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## Vision Impairment

The definition of visual impairment is "a decrease in the ability to see, to a certain degree that causes problems not fixable by usual means, such as glasses." Blindness is "the state of being unable to see due to injury, disease or genetic condition." Vision impairment or visual impairment can be caused by different factors and have several treatments. there are also different types of this issue, such as loss of central vision, loss of peripheral vision, blurred vision, generalized haze, extreme light sensitivity and night blindness.



**Anchor Center for Blind Children  
Centre for Scottish War Blinded  
Veterans Affairs Palo Alto Polytrauma/ BLIND Rehabilitation Center**

## **Anchor Center for Blind Children**

Denver, CO, 1982

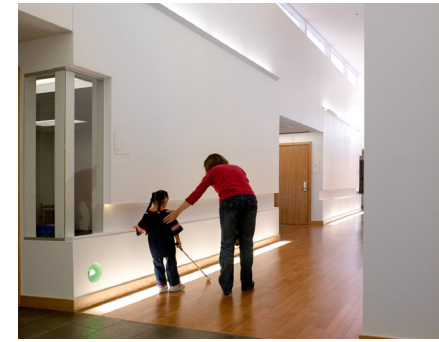
The Anchor Center for Blind Children's teaching facility is a functional yet graceful facility that serves as an active teaching tool for blind and visually-impaired infants, toddlers and preschoolers. This serene facility has been meticulously designed to elevate learning and engage children in a deeper understanding of their world. Subtle, strategically placed sensory elements and child-sized detailing throughout this "touch-friendly" building and site serve as intuitive guides and integrated teaching tools. By embracing the senses of sight, sound, touch, smell and taste in innovative ways, interior and exterior spaces provide the ideal container for Anchor Center's specialized multi-sensory curriculum. Designed as an integral part of its neighborhood, this one floor structure aligns with the street edge, respectfully mirroring the adjacent residential scale.







Anchor Center for Blind Children, Denver, CO, 1982



Classroom pods, clad in a subtle Braille-inspired-pattern of blond masonry that plays light against shadow, reach skyward, while revealing the building's interior spatial organization. The elongated series of pods, connected by a central circulation spine, are flooded in diffused northern light through a series of filtered clerestory windows just below the angled roofline. Variations in scale, materials and lighting assist children with orientation. The building's interior architecture is intentionally clean, simple and free of obstructions. Internally, three colors (blue, yellow and rose) serve as way-finding elements while visually separating the three "mind, spirit and body" pods of the building. Chosen based on a careful study of color theory and the actual passive or active nature of each pod, this triad of hues is integrated throughout the building in the form of skylights, door lights and wall scones.

## Center for Scottish War Blinded

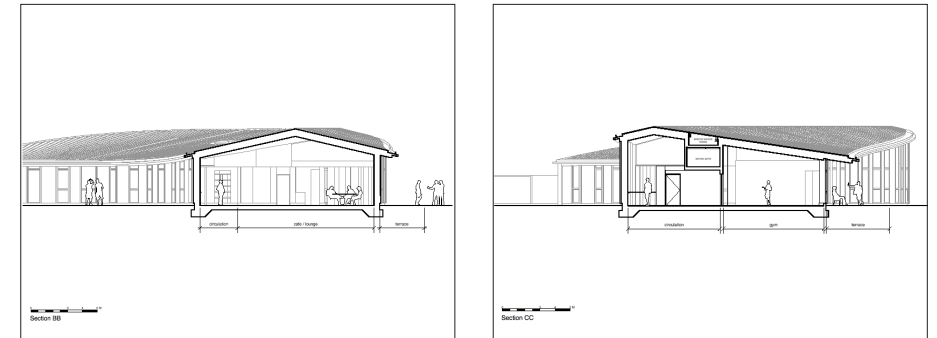
Linburn, West Lothian, Scotland, 2011

Scottish War Blinded was founded in Edinburgh in 1915 with the object of caring for Scotland's sailors, soldiers and airmen and women who were blinded in the service of their country. Their new building takes inspiration from a hand-carved Chinese celestial dragon memorial sculpture which was housed in the display room of the previous facilities. This inspiration manifests itself in the sweeping and twisting geometry of the building's undulating zinc roof. The building harbours a strong focus on internal flow, with a mainly open plan arrangement fed by one generous circulation spine. The accommodation is organised so that the circulation and larger spaces are placed near the external walls, while smaller, ancillary spaces requiring enclosure, privacy and acoustic insulation are placed in 'pod' elements nearer the center of the plan. The curving geometry has been formed by the use of steel portal frames set out on a radial grid and in-filled with cold rolled purlins.





Center for Scottish War Blind ,Linburn, West Lothian, Scotland, 2011



The building operates as a day care centre and offers a comfortable and sociable environment whilst also providing rehabilitation and life skills assistance for ex-servicemen and women suffering from visual impairments. Facilities include a workshop, art space, training areas, a gym, therapy spaces and administration as well as a remembrance room. A terrace and landscaped sensory garden to the south of the building is also provided for recreational use in addition to education. The building and surrounding garden are all on one level so as to allow full access to wheelchair users. In addition to this, there are ultra low-profile thresholds throughout the building so as to avoid any potential trip hazards. Inside the building, the primary circulation route is a generous width and has a continuous handrail down one side to provide support where required in addition to acting as a guide to the visually impaired. LRV, heat loss, energy saving and green spaces were also considered in the designing process of this facility.

### **Veterans Affairs Palo Alto Polytrauma\ BLIND Rehabilitation Center** Palo Alto, CA, 2020

The new U.S. Department of Veterans Affairs Palo Alto (VAPA) Polytrauma and Blind Rehabilitation Center is one of only five polytrauma centers in the country designed to serve this special patient cohort. At 174,000 square feet, it is the largest in the VA system and the only VA rehabilitation center in the country to accommodate polytrauma and blind rehabilitation under one roof. This new interdisciplinary approach to patient care gives veterans access to a wide range of services, from physical and occupational therapy, to living skills training for the vision-impaired. Wayfinding is a critical issue in healthcare, and even more so for visually and physically impaired patients. Pavement and flooring tile color and texture provide navigation, and textured surfaces reinforce landmarks. A carefully designed transition from artificial to natural lighting help patients with photo-sensitivity. Patient rooms have an abundance of natural light and non-institutional materials, and feature an unobtrusive lift to give patients more mobility and safety.







Veterans Affairs Palo Alto Polytrauma\ BLIND Rehabilitation Center, Palo Alto, CA, 2020



The Rehabilitation Center houses 24 polytrauma rehabilitation beds, 32 blind rehabilitation beds, and 12 polytrauma transitional rehabilitation beds. To create a more healing experience, the polytrauma patient rooms feature an abundance of natural light and non-institutional materials. A seamless transition between all materials ensures that surfaces require minimal effort to negotiate. Railings circling the corridors encourage movement, but the building also encourages 'mobility without crutches,' balancing accessibility with real-world conditions. Each design feature reinforces and supports the physical and occupational therapy and training. Staff performance was another important consideration. The designers worked closely with staff to determine their unique needs, resulting in the clarification and enhancement of circulation systems, the creation of calming spaces for patients and staff, and a flexible modular approach to better address future changes in rehabilitation practices.



# OBSERVATION

## **Architecture**

- Touch-friendly buildings and sites as intuitive guides tools.
- Easy flow and circulation throughout the building.
- Functional teaching facility as an active teaching tool.
- Usage of high contrast colors at different spaces, braille and pictogram signs.
- Pavement and flooring tile color and texture provide navigation, and textured surfaces reinforce landmarks

## **Community**

- Sociable environment whilst providing rehabilitation and life skills assistance.
- Flexible modular approach to address better future changes in rehabilitation practices.
- Activities based on creativity groups and teamwork processes.
- Continued needs assessment, physical and mental.



## Deaf and Hard of Hearing

The term «hearing impaired» is often used to describe people with any degree of hearing loss, from mild to profound, including those who are deaf and those who are hard of hearing. Many individuals who are deaf or hard of hearing prefer the terms «deaf» and «hard of hearing», because they consider them to be more positive than the term «hearing impaired», which implies a deficit or that something is wrong that makes a person less than whole. «Deaf» usually refers to a hearing loss so severe that there is very little or no functional hearing. The three basic categories of hearing loss are sensorineural hearing loss, conductive hearing loss and mixed hearing loss.

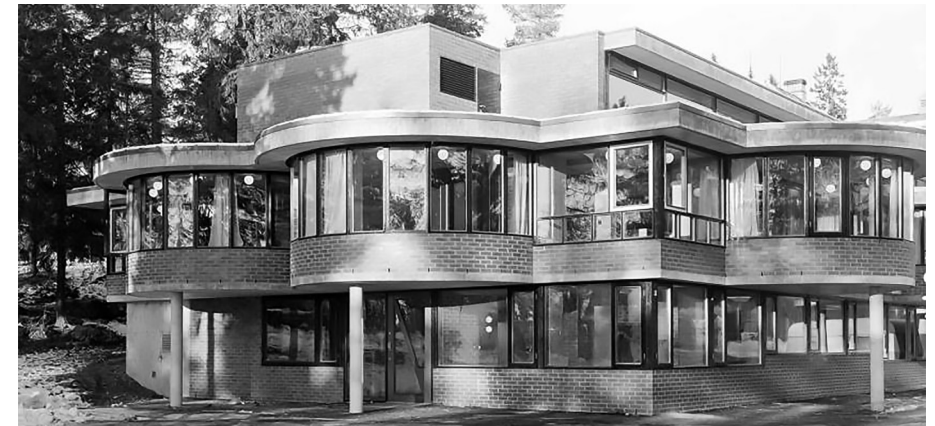


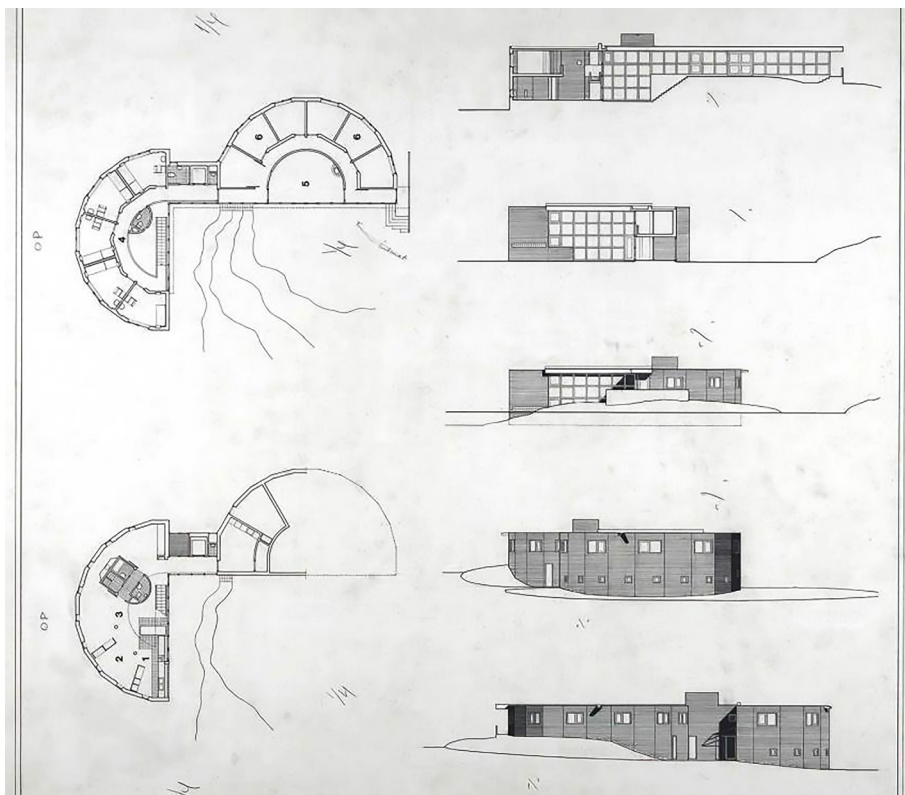


## Skådalen School for Deaf Children

Oslo, Norway, 1977

The Skådalen School for deaf children, designed by the Norwegian architect Sverre Fehn was completed in 1975. It consists of various buildings for different functions, such as dormitories, preschool, elementary and secondary school, administration and sports hall. The design of the Skådalen School is probably one of the most intricate structures Sverre Fehn has ever done due to a complex architectural program: the school was the first institution for deaf children in Scandinavia. The project consists of eight independent buildings distributed on the plot following the slope of the topography. The two-story oblong building was designed for group activities. Its main hall was lit by windows in the ceiling and from the bay windows on the side. These allowed some activities to be carried out in private while preserving the connection between interior and exterior.





Skådalen School for Deaf Children, Oslo, Norway, 1977



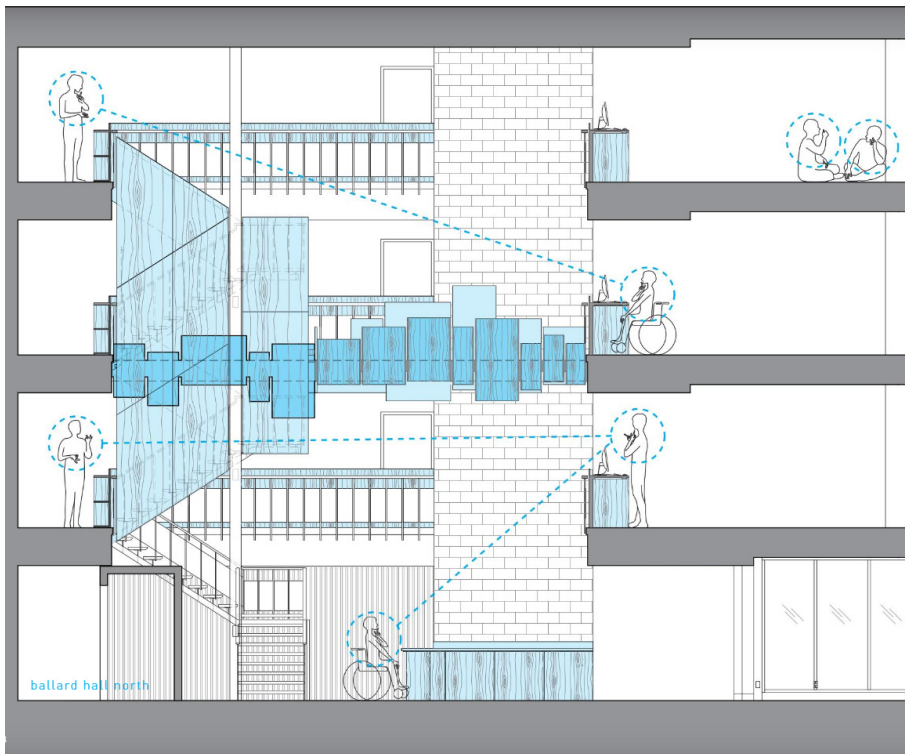
To design the building Sverre Fehn used an open class system model that transformed the pupil/teacher relation. Large sliding doors gave the room some flexibility. The structures are mainly built of bricks both in the exterior and the interiors. Other materials such as concrete and laminated wood were also used. The classroom building and the kindergarten both have a similar semicircular shape, inspired by the way the children gather around the teacher. The school provided houses for the board members where there are six dormitories with rooms, associated around a common area. Other buildings include a dining room, a kitchen, administration offices, and sports facilities. The school as a whole has been articulated as a small town in which its inhabitants can learn to orient themselves easily due to the different shapes and materials. The transparency of the whole area enables young children to create simple and direct spatial relations. Sverre Fehn devoted many considerations to these relationships. The scattered plan of this project was a strategy that allowed the residents to walk from their "homes" to school.

## Deaf Space Project

Gallaudet University, Washington, USA 2005

DeafSpace is not only a project, but more importantly a concept developed at Gallaudet University. It refers to the experience of being deaf in the context of the built environment. The goal of the project is not just to set deaf-conscious standards for facilities on campus, but to advocate for design that is accessible to multiple senses. According to Bauman, the communication in deaf experience is totally different from hearing world, as it is expected. Deaf communication is eye to eye. In eye-to-eye contact, you behold the person you are in communication with and they behold you, he said. The goal of the design team was to find responses to common situations standing in the way of the conversation for people who use sign language. That includes uneven pavements, narrow passages, unexpected steps, inadequate lighting, backlighting, glare from white walls, wall colors that blend with skin tones, and, fixed-row auditorium seating that blocks the visibility required for communication. Also, soundproofing prevents acoustic transference from being distracting, overbearing, or isolating. Holding eye contact with others is very important. To inform sectional relationships and wall finishes, the design team developed a modular design, based on Le Corbusiers design.





Deaf Space Project, Gallaudet University, Washington, USA 2005



Le Corbusier derived Le Modular from the positions of the body with geometric rations, the DeafSpace Modular is based on the proportional relationships between two signers. In this design, two signers can always see each other to read lips and signs; it also gives them greater capacity for visual communication in the residence interior and the campus outside. To be able to provide for other disabilities as well, the doors has been designed wide and automatic, with simplified ramps that extend the common spaces of the residence halls into the exterior, without interrupting people's conversation. Also, interior public spaces and entries are recognizable and visible for almost everyone with different levels of eyesight. On the other hand, contrasting wall finishes within identified signing zones clarify a signer's hands against the background. Surface finishes vary at programmatic boundaries, articulating changes in use of space visually and texturally; makes the navigation easier for those of limited eyesight and the signing easier to read as well.

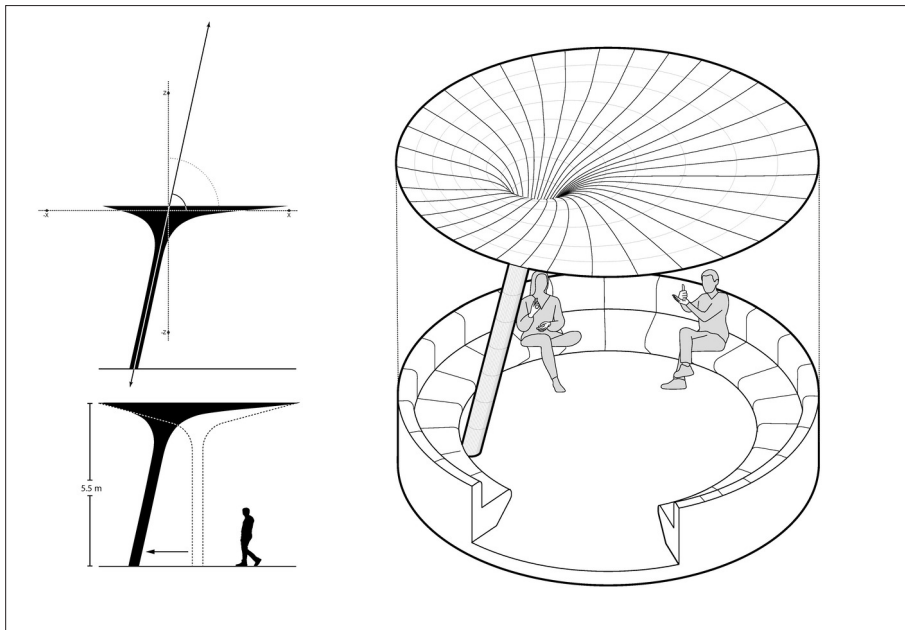


## Silk Tree Deaf Friendly Urban Park

Tehran, Iran, 2020

The design impetus for the Silk Tree Park began before the project existed, with an investigative studio at Tehran's Urban Innovation Center. Core design strategies included circular seating spaces ranging in radius from 2.80 meters to 5.50 meters; an ideal distance to facilitate deaf visual dialogue. The circular seating also encourages friendly interaction and engagement between strangers as the arrangement acts as a gathering space for all users. To further bolster safety and comfort, the circular seating has entrances facing walkways. Aside from these entrances, each seating space is surrounded on all sides by vegetation and greenery to prevent sudden or accidental approaches from an angle that is not visible to HOH individuals. Lightweight doubly curved parasols are designed with angled stems to minimize visual obstructions. Furthermore, the parasols are designed with height and canopy measurements that balance light and shadow, as high contrast light and shadow also prevent visual legibility during the signing.





Silk Tree Deaf Friendly Urban Park, Tehran, Iran, 2020



Silk Tree Park is designed to include all ages and a range of physical abilities. All spaces are connected with a single flat surface that allows anyone with difficulty walking or using a wheelchair to easily access the public space. There are two flat areas measured to standard for casual sports such as volleyball and small court football, and children can skate and ride their bikes. The Park is part of a larger initiative on behalf of the municipality to create more public spaces that are inclusive of all physical abilities. The design was premised around how responding to special needs can enrich the design, and how the design of natural and built environments can foster playful interaction and empathy between people from all walks of life.



# OBSERVATION

## Architecture

- Hearing-impaired communication is eye to eye. Common difficulties standing in the way of the conversation for people who use sign language. Create eye contact angels in buildings and areas on different levels to improve communication.
- Offering open space with enough visual range for signs.
- Reduces outside noises as much as possible, whether with sound-proofing walls or using plants.
- Appropriate lighting should be enough to let everyone read lips and signs, mitigate glare issues.

## Community

- An accessible environment can offer more than just physical adjustments, it can also help to learn more on the type of disability and make others more aware.
- Incorrect approach can cause conflicts between deaf or Hard of hearing people and others when they are unaware of how their norms may affect their interactions and perceptions of each others intents. By being more aware, conflicts can be avoided.



## Intellectual Disability

An intellectual disability (ID) is characterized by someone having an IQ below 70 (the median IQ is 100), as well as significant difficulty with daily living such as self-care, safety, communication, and socialization. People with an intellectual disability may process information more slowly, find communication and daily living skills hard, and also have difficulty with abstract concepts such as money and time. An intellectual disability may be caused by a genetic condition, problems during pregnancy and birth, health problems or illness, and environmental factors. There are four levels of ID such as Mild, Moderate, Severe, Profound and sometimes ID may be classified as Other and Unspecified.



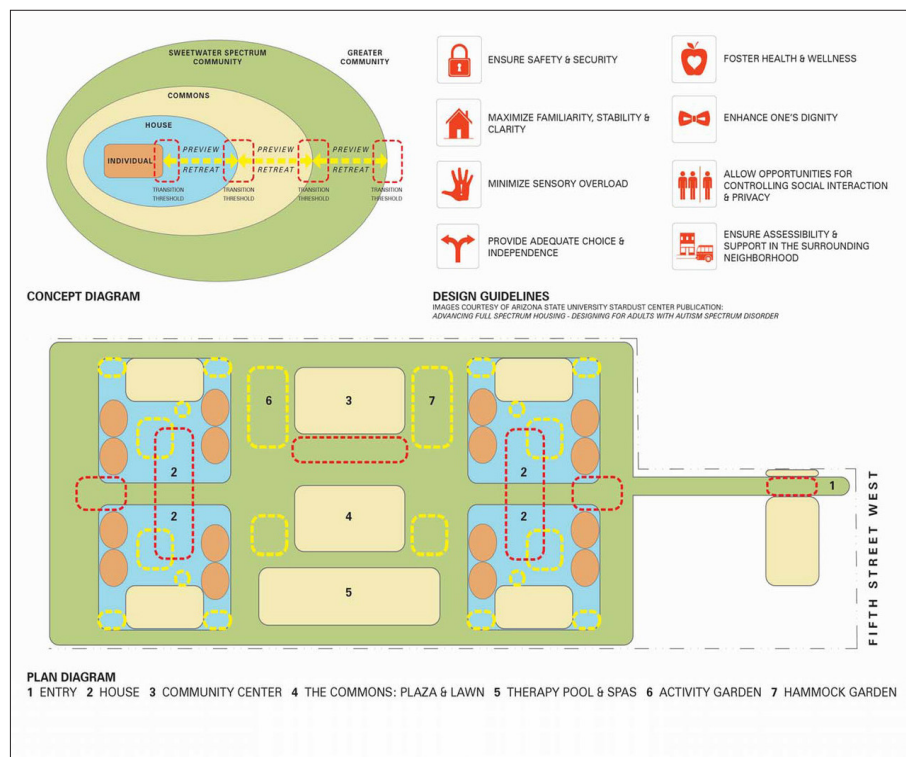
**Sweetwater Spectrum Community  
Adult Autism Inpatient Unit  
Special Education School**

## Sweetwater Spectrum Community

Sonoma, United States, 2013

Sweetwater Spectrum is a new national model of supportive housing for adults with autism, offering life with purpose and dignity. In 2009, a group of families with autistic children, autism professionals, and community leaders founded the nonprofit organization Sweetwater Spectrum to create appropriate, high-quality, long-term housing for adults with autism in a way that could be replicated nationwide. The new community is designed to address the full range of needs of individuals with autism spectrum disorders, maximizing residents development and independence. The project drew on evidence-based design guidelines for creating housing for adults with autism and now the 11330 square meter site provides a permanent home for 16 adults and their support staff. Safety and security are paramount, and healthy, durable materials are used throughout. Individuals may customize their personal living spaces to accommodate their preferences and particular needs.





Sweetwater Spectrum Community, Sonoma, United States, 2013



The four-bedroom homes include common areas as well as a bedroom and bathroom for each resident. Sweetwater Spectrum also incorporates a community center with exercise/activity spaces and a teaching kitchen; a large therapy pool and spas; and an urban farm, orchard, and greenhouse. Design strategies include: A straightforward and consistent spatial organization provides clearly defined transition thresholds between public, semi-public, semi-private, and private spaces. The design offers a layered or “nested” experiential hierarchy, beginning with the individual room; expanding to a residential wing with two bedrooms and then to the house with four residents; expanding outward to the sub-neighborhood of two homes, the community center and commons, and the other two homes; and finally extending to the broader community. Residents have the opportunity to preview spaces and activities, and they can access places of retreat for quiet and calm. All four homes are similar in design so that residents feel comfortable visiting each other or relocating to a different house on the site.



## Adult Autism Inpatient Unit

Mitford, England 2016

Mitford Autism Inpatient Unit in Morpeth, Northumberland, is the first purpose-built care facility of its kind that has been designed to face a specific challenge. The building provides care for up to 15 adults with severely complex autistic spectrum disorders, in single and shared flats near the accommodation. The design includes attention to the patient graduation from public to private space, based on their vulnerability. The thresholds from each flat to the circulation space, and progress from there to shared therapy spaces, are all carefully considered to encourage the patient and also, avoid conflicts with the other service users. The units are established to provide care for people who mainstream mental health services struggle to accommodate, including some who may have been placed in secure units. Patients' conditions can come in a wide range, destructive or even violent, so knowing how to care for them in their own specific way is critical. Also, the design of spaces needed to be carefully considered to provide both a therapeutic environment and also one that is robust enough to withstand attack.





Adult Autism Inpatient Unit, Mitford, England 2016



The flats in the two easterly fingers are generously proportioned, and patients live in these when they first arrive. The main aim is that as their ability to interact with others improves, they move to the smaller individual bedrooms in the other two fingers, which also have shared lounges. Between the fingers are outdoor spaces, and all of the flats have their own access to a private garden. In the westernmost finger, the gardens are shared with other patients, as they get used to spending more time with people. Environmental conditions such as lighting and heating are also critical, because some severely autistic patients may not respond well to 'normal' temperature. They may need the staff to make a room colder or warmer. Therefore, lighting and heating can be controlled via electronic panels outside the flats. The result of these selected colors, temperature and other environmental conditions, is the low-key feel of the environment as a starting point from which clinicians can build and discover how to work with each particular patient.

## Special Education School

Heyuan, China, 2018

This school implements the teaching mode of combining medicine and teaching, at the same time, the design requirements of the relevant codes are more detailed and strict, which has a great impact on the design; on the other hand, due to the particularity of the educated groups, this kind of school pays special attention to the work of management, which means safety by strengthening management. it is very important to develop students normal communication ability for their physical and mental development. However, it is difficult to induce communication behavior in campus space which is homogenized and neglects the personality needs of students. The project is implemented in Heyuan City, Guangdong Province, with 126 design degrees, in which the students are aged six to twelve. The base is in a high-density residential area at the bottom, and most of the children recruited by the school are from it. Two or three stories of closely related small houses and the winding village road are the elements most familiar to children. Therefore, the design starts with the prototype of village, so the school is divided into a number of small buildings according to its function.







Special Education School, Heyuan, China, 2018



With the development of the city, the fate of the surrounding residents is unknown. The architectural language of the school tries to preserve the original memory of home. In the aspect of facade design, the exterior wall of the building is mainly white and complement the shallow hues of the surrounding residential buildings. The east and west walls also adopt square holes of the same scale as the residential buildings, which are scattered freely on the white walls. They reproduced the slide prototype in childrens hearts by design, in which a shared spiral ramp at the center of the courtyard will be designed. The starting point of the ramp is directly opposite the main entrance gate, so that the children can see the ramp entrance as they enter the campus. As the sun rises, parents take their children down the ramp to the second floor of the classroom; after school, they take their children down the ramp to go home accompanied by the sun setting slowly. They learn by sunrise and rest by sunset. It seems to add a little bit of ritual to go and leave school, which is the most basic behavior.





# OBSERVATION

## **Architecture**

- Optimal Lighting and heating in areas for the purpose of suitable communication spaces.
- Divided areas into public, semi-public, private and semi-private, hence to prevent overwhelming people in order to socialize more.
- Durable materials usage in all divisions. Individuals may customize their personal living spaces to accommodate particular needs.
- Gardens or yards shared with others, as they are getting used to spending more time with each other.

## **Community**

- Regarding the senses of sight, sound, touch, smell and taste in spaces for providing specialized activities.
- DLST. Daily living skill's trainings.
- Shared therapy spaces, considered to encourage and avoid conflicts with other service users as well.
- Upgrade communication abilities for physical and mental development.

## Physical Disability

A physical disability is a substantial and long-term condition affecting a part of a person's body that impairs and limits their physical functioning, mobility, stamina or dexterity. The loss of physical capacity results in the person having a reduced ability, or inability, to perform body movements such as walking, moving their hands and arms, sitting and standing as well as controlling their muscles. A physical disability does not necessarily stop you from performing specific tasks but makes them more challenging. This includes daily tasks taking longer to complete, such as getting dressed or difficulty gripping and carrying things. A person may be born with a physical disability or acquire it in life due to an accident, injury, illness or as a side effect of a medical condition.



**The Patio at the Laurent House  
Maison Bordeaux  
Sport and Fitness Center for Disabled People**



## The Patio at the Laurent House

Rockford, Illinois, USA 1952

Long before the days of accessibility requirements by Americans with Disabilities Act (ADA), Wright recognized how a home's design could accommodate the needs of a person with disability. In 1946, Ken Laurent, a 26 year-old World War II veteran, was paralyzed due to complications from spinal surgery and was confined to a wheelchair. Preparing for Ken's release from the hospital, the couple looked for a wheelchair-accessible house, but had no success in their search. After reading about Wright and his projects in a magazine, Ken started sending letters to him, writing down everything he'd need in a home to make his life easier. The house was one of the first accessible houses ever built and due to that, it was not easy to figure out the details. Their only way was the close collaboration between Wright and the Laurents, which was an unusual way to work for Wright until then; but Wright recognized that only Ken could tell him what his specific needs were before he could begin his design process to address them. At first, Ken Laurent asked for room to change his direction without needing to back up his wheelchair, or asking others to rise and move their chairs and furniture to allow his passage.





The Patio at the Laurent House, Rockford, Illinois, USA 1952



The house was designed so that Ken could turn his wheelchair around rather than be required to back out of a room. He could travel in the property without help. The design of the home is based around Ken's eye level. From standing, everything looks low, the fireplace mantel, the light switches, the doorknobs, the furniture; but in sitting position, everything feels right. In this design, Ken Laurent could easily reach doorknobs and switches. Since he couldn't open normal bureau or desk drawers, Wright designed cabinets with doors that fold down on hinges, so that he could reach into the cavities. All the furniture was designed at lower heights. When someone sits in the chairs that Wright designed, they are at or below Ken's eye level, making him the tallest person in the room. Wright even designed the ceiling accessible; low for someone standing, but for Ken, that equated to a certain level of confidence. Wright knew that even if the property was designed in an accessible way, to be truly fulfilling it had to be designed with the comfort and well-being of someone with a disability as the first priority.

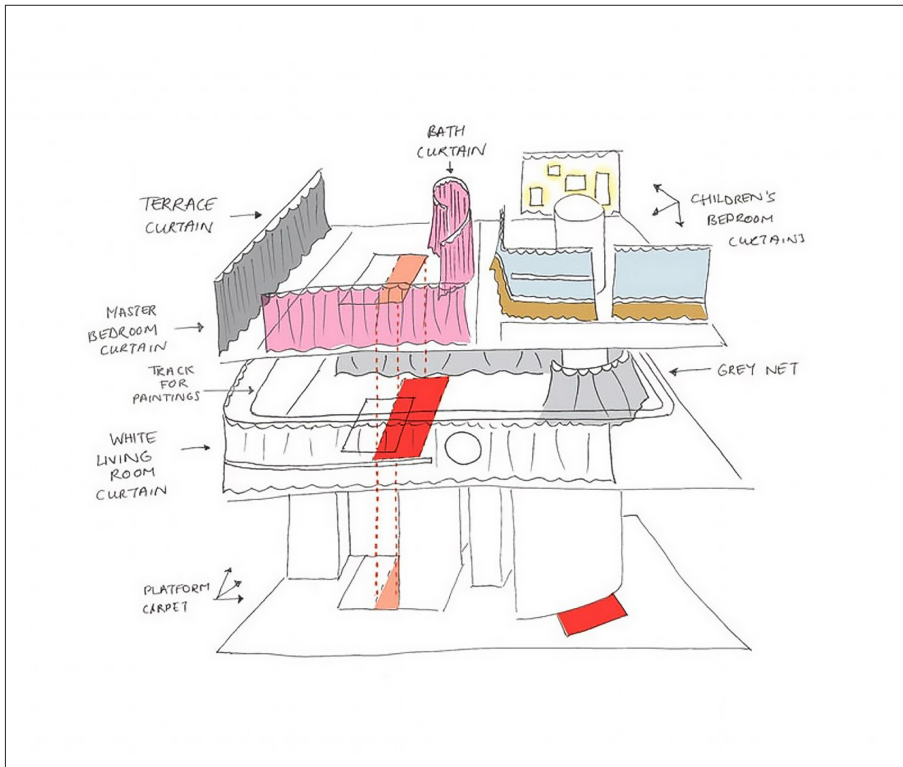


## Maison Bordeaux

Bordeaux, France 1998

For many years, a wealthy married couple and their three children were thinking about building a new home, instead of their old house in Bordeaux, France. As they were planning on how it could be and who the architect would be, the husband had a car accident. After the accident and almost losing his life, doctors told him that he needed a wheelchair. The old beautiful house and the medieval city of Bordeaux had now become a prison for him. The family started to think about their new house again but this time in a very different way. Finally, two years after his accident, the couple approached Koolhaas to design them a new home outside of Bordeaux. Despite being physically disabled, the man did not want straightforward house, or just being able to move in one floor; rather he wanted a complex design. "Contrary to what you would expect. I want a complex house because the house will define my world", he said to Koolhaas. After spending some time and thinking about an accessible but creative design, and instead of a house on one floor which would ease the movements of the wheelchair, the architect surprised them with an idea of a house on three levels, one on top of each other.





Maison Bordeaux, Bordeaux, France 1998



Koolhaas proposed a house that was the compilation of three houses stacked on top of one another; each with their own unique characteristics and spatial conditioning. The ground floor, half-carved into the hill, accommodates the kitchen and television room, leading to a courtyard. The bedrooms of the family are on the top floor, built as a concrete box. In the middle of these two levels is the living room made of glass where one contemplates the valley of the river Garonne and Bordeaux's clear outline. The wheelchair has access to these levels by an elevator platform that is the size of a room, and is actually a well-equipped office. Because of its vertical movements, the platform becomes part of the kitchen when it is on the ground floor; links with the aluminum floor on the middle level and creates a working space in the master bedroom on the top floor. In the same way that the wheelchair can be interpreted as an extension of the body, the elevator platform, created by the architect, is an indispensable part of the disabled client. The house is an innovation of space that far exceeded the expectation of the client's wishes.

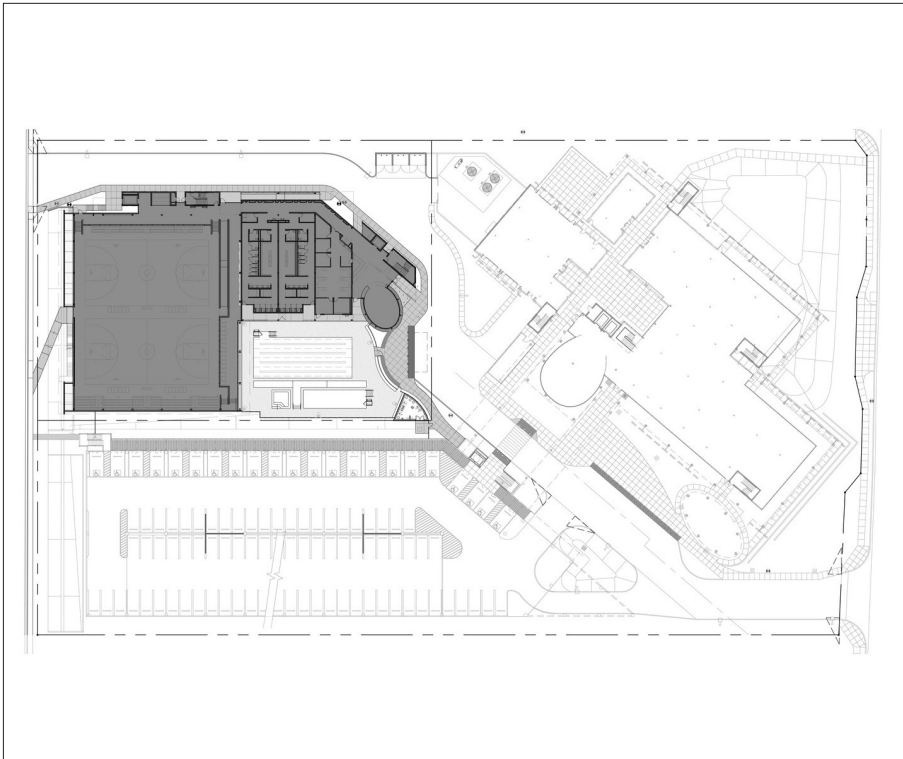
## Sport and Fitness Center for Disabled People

Phoenix, USA 2012

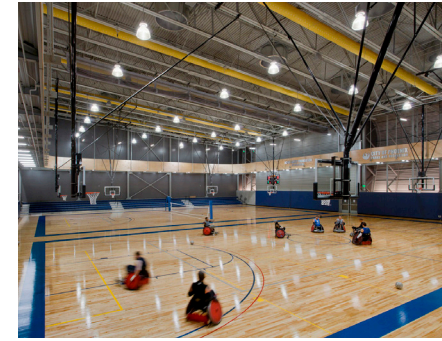
The first goal of the project, beside promoting health and wellness, was to provide the active participation in sport and fitness activities for the widest group of empowered users; be it the individual users, the Olympic athletes, a local Sports Club or National team. The program of the building mostly consists of gym and recreation space, including a rock-climbing wall of 35 feet tall. Fitness rooms, two basketball courts, classroom space, lockers, storage and offices are other parts of the building. At first, it may seem like any other sport and fitness center, but if we take a second look, it is the first of its kind Sport facility in its own area. The greatest achievement of the project is the complete freedom of movement and activity, in a safe, healthy environment. The spaces are organized for ease of access and navigation to all programmatic elements. The building is formed as a typical circulation space that goes through the building, connecting various parts to each other. The entire circulation is completely accessible and allows freedom of movement for all people and athletes with disability by utilizing ramp, elevators and wheelchair lifts.







Sport and Fitness Center for Disabled People, Phoenix, USA 2012



Beside the circulation that has been said before, arriving to the site was also being considered. Public transit has an access to the site through rails in front of the building, as for private road that runs through the project and makes the front of the complex accessible by car. There is also a parking area on the right side of the property for easier use of the car. In addition to the accessible arriving, the amenities inside of the building are also designed and scaled with accessibility in mind. The larger and accessible bathrooms, handles on each wall to help wheelchair users to move easier, ramp access to the basketball courts, larger lockers and locker space with the handles being installed lower and different types of lifts to the swimming pool are some examples of the inclusive design for people with disability. The goal of the architect of the project was to design a space for athletes with disability in their own standard way, making it comfortable for them to use the space, go through different spaces and practice with dignity, without feeling the need to get help from others.



# OBSERVATION

## Architecture

- Less challenges for moving around. Curvy line ways, circle forms for smooth movement and avoiding any unnecessary stops in paths.
- WFS. Wheelchair friendly spaces. These spaces have to be wide enough for at least two wheelchairs to pass by each other. Lowest amount of physical effort and struggle in movement.
- Furniture and fixture need to be adjustable; or designed with an appropriate height and weight.
- Accessible routes for changing directions without needing to back up, or asking others to lift or move furniture to allow passage.

## Community

- Independence in movement and experiencing the environment results in autonomy and retain dignity.
- People with disabilities, especially children, need to see and live in facilitated places so they can move around and use equipment without help or assistance.
- Approaching or touching people to offer help or assistance is wrong. The only right way to do is when they ask for it.
- DLST. Daily living skill's trainings.



## Mental Disability

Mental Illness is a general term for a group of illnesses that may include symptoms that can affect a person's thinking, perceptions, mood or behavior. Mental illness can make it difficult for someone to cope with work, relationships and other demands. The relationship between stress and mental illness is complex, but it is known that stress can worsen an episode of mental illness. Most people can manage their mental illness with medication, counselling or both.



De Zeester  
Wooden Forest - Medical Centre for Mentally Disabled People  
CAMHS Edinburgh Unit



## De Zeester

Noordwijk, Netherlands 2005

Due to the form and shape of the project, it has been called De Zeester or The Starfish. the building is an extension to the residential care center for persons with a mental disability on the Willem van der Bergh Site in Noordwijk, Netherlands. The building provides a range of daytime activities for its residents. It has been designed as a compact, directionless, self-contained building with flexible potential for possible future use. One of the causes of the said flexibility is the robust column structure with a 7.2 m grid. The generic spaces can be merged and configured for use in various ways. The outdoor spaces and facility areas can provide for overflow or for any other alternate uses, like additional group spaces. The building's compactness is intended to enhance the sense of shelter and intimacy of scale. The central circulation space is minimal. A double-height collective space with a skylight forms the striking center of the building. Long, continuous corridors are avoided. On the first floor, a restaurant links to the central hall with a view of the surrounding country. The group spaces on the first floor have adjoining terraces in the form of enclosed patios. These are protected by a tall parapet, for the clients with disabilities cannot be allowed to leave the building. But there are porthole windows through which the users may enjoy contact with the outside world.





De Zeester, Noordwijk, Netherlands 2005



The project consists of a large, green site containing buildings which are diverse in their architecture, size and function. The site can be considered as divided into two parts: a meadow area with larger buildings, and a wooded area with smaller, architecturally self-contained buildings. The day care facility, which is used by a closed institution, is in the wooded area. The residents are familiar only with these surroundings, and they are mentally and physically vulnerable. Therefore, the building has a warm, non-institutional ambience, emphasizing on small-scale situations and interpersonal relations. Also, due to placing a compact, directionless and self-contained building in the woods, placing fences around the building and its outdoor space is unnecessary; at most, a see-through curtain might be used to protect the open spaces under the overhangs. The ability to control the outdoor space is important because this is a closed institution, and it is more necessary when it comes to the vulnerability of the residents.

### **Wooden Forest - Medical Center for Mentally Disabled People** Nieuwveen, Netherlands, 2018

The "Wooden Forest", situated on a beautiful estate of Ipse de Bruggen Foundation in the heart of Holland, is a medical centre for adults with mental disabilities. More than 400 clients live at the residence, where they receive care and daycare activities are organised. For the specific needs of many of the patients a wide range of medical facilities and rapeutical services are provided by more than 100 staff members. To support specialized care, social integration with the local village is very important and encourages clients to integrate with the community. In return, local residents are permitted to use the medical and sports facilities at the centre, including the rehabilitation pool where kids can take swimming lessons. Comprising a number of different entrances and exits over 4675 m2, the original building from 1978 was extended by an L-shaped corridor of 545m2 with one centralised entrance.







Wooden Forest - Medical Center for Mentally Disabled People, Nieuwveen, Netherlands, 2018



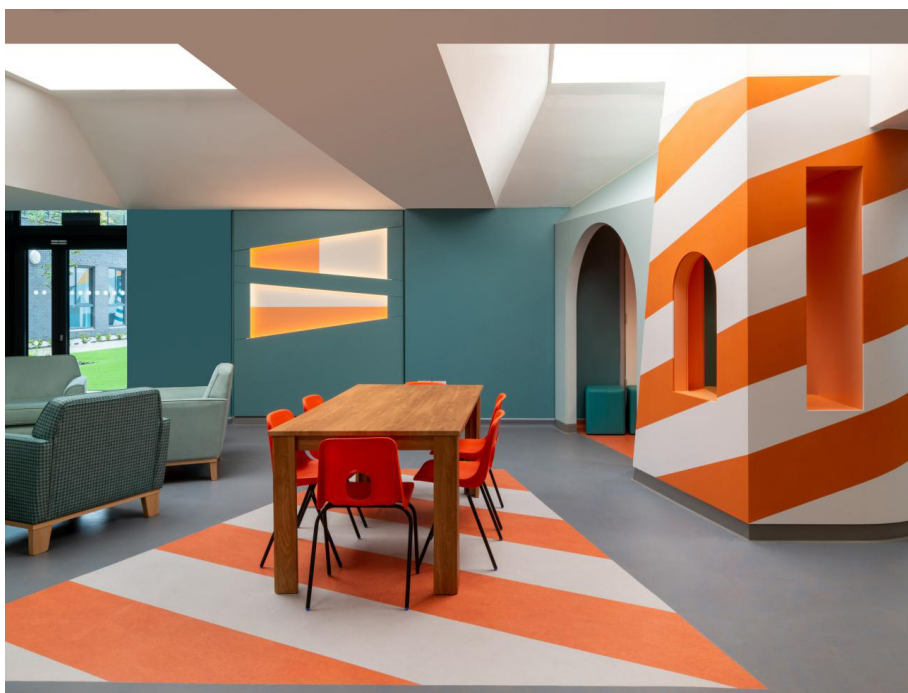
The corridor features original vertical wooden elements, thus giving it the feel of walking through a forest. It leads to a large open space with views onto the newly designed outdoor area surrounding the center. The building has been renovated with respect for the many of the original details, and all in a sustainable way. In addition, flexible office and meeting rooms have been newly created on the ground floor and the first floor. Andrea Möhn Architects was fully responsible for the interior design and integrated the residents in the design process by considering carefully to their needs and integrating suggestions and requests. Strategic designers created a spatial identity of beautiful illustrations. A wonderful world of ambiguous animals plays a trick on reality to stimulate the imagination of the users. The skin of the animals forms an antithesis to their archetypal qualities. Fluffy bunnies turn out to be prickly like a cactus and grey swine are made of precious shiny pearls.

## CAMHS Edinburgh Unit

Edinburgh, Scotland, 2020

This project, called the CAMHS, places the user at its heart, and takes a radically different approach from other schemes in its genre – treating the interior neither as an institutional healthcare setting, nor as a domestic environment. The design includes outpatient facilities for five- to -18year-olds, as well as an inpatient arm for -12 to -18year-olds. Additionally, it was important to reflect that this space was warm and welcoming but not overly 'homely'. They took a playful approach to their designs for the artworks, whilst taking care to avoid the sometimes patronising wall graphics that can appear in childrens hospitals. For instance, the bedrooms are designed so that occupants can easily personalise them, giving them a feeling of ownership. But they can easily be reverted after patients are discharged, giving a clean slate to the next resident. Each graphic intervention reinforces the overall coastal theme, but a varied approach has been taken to how they manifest in the different spaces.





CAMHS Edinburgh Unit, Edinburgh, Scotland, 2020



While designing, the designers found that the seaside was often mentioned as an environment that helps to improve mental health, which is why Projects Office used this as the starting point for the design. Colours, patterns and motifs incorporate various seaside references. For the communal areas, a key challenge was to offer a sense of safety and privacy to all patients, particularly those suffering severe distress, without creating blind corners. The designers tackled this with upholstered seating nooks built into the walls, banquettes that extend up to the ceiling, and a lighthouse-inspired den. A similar approach features in the bedrooms, although these spaces have a softer and more relaxed feel. Playful shelving and large wall boards make it easy for patients to display their personal belongings, while a window seat integrates a movable ottoman, creating a variety of different ways for families to sit together.





# OBSERVATION

## Architecture

- The outdoor spaces and facility areas can provide rooms for any other alternate usage, like additional group activities.
- For communal areas, a key challenge is to offer a sense of safety and privacy to all patients, particularly those suffering from severe distress, without creating blind corners.
- Movable furniture or walls and boxes, creating a variety of different ways for people to sit together.
- Considering numbers of different entrances and exits.

## Community

- People with mental disabilities should gradually learn to socialize and communicate more. Activities based on group's interaction are helpful.
- Each type of mental disability needs to be treated differently. Behavioral approaches cannot be the same. It is important for these people to have safe, private places and/or moments, in order to help them in times of tension and stress.
- To support specialized care, social integration with the locals is crucial and encourages people to integrate with the community.



## Multiple Disabilities

World Health Organization (WHO) states that "Disability is part of being human. Almost everyone will temporarily or permanently experience disability at some point in their life." But like we all know, disability does not always refer to one part of the body, it can be about more than one. Many combinations of disabilities are possible. For example, one person with intellectual disability can also have deafness, and another one may have vision impairment and autism as well; they do not fit in any particular stereotype. With different disabilities, there will be combined impacts. That is the reason it is also crucial to have some information, for instance how the combination of these disabilities affect learning, balance, use of the senses, thinking; or what their needs are, etc.



**Ed Roberts Campus**  
**Hazelwood School**  
**Cultural Sport Complex for Disabled**  
**House of Disabled People's Organization**  
**Enabling Village**  
**Yulin Alley**

## Ed Roberts Campus

Berkeley, California, USA 1998

Commemorating the life and work of Edward V. Roberts, an early leader in the independent living movement of persons with disabilities, the campus has been designed. The Ed Roberts campus in California, is a centralized place where seven independent living/civil rights organizations, including Berkeley's Center for Independent Living (CIL), joined to create an accessible, centralized place where people with different disabilities can access services such as vocational training, education, housing and benefits assistance, and fitness and health support. The goal was to create a fully accessible building for different people with different needs. Due to that goal, the spaces are quite predictable to navigate and understand and the wayfinding is totally clear, through colors, graphic and auditory. The walls, columns and floor have clear contrast for various needs. The space also helps in providing users confidence and independence to navigate throughout the area without the need to get help from any other person. The environment aims not to restrict anybody by its size; which at the very least means seven feet wide doorways and also adequate space to turn comfortably for wheelchair users.







Ed Roberts Campus, Berkeley, California, USA 1998



At the heart of the building is a monumental helical ramp to the second floor, prominently placed behind the glazed facade facing the main entry plaza. The architects addressed the concept of accessibility as a ramp, and turned it into the center piece of the building; which provides the access for everyone. In case of an emergency, the ramp provides a safe exit for all users as well. A universally designed building, such as this one, should not be tiring to get around and use. So, the doors are automatic, the elevators are double-sided without the need of turning for wheelchair users; and the control buttons of the elevators are designed in two levels, being able to be pushed both by hand and foot. All the signs throughout the campus are both in written and braille, and also in pictogram. The textured wayfinding provides tactile cues for visually impaired people. The fountain at the end of the building is not just for decoration, but also for people with low vision when getting around the building. In some offices, adjustable desks might be found, which can be used at any height according to the user's preference.

## Hazelwood School

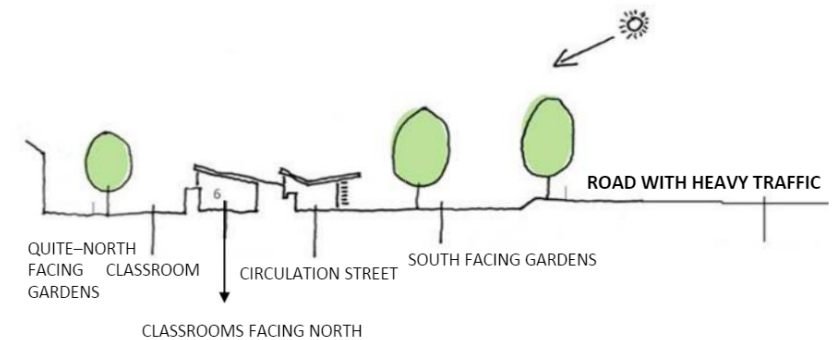
Glasgow, Scotland 2007

Hazelwood School is an elementary school for 60 students with different disabilities, from age 3 to 19. Each student has a combination of two or more impairments, including visual, hearing, mobility or cognitive impairment. The design has been focusing on creating an accessible, safe space for children and staff. The architects designed the school in a way that senses such as touch, smell and sound act as sensory cues and create awareness and help promoting independence for children to use and navigate throughout the school. For instance, the larch timber weatherboarding is utilized on the exterior for the trail wall. It smells nice and has a strong grain, helping both by being used as a tactile quality and the sense of smell for navigating. It also absorbs the solar energy and reduces the temperature of the classrooms. The corridors are designed as streets, assisting the users with orientation and navigation within the school. The central circulation space has sensory cork cladded wall, also known as trail rail, which replaces the handrail and has a warmer feel to touch. It provides kids with signifiers and tactile cues for navigation. Beside the walls, metal plates are placed along the edge of the corridor floor for children to use them with guide canes or feet along the path.





Hazelwood School, Glasgow, Scotland 2007



Sensory experience has been proved to be enhanced when careful selection of color, texture and lighting are used in the design. Research shows that different shades of red, orange and yellow are most easily seen by those with visual impairment. So, the classrooms color coding is very important for children to navigate and identify; nursery classrooms have orange walls, primary classrooms are red and secondary classrooms have yellow walls. The flooring on the other hand is matte grey in order not to create glare. Classes and teaching spaces are situated along the northern, quiet edge of the site; the walls are provided as heat and noise absorbing material in the north and the south to reduce the outside noise for students with hearing impairment. From research studies, the architects were informed that persons who are visually and/or hearing impaired often lead very secluded lives. So, in hazelwood school, a multi-purpose room is designed to serve as a lunch room but also available for inviting the neighboring community in to interact with the students.



## Cultural Sport Complex for Disabled

Tehran, Iran, 2011

In 2007, Cultural-Social Administration of Tehran municipality, decided to construct a cultural-sport complex for the disabled in different districts, in order to increase these kinds of facilities in the urban areas. The selected site was part of a 5000 meters land and just %60 occupation was possible. The remaining area belonged to the municipality so that they could prepare the access to the northern part of the site. This part was defined as a public green space; which was separated from the cultural-sport site so that it could be used by local people at any time of the day. The site was extremely limited for the client's programs and demands, and city managers insisted on constructing this building in the mentioned site. So a tall building was inevitable and that is why the architects decided to form the building as functional boxes. These functional boxes slip over each other to make voids between spaces. These spaces behave in relation to the inside and outside of the building. Some ramps in the northern facade connect these functional boxes together and create special wheelchair paths that make a dynamic facade as well. These ramps are located in a box on the facade, opposite to interior functions and connect different parts together. This facade is always changing based on its users needs because they are a part of the project. These ramps finally reach the roof that has a wheelchair track is located on it.





Cultural Sport Complex for Disabled, Tehran, Iran, 2011



The building consists of a program that includes both cultural (auditorium, library, etc.) and sports facilities (a swimming pool, gymnasiums, etc.). These considerations contribute to the design scheme: to place each individual function within a box, to stack these functional boxes with the cultural spaces to one side and the sports to the other, to place an atrium in between the two and connect the two blocks with ramps that traverse the atrium. The structure is steel frame with glass curtain walls on a reinforced concrete foundation and includes two underground levels. Altogether, the cultural-sport complex for disabled contains these spaces: administrative sector, cultural sector contains of library, gallery, Amphitheater, media center. Educational sector contains of conference hall, training classes and workshops. Sport sector contains of pool, Steam Sauna, Hydrotherapy Pool, Table Tennis Hall, Gym, Fitness, Shooting Hall, Multipurpose Hall, Chess Room, wheelchair path. Service contains of Buffet, Public hall, place of worship, parking, utility and circulation.

## House of Disabled People's Organization

Taastrup, Denmark 2012

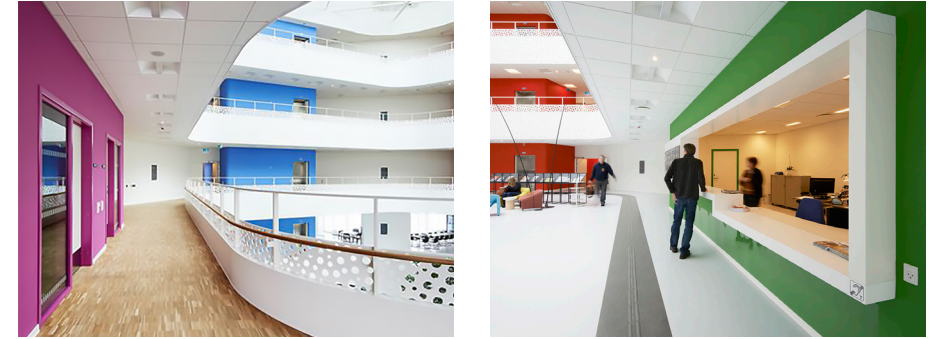
The unique thing about the disabled people's associations in Denmark is the fact that they are gathered under one umbrella. The main objective of the organization was to create the world's most accessible office building. Currently this organization has been brought over 20 different disability organizations, 5 other organizations together, that boosts 310 workplaces. Many of the staff members have different disabilities, so that the whole building has been designed with equal accessibility for everyone. Thus everyone, regardless of their disability, can work and move freely around the building without difficulty or feeling different. The building contains three fireproof zones. The fire doors are equipped with motors that makes them easier to open, so that people with mobility impairments can lead themselves to safety. Pressurized fire proof areas keep smoke out of the room, in order to keep people safe within the zone up to 1 hour. Also, the custom designed door handles have been installed on every door. They are all made of polyurethane, which ensures that the levers are not cold to touch and require the least effort to be opened; makes it easier for people with arthritis and muscular dystrophy. They come in black and grey, having contrast with door colors to help people to use them easily as well.







House of Disabled People's Organization, Taastrup, Denmark 2012



The elevators are double-sided that allows wheelchair users to enter elevator forward and move straight forward and off without turning. They can also press the control buttons near the floor with their feet or wheelchair footrests, if they cannot access the set with their hands. The standing height of the reception counter has been designed with two heights; wheelchair users and other people can get information and help at eye level and in equal manner. Walkways leading across the parking lot space to the entrance has raised patterned guideline in the pavement. The pattern continues onto the flooring inside the space, offering a tactile change of direction while functioning as a guideline. The said grey pattern runs across the floor gives tactile cues to people with vision impairment, so that they can easily navigate. Also, all the signs throughout the organization are in written, braille and pictogram. The braille signs are at a height where they can be touched by people with visual impairment. There are also tiny metal studs, half embedded into wooden railing of the staircase, which the count of them shows the number of the floor.

## Enabling Village

Lengkok Bahru, Singapore 2016

Through Master planning and the adaptive reuse of Bukit Merah Vocational Institute built in the 1970s, a new project has been formed that later was called "Enabling Village". The project is a demonstration of heartland rejuvenation and community building, re-purposed as an inclusive space that integrates education, work, training, retail and lifestyle, connecting people with disabilities and the society. The new Nest building is anchored at the main pond and serves as a beacon, drawing pedestrian flow through the new linkways. The architectural expression and finishes are continued at the existing buildings as facade, canopies and surfaces. A timber terrace is laid over the courtyard at the Playground, stepping down as an amphitheater with integrated ramps. The terrace continues under and past the building as a balcony overlooking activity islands and as a garden trail connecting to the adjacent housing precinct. Concrete pipes are inserted below the amphitheater as resting nooks. The open space between the Village Green and the Hive is reactivated as a garden yard with re-purposed sea containers as bridges, follies and meeting rooms loosely scattered with recycled oil drum planters. Up-cycling continues as interior design features in the Art Faculty and Hive.







Enabling Village, Lengkok Bahru, Singapore 2016



The design scope includes architecture, interior design, signage, lighting, art and landscaping to deliver a holistically integrated environment. The buildings are re-named as «Nest», «Playground», «Village Green», «Hive», «Hub» and «Academy», based on their characters and programs. These are seamlessly connected by ramps, landings and lifts. All public areas of the village are wheelchair-accessible. Elevators are available at blocks that have more than one storey. Motorized wheelchairs and personal mobility devices are allowed on the village grounds. Wheelchairs are available for loan at the concierge located at the NEST block. All areas in the Enabling Village have wheelchair-accessible restrooms. Also, all event spaces are equipped with induction loops that transmit directly to hearing aids with T-Coils for users with hearing loss or low hearing. A braille map of the Enabling Village is available at the concierge located at NEST block as well, braille labels and earphone ports for blind users. And just the way it is expected, service dogs are welcome.

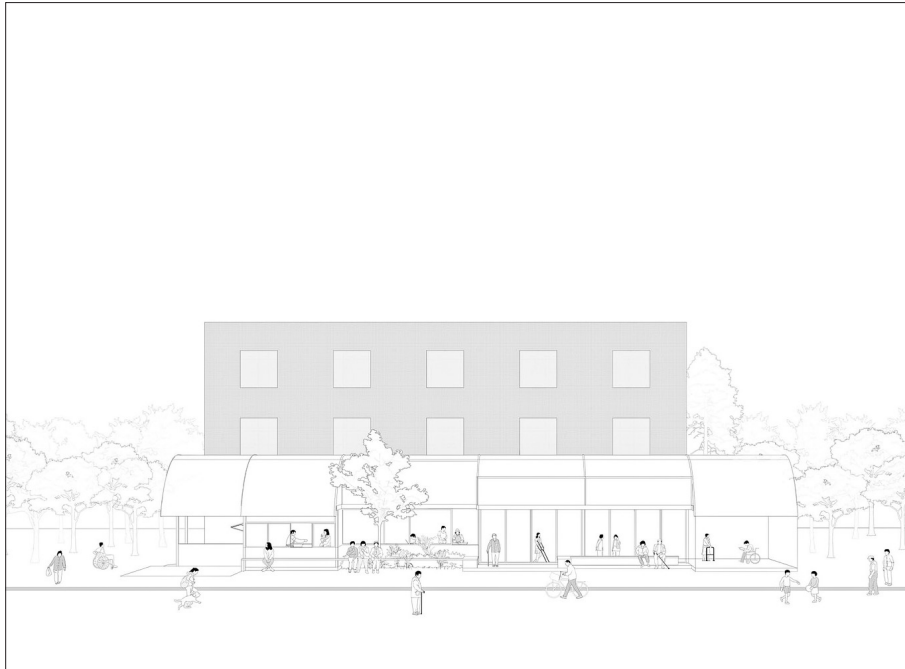


## Yulin Alley

Chengdu, China, 2019

Yulin Alley is a community center that is trying to create an environment of freedom and equality that suits all. Yulin Alley offers activities for people with disabilities so that they would be encouraged to come and take part in social events and more people can explore the area. During the formation of this project, Nhoow architects conducted a five-month research with the community staff to get an in-depth understanding of the basic situation, daily behaviors and living habits of the disabled people in the community. The results showed that the disabled people in the community were mainly with hearing impairment and mood disorder. These people mostly avoided social events because there was no suitable programs or places for them to attend. The space adopts a concave-convex misalignment plane layout, which makes the space almost free of visual dead corners and revolved in a lively moderate sense of security and distance. The facade treatment of interior and exterior, and the special outdoor seats with the reserved trees together create a fun atmosphere, which is convenient for strangers to communicate with each other.

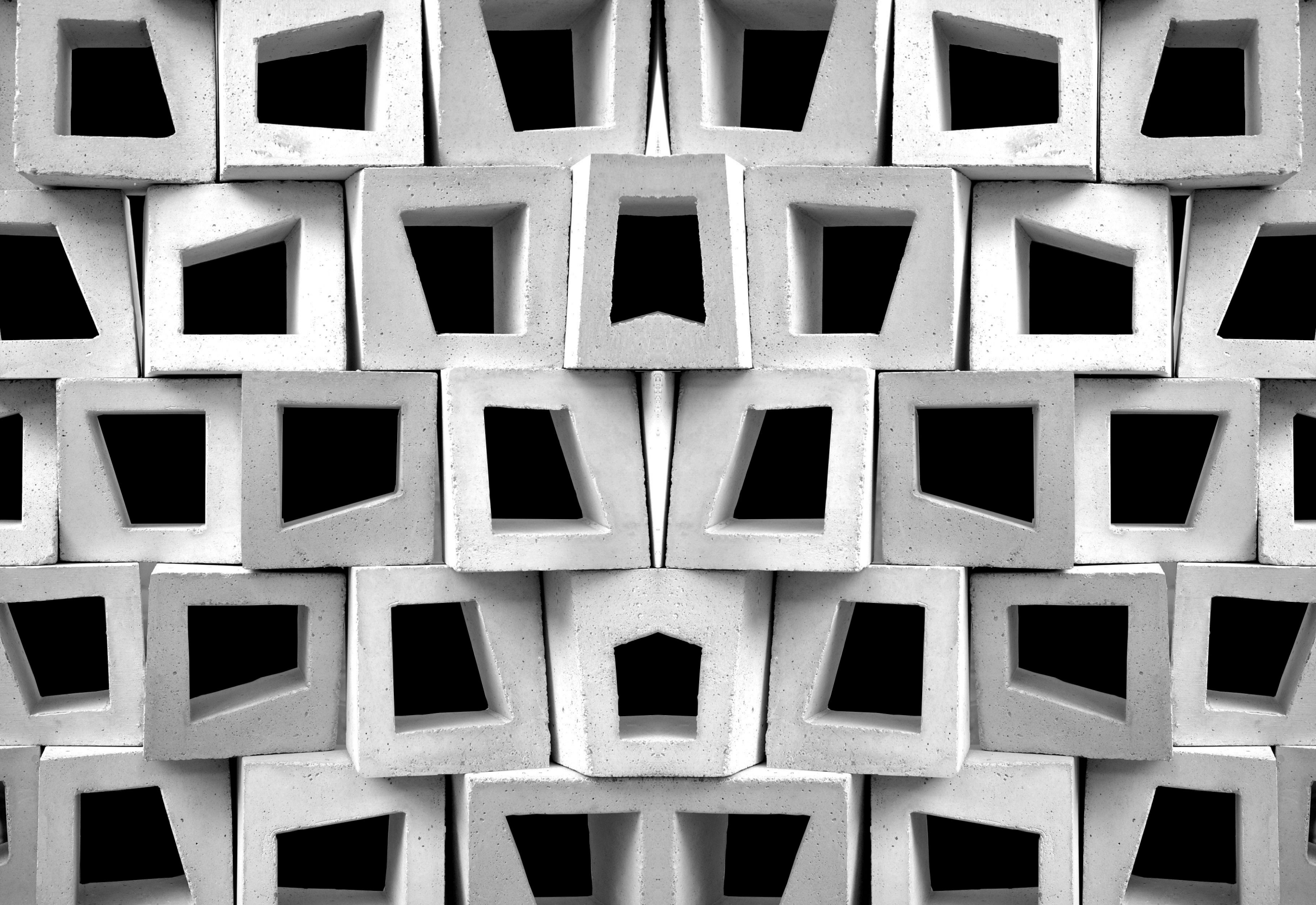




Yulin Alley, Chengdu, China, 2019



In order to meet the needs of different groups of people and achieve the purpose of “open and free”, various spaces including outdoor activity space, indoor activity space and grey space ( the transition space between the building and its external environment) are designed in it. The floor of the outdoor space is raised to build outside seating area, forming a new open space that breaks the boundary between interior and exterior space. Besides, a membrane structure is used at the top of the space, allowing for a gentle introduction and reflection of light. The flexible material and the solid wood structure form a balance between soft and rigid. More people with disabilities will be encouraged to come and take part in social activities while the space will also become a window for more people to explore around.





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