Newsletter no. 11 | February 2024
Climate Challenge Laboratory | Building 313

Common areas for everyone

Theme: Users experience

DTU Campus Service
The Technical University of Denmark

Common areas for everyone

In Climate Challenge Laboratory, DTU focuses on creating an architecture that includes people with different needs and furnishing common areas for many collaborative situations – everything from the informal chat at lunch to active knowledge sharing and pop-up presentations.

The users' experience of the place is crucial as they take advantage of the new facilities and engage in the professional community by sharing knowledge, collaborating, immersing themselves, and engaging in conversations. The design of kitchenettes, meeting rooms, café areas, seminar rooms, and quiet rooms is in the wake of systematic work with universal design, where the architecture is designed so that people with varied needs and functional diversity can use the building and be part of the community on an equal footing with others. The goal is to enable all to contribute to the collective effort of solving the challenges of climate change.

In the newsletter, you will meet Maja Frederikke Høgsbro, project manager at Campus Service, Karina Bergmann Jensen, architect at C.F. Møller, and Janet Cohen Muntz, an architect specializing in universal design at Christensen & Co Architects. They explain how they have designed a building with a focus on social and environmental sustainability.

Maja F. Høgsbro, project manager at Campus Service, is the project manager responsible for, among other things, the common areas in B313. Karina B. Jensen, architect at C.F. Møller, has developed the interior design project for the common areas, while Janet C. Muntz, Universal Design Advisor and Laboratory Specialist at Christensen & Co Architects, has outlined the overall approach to inclusive architecture and the fundamental principles for interior design concerning Universal Design. Photo: CFM/CCO/DTU

Knowledge Sharing and Cross-Pollination
The vision for the Climate Challenge Laboratory is to create an interdisciplinary, international research environment where scientists from the Physics, Energy, and Nano lab departments develop new technology to contribute to solving climate challenges. The users' experience of the building has been central from the beginning of the construction process.

How are each of you involved in the user experience?
MH: I am the project manager at Campus Service. At the Climate Challenge Laboratory, I have been the project manager for the design of common areas, which includes a communications project, a special lighting project, landscaping, and an art project. I have a coordinating role and ensure that everything comes together.

KB: I am the architect responsible for the interior design and furniture projects in the common areas. Along with Maja, I have coordinated aspects related to lighting, art, communication, and green initiatives. We were involved in the project in the initial phase before the construction was tendered, and we were then reconnected to the project in the later stages.

JM: I have a master's degree in Inclusive Architecture and am a certified accessibility auditor. I specialize in Universal Design. In the project, I have applied my knowledge of the human aspect of architecture, focusing on how everyone can thrive in a highly technical building. It is exceptional that there has been support from the client to include everyone, even though it is a laboratory building where technology typically dominates.

What is the intention behind the interior design?
MH: Researchers from three different departments will use the building, and the goal is to facilitate cross-pollination of their research. We aim to

create an environment where researchers can meet, collaborate in various ways, present ideas and methods, and engage in spontaneous conversations. The interior design project covers common areas, which include the Heart Room, the stairwell throughout the building, the ground floor, kitchenettes, meeting rooms, quiet rooms, informal meeting places, and hallways.

KB: We started the common area project by conducting workshops with the building's users to gather their wishes and intentions for the building's use and story. Therefore, in the interior design we have considered which functions support the users' needs. Since it is not an educational building but a research facility, we want students to use the ground floor. The basic idea is to create different attractions on the floors to encourage researchers to move vertically and horizontally throughout the building to seek different facilities. In the interior design project, we have worked to integrate furniture, special lighting, communication, and art so that the researchers have the rooms, functions, and atmospheres they need while encouraging diverse uses of the spaces. It's fascinating to see if it succeeds.

Can you provide an example?
KB: Some kitchenettes are designed for more active use, while others provide space for informal meetings and reflection. The active kitchenettes are connected to a semi-open knowledge-sharing room where more dynamic meetings can take place, transitioning from informal situations in the kitchen to collaborative situations. In these kitchens, furniture can be rearranged to accommodate larger groups. In the quieter kitchenettes, one can work in smaller groups. The kitchenettes on the fifth floor allow pop-up lectures and presentations. On the other side of the atrium on the 1st-4th floors, there are alcoves with cushioned benches, where one can sit alone or in small groups for informal situations or deep concentration.

JM: In the informal meeting rooms located in small alcoves opposite the kitchenettes, people can observe what is happening even if they don't want to be in a large crowd. Some people need to withdraw while still being part of the community.

MH: A wheelchair user can also enter and be part of the sofa group in the alcoves. We want everyone to be able to use the building, so there is room for

DIFFERENT FLOORS. On the 2nd floor, there is room to gather more people in the kitchenette. It is possible to move furniture around, use a touchscreen for presentations and include the knowledge sharing room with whiteboards on the walls. On the other side of the stairwell is an informal meeting place with sofas. Between the Heart Room and laboratories is a quiet room where you can retreat. Illustration: C.F. Møller

a wheelchair user to participate in various areas. We have consciously worked with universal design, which has a tangible impact on the choice of furniture. The design offers many different working positions in various types of rooms.

There are many colors in play. What thoughts are behind the color choices?
KB: There are several strategies in the color scheme related to the furniture, which should complement the building's colors. We want the colors to be consistent vertically, creating a red thread from the ground floor to the 5th floor with recognizable elements. On each floor, the entire color palette becomes more diverse. The idea is to keep the ground floor and the Heart Room subdued, using calm colors but with a variation. The subdued colors are also chosen to allow the building's many other distinctive features, such as the wooden columns, staircase, art, and landscaping, to stand out. The more active and solitary spaces, such as the knowledge-sharing room, have more vibrant colors. In the quiet rooms, not connected to the others, we chose yellow and green colors to provide freshness to the wall color and create a serene atmosphere.

JM: There is another aspect as well. Many rooms have dark green walls and linoleum on the floors, here we have chosen light furniture to create a contrast. This contrast helps people with visual impairments to orient themselves in the space.

Architecture for Diverse Needs
Everyone should have the opportunity to contribute to the research at the Climate Challenge Laboratory. DTU aims for its architecture to be inclusive and has worked with universal design from the beginning of the project.

Why does DTU work with universal design?
MH: DTU is a university that is open to all. We want everyone to feel welcome. Diversity is an agenda that DTU has and aspires to take the lead. We work to ensure that DTU does not exclude people with physical and functional diversity – neither in education, research, or on campus. It is important that everyone can study and work where they want to study. The campus and our buildings should be experienced as inclusive. In the project, we have worked with universal design as a method to create a more inclusive physical environment and systematically worked on inclusion in all phases of the design process.

How does universal design support sustainability efforts?
JM: Universal design is rewarded in DGNB (a certification for the sustainability of buildings, which DTU uses). However, the DGNB system primarily focuses on accessibility, which we have also considered, but it does not have much to do with inclusion. Universal design has a broader focus than just physical disabilities. It also includes psychological and neurological aspects. It's about

DIFFERENT NEEDS. In the work with universal design, Christensen & Co Arkitekter has created an animation where you are taken through the 3D model of the Climate Challenge Laboratory as a visually impaired wheelchair user could experience the place. Photo: Christensen & Co Architects

including all people in the built environment, regardless of physical and functional diversity. This means it's not just about wheelchair users and the completely blind. Some people are tall, some are short, thin, thick, wider, or narrower. Some have visual impairments, hearing loss, or are missing a body part. Others have cognitive or neurological diversities such as difficulty concentrating, dementia, or ADHD. Challenges can include, for example, having anxiety about being in large spaces. It is a significant task to include everyone in the design, especially if we are to think comprehensively.

Are there more specific aspects you wish to include?
JM: The Student Counselling Service (SRG) has investigated the physical and mental disabilities and challenges of DTU's students. We conducted interviews with them, and we used their input in the design, among other things. One of the results of the study is that there are quite a few students at DTU who suffer from anxiety. For example, we added an extra door in the seminar rooms because many pointed out that arriving late or having to leave in the middle of a presentation could be anxiety-inducing. We created two entrances/exits so that one can discreetly enter and exit the room. Being able to move discreetly in and out of the room can also be beneficial for other challenges; for example, if one needs to use the restroom frequently.
We have also looked at how people enter the building. When you enter, it's in a more intimate, calm space where you can sit on a sofa or in the café area. You can take a moment and observe the place without feeling exposed. The staircase and atrium are located further inside the building, where the building opens upward, so we have also worked with guidelines to make wayfinding intuitive.

KB: The furniture project is at the tail end of Janet's work with universal design. We have furniture with and without armrests, padded and unpadded, and at different heights. If there are tall pieces of furniture that not everyone likes, there is always an alternative. In the meeting rooms, we have created several variations so that you can stand or sit. We also have a lot of mid-height tables. We work less with high tables than we might have thought initially because we have made adjustments along the way. We received great input to fine-tune the layout and then the furniture.

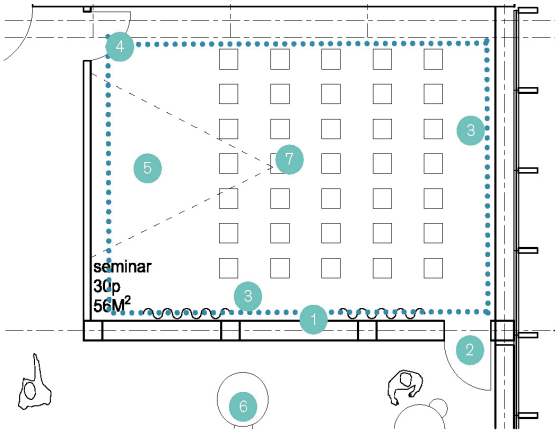
How did you approach the work with universal design?
JM: We introduced universal design in the building program. Specifically, I translated the seven principles of universal design into seven architectural strategies and described the sensory aspects of floor plans - the aspects of not being able to hear, walk, balance, see, smell, or feel. Based on that, we described what not to do and what we suggested doing in a range of focus areas that we designed with a focus on the human scale and the significance of the senses. Light, acoustics, temperatures, surfaces, scents, orientation, materiality, fresh air, sound, and differentiation are elements with great significance for creating an inclusive, safe, and pleasant environment.
Throughout the process, we have continuously agreed with DTU on what is important to prioritize, including toilets, seminar rooms, and quiet rooms near the laboratories. Additionally, we described

UNIVERSAL DESIGN

Universal design is a design method aimed at making a building attractive and functional for all people. The method was developed by American architect Ron Mace who in 1997 formulated a definition based on the following seven principles:

1. Unbiassed Use
2. Flexibility in Use
3. Simple and Intuitive Design
4. Perceptible and tactile Information
5. Tolerance for Error
6. Low Physical Effort
7. Adequate Space and Room

Source: Rumsans



SEMINAR ROOM. 1. Curtains contribute to acoustic attenuation and can ensure that the room is shielded from prying eyes. 2. Discrete door. Makes it possible for users not to feel exposed when they come and go, 3. Wide walkway. 4. Hearing technology system (e.g. teleloop). 5. Lighting can be dimmed and light directions can be adjusted so that facial contours are emphasized (supports mouth reading). 6. Break area for mental break. 7. Movable chairs to accommodate wheelchair users (chairs with and without armrests contribute to inclusion). Illustration: Christensen & Co Architects

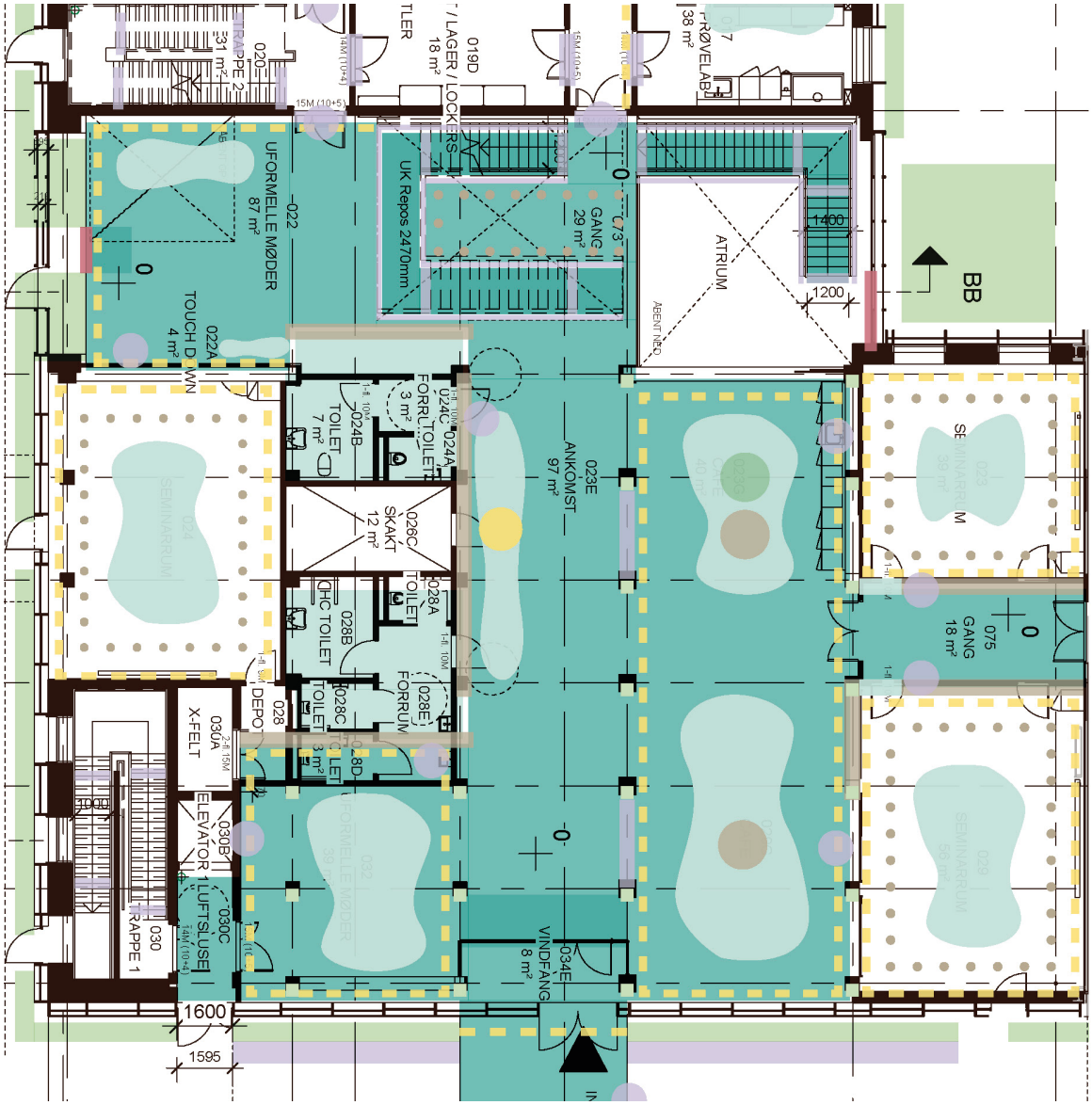
some overarching things about entrance, arrival, wayfinding, visual overview, and break areas.

Can you provide an example of where it has made a difference?
JM: One initiative is differentiated toilets. The building now has toilets of various sizes and with doors facing different directions. For someone who is blind, having a smaller room can be beneficial as they can feel their way around. On the other hand, for someone who is plus-sized, it might be more comfortable if the room is not too small. We have created toilets in three different sizes: small, medium, and large. Additionally, we have space for a changing table in one of the restroom areas. The larger toilets are wheelchair-accessible, featuring both a right-sided and left-sided toilet, allowing wheelchair users to enter from their preferred side.

MH: Yes, something new for me is the shelf we have installed in all restrooms. The shelf is not standard, but it makes a lot of sense to have it in the restroom as some people have items they need to put down. It doesn't cost much to install shelves, and it helps a lot of people.

Variation Creates Space for Everyone
The design of the common areas in the Climate Challenge Laboratory builds upon the principles of universal design. This is evident in the selection of functions in different types of rooms and the atmosphere that DTU aims for the users to experience.

Let's take a tour around the building. What happens when I enter the building?
KB: You enter a large space with a clear path to the stairs and more intimate zones on the sides. To the right is an area with seating and a coffee station where individuals can serve themselves coffee. It is located adjacent to the seminar rooms, and the entire



EXTERIOR PLAN OF THE GROUND FLOOR. The 7 principles of universal design are incorporated in the Climate Challenge Laboratory through architectural qualities that can be experienced directly in the physical setting. These are: Scents (green), materiality (blue), differentiated solutions (light blue), orientation (purple), sounds (brown), light (yellow) and access to fresh air (red). This universal design approach is incorporated into the floor plans, which are elements DTU and architects take into account when the rooms and interior are detailed. Illustration: Christensen & Co Architects

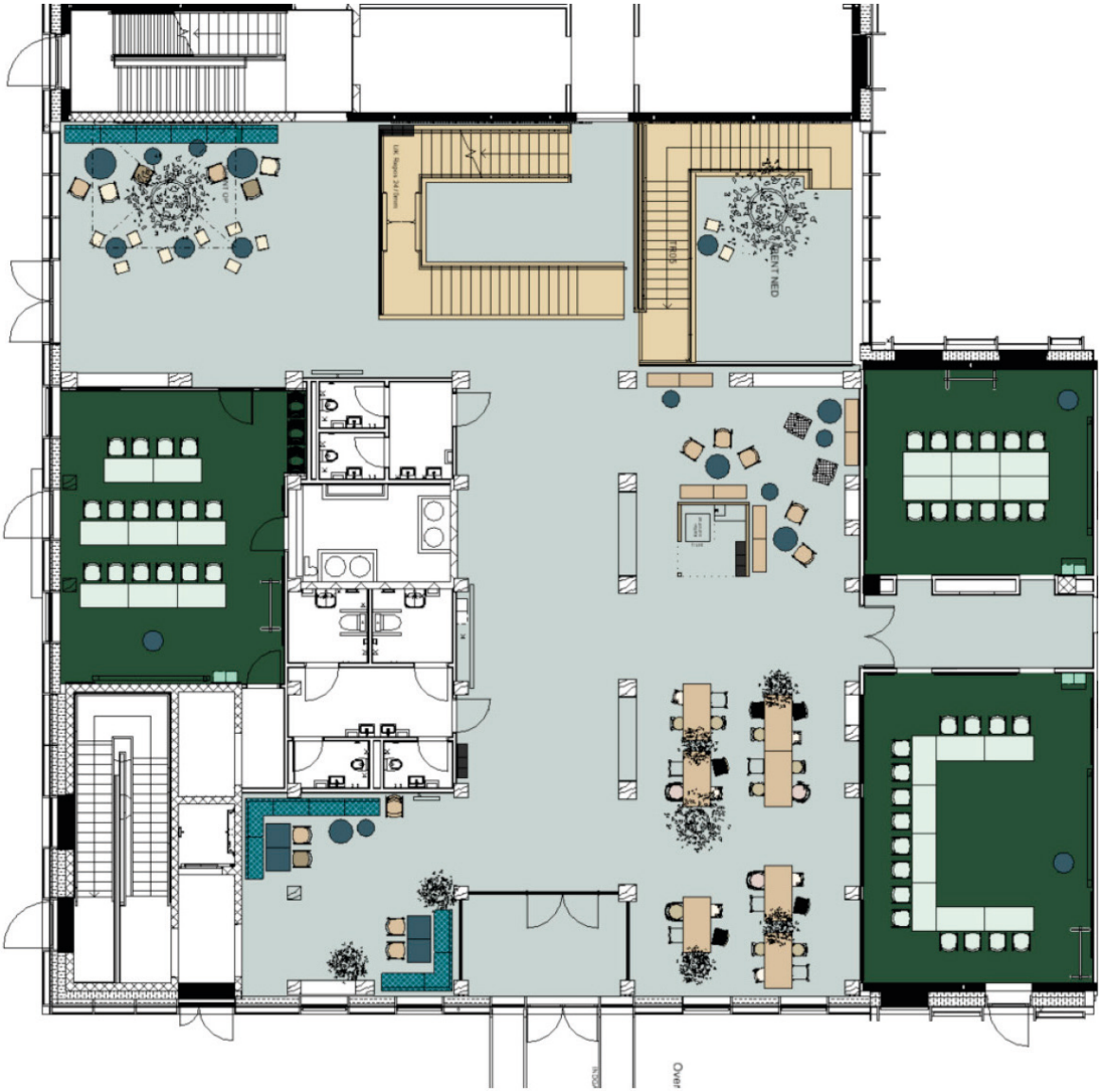
area is furnished with various types of wooden furniture.

MH: In the basement just below the entrance, there is a highly sensitive electron microscope (Theme in newsletter 10, Ed.). If the furniture above is made of metal and is moved around, it can affect the results of the microscope. We therefore only use wooden furniture. Even though it's only the area directly above the microscope, we have chosen to furnish the entire ground floor with wooden furniture. For the seminar rooms, we managed to find wooden tables that can be folded and wooden chairs that can be stacked, making the rooms flexible.

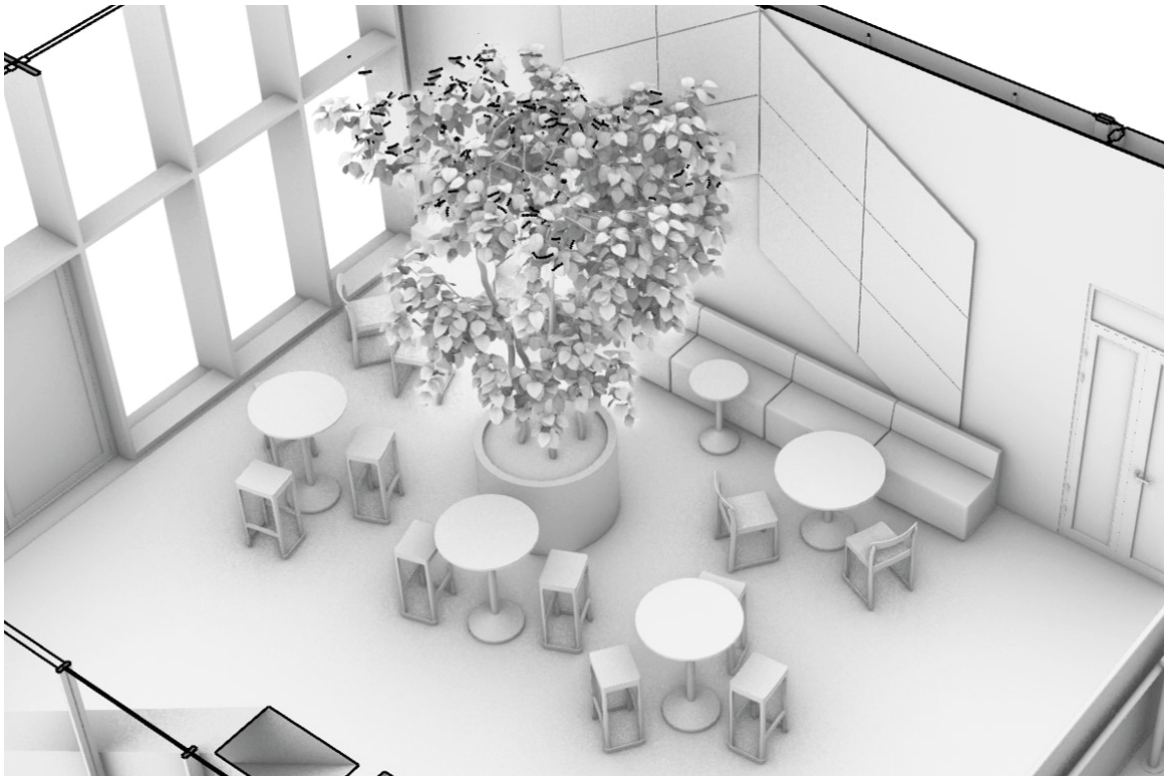
KB: On the ground floor, there are also two corners where one can retreat. Here, you can sit alone or with others on a bench, accompanied by smaller tables and chairs that can be rearranged. One of the corners is connected to a seminar room, so some high tables and chairs can be used in a breakout session.

The elevator is located to the left of the entrance. Why isn't it placed in the same location as the stairs?
JM: We had to place the elevator far away from the microscope. Ideally, we wanted it to be located together with the stairs, ensuring equal access to the building. However, with the arrival point on a different floor in the building, we tried to quickly open the common area so that people don't feel like they are entering through a backdoor. In this way, the solution became both fair and dignified, even though it's not the same for everyone.

KB: Yes, on each floor, you move toward the common area along a corridor with a small niche. Here, we placed a low bench where you can stop and sit. In the niche, space has been created for researchers to use the wall for presentations, providing an introduction to what is happening on the floor. This is something we have taken from Janet's work with universal design. It gives people a chance to zoom in before entering the Heart Room, where there are



FURNISHING OF THE LIVING FLOOR. The interior design is based on the principles of universal design and brings together fixtures, art, communication, light and greenery in a way that supports the vision of creating the framework for an interdisciplinary research environment. Illustration: C.F. Møller



POCKET. In the corner, you can sit alone or with others on a sofa bench, which stands together with some smaller tables and chairs that you can move around. The pocket connects to a seminar room, so there are also high tables and chairs that can be used in a breakout session. Illustration: C.F. Møller

Modulsofa
B-Bitz
Johanson

Borde (2)
Draft dining table
Massproductions
Ø88 højde 73

Bord (2)
Draft side table
Massproductions
Ø50 højde 58

Træstole 6 stk
DTU Genbrug
Aalto stole
Artek
(siddehøjde 44)

Højt bord (3)
Draft bar table
Massproduction
Ø60 højde 100

Barstole (8 stk)
Grace
Swedese
Obs. specialhøjde 73
(standardhøjde er 63 / 79)

more people. Continuing down the corridor, you reach either one of the active kitchens or a quiet corner with sofas. It varies from floor to floor. On each floor, there are meeting rooms of various sizes and with different types of furniture.

The kitchen on the fifth floor will be arranged differently. What will happen there?
KB: Yes, it will be designed with flexibility and will have space for informal presentations for a smaller group. Over time, the area may be incorporated into the art project, but initially, there will be two long tables of different heights where you can slide the low tables under the high ones, creating a free floor space and using the canvas on the wall for presentations.

What is the intention behind the quiet rooms?
JM: Laboratories are always very noisy due to equipment and ventilation, so we suggested creating a quiet room where researchers can retreat and take a break. Those in open-plan offices will also need to retreat to the quiet room. It is therefore located in the middle between the office and laboratory areas. The idea is that the quiet room should be soundproof. It's a place to take a "time out." It counteracts stress.

MH: There is a quiet room on each floor. It is a place to take a break. Therefore, there is no desk but a low coffee table. All quiet rooms are designed based on the same principle of being calm spaces and in the same color scheme, but they are slightly differently furnished as we used furniture from DTU's reuse warehouse.

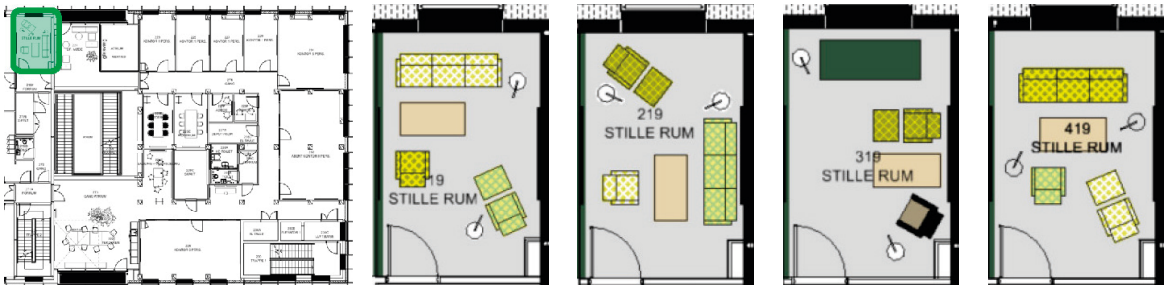
New expression with recycled furniture
Sustainability also plays a role in all parts of the construction project, including the choice of furniture. DTU strives to reuse as many items as possible from the university's recycling stock of chairs, tables, and lamps.

Do you have statistics on how much you have reused?

MH: Yes, it's 250 items from DTU's storage. In the beginning, we dreamed of 100% reuse. We were fully committed to it, but we couldn't achieve it because then we couldn't create the functions that users need. Nevertheless, we have come further than I thought. Economically, we have stayed within budget, but working with recycling requires more time and resources. We need to learn from this process we have gone through at the Climate Challenge Laboratory and figure out if we achieve what we want. Perhaps we can push it even further in the next construction project at DTU. For example, we have a chair, of which there are many in storage, that can be given new life if it's repainted. It stands as a showcase at my desk, and many inquire about it. I hope it can inspire others.

Do you use both new and recycled furniture?
KB: Yes, but wherever we could use furniture from the storage, we have done so. We have chosen based on the functions we wanted and what was available. We prioritized the function of the furniture and looked at how we could upgrade it. We have had chairs and tables reupholstered, painted, or repainted. Some furniture has been repaired, for example, the woven seats of chairs have been replaced. We have even found loose seats, purchased a backrest if that's all the chair is missing, or combined old frames with new tabletops. When we needed new materials, we initially tried to find products on the market based on recycled materials. For example, tabletops made from leftover materials. On the ground floor around the coffee station, we primarily use recycled furniture, but the benches are new as they are adapted to the space. In the quiet rooms, we used almost exclusively sofas and armchairs from the storage. The only new items are a lamp and yes, a pillow.

What impact does it have on the expression in the common areas?
KB: Our mantra is that we should recycle as much as possible, but we also have an aesthetic parameter. In a few places, we have reupholstered seats if we felt it was necessary for the experience of the furniture. The expression is probably a bit different than what we initially thought but it is, of course, still the goal for it to functionally and aesthetically complement with a mix of new and old refurbished furniture.



QUIET ROOM. On each floor there is a quiet room in yellow and green. Furniture has been taken from DTU's recycling warehouse and has been shined up. Illustration: C.F. Møller

Sofa
DTU Genbrug

Stor pude

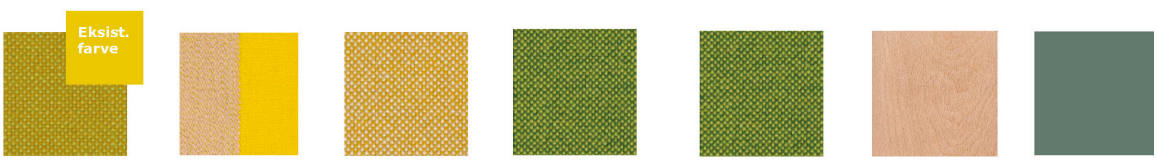
Lænestol
DTU Genbrug
BM2256

Lænestol
DTU Genbrug
BM2256

Fodskammel
DTU Genbrug
BM2248

Sofabord
DTU Genbrug

Standerlampe
Motus Floor-2
Glamox



Sofa
Ompolstres eller nye hynder
Kvadrat
Hallingdal 65 - 0420

Pude
Kvadrat
Reflex 0449

Lænestol
Ompolstres eller nye hynder
Kvadrat
Hallingdal 65 - 0407

Lænestol
Ompolstres eller nye hynder
Kvadrat
Hallingdal 65 - 0980

Fodskammel
Ny hynde
Kvadrat
Hallingdal 65 - 0980

Sofabord
Overflade
Træsort evt. bøg

Standerlampe
Estate Green
S 4520-G

MH: We have made an effort to make it work both aesthetically and functionally. The Climate Challenge Laboratory will be a completely new building, presenting itself in a different way than new buildings have done in the last 5, 10, or 20 years. It will have a different expression. It will be interesting to see how it is received, but users have been very positive about the work with recycled furniture.

SCHOOL CHAIR. There are many school chairs in storage that can be given new life at DTU after a repaint. Photo: C.F. Møller

DESIGN OF COMMON AREAS

Campus Service at DTU has developed a set of guidelines for the design of DTU's common areas on campus.

The goal is to create attractive and vibrant environments where furniture, materials, colors, lighting, and greenery harmonize seamlessly. Additionally, elements such as art and communication are incorporated to add a sensory dimension, giving the place character and identity.

All these elements come into play in the design of the Climate Challenge Laboratory's common areas, where sustainability is a key focus. The vision is to establish an environment where users actively share knowledge and cross-pollinate each other's research.

Source: DTU

Basisinfo

Project status
Accommodation is in process. The first users, VISION, have the moved in.

Timeplan

Spring 2024 — Summer 2024

Construction on site — Users move-in

DTU CAS' projektteam

Nicolai B. Bredal-Jørgensen
Project manager, Campus Service
Phone 93518977
Email nicb@dtu.dk

Maja Frederikke Høgsbro
Project manager, Campus Service
Phone 93511087
Email majah@dtu.dk