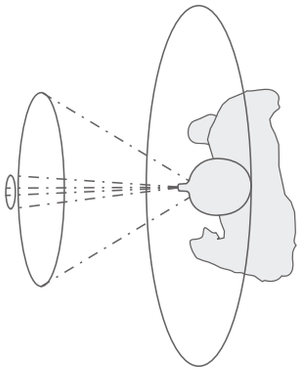
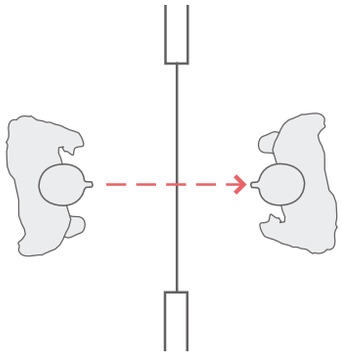
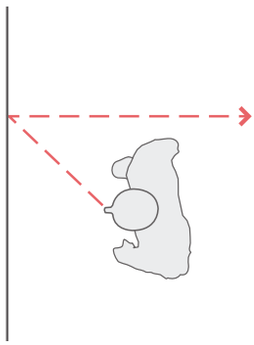
Gallaudet University

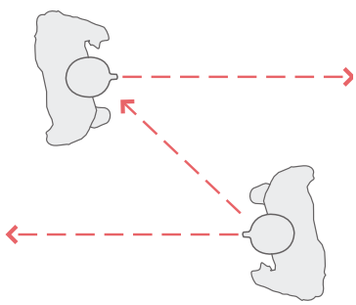
DeafSpace Design Guidelines

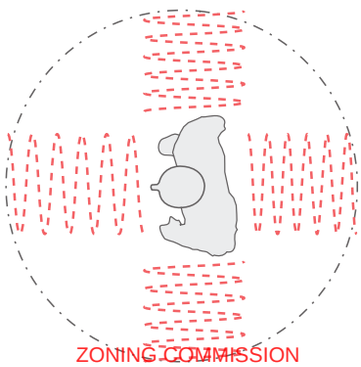
Volume 1











Working Draft, 11 August 2010

ACKNOWLEDGEMENTS

These Guidelines are a work in progress and the product of a collaborative process. While this document has been written and compiled by a (hearing) architect, the true authors are the individuals that experience DeafSpace on a daily basis—the individuals from the deaf and hard of hearing community that contributed their insights and countless hours to the DeafSpace Project over the past four years:

FALL 2006

Malzkuhn,Matthew Louis
Pazeky,Halimeh Michelle
Budzinski,Brooke Kay
Klein,Bridget Ann
Commerson,Ryan K
Arnold JR,Robert Webb
Allen,Scottie Bree
Zernovoj,Alexander

SPRING 2007

Arnold JR,Robert Webb
Duncan,Aaron Wesley
Morrison,Brian James
Arellano,Gabriel
Budzinski,Brooke Kay
Commerson,Ryan K
Allen,Scottie Bree
Pazeky,Halimeh Michelle
Ring,Casey C
Sirvage,Robert Thomas
Malzkuhn,Matthew Louis
Klein,Bridget Ann
Perez,Nieves Maria

FALL 2007

Doane,Keith Samuel
Sirvage,Robert Thomas
Commerson,Ryan K
Budzinski,Brooke Kay
Wiesblatt,David S

FALL 2008

Golden,Julia Terra
Doane,Keith Samuel
Frank,Jessica Heather
Johannsdottir,Sigridur Vala
Crider,Summer Laraine
Nystroem,Angelina Sofia
Winiarczyk,Nina Maria
Matovich,Megan Leigh

Special acknowledgement is given to Dr. Ben Bahan, Dr. H. Dirksen Bauman and Robert Sirvage in the ASL Deaf Studies Department; they are the source of inspiration and intellect that drives this work. Special acknowledgement is also given to Hope Mitnick, hbhm architecture, author of the color and material related guidelines. She supported this effort with her sensitive and insightful guidance, her sharp graphic eye and hard work from the start of the project. Steve Dangermond and Chris Keane of DangermondKeane Architecture refined and advanced the work through their diligent and artful preparation of this document. Bruce Dunlop, Lighting designer generously provided insightful advice about the use of light in DeafSpace.

This document and the DeafSpace project would not have been possible without the generous support of Gallaudet University faculty and administration. Dr. M.J. Bienvenu, Chair, ASL Deaf Studies Department (2006), Dr. Stephan Weiner, Provost for their support and belief in the project. And finally Mr. Paul Kelly, Vice President, Administration and Finance, Dr. Jane Fernandes, and Dr. I King Jordon for making this project a priority.

TABLE OF CONTENTS

Introduction

Gallaudet University
DeafSpace Design Guideline

Preface

Preface and Organization

This document is a Working Draft of the Gallaudet Deaf Space Design Guidelines (DSDG). Developed as a part of a three-year long DeafSpace Project, the Design Guidelines are an attempt to define and distill the principles of DeafSpace, and subsequently apply them to the Gallaudet Campus. Gallaudet students, faculty, and staff generated its core in four semester-long interdisciplinary courses as well as in public workshops. The Gallaudet Deaf Space Design Guide (DSDG) is a living document and as such is continuously being refined and expanded.

This documents consists of two volumes. The first volume provides the cultural history and background that is essential to understanding DeafSpace Design and provides a primer on deaf ways of being and DeafSpace. The DeafSpace Design Guidelines follow, organized around five major topics. These include, Space and Proximity, Sensory Reach, Mobility and Proximity, Light and Color and Acoustics and EMI. While developed at Gallaudet University in concert with Volume Two, Volume One is intended to be a complete document in its own right. It is envisioned as a tool for individuals or institutions interested in DeafSpace.

Volume Two acts as an overlay and, in some ways, an update to the Gallaudet Ten Year Facilities Master Plan. It provides analytical maps and illustrative plans of the Gallaudet Campus, divided into precincts, and compares current conditions to desired future development outcomes based on the DeafSpace Guidelines described in Volume One.

The Methodology for the creation of the guide and acknowledgements can be found in the appendix.

Introduction

Gallaudet University DeafSpace Design Guidelines

The DeafSpace Design Guidelines are intended to guide and inspire the design of environments for deaf people that are completely responsive to, and expressive of, their unique ways of being. The deaf community is a diverse one in which many people inhabit a rich sensory world with a heightened visual-tactile means of spatial orientation and visual language (American Sign Language (ASL) is the dominant visual language used in the United States). Many in the deaf community maintain strong social connections through, and identify with, "Deaf culture" built around a shared language, life experiences and cognitive sensibilities. A DeafSace is one in which Deaf culture, in all its diverse dimensions, can thrive through full access to communication and the unique cognitive, cultural and creative dimensions of deaf experience are encouraged. In short, DeafSpace is about physical and emotional wellbeing. It is a space where one's own unique identity as a deaf person can be explored and nurtured.

The physical environment plays a critical role in conditioning the sensory aspects of deaf experience and the term DeafSpace is often used to refer to all aspects of the unique deaf experience of the built environment. This document is intended to deepen our understanding of DeafSpace as an architectural construct by providing design professionals with a primer on the architectural implications of deaf ways of being. It provides practical ideas for tuning spaces to deaf sensibilities and suggestions for appropriate design methodologies while also serving as a starting point for further research.

Designed and constructed mostly by hearing individuals, our built environment is conceived, and in large measure, experienced visually. At the same time, it is designed in such a way that assumes hearing as a central means of spatial orientation. Often the result shows little regard for the ways in which space, form, light and material could be used to facilitate greater spatial awareness and wellbeing in a multisensory way. Deaf individuals contend with this situation on a daily basis as they negotiate physical barriers to visual communication and orientation

Footnotes

such as narrow sidewalks that do not allow for the space necessary for individuals to carry on a visual conversation, enclosed spaces that isolate individuals from their surroundings and poor lighting conditions that cause eyestrain. These Guidelines include recommendations for basic room sizes, configurations and adjacencies along with strategies for utilizing light, color, materials and acoustics. Its goal is to encourage an architecture that fosters a sense of wellbeing for deaf individuals by facilitating clear visual communication. This in turn enables a sense of personal safety and orientation by extending sensory reach, and encouraging social connections.

This document, along with its companion, the Gallaudet University Campus Design Guide have been developed through the DeafSpace Project, a four-year long planning effort conceived and directed by architect Hansel Bauman, partner of hbhm architects in conjunction with the ASL /Deaf Studies Department at Gallaudet University, the only liberal arts university in the world dedicated to the educational advancement of deaf and hard of hearing individuals. Through a series of six semester-long courses and numerous workshops, Gallaudet students, faculty and staff acquired rudimentary design and research skills they later applied to a variety of campus projects. The design insights gleaned from these projects were then synthesized in to this document to record in one place the knowledge of DeafSpace previously only communicated by example or through stories. The DeafSpace Guidelines are formatted as a catalogue, or "pattern book" of ideas that address the five major points of intersection between deaf experiences and the built environment.

- ***Space and Proximity***—how distance & adjacency affect communication and spatial awareness
- ***Sensory Reach***—how spatial awareness can be extended through environmental and social conditions
- ***Mobility and Proximity***—key relationships and distances that allow singers to move through space uninterrupted

"[Deaf people] are first, last, and for all time the people of the eye"

– George Veditz 1910

Introduction

•***Light and Color*** - how material and ambient qualities enable communication and way finding

•***Acoustics and Electromagnetic Interference*** - the importance of controlling acoustics and other interruptions

The discrete ideas that make up these categories are described with text and diagrams so that they may be easily assembled, interpreted and applied to the specific conditions of each unique project. Each idea provides a new perspective and practical approach for molding the built environment around deaf sensibilities. Taken together, the ideas expressed in this document lay the groundwork for creating a new form of cultural expression through Deaf Architecture and offer a potential forum for the deaf community to make a meaningful contribution to contemporary architectural discourse.

These guidelines offer recommendations for basic project parameters that will no-doubt have a direct impact on a project's vision, program, cost, design process and schedule. As a result these recommendations should be incorporated and prioritized at the very earliest planning phase of any project. While these Guidelines are intended for architects, designers and project decision-makers, they are accessible to anyone in the deaf community as a reference for projects of any scale.

These Guidelines are a work in progress. This document and the ongoing progress of its development is intended to serve as a bridge between the deaf/hard of hearing and the hearing worlds. While this document has been written and compiled by hearing architects, the true authors are the individuals from the deaf and hard of hearing community that contributed their insights and countless hours to the DeafSpace Project. (*See Acknowledgements*)

The work of the DeafSpace Project is based on an idea put forth by anthropologist Edward T. Hall in 1966 that people in different cultures do not only speak different languages but also, more importantly

Deaf Architecture

inhabit different sensory worlds. Hall posits that architecture serves as a cultural exchange in which different sensory worlds can be explored and experienced. The belief that deaf cognitive, cultural and creative sensibilities possess a latent potential for the making of a Deaf Architecture stands to have a profound impact on Deaf culture and the discipline of architecture. Over the past five years as DeafSpace participants uncovered and explored ways of seeing the world through deaf eyes. Beyond revealing that traditional sources of design inspiration can often be in conflict with the needs of deaf individuals, these ways of seeing suggests a new approach where heightened visual and tactile senses, or at least an understanding of those senses, open the door into a new area of inquiry: sensory design.

Since the beginning of the DeafSpace Project in 2005 our quest for a Deaf architecture came in and out of focus many times. From a distance the thought that there could, in fact, be a coherent aesthetic expressive of deaf sensibilities seems a far reach when considering the inherent diversity in the deaf community. On the other hand its surprising that deaf architecture hasn't long held a place in architectural discourse as a porthole to examine questions about our sensory relationship to the world we construct and the innate human need to communicate across modalities.

There are many ways of being deaf. The cultural variations are far too rich and complex to be discussed here in depth. Nevertheless, when contemplating a deaf architecture it is important to acknowledge the fact that the deaf community is dispersed across space, culture, religion, gender class and family. From this wide-ranging platform, deaf individuals adapt their environments to fit their needs in ways that are informed by their own creativity and self-awareness, socio-economic, environmental conditions and cultural traditions as well as their resources. Through conversations with deaf people across the country and internationally we believe that particular architectural

"Critics delight to tell us what we cannot do. They assume that blindness and deafness sever us completely from the things which the seeing and the hearing enjoy, and hence they assert we have no moral right to talk about beauty."

– Helen Keller

Introduction

patterns that promote visual/tactile sensory reach resonate in a way that suggests they may in fact be cross-cultural. Yet, even when taken together, these patterns lack a recognizable image widely associated with deaf culture in the same way an igloo is easily understood as a home to Arctic cultures and caravan tents with middle-eastern desert cultures.

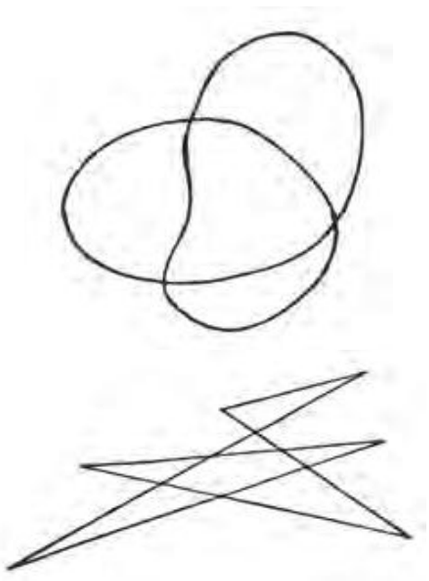
Perhaps it is all the forces that come to bear on the dispersed demographics of the deaf community that keeps the DeafSpace ideas from coalescing into a recognizable aesthetic. Or perhaps we are not accustom to seeking architectural inspiration from the intimate link between the senses and our surroundings. Rather, we look to the distant precedence of style, building technology and pragmatic problem solving as the origins of our building aesthetic. In this approach design for people with different physical and cognitive ways have been relegated to a process of adaptation championed in this country by the American Disabilities Act of 1990(ADA). Even within the well-meaning framework of the ADA the idea that one might strive for an aesthetic expressive of unique ways of being, like that proposed by DeafSpace is lost. Moreover, it is interesting to note that the ADA building design requirements attributed to deaf people receive noticeably less attention than any other so called "special needs". The DeafSpace concept flips this paradigm by seeking the wisdom of deaf individuals to guide the design of a more humane environment not only for deaf people but for society at large. Through this shift in thinking deaf people can offer a rich new perspective to the popular discussion of Universal Design (an approach within the allied design fields to construct our environments that are "usable and effective for everyone, not just people with disabilities and recognizes the importance of how things look"). A driving motivation behind the DeafSpace Project lies in the idea that through the constant and thoughtful application of these Guidelines a new conversation will emerge and new buildings will be built over time that will enhance the quality of life for deaf people in particular and society at large, through a more sensitive design of our built environment and a more empathetic approach to the ways we think about our own relationship to the environment.

The Genesis of DeafSpace

The fact that the DeafSpace Project grew out of the historic campus of Gallaudet University is not a coincidence. The longing for a place of our own where deaf individuals can be together with access to communication in the comfort of familiar cultural traditions has been expressed through the ages in deaf folklore and history. In 1855 the politician John J. Flournoy proposed a independent state in which deaf people could live in a signing environment, yet it never came to pass. More recently the new town Laurant South Dakota was planned as a first of a kind signing community but has yet to be realized. For years deaf social clubs and state deaf schools have served as a gathering place where deaf individuals can maintain a connection to their community. Now, with the emerging access to communication technologies and other cultural forces attendance at deaf clubs and schools are on the decline.

Gallaudet University, on the other hand, has endured the test of time. Since it was founded in 1864 by a charter signed by President Lincoln the Gallaudet campus located in northeast Washington, D.C. remains the only place in the world where deaf and hard of hearing individuals can have full access to education through the visual language. This enduring legacy makes Gallaudet both a premier academic institution and an internationally renowned cultural center of the deaf community.

Given that, one would expect that Gallaudet's buildings and campus would be completely responsive to and expressive of the unique physical, sensory, cognitive and cultural aspects of Deaf experiences. Yet, if you visited the campus and no one else was around it would be difficult to tell from the campus design that its primary mission was to serve deaf people. From its inception, Gallaudet university leaders and designers have endeavored to build a prestigious campus setting with landscape and architectural styles that put Gallaudet University on par with other premiere institutions yet creating places that embrace deaf ways of being has been a secondary consideration.



Introduction

Frustrated by the fact that one could encounter so many physical barriers to visual communication and spatial orientation at arguably the most revered cultural centers in the deaf world, the campus community called for a new approach for designing and building campus buildings. This approach would be focused on designing for deaf sensibilities. In 2005 the university administration responded by establishing an inclusive process for the design of the new Sorenson Language and Communication Center (SLCC) that gathered DeafSpace concepts for the new building from a wide range of deaf students, faculty, staff. The very first DeafSpace workshop was held in the spring of 2005. The outcomes from this workshop were used to guide the design of the building. The project was an ambitious undertaking that came with many lessons learned. It was these lessons learned about the design process and the realization of the full depth and potential impact DeafSpace ideas could have on a project that coaxed the DeafSpace Project into existence in the fall of 2006. Many of the ideas put forth by the workshop participants proved quite successful, some ideas were lost in the design and budget cutting process and some ideas simply did not pan out or were never incorporated. A Look back to the SLCC experience and the relative success of the DeafSpace concepts implemented in the project provided a valuable point of departure for these Guidelines and remains as a viable post occupancy case study. More importantly the SLCC stands as a proud reminder of the university's commitment to the innovative advancement of the deaf community it serves and the legacy to provide students with a preeminent learning environment.

Introduction

DeafSpace Design a Collaborative Process

DeafSpace Design is not simply a matter of following design guidelines, but is a radically inclusive process that requires a re-thinking of the way a typical project is designed and built. This holds true for clients as well as for the design team. DeafSpace Design requires that projects are designed collaboratively with their deaf stakeholders, drawing upon collective wisdom and insight and going far beyond space and program needs. Design teams must interact extensively with the Deaf and Hard of Hearing community through workshops, public reviews and consultations with Deaf leaders. Critical to the success of this interaction is the understanding that for those who communicate with ASL or other sign languages, english is a second language. As a result, all communication must be done carefully, with time taken to make sure that issues and comments are being understood clearly by all.

Building the Right Team - The Owner/Client

Creating an successful DeafSpace Design project begins with the owner or client for whom the project is being designed. Because the process is intended to be radically inclusive, it is important that a committed and engaged team is put in place to steer the project and facilitate the necessary connections with the Deaf and Hard of Hearing community and any other institutional entities and/or neighbors that have a stake in the outcome of the project. This team must place a priority on DeafSpace and provide an appropriate schedule and budget to help position the project for a successful outcome. To that end, schedules will need to accommodate a longer than normal design process providing stakeholders, engineers and architects the time to find the rhythm of a truly inclusive and collaborative process that addresses the complexity inherent in a bilingual process. Further, since the DeafSpace Design Guidelines will impact the project costs, program and budget must be realistically balanced from the outset. It is important to recognize up front that, generally speaking, more money will need to be allocated to building interiors

Introduction

and that, overall, the cost of a DeafSpace project will be more per square foot than a typical building. Even with careful planning, however, it is not unusual for building projects to run up against conflicts between budgets and programmatic needs. In today's world of construction "value engineering"[1] has become a standard part of the design and construction process. It is critical, however, when value engineering a project, that owners/clients become the guardians of DeafSpace principles. In order to be successful, decisions must always prioritize DeafSpace.

Building the Right Team - The Design Team

Also crucial to the success of a DeafSpace Design project is having the correct design team. Architects and other designers must be experienced with working with user groups in an inclusive and collaborative way. Because of the bilingual nature of working with Deaf individuals, communication skills are paramount. It is difficult enough to communicate spatial concepts and design ideas when everyone speaks the same language. Architects and designers should be required to present their ideas clearly, with an emphasis on three dimensional drawings and models. In addition to general concerns of communication and graphics, design teams that seek to do DeafSpace Design require certain specific categories of expertise. All DeafSpace projects should have on the design team individuals that are experts in electric lighting, daylighting, acoustics, EMI and color.

1.) a technique in which a building design is optimized through a review of performance (function) and costs. Often this process identifies and removes unnecessary expenditures and/or identifies less expensive acceptable alternatives that are substituted in the design.

Glossary

DeafSpace Terms

The following are terms that can be found in both Volume one and Two of the Gallaudet Deaf Space Design Guide. These definitions reflect how these words are used across the Deaf community and within various fields of research.

Deafness – describes condition of decreased or absence of hearing of an individual – it is a pathological term.

Deaf – "Deaf" with capital 'D' . Used to describe an individual or group of individuals for whom being deaf is central to cultural identity. Sign language used as primary language.

Hard of Hearing – describes condition of having some degree of hearing -- often given to those who are able to hear and talk on telephone. Acronym for that term is HoH.

Hearing Impaired – describes someone with decreased hearing ability or with no hearing ability. The implication is that these conditions are impediments to one's social life and medical well being. Widely considered an unacceptable term among members of both Deaf and Hard-Of-Hearing communities.

Deafened – describes people who lose hearing ability during a part of their life sometime after birth.

Hearing Loss – Audiologists and those in medical profession used the word in making evaluations and prognoses of one's hearing status.

Oralist / Oralism – Deaf/HoH individuals who communicate by lip-reading and/or hear with the help of technological devices. Primarily use spoken language. Oralism is an educational philosophy which holds the acquisition of the ability to speak as a primary pedagogical goal.

Signers – People who acquire and use sign language as a primary means of communication.

C.I. / Clers – Acronym for Cochlear Implant. Individuals with cochlear implants.

Hearing – Term that describe people who hear and speak. Some hearing individuals acquire sign language and place themselves among Deaf communities socially and often by profession.

CODA – Acronym for hearing children of Deaf parent(s). They often acquire sign languages and cultural experience of Deaf as they grow up. KODA are used to describe the person's being pre-teenage.

Deaf Family – Term used for family with Deaf parent or parents and one or more Deaf children.

Deaf Community – Community of individuals who maintain their cultural and social networks through commonalities in auditory status, cultural experience, language, and educational background.

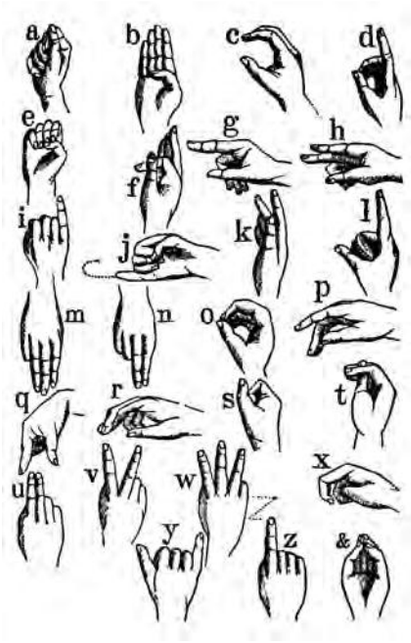
Deaf and Hard of Hearing – As used in Gallaudet University's mission statement, the coupling of these terms is intended to express an inclusive stance toward all people of different educational and cultural background. It does not necessarily means a dichotomous relationship between two terminologies.

Usher Syndrome – Condition of individuals who are deaf or who have undergone progressive hearing loss along with progressively deteriorating vision starting at the periphery. Individuals with Usher Syndrome often maintain their ties to Deaf community through an educational setting or linguistic commonality (Sign Language).

DeafBlind – Individuals who are both deaf and blind. As with Usher Syndrome, there are instances of individuals maintaining ties with the community and fostering a unique identity of their own. "DeafBlind" are often used to overarch the assortment of types ranging being legally blind to other types such as Usher Syndrome.

ASL – Acronym for American Sign Language.

Sign Languages – Referring to its linguistic modality, which is not limited exclusively to American Sign Languages as there are more than 120, documented sign languages by Deaf around the world. See http://www.ethnologue.com Search: "Language Family Tree under Deaf Sign Languages."



Gallaudet DeafSpace Design Guidelines

Gallaudet DeafSpace Design Guidelines

Introduction

The previous chapter outlined the history of Deaf Culture and explained how deaf individuals perceive their surroundings. This next chapter, The DeafSpace Design Guidelines, makes specific recommendations on how to craft an environment that supports this unique perspective.

The Guidelines are organized around five major areas which are particularly important to deaf individuals and their environment. Common to all of these categories are ideas of community building, visual language (signing) and the promotion of feelings of safety and well-being.

The first of these categories, is Space and Proximity. This deals with the particular needs of deaf Individuals in terms of the physical distance and relationships between people and their surroundings. This category is focused on how distance and adjacency affect deaf peoples ability to communicate with each other and understand their surroundings.

The next category, Sensory Reach, goes to the core of DeafSpace. Fundamentally, this topic address the need of Deaf people to extend their sensory reach to encompass the 360 degree range taken for granted by hearing individuals. This includes augmenting visual access through both transparency and reflection and the sensing of vibratory and tactile cues. Also considered are the interpersonal relationships that allow for a shared sensory reach which makes the environment safe, comfortable and easy comprehensible.

The third category, Mobility and Proximity, describes the key relationships and distances that allow signers to move through their environment with maximum fluidity. It encompasses the removal of barriers, the creation of rhythmic, repetitive and intuitive way-finding strategies as well as the extra dimension required for the social component of mobile signed conversations.

The remaining two categories, Light and Color and Acoustics and EMI, impact all facets of DeafSpace. They are included here because of their overall importance but also because attention to the technical aspects of these areas is crucial to the success of any DeafSpace design project.

The goal of these Guidelines is to create a set of interrelated principles whose purpose is to generate a visu-centric environment that promotes communication, well-being and community for and amongst deaf individuals – a model of DeafSpace. The Prototypes that follow this section are examples of the combination and negotiation that must be undergone to address these principles in the context of program and space requirements.

The Guidelines are intended to be used by campus planners, architects, administrators and all those involved in designing space for deaf individuals. They are overlays to Master Planning and building design requirements, and should be closely considered when in the schematic and programming phases of projects.

The Deaf community is made up of many different types of people. This community includes, but is not limited to, the profoundly deaf, the hard of hearing, people with cochlear implants and hearing aids, and those with Deaf-Blind considerations such as Usher's Syndrome. While needs vary and every principle may not apply to each group, the document attempts to address those issues which are fundamental to the way the Deaf Community exists in space. Future research will focus more fully on the needs of those with Deaf-Blind considerations.

1 Space & Proximity

DeafSpace Design Guidelines

Introduction

What is Proxemics?

Proxemics is the study of the cultural, behavioral, and sociological aspects of spatial distances between individuals. An example of this is how far apart individuals engaged in conversation stand depending on the degree of intimacy between them. The Deaf Community has a set of proxemic requirements that are tailored to their unique way of communicating. These needs must be accounted for when designing DeafSpace.

The Spatial Implications of Deaf Proxemics

Deaf individuals using sign language need to initiate communication with eye contact and must maintain a clear visual window in which to hold signed conversations. Deaf Individuals utilize touch as an integral part of the language and rely on extremely subtle facial and body movements while holding a conversation. All proxemic considerations for DeafSpace are derived from these basic communication needs (see figure 1).

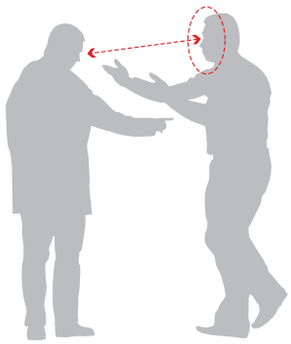


Figure 1

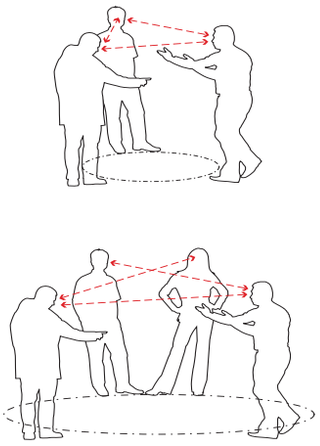


Figure 2

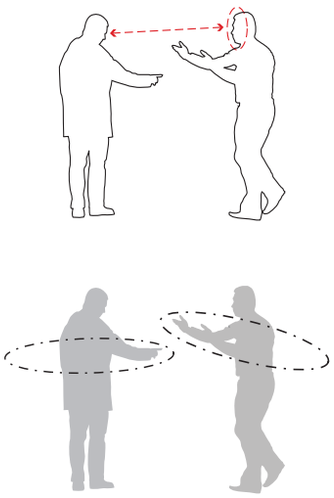


Figure 3

There are a few key proxemic requirements that shape DeafSpace. The need to establish and maintain eye contact with individuals for all communication requires an absence of visual barriers across space (see figure 2). The need for space around the arms in order to sign comfortably (described as a persons "signing range") results in the need for more generous space around individuals (see figure 3). This space must be barrier free in order to enable quick crossing if touching is needed in the conversation. Finally, there is often a need to step back from signing individuals to increase the scope of vision and to see signing in its totality along with the other person's facial expressions. This often leads to the need for more area within a room or particular space (see figure 4). Combined, these requirements have several important implications for the way deaf individuals organize themselves into groups.

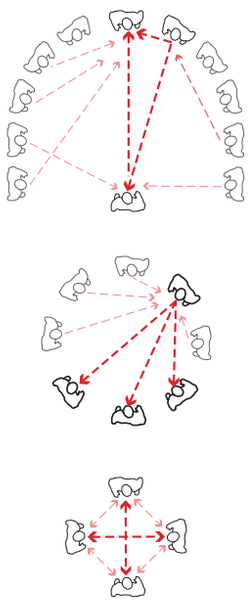


Figure 4

Organization in Groups

As groups of deaf people gather and grow, the shape of their grouping will tend to form large circles and arcs allowing all individuals to communicate with each other. Thus, DeafSpace must accommodate a range of formal and informal gathering spaces that allow large circular groups or multiple clusters of smaller groups in circular arrangements to communicate comfortably (see figure 4).

Social, Intellectual and Cultural Context (Adjacencies)

Layered upon these considerations is the need for connection to initiate non-verbal communication. Information exchange and personal connection must be facilitated through contextual cues and adjacencies of program that foster exchange. Social, Intellectual and Cultural context (adjacencies and exposure) allows Deaf individuals opportunities to initiate interpersonal exchanges.

1 Space & Proxemity

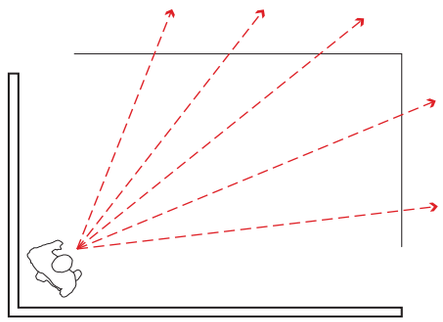
DeafSpace Design Guidelines

1.1 Degrees of Enclosure

For the hearing, physical enclosure is associated with a sense of security. For deaf individuals, open spaces that allow for visual control over the surrounding area bring a sense of security and well-being. Too much enclosure creates feelings of isolation from other members of the deaf community. Too little enclosure creates feelings of exposure which tend to reduce concentration and productivity and increase stress.

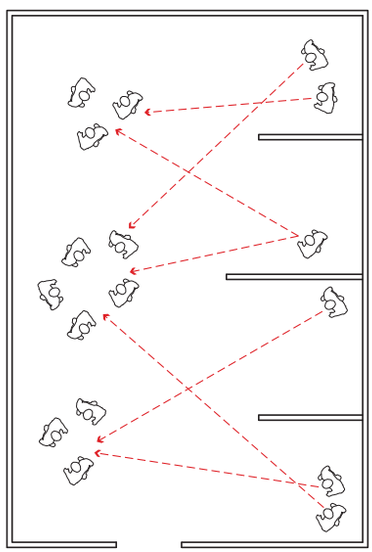
1.1.1 Private Space

Provide a balance of enclosure and openness for private spaces. Taking into account room functions, compose private spaces so that occupants will generally face toward the most open area of the room. This arrangement places most visual access within the occupant's comfortable field of vision and minimizes the potential for interruptions from behind.



1.1.2 Within Public Space

Semi-private spaces within public spaces such as alcoves and porches provide a comfortable degree of enclosure that allows occupants to see and be seen. Like Private Space Enclosures (1.1.1), enclosures within public spaces typically position the greater degree of enclosure behind the occupants allowing them to face toward the open areas and view activities taking place within the public realm.

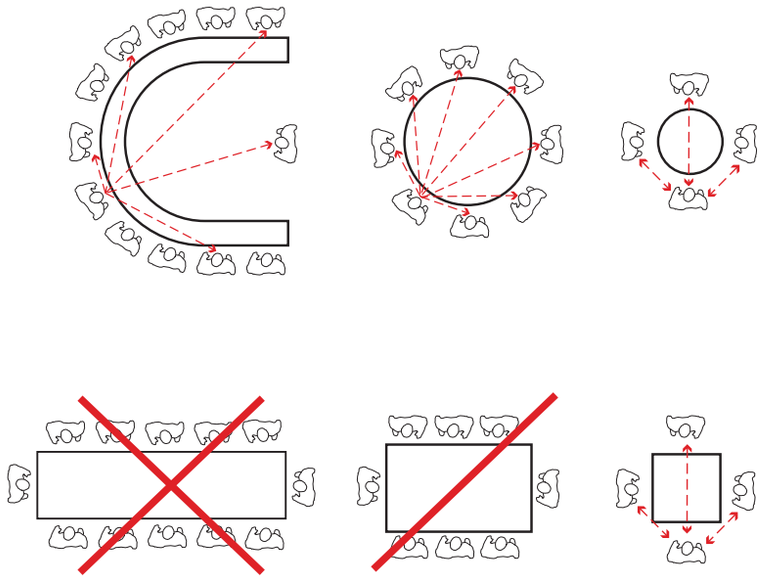


1.2 Formal Gathering Spaces

For the sake of this document, formal gathering spaces are considered to be spaces specifically designed to facilitate group gatherings where participant's attention is primarily directed toward a dominant focal point such as a presentation, lecture or staged performance. Though oriented towards a single focal point, theses spaces should allow for clear communication between occupants when engaged in group conversations, debate or question and answer sessions. When designing these spaces for deaf individuals careful consideration should be given to seating arrangements and viewers relationship to the lecture or stage area to ensure that proper sightlines between occupants, presenters, and interpreters are maintained for legible communication. Lighting and interface with communication technology is also critical (see Section 2.7 and Section 4).

1.2.1 Groups & Seating Arrangements

When seated in groups, deaf individuals need arrangements that accommodate seeing the faces of and making eye contact with all participants. Square and rectangular tables present problems for deaf individuals in groups larger than four, getting progressively worse the larger the group. Round tables and horseshoe shaped tables are preferred.

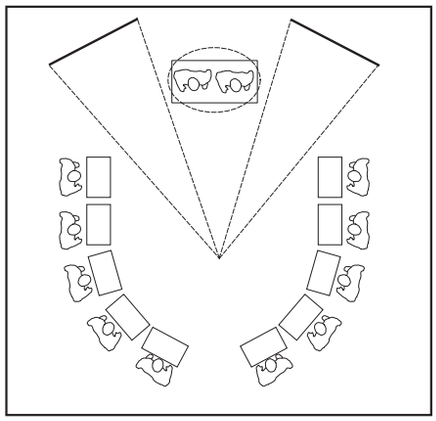


1.2.2 Presentation Spaces

When a lecturer, actor or small group, requiring projected graphic images and supported by a sign language interpreter, presents to a large group, a complex set of relationships must be carefully managed in order to maintain clear and continual communication with the audience. In general, these presentation spaces should accommodate a lectern and or teacher's desk and projection screen with audio visual systems controls located at the lectern. Screens should accommodate the simultaneous projection of visual displays and written text (CART). A clear zone of no less than 15 square feet should be located at each side of the projection screen to allow room for a presenter and interpreter. Spot or task lighting should be directed toward these areas to enable a clear view of visual communication while lighting levels are reduced for presentations (see 4.3.3). Where possible, room entries should be located at the opposite side of the room from the Presentation Space in order to minimize distraction from individuals arriving or departing during presentations.

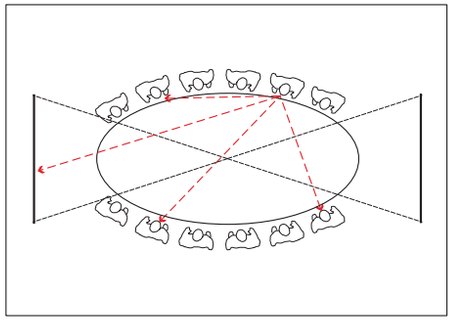
1.2.3 Classrooms

Classrooms designed to facilitate visual communication should accommodate a "horseshoe" seating arrangement with the Presentation Space (see 1.2.2) located at the one open end to allow each occupant equal visual access to one another and the lecture area. While the ideal maximum number of desks for this arrangement will vary with classroom size, is is important to maintain a distance that will allow occupants to maintain focus on visual communication. Taking into account circulation space, storage requirements and the need for flexibility, optimal classrooms should provide xx sf/student.



1.2.4 Meeting Rooms

Meeting rooms should be designed to facilitate visual communication for small to moderate size groups (xx to xxx people) gathered together for a conversation, and/or presentation. Smaller groups up to XX may meet around a single round or oval table with the Presentation Space (see 1.2.2) located at one end of the room. An arrangement of two arched tables facing toward the center is recommended for a seating of greater than XX and not more than XX. The separate table arrangement is well suited for formal board meetings or hearings that necessitate a heightened visual focus on each participant seated at the table while at the same time providing clear visual access to the Presentation Area (See1.2.2) located along the central axis of the room. The presentation area for large meeting rooms should include two screens and a larger zone for presenters and interpreters. This room arrangement also allows for ancillary gallery seating.

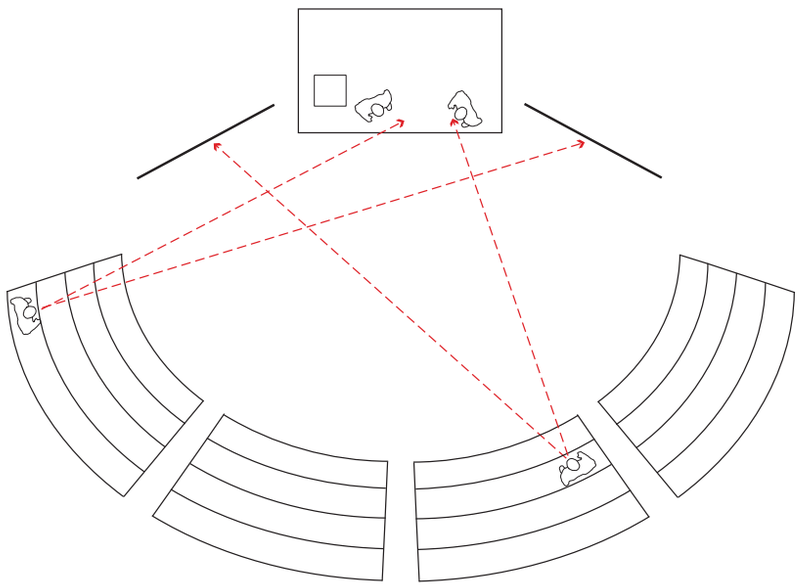


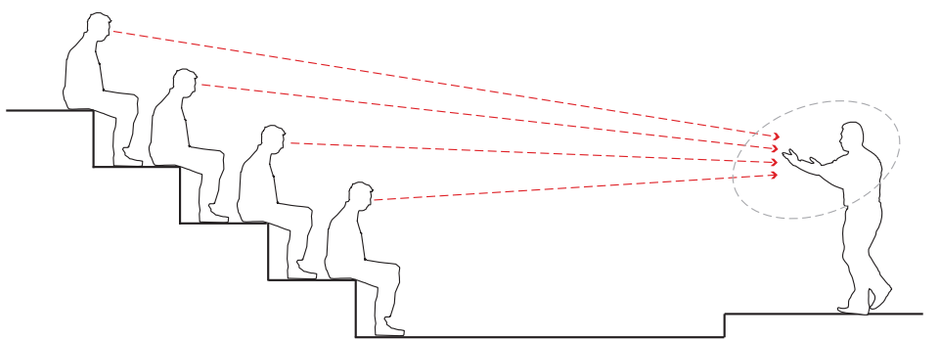
1 Space & Proxemity

DeafSpace Design Guidelines

1.2.5 Lecture Halls & Auditoriums

Lecture Halls and Auditoriums—formal, large-scale gathering spaces consisting of a stage area and raked seating—demand particular attention to be paid to the layout and pitch of the stepped seating area to ensure unobstructed visual access of the full stage area from every seat in the audience. Presentations and performances within the deaf community are often followed by lively question and answer sessions in which audience members leave their seat, and present their comments on stage to be seen by all. As a result, Lecture Halls and Auditoriums designed for deaf gatherings must dedicate a large proportion of floor area to aisles with fewer seats to a row in order to enable quick access to and from the stage during these sessions of open visual dialogue. For planning purposes, Lecture Halls and Auditoriums serving deaf audiences should provide xx square feet per occupant as compared to the typical xx square feet per occupant. Furthermore Lighting (4.3.3) and Visual Display screens (1.2.2) should be integrated into the design of these spaces to ensure proper viewing of stage activities and captioning.



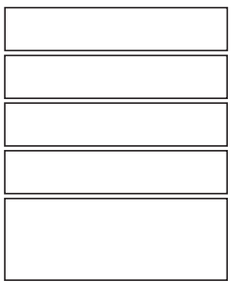


1.3 Collective Space - Promoting Connection

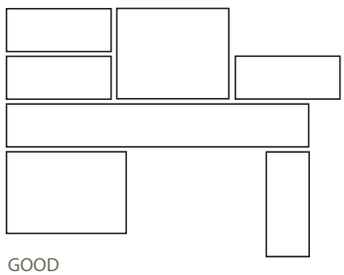
Social interaction is a fundamental component of maintaining a sense of culture and well-being, especially within the deaf community. Public spaces within buildings, on campus and in urban settings (the "public realm") should be designed with this goal in mind. Significant program elements, public spaces and circulation spaces should be configured to promote casual interaction. A variety of visual connections should allow deaf occupants opportunities to view public spaces from multiple vantage points and to sense the movement of others and initiate interaction—even from a distance. The public realm should be structured to provide multiple opportunities for individuals to initiate a signed conversation and socialize without interruption, or to simply linger comfortably within the flow and activity of the space.

1.3.1 Program Distribution

Lively collective spaces are hubs of activity. Where possible, collective spaces should be located next to high-density spaces like lecture halls, cafés and dormitories, or public places, like retail areas. Adjacency to theses types of uses can help activate collective spaces by allowing for visual and physical connection.



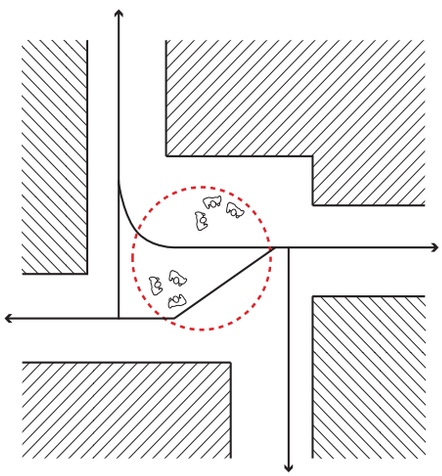
BAD



GOOD

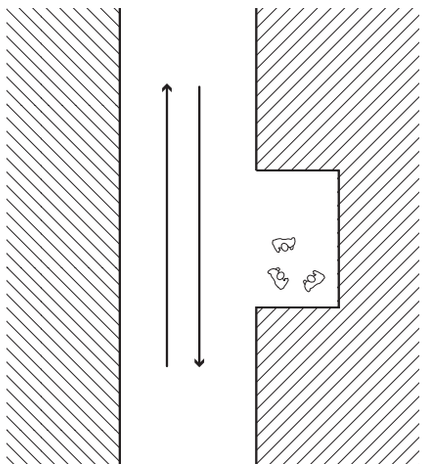
1.3.2 Nodes

Spontaneous social interaction amongst deaf individuals should be encouraged by locating collective spaces at "nodes" along the way to other locations. This is true for the campus, building and city scale.



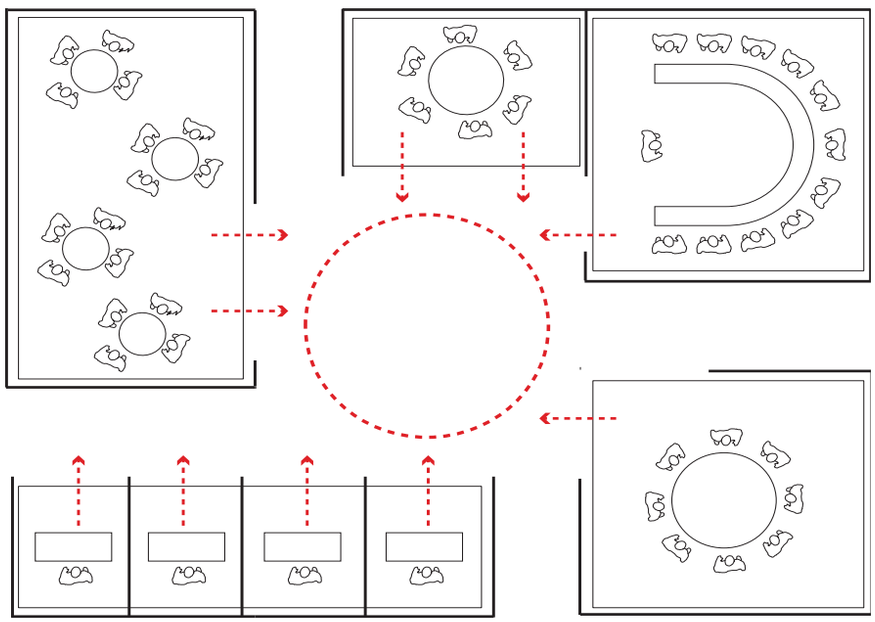
1.3.3 Eddies

Along major pathways and corridors provide places to stop and have a conversation or take in a view out of the flow of traffic. These "eddies" can be scaled for group gatherings and/or conversations or ancillary uses like making a video phone call or mailing a letter (3.1.3).



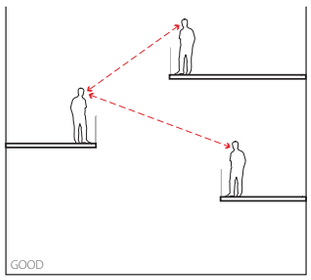
1.3.4 Connecting Interior Spaces

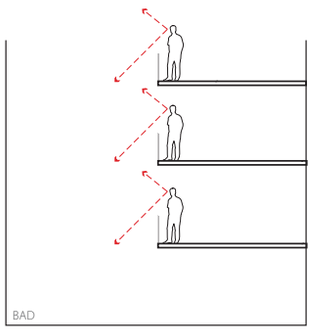
Inside buildings, openings should be located to allow deaf individuals to see their colleagues at work and in social situations. Transparency of walls and doors, large unobstructed openings and sliding wall panels should be used between offices, circulation and communal spaces when appropriate to visually connect people while satisfying access and privacy requirements.



1.3.5 Visual Connection Between Floors

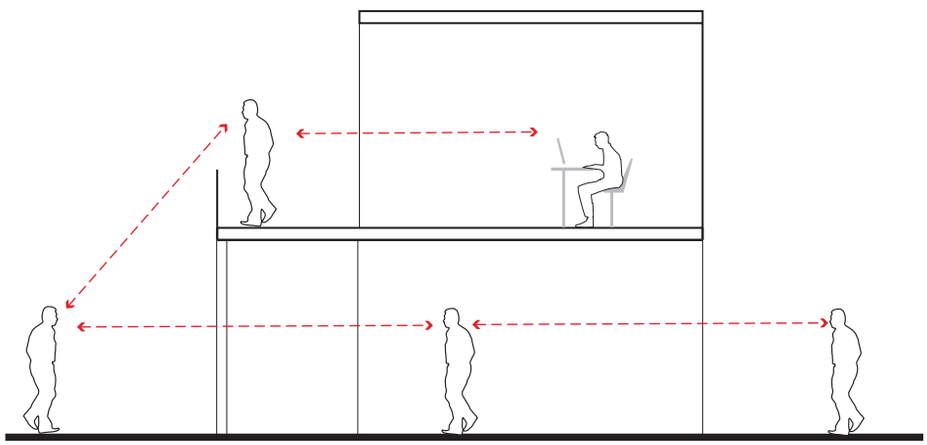
Visual connection between floors is a critical consideration for deaf individuals who depend on their sight to navigate the environment. Circulation, balconies and activity areas within multiple-story spaces should be staggered to provide visual connectivity between floors and deep within buildings to give individuals an understanding of the building's volume.





1.3.6 Linking Exterior & Interior Spaces

It is highly desirable to open up interior building spaces, especially social spaces such as conference rooms, lounges, building lobbies and eating areas to exterior circulation paths and common areas. Making a ground floor that is as transparent as possible is an effective means for achieving this, but upper level building spaces may communicate with outdoor areas as well (see 2.1.4). Highly transparent glazing should be used and heavily reflective or tinted glass should be avoided.



1.3.7 Flexible Casual Seating Arrangements

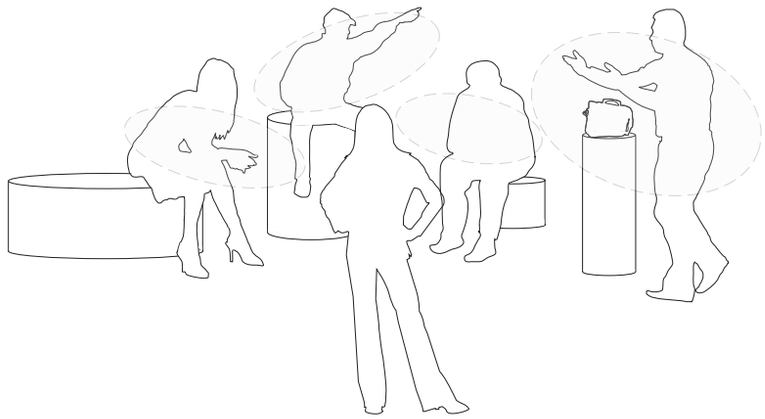
Social spaces and formal gathering spaces like cafes, break rooms, and large ballrooms should be furnished with tables and chairs that promote clear visual communication while seated in a group setting. Seating should be light and durable to allow easy movement of the chairs to adjust locations as necessary to quickly accommodate new group formations as they emerge. The seating should not have arms that restrict movement of the seated signer moving to gain optimal sightlines and gesture. Tables accommodating more than four individuals should be round. When possible furniture arrangements should be made of more, smaller tables as opposed to larger ones to allow occupants to optimize table arrangements on as they see fit (1.2.1). These arrangements may be located outdoors or indoors.

1.3.8 Fixed Casual Seating Arrangements

Architectural elements which can be used as seating or simply a place to set down one's belongings encourage gathering and conversation. These elements should be located in casual indoor and outdoor social spaces and configured such that a group of 2 or more individuals may sit within 1'-6" to 3'-0" of one another. When arranged in clusters, this allows individuals to circulate freely and chose their place in a group as it forms. The seating elements should vary slightly in height to allow clear sightlines among a variety of participants. Conversation pedestals and shelves should be included in these clusters (1.3.9).

1.3.9 Conversation Pedistals & Shelves

The common occurrence of carrying one's belongings while walking can be a barrier to visual communication. Signers are often faced with the choice of struggling through a conversation while juggling their belongings or finding an appropriate place to set them down. Often, the floor is the only choice. Nodes, eddies and formal gathering areas such as ballrooms and meeting rooms should be equipped with tall pedestals and/or shelves at roughly chair-rail height to provide a variety of places for signers who meet casually to set down their belongings.



2 Sensory Reach

DeafSpace Design Guidelines

Introduction

What is Sensory Reach?

Sensory Reach is defined by the interrelated systems of perception (i.e. hearing, seeing, smelling, feeling) that are used to understand and orient in space are collectively referred to as an individual's Sensory Reach.

Although deaf individuals do not have the ability to hear sound, they have developed mechanisms that allow them to extend their Sensory Reach such that they can successfully sense the world around them. It is a common perception that the Sensory Reach of deaf individuals in limited to the visual. Although this is one means by which deaf individuals gain information about their surroundings, they also utilize vibratory, tactile and shared or social cues to achieve the 360 degree sensory reach which hearing normally provides (see figure 1).

Extending Sensory Reach

Extending sensory reach is one of the main goals of DeafSpace. When designing space for the Deaf, strategies which extend each system of Deaf Sensory Reach should be deployed.

Visual: Visual Cues and Legibility

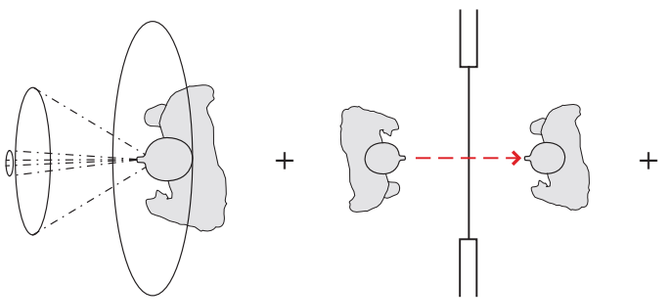
The first means by which Sensory Reach can be extended is through the use of rhythmic, repetitive and intuitive visual cues to allow a deaf person's peripheral vision to work more effectively in orientation. As a design element, this can manifest itself as a large scale way-finding strategy or as simple legibility of building or room uses such that a person seeking to orient themselves visually would have multiple points of reference from which to do so.

Visual: Transparency, Openness and Visual Connection

The promotion of visual connection, openness and transparency is essential as a means to extend Deaf Sensory Reach. This is a complex endeavor because it must be carefully balanced with privacy and comfort concerns. The "degree of enclosure" needs to be controlled depending on the situation to assure a balance of visual connectivity, privacy and safety.

Visual: Reflection

Reflection can also extend vision to allow deaf individuals to see behind themselves and around corners, as well as to help them gauge depth. With the help of strategically placed reflective surfaces, individuals can carry on signed conversations while monitoring 360 degrees around themselves. Reflective surfaces can also be used in movement spaces to avoid collisions around corners and alert individuals when someone is approaching from behind.



Vibratory and Tactile Sensory Reach

When conditions are right, Deaf individuals can "feel sound" through tactile and vibratory cues. Vibrations can be used to help deaf individuals orient themselves within a space and sense activity nearby. Conversely, uncontrolled vibration between spaces, can mask beneficial vibrations and cause confusion.

Shared (social) Sensory Reach

While deaf individuals navigate their environment, they depend on each other to extend their sensory reach. For example, if two people are walking down a sidewalk, one might point out children playing behind his companion while the other might warn the first about an approaching car. As a strategy, this shared or social exchange allows both parties to successfully understand the environment. (Keating & Mirus) Shared sensory reach is a powerful and deeply rooted cultural practice in the Deaf Community. By reinforcing collectivist tendencies, it establishes behavioral patterns that shape the Deaf social cultural experience,.

Cultural: Promoting social connections

A sense of self—or "personhood"—for deaf individuals is reinforced through eye-to-eye contact and a sense of shared sensory experiences and creative endeavors. To be in visual contact with ones peers through the display of their creative work is a subtle but powerful means to enrich the sense of belonging and personhood. Buildings for the deaf community should foster a sense of community by providing multiple opportunities to view peers engaged in creative endeavors and to display this work with others.

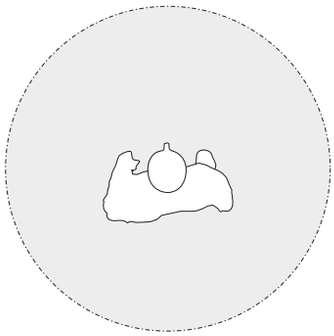


Figure 1

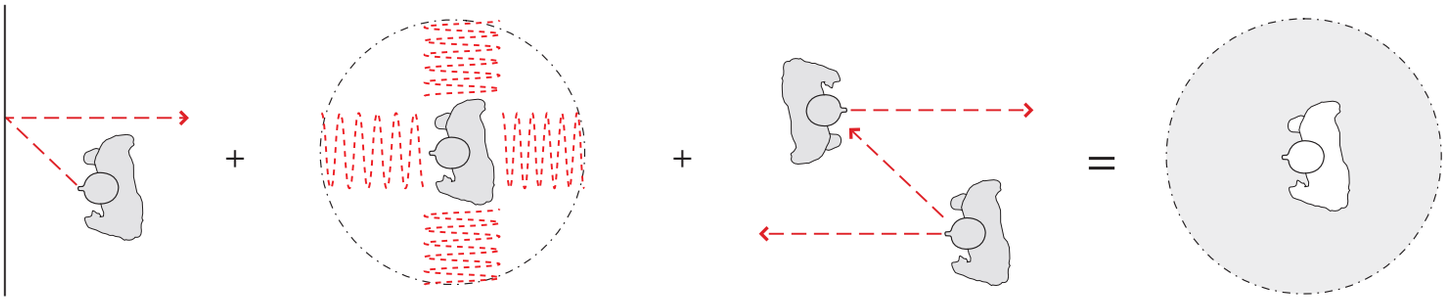


Figure 2

2 Sensory Reach

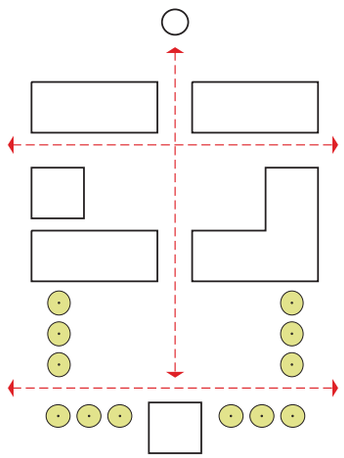
DeafSpace Design Guidelines

2.1 Visual Cues and legibility

A visually legible environment, with clearly understood landmarks, pathways and destinations, is essential to understanding our environment. This understanding is fundamental to an overall sense of well-being. The built environment, from the city scale to the scale of a room, should be planned and designed with a coherent and intuitive set of visual cues indicating destinations and signifying important places that are visually accessible from multiple vantage points and along circulation pathways.

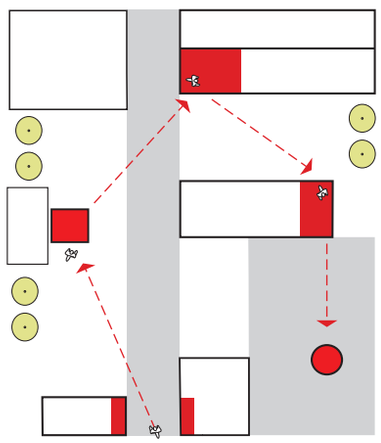
2.1.1 View Corridors

View corridors through campus serve to visually connect campus districts, important landmarks, destinations and adjacent neighborhoods. View corridors play an important role in wayfinding and should serve as primary campus circulation routes. Landscaping, building location and massing should all serve to reinforce and define major view corridors throughout the campus.



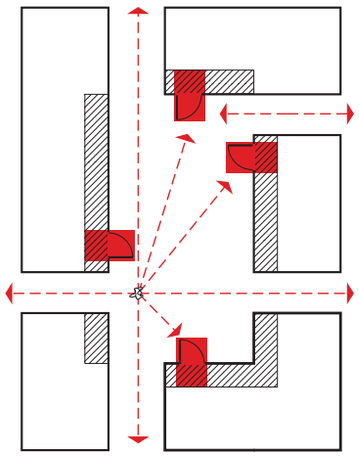
2.1.2 Visible Destinations in Sequence

Important destinations and campus landmarks should be directly visible upon entering shared exterior spaces to help deaf individuals orient themselves within a greater campus plan. Direct views from key decision points and major pathways to destinations should be used to facilitate easy movement through campus.



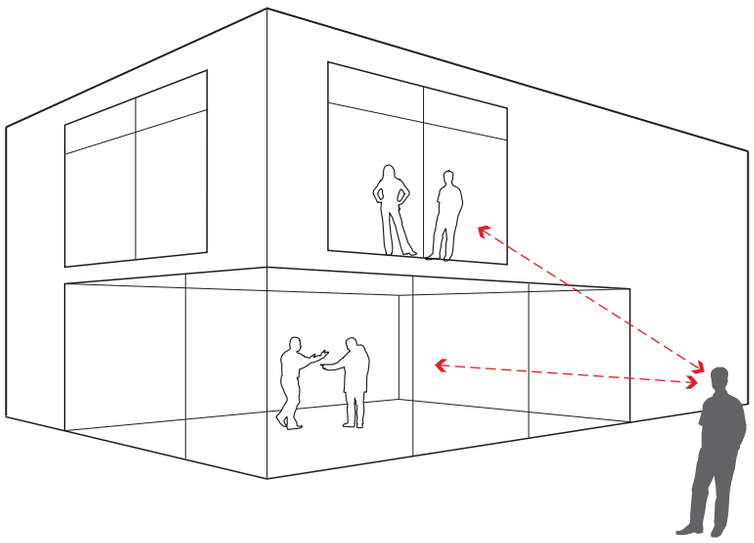
2.1.3 Location of Building Entrances

Primary building entrances should be located such that they are highly visible from decision points along major campus circulation and from open spaces.



2.1.4 Building Legibility

Primary building uses, especially interior social spaces like lounges, conference rooms and large assembly spaces, should be made legible from the outside whenever possible. This legibility aids in wayfinding at both the campus and building scale. (see 2.1.2)

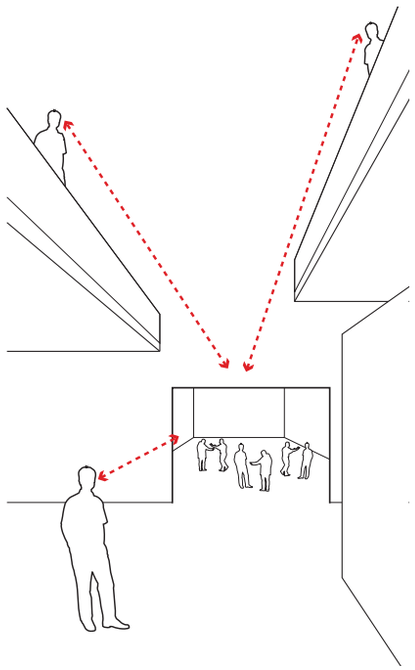


2 Sensory Reach

DeafSpace Design Guidelines

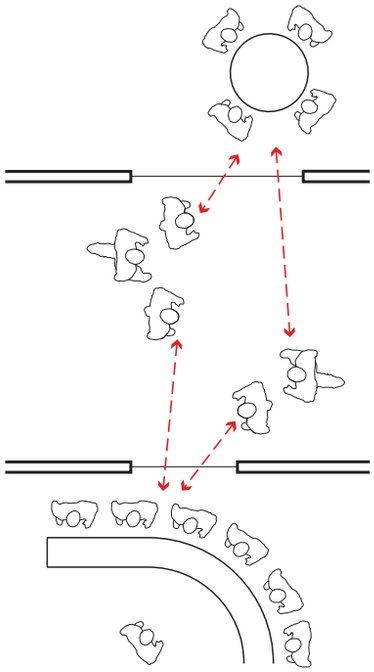
2.1.5 Visible Destinations Within Buildings

Major destination points should be visible from multiple places within a building. When entering a building or public space, destinations should be immediately apparent and their access unobstructed. Circulation routes and layouts should be clear and intuitive.



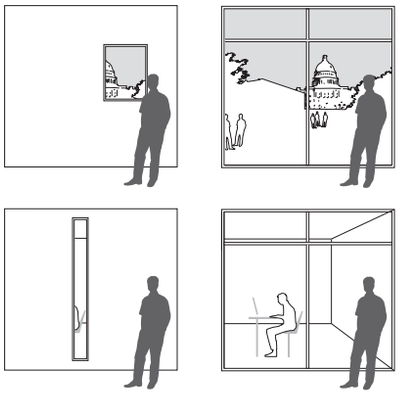
2.1.6 Transparency in Movement Spaces

In hallways, corridors and other movement spaces within buildings, it is desirable to provide transparency into adjacent spaces, allowing visual access to the activities taking place throughout the building.



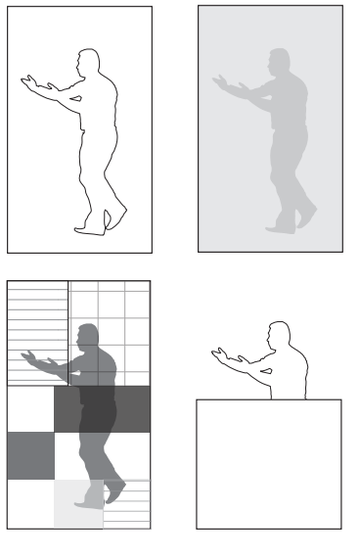
2.2 Transparency & Privacy

Visual access and exposure should be balanced to enable inhabitants the ability to sense the activities within surrounding spaces, yet maintain the desired degree of privacy. The conflicting needs for visual connection and privacy may be resolved through the careful design of openings between spaces. The size, location and degree of visual legibility, or transparency of these openings should be modulated in accordance with the desired degree of privacy while maintaining a sense of the activity beyond.



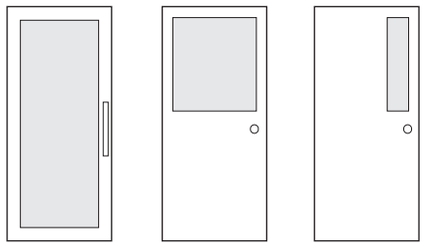
2.2.1 Quality of Transparency

Openings between rooms and between interior and exterior spaces should be designed to provide flexibility in the level of privacy whenever possible. A variety of materials such as glass, polycarbonate, metal screen and even stone can be used within openings or between spaces to modulate the view between spaces and/or control light. Materials should be used thematically as an architectural element in conjunction with way-finding strategies.



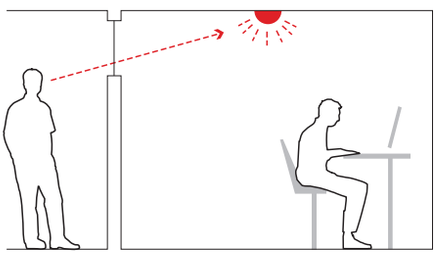
2.2.2 Doors & Transparency

Doors, except when privacy dictates, should utilize some amount of glass to allow visual access to the other side. (This is especially true at building entrances, which should use automatic-sliding doors to allow free flow while signing (see 2.3.1, 3.3.1).



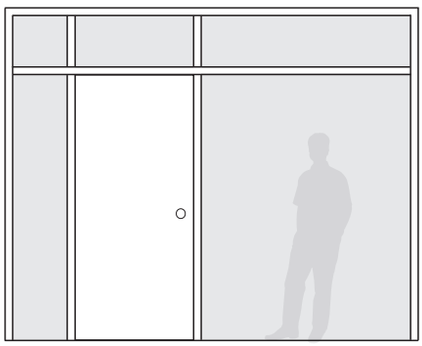
2.2.3 Transoms

Transoms can provide important clues to activities taking place in an otherwise closed spaces. Through a transom one can see if the light is on and, by seeing shadows and movement, if activity is taking place. Spaces that cannot, for privacy reasons, contain windows and glass doors should consider the use of transoms or other high windows.



2.2.4 Sidelites

When privacy requirements allow and/or glazing doors is not possible, sidelites are an alternate means of offering transparency and should be utilized to the extent possible.

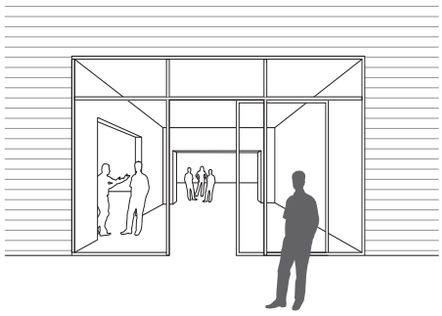


2.3 Spatial Awareness - Transparency

It has been stated that in the visu-centric world of deaf individuals, communication and navigation require an environment with few visual barriers. It is also true that a deaf individual's sense of space and physical well-being is linked to his/her ability to see. Transparency is an important tool for connecting deaf individuals to each other and to their surroundings. It should be used to help make context and adjacencies legible while reinforcing a sense of security and well-being.

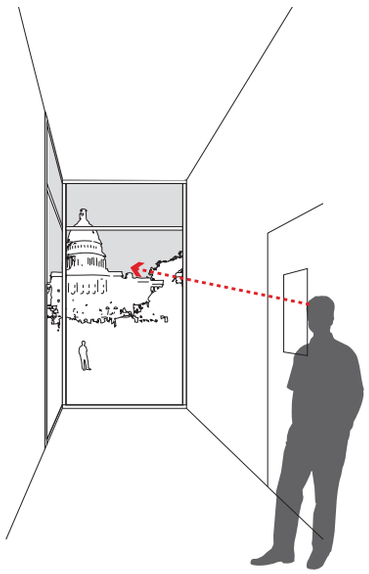
2.3.1 Glazed Entrances

Providing glazing at major building entrances helps ease flow into and out of buildings by allowing individuals engaged in signed conversation at anticipate oncoming traffic. Glazes entrances also aid in wayfinding by allowing views into major lobby spaces. At nighttime, glazed entrances act as lanterns making building entrances legible from afar (see 2.1.2, 2.1.3, 3.3.1).



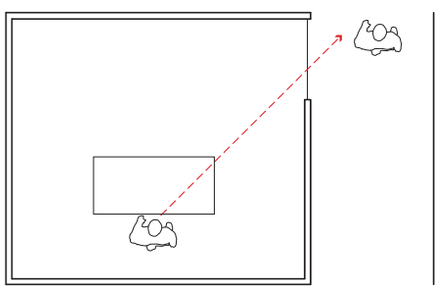
2.3.2 Windows at the End of Corridors

Placing windows at the end of building corridors reduces the sense of confinement and provides a sense of openness and connection to the outdoors.



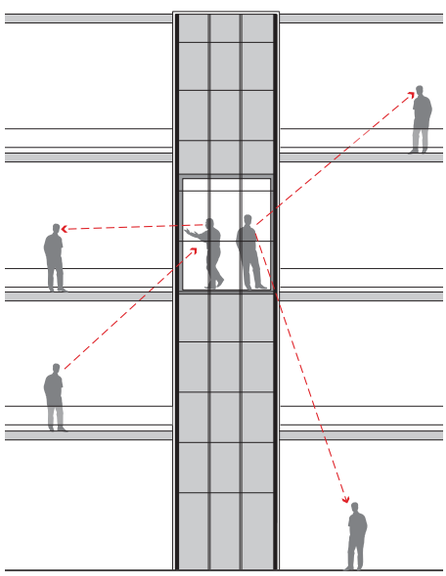
2.3.3 Room Enclosures

All habitable rooms should have at least one opening with an appropriate degree of transparency (see 1.1.1) to enable occupants to maintain a sense of activities within surrounding spaces. These openings should be strategically located to minimize interruption while providing visual access to the most public and active areas.



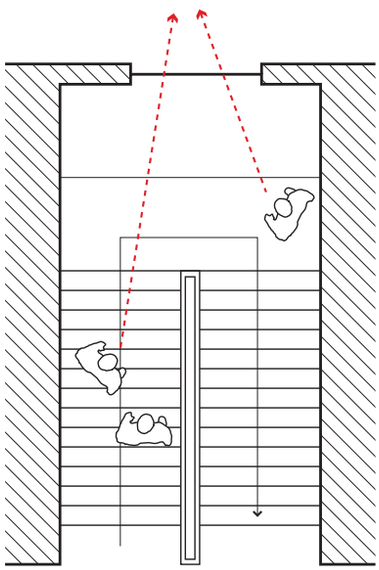
2.3.4 Glass Elevators

Glass elevators lessen the feeling of confinement, increase actual and perceived safety and allow visual connection to adjacent spaces.



2.3.5 Stair Enclosures

Wherever possible stairs should have windows to the exterior to lessen the feeling of confinement, allow visual connection to the outside and aid in wayfinding.

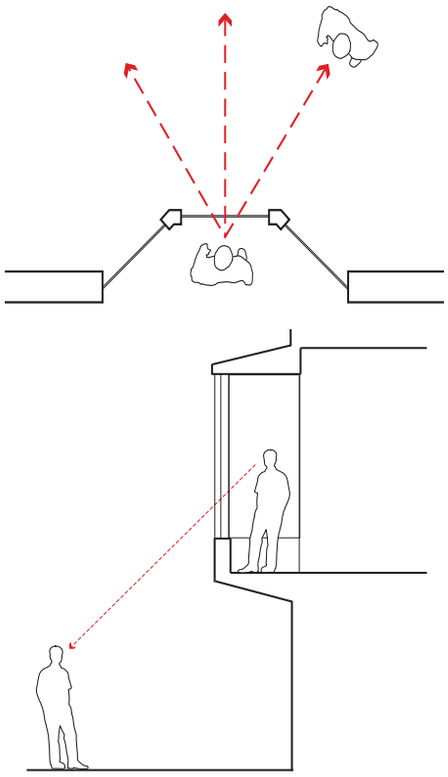


2 Sensory Reach

DeafSpace Design Guidelines

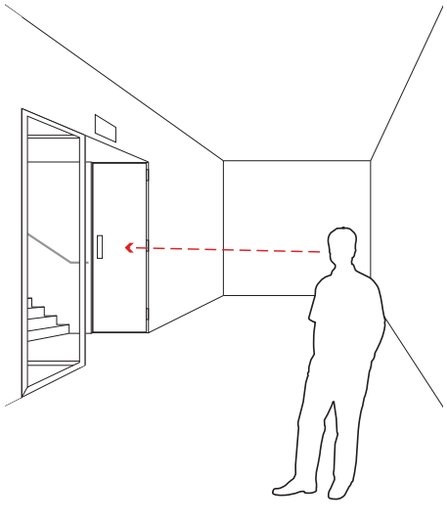
2.3.6 Bay Windows

Bay windows allow individuals a wider range of view and connection to the outdoors. This increased range of view helps provide greater visual access to activities taking place outside of the building and increases connection to the campus and neighborhood context.



2.3.7 Revealing Stair Enclosures

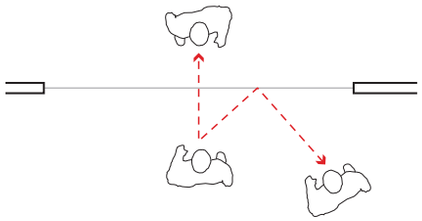
Enclosed stairs should be made visible from connecting corridors with glazing or with doors on hold-opens (See 3.1.5).



2 Sensory Reach
DeafSpace Design Guidelines

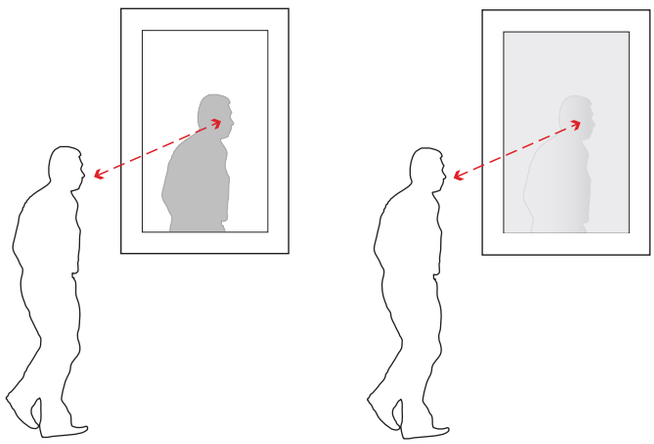
2.4 Sensory Reach - Reflection

In a visu-centric world, spatial awareness often comes from cues that are subtle and may go unnoticed to the hearing. Reflections give awareness of spatial depth, the dimension of space and activities that lie behind the viewer.



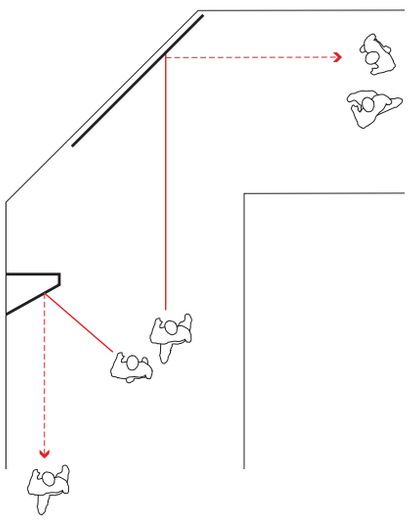
2.4.1 Qualities of Reflection

Reflective surfaces are an important means for extending one's sensory reach to encompass a full understanding of the surrounding environment. However, care should be given to use materials that have the appropriate degree of reflectivity as highly reflective surfaces can create undesired conditions such as glare and visual clutter. In most cases it is more desirable to use materials that produce muted reflections that provide more subtle clues the the surrounding activity. Stone, metals, wood and composite materials all may provide such desired degrees of reflectivity.



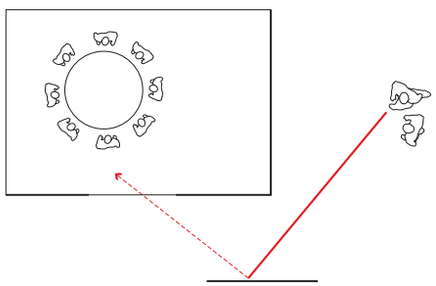
2.4.2 Reflection: Movement

Reflective surfaces should also be used in movement spaces to avoid collisions around corners and alert individuals when someone is approaching from behind.



2.4.3 Reflection: Space

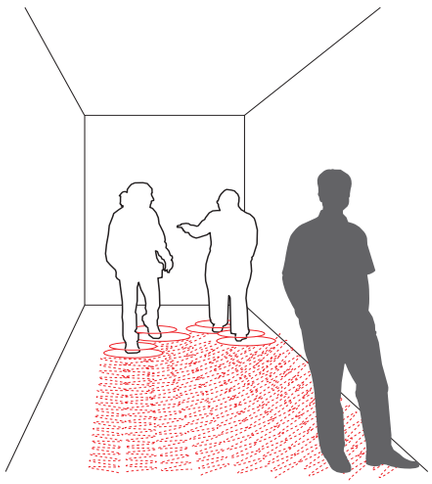
Reflective surfaces, which can be either integral the the architecture or surface applied, should be used to aid deaf individuals in perceiving their environment and the activities occurring within surrounding spaces. With the help of strategically placed reflective surfaces, individuals can carry on signed conversations while monitoring 360 degrees around themselves.



2 Sensory Reach
DeafSpace Design Guidelines

2.5 Sensory Reach - Vibration

Sensing vibration is another way deaf individuals experience their environment. Vibrations can help one orient themselves within a space and sense activity nearby. For example, sensing footsteps creates an awareness of people approaching from behind. When designing spaces for deaf individuals, the level and type of vibrations created should always be considered. Because uncontrolled vibration between spaces, can mask beneficial vibrations and cause confusion, care should be taken to control unwanted vibration caused by mechanical equipment or programatic adjacencies. Expected use and occupancy levels should help determine material choices for both floors and walls and should be selected to either amplify wanted vibrations or dampen unwanted vibrations.

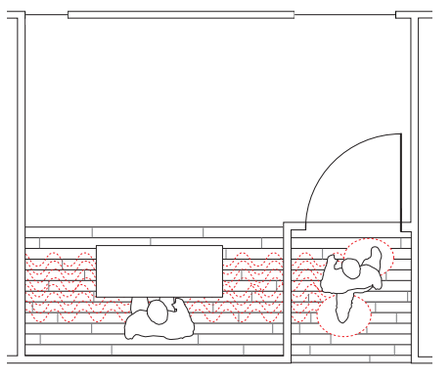


2.5.1 Vibration Within Rooms

Floor surfaces that allow for some degree of noticable vibration should be used in defined spaces where deaf occupants may desire to initiate contact with one another through a tap on the floor or furniture. Such spaces may include meeting rooms, class rooms and living spaces within a residential setting. It is critical that the edge of these areas be well defined and buffered from undesired sources of vibration.

2.5.2 Vibration Zones

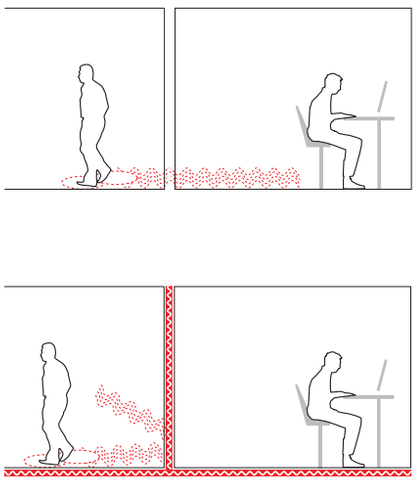
Locate limited areas, or zones, of floor surfaces that propagate vibration as wide thresholds between public circulation areas and private spaces to provide a subtle clue of approaching visitors as a means to mitigate abrupt interruptions. These "vibration zones" should be of a size and configuration to allow occupants within the private space to sense the arrival of a visitor at the room entry from a variety of key locations within the private space. This strategy should be employed in conjunction with other strategies for sensory reach (See 2.1-2.4) to reinforce sensory clues of the movement of others.



"Besides objects, surfaces, and atmospherical changes, I perceive countless vibrations. I derive much knowledge of every-day matter from the jars and jolts which are to be felt everywhere in the house. Footsteps, I discover, vary tactually according to the age, the sex, and the manners of the walker. It is impossible to mistake a child's patter for the tread of a grown person." – Helen Keller

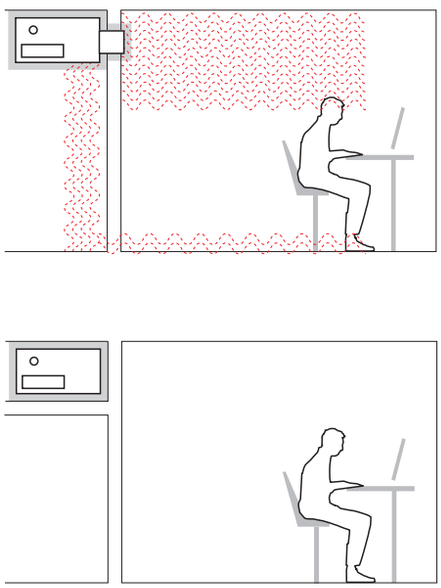
2.5.3 Reduce Unwanted Neighboring Vibration

Uncontrolled vibration can create distractions and confusion. For instance, footsteps in a public hallway adjacent to spaces that require privacy and concentration should be dampened to avoid the creation of a continual distraction.



2.5.4 Equipment Vibration & Isolation

Mechanical vibrations should be limited with isolators on equipment and ductwork. Mechanical equipment vibrations are very distracting to the heightened senses of deaf individuals. They can also mask the beneficial vibrations within spaces that help give deaf individuals an awareness of their environment.

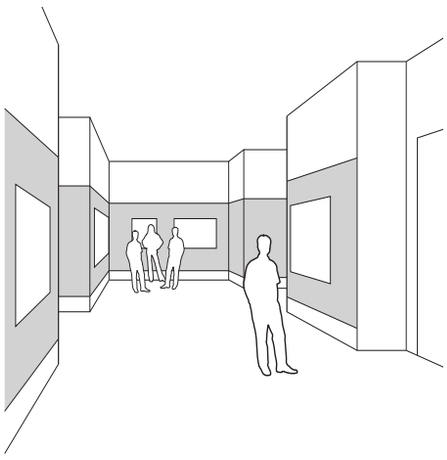


2.6 Sensory Reach - Cultural

Close social ties and shared interest in one another's work is an important and widely recognized aspect of deaf culture. In order to reinforce a sense of connection and identity interior surfaces within collective spaces (See XXX) should be animated with visual access to activities within surrounding spaces and the display of work by collogues.

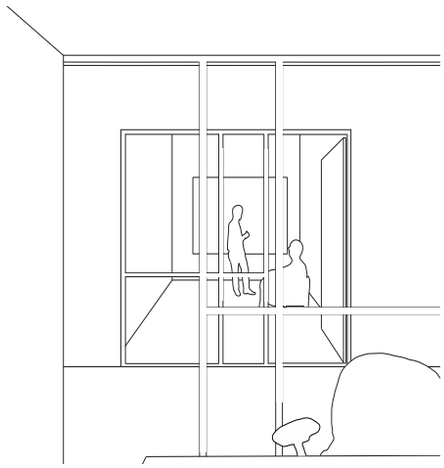
2.6.1 Making Work Visible

Building collective spaces are ideal places for individuals to express themselves and/or share their work with the broader community. To this end, collective spaces and corridors should be equipped with tackable surfaces, white boards and/or video monitors to be used for the display of art, work, research or other relevant scholarly or cultural endeavors.



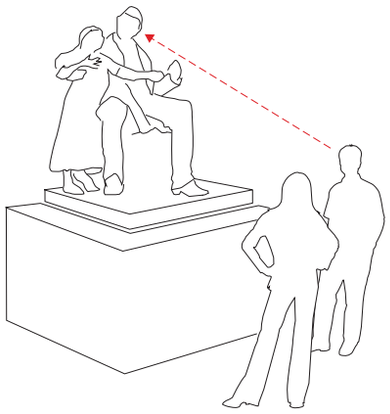
2.6.2 Seeing Colleagues at Work

Making activity spaces, conference rooms, labs, and offices transparent to circulation areas stimulates interest in what's going on and creates a connection that is vital to Deaf culture.



2.6.3 Connecting with Cultural Expressions

Collective spaces are ideal places for cultural expression. Cultural artifacts like statues, art installations or other objects that express Deaf culture or its history are encouraged in collective spaces.

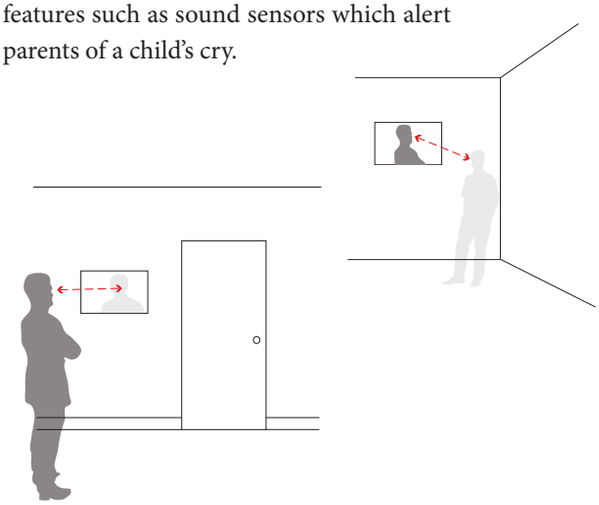


2.7 Sensory Reach - Communication Systems

Multi-sensory communication systems are critical to life safety and wellbeing within buildings serving the deaf community. Depending upon the building type a combination of visual and vibratory communication systems should be employed to alert building occupants about the presence of visitors or intruders and fire or other life safety threats. A combination of one or more of the following devices should be employed and placed strategically in conjunction with reflective or vibratory surfaces to ensure all occupants are alerted no matter their location in the building or the time of day. All visual communication systems should be placed out of the path of direct sunlight to ensure full visibility throughout the day. Emergency Alarm systems should be designed in collaboration with users and local authorities to ensure optimal responsiveness for the specific end user and should be directly linked to local emergency service providers.

2.7.1 Visual Annunciation Systems

A visual annunciation system provides a central network for visual communication about building security and emergencies. Visual Annunciation Systems typically provide security monitors and key pads at building entry points and in living spaces or key security checkpoints to enable building occupants to communicate with individuals at secured entry points. Instructions regarding a building fire or other emergencies may be broadcast through these systems. These central systems may also be augmented with other features such as sound sensors which alert parents of a child's cry.



2.7.2 Visual Doorbell

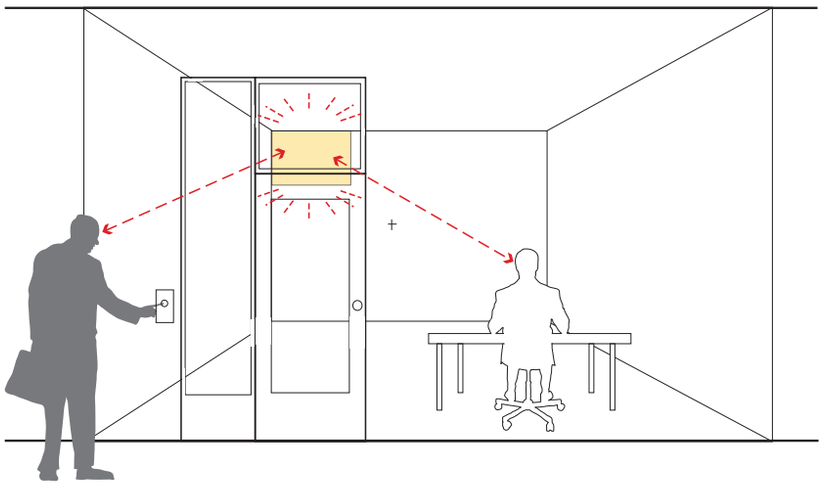
A visual doorbell is simply a light fixture switched from outside the entry point of a enclosed, private, or semi-private space that allows a visitor contact the room occupant by switching the light within the room. While these systems are effective care should be taken to locate and design the light fixture to be easily visible from all points in the room without being too obtrusive and startling.

2.7.3 Strobes

The Americans with Disabilities Act requires that visual strobes be installed in conjunction with emergency alarm systems to alert deaf individuals. For buildings that specifically serve the deaf community it is recommended that the ADA required strobes may need to be augmented with additional devices and or be used in conjunction with shaking devices (See 2.7.4) to ensure that all occupants are alerted

2.7.4 Shaking Devices

Shaking devices are electrically operated vibrating devices used to “shake” beds, and chairs in conjunction with strobes alarms (See 2.7.3) as an additional means of alerting deaf individuals in case of an emergency. Supplemental shaking devices may also be used as a clock-alarm set to the desired time.



3 Mobility & Proximity

DeafSpace Design Guidelines

Introduction

What is Mobility and Proximity?

Signers holding conversation while walking run into risk of tripping, colliding with others, colliding with physical obstructions, or drifting into traffic. One major goal of DeafSpace is to facilitate freedom of movement for signers. A well-designed environment can minimize hazards and create surfaces and spaces that enable an easy flow of movement.

Pathways and Flow

Deaf individuals require wider sidewalks, pathways and corridors to accommodate signed conversation while walking. This is particularly true when gathered in groups of two or more people. Pathways should flow smoothly without abrupt transitions or sudden angles. It is important to realize that any barrier to fluid movement will result in an interruption in conversation as the barrier is negotiated. Because of this pathways should kept as clear as possible.

Ramps and Stairs

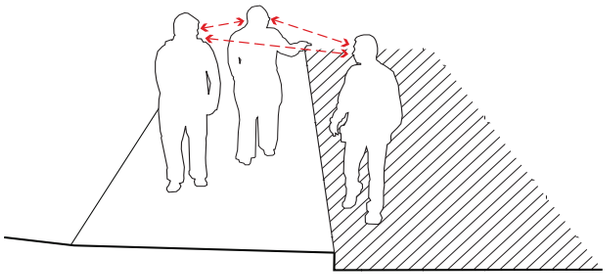
Depending on their configuration, ramps and stairs can create major mobility problems or they can assist in creating a proper DeafSpace environment where movement and signed conversation flow easily. Whenever possible ramps should be used, particularly at major circulation routes. Stairs should be configured to reinforce communication needs and dimensioned to increase flow.

Thresholds

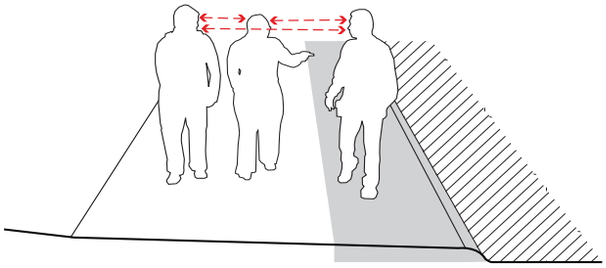
Carefully considering intersections and thresholds is crucial to maintaining ease of circulation and uninterrupted signed conversation. This is particularly true at building entrances and exits and crosswalks.

Rhythm & Vertical Cues

As deaf individuals walk and carry on a signed conversation their peripheral vision allows them to use vertical cues in the landscape or from neighboring buildings to help them stay on course. Building arcades, for example, create a rhythm when walked along that aids in navigation and helps a group engaged in a signed conversation orient themselves and anticipate upcoming changes in their path. DeafSpace design should always consider rhythm and vertical cues as useful tools to enhance mobility and conversation. Designers should be sensitive to how buildings and landscapes are used and perceived by those who are moving within or along them.



BAD



GOOD

3 Mobility & Proximity

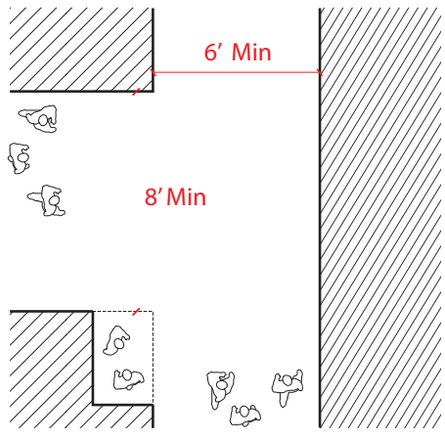
DeafSpace Design Guidelines

3.1 Pathways & Flow

Deaf individuals require wider sidewalks and pathways to accommodate movement while signing, particularly when gathered in groups of more than two people. Pathways should flow smoothly without abrupt transitions and sudden angles.

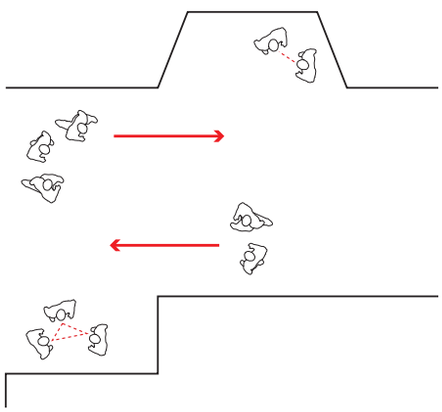
3.1.1 Corridor Dimensions

Primary corridors should be a minimum of 8 feet wide and secondary corridors should be a minimum of 6 feet wide. Corridors should be designed to provide conversation nodes located outside of the pathway flow. (See 3.1.2, 3.1.3)



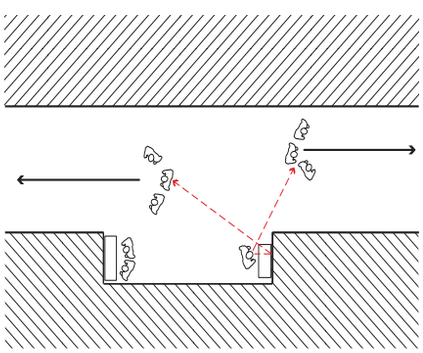
3.1.2 Conversation Eddies & Pathway Flow

Along campus paths and primary corridors, provide space to allow small groups to have stationary conversations outside of the flow of traffic. These conversation nodes can be relatively small for standing conversations or can be larger in instances where it is appropriate to incorporate loose seating. These nodes are especially valuable at campus entrances, decision points and crossroads as well as along long interior corridors. (See 1.3.2)



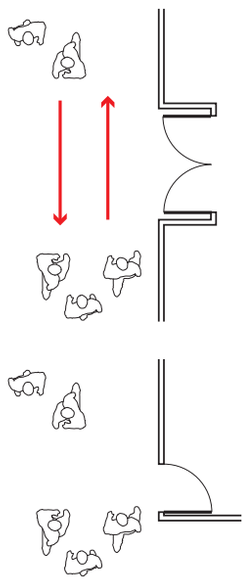
3.1.3 Corridor Ancillary Uses

Major circulation routes such as building corridors, campus walks and public sidewalks often require non circulatory uses to be located adjacent to or within them. This includes, but is not limited to, drinking fountains, building directories, display furniture, waste receptacles and video phone booths. These items should be placed within adjacent Shoulder Zones (See 3.1.8) or corridor Conversation Eddies and out of the clear path of travel (See 3.1.2). Elements such as drinking fountains and phone booths should orient the user parallel to the flow of traffic and should utilize reflective wall surfaces (See 2.4.3) to enable continuous visual connection.



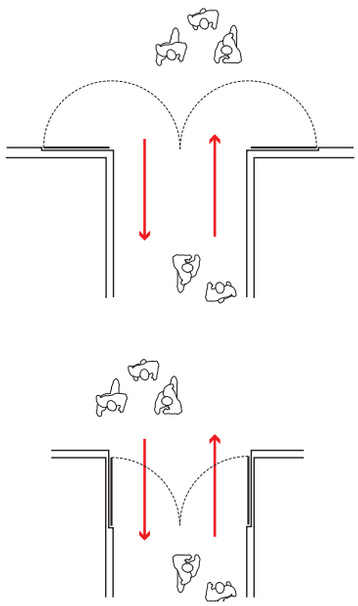
3.1.4 Door Swings & Corridor Width

Doors should not swing into traffic flow. Doors that swing into traffic lanes pose a collision hazard especially to people engaged in signed conversation. Doors should swing into the adjoining room when permitted by code; otherwise, a recess or vestibule should be provided to ensure that the door does not swing into the corridor.



3.1.5 Door Closers & Hold-Opens

Doors with hold opens should be used whenever possible. These are removed from traffic flow and allow uninterrupted movement during a signed conversation. They also aid in wayfinding by allowing visual connection to areas beyond while satisfying fire life safety codes.

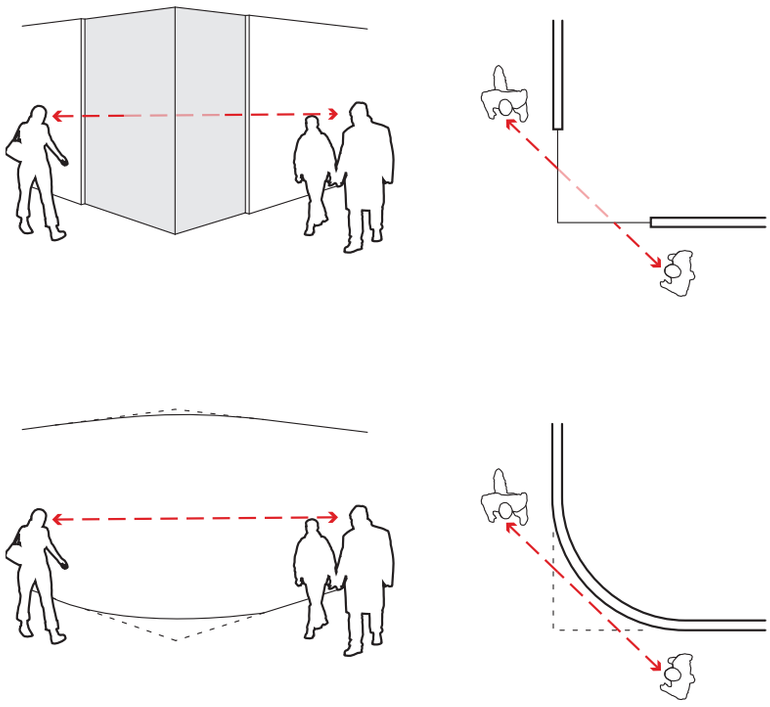


3 Mobility & Proximity

DeafSpace Design Guidelines

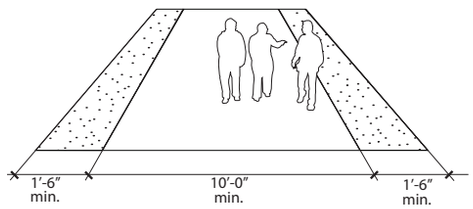
3.1.6 Soft Intersections

Eased, or "soft" corners allow pedestrians to see others and avoid collisions.



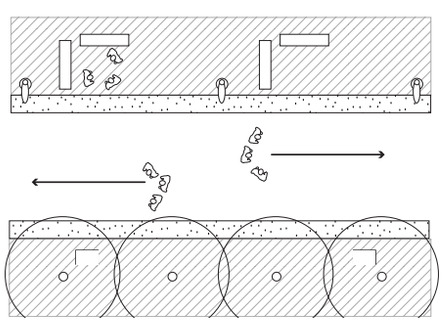
3.1.7 Sidewalk & Pathway Dimension & Design

Sidewalks and paths should be a minimum of ten feet wide to allow for several groups of signers to pass each other easily. Textured edges on the ground plane placed along walkways and can provide subtle clues to the presence of edges.



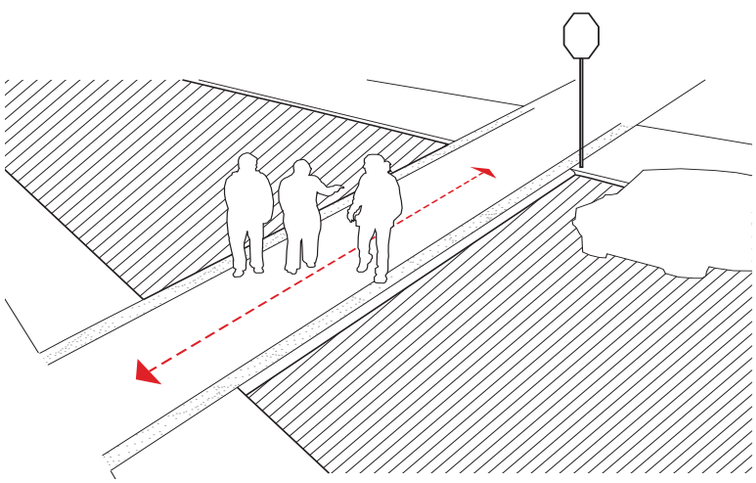
3.1.8 Shoulder Zones

In order to maintain the desired uninterrupted path of travel, Ancillary Uses (see 3.1.3) and Conversation Eddies (See 3.1.2) should be located within "Shoulder Zones"- dedicated zones parallel to one or both sides of the path of travel. The width of these zones as well as the number and type of uses within them will vary but at a minimum, should accommodate a comfortable layout for signed conversation. Shoulder Zones along sidewalks that parallel streets play a dual role as a safety buffer between vehicular and pedestrian traffic. Street elements such as signage, pole lighting, fire hydrants and trees should be located within Shoulder Zones.



3.1.9 Dominance of Pedestrian Pathway

Where pedestrian paths cross-vehicular paths, the intersection should be designed to give the pedestrian path visual dominance and uninterrupted flow. Along high volume pedestrian routes, traffic should be controlled with signage or traffic lights.



3.1.10 Bollards & Barriers

Pathways should be kept as clear as possible. Bollards and other barriers such as street furniture, lighting, signage and planting should not be placed in pathways.

3 Mobility & Proximity

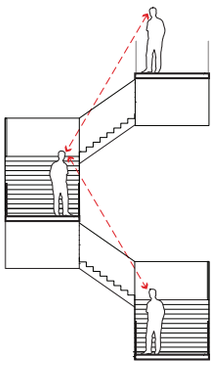
DeafSpace Design Guidelines

3.2 Ramps & Stairs

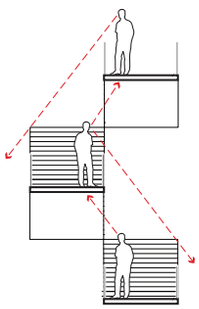
Negotiating vertical changes along paths is an important consideration for DeafSpace. When people engaged in signed conversation reach a major obstacle such as a stair or a building entrance, the conversation must pause while the obstacle is negotiated. Stairs are an especially troubling barrier and pose serious tripping hazards to those distracted by conversation. Ramps can help ease the flow of conversation, minimizing hazards and inconvenience.

3.2.1. Stair Configuration

Stairs that have a vertical opening between switchback flights allow more graceful movement as well as views to others across the open space. Seeing a colleague descending the opposing stair flight reduces the chance of collision on the intersection.



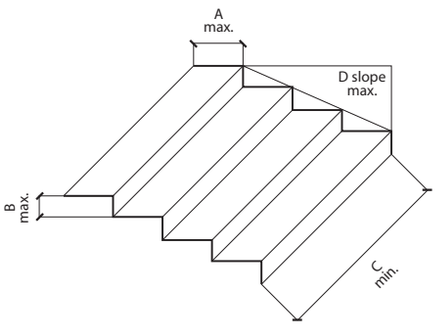
GOOD



BAD

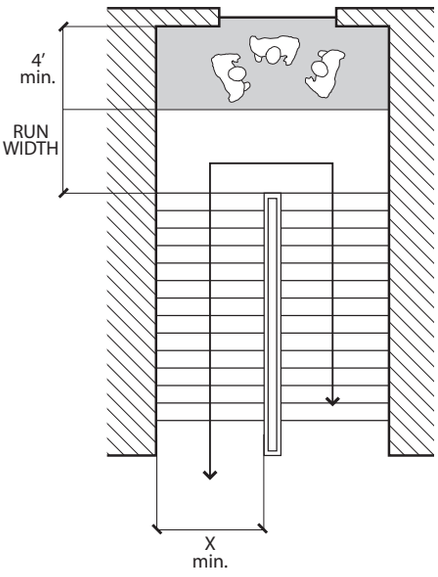
3.2.2 Stair Dimensions

Like paths and corridors, wider stairs are preferred. Stairs should have gentle rise/run ratios.



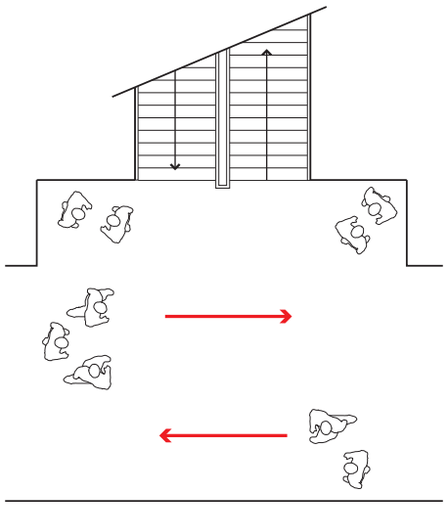
3.2.3 Stair Landings

Stair landings are an opportunity to createsomething that is more than just a bend in the stair. Wider landings not only reduce the chance of accidental collision, but can also provide places to stop and have a conversation or take in a view.



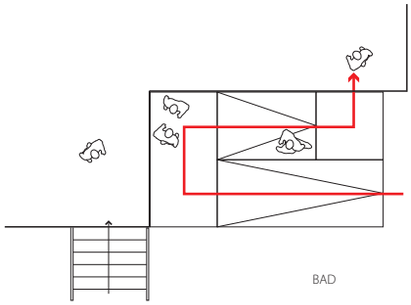
3.2.4 Stairs & Cross Circulation

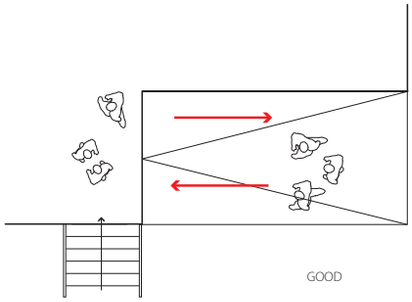
When stairs empty into a circulation path like a corridor or campus pathway, extra dimension should be provided to allow uninterrupted flow in all directions.



3.2.5 Ramp Configuration & Dimension

Ramps can provide a graceful way to move vertically and eliminate the barrier represented by stairs. This purpose is defeated, however, by ramps that are too narrow or configured with excessive switchbacks.





3 Mobility & Proximity

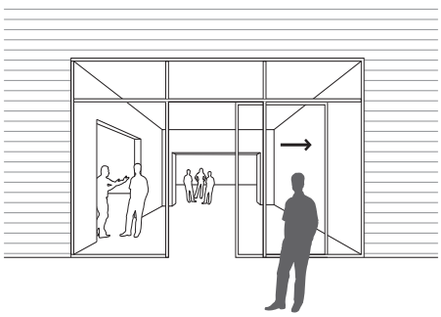
DeafSpace Design Guidelines

3.3 Thresholds

For deaf individuals engaged in signed conversation, negotiating threshold conditions, be they doors or intersections, can be cumbersome. Any pauses required at thresholds to open doors, climb stairs, adjust to lighting conditions or reorient onself can disrupt the continuity of signed conversations. Thresholds should be designed to allow uninterrupted conversation and create easy transitions between spaces.

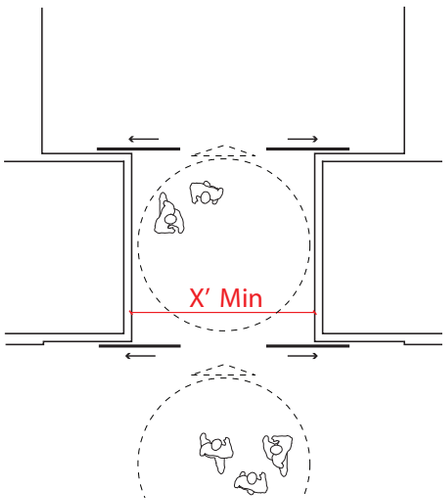
3.3.1 Sliding Entrances

Providing automatic sliding doors at major building entrances helps ease flow into and out of buildings, especially for those engaged in signed conversations.



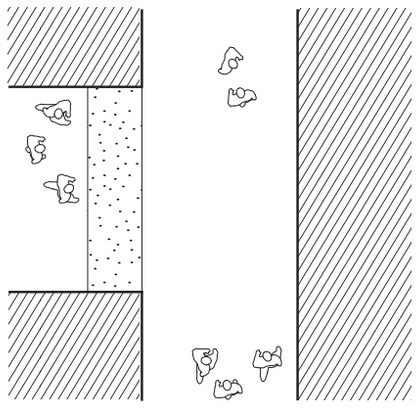
3.3.2 Airlock & Vestibule Dimensions

Airlocks and vestibules should be built with sliding doors and properly sized to allow uninterrupted movement and signed conversation. Motion sensors and airlock depth shall be calibrated so that individuals can carry on a signed conversation without having to pause and wait for doors to open.



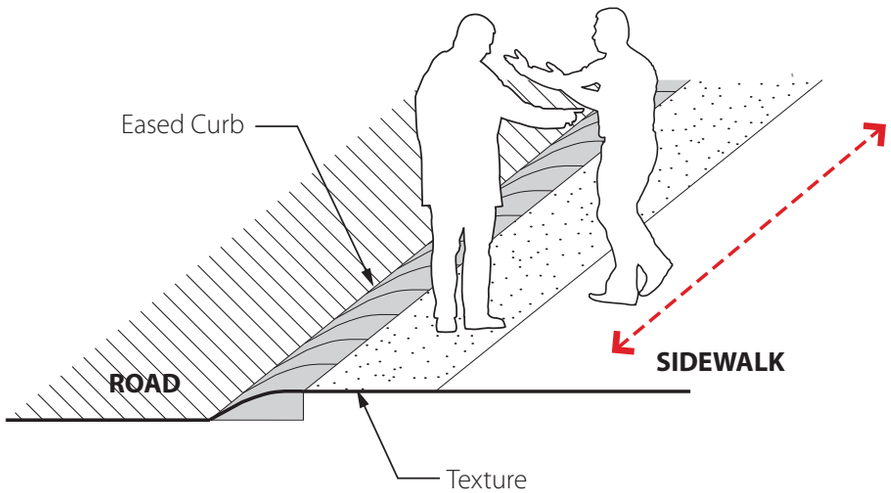
3.3.4 Textured Transitions

Textured edges on the ground plane at transitions between different paths can provide subtle clues to the presence of thresholds, entrances and decision points.



3.3.5 Eased or Eliminated Curbs

Curbs pose a tripping hazard for those engaged in signed conversation. Eased or rounded curbs can minimize this hazard However, the best approach may be to eliminate curbs altogether, especially in cases where walkways intersect with roadways. Textured warning strips can provide a clue to the presence of the roadway while avoiding the use of a curb. (see 3.1.8, 3.3.4)



3 Mobility & Proximity

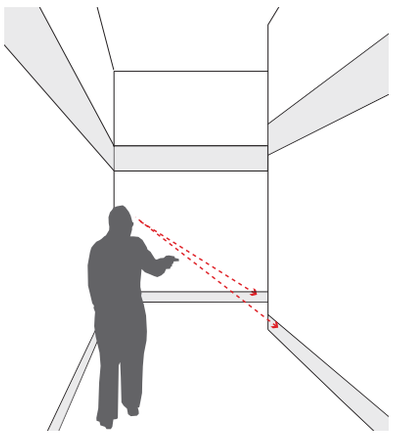
DeafSpace Design Guidelines

3.4 Rhythm & Datum

When walking and engaged in a signed conversation individuals typically position their visual focus in such a way as to focus on the individual they are conversing with and their path of travel ahead (approximately 45 degrees to the path of travel). Experienced signers also instinctively "read" the surrounding environment through peripheral vision and saccadic eye movement to measure their position relative to the walls and other elements that surrounding their path of travel. Among other such orientation strategies, by continuously aligning themselves with building elements, interlocutors are able to maintain a direct and safe path of travel. Repetitive and/or continuous architectural elements such as colonnades and interior trim should be used creatively to reinforce this continuous visual re-alignment. Such elements should be used in concert with architectural elements used to provide Visual Cues and Legibility (XXX) geared toward wayfinding.

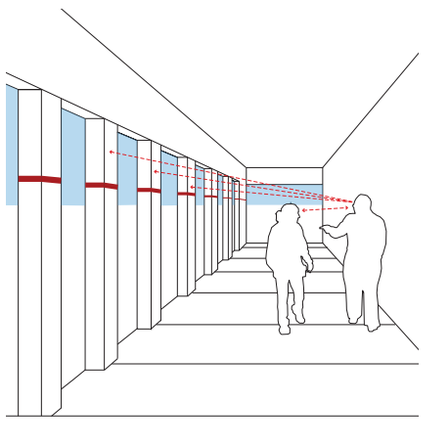
3.4.1 Horizontal Datum

Horizontal Datum such as the typical floor base, chair rails, picture rails or even horizontal reveal joints should be incorporated into the design of circulation spaces in such a way as to provide a clear and continuous visual anchor for signers walking and engaged in conversation. Horizontal Datum should be designed to visually contrast with wall surfaces to be easily visible and highlight the shape of the room.



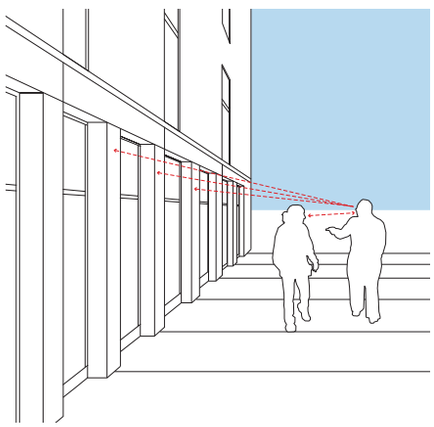
3.4.2 Arcades

Arcade type spaces—with the rhythmic placement of columns—should be used when possible as major circulation spaces along the exterior and/or interior of buildings. Columns should be placed in a repetitive manner to provide interlocutors with vertical cues to which they may use as a visual anchor while walking and signing. Column placements may be adjusted to demark building entries, a change in elevation or a crossing of pathways to inform pedestrians to look out for others.



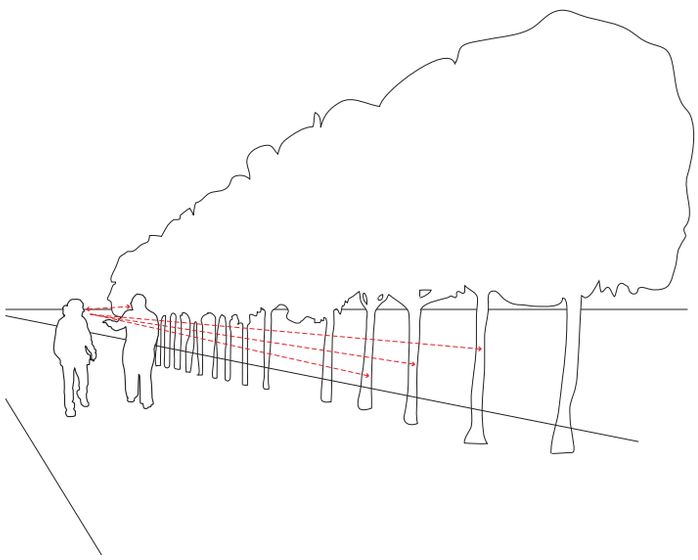
3.4.3 Building Facades

Utilize repetitive architectural elements such as brick coursing, window placement and mullion patterns to provide a continuous and coherent visual reference within circulation areas. Like arcades, these elements should be used to signify the rhythmic pattern of the walkway and should be used in concert with special elements that articulate special areas of concern such as destinations, pathway intersections and changes in elevation or other such barriers.



3.4.4 Landscape

Landscape elements and vegetation should be used along major paths of travel to provide a recognizable, and continuous, visual reference for signers. Placement of trees, light standards or other elements should be placed in an easily understood rhythmic pattern relating to pedestrian cadence.



4 Light & Color

DeafSpace Design Guidelines

Introduction

What is role of Light & Color in DeafSpace?

Deaf and hard of hearing individuals maintain spatial awareness and communication through the constant use of saccadic eye movement and a heightened sensitivity in their peripheral vision. These individuals are accustomed to maintaining visual contact with others during a visual conversation while simultaneously scanning their surroundings to maintain a sense of personal safety and orientation. Such constant visual focus and rapid eye movement can cause eyestrain—resulting in attention loss and fatigue particularly amid poor environmental conditions that obscure visual clarity. The proper use of color, surface texture and light can contribute to the reduction of eyestrain, enhance a sense of well-being, and facilitate wayfinding.

Color & Surface Texture

Contrast in color and surface texture facilitates visually centered ways of communication and spatial awareness. Sign language, for example is best viewed against a backdrop color that contrasts the full range of human skin. An environment with little visual distinction may diminish depth perception while an excess of visual contrast can produce visual noise that is disorienting and a potential cause of eyestrain. A well-coordinated palate of colors and surface textures is a basic building block element that should be integrated into the environment to facilitate visual communication, orientation, wayfinding and to shape space.

Solar Control-Daylight & Shade

Under extreme situations poor lighting conditions such as glare, backlighting and “hot spots” can completely interrupt a conversation between individuals until they reposition themselves in light that allows for clear understanding of hand signs as well as nuances of facial expression. Less extreme yet persistent poor lighting conditions can be disorienting and increase the onset of eyestrain over a relatively short amount of time. Well-controlled diffused daylight is ideal for visual communication, shadows are reuduced and an even distribution of light enables a clear view of the signers expression in their eyes, face and hand gestures. The use of natural light enables a grater sense of connection to the surroundings as it reveals changes in time and environmental conditions that enhance spatial awareness and well-being.

Electric Light – Shaping Space

Generally, electric light conditions should approximate the intensity and even distribution of natural daylight to avoid glare and backlighting caused by high contrast lighting conditions. Electric light is easy to control and can be used to augment natural light during the day and approximate daylight conditions in the evening while also creating special effects that enhance visual communication, social interaction and facilitate wayfinding. Well-controlled electric light may be used indoors or out to highlight gathering places and destinations and reinforce a presentation.

4 Light & Color

DeafSpace Design Guidelines

4.1 Color & Surface Texture

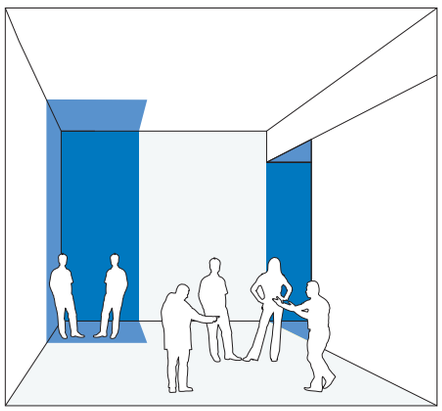
Light, color and surface texture are intertwining elements that can all be used to shape DeafSpace. In the visu-centric Deaf culture, color is more than just a fashionable or aesthetic question. It is important as a way to shape space and aid in orientation and wayfinding. In addition, signing conversations require a clear contrast between the background environment and the details and movements of the signers hands and face. Color can be indispensable in setting up a relationship between background and signer that encourages participation and ease of communication.

4.1.1 Color: Modulation of Light

The interaction between color and light can be utilized to best affect when both are considered together. Light colors tend to reflect light which must be carefully diffused to minimize the glare and reflections that deaf individuals find so distracting. Dark colors can absorb this strong reflective light.

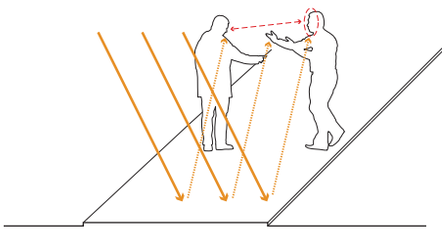
4.1.2 Color Eddies: Shaping Space

Intimate spaces for signed conversations should be created off of main movement and gathering spaces. Darker colors applied to surfaces in select smaller spaces can create an intimate experience that arises from a feeling of being enveloped. Color and floor pattern can create feelings of intimacy for smaller conversations while allowing a connection to a larger space (see 1.3.3, 3.1.2, 3.1.3, 4.2.6).



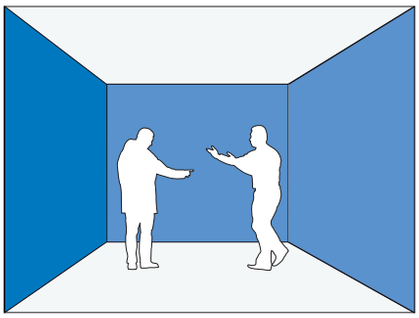
4.1.3 Surface Glare: Mobility & Communication

Glare on surfaces can be distracting and disorienting for people holding a signed conversation. Highly reflective or specular surfaces for building skins, signage and other elements should be limited in order to reduce exterior glare. For example, brushed metal surfaces should be used instead of polished metal. Plastics should be matt finished instead of gloss. Stone surfaces should be textured or honed instead of polished.



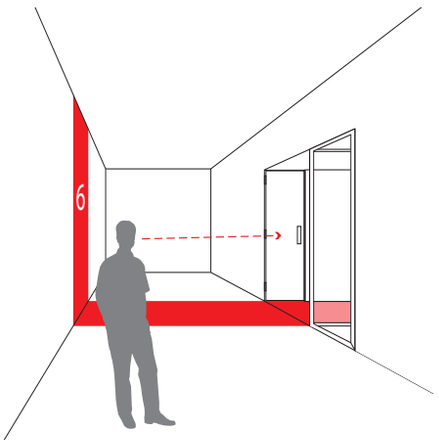
4.1.4 Color : Contrasting Surface & Visual Language

Since communication between deaf and hard of hearing individuals is so dependant on clear visibility, colors that are contrasting and complimentary to skin colors are best for backgrounds to sign language. Blues and greens contrast with most skin colors. In addition, blues and greens visually calm space by avoiding overstimulating eyes and providing a restful backdrop for movement and signing. In large and active spaces, painting surfaces blue or green will help deaf and hard of hearing individuals better and more comfortably communicate.



4.1.5 Color: Orientation & Wayfinding

Color should be used for simple easy to navigate visual orientation systems. It is a particularly important tool to aid ease of movement for signing individuals. Color should be used consistently and repetitively for orientation at major thresholds, to mark vertical changes, street and sidewalk edges and other situations that normally cause a pause in signed conversation due to navigation issues.



4 Light & Color

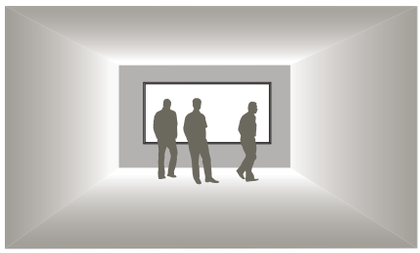
DeafSpace Design Guidelines

4.2 Solar Control-Daylight & Shade

Lighting interiors with sunlight reduces the need for electric light, reduces energy consumption and improves quality of life for building users by providing a sense of the passage of time and changing light conditions. As described in previous sections, glazing is critical to the visu-centric culture of deaf and hearing-impaired individuals. At the same time, too intense daylight or uncontrolled daylight can cause communication and orientation problems within a building. It is especially important to carefully control the light entering a building to avoid causing eye strain in individuals for whom vision is the primary means of communicating.

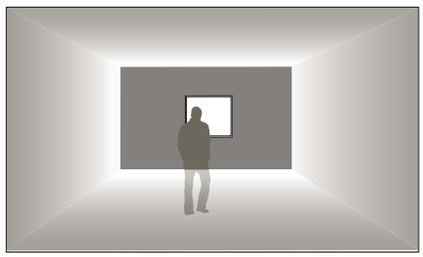
4.2.1 Avoiding Backlighting

Bright windows located behind people or focal points in spaces cause high contrast between subject and environment. A person standing in front of a bright window will be silhouetted, causing difficulty in reading facial expressions and making eye contact.

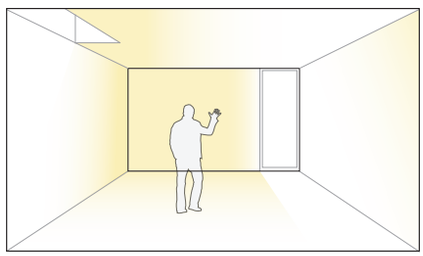


4.2.2 Wash Surfaces with Light

Lighting surfaces rather than spaces helps avoid hotspots and shadows that can compromise visual communication. Windows and skylights should not be located in the middle of rooms, but should be located so that they wash walls, floor and ceiling surfaces with natural light.



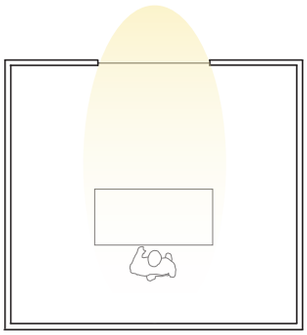
BAD



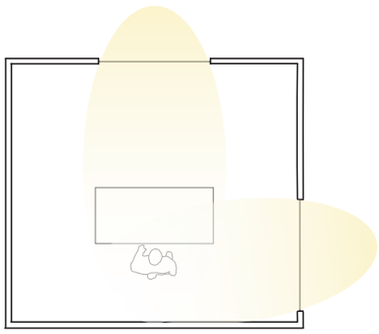
GOOD

4.2.3 Balance Light Using Multiple Sources

Daylight should be balanced within a given space through multiple sources. A single window on an exterior wall can create glare or backlighting problems. A second source of light from a transom or skylight, for example, can balance the light levels, reduce eye strain and improve visual communication



BAD



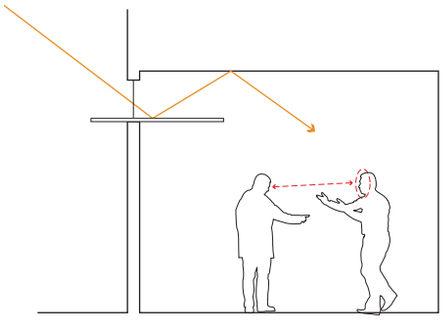
GOOD

4.2.4 Adjustable Controll at Individual Windows

The ability to control light levels based on how a room is being used is particularly important to the visu-centric Deaf community. To help maintain appropriate daylighting levels and provide flexibility and control for the users of a given space, all windows shall be provided with adjustable shades.

4.2.5 Light Shelves

Light shelves are one effective method of bringing light deep into buildings while avoiding light that is overly concentrated and which negatively impacts deaf individuals ability to communicate and comfortably navigate their environment. (Reference INDEX)

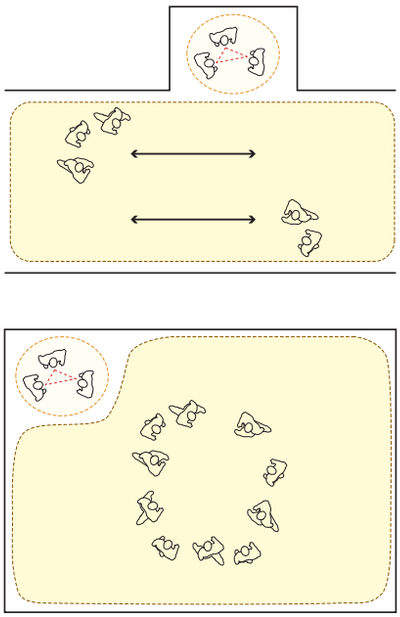


4 Light & Color

DeafSpace Design Guidelines

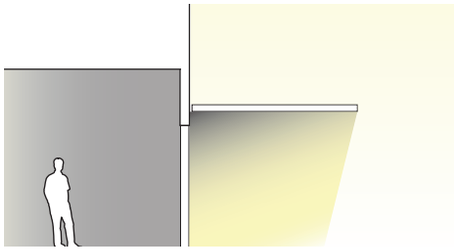
4.2.6 Shaping Space: Light Eddies

Light can be used to create eddies outside of the flow of traffic or adjacent to main gathering spaces. These "eddies" can provide a more intimate lighting environment for smaller gatherings and conversations. (See 1.1.2, 3.1.2, 3.1.3,)



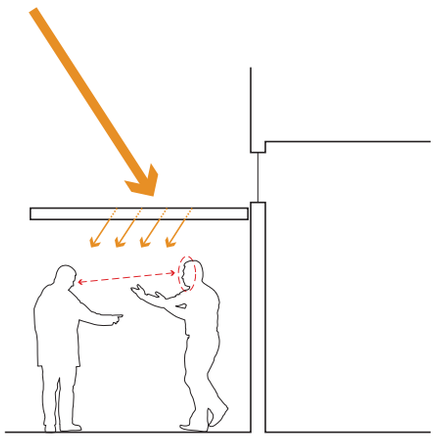
4.2.7 Threshholds: Solar

Moving between interior and exterior spaces can result in the need for time for the eye to adjust because of the dramatic difference in footcandle levels. Walking out in to the uncontrolled glare of a bright suny day can stop a signed conversation in its tracks. Even on days when the sun is obscured, big changes in ambient light levels require an adjustment time for the eyes limiting the ability to maintain a signed conversation. At these threshold locations, sun light should be controlled to create a transition zone that makes the change in light level more gradual and, as a result, improves visual communication across interior/exterior thresholds.



4.2.8 Shaded Paths

Exterior paths should be shaded from direct sunlight whenever possible. Landscape elements such as tree canopies and/or louvers, awnings or building overhangs help increase visual and physical comfort for deaf individuals and provide a glare free environment for signed conversation (see 4.1.3).



4 Light & Color

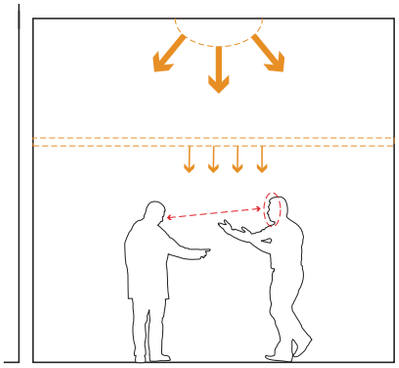
DeafSpace Design Guidelines

4.3 Electric Light - Shaping Space

Ideal electric light levels for DeafSpace follow similar principles as those used to control daylight. The general strategy should be overall diffuse light with some degree of control by users. This helps to avoiding eye strain resulting from too low or two intense lighting conditions. Varied edges that allow for intimate gathering should be used to break down large volumes. In addition, electric light presents opportunities for orientation and wayfinding.

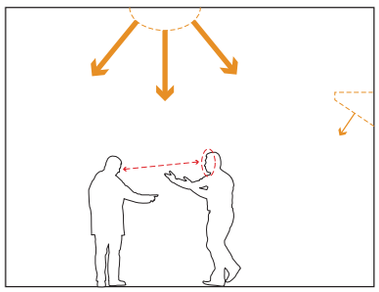
4.3.1 Shaping Space: Light Layers

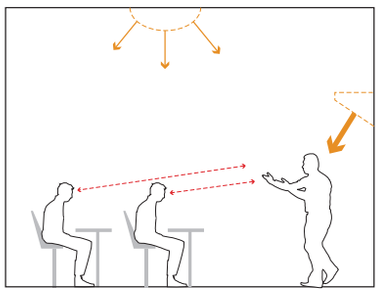
Layers of illumination built up from multiple sources and fixture types should be used to break down large spaces into sub-spaces that are tailored to the needs of deaf individuals and the programs being enacted within each zone. For example, in tall collective spaces, a horizontal datum of light can create sub-spaces that introduce a human scale that encourages more intimate signed conversations. Other spaces might utilize light layers in a different way to facilitate comfort and ease of communication.



4.3.2 Light Dimming: Comfort & Control

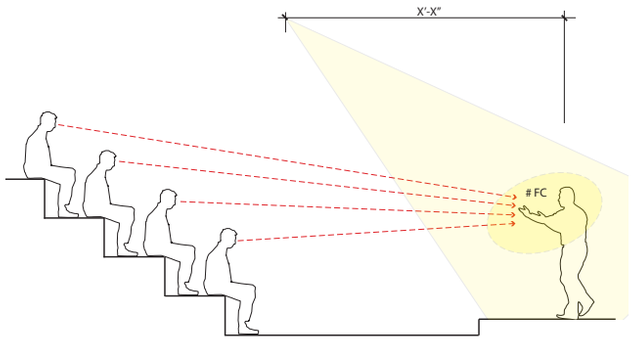
The ability to control and revise light levels depending on how a room is being used is particularly important in the visu-centric Deaf community. To ensure that lighting levels are appropriate for a given space or activity, users should be given access to methods of dimming the lighting in their environment.





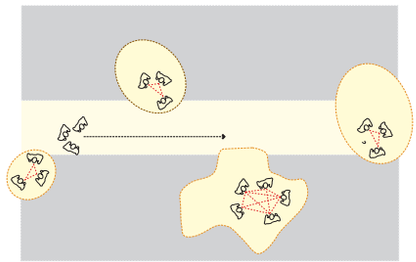
4.3.3 Lighting for Presentation Spaces

Lighting for Presentation Spaces (see 1.2.2, 1.2.3) should be flexible and easily adjusted by the presenter to accommodate a variety of presentation types. Provide ceiling mounted spotlight fixtures at the foreground of the Presentation Space to illuminate presenters and interpreters while room lighting is dimmed for better viewing of media presentations. Select and locate fixtures to provide a cone of light at a minimum of xx square feet at the top of the signing space at each side of the presentation screen. Locate fixtures as to not shine directly on the presentation screen.



4.3.4 Night Lighting: Pools of Light

At night time pools of light can be used to create spaces for gathering and conversation within a larger exterior space. These light "eddies" should be located along primary paths, at major nodes, and near building entrances (see 3.1.2, 3.1.3, 3.1.8, 4.2.6).



4.3.5 Light: Orientation, Wayfinding & Movement

Electric light is a critical component of nighttime wayfinding and orientation and should be used to support and strengthen visual connections across exterior spaces and mobility and signed conversation. Electric lighting at exterior paths should be located in shoulder zones (see 3.1.8) out of the flow of traffic and provide even light levels with a minimum of XX footcandles in the area of signing space. Lamps should be diffuse and shielded to avoid glare. Because overhead lighting can cast shadows on the face of people engaged in signed conversations, one should consider lighting building surfaces, pathway surfaces, landscape elements, furniture etc to help achieve desired light levels. Major campus elements and building entrances should be lighted such that they are legible from a distance (see 2.1.1-2.1.4).

5 Acoustics and EMI

DeafSpace Design Guidelines

Introduction

5 Acoustics & EMI

DeafSpace Design Guidelines

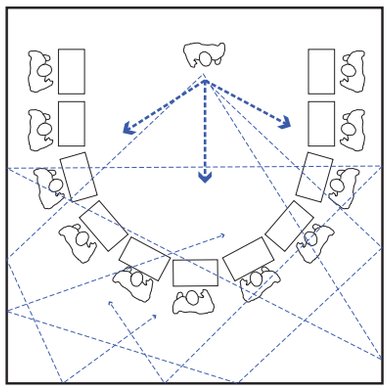
5.1 Acoustics

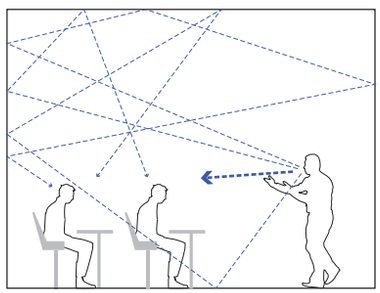
In general, spaces should be acoustically quiet with a minimum of background noise to prevent distractions for those with cochlear implants and hearing aids. Reverberation of sound waves is one of the main sources of distracting background noise and should be avoided.

Distracting background noise can arise from a number of different sources, from the hum of mechanical equipment, to traffic outside a building to chatter or footsteps in an adjacent hallway. In all cases, both program adjacency and noise dampening should be carefully considered in the design. If background noise is not controlled, individuals using these devices can become isolated and unable to fully communicate and engage.

5.1.1 Sound Reverberation: Shaping Space

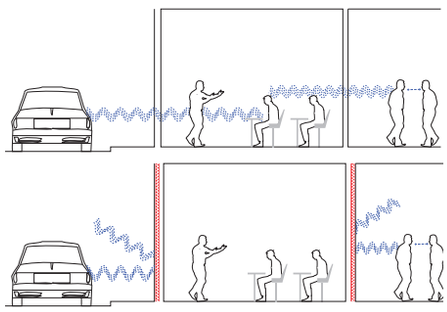
Cochlear Implants and hearing aids operate by amplifying the direct first arrival signals sent from a speaker. Problematic conditions occur because they also amplify late multiple arrivals of the voice and other background sounds. This can be distracting and make speech unintelligible particularly in collective spaces and classroom scenarios. Reverberation goals depend on the function of the room, but generally speaking, low reverberation is required for speech intelligibility.





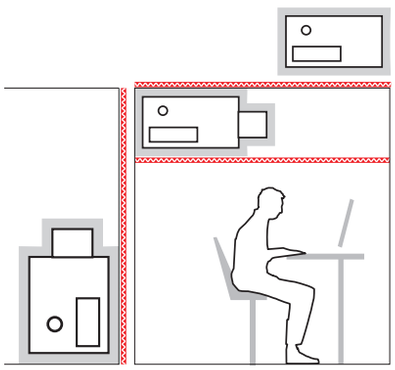
5.1.2 Background Noise: Program Adjacencies

As mentioned in XXXX a variety of program adjacencies are desirable for the support of active Deaf culture. Background noise resulting from these program adjacencies and from the transparency that allows visual connection between spaces must be carefully addressed. Spaces such as classrooms should not be placed next to busy streets or mechanical rooms while insulation and other sound dampening techniques should be used to avoid sound interference from adjacent collective and circulation spaces.



5.1.3 Equipment Noise: Communication

Equipment such as air handling units, fans, heaters and water pumps, as well as associated duct work, should be carefully dampened to prevent transmission of disruptive sound and should be isolated from building structural systems. Mechanical rooms should be located away from office, teaching and gathering spaces and should employ under floor pads or pre-fabricated resilient equipment mounts to dampen sound. Ducts passing through teaching or gathering spaces or through private offices should be dampened to prevent unwanted sound transmission.



5 Acoustics & EMI

DeafSpace Design Guidelines

5.2 EMI

Electromagnetic (EM) fields can be a serious source of interference for hearing aids. EM fields are extremely common. They are used to transmit radio, television, and cellular telephone signals. EM fields are also the by-product of many of the building's electrical devices and systems. While newer assisted hearing devices are increasingly immune to EMI, it is critical that a more in depth analysis be conducted to ensure all possible building sources of EMI be reduced.

Overhead projectors, computer monitors, printers, and other equipment common in a university environment can emit levels of EMI that are distracting for people with hearing aids and cochlear implants. The placement of these, along with fluorescent lights, should be monitored closely and should be designed with the help of a consultant familiar with EMI requirements for hard-of-hearing individuals.

5.2.1 EMI: Shielding or Isolating Sources

Equipment that emits EMI should be carefully dampened to prevent transmission of disruptive static and should be isolated from building structural systems. Mechanical rooms that contain electrical equipment as well as server rooms should be located away from office, teaching and gathering spaces and should employ under floor pads and/or pre-fabricated resilient equipment mounts to dampen EMI transmission.

5.2.2 EMI: Reducing Discharge

Products which are likely to create Electrostatic discharge should be checked periodically for proper functioning and emission levels. When possible, products that have been designed with reduced EMI capabilities should be selected.

5.2.3 EMI: Program Adjacencies

Spaces such as classrooms should not be placed next to mechanical rooms while insulation and other sound dampening techniques should be used to avoid EMI interference when close proximity to electrical equipment cannot be avoided.