2018

Making Public Buildings Universally Designed by 2025

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Making public buildings universally designed by 2025

This presentation is aiming to present how Statsbygg work to achieve the purpose of universally designed public buildings.

Author note

ABSTRACT

Statsbygg is the Norwegian government's key advisor in construction and property affairs, building commissioner, property manager and property developer.
The Government's Universal Design Action Plan 2015-2019 states, "It is a goal that Statsbygg's work and public buildings (excluding prisons) must be universally designed by 2025."

This includes about 730 buildings. All new building are planned to be universally designed. For making existing premises UD in 2025, Statsbygg is developing about 65 existing buildings (150.000 sqm) every year into universally designed buildings.
Statsbygg's work with UD is based on the definition: “Universal design means that products, structures and outdoor areas that are in general use must be designed so that all people can use them equally as far as possible without special adaptations or aids.” (Stortingsmelding 40, 2002-2003). The definition is in line with the Convention on the Rights of Persons with Disabilities.
The laws, regulations and guidelines Statsbygg has to follow are TEK 17 (Regulations on technical requirements for structures (Technical Regulations)) and guidelines in relevant Norwegian Standards for example NS11001-1 / 11001- 2.

For every existing building we provide reports that state what is needed to make it universally designed. This is registered in the Norwegian database *Bygg for alle*. Once the missing actions have been taken, the database is updated and the information is made public. The buildings UD-qualities are also registered in SESAM – Statsbyggs databasetool for management, operation, maintenance and development for buildings. This is to ensure that the buildings UD- qualities are being taken care of in further maintenance and development.

Many of Statsbygg’s work and public buildings are listed as cultural heritage buildings. In Norway cultural heritage and UD legislation are equitable. We aim for UD in our listed buildings. Statsbygg has a strategy for investigating UD as an added value for the tenants and the heritage itself. Here we experience that focus on details and functionality is crucial to get the best results.
Although Statsbygg complies with all laws and regulations, we see that this is not sufficient to achieve a good level of UD-functionality in all our buildings. Functionality is important for us and it demands dialog with the users of the buildings.
Our experience is that it is necessary to have focus on detail, define the needs to be filled and the features to be taken care of. Surveys show a clear correlation between upgrade to universal design and user satisfaction in university buildings.

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1. INTRODUCTION

About Statsbygg

Statsbygg is the Norwegian government's key advisor in construction and property affairs, building commissioner, property manager and property developer.

Statsbygg is a public sector administration company responsible to the Ministry of Local Government and Modernisation (KMD), Statsbygg provides appropriate, functional premises to public sector enterprises, as well as realising prevailing sociopolitical objectives in relation to architecture, governmental planning interests, preservation of heritage sites and the environment.

Organisation

Statsbygg has 902 employees, around one half of them are personnel connected to our properties. The head office is situated in Oslo and there are regional offices in Oslo, Porsgrunn, Bergen, Trondheim and Tromsø.

According to governmental action plan all Statsbygg's work and public buildings must be universally designed (UD) by 2025.

For making existing premises UD in 2025:

- Every new building must be planned and constructed with universal design
- Every year about 65 buildings (150.000 sqm) must be developed into UD-buildings (as much as possible)

Buildings and GFA completed 2011-2017 and plan 2018-2025	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Total
Buildings	22	49	55	63	66	56	65	60	55	50	35	80	28	25	14	723
Gross floor area	33 191	172 138	149 302	273 108	206 043	197 742	177 755	130 000	120 000	100 000	60 000	130 000	60 000	50 000	28 000	1 887 279

Table 1 Buildings and gross floor area (GFA) completed 2011-2017 and buildings with GFA that will be UD by 2025

2. PROCESS

Statsbygg has implemented UD in the systems. *Bygg for alle* registers and illustrates what needs to be done. SESAM follows up with the operation and management of the measures.

2.1 Registrating in Bygg for alle

Bygg for alle is Statsbygg's electronic tool for registration, management and public viewing regarding universal design in buildings.

Registered measurements collected in *Bygg for alle* provide the opportunity for analysis and overview of UD-status in buildings. This provides information about which barriers have to be

removed to achive equal opportunities. The goal is that the buildings no longer inhibit, but promote equal participation.

When upgrading Statsbygg`s work and public buildings to be universally designed, the first step is to register/upgrading in the *Bygg for alle*- tool, by using this tool a report is prepared that shows what actions must be taken to make the building universally designed as much as possible.

By using the tool *Bygg for alle* the buildings are evaluated in relation to the demands and recommendations for new buildings set by the Regulations on technical requirements for structures (Technical Regulations) and different Norwegian Standards for example NS 11000; Universal design of building constructions; Part 1: Work buildings and buildings open to the public.

We start assessing the floor plan of the building as shown beneath, together with people that know the building and its functions well. Then we look into which areas need to be evaluated according to the principles of Universal Design to make the building's functions applicable for everyone in an equal way. The assessment of the floor plan describes which area is to be analyzed.

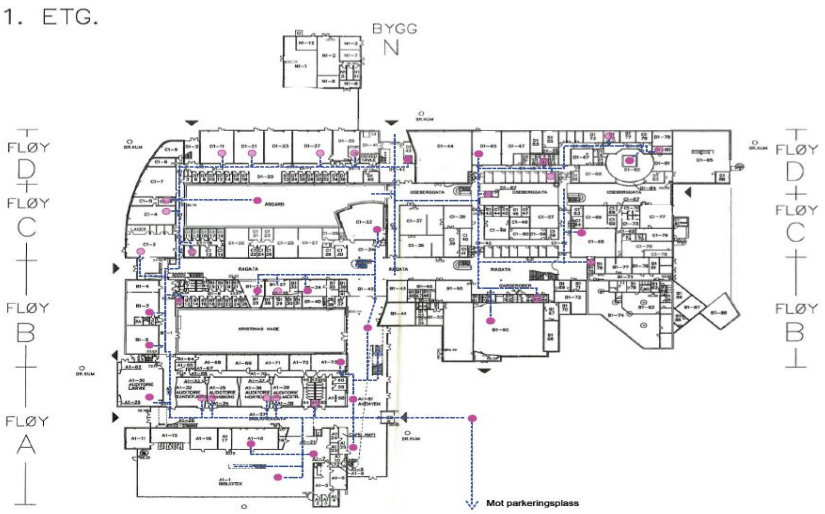

Figure 1 The floor plan of the building blue line and pink circles illustrate which areal that has to be UD

Based on the floor plan a "tree" with connections from the entrance to the individual visiting targets is made in *Bygg for alle*, as shown in the figure below.

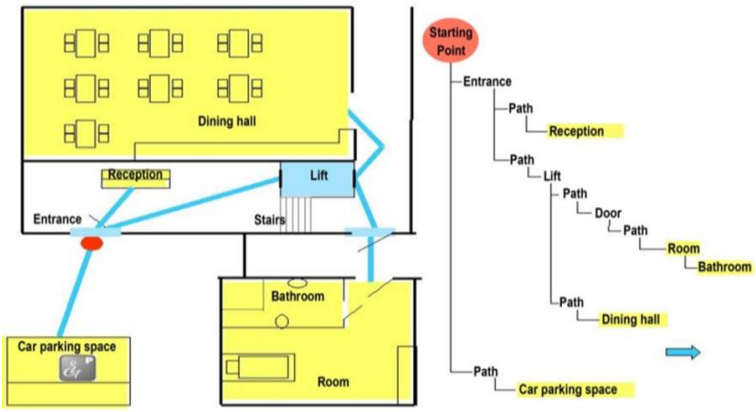

Figure 2 The prinsiples of registrating "three"whit visiting targets in *Bygg for alle, based on floor plan*

The systematic registration consists of:

- Registering the universal design in existing properties
- Reporting the renovation needs for each building
- Identifying the renovation costs
- Incorporating defined needs into plans for maintenance
- Carrying out the initiatives

Entrances, internal connections and visiting targets are registered by taking measurements of widths, gradients and force needed to open doors etc. At the same time, estimated illumination, signage, orientation possibilities and other conditions that may be important for those with visual impairment. Possible problems for asthmatics and allergy sufferers will be registered as well. Part of the investigation is to carry out a simple interview with local managers or operational leaders to map out any available equipment, and how the building is used etc. It`s important to keep in mind the reason for visiting the building.

A report of the necessary measures or actions is made according to measurements, recordings and requirements. This is a list of what is to be done, why, and with costs. The report will provide a view of the UD- status. This makes it possible for property managers to prioritize tasks considering UD. The overview can be used as a report to superior authority.

When the necessary actions are completed, the building will be adjusted according to UD to the greatest extent possible in relation with the building's distinctive characteristics, its functions and with an evaluation of which actions are reasonable to implement.

Due consideration as to what is technically, economically and esthetically possible must be given when trying to reach UD. We also cooperate with different user organisations such as The Norwegian Federation of Organisations of Disabled People (FFO).

There are general shortcomings outside and inside according to: Entrance, doors, connections, elevators, stairs, ramps, parking, UD toilets, signage, lighting, contrasts, alarm system, loop system, the indoor climate, ventilation, vegetation and command lines.

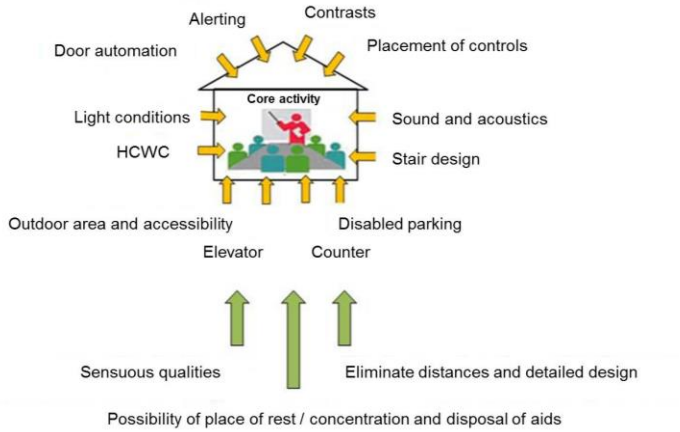

Figure 3 Tasks related to UD, from Bygg for alle, Danbolt 2016, after Haugen (2008)

Bygg for alle is also a web site where you can find information on the accessibility of public buildings in a structured way. At *Bygg for alle* you will find specific information about the entrances and the various visiting targets within most of the public buildings managed by Statsbygg. The public view in *Bygg for alle* today is a little outdated and is currently being developed. A cooperation is arranged with user-organizations as input to further development.

2.2. Statsbygg's tools for facility management

SESAM is Statsbygg's tools for facility management. All Statsbygg properties are registered in SESAM, an electronic tool for management, operation, maintenance and development of the properties.

UD measures that are established to the buildings, must be operable and maintained. What is not involved in the periodical standard operations and maintenance tasks in our facility management has been created in additional standard tasks, with fixed frequency and responsibility. All the standard works will be followed up at set times to ensure that the result of tasks are still satisfactory.

Managers of the properties add each investment building into SESAM budget needs in line with the uu report, built in *Bygg for alle*. Information flows between the systems on property data are also added.

3. RESULT

Here are some examples of how these tasks are solved:

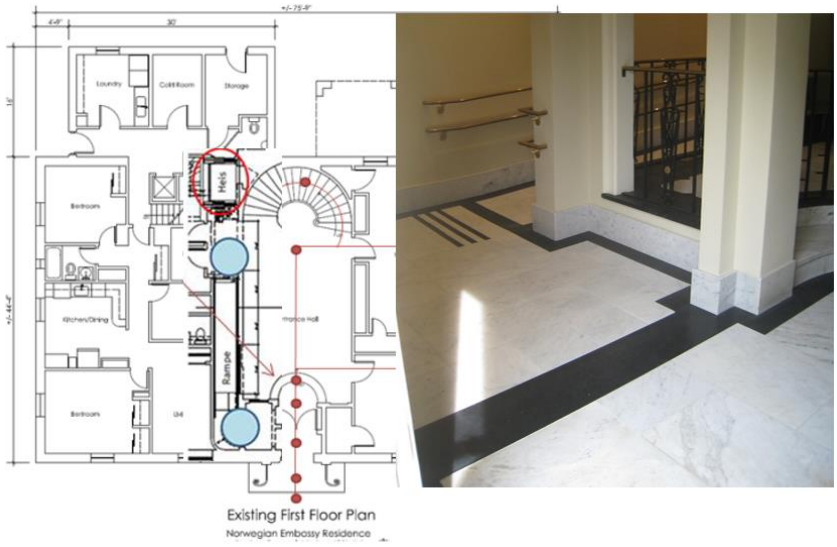

Figure 4 The main entrance in the Norwegian residence in Washington. Photo: Statsbygg

At the Norwegian residence in Washington, there were height differences inside and out and stairs only connection between floors. Access, toilets and wardrobe were on the first floor and dinner reception was on the second floor, where a staircase was the only connection.

As a solution an area from a large apartment, adjacent to the hall, ramp was taken. An elevator was established and outdoor height differences were smoothed. In addition, a universally designed toilet was installed.

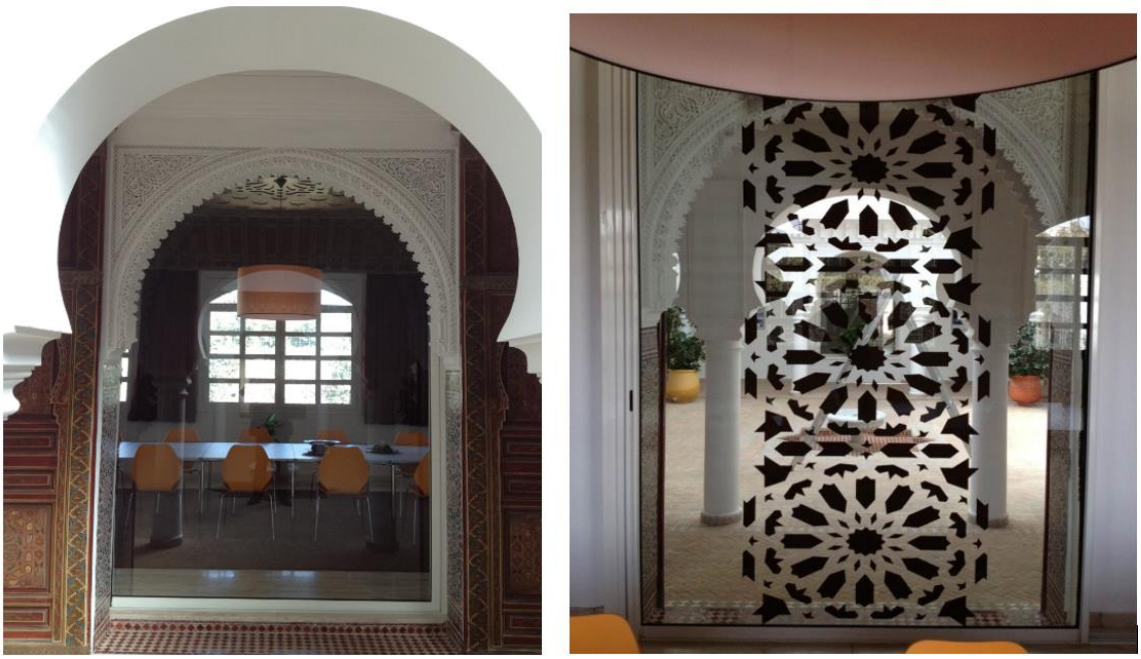

Figure 5 The pictures shows the doorway before and after markups were made. Photo: Statsbygg

The picture to the left shows the doorway with a glass slide-door before markups were made, as viewed from the outside. As you can see, the chance of colliding with this door was quite big! The picture on the right shows the same slide-door from the inside with glass markups tailored to fit the architecture of the building and location. This was done through an exciting collaboration with a local Moroccan architect.

Figure 6 The pictures shows before and after shots of a stairway that has been contrasted. Photo: Statsbygg

Before and after shots of a stairway that has been contrasted at the University College of Halden, Remmen.

The project started in 2011 where university properties were prioritized and upgraded early in the 2025-deadline, due to their importance.

As can be seen from the table below; in the period 2011-2014 we upgraded 82 university buildings.

År	2011	2012	2013	2014	2011-2014
Antall Bygg	22	23	17	20	82
BTA kvm	33 191	148 467	63 337	187 338	432 333

Table 2 Number of university buildings with associated sqm upgraded to UD in 2011-2014

Statsbygg conducts customer surveys every other year. Data collection from Statsbygg's customer surveys from universities shows the increase in the score on the following four selected questions; satisfaction, reputation, accessibility / universal design and the functionality of the premises. Statsbygg`s formal customers in the survey are the universities as an institution. The surveys are answered by Statsbygg's contacts at the university. The customer surveys show better results after the buildings and associated outdoor areas have been upgraded to UD.

Interviews and walks with students with disabilities show the same result, - they are more pleased where the buildings are universally designed.

The indoors and outdoors walk-arounds in university campuses with students with disabilities, were arranged according to the principles from the USEtool, whitch is developed for evaluating of quality of user functionality (Hansen et al 2010).

Facility management focuses on functional premises and to support the need the institution in the building has, this value base is continued in UD. This puts you under the assumption that the building will support the needs of disabled users.

Surveys show that there is a clear connection between upgrading to UD and users satisfaction in the studied university buildings; UD gives increased satisfaction both in general and in individually.

4. UNIVERSAL DESIGN IN CULTURAL HERITAGES PROPERTIES

Statsbygg manages many of the state-owned cultural heritage properties with listed buildings in Norway. Most of these are public buildings in use. They have the same requirement for universal design as other buildings.

In addition to complying with the Equal Opportunities and Discrimination Act which imposes on UD we must also comply with the Cultural Heritage Act – which regulates the extent we may make changes in the cultural heritage buildings and outdoor areas.

For the listed buildings we use the same procedure as described for the rest of Statsbygg’s buildings. However, we also involve cultural heritage authorities and calculate more time to

solve the task. And we have to add something to the project: Statsbyggs UD project will provide added value for the tenants. Working with cultural heritage, we also have to add value to the heritage itself.

This is how we proceed to accomplish this:

Process

Statsbygg manage and maintain over 450 cultural heritage properties in Norway. Most of these are public buildings- as schools, museums, courthouses, prisons, honorary housing, residential care institutions for youths and but national sites and listed outdoor areas as well. We also manage all the Norwegian embassies- some of them maintained as if they were listed.

Figure 7. Grotten 1841. Honorary house. Statsbygg also maintain some honorary housing. New ramp leading up to the main entrance. Photo: Statsbygg

We work likewise systematically with the preserved buildings as with all other buildings to fulfil the governmental act imposing Statsbygg to make our buildings accessible to all.

We mainly use the same procedures as for the majority of the buildings in the project:

- A specific year is agreed upon for the building to become UD
- We provides reports telling what is needed to make the building universally designed
- A project leader is assigned to the project

For the buildings that are not listed buildings, solutions are made and implemented immediately. However, when it comes to the cultural heritage buildings, further assessments have to be made.

The reports are valuated by a cultural heritage adviser. The changes that are required to make the cultural heritage building UD, are assessed to ensure the cultural heritage value of the listed buildings is not decreased.

- A project leader is given the task to find solutions- and usually one to three suggestions to each building are considered.

In addition to giving tenants added value, the solution must add value to the building. Therefore, to ensure high quality, the architectural design, the material selection and the small details, are so important.

Figur 8. Norwegian High Court. Testing out different types of new handrails. Photo: Statsbygg

We have an efficient working process and cooperation with the Directorate for Cultural Heritage, for example related to universal design projects. Statsbygg and the Directorate have monthly meetings where the projects are put forward, discussed- and accepts for implementing UD solutions are given. Our solutions might be refused. Then we have to start over again finding better ones. This is one of the reasons why we sometimes need more time to solve the tasks when dealing with UD in cultural heritage.

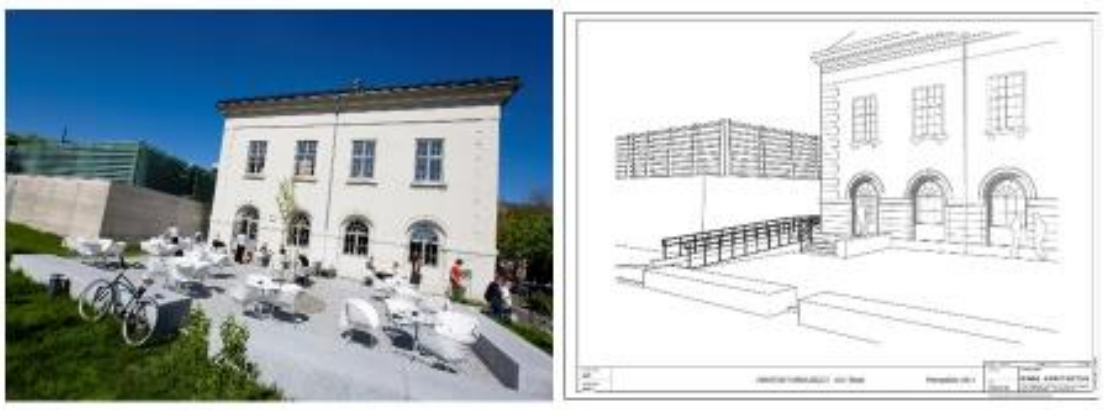

Figure 9 Architecture Museum. Establishing a second main entrance. Photo: Statsbygg

Topics discussed during the project

We have experienced that making the cultural heritage buildings UD takes longer than with the ordinary buildings. It has shown that it is difficult to complete the task in the year we were supposed to. Maybe we should have started all of the heritage buildings at once, not just a few every year.

Would it be better to have a separate project for UD in the cultural heritage buildings? Would that gain the heritage buildings, perhaps given us more time to find the right solutions. However, included in the main project, it gives us the advantage of having project leaders dealing with universal design issues over a long period, with varying buildings, who are experienced enough to find the unique solutions often needed for the cultural heritage buildings.

We could have decided not to universally design our cultural heritage. Other stately cultural heritage managers do not rush this as we do. However, Statsbygg finds that cultural heritage is such a value that everybody should have possibility to access and experience. And people need to visit many of Statsbyggs historical heritage properties to function in society; banks, the town hall, places of worship, universities, schools and museums. The demand for accessibility will naturally be stronger in these cases.

Figure 10 Eidsvoll 1814. Photo: Statsbygg

Eidsvoll 1814 was the place where the Norwegian Constitution was drawn up and signed in 1814, and is one of Norway's most important national symbols. The painting shows the signing of the Norwegian Constitution and this room is our most important symbol for independence and democracy. Democracy gives everyone the same possibility to participate. The house was chosen to be symbol for the government's vision that Norway shall be universally designed by 2025. In cooperation with the Directorate for Cultural Heritage an elevator was installed in the building. Now everyone can reach the Constitution room on the second floor.

Our goal is to make our cultural heritage buildings universal designed, but we often only reach a level of accessibility. Is this acceptable? If UD is not possible, then we just make the buildings as accessible as possible. This means you have the possibility of entering the building and have access to the toilet. You also have access to the areas that are necessary for you to reach.

Results

After working so systematically for a long period with UD in cultural heritage properties we

have a change in mentality in how this is the cultural heritage authorities and society itself deals with these matters. We must also have focus on the reason why a building is listed. Then we can more easily suggest solutions that the Cultural Heritage authorities may accept.

Statsbygg do not question whether a building should be universally designed and that includes our cultural heritage buildings. We ask how is it to be done.

It may take some longer and cost more than for ordinary buildings. However, cultural heritage is meant to last forever.

Figure 11 Falstad Centre. New UD entrance. Photo: Statsbygg

5. DISCUSSION

We always have to ask ourselves; what is the best solution? What are the challenges? What kind of alternatives that is best depends on the use, heritages and cost. There is always more than one alternative for the solution. Do selected solutions provide the correct answer for each individual property?

Even if we have assured that we are in line with laws, we have experience that good functionality is not automatically achieved. The photo from a university shows ramp from the serving area to different levels of the seating area. It requires that you have to bring a serving tray and swing 90 degrees from the ramp to the seating area. The ramp has the right slope, but it is not functional for wheelchair users. This experience-knowledge must be added in planning. Here it was useful with walkaround with a student in a wheelchair.

Figur 12 Ramp from serving area to different levels of seating area in University caferteria

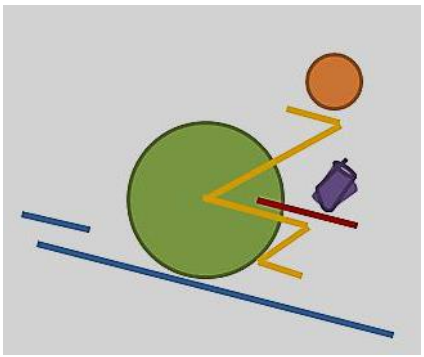

Figure 13 Hot beverage on tray placed on someone's lap

+ inclined wheelchair ramp

= ?

(Danbolt, 2016)

To solve the tasks we need to reach beyond compliance of laws and regulations; have focus on details and end users to ensure accessible and user-friendly environments.

Core values: Equality and equal participation

I asked a student: *What Universal Design features are most important to you regarding equal participation?*

Student Response: "*Solutions that normalize me,-that I don't have to take the detour or be the only one who has to open the door electronically. The solutions at the school are made so that it is natural for most people to use it, which makes it not so obvious that I need them.* "

Figure 14 Accessibility for wheel chair users in auditory. Photo: Statsbygg

As a result of this great concrete work that Statsbygg is implementing, we see that we are not good enough simply by following laws and regulations. The examples mentioned clarify this. In addition to compliance with laws and regulations we always have to: Focus on detail, needs to be filled and features to be taken care of.

6. CONCLUSION/SUMMARY

The buildings are registered in *Bygg for alle* and measured against applicable laws and recommendations. This shows what measures must be taken to ensure that the buildings are universally designed as much as possible, set against usage, function and cultural memory. Our experience is that in cultural heritage buildings it is often necessary to make special solutions.
The buildings are registered in SESAM, Statsbygg's facility management tool, and established uu measures are operated and maintained using SESAM.
Customer surveys from universities show that universal design means that both those who are Statsbygg's tenants of the building and the users, ie the students, are more pleased after upgrading to universal design.

In order to get the best possible in terms of the needs of users, it is not sufficient to just look at the laws and requirements. As mentioned with examples like the ramp in the cafeteria, it was made in line with UD requirements, but did not cover the need at stake. In addition to laws and regulations, you must look into the needs to be met and which functions to fill.

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