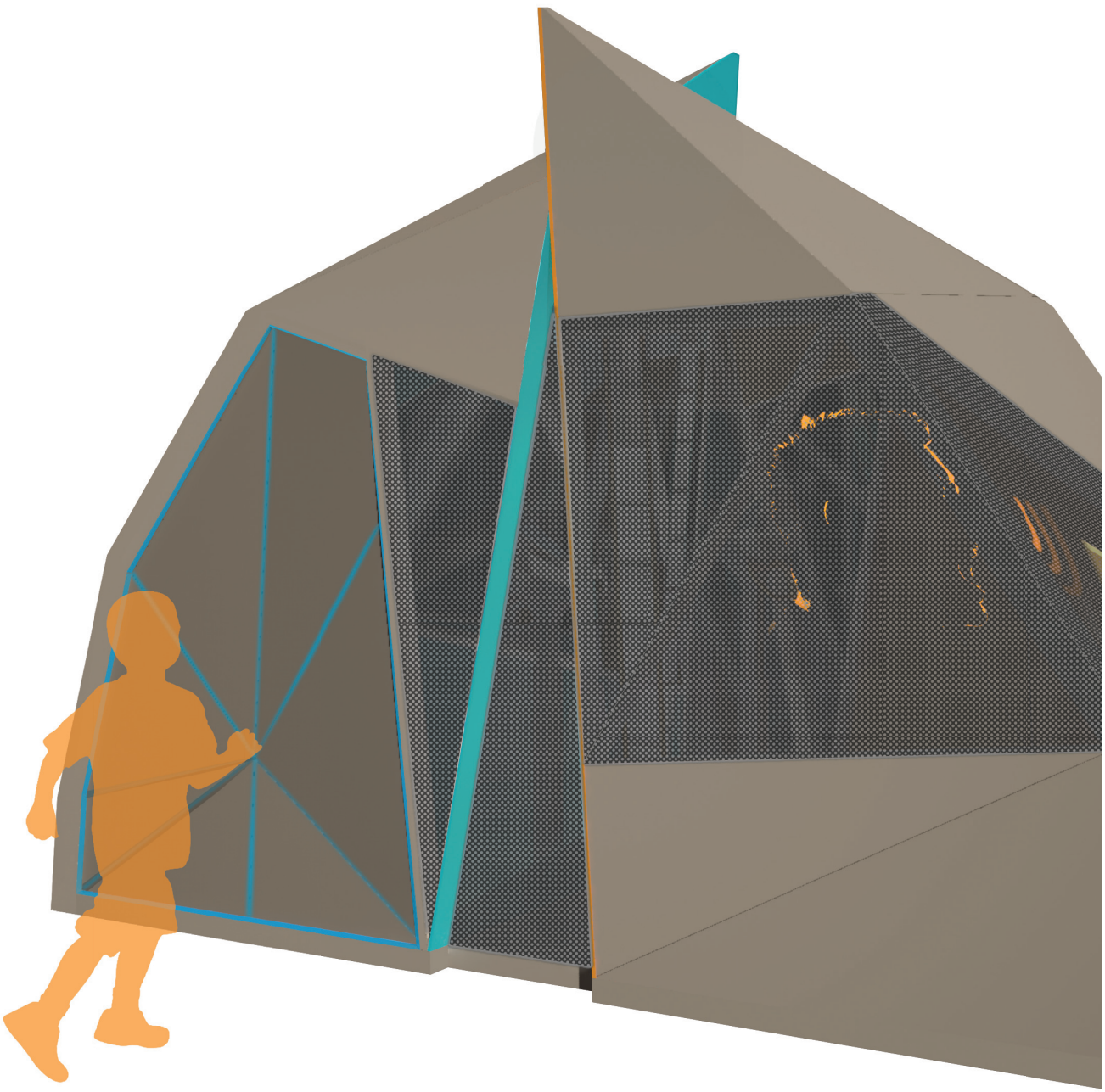
The first thing the guests meet in the dusky exhibition room is the installation *Shout Out Light*, which will be one of three installations revolving around the guest´s own sound as energy. The two other installations are hidden in the back of the room and will work as extensive installations to explain how changes in the sound can affect the possible energy production. All three have focused on the removal of different senses in order to emphasize the sense of hearing. Along the walls surrounding the installation the guests are immersing themselves in getting a broader perspective on sound as a possible energy source, for instance by yelling with their heads leaned into the wall, from which they gain a knowledge of how their own sound is influenced by the context they are in. Others are watching videos based upon the technology used in the installation combined with a perspective on how to use it in other contexts. The guests are led towards the installation, they cannot look into the cabins because it is all dusky, but they can glimpse silhouettes in the surface and get a feeling of people inside. If the guests go closer to the installation, they can study graphics on the surface that can provide information about what happens inside the installation and how this is done.

How

Shout Out Light

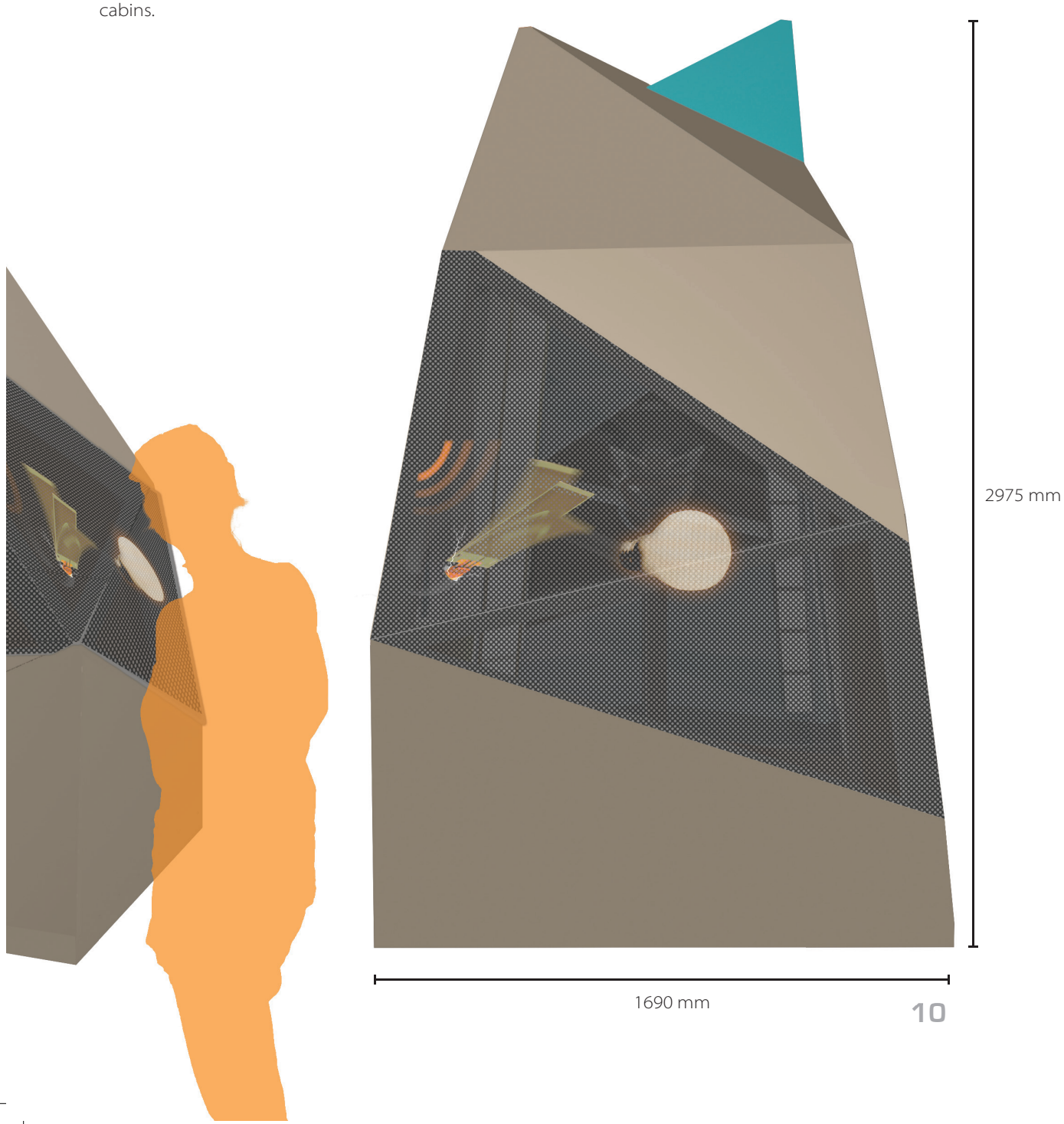
Suddenly the cabins light up, one more so than the other one. The guests can now for the first time look into the installation and watch the people who interact inside and compete against each other. Several guests continue standing around the installation while a constant flow through the installation results in different people trying it out. After a while some guests start moving slowly around the crooked edges to look in from different angles, but even when moving around the installation you can see the guests inside but cannot hear them. They cannot stop smiling when they see others making faces as they are shouting silently. From the outside the guests can follow the competition taking place inside the two cabins through a lighting scale. It is amusing; you do not have to be inside to be a part of it. The guests will be drawn to the entrance on their way around the installation.

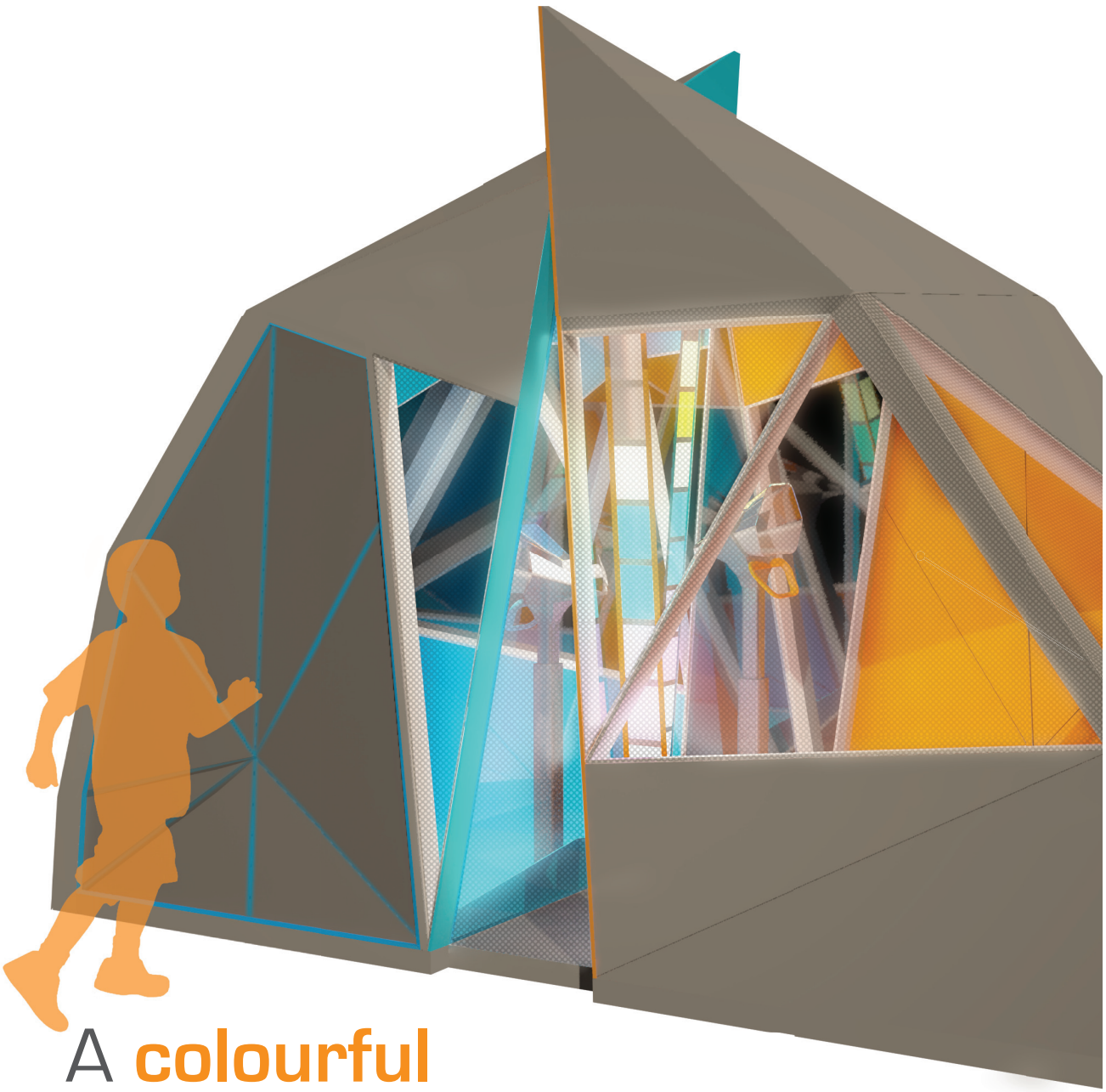
The way it **looks**



The guests' experience has been the core from where the development of the installation has taken its point of departure. There are three kinds of guests that the idiom has to support within the glass areas; the two guests inside the cabins and the guests who are moving around the installation. The shape supports and guides the guest around the installation and at the same time it supports the guest inside the installation to have the correct placement before interacting. The shape with two cabins that abut against each other in an apex emphasizes the competition element between the two guests inside the cabins.

The entrance is designed by triangular plates which all point towards a point placed inside the installation. This is done to welcome the guest to enter. The triangular shape of the plates underlines the triangular vision areas, which are placed so that the guests' gestures are visible when they interact within the installation.
On the triangular shape's exterior surface graphics are included to provide the guest with a deeper insight into how the installation works.

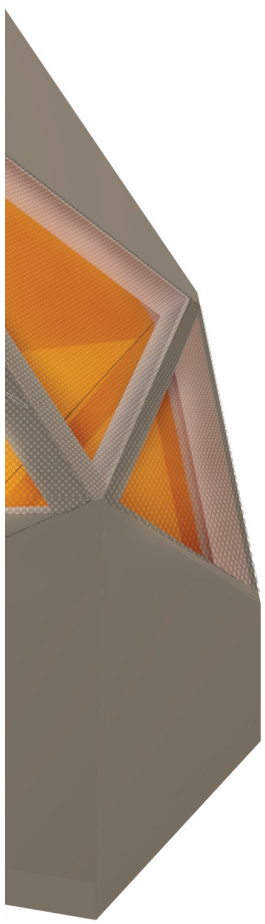




A **colourful** experience

The external surface is kept in a neutral grey colour. This is done to create a contrast to the elements which the guests are to interact with. Each of the cabins has a bright colour on the inside. The two different colours are chosen because they complement each other but are also so different that the competition element between the two cabins will stand out.

The cabins' colours are revealed in the meeting between the two to create a reference between the exterior and the interior. The bright colours are also used on the entrance and the handle to focus on where the guests are to interact with the installation.

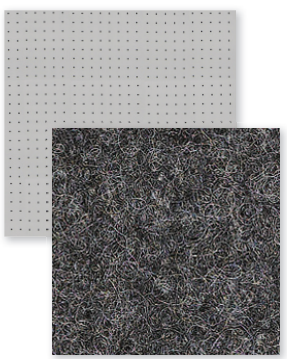


Interior cladding

The interior cladding consists of perforated wooden panels, placed in a three-dimensional, wavy structure. This structure combined with the fact that the tactility is made up by smaller circular holes, located level with the surface, creates a welcoming atmosphere for the guest, when standing in the dusky room. The small holes are dimensioned so that a pen or similar cannot penetrate into the structure, which could affect the installation's expression. The wooden panels are also chosen for their ruggedness and ability to remain welcoming for the guests.

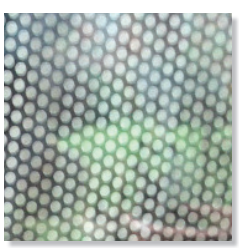
Exterior cladding

The exterior cladding consists of perforated wooden panels, where the tactility is made up by smaller circular holes, located level with the surface. The structure is dimensioned so that a pen or similar cannot penetrate into the structure, which could affect the installation's expression. The entrance is made by thick felt plates, which create a contrast to the wooden panels and thereby clarify where to interact. The materials are chosen with the great interaction volume in focus, which demands robustness.



Foil on vision areas

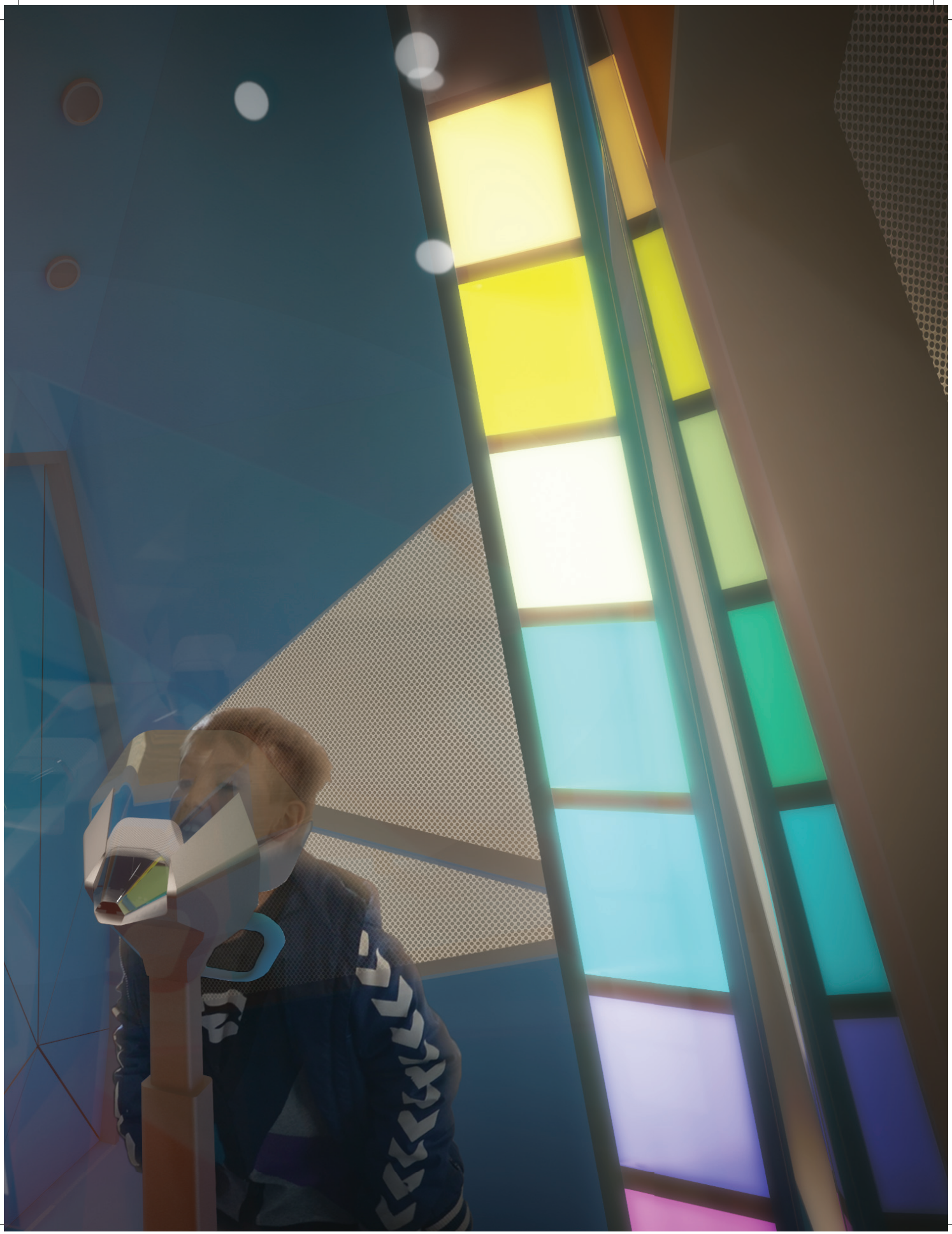
The foil consists of a perforated surface which the guest can see when he walks close up to the installation.
When the guest does not interact inside the installation the room will be dark and the guest inside will be able to look outside. The structure of the foil causes the guests around the installation to still be able to discern a silhouette, so that they can see when the installation is in use. When the guest inside interacts and thereby lights up the room by shouting, the visibility to the outside is no longer present, but the guests around the installation will be able to see the interaction.
To enhance this effect the lighting in the exhibition room surrounding the attraction is dimmed.
In addition the foil provides the opportunity to print graphics directly on the vision areas.



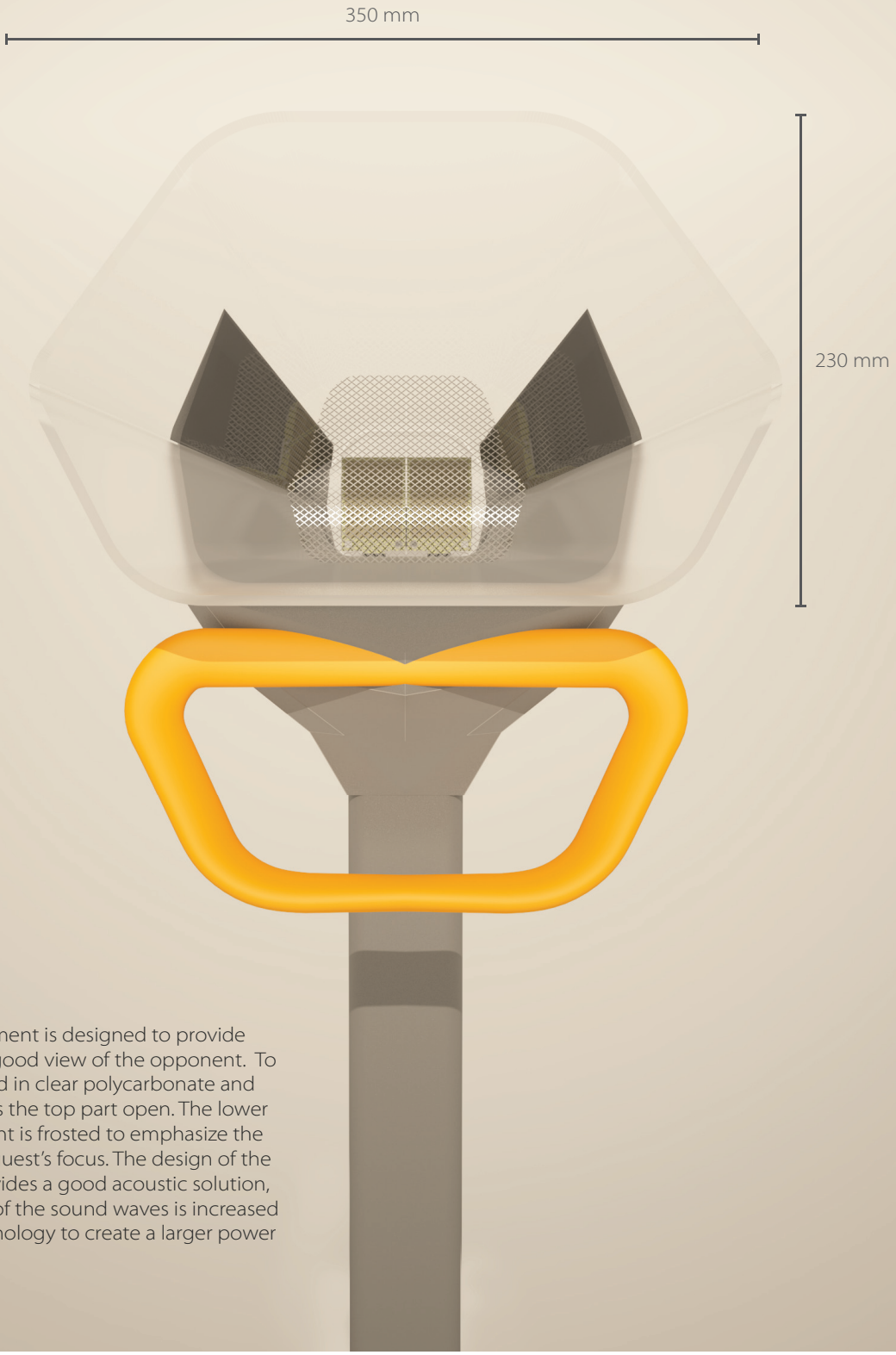
The interior experience

For some it will be an intense experience having to shout in front of others and for some maybe exceeding one's limits, but when the guest interacts by yelling into the shouting element the spots in the ceiling light up and the visibility to the outside disappears. The light has a pulsating effect and responds solely to the guest's own sound production, so that the higher the guest shouts, the brighter the light shines. This direct feedback encourages the guest to interact several times to create light.

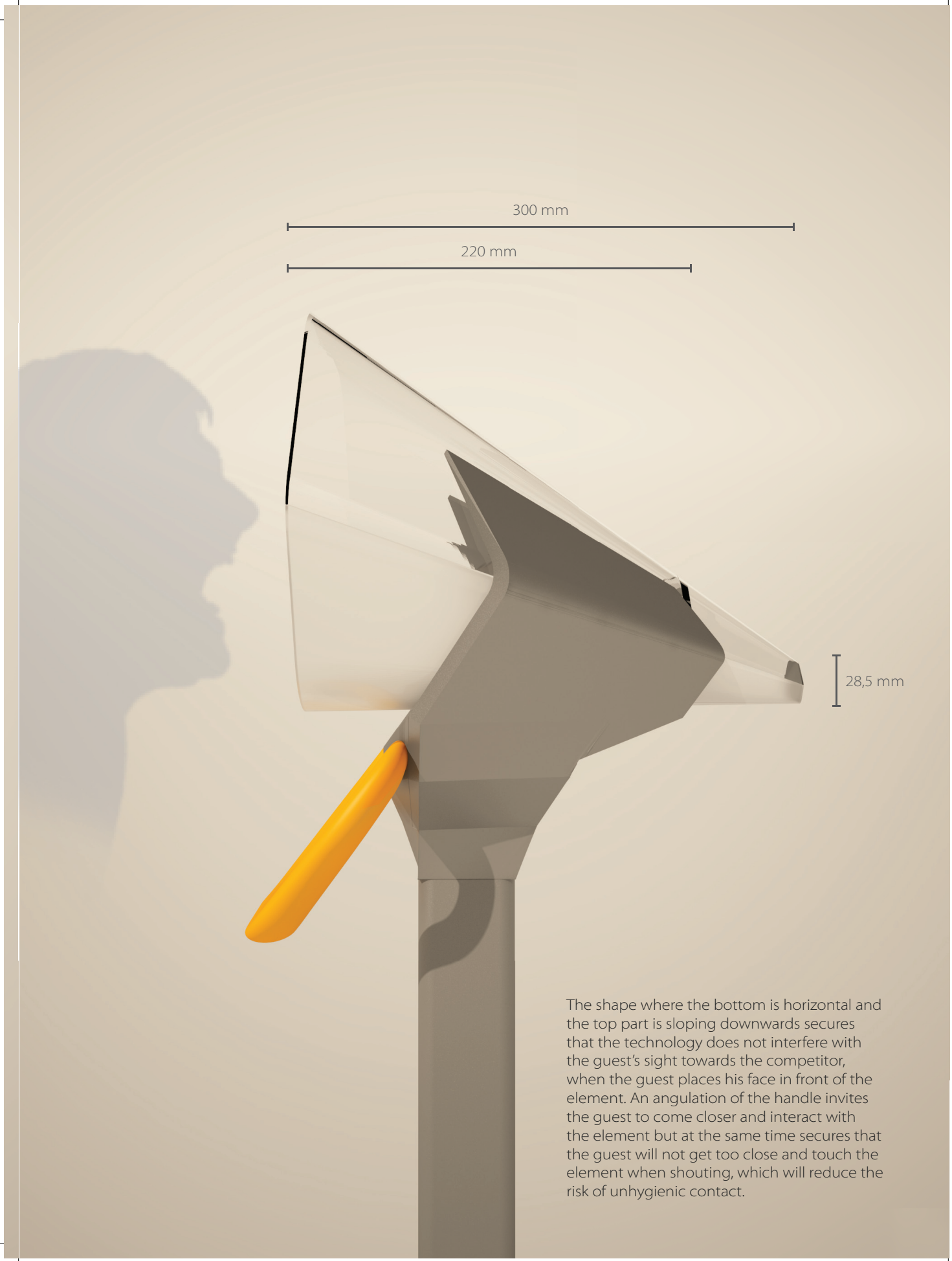
The guest's sound production will also light up the coloured scale within the cabin, which measures the sound level. The scale begins at the floor and goes all the way to the roof of the cabin. The two guests within the cabins can compete about how loud they can shout, and can from this scale gain a visual response, so that they can compete without being able to hear one another, due to the glass separating the two cabins.



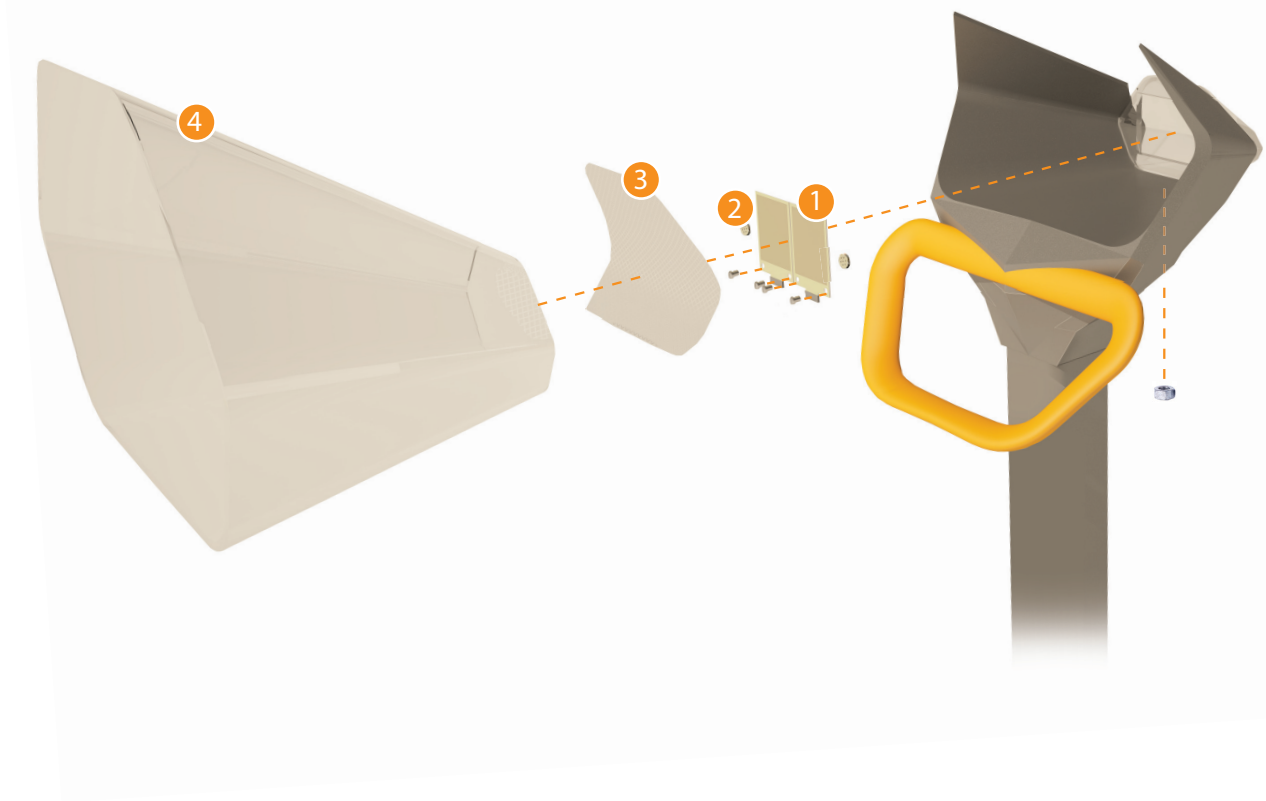
How to **direct** your shout



The shouting element is designed to provide the guest with a good view of the opponent. To do this it is created in clear polycarbonate and the retainer leaves the top part open. The lower part of the element is frosted to emphasize the direction for the guest's focus. The design of the element also provides a good acoustic solution, where the effect of the sound waves is increased towards the technology to create a larger power production.



The shape where the bottom is horizontal and the top part is sloping downwards secures that the technology does not interfere with the guest's sight towards the competitor, when the guest places his face in front of the element. An angulation of the handle invites the guest to come closer and interact with the element but at the same time secures that the guest will not get too close and touch the element when shouting, which will reduce the risk of unhygienic contact.



1. The shouting element is based on the use of the piezo technology, which is placed in the back to increase the effect of the sound waves as much as possible. The film consists of many thin layers in which electrodes are positioned. When the film is exposed to the pressure from the sound waves the small electrodes will vibrate and thereby create energy. It is through the exposure of the piezo film that the power supply for the spotlights in the ceiling will be produced.

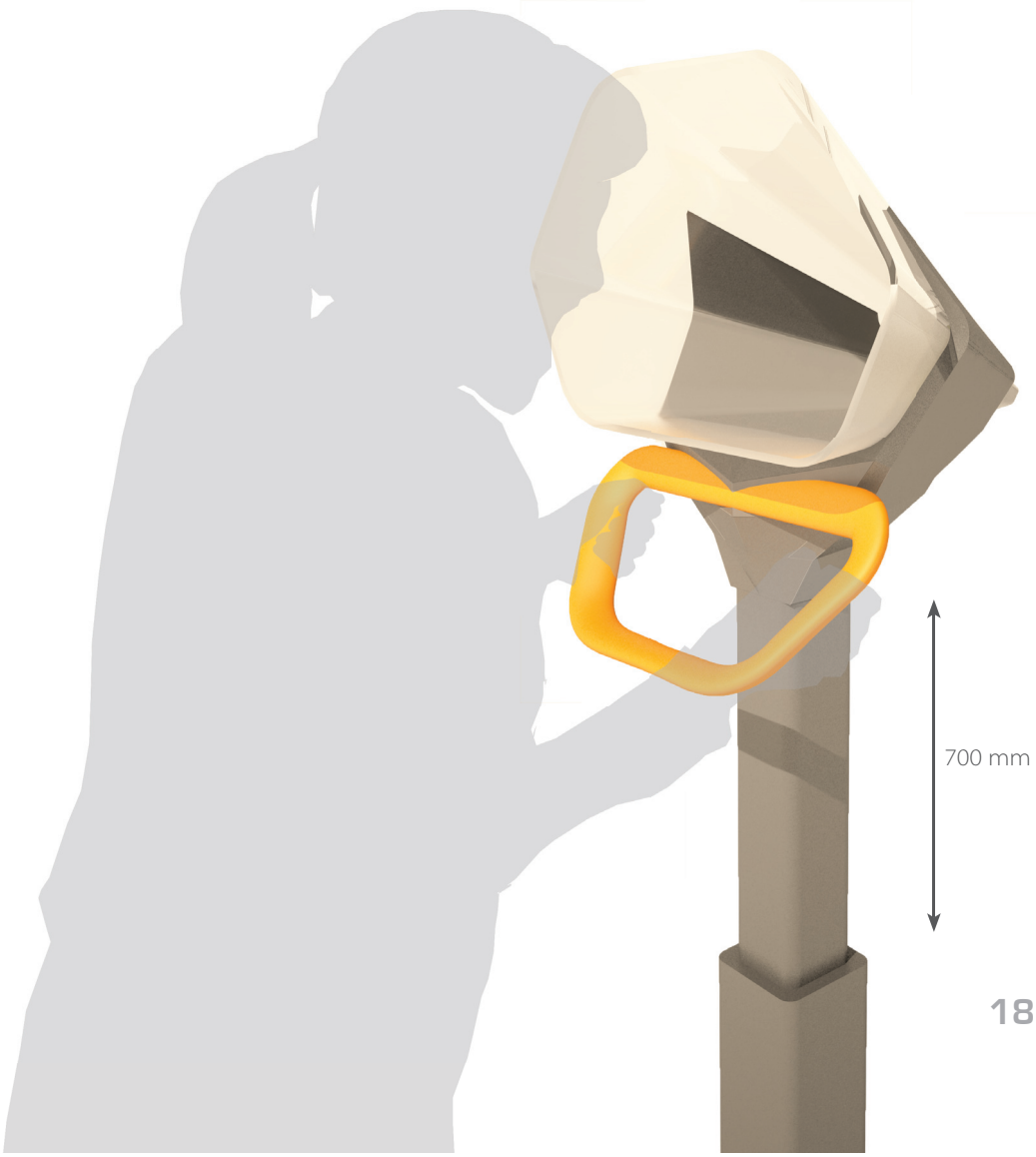
2. Next to the two piezo elements two microphones are placed, so that the sound level can be detected and the scale can create an immediate feedback.

3. The technology in the back of the element is protected by a lattice, which is designed so that the pressure from the sound waves can still get through. The lattice is laser welded into the front of the element so that the guest cannot rip it out.

4. The front of the element can be dismantled to secure a high hygienic standard and can thereby easily be cleaned in an industrial washing machine. The front is cleaned once a day and having more than one front will create a simple and easy rotation system. This detachment is easily done by loosening a bolt behind the pole and the technology can thereby easily be maintained or changed.

To adjust the **height**

The height is adjustable so that both children and adults can use the installation. The adjusting is done through a spindle solution, which combined with a servo driven motor creates a seamless adjustment for the guest. The handle is placed so that small children can reach it when the shouting element is at the top. In the handle a small sensor is integrated so that the motor is able to sense whether the guest wants to make the element go up or down, so that the wanted force and speed can be programmed. The handle is placed as a part of the elements holder to secure an intuitive interaction and the angulation of the handle ensures that the guest will not get too close to touch the element when shouting, combined with inviting the guest to grab it.



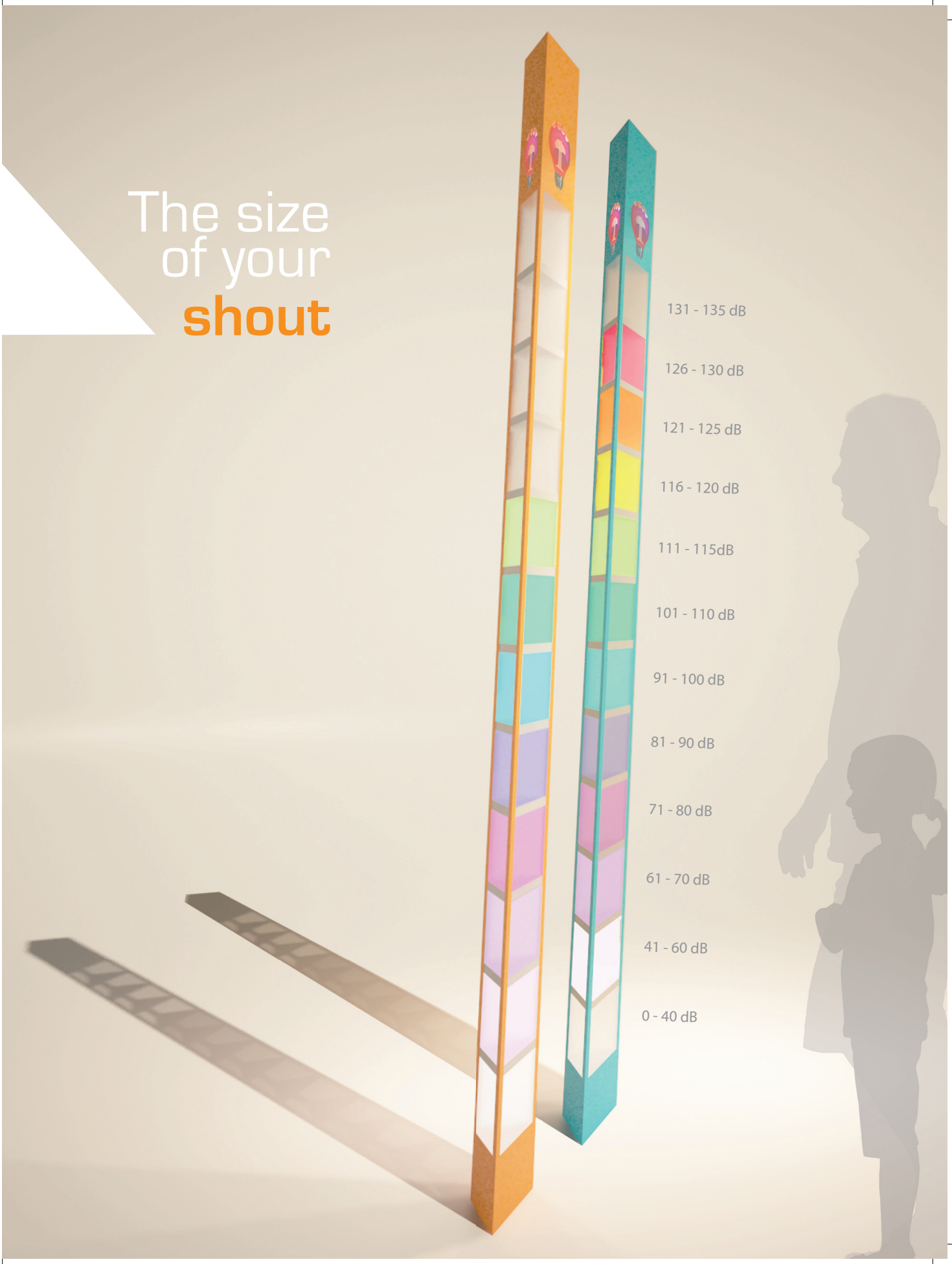
The scale is designed as a triangular shape, which relates to the idiom of the installation and supports the three viewpoints directed towards the guests in the two cabins and the guests around the installation. The scale acts as the competition element in the installation where two guests can compete about how much energy they can create. It consists of 12 different colours, which light up from the bottom to the top, according to the sound level within the cabin.

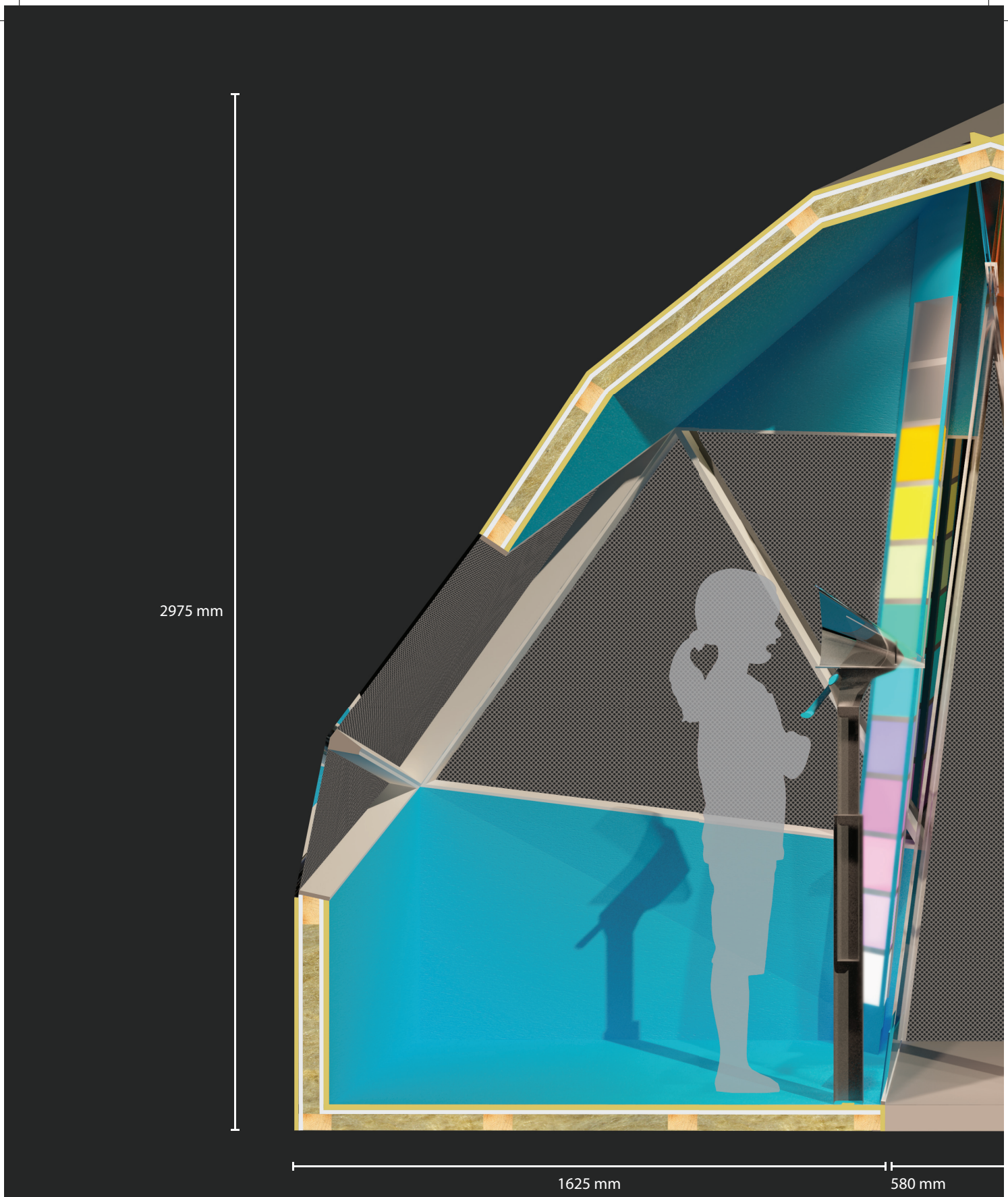
Each colour refers to a specific decibel level and it is desirable to create a large difference between the 12 steps. The scale spans from zero up to 135 decibel, which is a little more than what a normal human being is able to produce. The decibel division between the 12 colours secures that the guest easily will be able to light up many colours combined with a smaller division in the top of the decibel scale, which will secure a good element of competition.

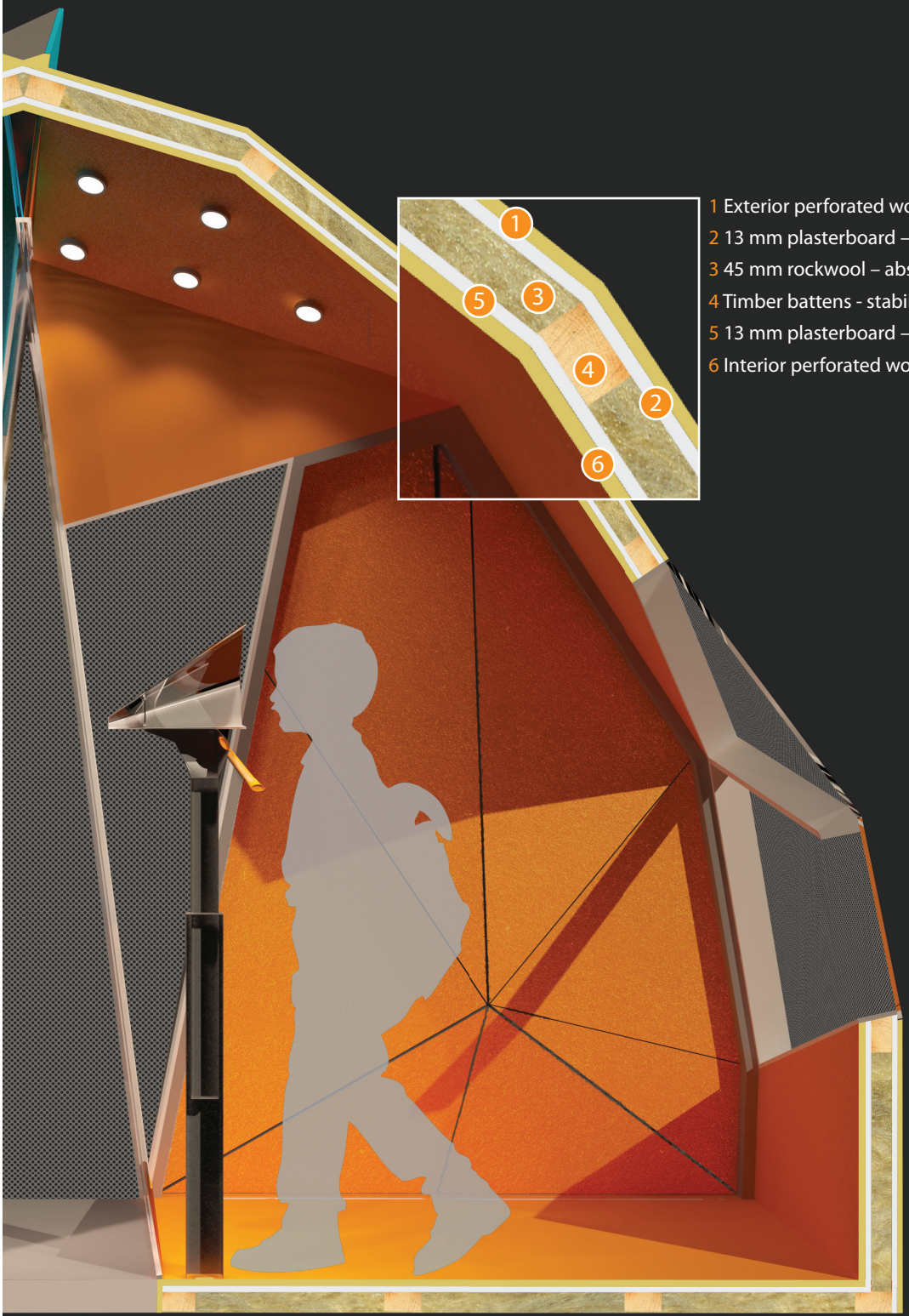
The scale is created as an indication of produced energy but refers directly to the decibel level within the cabin, but the placement of the microphones near the piezo film leads to the possibility of making a direct translation between decibel level and power production.

Included at the top of the scale is a logo with the number one in the center. This will light up in the colour that is today's high score; the shout of the day. Guests who are interacting without a competitor will thereby have something to compete with.
The competition aspect combined with shouting being an intense or maybe even a transgressing experience creates the possibility for revisits from the guests.

The size of your **shout**




2975 mm
1625 mm
580 mm



1 Exterior perforated wood panel – breaks the sound waves
2 13 mm plasterboard – absorbs the sound waves
3 45 mm rockwool – absorbs the sound waves
4 Timber battens - stabilizes the construction
5 13 mm plasterboard – absorbs the sound waves
6 Interior perforated wood panel – breaks the sound waves

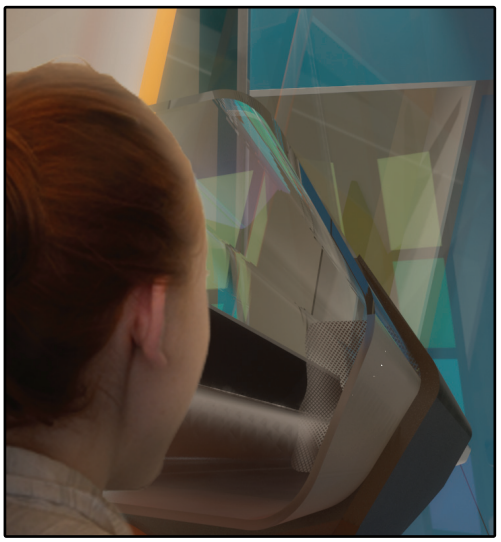
4 service standards

The installation is based upon four service standards in a prioritized order; safety, hospitality, communication and efficiency, which Danfoss Universe has set up as quality criteria for the implementation of new installations in the park. When investing in a new installation it is not only implementation costs that need to be taken into account but the daily maintenance equally needs to be addressed.

Shout Out Light meets these standards because the following has been taken into account throughout the development:

Safety

The safety standard is met by securing that the guests cannot crawl on the installation. This is done by letting the vision areas´ surface align with the outer cladding so that this appears as a whole.



Hospitality

To achieve a permanent hospitality throughout the installation's lifetime, robust materials which can withstand rough handling are used. At the bottom of the great glass section that separates the two cabins a kickpanel is integrated to spare the glass, which can be changed if needed. Good accessibility to all of the vision areas is prioritized, so that they can be easily cleaned. The shouting element's front is changed each day, so that this appears clean and gives the guest a wish to interact.

Communication

There has been a focus on intuitive interaction by avoiding controls, which will cause a potential source of error for the guest. The installation will with the applied controls always be on and ready for the guest to use. Information or instructions on how to use the installation has not been included since the guests can see each other interact before they use the installation themselves.

Efficiency

Shout Out Light will stand out in the room as the major attraction and the efficiency is thereby important. By efficiency is meant capacity or number of guests who will use the attraction in the course of a day and this needs to be as high as possible. By avoiding controls so that the installation immediately is ready for use by the guest who enters, the capacity is instantly improved. The fact that the guest can see others interact before entering will naturally create a self-regulating effect and create a good flow.

What
do we need

Danfoss Universe is a non-profit organisation which means that all new releases cannot be self-funded, but have to be funded by external partners in order to become a reality.

To implement *Shout Out Light* in Danfoss Universe will take various funds. For this single installation materials, man-hours and mounting are needed.

But this installation is only one small part within the Future House in ZEROcity and will only gain its full potential when put in context with other installations. This exhibition will focus on energy sources of the future, which sets a standard for the novelty value of the technology and the staging of it.

Thus, this project offers excellent opportunities for you and your company to show your products and ideas and thereby show your bids on what the future brings in the next couple of years.

Become a part of the project and show your interest in thinking in new and creative ways about the future energy sources and together with Danfoss Universe inspire and excite children and young people with science.