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Masterthesis: Developing a formal and functional language for Catering Equipment |
Master of Product Design | Akershus University College | Submitted by Julia Jacoby |
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“To Design, as they say, is to modify the world, to act upon reality in order to transform it. “

Paolo Volonte

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Summery

This thesis set out to develop a new catering system that suits the needs of both cater and guest.

As such it has employed Activity Centered Design as a methodology to collect data required for the design process. This has taken shape in form of In depth Interviews, handling analyses as well as shadowing of two catering Companies, Dyreparken Kristiansand and Biokraftwerk, Stuttgart.

The information collected was consequently analyzed with the help of mental models, and other methods, in order to compile a specific set of requirements which would serve as a basis for the design response. The design process that subsequently followed was not only informed on the formal analysis but also on the Offenbach Theory of Product Language. This theory served as a theoretical framework for the development of a cohesive form language for all the parts of the catering system. The collection originating from this academic work has served is presented in 16 prototype models, and another CAD model. It has been tested by some of the collaboration partners, at Dyreparken Kristiansand and was received with positive attention.



The iconic TC100 designed by Nick Roericht is a source of inspiration.

Image 1

Today eating out has become a stylized event. Whether you choose to go to McDonalds around the corner or to the famous Fat Duck in London; you will encounter a coherent design concept bringing together food and location. It will encompass the interior, the tools, the tableware, and of course the meal. As Campbell-Smith finds in his research, eating out is not simply achieved through the serving of a tasty meal in sufficient quantities, but rather is affected by the decor, the atmosphere, the representation of food, and the conduciveness of the service. (Campbell-Smith, 1967)

In catering the same expectations apply. The guest looks forward to the spectacle of a great meal. However, contrary to the restaurant the catered event has to re-invent this eating-event in ever-changing locations. This extraordinary circumstance poses high expectations on the caterer and his equipment. As in the restaurant food lies in the center of this event. Due to the ubiquitous nature of the location caterers rely much more on their equipment and decor to create this stylized event. Because of this the tools not only help to stage the event, but also have to comply with higher functional expectations. Beyond this, catering tools have to blend/mesh into each theme the client requests. By leaving a distinct formal and functional impression, they will ensure that the guest will recognize the individual caterer not only through the food served, and the local ambiance created in the space, but also via the equipment used.

This leads directly to the central question which this thesis tries to answer:

HOW CAN CATERING EQUIPMENT BE REDESIGNED TO SUIT THE NEEDS OF BOTH CATERER AND GUEST, WHILE FOLLOWING A COHERENT FORM LANGUAGE IN THE DESIGN OF AT LEAST TWO INDIVIDUAL ELEMENTS AS AN EXAMPLE?

The well known phrase “You are what you eat” signifies how the eating situation, the eating utensil, and even the food itself act as a social signifier. Based on this knowledge it is difficult to disregard the expressive value of the utensils used to eat and display food.

The Offenbach Theory of Product Language is selected as a theoretical foundation for its aim to “position communicate functions and the meaning of products at the center of reflection.” (Steffen, p.74,2009)

As Steffen points out in her paper Categorizing Product Meaning (2009) the Offenbach Theory has the advantage over other semiotic theories, in that it allows to apply the theory to the practical issues of a design process. By using it as a guideline in the design process the theory can produce defining factors, which are consequently applied as design criteria.

Offenbach Theory of Product Language

The Offenbach Theory of Product Language, initially developed by Jochen Gros in 1976, is a conceptual model setting out to develop a system describing how a product communicates with its user, in essence developing a Product Language. (Gross, 1983)

In his model Gros describes the elements which make up Product Language as the following:

Figure 1

Gros makes a distinction between the practical functions of a product (such as ergonomical, economical, ecological functions and various others) on the one hand, and the formal and communicative aspects, the so-called product language functions on the other. (Steffen, p.2, 2007) Now for the Tools of the catering system proposed it is vital that they succeed on both accounts. Since for the two User Groups different functions are of greater importance. Since the Offenbach Theory mainly concerns itself with the formal and communicative aspects, Activity Centered Design is used to identify what challenges and restrictions influence catering equipment on a functional level.

Activity Centered Design

Activity Centered Design focuses on the behavior and routines of people completing a specific task. This technique lends itself particularly well to research the interactions with highly functional tools. In this method complicated actions are broken down and analyzed. In order to then design a solution enabling users to achieve a set goal. Activity Centered Design requires requires research based on qualitative methods to affect the specific activity. (Saffer, 2007)

In order to collect the data used in the later analysis In depth Interviews were conducted with several staff of the Catering companies, and their respective Guests. Along side this a Handling Analysis was conducted, in order to understand how the Catering Staff and the Guests interact with the equipment. Additionally to this both User Groups were shadowed when completing their routines. Giving a wide perspective on the workflow of a catered event, form the guest’s and the caterer’s viewpoint.

In addition to these two theoretical approaches literary research creates the backdrop to all of the information collected and analyzed in this thesis and as such is an essential part of the research methodology applied.

The methods employed in this thesis are mainly used to generate knowledge on functional and aesthetic needs of both user groups. Since the every methodology has properties affecting its suitability for application in different stages of the design process and under different operational constraints each method is chosen to inform the design process in a specific area. (Berfing, 2004)

The table below illustrates the different methods applied in this thesis, highlighting how they were implemented and what outcome they generated for the design process.

Approach	Research Conducted	Design Outcome
Activity Centered Design	In depth Interviews Shadowing Handling Analysis	New tools based on functional needs
Offenbach Theory of Product Language	Analysis of: Formal Aesthetic Functions Indicator Function Symbol Function	Tools communicating effectively with user
Literary Research	Reading as a means of generating cultural and historical awarness on issues in and around catering. For example, the history of the chafing dish.	Cultural awareness and academic knowledge feeding into the general design approach

Figure 2



Image 2



Image 3

In this thesis two catering companies and six of their guests were investigated and interviewed. The two catering companies that participate in this study are Dyreparken Kristiansand, Norway and Biokraftwerk, Stuttgart, Germany. These two companies were selected for their difference in scale, location, and approach to catering as a trade.

Dyreparken Kristiansand is a large scale catering operation, based in Norway; serving up to 11.000 meals a day, provided mostly with in their 22 eateries located on 590.604 square meters (www.dyreparken.no, 8.3.2011) Although Dyreparken is not primarily a catering company it acts as one within their own grounds. Operating out of two large scale kitchens, head chef Olivier Will caters meals to any location requested by the client. Meaning, if it is requested, the entire meal is eaten in the “Lavo Village” or on “Kaptain Sabeltan’s Ship”.

In juxtaposition to Dyreparken Kristiansand Biokraftwerk is a traditional medium sized catering company, based in Germany. It was selected for its unique approach to food and catering. Biokraftwerk advertises its services by referring to its two key traits; Gaumenschmauss (culinary delight) and Augenschmauss (visual delight). By using these two terms to describe their food Biokraftwerk not only sets itself apart from its competition but also becomes a good dialogue partner for this study. “We want people to love the food before they have even tasted it” (Interview with Mrs.Madratic, 5.2.2011). As Manuela Mandratic, head coordinator at Biokraftwerk explains. Biokraftwerk exclusively serves ecological food and prides itself in beautifully displayed dishes.

Just as it is essential to have a holistic approach in a design process it is vital in academic research. Therefore in order to decide where the future of catering lies it is essential to understand its past. As Volonte points out in his paper, “ It (the object) does not only communicate generic and abstract functions, but also the concrete ways in which the object has been used in the past.” (Volonte, p. 116, 2000) Early finds from the Middle Ages describe food being provided for the military or pilgrims. (Philip M. Parker, 2009, p.17)

Starting in the 15th Century, catering for the upper classes became popular.

Here the object was not so much to provide nutrition, but rather to create a spectacle.

This becomes apparent in the introduction of the 1851 edition of Alexis Soyer’s book of recipes: “The Modern Housewife.” As the inventor of the ‘Magic Stove’, which was the basis for today’s chafing dish (shown in the image to the right). Soyer explains that his cooking apparatus: “...was taken by the Marquis of Normanby and his party to Egypt, in view of having dinner cooked on the top of the Pyramids.” (Alexis Soyer, 1851, p. vi.)

During the 19th and 20th century technical innovations and improvements in transportation have shaped catering and converted it into an industry. (Alan Warde and Lydia Martens; 2000) However, the aspect of creating an event, remains one of the key objectives of the catering industry that exists today (Natasha Garber, catering Trends: Food for the Soul). catering has thus evolved from simply providing food for travelers. Catering companies now pride themselves on not only providing excellent food, but also creating a visually appealing atmosphere, ranging from the presentation of food to table linens and decorations. Although the intent of catering has changed throughout the years, it continues to be a vital part of our society. (Alan Warde and Lydia Martens; 2000)



Image 4

Generally it is difficult to discuss overarching trends for any given industry. However, since the catering industry has to function as such a vast spectrum of different types of events, venues and foodstuffs it is even more difficult to make any definite claims about generally valid catering Trends. Since trends are fleeting most information is collected from monthly and annual magazines catering especially to the catering and event industry. However, after reading several magazines, for example “Special Event”, some issues emerge as contemporary themes of interests and trends.

One aspect that seems paramount is the quality of the food accompanied by a growing awareness for freshly prepared meals. “The food is the centerpiece,” Pauline Parry explains when examining the general appeal of catered food (Natasha Garber, catering Trends: Food for the Soul, p.21).

A second aspect is the diversification of dishes served, due to the fact that delicious food is no longer a local but a global affair. As Perry points out “Our marketplace has become more sophisticated because of travel” Widely travelled guests do not only affect the range of catered food presented but also its display. “We have to make sure we’re not doing something Mexican-looking for food from Spain,” (Pauline Parry, in an interview with Natasha Garber in” catering Trends: Food for the Soul”, p.21). Being used to eating types of various ethnic foods in their actual countries of origin gives the guest a new connoisseur perspective on the food he/she is being served at a catered event.

The rise of ethnic food goes hand in hand with the presentation of very diverse small portions. As Bruce Barbaree, of “Elan catering (Miami), says: “Tapas receptions are the latest trend. We’re butlering great little plates of lobster risotto and things like that. It’s very easy to eat ... and it creates a lot of conversation among the guests.” (Natasha Garber, catering Trends: Food for the Soul, p.23) Catered events become catalysts for guests to socialize: This is another focal interest for catering firms and guests alike as it enhances their perception of success of the “event”. For both guest and caterer the objective is “success”- however there is a difference in measuring that for each of the participants in the catered event. For the guest, catering is centered around the food not the tools used to serve it. Unlike the guest, who goes for the spectacular event, the caterer is looking for the pragmatic aspects (such as improvement of work flow, transportation means and/or employed tools) which help to improve everyday business.

All this emphasizes the challenge for the tools that are used by the catering Company, since displays need to be adaptable to different food styles and events, demanding adaptation in color, and presentation.

Improving Catering equipment through Design 3.3

After interviewing and shadowing both Dyreparken and Biokraftwerk it becomes evident that a catered event consist of two parties. The caterer and the guest. With respect to concerns of Product Design, these are the two user groups to be designed for.

The expectations of the two user groups to catering equipment are very different. For the guest, who goes for the spectacular event, catering is centered around the food. The tools used to serve it are judged mainly on their aesthetic appeal and their ability to stage the food well. As Interviewee Guest 1 explains when asked if he remembered any of the tableware from the last catered event he attended. "... no I don't remember the plates or anything like that. But last time they had a vegetarian curry that was delicious." (Interview with Guest 1, 7.2.2011)

Unlike the guest, the caterer is looking for the pragmatic aspects, such as improvement of work flow, transportation means and/or employed tools, which help to improve everyday business. As Simon Berg, chef at Biokraftwerk explains "Catering is a specialized field with unspecialized equipment. Often it doesn't work for us it works against us." (Simon Berg, Interview, 05.02.2011) in his answer to how he felt about the quality of the equipment used by Biokraftwerk.

Looking at both aspects the functionality for the caterer and the aesthetics for the guest, there is still ample room for improvement and invention of tools and equipment.

To gain insight as to which tools need to be re designed in order to improve catering equipment, it is important to analyze how these tools come together in a workflow scenario. In the following chapter, a typical day at Biokraftwerk is depicted.

Case Study: Shadowing Biokraftwerk 3.4

The following pictures were taken during one of the events spent shadowing Biokraftwerk. Several such Events were recorded shadowing both Biokraftwerk and Dyreparken. Individually they each give a unique perspective on a particular occurrence. Together however, they shed light on the general workflow of a catering company. This generalized Workflow is analyzed in the following pages.



Food for the Event is prepared.



All food is packed up in thermo boxes.



All equipment is packed up.



Food and equipment are packed in van.



Once on location all items are unloaded.



Everything is carried to the event space.

Image 5



All equipment is unpacked.



Buffet is set up.



Guests arrive and enjoy the meal.



End of the meal. Food and equipment are packed up again.



Back at base all items are unpacked.



Everything is carried to the scullery; cleaned and stored away for next time.

In order to get an overview of the Catered Event it can be understood as a workflow, which consists of four individual processes;

- +process of food production
- +process of food serving
- +process of eating
- +process of transportation

Currently these processes are understood as separate entities.

The tools used for each process are segregated from each other not only in their application but also in their appearance, or style. In order to create a more efficient system for the caterer in its function and for the guest in its aesthetic appeal these four processes need to be understood as an interconnected work flow, encompassing four overlapping processes. Even though each process requires individual tools, these must be designed in relation to each other, as an interconnected system.

Within this design system the shift from one process to the next (see above) is designed to create high functionality but also retain a high level of user acceptance.

It might be argued that the most efficient way to pass from one to another of these four processes is to eliminate one tool and invent a tool as a “two in one” solution.

One such example is shown here:

The tool used for serving the food, the tray, is merged with the tool for its consumption, the individual plates and dishes. This has been done in hospitals, prisons and university and school cafeterias.

Such a design solution might be highly efficient in serving large quantities of food in a short period of time. However, it generates no aesthetic value as a meal. This becomes clear when measuring its user acceptance:

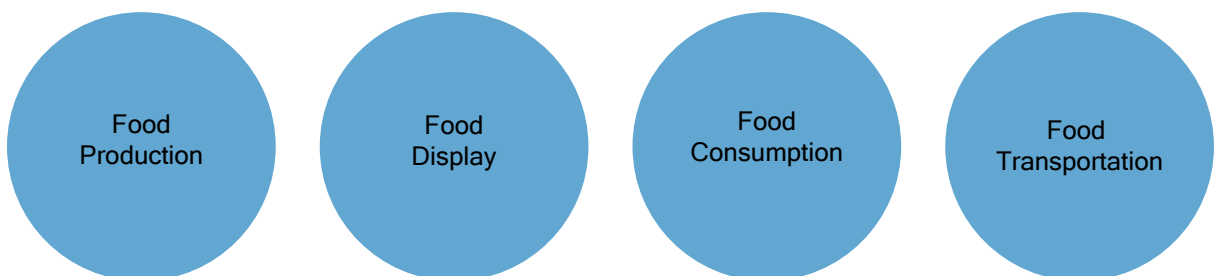


Figure 3

The students from the TU Munich Cafeteria complained heavily when asked about their food trays. They overwhelmingly claimed that this was a miserable way to enjoy a meal (Klingler, 2011). These results are further reinforced by Brian Wasnik's research on the popular French expression "You eat with your eyes". He found out, that the general visual expectation of food does actually impact the like or dislike of the flavor encountered when eating. (Wasnik; Ray; Batara,1994)

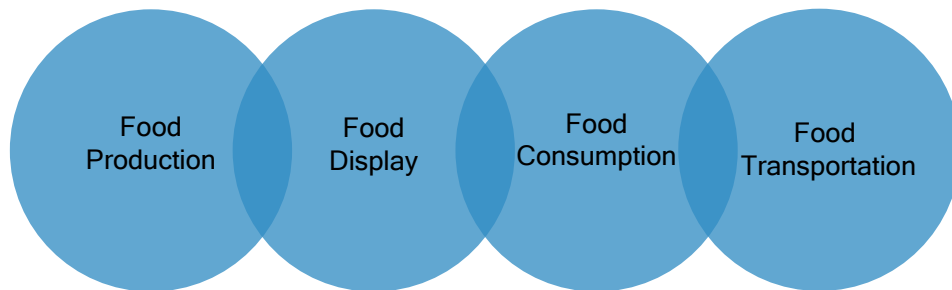


Figure 4

So, for the guest, the presentation of food and the tools employed to achieve this are equal in importance to the taste of the food itself. Based on this, it seems very important not to confuse the employment of tools for the four described steps (production, serving, consumption and transportation) and to keep them as separate (design) items in order retain the acceptance of the user groups. It seems more wise to create an interconnected design system for these separate tools.



image 7

To be able to do this it is important to look at each of the three processes and how they interconnect both in use and aesthetic value in order to formulate tools that are distinctive in their employment yet belong together as a set.

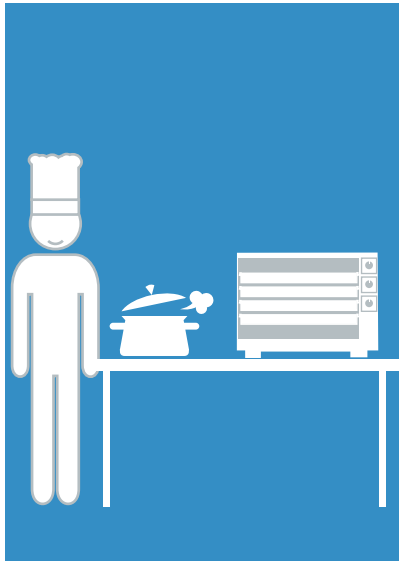
This study thus looks at catering equipment on two levels:

One is the perspective of workflow as a chain of events , starting with delivery issues then looking at the setting up of a buffet and ending with the food on the table.

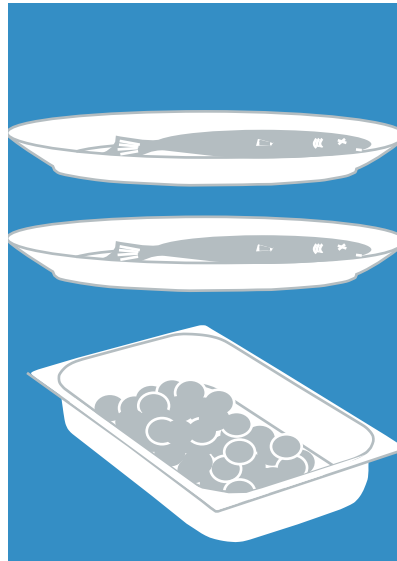
This examination brings out the interconnections and the intended efficiency of the overall workflow.

The second perspective concerns itself with the individual tools applied for achieving the workflow. Through this two-folded approach it becomes possible to significantly improve the work flow through redesigning the detailed interactions of the individual tools.

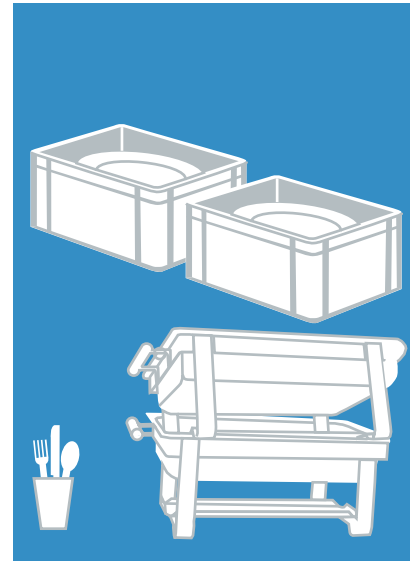
In order to make general assumptions about the workflow in a Catered Event one first of all has to establish a generalized line of events. It is important to epitomize this chain of events in order to set it apart from the Case Study scenarios recorded at Biokraftwerk and Dyreparken. The Workflow shown below is an annotation of the workdays shadowed.



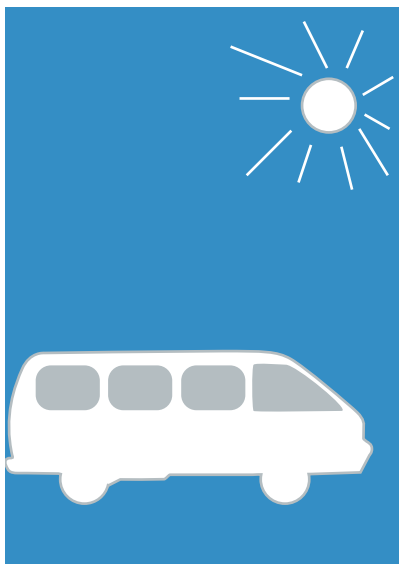
Food for the Event is prepared.



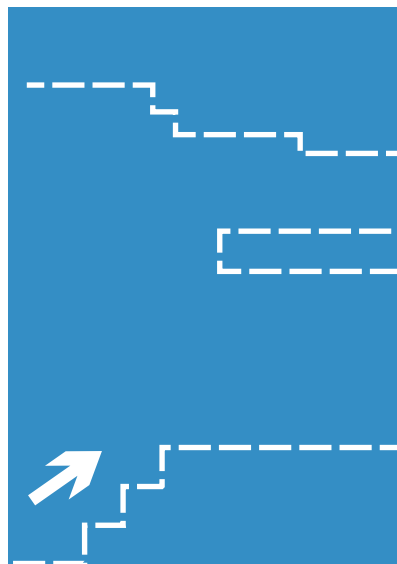
All food is packed up.



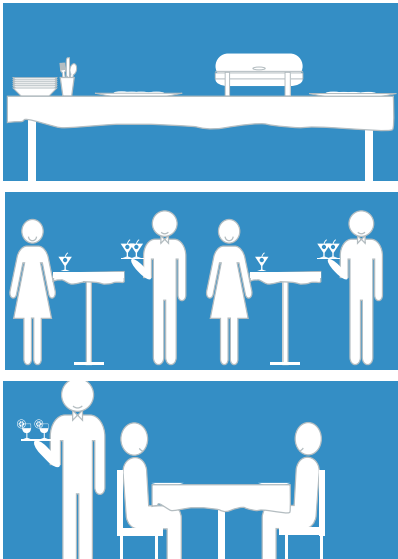
All equipment is packed up.



Food and equipment are transported to location.



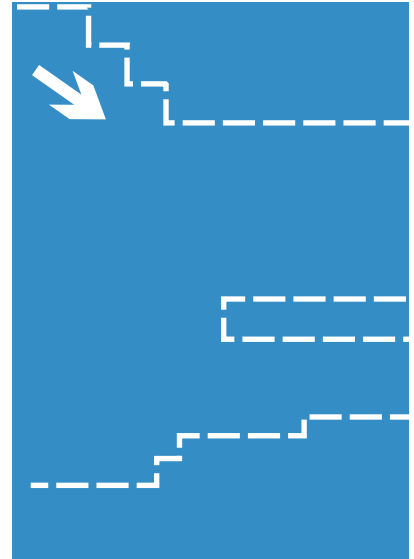
Everything is carried to the event space.



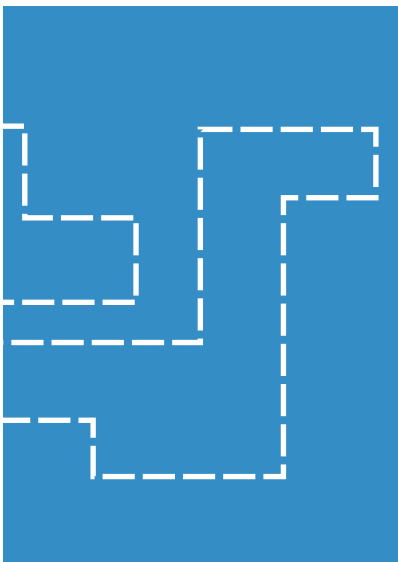
Event is set up. (One of three possibilities)



Event is over. Everything is packed up again.



All equipment is carried back to the van.



Transport back.



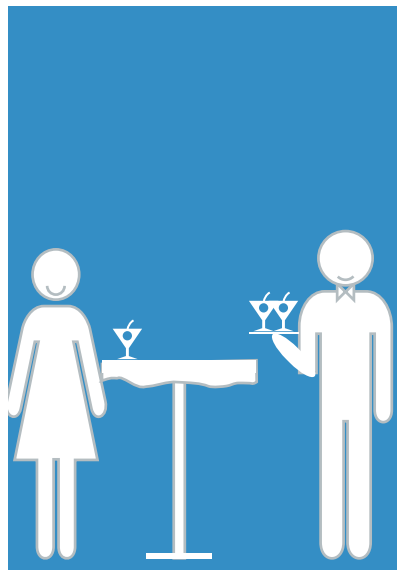
Everything is carried to the the scullery; cleaned and stored away for next time.

Figure 6

The generalized workflow depicted above showcases an event with a buffet. Which is the focus within the catering field in this thesis. Never the less it is important to grasp the wider context. This system will have to be employed in other settings too. As the universality of the system is vital for its success in the caterer's eyes. The three Event types commonly offered by a caterer are: a buffet, a cocktail reception or a sit down dinner. (Interview with Oliver Will, 9.3.2011)



Buffet

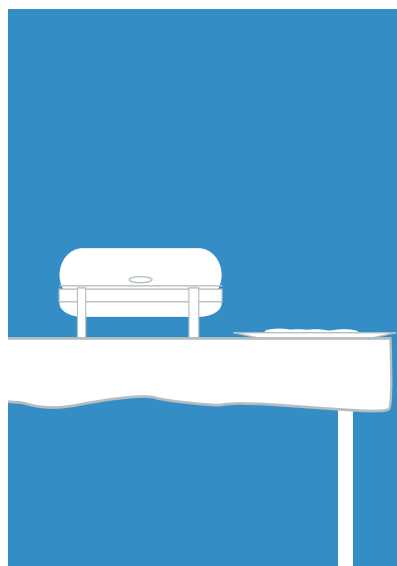
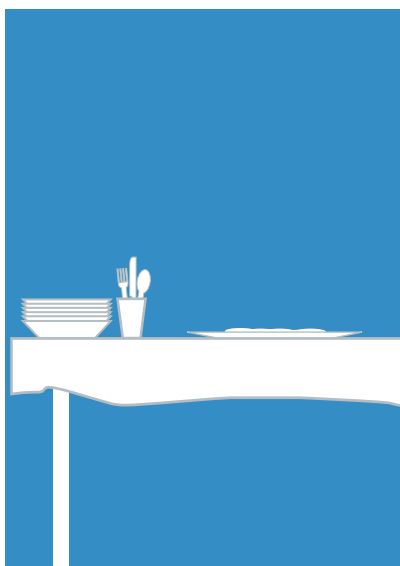


Cocktail Reception

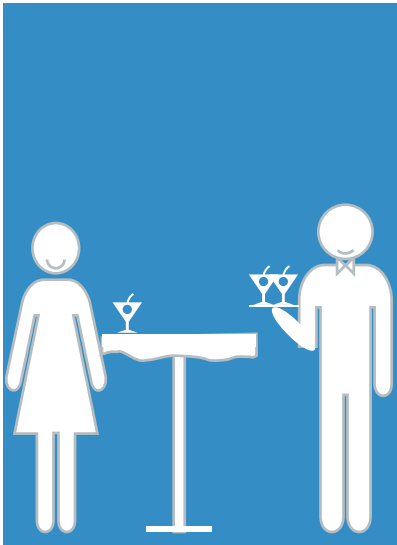


Sit-Down Dinner

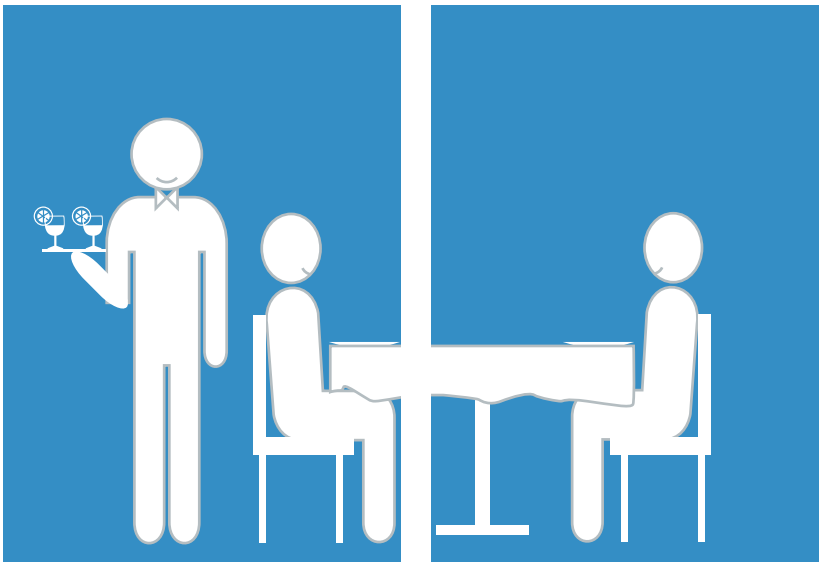
These three scenarios certainly require a common design approach. However the collection has to be flexible enough to include slight diversions in order to suit the specific scenario.



At the Buffet all of the tools have to create a coherent image that stages the food well. For the caterer it is important that the food can easily be refilled and transported to location.



The Cocktail Reception on the other hand the guest has functional expectations to the system. He/She has to stand and hold his drink and plate while mingling in a crowded space. “ You have to hold on to all these things, while shaking hands and making conversation.” (Interview Guest 6, Interview, 12.2.2011)



In contrast to both the Buffet and the Cocktail Reception stands the Sit Down Dinner. As Oliver Will explains “ In an event like this, we serve as if it was in one of our restaurant, only that it is a set menu. And of course that the guest chooses the place.” (Interview with Oliver Will, 9.3.2011) For the caterer the Sit Down Dinner is faced with a complex logistical task. He arrives with the food prepared at the location. And then usually has to lay out all the plates for the guests in a space that is not suited for the amount of dishes or this type of work in general. As was observed, while shadowing Biokraftwerk in March 2011.

Figure 8

Based on the information collected while shadowing Dyreparken, Kristiansand and Biokraftwerk mental models were developed to better understand the individual activities within a specific task. A mental model aims to gain insight on the behaviour and activities of people. It visualizes the general task, while breaking it down into activities conducted to complete the task. Through this model consumer needs can be better understood.

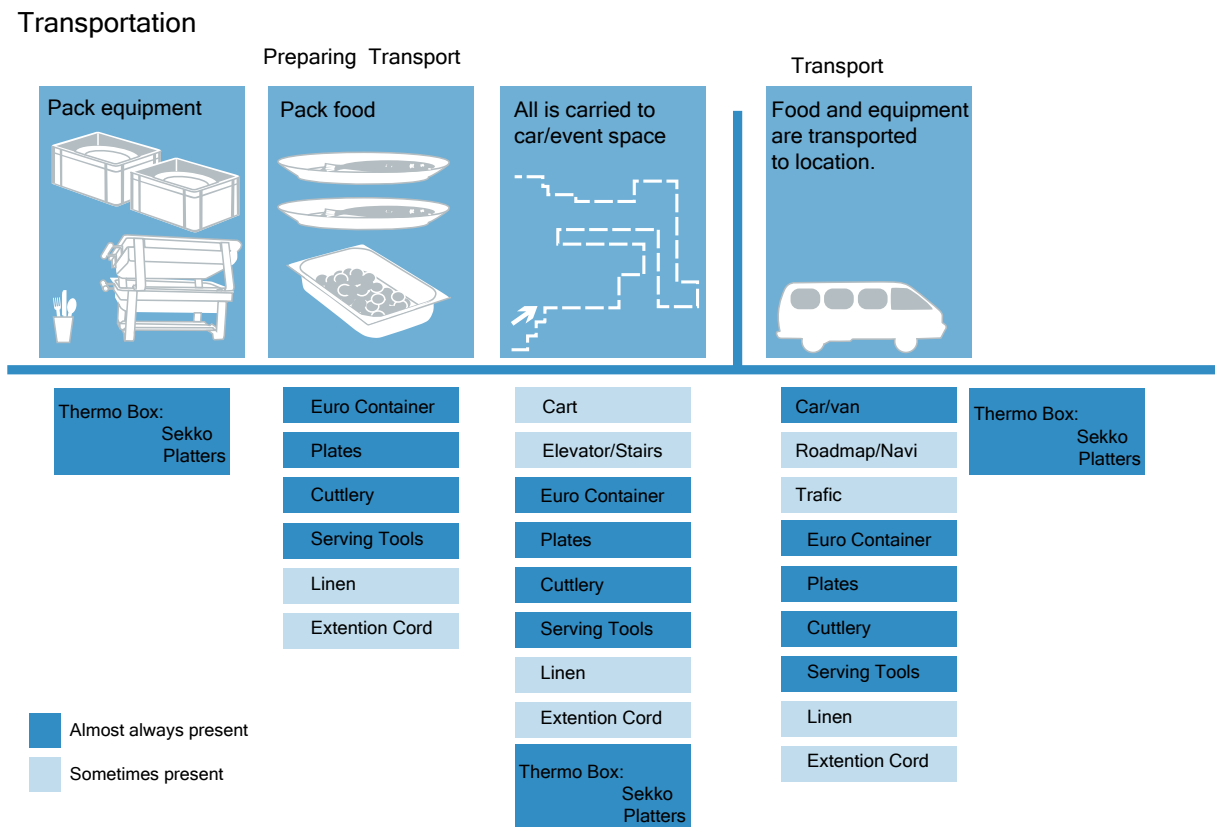


Figure 9

From the several mental models created, the one concerning transportation was most interesting. This one key task stood out as being connected to all the other tasks through the activities it involved. This gives it a key role in the success of an event, since it can be understood as the foundation for all other tasks following it.

The transportation process occupies a central role in the generalized workflow as well as its function in terms of storing most other items within itself. As such it is the defining marker for which tools will be redesigned to support its activities and tasks.

Hence the following set of tools will be redesigned to improve the workflow of a catered event:

- + a collection of tableware. (Its outside measurements adhering to the Gastronomic Norm.)
- + a collection of platters. (Its outside measurements adhering to the Gastronomic Norm.)
- + a chafing dish. (Improving the handling for the Caterer and the adhering to the overall design language to improve aesthetic overall impression for the Guest.)
- + a storage box. (In order to move the Tableware and equipment to and from location.)

As discussed in the chapter Analysis of Workflow, these tools will affect the workflow through their new design. In order to understand how to effectively implement this change, the designated tools will be analysed for their specific functional aspects.

Tools employed in catering are traditionally organized into two main categories, or Tool Families. Servery and Display being one of the two and Tableware being the second. However, based on the Workflow Analysis it is evident that a third Tool Family needs to be considered as well; Transportation.



Image 8

Tableware



Image 9

Servery and Display



Image 10

Transport

While investigating Biokraftwerk and Dyreparcken Handling Analyses were conducted with each Tool Family. Both caterers use only one particular type of Tool in any given family. While there are many more options available on the market. The Handling Analyses are supplemented with a Competitive Product Survey in order to ensure as complete an overview of the Tools available as possible.

Additionally it is important to understand that all tools should adhere of be designed in accordance with with the Gastronomic Norm, the reasons for this are discussed in the following chapter.

Gastronomic Norm as a Design Parameter

3.9

The Gastronomic Norm is an underlying structure that can not be ignored in this project. As it is used in every professional kitchen no matter how small or large this may be. Its strict rules in size, will act as a skeleton for the design intervention of this thesis. Giving it a core structure and definite starting point in the design process. Although individual pieces of tableware adhering to the Gastronomic Norm can be found on the market today. There is no entire collection based on it.

In the design solution originating from this study a system based entirely on the Gastronomic Norm. Not only for reason of functionality, but also for aesthetic reasons. By adhering to the Gastronomic Norm one coherent ratio will be introduced to the entire collection, which will add to a unified design experience.



Image 11

The Gastronomic Norm

3.10

Gastro-Norm is a worldwide measurement system that through the use of standardized sizes allows a simple exchange of food containers in food processing plants and kitchens. The inserts, also referred to as Sekko are available in various depths. The basic size Gastronorm (GN) 1 / 1 is 325 × 530 mm, an approximation of the golden section. Smaller dimensions are given in fractions relative to the standard size.

A Secko is suitable primarily for the holding of hot and cold food but also for storage and cleaning of food. Gastronorm containers are used in chafing dishes, stoves, cooking pots, convection ovens, in refrigerators and freezers.

The containers are made of stainless steel, aluminium, glass, porcelain or plastic and can be perforated at the bottom also. As a handle, a stack damper control is used or the container without handles. Likewise different covers to choose from (flat, hinged, dome-cap and plug).

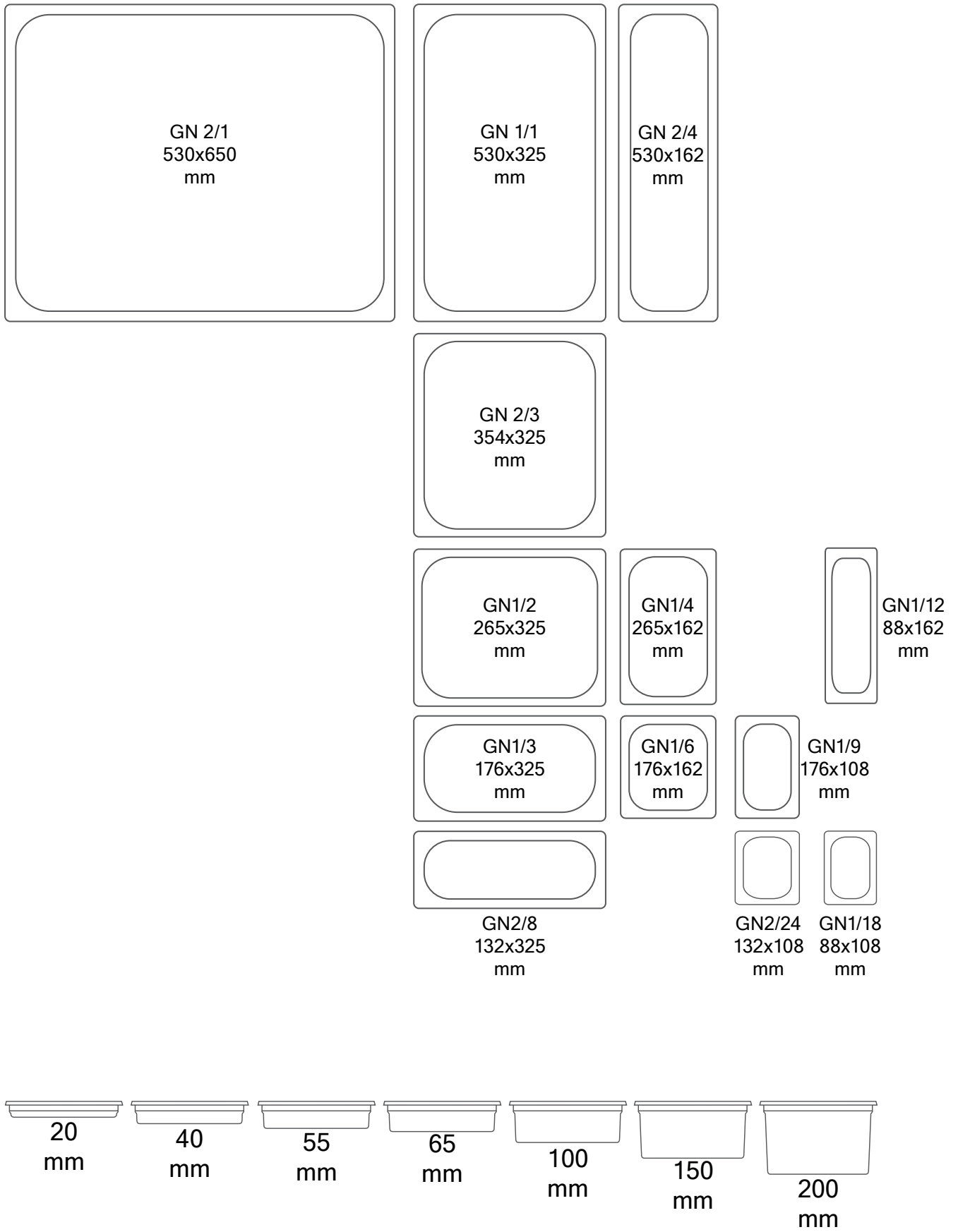


Figure 10

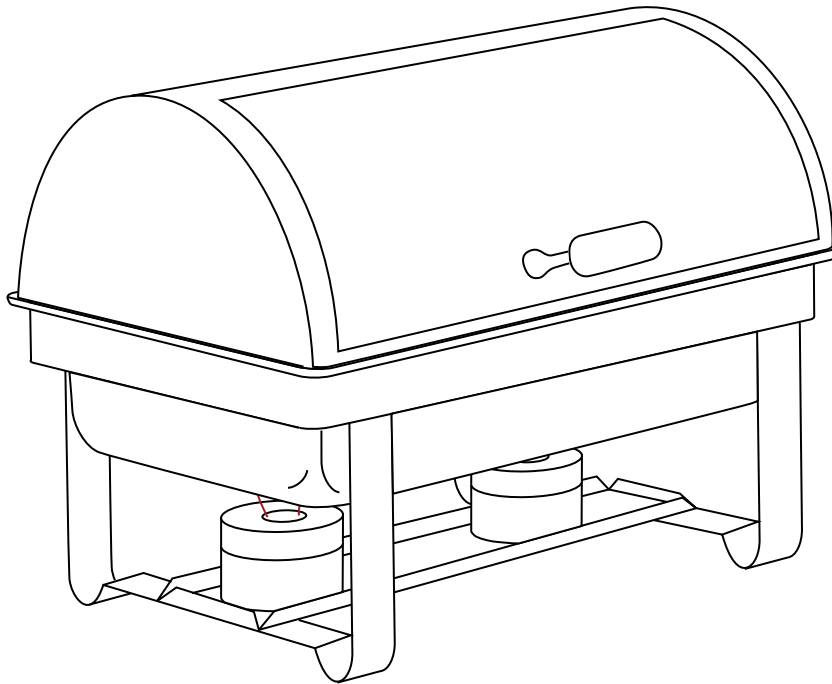


Figure 11

Size:(L)660mm x (W)480mm x (H)430mm

Weight: 11 Kg

Capacity: 8 Ltr

The chafing dish is the most complex piece of equipment used by the caterer. The common chafing dish consists of multiple pieces and is shown in the graphic to the right. Though the graphic on the right illustrates cartridges of Sterno as a heat source this is not the only option. electrical plates attached to the bottom of the water basin are common as well as closed electrical systems. All of which will be discussed in detail in the chapter

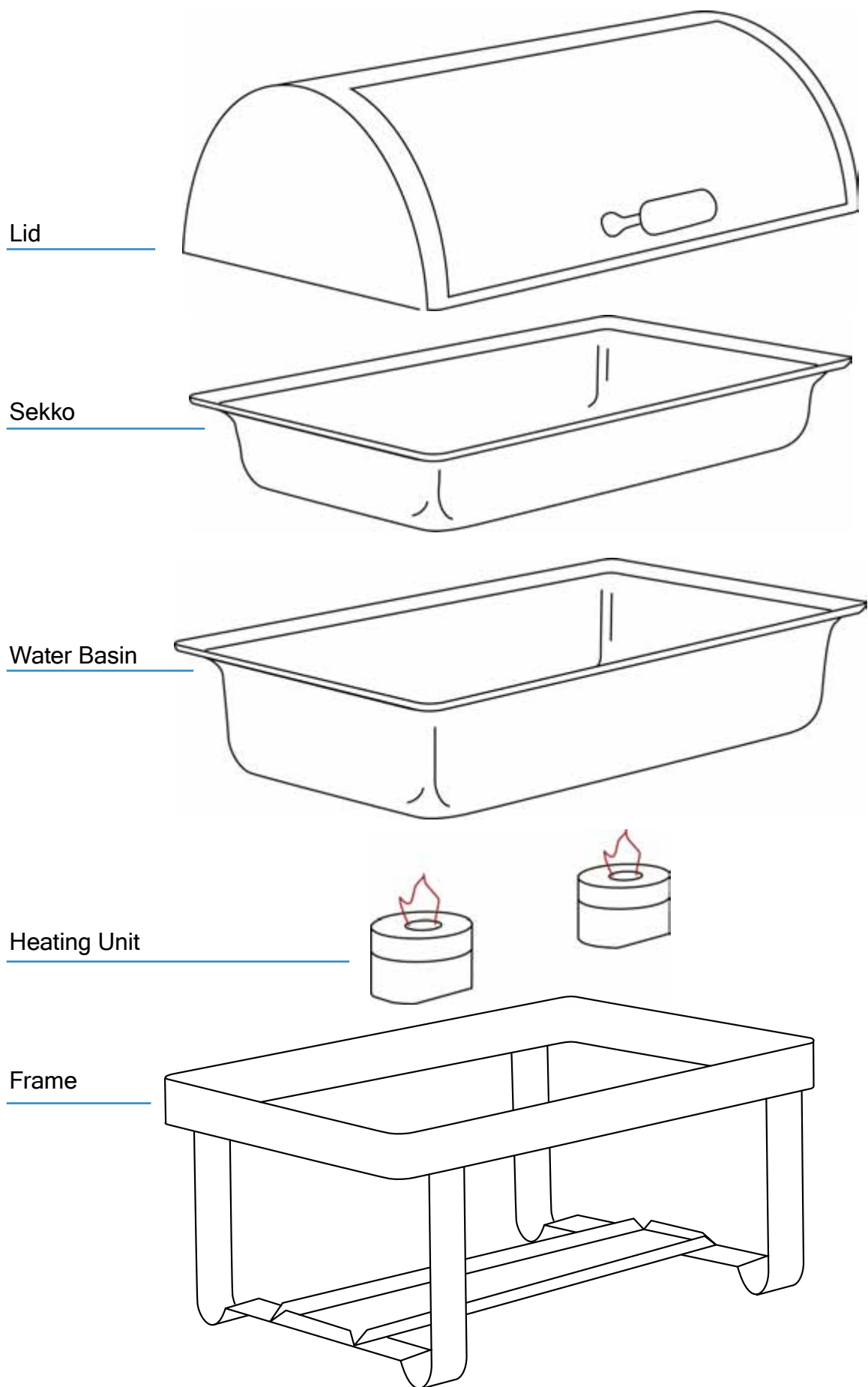


Figure 12



Due to the frequent lack of storage for catering companies, the stackability of the different objects is an important issue. Currently there is no stackable product currently on the market.



Looking at this detail of the chafing dish, is not a problem in every situation, since not every caterer uses the electric heating elements that are screwed on the bottom of the chafing dish. However, it appears to be the preferred method of heating the chafing dishes, since it does not smell. Taking this into account it points to some questions: What to do with the electric cord? To create a system of attachment that does not involve single parts.



The heating of the chafing dish: at Biokraftwerk they prefer using electric heating plates to attach to the chafing dish with the help of screws. As suppose to using brennpaste, which carries a pungeant smell. Although the heating plate carries no smell, the screw mechanism is lacking in refinement, especially since the scews constantly go missing. In a working environment which is constantly on the move, and with constantly changing staff loose parts are a problem.



The sequence above illustrates how a sekko is placed into a chafing dish. From looking at the finger position it is obviously a ergonomically uncomfortable scenario. Especially keeping in mind that the chafing dish is filled with boiling water, which steams up through the cracks.



The sequence above illustrates how a sekko is removed from a chafing dish. The fact that a spoon has to be used as an aid to lift out the sekko, makes it quite clear that there is room for improvement.

Image 15

At first glance the sheer number of chafing dishes available to catering companies is overwhelming, and surprisingly uniform in their appearance and technology. However, with closer inspection differences become apparent. In order to simplify their assessment they have been grouped into basic categories. When assessing the different chafing dishes two criteria are of importance; the functional quality of the product and the aesthetic quality of the product. Since these are the parameters important to both user groups (caterer and guest) as identified previously.

Agent used for heat transfer

The chafing dish to the left is a common example of a product, that employs water as an agent of heat transfer. While the other on the right, a chafing dish distributed by the Rieber Company uses a laminate of steel and aluminum in the sekko itself to distribute the heat evenly throughout the food.



Aesthetically:

+ Keeps the food moist

Functionally:

- Many individual components
- No component is stackable
- Inefficient use of heat source

Image 16



Aesthetically:

- Dries the food out

Functionally:

- Many individual components
- No component is stackable
- Inefficient use of heat source

Image 17

Types of Heating Elements

The common chafing dishes can be further distinguished through the type of heat source they employ. They either are purely electrically heated or allow the application of either Sterno cartridges or electrical plates.



Image 18

Aesthetically:

- Sterno Cartridges smell bad creating an unpleasant eating experience
- Heating plates shows loose electrical cable on Buffet

Functionally:

- + Functions without electricity
- Many individual components
- No component is stackable
- Inefficient use of heat source



Image 19

Aesthetically:

- + Heat source is invisible to Guest
- + No loose electric cables on Buffet
- Visually very dense and heavy
- Unrefined formal language

Functionally:

- + Compact structure
- + Easily stored (stackable)
- + Temperature can be regulated
- + Electric cable is detachable
- + Efficient use of heat source

Types of Lids

On a chafing dish there are a variety of lids used. Since they are a focal point of interaction between guest and tool. Both in terms of making an aesthetic impression (display of food) and a functional impression (reaching the food). It is important to assess which type of lid, if any is most suitable for the design solution.



Image 20

Aesthetically:

- Little natural light reaches the food

Functionally:

- Not stackable
- Difficult to control motion to open



Image 21

Aesthetically:

- + Ample natural light on food

Functionally:

- + Easier to control motion to open (springloaded hinge)
- + Easier stored due to low height of lid



Image 22

Aesthetically:

+ Ample natural light on food

Functionally:

- Not stackable
- Difficult to control motion to open



Image 23

Aesthetically:

+ Ample natural light on food

Functionally:

- Guest is often left holding the lid
- Difficult to open and close



Even in a catered buffet it is common to have specific dishes served on individual plates. The issue arises that the plates need to be layed out in advance. Once they are layed out though they become very difficult to transport.



When stacked the plates and bowls still need to present a neat pile. At the same time, the distance between two rims needs to be enough to easily lift one plate of the stack.

Image 25



Not so important in the context of the catered buffet but still an issue that should not be discounted is the possibility to carry multiple plates at the same time by the serving staff.



Image 26



Image 27



Image 28



Image 29

Depending on the type of event the catering company will actually use different kinds of plates, never the less they explained that as their house tableware they preferred something a little more luxurious and different. As this collection illustrates, the top image is a very traditional and practical collection. While the two below, are more distinct in their aesthetic expression, these were both owned by Biokraftwerk as their in house tableware.

Tableware is a very large market and as such poses problems in terms of analysis. It is difficult to successfully compare and contrast all the different types and styles available in this market. Hence it is prudent to focus on collections specifically designed for the catering field. Here there are still a number of companies and collections, however, as with the chafing dish this study will discuss a specific example since it sets out to achieve similar goals to the ones identified in this thesis. The tableware collection Scenario GN by Schönwald is unique in that it is the only tableware collection found in this research that sets out to adhere to the Gastronomic Norm, while giving a pleasing aesthetic impression. The Scenario GN collection does offer Platters and large plates adhering to the Gastronomic Norm but the plates and bowls don't follow its ratios or size constraints. Even more problematic than its lack of coherence is the peculiar shape of the plates. Their angular form language giving the impression of an industrialized environment, dictated by efficiency and standardization. While as a matter of fact facilitating none of these associations. The bowls in particular do not integrate well into the standardization of a professional kitchen. Their odd shape does not fit well in the Standardization of the dishwashers or the storage boxes regularly used by caterers.



Image 30

The platters in this collection on the other hand are rather practical. Adhering entirely to the GN. Nevertheless, their wide lip around the rim gives them the appearance of a cafeteria tray cast in porcelain. In an attempt to create a moment of interest Schönwald created the platters to be asymmetrically, this gives the platters directionality. A feature impractical for the caterer, that is now bound to set them up in a specific manner.

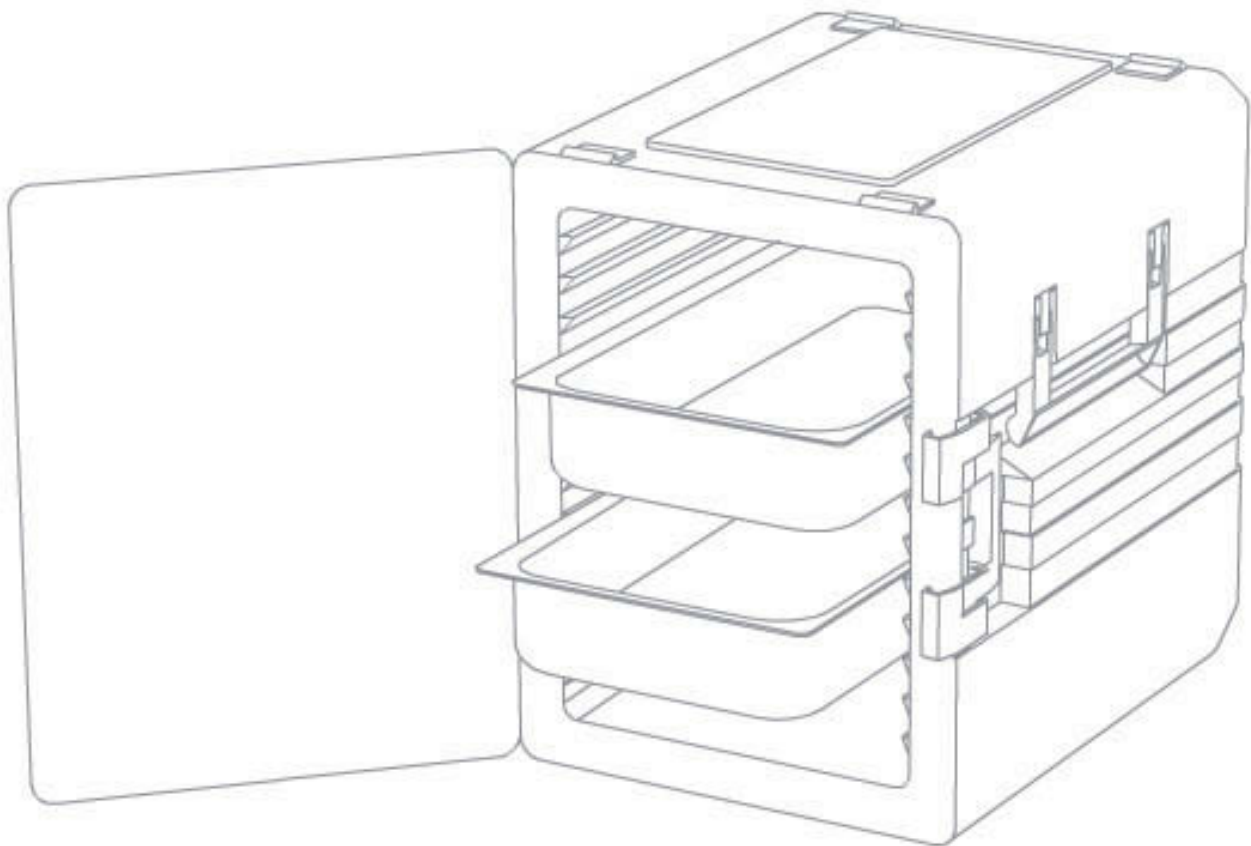


Image 31

The Scenario GN on the other hand is very successful in creating a spectacle. Especially the small Fingerfood bowls challenge the regular interaction with the catered buffet, by inviting the guest to take a small bowls as supposed to a few spoons.



Image 32



Size:(L)636mm x (W)498mm x (H)560mm

Weight: 16,4 Kg

Temperature range: -20 C to +250 C

Figure 13

The thermo box is used in the catering exclusively for food transportation. Its inside dimensions are formed according to the Gastronomic Norm. Currently it is available in three styles: polystyrene, plastic, and stainless steel.



Image 33

Being able to carry the Thermo Boxes is a vital aspect of their design. It must be possible to carry them up to two people at the time.

Transportation of warm and cold food:
In catering it is important that cold food stays cold and hot food hot. Hence Biokraftwerk uses the styrofoam containers above. The image above, is the alternative, Thermo Boxes in plastic or stainless steel. The styrofoam boxes might be cheaper, however they do lack functionality. As Mrs. Mandratich explains “ Proper Thermo Boxes are our next big investment.”



Image 34



This image highlights the need for at least one or potentially more places on the moving box to label its content. This feature saves a lot of confusion, time, and energy. Especially at larger events, or days where multiple events occur, since it allows the staff to communicate simply through the box.





Not all items are transported in the Thermoboxes. Cutlery, plates and other odds and ends are transported separately in Euro Containers. So ideally the transportation system corresponds with the Euro Container Norm as well as the Gastronomic Norm.



Image 36

Defining aspects in the transportation of foodstuffs are hygiene, compatibility with the overall system and temperature control. Secondary factors are mobility (how well they can be carried and rolled), longevity, and flexibility in use. The aesthetic appearance of the Boxes is not of concern, as Mrs.Mandratich explains:“they (the guests) never see them, and even if they would, most people don’t recognize the food till its on the table.” (Interview with Mrs.Mandratich, 5.2.2011)

Types of Material

The Thermo Boxes existent on the market today are generally made of three different types of material; Polystyrene, Plastic, and Stainless Steel.



Image 37

Functionally:

- + Material is very lightweight
- Material dents and scratches easily
- Available in only a limited number of colors



Image 38

Functionally:

- + Material does not dent or scratch easily
- + Material is available in many different colors
- Material weight is considerably heavy



Image 39

Functionally:

- + Very robust
- + Material is coherent with that found in a professional kitchen
- Very heavy

Types of Opening Mechanisms

Thermo Boxes are available with a variety of different opening mechanism. Each has advantages and disadvantages for the Caterer in packing and unpacking the foodstuffs.



Image 40

Functionally:

- + Quick visual clues on content
- Difficult to load/unload
- Could not be opened when stacked
- Serving tools heat up



Image 41

Functionally:

- + Easy to load
- + Simple to check content
- + Could be opened while stacked



Image 42

Functionally:

- + Full access to interior, due to lack of door
- + Could be opened while stacked
- Door can be lost

Conclusions of Analysis and Case Study

As the analysis of the catered event, the catering tools, and the different user groups is concluded the following key point emerge and have to be accepted as foundation for further design work.

- Catering is the staging of an event
- At the center of this event stands the food
- The tools used in this event silently accompany the event, but are as essential as the food to its success
- The process of food production will only be periferally considered in this thesis, since it is allready a streamlined process and needs no further support from the stand point of design
- The catering tools designed in this thesis are especially greared to enhance teh stages of workflow for the delivery and presentation of food

Further the information collected from the various interviews with user groups and literature suggests that the catering equipment designed in this thesis, has to fulfill two underlying functions in order to succeed in its aim to appeal to both guest and caterer. On the one hand it needs to function on a practical level, achieving a high level of utility. On the other hand it needs to be aesthetically pleasing, in order to achieve a high rate of user acceptance. The graph to the right positions the future design in comparison to other products analyzed in this thesis.

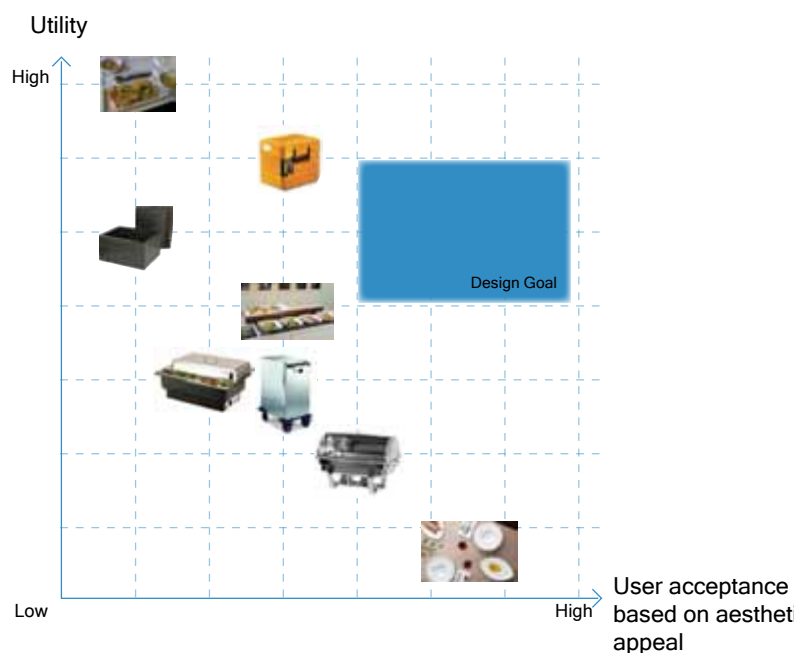


Figure 14

As the workflow analysis has determined which tools (tableware, server/display, and transportation) will be redesigned in order to improve the system, the following conclusion, will establish a list of requirements for each of these items. They have been divided into Must have Functions and Should have Functions, in order to establish a hierarchy.



Image 43

Chafing Dish Requirements

Must have Functions:

- Must speak the same product language as the tableware and platters
- Must be stackable
- Must adhere to a elegant form language

Should have Functions:

- Should reduce number of elements in the product
- Should simplify exchanging of Sekko (refill of food)
- Should have space for Serving Tools
- Should prevent hot water spills
- Should have neater solution for cable of Electric Heating Element
- Should have a controlled motion when opening/closing lid
- Should be able to keep food hot or cold



Image 44

Platters Requirements

Must have Functions:

- Must adhere to the Gastronomic Norm
- Must adhere to a elegant form language
- Must speak the same product language as the chafing dish and the tableware

Should have Functions:

- Should be adaptable to different settings/styles
- Should allow all manner of serving styles (with lid without lid)
- Should be compatible with chafing dish
- Should be stackable
- Should be easy to clean
- Should be easy to transport



Image 45

Tableware Requirements

Must have Functions:

- Must adhere to the Gastronomic Norm
- Must adhere to a elegant form language
- Must speak the same product language as the chafing dish and platters

Should have Functions:

- Should be as versatile as its competitors
- Should be adaptable to different settings/styles
- Should allow all manner of serving styles (Buffet, Cocktail Reception, and Sit Down Dinner)
- Should be stackable
- Should be easy to clean
- Should be easy to transport



Image 46

Transportation Unit Requirements

Must have Functions:

- Must adhere to the Gastronomic Norm at least on the interior
- Must be compatible with all items designed in the system
- Must keep food warm or respectively cold

Should have Functions:

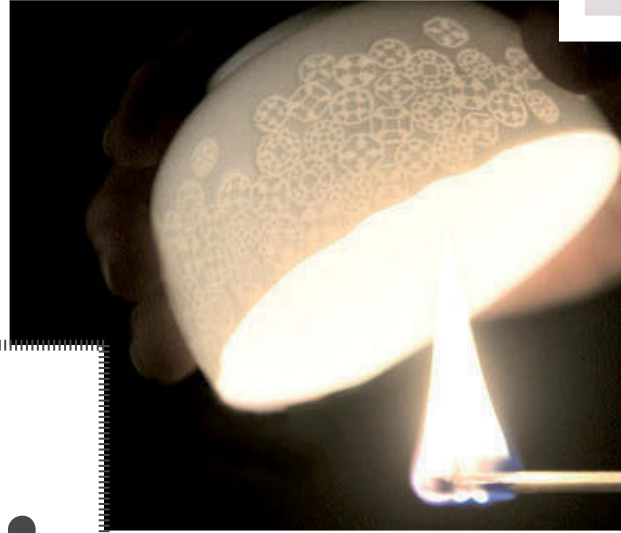
- Should be as versatile as its competitors
- Should adhere to an elegant form language
- Should be rollable and carryable
- Should be compatible with other storage systems
- Should be stackable
- Should be easy to clean
- Should be easy to transport

The design process undergone in this thesis was rather complex not due to a overly complicated topic. But rather due to the number of objects involved in it. Throughout the process, it was essential, to consider the uniformity of the design outcome, as well as fulfilling a number of functional requirements, which in the individual objects is quite diverse. For some objects, such as the storage unit, the functional requirements nearly outweighed the formal ones, while in others, such as the tableware, the formal requirements were more important than the functional ones.

In light of this difficulty the design process was conducted for three of the four tools seperatly, but along side eachother. The tableware and the platters were in this case created out of the same design process. As they should be very similar in style and handling, here they are only differentiated by size.

This approach in the design process lead to a very lengthy development phase, which leads to the unusual structure of this document. In which the design process will not be depicted completely. Rather it seemed prudent to illustrate an abreviated version of the process undergone for the development of each tool.

The chapter on product language following this one, can be understood as the second part of the design process, since in it the Offenbach Theory of Product Language is applied to the tools as a product family. In this chapter the theroretical framework is ones more explained briefly and then put in context of the tools designed, Though it is a different chapter it was an important step to fulfill in order to arrive at the final prototypes presented in chapter six (final product). Here the entire product system is introduced and all features of the tools will be explained.



2 *





Moodboard

4.2

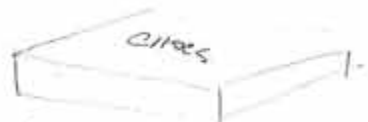
The thought behind this collection of images, is to carry the impression of simplicity while still keeping a slight appearance of uniqueness. At first glance it should give the impression of known items. However a second level lies in wait to be explored. Similarly to looking at the button “KEEP IT TIDY” the word Britain appears. Simultaneously this slogan is a reminder to myself, to focus on the essence and not overcomplicate forms and shapes. Revealing something hidden as the bowl which in the light of a match reveals a pattern. Just like this patterns quietly emerge to the users eye, the design solution should give the impression of a holistically thought through interaction. Silently and without much force, should this system envelope the users actions, by supporting him and occasionally helping him out. The user, both caterer and guest alike that interacts with this system should almost be surprised by the easy and pleasant manner in which he/she will interact with this new system.

POSITIVE
EMOTIONS OF SURPRISE / ANTICIPATION

"I WANT -
 LOOK UP
 I FEEL
 DISTRACT
 ALSO I WANT
 INDIVIDUAL"



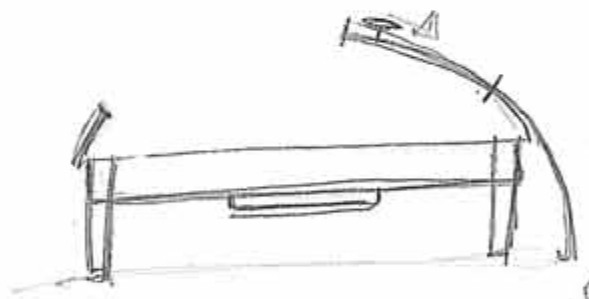
PRESENT



BOOK OF CHOCOLATES



LOOKING IN FRIDGE



WHAT PEOPLE LIKE ABOUT COMING TO RESTAURANTS?

- SPECIAL TREATMENT / SERVICE
- THEY FEEL LIKE THEY ARE THE CENTER OF ATTENTION
- THE NICENESS OF EVERYTHING
 ↳ THE SPECIALTY OF THE DISPLAY & OF THE MANNER IN WHICH THE FOOD IS DISPLAYED
- THE EXCLUSIVITY OF THINGS
 ↳ A LOT TO DO WITH TOUCH.
 PICK IT THE WAY I WANT.

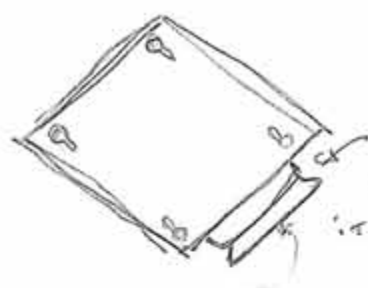


USE ERGONOMY WARE AND DON'T GLASS THE EYES, OR USE BOREALINE

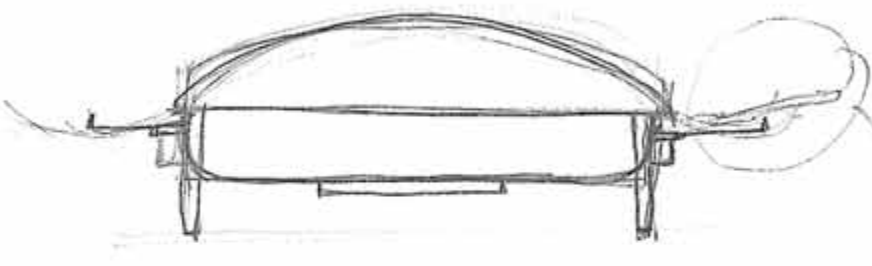
bring up

USE BOREALINE

THE SYSTEM IS
 CLEAN AND HONEST.
 MANY FEELS WOULD
 BE ON THE FOOD.
 TO THE CHEF TO
 BE THE BUCKET.

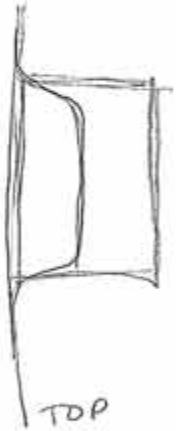


CHANGE THE
 DESIGN OF
 THE PLASTIC
 HANDLE SO THAT
 IT CAN STORE CUPS!



THE HANDLE.

LIKE A
 RAIN GUTTER



TOP



THE HANDLES ON
 THE SIDE CAN
 BE PLACES TO STORE
 THE PERKINS SPOONS.
 SIMPLY BY ENTERING
 THEM IN

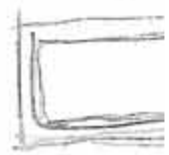


ANOTHER WAY TO
 OPEN FOOD TRAYS

BEFORE STATE



PLAY



Sketches

4.3

Initially the design process began with a stress test, in which a set time constraint was established, in this case three hours to come up with nine concepts.

The purpose of this was similar to that of a brainstorm to clear my head, and put everything on paper that came to mind.

Additionally to this I also thought this exercise to be more suited to my objective than a brainstorm. Since it in sketching the appearance of an object can not be ignored and it is a cohesive form language that is so vital for this project.

TURN 3 INTO 2
+ MANAGING TRANSPORT:

By TURNING PLATES
INTO ~~THE~~ TRIPLET ON NORMED
ITEMS THEY BECOME TRANSPORTABLE
TOGETHER WITH THE KEYS



CHAIRING



~~PLATE~~



PLATE

PLATES



GLASSES ETC.



ALL ASPECT OF PLATES
AND BOWLS CAN BE
STACKED ON THE LONG
PLATE THAT FITS THE
CHAIRING BIRTH.

CUTLERY

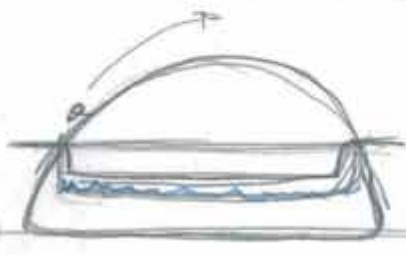
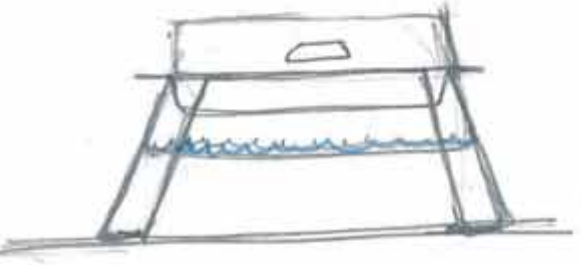


Lip will LOCATE
SMALLER BOWLS
ON LARGE PLATE



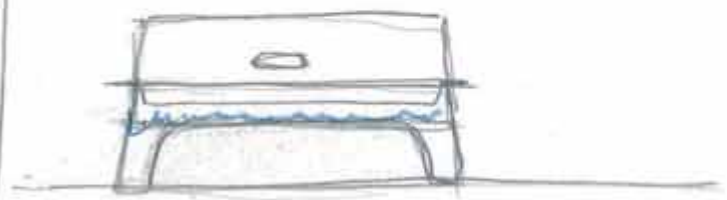
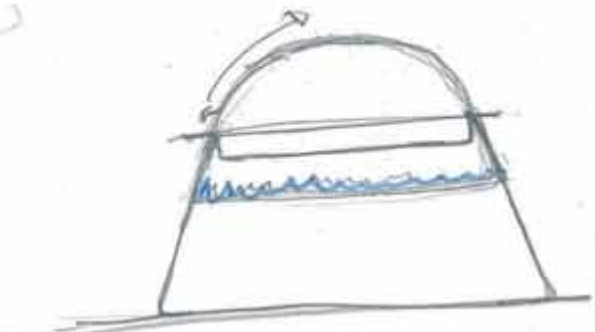
CHAFFING 1.

CHAFFING 2.



FRONT.

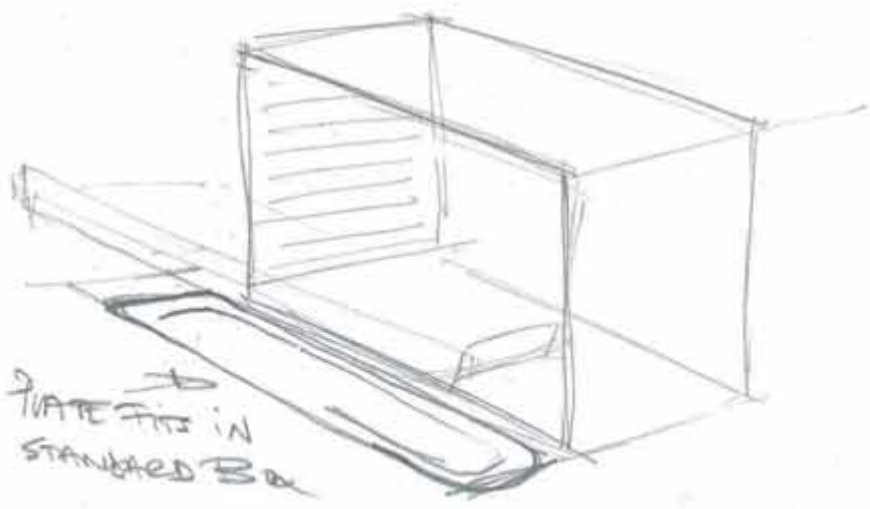
SIDE.



SIDE

FRONT.

STORAGE BOX.



→
LID FITS IN
STANDARD BOX

According to the workflow analysis, conducted earlier, it was prudent to begin with the storage unit and continuing then with tableware/plate and chafing dish. As mentioned earlier, the storage unit is the tools that ties the other tools together by imposing functional parameter on them. In this design process it was more important than in the others to adhere to the requirements established in the analysis.

In order to keep all aspects in plain sight the design process for the storage unit was designed as part of the overall transport system.

Designing a transport system

Based on the mental model developed on page 32, the following several concepts were developed and two of which were chosen to be displayed here. These two were integrated into the final design solution.

When designing a this transportation system two key points were considered:

- modifying the means and experience of packing
- modifying the method of moving the packed system

Concept: Victorian Trunk



Image 49

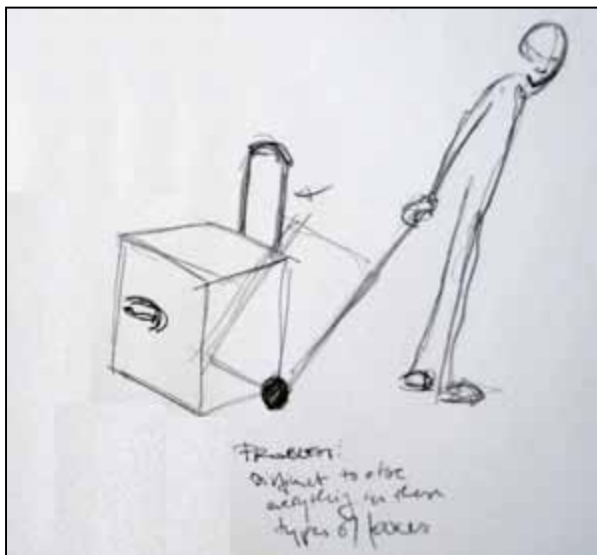


Image 50

The first concept is based on the notion of a Victorian Trunk. These trunks, were used as suitcases. However, they functioned much more along the lines of a mobile closet. This concept was to act in a similar way.

All tools would have to fit into this trunk. Ideally the interior of the trunk would be set up similarly to the shelves found in a professional kitchen, since it would ensure compatibility. In order to achieve this for the plates a sheet was developed that had cut outs in which the smaller plates and bowls could nest. As shown in the image below.



Image 51

Concept: Bollerwagen



Image 52



Image 53

The second concept is based on the idea of a Bollerwagen, a cart or waggon used to transport hay from the fields to the farms. These carts were then later adapted for children as pull carts. In this concept the tools designed for the system all have to stack or fit into one another like a puzzle, while the cart acts as a platform with wheels.

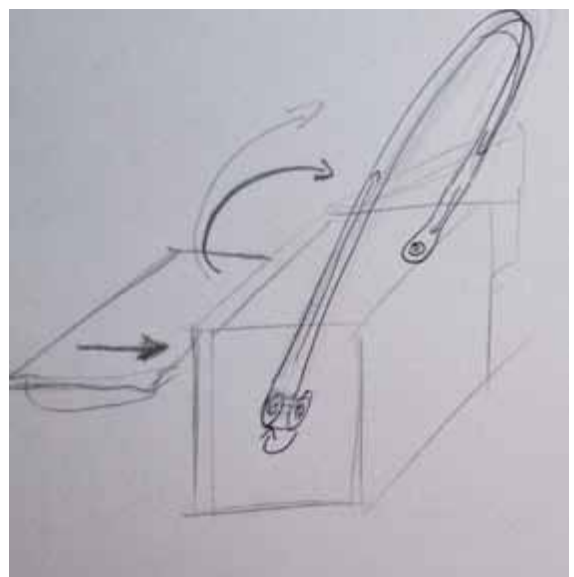


Image 54

Concept: Drawer



Image 55

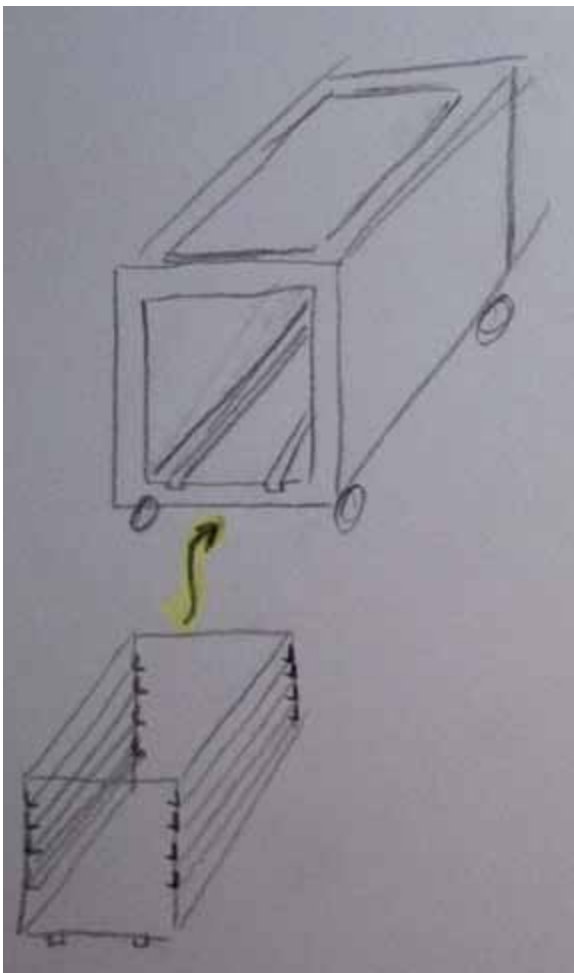


Image 56

This concept essentially changes the packing process from placing everything in the storage unit. Rather, all tools are collected into a shelf, similar to the type of shelving found in professional kitchens. This shelf is then slid into the storage unit like a drawer slides into a dresser.

In conjunction with this concept, the idea of collapsible wheels was considered. By flipping up the handles the wheels, which are stored in between the walls of the storage unit are released and appear. This idea was however disregarded since it is mechanically too complicated, and would probably be very cumbersome to repair, once broken.

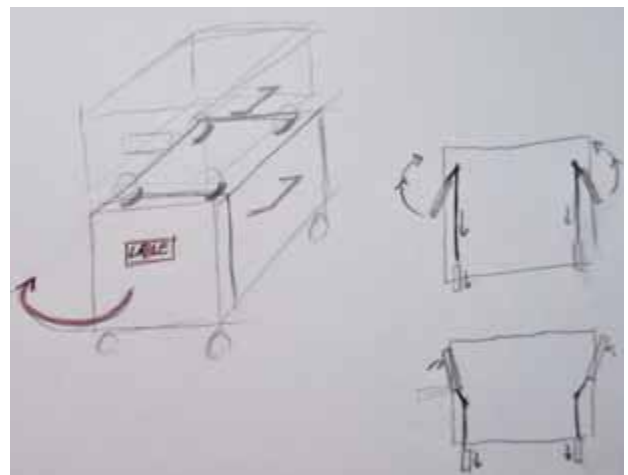
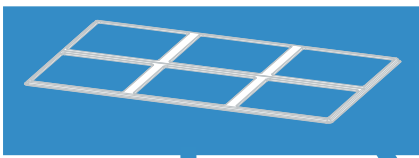


Image 57

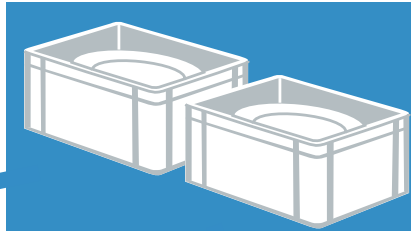
After considering the positive aspects of each of these concepts and the issues arising from it, a combination of two of the three concepts was chosen to inform the final product. The concept Victorian Trunk is promising for its unique manner to store plates in the storage unit. However, it seems unfeasible to want to fit every tool into one box, it would also create problems with the weight to be carried and moved. Aspects of the Bollerwagen concept were very compatible with the positive points identified in Trunk Concept. The Bollerwagen concept was positive in that it created a system that could grow or shrink according to the amount of equipment needed. By making all tools fit into each other or stack on top of each other this system is highly flexible. Hence it is the foundation for the final design development. To which other standardized containers are introduced as well.

In the final design the storage unit remains to be the heart of the transportation system. It stores the food, However it is compatible with the chafing dish. In addition a new set of containers is introduced to the system. They follow the Euro Norm, and are easily stacked on top or beneath the storage unit. This entirely stackable system is completed with a trolley as a base. The graphic on the right puts the different tools in the system in relation to each other.

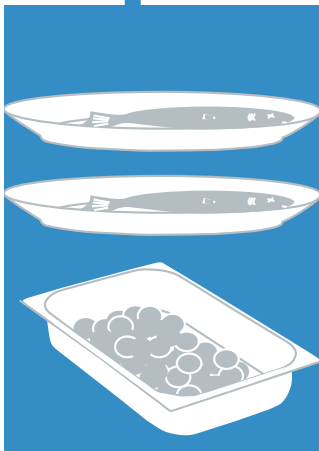
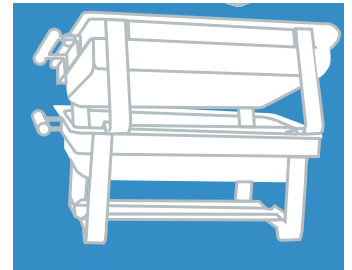
Tableware is stored in Euro Norm Containers or with the aid of the die cut sheet, they can be laid out and slide into the storage unit



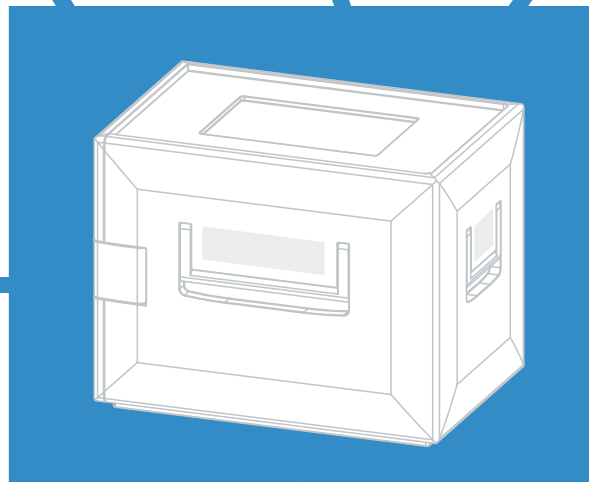
Additional equipment is stored in Euro Norm Containers



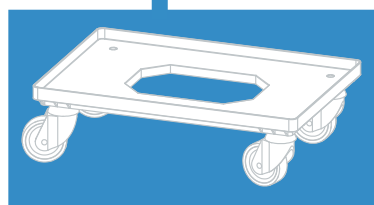
Chafing dish is designed to stack on top of the Storage Unit



Food is stored in Storage Unit



Storage Unit has to be compatible, in terms of surface design with all of these items in order for the system to function well.



Trolley aids mobility, but remains detachable

Figure 15



Image 58

When designing the tableware the platters considered part of the same design response, since their formal language and function lie in close proximity to that of a plate.

By choosing to adhere to the Gastronomic Norm even when designing the tableware the system gains on two grounds. One the Caterer can much easier integrate it into his existing system. He would save time in preparation work for an event. Currently it is not possible to set the plates before arriving at an event. Which means, that if plates are to be set, this has to happen on location, under conditions that are often cumbersome to layout a large number of plates and prepare them for serving. Especially for the platters this rings true, often the decorations and adornments to them have to be added after arriving on location.

When adhering to the Gastronomic Norm, this can be simplified, the plates and platters would simply fit into the existing storage boxes and could be prepared and laid out completely before even leaving the kitchen. Additionally the Gastronomic Norm has a distinct ratio, based on the golden ratio, this could be a advantage for defining a distinct style, compared to other tableware. This distinction would indeed be of interest to the Guest as well. Since he/she would suddenly be confronted with rectangular plates contrary to the traditional round ones. Additionally, the system would be more integrated. By allowing everything to adhere to the same ratios, it would unify the buffet landscape, which could improve the aesthetic experience.



Image 59

To better judge the sizes of the Gastronomic Norm as plates. Simple sheets of paper cut to size were laid out to represent plates. In setting up the arrangements various different types of table settings were tried, to understand how the surface interacts with the other utensils.

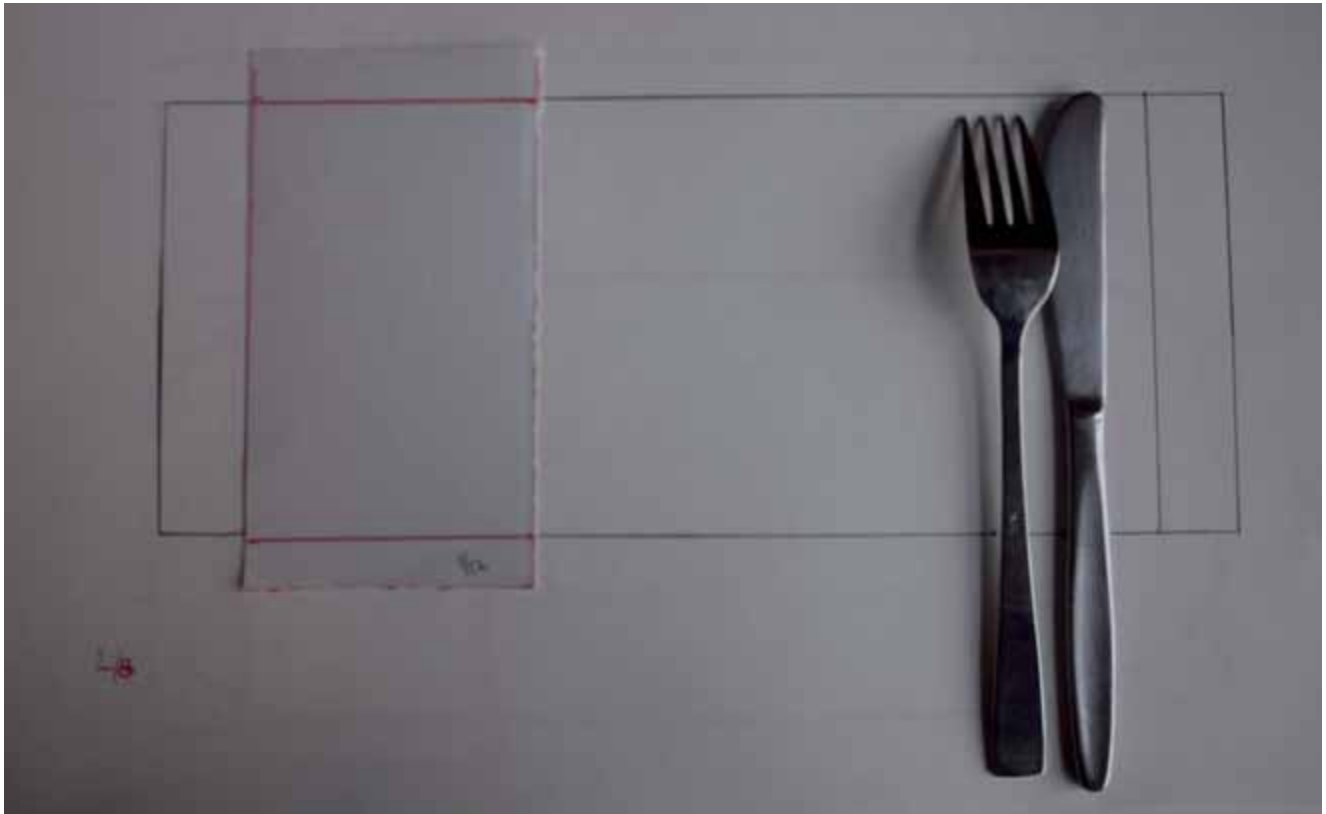


Image 60

Based on the analysis of the tableware collection Scenario^{GN} by Schönwald, a new type of interaction was insinuated through the “Fingerfood Plates” (Schönwald,2010). By serving small portions on little plates that are then picked by the Guest, instead of choosing food from a platter, the feeling of a made up restaurant plate is emulated. As a survey done by Alan Warde and Lydia Martens describes that, one drawback felt by guests eating from a buffet was that it was not felt to be such a treat since, the service was not set up to work according to their individual needs. (Eating Out, 2000). By enabling the Caterer to serve individually laid out plates, this feeling of individuality might return.



Image 61

First cardboard and paper models, of small plate fitting into larger one. Note the notches for the cutlery. Helping to secure it in place, allowing the guest to easily carry it from the buffet to his/her seat. These can appear in some plates available in this collection. Acting as special Indicator Functions.

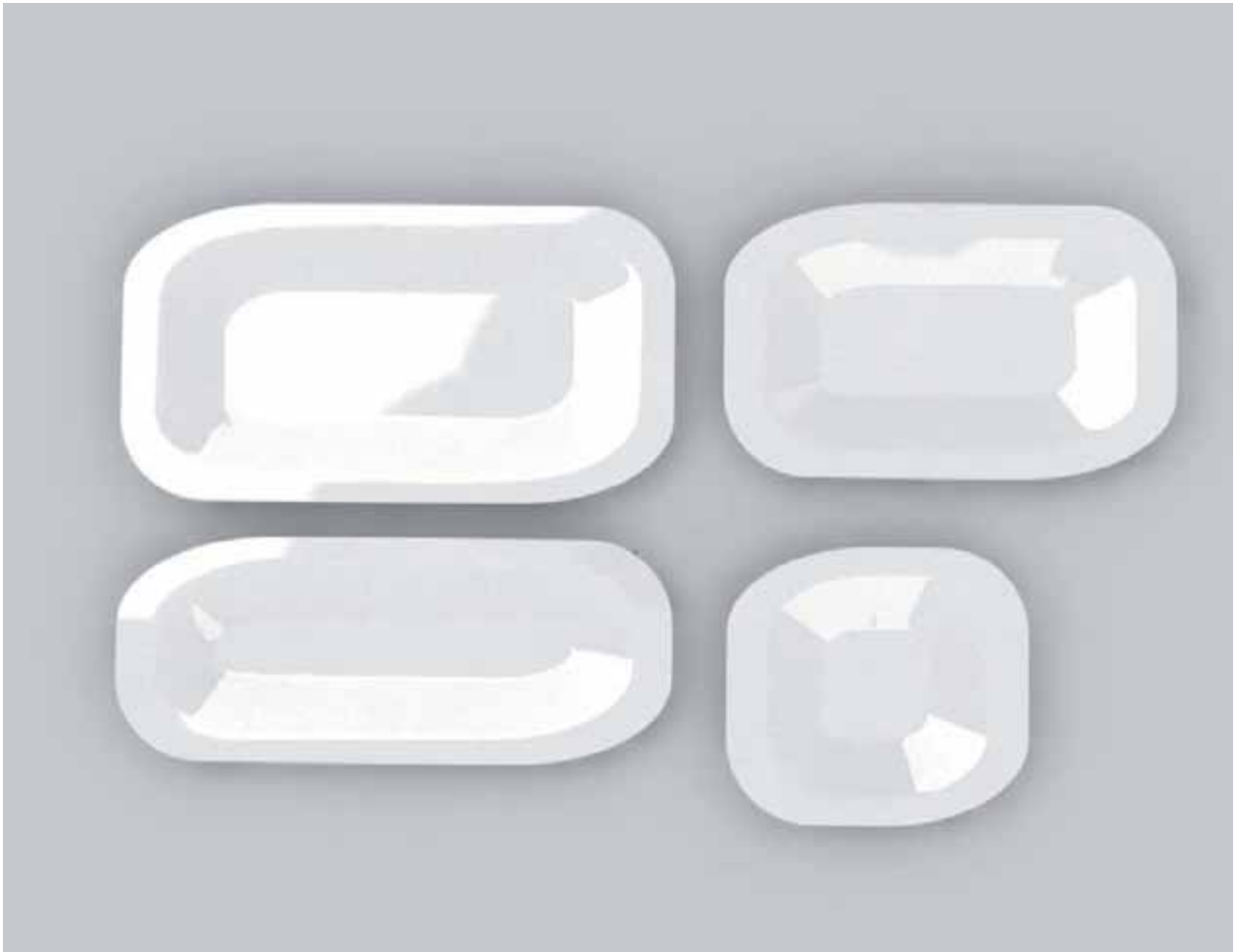


Image 62

Though it is imperative that the tableware adheres to the dimensions of the Gastronomic Norm, it should not communicate utility on an aesthetic level. Which is communicated in the wide rim. As described in the Moodboard, the entire system should appear to be something different. As such it is essential, that it gives an impression of elegance and ease, while actually upholding all of the industries standards.

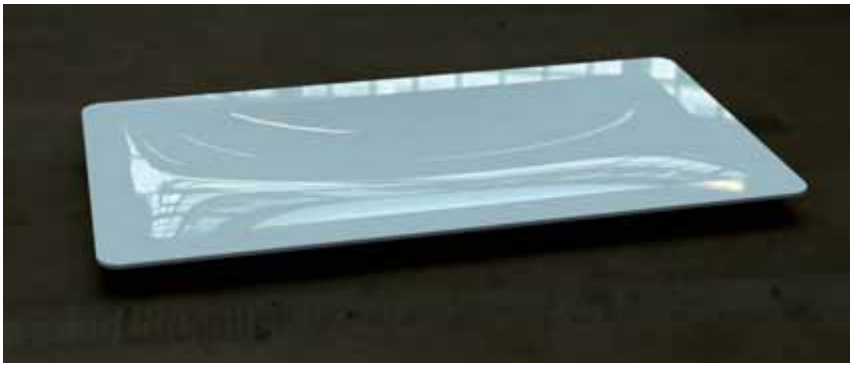


Image 63

In the two sketches above, a new technique was used to create the surface of the plate. By constructing essentially a compound mesh, the transition to the rim has become a lot more fluid. However, the rim, communicates a utility that diminishes a certain form of elegance. Never the less its presence is dictated by the Gastronomic Norm, without it the plate would not slide onto all of the shelves and rails as it is required to.

Seen below is a more desirable outcome. In this sketch the porcelain gives a floating, light appearance that so often makes it elegant. Looking at traditional porcelain articles, this is indeed their quality. The material has such strength and simultaneously displaying a fragility that is held in high aesthetic regard in Europe and indeed other places in the world.

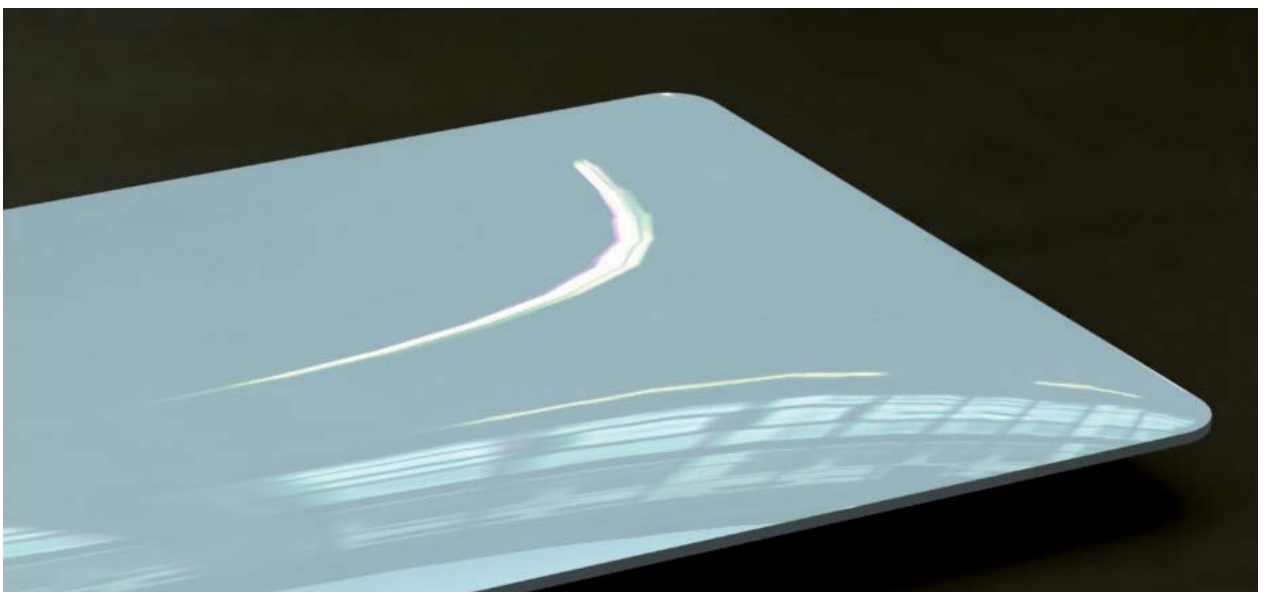
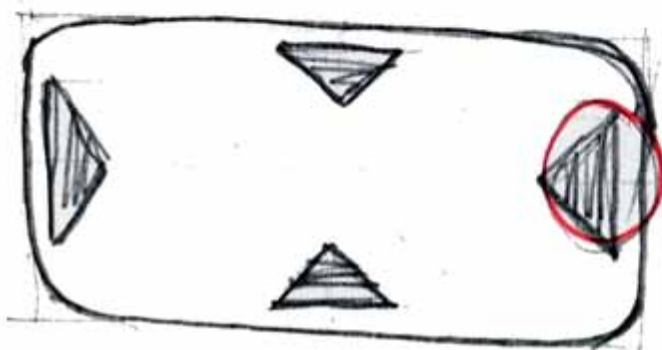


Image 64

WHY NOT EXCHANGE THE
STOPPING RIM FOR A CUT OUT?



X-SECTION.

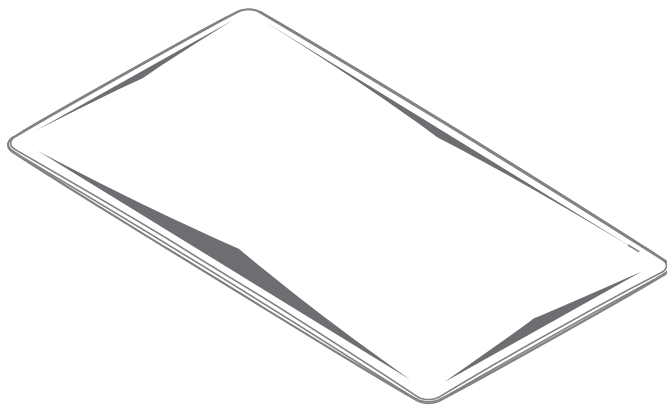


CUT OUT VIEWED
FROM BELOW.

FROM BELOW.

Image 65

In order to achieve the lightness of the design that does not require a rim. A solution was sought to undercut the plate. The result is interesting since it allows the tableware to adhere to the Gastronomic Norm while speaking a formal language that is indifferent to it.



View from below



View from short side

Figure 16

The cuts would be applied to all four sides of the plate, in order to ensure flexibility of handling. Following this a first prototype was produced on the CNC machine. This process allowed high precision in production, creating prototypes that were subsequently taken for testing to Dyreparken, Kristiansand.

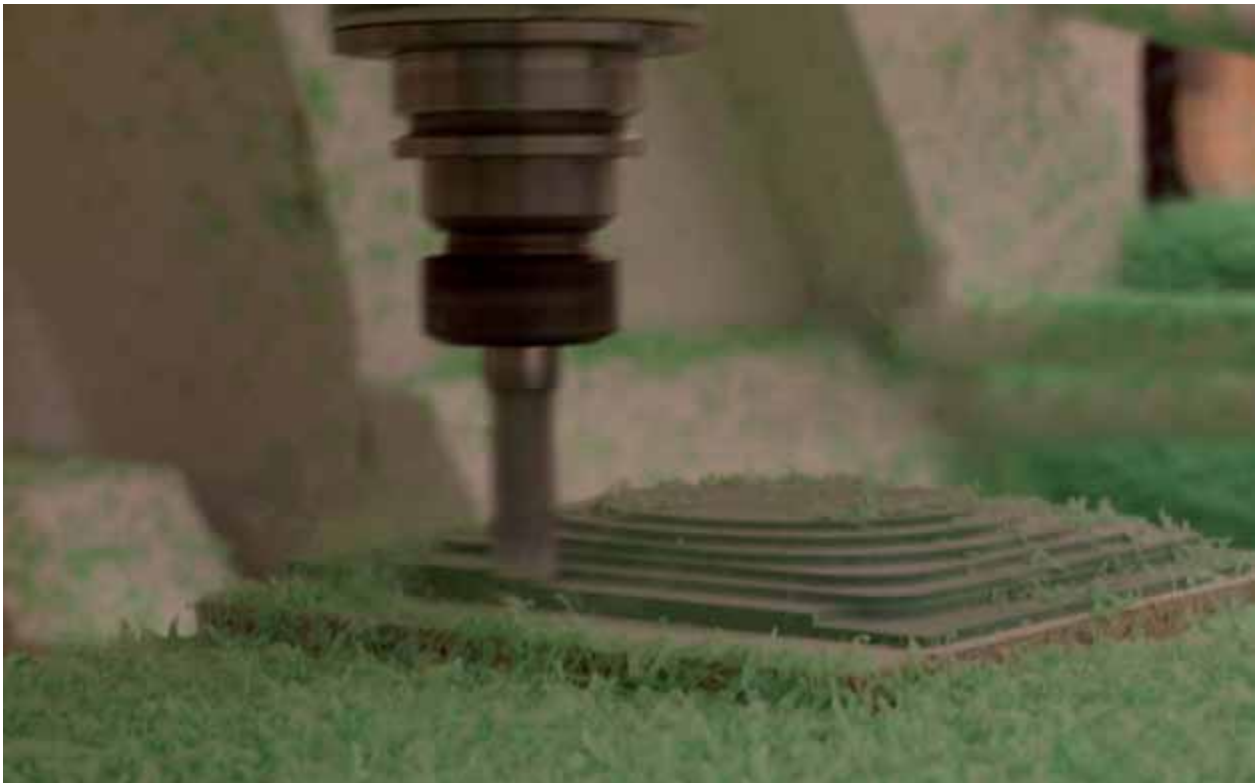


Image 66



Image 67

The image above was taken at Dyreparken, Kristiansand. Head Chef Oliver Will was very intrigued by the possibilities, both in terms of function but also with the shape. “They give a unique look to the food, even something as mundane as roast beef with beans and bacon looks different.” (Interview with Oliver Will, 16.04.2011)

The opportunities unfolding by adhering to the Gastronomic Norm were immediately clear to Oliver Will, suddenly the plates could be treated in a similar fashion to other equipment found in the professional kitchen. They can be slid in the oven, the fridge, or on a shelf. As depicted in the images below.

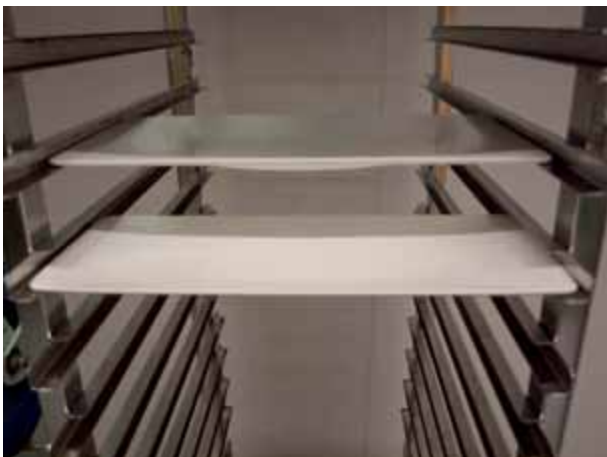


Image 68

After testing the plates in the kitchen, the following issues were identified:

- the cut out at the base of the plate was too shallow, allowing them to slide sideways
- the white chosen as paint, was too yellow, giving an unclean appearance
- and the bowls initially designed were too shallow

With this information, the final design was developed which and expanded onto a greater variety of plates, bowls and platters making it a versatile system.

In the Design Process each aspect was considered and solved. Since there was a variety of issues to be solved, one was tackled at the time, and only towards the end all the minor solutions were drawn together into a final design solution. Following this some of these processes are illustrated.

Simplify Exchanging of Sekko



As shown in the handling analysis of the chafing dish in chapter 3 placing or removing the sekko from the chafing dish is cumbersome.

Image 69

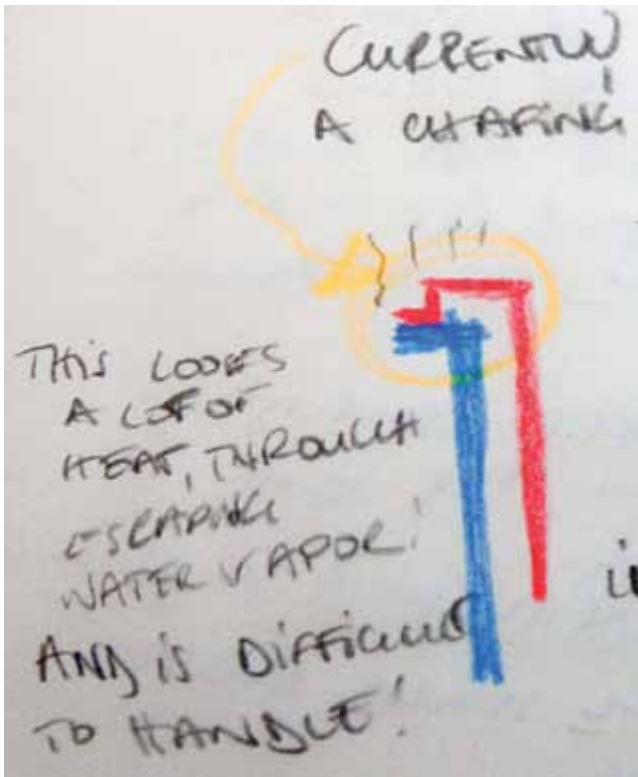


Image 70

The reason for this is the manner in which the Sekko is hanging in the Chafing Dish, which is illustrated in the simple sketch to the left. The current solution, has not only the draw back that it poses difficulties to exchange the Sekko, but also it furthers heat loss. Meaning the Chafing Dish can not keep the food warm as efficiently.

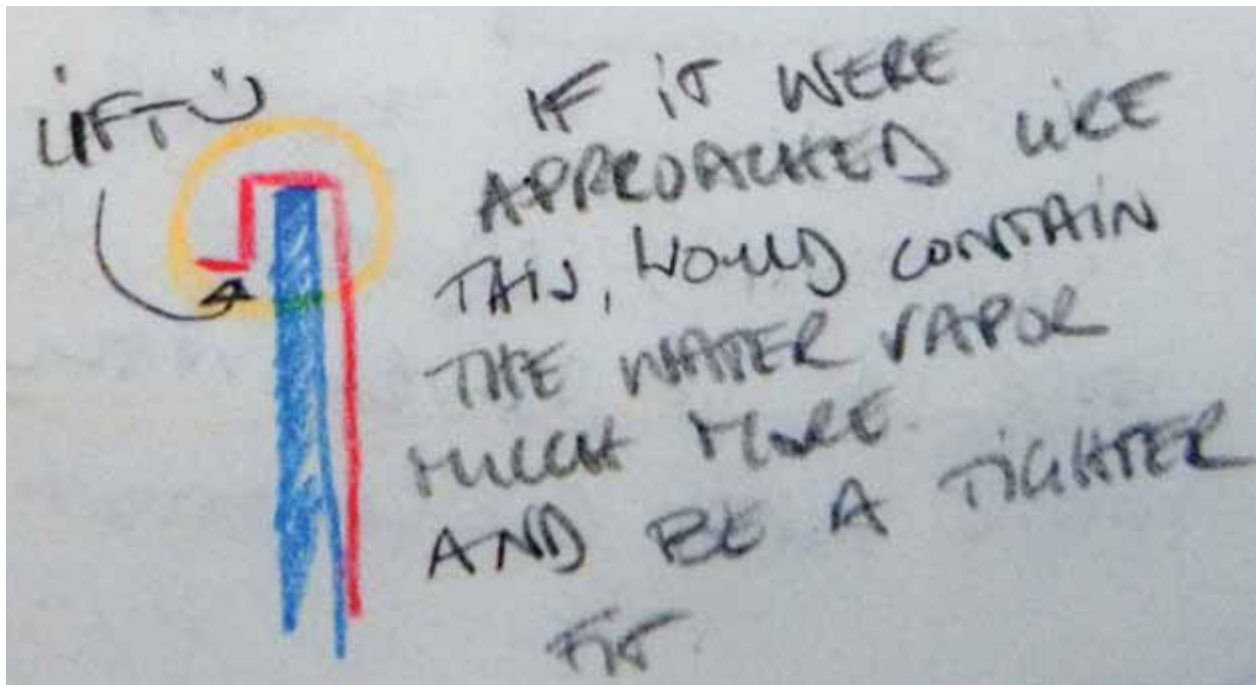


Image 71

If the Sekko were to hang in the Chafing Dish as shown in the sketch above, the Caterer could lift out the Sekko by the lip that would be floating outside of the Chafing Dish wall. By making it easier to lift out the Sekko, the food could be kept in the kitchen for longer and be stored under better conditions, hence be visually more appealing to the Guest. Additionally, the Caterer could place less food on the buffet, and rather refill it several times, making it easier to ensure fresh food even for Guests arriving at a later stage in the event.

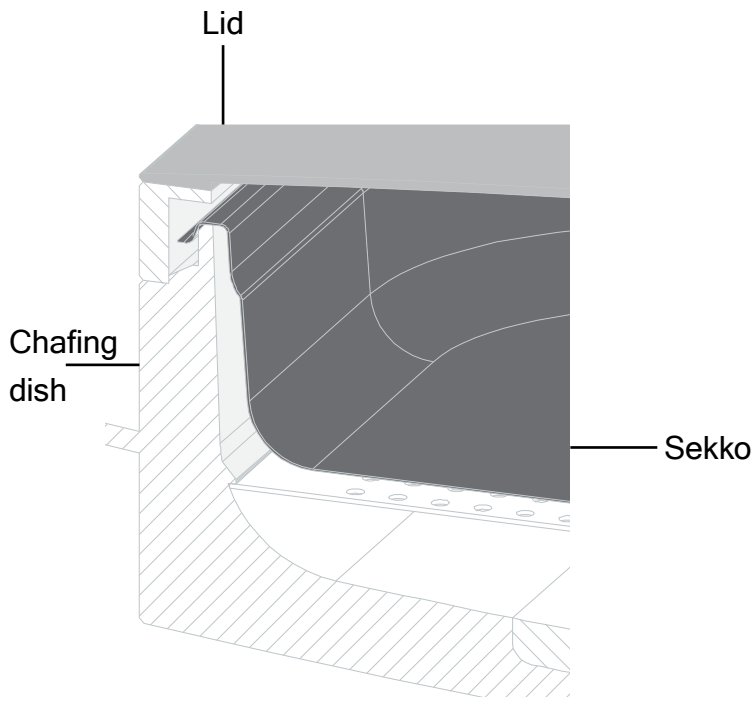


Figure 17

rendering of how sekko hangs in Chafer now.

In this sketch, the sekko is hanging of the edge of the chafing dish as proposed. Additionally, the lid was drawn in and leaves enough space for the sekko to be positioned in such a way that its flange is accessible to the caterer when he/she needs to exchange or remove the sekko. For the guest however, it is masked by the frame of the lid construction. Giving the overall appearance of a clean and compact design. The space created for the sekko to be in, is also large enough to host a ceramic or stainless steel platter. By enabling this, the chafing dish become much more versatile as a server and display tool. Especially since it can act as a cooling unit as well, simply by not filling it with hot water, but rather placing a 'cool cushion' at its center. This feature in combination with the use of platters instead of sekkos, gives the caterer the possibility of creating a new kind of display, where a type of dish, that requires cooling and is unpleasant to serve in a stainless steel container, now can be served on a ceramic surface, while still being temperature controlled. This could be especially usefull for desert buffet.

Improving Opening/Closing Motion in Lid



Image 72

As one Guest pointed out in the Interview: “The Lid always falls shut with a bang.” This was described as very unpleasant to him, since it draws too much attention. The reason behind this uncontrolled motion is the fact that the sliding mechanism rotates around a pivot. Allowing for a lot of play in the mechanism.

Initially the concept was to keep the lid in its current configuration, as a dome. Which was subsequently solved in the cardboard model, by exchanging the pivot point for a set of rails. Guiding the lid and creating enough resistance to not let it “fall shut”.

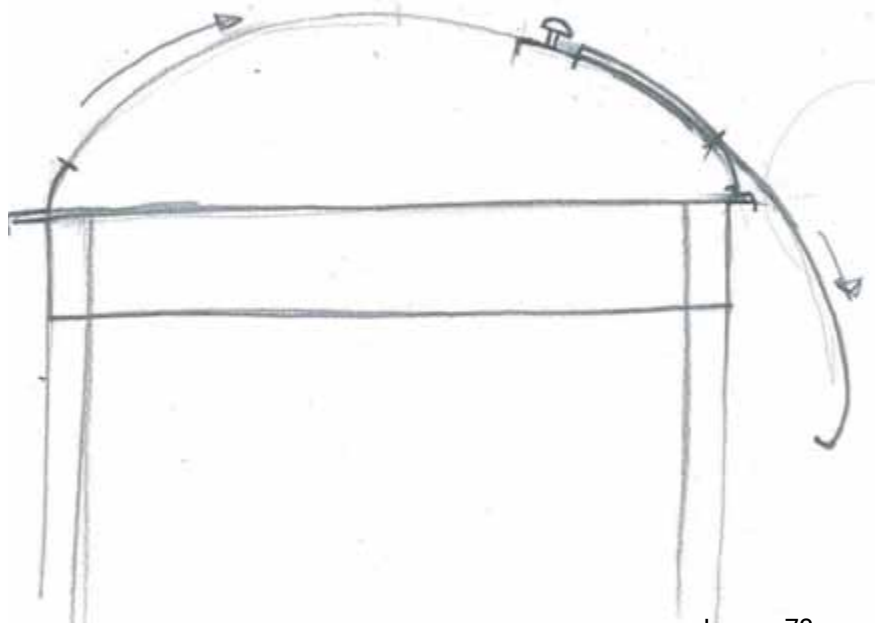


Image 73



Image 74

However, when considering the need to consolidate elements, as well as creating a cohesive form family this concept was abandoned. Rather the possibility of employing a spring loaded hinged lid was taken up. It has several advantages: First by choosing a hinged lid system, the height of the lid is considerably lower. Making the lid as a separate entity much easier to store. Secondly, by essentially folding the entire lid away from the food, the Guest has a better view of the food.

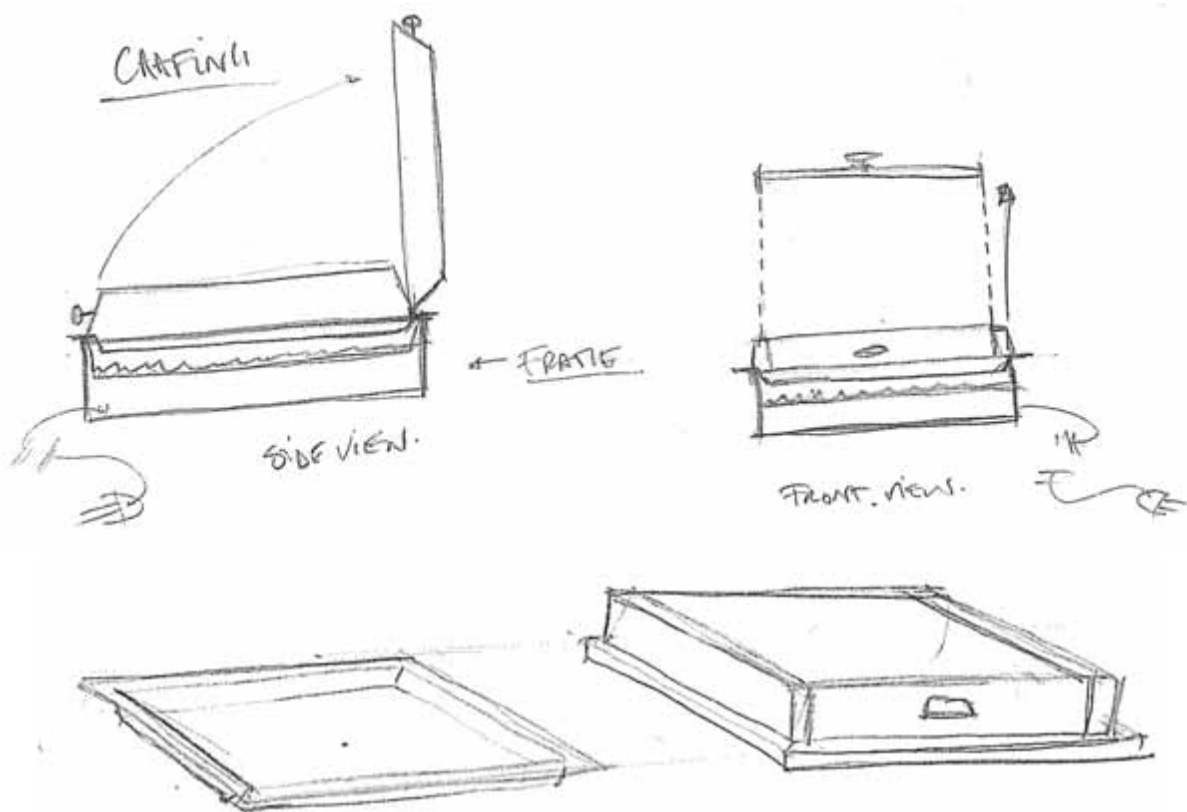


Image 75

Shown above are some initial sketches for the flat lid construction, followed by a sketch of the final design.

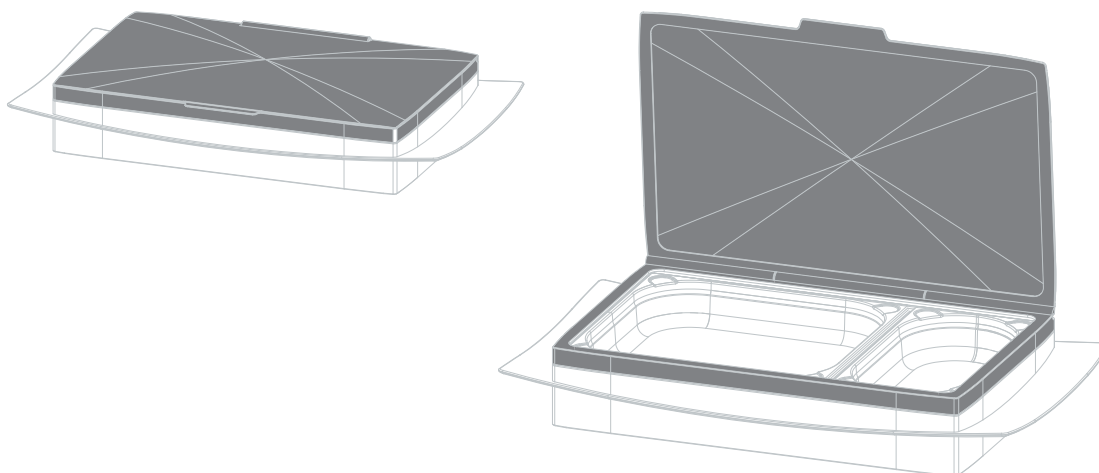


Figure 18

All of the other features not illustrated in the design process will be pointed out when the complete product system is introduced in the final chapter of this thesis. There were simply too many individual tools in the collection, and too many features and concepts considered to showcase them all in this thesis.

As the analysis illustrates, the caterer requires a high level of practical functionality in order to approve of the system, while the guest requires a distinct expression of style communicated to appreciate the system. Since the aim of this thesis is to satisfy both guest and caterer, this catering system needs to address both aspects in its design intervention. This experience is shaped on one hand through the practical functions of the tool. On the other hand a sensual function shapes this product experience. To better design this sensual function the Offenbach Theory of Product Language has been used as a theoretical framework to underpin the ideas in this thesis.

Figure 19

Formal Aesthetic Function

In her research paper on Design Semantics of Innovation Dagmar Steffen defines the Formal Aesthetic Functions as “the syntax or grammar of the design concept” (Steffen, p.2,2007) She continues explaining that these functions distinguishes two antagonistic principles: Order versus Complexity. In which she defines order as the ‘reduction of stimuli’ and complexity as the ‘addition of stimuli’ ; these might be texture, color, material, etc. (Steffen, p.2,2007) According to Rudolf Arnheim these two principles require balance. “Order and Complexity cannot exist without each other. Complexity without order produces confusion. Order without Complexity produces boredom” (Arnheim, p. 39, 1966)

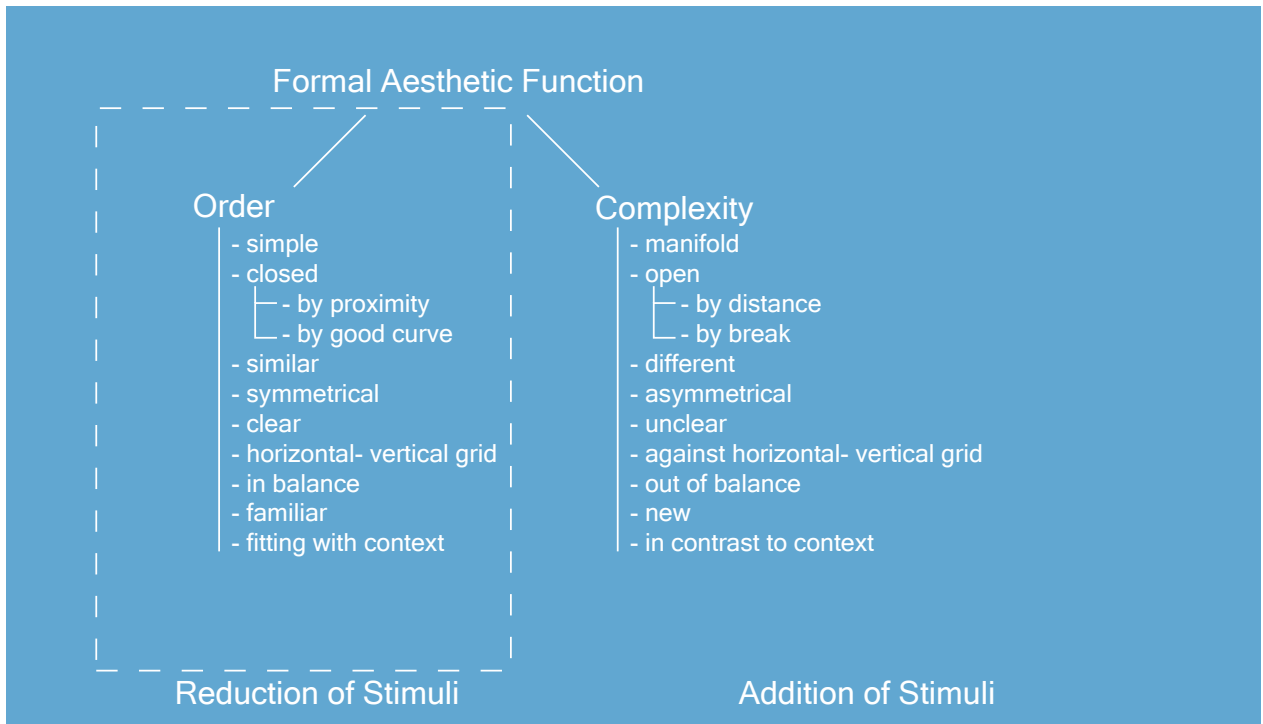


Figure 20

Based on the 11 Principles of Order and Complexity developed by Gros and Steffen (2000) a design approach was developed as follows:

In the design response the tableware and platters were purposefully placed deep within the realm of order ensuring the reduction of stimuli to be point where the balance was disturbed. Given the quote by Arnheim, this might appear to be an odd choice. However, the Experience of the tableware alone, is an incomplete one. In order to consider the plates, platters and bowls a complete product the food needs to be added to the situation. Only then is it a complete product in the context of the Catered Event. And it is the food that adds the needed complexity restoring the balance between order and complexity.



plate with food

Image 76



plate without food

Image 77

Indicator Functions

These type of functions directly relate to the product's intended use. Steffen points out that it often is the lack of indicator functions that lead to misuse of a product (Steffen, p.3, 2007). In this design process, it is necessary to point out that the indication of practical functions in the field of catering equipment are less important than in other fields. Since most people are acquainted with the practical function of, for example a plate. Still in the design of this tableware collection, attention should be given to an interplay between indicator and symbol functions. As Dagmar Steffen does in her paper on "Categorizing Product Meaning", where she demonstrates how for example "certain wind- and waterproofed fabrics and details such as hooded zippers, numerous big pockets etc. connote outdoor clothing, while festive dresses avoid such signs of functionality." (Steffen, p.77, 2009)

Similar concerns apply to the design of tableware. Indication of practical functions such as a wide rim, simultaneously indicates high utility and hence symbolizing a specific context of use (demonstrated with the TC 100 teapot). Contrary to the elaborate and odd teapot designed by the company Albert Stahl, which indicates only reduced practical functions, but rather creating a novelty item, which draws attention in which utility is futile.



Image 78



Image 79

Since this design solution aims to create catering equipment that is highly functional without losing elegance. That is why it was important to find an innovative solution to ensure the utility of the plate (adhering to GN) and symbolizing an elegant design aesthetic (rim is replaced by undercuts) An illustration is shown below, the image to the left, is an early rendering of the tableware designed in this project, while the image on the right shows the final models.

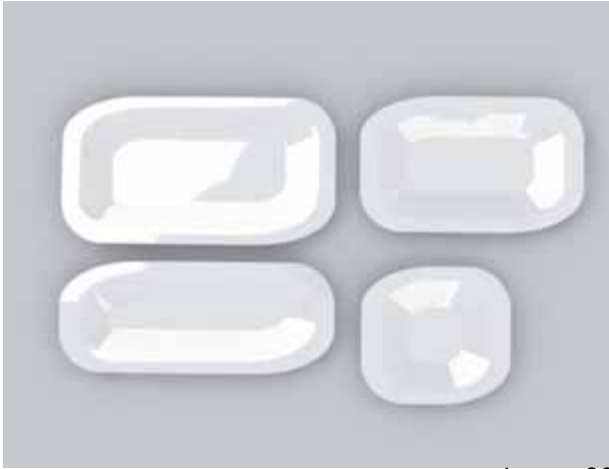


Image 80

first design



Image 81

photo of final design

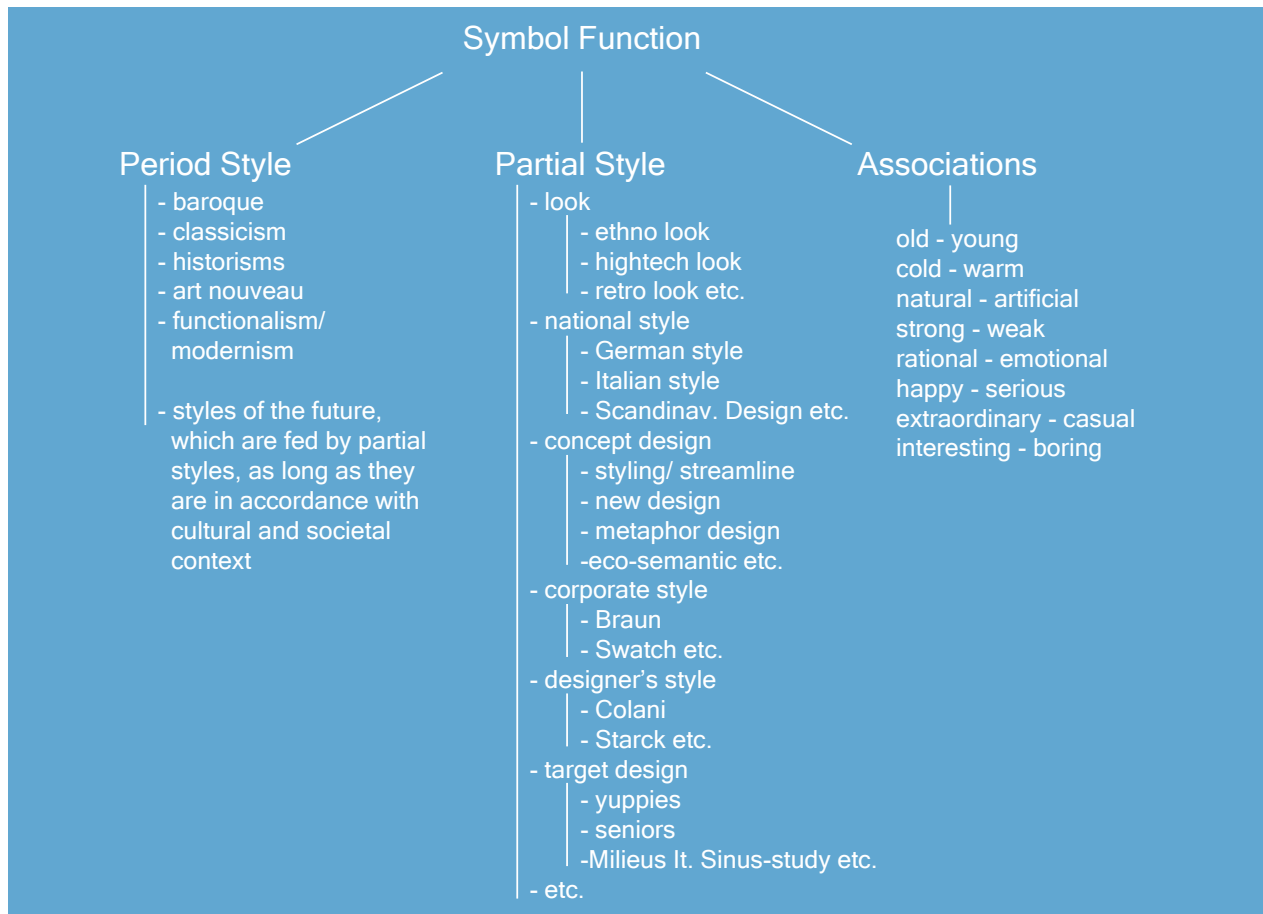


Figure 22

Symbol Functions

“Symbol Functions refer to conceptions and associations that to a person’s mind while contemplating an object: for example, technological, economical and ecological aspects. These are communicated through the means of, for example a period style or partial style”. (Steffen, p.4, 2007) Hence, for the entire catering system these Symbol Functions must be alike in order to fulfill the requirement of a cohesive form language. However, this can only apply to the period style. In which, the tools of the system will all convey conceptions of Minimalism. As defined by the Oxford English Dictionary as a term used to describe a trend in design and architecture where in the subject is reduced to its necessary elements. But the tableware and chafing dish will not shed all necessary ornament for a belief system or a design imperative, rather it will naturally become part of that style, since its use requires maximum adaptability to any given type of event. In light of this demand, the opportunity of introducing a partial style or association is purposefully left open. Since it might be a request to specifically design a partial style corresponding to the corporate style.

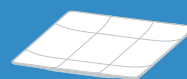
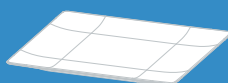
P O I S E^{GN}

P O I S E^{GN} is a Catering System that pleases both Guest and Caterer.
Its form and dimension grow from the Gastronomic Norm, giving it its unique look and making it a highly functional system that integrates seamlessly into any professional kitchen.
P O I S E^{GN} modest elegance makes an event out of every meal served.





Display Collection



GN 1/1

LxW: 530mmx325mm

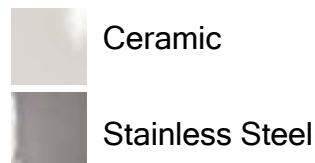
GN 2/3

LxW: 352mmx325mm

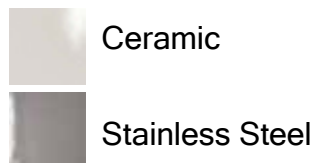
GN 1/2

LxW: 325mmx265mm

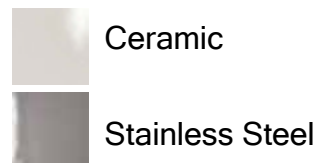
Available in material:



Available in material:



Available in material:



Tableware Collection



GN 1/3

LxW: 325mmx176mm

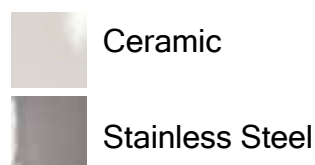
GN 2/8

LxW: 325mmx132mm

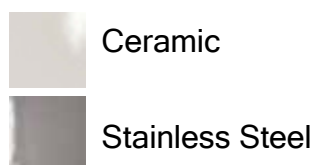
GN 1/4

LxW: 265mmx162mm

Available in material:



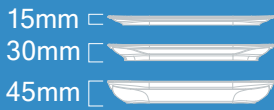
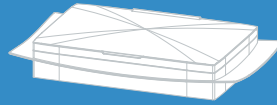
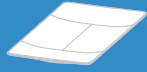
Available in material:



Available in material:



Chafing Dish



GN 1/3

LxW: 325mmx176mm

Available in material:



Ceramic



Stainless Steel

GN 1/1

LxWxH: 590mmx370mmx140mm

Voltage: 230V

Temperature range: -7C to +80C

Available in material:



Stainless Steel



Plastic



GN 1/6

LxW: 176mmx162mm

Available in material:



Ceramic

GN 1/9

LxW: 176mmx108mm

Available in material:



Ceramic

GN 1/6

LxW: 176mmx162mm

Cocktail edition

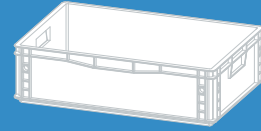
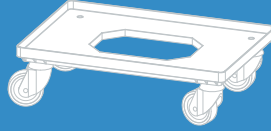
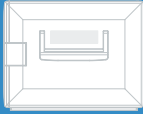
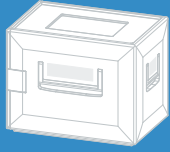
Available in material:



Ceramic

Figure 23

Storagesystem



GN 1/1

LxWxH:

630mmx430mmx480mm

Available in material:



Stainless Steel



Plastic



GN 2/3

LxW: 630mmx430mm

Available in material:



Stainless Steel



Plastic



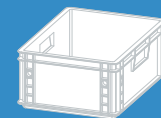
EN 1/1

LxW: 600mmx400mm

Available in material:



Plastic



EN 1/2

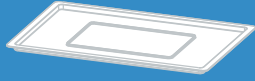
LxW: 265mmx162mm

Available in material:



Plastic





EN 1/1

LxW: 600mmx400mm

Available in material:



Plastic



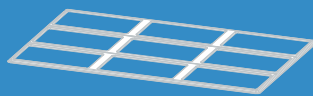
EN 1/2

LxW: 176mmx162mm

Available in material:



Plastic



GN 1/1

LxW: 530mmx325mm

Storage rack available for:

1/4, 1/6, 1/9

Available in material:



Stainless Steel



EN 1/1

LxW: 176mmx162mm

Cocktail edition

Available in material:



Plastic

Figure 24

The transportation system developed in connection to all the tools designed offers high flexibility for the caterer. Just as in the catered event itself, the system carries the food at its center. The thermo box stands at the core of this modular tower. It contains the food keeping it warm or cold as needed. The food itself can be stored either in a sekko, on a platter or on individual plates. Since all tools follow the Gastronomic Norm this is possible, that the smaller plates and bowls are nested into a special sheet, which makes them compatible with standardized 1/1GN interior of the Thermo box.

Atop of the box sits either a combination of Euro Norm containers, which are equipped with especially designed separators, to structure the smaller equipment carried within them, such as cutlery, plates, linen, extension cords or the like. These Euro Norm containers are also fitted with a lid that is designed to hold the chafing dish in place. Alternatively if there is no need for the Euro Norm containers, the chafing dish can be stacked directly on top of the thermo box. The entire system can be placed on a chassy, allowing it to roll. But since the connections between all these individual elements, is not fixed it is easy to switch back and forth between carrying individual elements and rolling the entire tower.

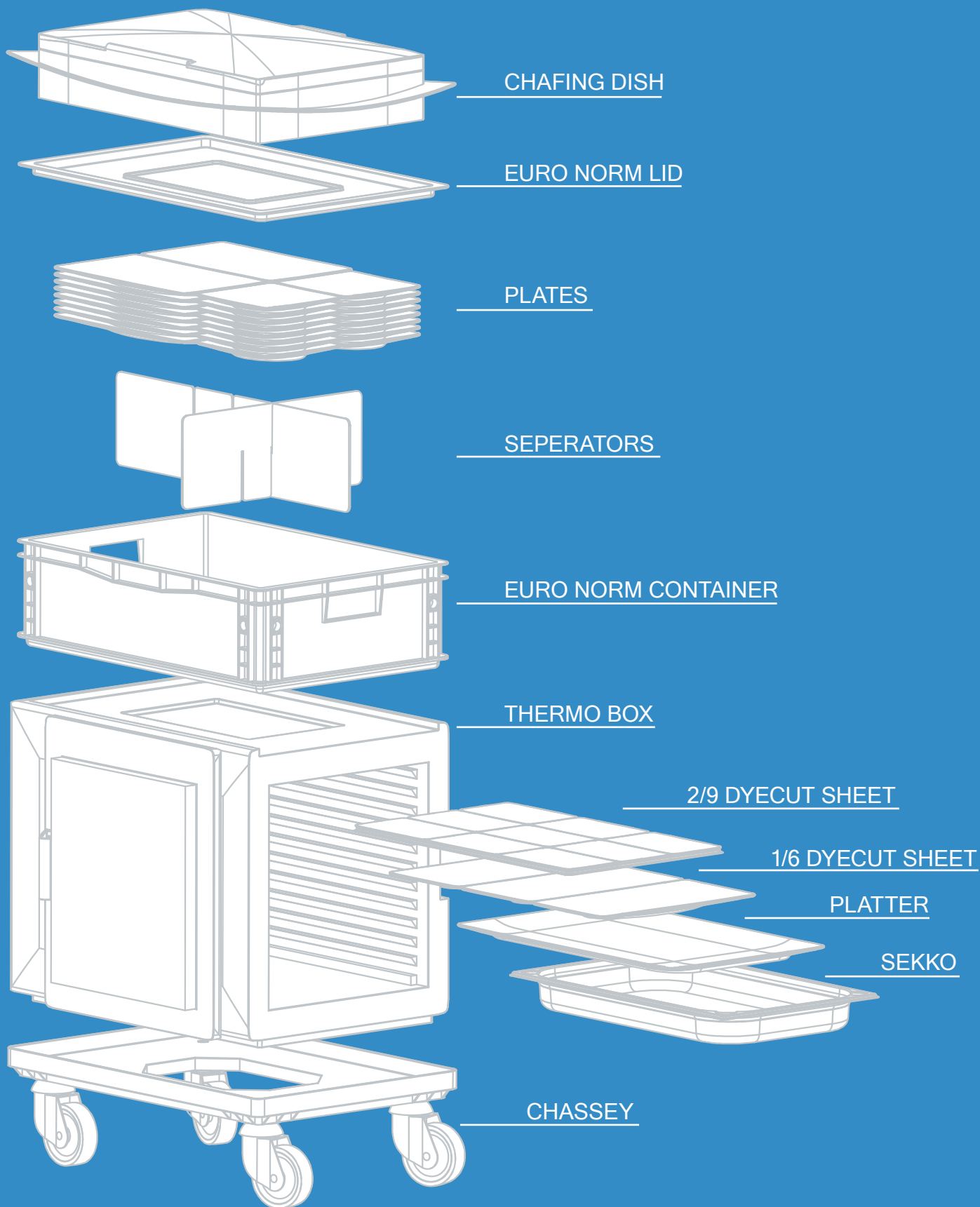
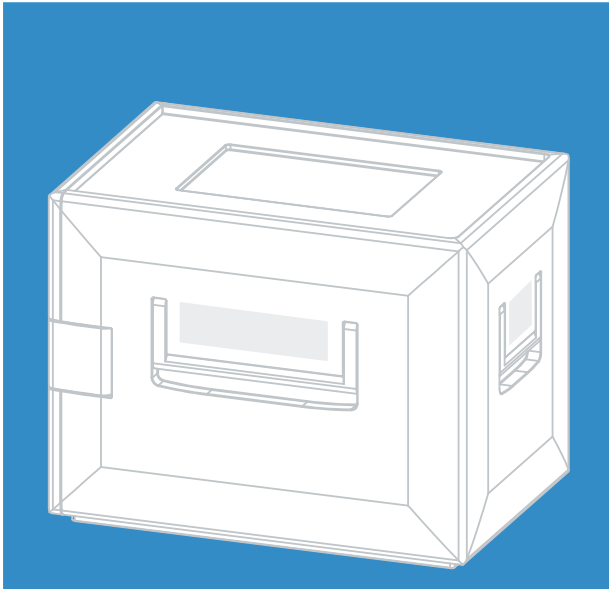


Figure 25



LxWxH (interior) 530mmx325mmx400mm

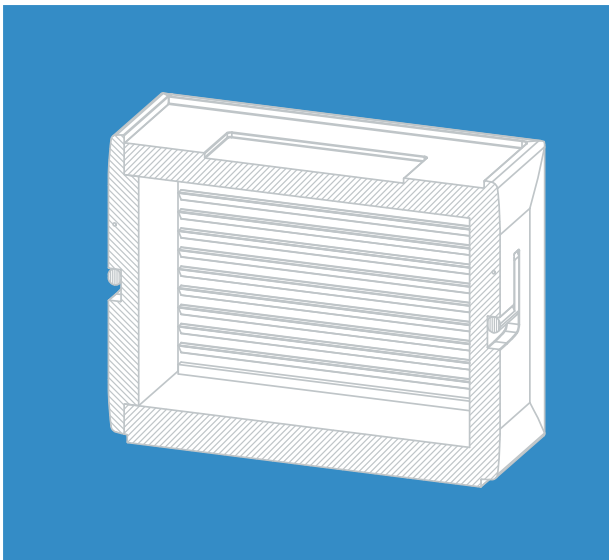
LxWxH (exterior)

630mmx430mmx480mm

Temperature range:

-7C to +80C

The thermo box is equipped with extra wide handles, that fold out, on all four sides in order to make carrying it as easy as possible. Placed right by the handles are large areas to label the box with its content. Facilitating easy communication between the staff at a catered event.



Its interior measures 1/1GN and can host up to 12 Platters or Sekkos depending on their depth. In order to insulate the food well, the box is designed as a double walled volume. The space between the two walls is filled with insulating foam. In order to keep the temperature stable



Stacking individual boxes on top of each other is naturally no issue with this flexible design.

Figure 26



Image 82

This tableware collection re-interprets the Gastronomic Norm, by leaving the functional flange behind, and replacing it with hidden undercuts which act as guides in the professional kitchen.

By integrating this undercut underneath the entire collection of tableware, including the platters the system operates on the same concept as the ordinary sekko, only that it does not have to follow the same functional look.

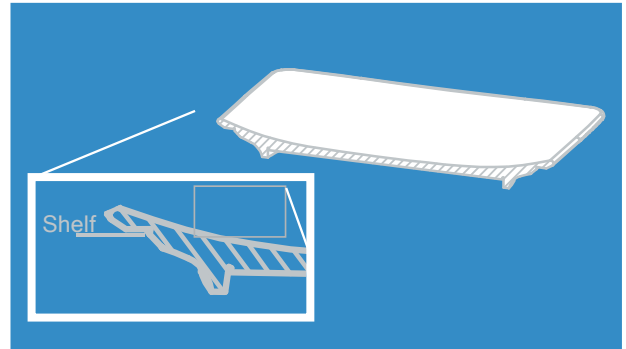


Figure 27

The three different depth of the tableware collection makes it ideal for a variety of dishes, served in a number of different portion sizes. While the special editions; Fingerfood and Cocktail Edition



Image 83



Image 84

The Cocktail Edition was specifically designed for the Cocktail Event. Providing the guest with a plate that not only keeps one of his hands free to meet and greet, but also secures his cutlery in place. Preventing the knife and fork to slip of the plate.

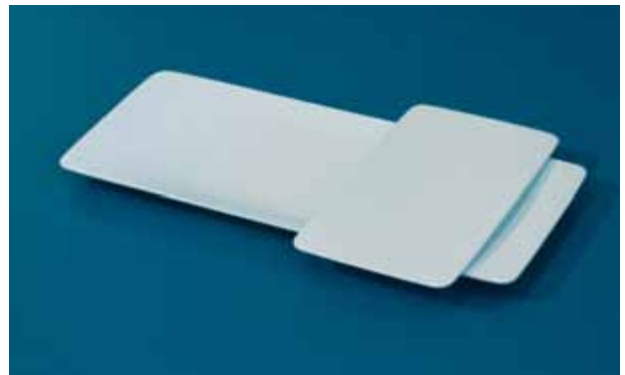


Image 85

The Fingerfood Edition is a series of small plates based on the 2/9GN, which allows the caterer to serve small laid out plates that fit neatly into a long and slender plate that in this scenario almost acts as a tray. Through this the guest can enjoy a variety of small size dishes and assemble them according to his/her wishes.

While traditional Gastronorm trays are limited to a purely functional look, the Poise display collection on the other hand offers a sleek and elegant look with more functionality and flexibility for the catered event.

The Display Collection is available in four different sizes (see collection index) and in the materials stainless steel as well as porcelain. It is suitable for both hot and cold displays and can easily be integrated into the Poise Chafing Dish System.

Here are some of its convincing arguments:

- Corresponds with the Gastronomic Norm
- Features the hidden Poise Undercuts
- Can be integrated into the Poise chafing dish, with or without lid
- Different sizes offer high flexibility for small and large portion displays



Image 86



Image 87

The P O I S E^{GN} chafing dish impresses with its compact and elegant design.

It fits seamlessly into the entire collection.

The Poise chafing dish is only available as an electrical chafing dish, relieving the catered event from the unpleasant smells caused by the Sterno cartridges.

An added advantage to this is that this chafing dish can either act as a heating element, or a cooling unit. The difference is illustrated in the two images to the right (heating element above, cooling below) For the heating element, water is filled into the basin and the chafing dish is plugged in. The special 'siv sheet' prevents the hot water from spilling over when walking with the chafing dish.

Alternatively when using the chafing dish as a cooling element, a cooling couchin is placed in the basin, keep the food at low temperatures for about three hours.

The 'wings' to either side of the chafing dish create a space for the serving tools to rest, while acting as handles when it is carried. While the lid gives full view of the food. Its spring loaded mechanism allows, for a smooth opening and closing of the lid. Also the lid can be integrated and placed if wanted on the deep GN1/1 platters designed for this collection.

Though the chafing dish fits snugly a top of the thermo boxes, it needs to be stored in two pieces. The base of it easily stacks and can be stored away when not in use. The same applies for the lids.

Overall this design offers all the elegance and functionality that could be asked for.

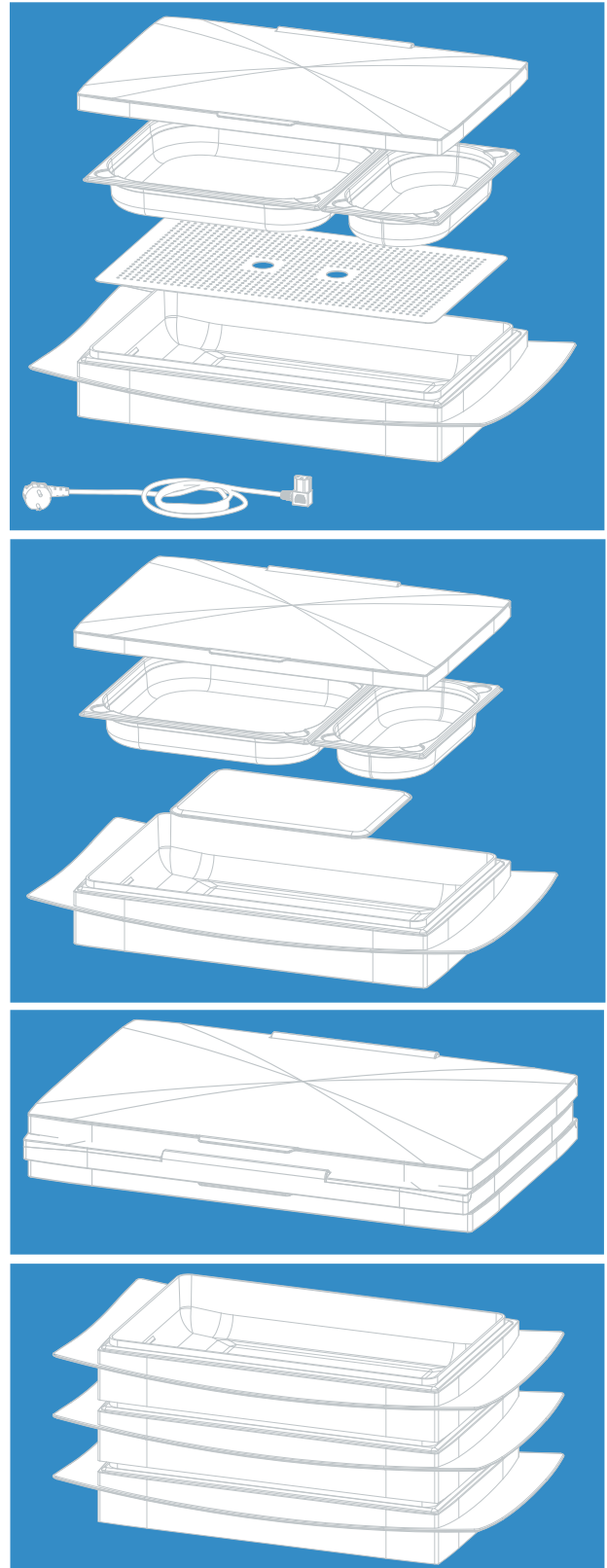


Figure 28



Image 88

Discussion

This thesis set out to design catering equipment for two user groups, guest and caterer. After extensive research applying Activity Centered Design tools to determine functional requirements for the design, the Offenbach Theory of Product Language was used to determine an aesthetic language for the product collection. In this process it was necessary to learn to understand and know the two user groups in question. Following this a language was developed that speaks to these two user groups. Based on this experience the following issues are still of concern and could be improved upon in the future:

Applying Activity Centered Design tools to determine functional requirements has its limitations. On the one hand, there is an issue of how much data can be collected. Since Activity Centered Design is a discipline that relies heavily on qualitative research it is also very time consuming. This leads to a smaller pool of subjects, in the case of this thesis only two catering companies and six of their respective guests. The data collected was very useful due to its richness in information, however, there was not enough of it to make definitive claims, that can be considered as universal truths.

Further the selection of interview partners on the side of the guests was in this project much a matter of feasibility. It is important to speak to people who have a relation to the issue at hand, which make the topic of catering complex to research. Since it is not part of most peoples daily routines, but rather an occasion tied to a specific event. Hence most people picked from the street would speak from an old memory rather than a just lived experience. This poses the problem that memory is faulty. Hence the interview subjects chosen to comment on the guest's experience were chosen at events catered by the two collaborating catering companies. As said this leads to a very limited subject pool, especially in age and gender. In order to improve on this issue, it would be necessary to chose a larger number of collaborating catering companies as well as visiting catered events unrelated to the study and asking people and shadow as well as interview them. Further by applying the Offenbach Theory as a design tool is in many respects helpful as it points to issues in a design process that are often overlooked. In this case for example the interplay between plate and food, which might not have been such a significant consideration. But due to the specific discussion on reduction or amplification of stimuli this issue was pushed into the foreground. On the other hand, adhering to such a strict design methodology can be limiting as well. Since some design considerations lie outside of the theoretical scope.

In terms of the practical outcome of this study, there are 16 final prototypes that have been produced. Of these the plates have been tested in the previous prototyping stage. This did give valuable insight and reason to reevaluate some aspect of the design, such as depth of cuts made in the plates. However, to really understand if the products

designed meet the set requirements, further testing will have to be done. Also the next stage in prototyping in porcelain would have to be begun which was given the time constraints not possible. Instead, it seemed prudent to choose CNC milling as a faster option to produce the models. This also made it possible to adapt the design several times in the given time frame.

In the future, it would be interesting to test the combination of methods used here in other areas of design and compare the outcome. This would further the understanding of the methods applied but could also give a new perspective on previous work.

Conclusion

The objective of this master thesis was to develop catering equipment that would suit the needs of both guest and caterer. Various research and design methods have been employed to achieve this goal. The outcome of the project is a catering system that encompasses the entire workflow of a catered event, beginning with the transportation of the tools and food to the location and ending with the tableware and chafing dish for the guest to encounter. As such the goal of the project has been met. The visual appearance of the individual pieces in the system clearly speaks to be of one product family, which was a main concern throughout this project. It gives the impression of elegance to the guest, and offers functionality to the caterer, satisfying both user groups.

The project has some minor issues before it could go into production, but could in its entirety be brought to production. Alternatively, only aspects of the design, such as designing according to the Gastronomic Norm, could be drawn from this thesis and pursued further.

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