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DESIGNING FOR SMALL BATHROOMS

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ABSTRACT
This paper will focus on how to design a series of bathroom products that work well for small bathrooms using the principles of universal design. In home culture research, Quitzau and Røpke has studied bathroom transformation from hygiene to well-being. Bathrooms are one of the rooms in apartments that do not have good solutions for small spaces. This is unfortunate since it is the bathroom that has the least amount of space in urban apartments. This leads many people to have too little bathroom space due to furniture, toilets, showers, etc. In today's society, the bathroom is no longer just a purpose room. It is used for relaxation and wellness. This has led to a trend where large furniture, such as freestanding bathtubs, dominate today's market. This in turn allows the few solutions that exist for small bathrooms to remain poorly conceived. The research question was therefore how to create solutions for small bathrooms to get the same sense of well-being as in larger bathrooms through universal design principals. The principles of universal design, observations and in-depth interviews were used in the study. This study can help to create a greater understanding of how to design small bathrooms. It will be relevant in a cross disciplinary field, including for professionals in plumbing, product design and technical solutions. This will also increase the well-being of users of the bathroom.

Keywords: Urban design, interview, observation, bathroom design.

1 INTRODUCTION: BATHROOMS IN URBAN NEIGHBOURHOODS

The bathroom may be the room that has been most developed the two last decades [1]. The room was intended for hygiene, and only necessary utilities were given space. Utilities, such as showers, bathtubs and wash basins, were shaped for hygiene only. But in the early 1990s, a new trend started where the room was turned into a room for relaxation on a par with the living room [1]. In today's society, the bathroom is a room where it is quite normal to spend money on renovations. There is equal focus on the aesthetic of the bathroom as in other rooms. This can also be seen in terms of the necessary materials (tiles, bathroom counter tops, etc.) that make it expensive to remodel compared to other rooms. As a result of recent trends, the bathroom has become bigger and all the objects in the bathroom have followed it. We now have free-standing bathtubs, showers that take up much of the bathroom and larger furniture.

This trend has had an impact on the variety of products offered in various stores. Most products are now large. What is small is often an inexpensive solution with poor quality and little variation. One could say that this trend is not connected with reality, as according to statistical central agency (SSB), 39.1% of the population have bathrooms under $100m^2$ [2]. There is a design gap here and unsatisfactory products. There is a need for bathroom counters suitable for small bathrooms. People with small bathrooms are also excluded from the wellness trend. Is it possible for small bathrooms to have efficiently used space while creating the same relaxation effect already existing for larger bathrooms?

2 METHODS

A literature review, identified universal design principles[7]. To deepened the understanding of these principles a qualitative research approach was used. Methods used were interviews and conversations, ethnographic studies, product testing and observations [3] to determine what problems exist in the small bathroom and to see what areas have particular problems and what is merely poor choice. People who have small bathrooms were reviewed for an extended period. They had the time to show annoyance over problems and display habits that are very interesting to observe. I present the findings that represent most problems. Most methods were used in the bathroom to test different objects. Besides ethnographic study, interviews emphasised openness and provided opportunities to digress from planned issues [4].

Figure 1. Retrieved from Hans Grohe's website

Figure 2. Source: http://www.marocurl.com

3 THE BATHROOM

The ideal bathroom is a large room with various wellness-enhancing furniture that is on a par with today's living room (Figure 1). It is intended for use over long periods of time. A large bathtub, chairs, plants and televisions are beginning to be used. The room has become something for rejuvenation and rest [1] (Figure 1) [5]. Alternative materials are also becoming popular, such as wood and concrete. Most of the product range from stores consists of this kind of furniture.

The typical bathroom for small apartments are small and easy to use (see Figure 2), like the 1960s style [1]. The only substantial difference is tiles. The bathroom is built for hygiene. Things like storage, make-up and well-being is not emphasised, probably due to the product range available for bathrooms. I discovered there is very little furniture designed for small bathrooms [3]. The furniture that exists is also in the lower price class and of poor quality. For example, they cannot be too close to a shower area due to MDF plates not withstanding moisture, which causes it to swell. This is bad since they have to be near the shower in a small bathroom. A user can build a separate shower room but this will take a lot of space. Therefore, we are left with a wall-mounted washbasin with an open siphon that collects dust (see Figure 2).

4 HOW TO DESIGN FOR SMALL SPACES

According to Kengo Kuma, living in small homes has become a trend in Japan [6], but the efficient use of space, tasteful materials, design and architecture exist. Multifunctional furniture is also important.

4.1 Why are small bathrooms poorly designed?

Small bathrooms are locked in the ideology of the 1960s. Very simple and purely practical rooms. But why? Trends are a fundamental part of our emotional, physical and psychological landscape [1]. They arise quickly and often take little account of what exists. In this case, design has forgotten about small bathrooms, most likely because it is easier to design for larger bathrooms. However, designers often associate luxury and wellness with bigger rooms. It is important to consider that we have more factors at play in small rooms then in big rooms. For example, large bathroom furniture does not have a problem with splashing over the edge because it is large. However, if the user wants to have a piece of furniture that takes up little space in a small bathroom, some problems in this environment need to be solved. Designing the product to the environment in which it is going to be used will help a lot.

4.2 Methods for small rooms

One way to think about this problem is to use the methods of universal design. 'Disability is understood today as a relation[ship] between individual and [the] environment [8]'. Thus, it is conceivable that there is no disability except what the environment creates. The same can be applied in other contexts. Imagine that the small bathrooms are used by elites (users with especially high demands on the product to be designed) and that the environment is in the current product range. Today's furniture is developed for larger bathrooms and just shrunk down for small rooms. It becomes clear that the small bathrooms are not the problem. They could work as well as large bathrooms and can give relaxation as well as larger bathrooms. If the furniture is designed for the needs of small bathrooms, it will work well for larger ones [8]. Methods of universal design is very structured so that designers have a lot of contact with users [7]. Observation and testing is largely used. Likewise, the designer must observe what does not work. It is also important to look at the relationship between the user and product to see what specific problems each item has.

5 PRACTISING METHODS

To understand the problems for the small bathroom, the first priority was to make contact with someone who had a small bathroom. I started with an in-depth interview [3, 4]. The interviewee is a girl of 26. She has had a small apartment for two-years. She is well aware of the challenges. Her bathroom is 2kvm. I also used the same bathroom for further observations and product testing [3].

5.1 Interview

In the interview, it emerged that the bathroom was used mostly for hygiene purposes. When it comes to dressing and doing make-up, other rooms are used. She spends 'very little time in the bathroom, doing only the most necessary [tasks]'. She puts makeup on in another room due to light and a mirror. She also explained how cumbersome it is to shower there. The bathroom is too small to use it for all that it is intended to be used for. Among other things, she had to take out laundry from the bathroom when she was showering because they usually are in the shower. Moving them to a different place didn't el either since the entire bathroom gets wet during showering. So they had to be taken out of the bathroom every time someone was showering. She also talks about how limited the storage space was in the bathroom. She has a piece of furniture over the toilet, so things fall into the toilet. Most problems are with existing furniture and the size of the bathroom. She added that she likes to warm up in the bathroom, so it is not only used for hygiene. Based on what's already in the market, the shower is the only object that can be fixed with a sliding door to prevent leakage and steam. There are few possible solutions that can help with lack of space in the cramped bathroom.

5.2 Product test

After the interview, it became apparent that what was most needed was a basin and vanity fixture. To gain a greater understanding of the specific problems, I conducted a product test [3].

The test identified that she used the sink more than once. The faucet was never used at full strength. When I asked why, she said 'if I use it on full power this happens': it splashed the water over the sink and on herself. The combined faucet and the sink is the problem, which is unfortunate because a person must have his or her hands very close to the spout. This causes spillage. The sink is shallow and has a slant which can splash water on the user. Therefore, it should perhaps have a steeper edge around the sink. The faucet should also be much higher.

5.3 Observations of other environments

Figure 3. Taken on the train between Lillestrøm and Oslo

To get a different perspective on what people think about a cramped bathroom, I used the bathroom on a train I use to commute between Lillestrom and Oslo S (see Figure 3). After a brief conversation with users of the toilet, I got some interesting answers [3]. Among them, users do not feel safe when on the toilet due to uncertainty about whether the door is locked or not. This is a fear I can confirm as I opened a bathroom door on a train on a startled girl screaming at me. The problem with the doors is that they are pneumatic, which means that they automatically open, as on a bus. The door takes approximately 10 seconds to open or close. Therefore, it took the lady sitting on the toilet about 20 seconds to close the door again. Thus, a reason to fear the automatic doors. It is also very uncomfortable that people can hear you when you're using the toilet. Many users go to the bathroom with the tap on so that it will neutralize sounds. That was not possible on the train I tested whose bathroom was quite poorly insulated. I can therefore conclude that the feeling of privacy in the bathroom is very important for most people. I also observed few surfaces, durable materials and sterile colours. In other words, it is very practical—easy to wash and very hygienic.

5.4 Conversations the plumbing business

To get a bigger picture of what issues face the small bathroom, I did an interview with employees in a ventilation and sanitation business (Megaflis). During the talks, it emerged that the problem they saw most often was moisture damage to furniture. Bathroom furniture is commonly made from MDF. They believed that the reason was from 'the furniture being too close to the shower area, which means that the furniture gets more moisture on it then it was intended for'. I then asked how users are supposed to assemble furniture to avoid this issue; the answer was to move it farther away from the shower area. It is apparent that the furniture is not designed for the environment they are intended for. Since furniture is often in a small bathroom and cannot be mounted further away from the shower area.

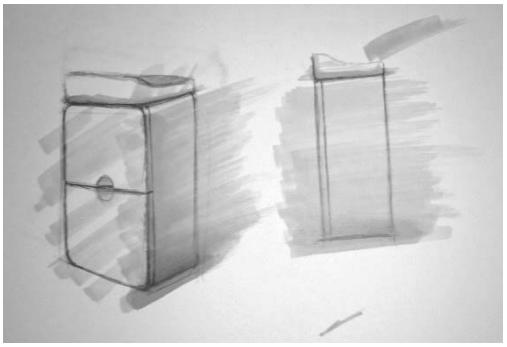

Figure 4. Sketch of example sink

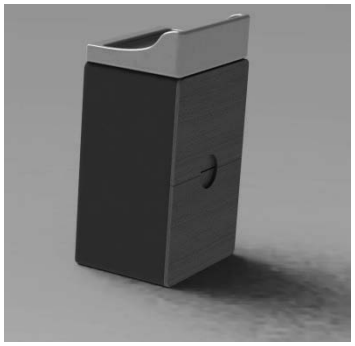

Figure 5. Rendering of such basin

Figure 6. Rendering of a wash basin

5.5 Designing a basin

In all study methods, there is clearly one area that needs improvement. I put extra emphasis on washing but discovered that confidence in the bathroom is important. If the sink is designed with this environment in mind, it becomes a sink with a higher quality overall. For example, we can use a plastic material over MDF to make it resistant to moisture (Figures 4, 5 and 6). The sink may have a higher lip in front to avoid splashing of the user, but remain small and save space. This is also good for a second bathroom.

6 DISCUSSION AND CONCLUSION

6.1 Pedagogic evaluation

The theory of universal design is something we learned during two years of a bachelor degree and has been central in most later assignments. Using in-depth interviews and other methods for research [3] was learned later on when writing the bachelor's thesis. It is noteworthy that this was introduced too late in lectures, since the interview is of such importance in universal design theory. It is a tool that is important in many contexts and therefore should be implemented early on so that the research of the design process is more valuable.

6.2 Conclusion

We can see from this study that there is discord between the bathroom and bathroom trends. This has led to small bathrooms being excluded. We can solve these problems by using methods of universal design in another context. Based on this study suggestion best practice inn designing small bathrooms by use of universal design principles are:

- Formal design regulation according to law.
- Elite users:
- Plumber: furniture adjusted to fit and fixing pipes.
- Bathroom user: relationship between sink and faucet, to little light, little storage space, shallow sink, sound isolation feeling of privacy.
- Employee in sanitation business (avoid moist damage)

The elite users, which in this paper are users of the small bathroom, were interviewed and observed [9] in order to create better solutions that are suitable for several environments as well as being more sustainable since each object last longer. This approach work in fields other than bathrooms.

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