DISSERTATION

THE PROCESS OF DESIGNING AND CONSTRUCTING AN ACCESSIBLE RESIDENCE HALL FOR PEOPLE WITH DISABILITIES ON A PUBLIC UNIVERSITY CAMPUS

Submitted by

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In partial fulfillment of the requirements

For the Degree of Doctor of Philosophy

Colorado State University

Fort Collins, Colorado

Summer 2008

COLORADO STATE UNIVERSITY

June 25. 2008

WE HEREBY RECOMMEND THAT THE DISSERTATION PREPARED UNDER OUR SUPERVISION BY M. GAYLE WERNSMAN ENTITLED THE PROCESS OF DESIGNING AND CONSTRUCTING AN ACCESSIBLE RESIDENCE HALL FOR PEOPLE WITH DISABILITIES ON A PUBLIC UNIVERSITY CAMPUS BE ACCEPTED AS FULFILLING IN PART REQUIREMENTS FOR THE DEGREE OF DOCTOR OF PHILOSOPHY.

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ABSTRACT OF DISSERTATION

THE PROCESS OF DESIGNING AND CONSTRUCTING AN ACCESSIBLE RESIDENCE HALL FOR PEOPLE WITH DISABILITIES ON A PUBLIC UNIVERSITY CAMPUS

One of the great challenges to older universities and colleges is that of fashioning campuses that once disregarded and discouraged people with disabilities into welcoming and inclusive environments. Handicap accessibility can impact a university's recruitment of students, faculty and staff, building costs and budgets, the raising of public and private funding, and the marketability of the campus for events beyond academic uses, such as conventions, conferences, meetings and entertainment. This qualitative case study examined the process by which physical barrier removal and compliance with accessibility codes, such as the Americans with Disabilities Act, is accomplished on a public university campus and to identify the individuals who most influence these projects. The study was bounded by and limited to a newly constructed residence hall on the campus of Colorado State University. Methodology included three types of data gathering: interviews, site visit, and archival and documents search. The list of interview participants evolved in a chain or snowball sampling method. Data reduction was done by inductive analysis. What emerged is a story revealing the chronology of the funding, design and construction process of a residence hall. The apportionment and sequence of the responsibilities of each participant and their degree of influence on accessibility are discussed. Information gained from site visits and document findings was worked into this descriptive narrative. Themes that emerged were related to construction funding, bid

proposals, accessibility issues and the experience and training of those interviewed. Also identified as themes were the construction of a full-scale model of a typical student room and the issue of why students with disabilities choose to live in an older dormitory. Findings are generalized into suggestions that administrators, architects, designers and facility planners can use to improve future university construction.

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ACKNOWLEDGEMENTS AND DEDICATION

I want to acknowledge those individuals who contributed immeasurably with support, knowledge, and love while I accomplished my doctoral studies and dissertation. The combined total of their unflagging encouragement overwhelms me. It has been a long journey and I thank you all.

Foremost my gratitude goes to Dr. Jean Lehmann. She inspires me with her dedication and acumen. I could not have wished for a more ideal advisor, mentor and friend. Looking back at first drafts I see how far we came—together.

It has been my honor to have the advice and direction of the three dedicated academicians who comprised my committee:

Dr. James Banning, the guru of qualitative methodology, opened the ethnography door and showed me a type of research for which I am innately suited.

Dr. Linda Kuk's knowledge and excitement about my study was a tremendous boost to my motivation.

Craig Birdsong has been my teacher and friend for 30 years. Craig sat on my master's committee and I was delighted to have his help once more.

Maggie, my Dissertation Scottie, deserves mention and thanks for many, many hours spent loyally under and beside my desk.

Finally, I am indebted to my family—Katy, Charlie, Mom and Dad--for their help, encouragement and love. Simply put, I could not have accomplished this without you. With all my heart, I dedicate this dissertation to you.

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Introduction

Background

Today every college and university, public and private, in the United States, except religiously affiliated institutions, are subject to the standards of the Americans with Disabilities Act of 1990 [PL 101-36]. The ADA is a complex piece of legislation. The ADA is the first civil rights statute to mandate across all public and private institutions, state and federal government, and profit and non-profit businesses. A significant portion of the law deals with architectural accessibility in new buildings, existing construction, and alterations of extant facilities. The law required that by Jan 26, 1992 all facilities that provide public products or services be made accessible to people with disabilities[1] when the situation is "readily achievable". The level of "readily achievable is not clearly defined in the legislation but is intended to mean a removal of architectural and communication barriers that can be accomplished within a reasonable frame of difficulty or expense. This "readily achievable" standard was a congressional compromise between allowing all barriers to remain and extreme and immediate retrofitting of all existing structures. The level of "readily achievable" will vary from one

[1] In the Americans with Disabilities Act, the term "disability" is defined as a "physical or mental impairment that substantially limits one or more of the major life activities." "Disability" is now a more acceptable term and replaces the word "handicap" as used in the Rehabilitation Act of 1973 and other legislation enacted earlier than the ADA.

facility to another. Factors that may influence the level of expected achievement or compliance with ADA requirements include: the size of the facility, number of occupants (e.g. employees, customers, students), the organization's financial resources, and the type of business or institution.

The ADA is one of the most complicated and far-reaching laws ever enacted by the U.S. Congress. Infusing and implementing compliance of the regulations throughout campuses requires continuous communication of informed administrators, directors, and facilities managers. To understand more fully the issue of designing and building physical facilities (buildings, grounds, parking and means of access such as sidewalks or ramps) for a public university or college campus a review of relevant anti-discrimination and disability legislation was undertaken. These pieces of legislation should be considered as "building blocks" that culminated in the most recent and most inclusive accessibility legislation, the Americans with Disabilities Act. (Legislation in place prior to the ADA, such as Section 504 of the Rehabilitation Act of 1973 [PL 93-112], mandated only federally assisted or funded institutions or organizations.)

Legislative efforts that contributed to the building of the ADA include:

1. The Architectural Barriers Act of 1968

> The Architectural Barriers Act of 1968 (hereafter known as ABA) [PL 90-480] mandated the removal and avoidance of architectural barriers in new construction of federally funded buildings and facilities. The ABA legislation stated that any building constructed, altered, financed, leased, whole or in part, with federal funds or by the federal government after 1969 must be made accessible to, and usable by persons with disabilities.

2. Sections 501, 503, 504 of the Rehabilitation Act of 1973

Sections 501 and 503 addressed affirmative action in hiring and advancement, and in contracting with persons with disabilities in federal government. Section 504 prohibited discrimination on the basis of handicap in employment, education, architectural accessibility, health, welfare, and social services. Section 504 was the first significant federal legislation that affected students with disabilities in higher education. Section 504 applied to all colleges and universities that received federal funding. An institution that failed to comply put itself in jeopardy of losing financial government support, the cost and time involved in litigation, and damage to reputation.

Section 504 was designed to prohibit discrimination against and improve education and other public services available to individuals with disabilities. The language of the Rehabilitation Act was patterned after the anti-discrimination language of Section 601 of the Civil Rights Act of 1964 [PL 88-352] designed to protect the rights of all persons and prohibits discrimination on the basis of race, color, national origin, sex, and religion. Section 504 provided a major step forward in higher education for students with disabilities. The legislation reads:

"No otherwise qualified individual with handicaps in the United States shall solely, by reason of his or her handicap, be excluded from the participation in, or be denied the benefits of, or be subjected to discrimination under any program or activity receiving federal assistance." [PL 93-112, p. 394]

Although the Rehabilitation Act showed congressional commitment toward the integration of disabled persons into mainstream society, little provision was made in the federal act for the implementing and enforcement. At least 55 federal agencies were charged with the regulation of Section 504. With limited enforcement people with disabilities continued to face discrimination in employment, public transportation, educational opportunities, and the stunting effects of architectural barriers

3. The Education of All Handicapped Children Act of 1975 [PL 98-199]

   EAHCA mandated appropriate and free public education for all children with disabilities.

4. The Civil Rights of Institutionalized Persons Act of 1980 [PL 96-247]

   The Civil Rights of Institutionalized Persons Act authorized the Department of Justice to sue states for alleged right violations of institutional persons.

5. The Voting Accessibility for Elderly and Handicapped Act of 1984 [PL 98-435]

   The Voting Accessibility for Elderly and Handicapped Act mandated federal polling places to be accessible to all persons.

6. The Air Carriers Access Act of 1986 [49U.S.C. 41705]
   Air Carriers Access Act mandated that all public air carriers be accessible.

7. The Fair Housing Act Amendments of 1988 [PL 100-430]
   The Fair Housing Act, in matter of accessible housing, added persons with disabilities to the class of protected citizens.

In addition to these specific disability statues there are four laws that prohibit discrimination (on the basis of age, gender, race, national origin, and handicap) in educational programs that receive federal funding. They are:

a. Title VI of the Civil Rights Act of 1964
b. Title IX of the Civil Rights Act of 1964
c. Section 504 of the Rehabilitation Act of 1973
d. Age Discrimination in Employment Act of 1967

In 1978, the U.S. Department of Health, Education and Welfare published the first regulations containing minimum standards for enforcing Section 504. One follow-up report, On the Threshold of Independence, detailed advancements toward the independence and quality of life for persons with disabilities. This report contained the draft legislation that would become the Americans with Disabilities Act. In 1989 ADA legislation was introduced to Congress. President George H.W. Bush signed into law the ADA on July 26, 1990. The ADA prohibits discrimination on the basis of disability in the areas of employment, public accommodation, public services, transportation, and telecommunications. The ADA establishes clear, enforceable standards addressing discrimination and comprehensible civil rights protection for persons with disabilities.

The Education of All Handicapped Children Act [PL 94-142] requires that, to the maximum extent appropriate, all children identified as having handicapping conditions

will be educated with peers who are not handicapped. Since EAHCA went into effect in 1975 one generation has passed through the mainstream K-12 system, been admitted to and have graduated from higher education institutions. A second generation of individuals with disabilities will be entering post-secondary education starting in the year 2009. The expectations and demands of this second generation educated under the EAHCA, having received the services and accommodations mandated by the EAHCA from the beginning of their educational careers, and now further empowered by the ADA will undoubtedly exceed the expectations of students with disabilities from the previous generation. There is an increasing enrollment trend in the number of students with disabilities in kindergarten through twelfth grade (Greene and Zimbler, 1998) which will result in an enrollment growth of students with disabilities into post-secondary education. This will further reinforce the need for post-secondary accessibility, services, and integration.

The National Center for Education Statistics (1999) determined for the years 1996-98 students reporting disabilities in two and four year post-secondary institutions numbered 428,280.[2] The average age for students with disabilities is 30, while the average age for students without disabilities is 26 (NCES, 2000). Of those students declaring disabilities, the breakdown in types of disabilities declared was:

Learning	196,000
Mobility or orthopedic	59,650
Health impairments	49,570
Mental or emotional disabilities	33,260
Hearing	23,860
Speech and language	4,020
Type of disability not disclosed	38,410

[2] The National Center for Education Statistics (1998) sets the number of 2 and 4 year post-secondary institutions in the U.S. at 5,040.

More recent legislation affecting students with disabilities took place in 1998. Congress reauthorized the Higher Education Act adding an important provision by appropriating $5 million dollars for a grants program that may used to:

1. develop effective and innovative teaching methods and strategies to provide faculty and administrators with skills to teach students with disabilities
2. synthesize research and related information regarding the provision of educational services to students with disabilities
3. conduct training sessions for faculty and administration from other institutions to enable them to meet the post-secondary educational needs of students with disabilities
4. prepare and disseminate products based on the above activities (American Council on Education, 1995-2000).

Also reauthorized by Congress was the Vocational Rehabilitation Act of 1973. The new Workforce Investment Partnership signed by President Clinton on August 7, 1998 mandated that state agencies, including higher educational institutions and state vocational rehabilitation offices, work in tandem to determine the appropriate services to be provided for students with disabilities, the agencies to provide these services, and which agency will take financial responsibility for such services.

Statement of the Problem

Under the ADA, all newly constructed campus facilities must be readily accessible to and usable by individuals with disabilities. The efforts to which a university or college extend themselves toward compliance with the ADA can be the minimum required by the law and sufficient to avoid potential litigation. However, supreme gestures of good faith, that go beyond the letter of the law, can have great impact on issues such as: recruitment of students, faculty, and staff, the university's public image of

inclusiveness, building costs and budget, the raising of both public and private funding, and the marketability of the campus for conferences and seminars.

The purpose of this research study was to determine the process by which physical barrier removal and compliance with the Americans with Disabilities Act is accomplished on a public university campus. This study takes an in-depth look, through a case study, at the internal decision and design process of constructing a campus residence hall and the influence of those individuals or offices whose opinions and expertise were sought in the initial design phases.

Importance of the Study

The information that will be reported in this study will make a contribution to the topics of disabilities, accessibility[3], architectural design and facilities planning for collegiate campuses. This study may be significant to any person involved with a college or university, whether disabled or able-bodied faculty, staff, students, community members, who is interested in the unimpeded access of all individuals to public educational facilitates, academic employment, or any other products, programs or

[3] Terms 'handicap accessibility' and 'accessibility' are used interchangeably in this document because of the current dilemma of society's preference. The term 'accessibility' can mean, in a general sense, "easily approachable". Accessibility can be used to describe the degree to which a something is reachable, obtainable, or available (for example, the degree of accessibility to a property by an automobile). Handicap (defined as an impairment, impediment, hindrance or disadvantage) may be seen as offensive by some because it stresses the negative. Some elements of current society choose to stress abilities over shortcomings. Likewise, disabled may also be offensive to those who prefer the more ability-positive term less-abled. The word 'handicap' may be stigmatizing for some but the elimination of the word may confuse others.

services provided by the colleges or universities. Private architects, designers, and others involved in the construction of campus buildings may find this study useful.

University and college ADA coordinators may find this information useful when determining policies and procedures related to ADA compliance and service efforts. University and college administrators may be interested in the results of this study because ever increasing numbers of people with disabilities will be entering higher education due to opportunities open for them. This study may open discussions about their own procedures for planning physical facilities as they compare their own processes regarding accessibility compliance with that of Colorado State University.

Legal advisors of universities and colleges may relate this study to their own efforts in reducing possible litigation as disabilities awareness increases. Such information may provide comparative material for an institution as they review their own efforts to meet compliance regulation, as well as the spirit of ADA legislation.

Colorado State University administrators, facilities and housing managers, and student disabilities and ADA coordinators may be especially interested in this study because of the direct reporting of this study on the University's procedural process for designing accessible campus facilities.

Overview and Organization of the Study

This study is organized into 5 chapters. Chapter One looks at the background and evolution of federal anti-discrimination and disability legislation, the significance and purpose of this study, and the definitions of technical terms as used in this study. Chapter Two provides a review of literature relevant to issues and challenges surrounding barrier-

free access on university and college campuses. Chapter Three describes the study's methodology of sampling, survey questions, data accumulation and analysis, trustworthiness, and the limitations of the study. Chapter Four will present the result of the research framed within the context of the research questions. Chapter Five will examine the major findings of the study, summarize conclusions, and suggest implications for future study.

Research Questions

The following questions guided this research:

1. How are the physical adaptations and new construction details for accessibility determined on a public university campus?

2. Who becomes involved in the decision process and when and how does this involvement take place? (The term "involvement" may indicate a person, team of people, or office and the contributing roles played.)

3. What knowledge has been gained from the design process, specific to accessibility, in this case (residence hall) that will inform university campus communities?

Definitions

The following is an alphabetical listing of the terms, with their definitions, as used by the author in this dissertation:

Accessible: Facilities or parts of facilities that may be used by individuals with disabilities. The offering of accessibility includes responding to the needs of people with sight or hearing impairments in addition to those with activity, manual, or mobility limitations (U.S. Dept. of HEW, 1977). Describes a site, building, facility or portion thereof that complies with ADA guidelines.

Accessibility: People of all ages and abilities can use the facilities or services (Referendum for ADA p. 5)

Accessible Route: A continuous unobstructed path connecting all accessible elements and spaces of a building or facility. Interior accessible routes may include corridors, floors, ramps, elevator, lifts, and clear floor space at fixtures. Exterior accessible routes may include parking access aisles, curb ramps, crosswalks at vehicular ways, walks, ramps and lifts.

Accommodations: Refers to the removal of any type of barrier that may limit participation.

Adaptive Technology: Hardware or software products that provide access to a computer that is otherwise inaccessible to an individual with a disability.

ADA: The Americans with Disabilities Act [PL 101-336] civil rights act that went into effect July 26, 1990. Its national mandate is the elimination of discrimination against individuals with disabilities in the areas of employment, public services, transportation, public accommodations, and telecommunications (28 CFR [a], 1994) through clear, enforceable standards, and to ensure that the federal government performs a pivotal role in enforcing those standards.

American with Disabilities Act Accessibility Guidelines (ADAAG): Facility design, construction, and alteration standards created under the ADA, similar in purpose to prior Section 504 building standards known as UFAS (see UFAS.) ADAAG establishes standards to achieve readily accessible facilities useable by individuals with disabilities (Dept. of Justice, ADAAG, 2004).

Area of Rescue Assistance: An area, which has direct access to an exit, where people who are unable to use stairs may remain temporarily in safety to await further instructions or assistance during emergency evacuation.

Audible Alarm: A sound device that alerts employees to danger and signals an emergency procedure should be followed. Audible alarms include bells, horns, sirens, and voice announcement systems.

Auxiliary Aids: Aids that bridge the gap created by an individual's functional limitations; they may be in the form of personal assistance or a piece of special equipment (U.S. Dept. of HEW, 1977).

Barrier: any obstacles preventing people with disabilities from enjoying the full and free use of the environment (U.S. Dept. of HEW, 1977).

Colleges and Universities: Used interchangeably in this study to mean any institution of higher education, public or private, ranging from small college to large university.

Compliance Initiative: Compliance initiatives are defined as the steps or processes taken by an institution to comply with the requirements of the ADA federal regulations. Requirements include: naming an individual as the ADA Compliance Officer,

establishing a grievance procedure, posting ADA notices' preparing a transition plan, and preparing a self-evaluation.

Disability: As defined by the ADA, individuals with disabilities: 1) have a physical or mental impairment that substantially limits one or more major life activities; 2) have a record of such an impairment; or 3) are regarded as having such impairment (28 CFR [a], 1994).

Disabled Persons/Qualified Disabled: Term used in the Rehabilitation Act of 1990 that refers to persons with disabilities. The term is synonymous with a disability in new legislation such as the Americans with Disabilities Act (U.S. Dept. of HEW, 1997).

Equal Opportunity: An individual with a disability is given the same chance to attain the same level of performance or enjoy the same benefits and privileges that are available to a similarly situated individual without a disability.

Facility: All or any portion of buildings, structures, sites, equipment, conveyances, roads, walks, passageways, parking lots, or other real or personal property including the site where the building, property, structure, or equipment is located (28 CFR, 1994).

Handicapped: The term "handicapped" has been revised to decrease stereotypes and prejudices. Individual conditions are currently referred to as "disabilities."

Hearing Impairment: Complete or partial loss of ability to hear caused by a variety of injuries or diseases including congenital defects. Types of hearing impairments include conduction deafness, which results from conditions which prevent sound waves from being transmitted to the auditory receptors and perceptive deafness, which is caused by injuries involving sensory receptors resulting in loss of ability to perceive or transmit sound messages to the brain. Frequent limitations including difficulties in understanding language or other auditory messages and/or in production of understandable speech are possible.

IDEA: The Individuals with Disabilities Act passed in 1975 (amended in 1990) which guarantees all children a free public education in the least restrictive environment [PL 94-142 and PL 101-476].

Physical environment: Refers to architectural features of buildings, building access, and public facilities such as elevators, restrooms, and parking availability within the university (Schneid, 1992).

Post-secondary Institutions: Institutions with formal instructional programs and a curriculum designed primarily for students who have completed the requirements for a high school diploma or it's equivalent.

Programming: The procedure of solving a problem including data collection, processing and the presentation of results. The design, scheduling or planning of a program. (Websters, 1988).

Qualified Individual with Disabilities: Refers to an individual with a disability who, with or without reasonable accommodation, can perform the essential functions of an employment position as defined in Title I of the ADA. Under Title II a qualified individual is a person who meets the essential eligibility requirements for receiving services or participating in programs or activities provided by the public entity.

Readily Achievable: Architectural and communication barriers are removed in existing facilities when their removal is easily accomplished without much difficulty or expense. The level of this will vary as what is achievable in one place may pose a hardship in another.

Reasonable Accommodation: As defined in Section 504 of the Rehabilitation Act and similarly in the ADA, reasonable accommodation includes making existing facilities and services readily accessible to and usable by individuals with disabilities. It could include: modification in programs, activities or services, part-time or modified work schedules, job reassignment, appropriate adjustments or modifications to equipment, training, policy changes or facilities, and the provision of qualified readers. Those which do not result in a significant alteration of the position, program or activity or in undue financial and administrative burdens (Colorado State University, Office of Equal Opportunity, 2004).

Residence Hall: The terms "residence hall" and "dorm" are often used interchangeably. However, within the residence life community, the term "residence hall" is preferred. According to the University of Oregon, their facilities "provide not just a place to sleep, but also opportunities for personal and educational growth (Wikipedia, 2008). Most building codes, including ADAAG, refer to these buildings as dormitories.

Sealed Bid: A bid which has been submitted in a sealed envelope to prevent dissemination of its contents before the deadline for the submission of all bids; usually required by the purchasing authority on major procurements over the formal bid limit to ensure fair competition among bidders.

Section 504: Refers to Section 504 of Title V of the Rehabilitation Act of 1973 (PL 93-112) a civil rights act that prohibits discrimination on the basis of disability in programs and activities in public and private institutions that receive federal Title IV Part C financial aid.

Telecommunication Devices for the Deaf (TDD): A TTY is a device like a typewriter that has a small readout. It is also called a Telecommunication Device for the Deaf (TDD) but that name has been devised by the hearing community and is not accepted by Deaf people, the actual users of TTY technology. They prefer the term, TTY.

Text Telephone (TTY): Machinery or equipment that employs interactive text based communications through the transmission of code signals across the standard telephone network. Text telephones can include, for example, devices known as TDDs (telecommunication display devices or telecommunication devices for deaf persons) or computers with special modems. Text telephones are also called TTYs, and abbreviation for tele-typewriter. (Dept. of Justice, ADAAG, 2004)

Title I of the ADA: Effective July 26,1992, applies to private sector employers engaged in an industry which affects commerce who have 15 or more employees. It is applicable to the majority of private colleges and universities.

Title II of the ADA: Applicable to all public colleges and universities. Title II prohibits public entities (includes any state or local government and any department, agency, or other instrumentality of a state or local government) from discriminating against a qualified individual with a disability. Discrimination occurs by them from participation in or denying them the benefits of the services, programs, or activities of the public entity.

Transient Lodging: A building, facility, or portions thereof, excluding inpatient medical care facilities and residential facilities, that contain sleeping accommodations. Transient lodging may include, but is not limited to, resort, group homes, hotels, motels, and dormitories.

Uniform Federal Accessibility Standards (UFAS): Standards established for the design, construction, or alteration of buildings to ensure that facilities are readily accessible and useable by individuals with disabilities. UFAS were established under Section 504 and is one of two acceptable ADA accessibility facility standards (see ADAAG).

Universal Design: The design of products and environments to be usable by all people, to the greatest extent possible, without the need for adaptation or specialized design. All elements of handicap use only shall be avoided whenever a universal design solution can be used. Designed elements stigmatize users when they segregate people who need access.

Vested Interest: Individuals or organizations may be said to have a vested interest if they have contributed to the design, funding, regulations, or construction of the specific case named in this study.

Visual Alarm: A visual device that alerts employees to danger and signals an emergency procedure should be followed. Visual alarms use steady, flashing, or strobe lights.

Wheelchair: Refers to a manual or mechanical device that consists of a chair mounted on wheels that is used to provide mobility for a person unable to walk.

Wheelchair user: Includes all individuals who require the use of a wheelchair for mobility.

CHAPTER TWO

Review of Literature

To understand more fully the significance of disability legislation and implementation in higher education, a review of relevant literature was conducted. The review of related literature and research examined in this study is divided into three parts: the first part pertains to the history and evolution of social and civil rights movements and of legislative efforts leading to current disability laws; the second part pertains to understanding how higher education has historically handled the issue of providing services for persons with disabilities; the third part pertains to a synthesis of previous research studies pertinent to the topic of this dissertation.

Constructing and assembling the first part of this chapter, the history and evolutions of disability issues, was a challenging task as sources on this history are rare. Brown (2005), regarding the research for his own monologue on disability history, stated "Our own history is so fragmented. I know of nowhere else where all the information…is tied together. As an advocate with a disability, it is frustrating to realize how scattered our information remains. Much more work needs to be done before we have even the beginnings of a …history of our movement."

The Foundation of Disability Advocacy and Legislation: Providing Services for People with Disabilities in the Past

"...all men are created equal..." Perhaps the root of disability advocacy in the United States has its beginnings in the Declaration of Independence written over 200 years ago. This has not always seemed the reality for people with disabilities.

> "It is a world made for those who can climb stairs, turn doors and faucets, see where they are going, hear noises, and commit instructions and information quickly to memory." (Access for Handicap Students to Higher Education: A Reference Handbook, 1981, as cited by Gonzales, 1998).

Although there have always been people with disabilities coping in a world made for able-bodied citizens, as recently as 50 years ago the ways in which these people managed were primarily limited to their own, and their families, devices and efforts. Historically individuals with disabilities have been treated with deplorable discrimination. The disabled have been viewed within a medical model as "sick people who never got well." They were "objects of pity; locked away out of sight. (Gallagher, 2002).

Hugh Gregory Gallagher, former assistant to President Lyndon Johnson, former congressional aide and author of the Architectural Barriers Act of 1968, contracted polio in 1952 and has used a wheelchair for over 50 years. Gallagher relates his memories of coping with day to day living as an individual with a disability.

> "Back when I was young, nothing was accessible. Steps were everywhere and there were no ramps. There were no curb cuts, no reserved parking. Wheelchairs were mostly heavy, clunky affairs made of wicker and wood with immovable arms. Such chairs were too awkward and heavy to push. They wouldn't fit in a car. Running boards and high seats made it impossible to transfer independently from the chair to the car.
>
> Hospitals, colleges, churches were inaccessible. In my own case, forty colleges turned me down because they were inaccessible. Movie theatres would

not let me in because I was a fire hazard. The local fire marshal said that people would stumble over my chair as they raced to escape a blaze.

Airlines and buses refused me passage. Restaurants didn't want to seat me because they said I would scare away their customers. I was kicked out of an art gallery for fear that people looking at the pictures might back into me and hurt themselves. I have stayed in hospitals that did not have even one accessible bathroom. In Washington, DC, the US Capitol, the Smithsonian museums, and the White House were inaccessible.

When I worked for President Johnson I had to urinate in a coffee can. Being crippled was shameful, something not spoken of in polite society. We were educated at home by "visiting teachers," although some went to segregated schools for the handicapped. Some of us faced lifetime internment in institutions. They called the one in Grand Junction, Colorado, "the Pest House" for short. We were kept from voting; and in some states we were not allowed to marry, even sterilized against our will. Back then, we were "crippled" people; we were called 'invalids'." (Gallagher, 2002)

Individuals with both cognitive and physical disabilities confront education and so many more aspects of American life. The transition from discrimination in their everyday lives in housing, employment, transportation, institutions, asylums and nursing homes of less than a century ago toward the goals of independent living and inclusion in main stream American culture is a continuing, poignant struggle. The last three decades have seen more victories in disability rights than all decades in America's past, yet discrimination, confrontations and struggles will continue as persons with disabilities challenge society and government for equality.

As cited in Fornadel (1993), Bonnie Tucker and Bruce Goldstein stated that people with disabilities are discriminated against by virtue of five factors:

1. intentional exclusion from mainstream society
2. segregation, intentional or unintentional
3. the provision of unequal or inferior services, benefits or activities
4. the provision of less effective services, benefits, or activities

5. the use of screening criteria that do not correlate with actual ability and have a disparate impact on people with disabilities

As stated in Chapter One the term "handicap" has been replaced in society in recent years with the term "disability" to reflect the change of attitude that has evolved. This terminology change respects the total being of people, of which a disability may be just one aspect. The terms "handicap" or "disability" may have in the past, been used most often to describe a physical impairment. Because legislation acknowledges the rights of people with disabilities of any kind, society has learned to view learning and psychological disorders in the total meaning of disability (Gonzalez, 1998).

Every disabling condition, as is every person, is different. This applies not only to the differences between disabilities, whether physical or cognitive, but also to differences within each disability category. For example, each person who uses a wheelchair is unique for why and how they use it, whether for issues of strength, paralysis, amputation, etc. and whether maneuvered by hands, breath, head movement, or some other means. Disabling conditions themselves are dynamic as there are adjustments in life circumstances, health, mechanical aids, assistance needs and many other issues, as well as daily normal activities of life in general (Brown, 2005).

The following table is a compilation of the evolution of U.S. disability culture (Brown, 2005; Pelka, 1997). This chart begins in the formative years of the U.S. For well over 100 years persons with disabilities lived outside the main stream of life, cared for by family, institutions or asylums. By the end of the 19th century, faced with vast numbers of new immigrants, local and federal government advocated the education of all citizens to ensure a general knowledge of civic workings. The number of colleges and

universities increased, but higher education remained out of reach, and of little use, to many. Learning a manual trade, or vocational training, seemed a more practical option.

Medical advances at the turn of the 20th century enabled people with disabilities to live longer and healthier lives. A new discipline, called rehabilitation, evolved to find ways to alleviate some disabling conditions. Combining vocational training with rehabilitation led to vocational rehabilitation. The first legislation for funding of vocational rehabilitation, established in 1918, was directed at disabled World War I veterans. Just two years later legislation was expanded to include disabled civilians.

For some readers it may seem unnecessary to delve so deeply into the history of disabilities for the topic of this dissertation. It is the author's opinion that to fully understand the topic of this study it is imperative to review the landmark events that led us to a place where persons with disabilities are afforded the civil rights that open the doors of higher education. As this review of literature shows, this has not always been the case.

Table 1.also includes significant events and legislation that were an outcome of military actions and the resulting impact on post-war society. Wars always impact disability by:

1. increasing the number of persons with disabilities
2. the resulting advances in medicine
3. accelerating disability policies

For example, antibiotics and treatments developed during World War II were used to prevent decubitus ulcers in those with spinal cord injuries, significantly reducing the number of deaths from infections. Disabled veterans of WWI and WWII were the reason

for federal legislation designating rights and funding for rehabilitation training, education, and financial support that benefited civilian persons with disabilities (Brown, 2005). It was the insistence and determination of veterans groups at UCLA; Kalamazoo Michigan; and Champaign-Urbana, Illinois that led to the eventual legislative rights of inclusion in higher education for all people with disabilities.

Table 2.1 Significant dates, legislation, and court rulings in the evolution of disability rights in the United States.

Colonial America	People with disabilities were viewed in terms of their dependency and support. For people with no family, colonial governments established "poor laws" to provide for the elderly and disabled.
1820's	State and local governments constructed almshouses for the elderly, disabled, and poor to offer routine and sustenance.
1830's	States began to erect asylums to cure the mentally ill by depriving them of stimulus. Schools for the blind were established in New York, Pennsylvania, and Massachusetts.
Late 1800's	Despite various reform movements people with disabilities continued to live in almshouses.
1918	The Smith-Sears Veteran Vocational Rehabilitation Act established a federal vocational rehabilitation program for disabled soldiers.
1920	The Fess-Smith Civilian Vocational Rehabilitation Act is passed, creating a vocational rehabilitation program for disabled civilians.
1921	The American Foundation for the Blind is founded.
1927	Franklin Roosevelt co-founds the Warm Springs Foundation at Warm Springs, Georgia, an international rehabilitation center. The U.S. Supreme Court, in Buck v. Bell, rules that the forced sterilization of people with disabilities is not a violation of their constitutional rights.
1929	Seeing Eye establishes the first dog guide school for blind people in the United States.
1932	Disabled American Veterans is Chartered by Congress to represent disabled veterans in their dealings with the federal government.
1933	Franklin Delano Roosevelt, the first seriously physically disabled person ever to be elected as a head of government, is

	sworn into office as president of the United States. The first U.S. president to be disabled, FDR hid his disability from public view as the perception of the time was that disabilities in general were considered a sickness and that an invalid would not make an effective leader.
1935	The New York League of the Physically Handicapped, believing they faced discrimination from private industry and from the classification of persons with disabilities in Roosevelt's New Deal program as "unemployable", conducts a 3 week picket at Works Progress Administration (WPA) New York headquarters. The League has mixed success, securing some jobs for workers with disabilities, however their efforts do little to alter federal policies.
1936	Passage of the Randolph Sheppard Act establishes a federal program for employing blind vendors at stands in the lobbies of federal office buildings.
1937	Herbert A. Everest and Harry C. Jennings patent a design for a folding wheelchair with a X-frame that can be packed into a car trunk.
1940	The National Federation of the Blind is formed in Wilkes-Barre, Pennsylvania, by Jacobus tenBroek and other blind advocates. The American Federation of the Physically Handicapped is founded by Paul Strachan as the nation's first cross-disability, national political organization.
1944	Howard Rusk is assigned to the U.S. Army Air Force Convalescent Center in Pawling, New York, where he begins a rehabilitation program for disabled airmen. First dubbed "Rusk's Folly" by the medical establishment, rehabilitation medicine becomes a new medical specialty.
1945	President Harry Truman signs a joint congressional resolution calling for the creation of an annual National Employ the Handicapped Week. Jack Fisher, disabled attorney, petitions Kalamazoo, MI for curb cuts to assist fellow disabled veterans, clients, citizens (and mothers with baby carriages) to go downtown for employment, freedom of movement. Kalamazoo becomes the first city government to approve curb cuts (Brown, 1999).
1946	CAL-VETS, a volunteer group carries disabled vets into inaccessible buildings at UCLA so vets may attend classes.
1948	PL702, housing legislation, passed to provide veterans with service connected disabilities a $10,000 grant and $10,000 loan to build or modify a house.
1956	*Accent on Living* begins publication.
1958	Gini Laurie becomes the editor of the *Toomeyville Gazette* at

	the Toomeyville Pavilion Polio Rehabilitation Center. Eventually renamed the *Rehabilitation Gazette*, this grassroots publication becomes an early voice for disability rights.
1960	The first Paralympic Games, under the auspices of the International Paralympic Committee (IPCP), are held in Rome, Italy.
1961	The American Council of the Blind is formally organized. The American National Standards Institute, Inc. (ANSI) publishes American Standard Specifications for Making Buildings Accessible to, and Usable by, the Physically Handicapped. The Teachers of the Deaf Act trained instructional personnel for children who were deaf or hard of hearing [PL 87-276].
1962	Edward Roberts becomes the first severely disabled student at the University of California at Berkeley.
1963	South Carolina passes the first statewide architectural access code.
1964	Robert H. Weibrecht invents the acoustic couple, enabling teletypewriter messages to be sent via standard telephone lines. This invention makes possible the widespread use of teletypewriters for the deaf.
1968	The Architectural Barriers Act is passed, mandating that federally constructed buildings and facilities be made accessible to people with physical disabilities. This act is generally considered to be the first federal disability rights legislation.
1970	Congress passes the Urban Mass Transportation Assistance Act, declaring it a "national policy that elderly and handicapped persons have the same right as other persons to utilize mass transportation facilities and services." The law contains no provision for enforcement.
1971	The National Center for Law and the Handicapped is founded at the University of Notre Dame becoming the first legal advocacy center for people with disabilities in the U.S.
1972	The Center for Independent Living (CIL) is founded in Berkeley, California.
1973	The first handicap parking stickers are introduced in Washington, DC. The Architectural and Transportation Barriers Compliance Board is established under the Rehabilitation Act of 1973 to enforce the Architectural Barriers Act of 1968.
1974	Halderman v. Pennhurst is filed in Pennsylvania on behalf of the residents of the Pennhurst State School Hospital. The case, highlighting the horrific conditions at state schools for people with mental retardation, becomes an important precedent in the

	battle for deinstitutionalization, establishing a right to community services for people with developmental disabilities. The first convention of People First is held in Salem, Oregon. People First becomes the largest U.S. organization composed of, and led by people, with cognitive disabilities. North Carolina passes a statewide building code with stringent access requirements drafted by access advocate Ronald Mace. This code becomes a model for effective architectural access legislation in other states. Mace founds Barrier Free Environments to advocate for accessibility in building and products.
1975	Congress passes the Developmentally Disabled Assistance and Bill of Right Act, providing federal funds to programs serving people with developmental disabilities and outlining a series of rights for those who are institutionalized. The lack of an enforcement mechanism within the bill and subsequent court decision will, however, render this portion of the act virtually useless to disability rights advocates. The Education for All Handicapped Children Act (P.L. 94-142) is passed, establishing the right of children with disabilities to a public school education in an integrated environment. The act is a cornerstone of federal disability right legislation. In the next two decades, millions of disabled children will be educated under its provision, radically changing the lives of people in the disability community. The American Coalition of Citizens with Disabilities is founded. It becomes the preeminent national cross-disability rights organization of the 1970's. The Association of persons with Severe Handicaps is founded to PARC v. Pennsylvania (1972) and subsequent right-to-education cases. The organization will eventually call for the end of aversive behavior modification and the closing of all residential institutions for people with disabilities. The Atlantis Community is founded in Denver as group housing program for severely disabled adults who, until that time, had been forced to live in nursing homes. Mainstream Magazine of the Able-Disabled begins publication in San Diego. Edward Roberts (see 1962) becomes the director of California Department of Rehabilitation. He moves to establish nine independent living centers across CA based on the model for Independent Living (I.L.) in Berkeley. The success of these centers demonstrates that I. L. can be replicated and eventually results in the founding of hundreds of I.L. centers all over the world (Brown, 2005).

1976	Passage of an amendment to Higher Education Act of 1972 provides services to physically disabled students entering college. The Disability Rights Center is founded in Washington, DC Sponsored by Ralph Nader's Center for the Study of Responsive Law, it specializes in consumer protection for people with disabilities.
1977	President Jimmy Carter appoints Max Cleland to head the U.S. Veterans Administration, making Cleland the first severely disabled (as well as the youngest) person to fill that position. The White House Conference on Handicapped Individuals brings together 3,000 disabled people to discuss federal policy toward people with disabilities. This first ever gathering of its kind results in numerous recommendations and acts as a catalyst for grassroots disability rights organizing the Passage of the Legal services Corporation Act, adding financially needy people with disabilities to the list of those eligible for publicly funded legal services.
1978	Disability rights activists in Denver stage a sit-in demonstration, blocking several Denver Regional Transit Authority buses to protest the complete inaccessibility of Denver's mass transit system. Title VII of the Rehabilitation Act Amendments of 1978 establishes the first federal funding for independent living and creates the National Council of the Handicapped under the U.S. Department of Education.
1979	The U.S. Supreme Court, in Southeastern Community College v. Davis, rules that, under Section 504 of the Rehabilitation Act of 1973, programs receiving federal funds must make "reasonable modifications" to enable the participation of otherwise qualified disabled individuals. This decision is the Court's first ruling on Section 504, and it establishes reasonable modification as an important principle in disability rights law.
1980	The first issue of Disability Rag (no Ragged Edge) is published. The Disability Rights Education and Defense Fund (DREDF) is founded in Berkeley, becoming the nation's preeminent disability rights legal advocacy center. The center participates in much of the landmark litigation and lobbying of the 1980's and 1990's (Brown, 2005).
1981	The International Year of Disabled Persons begins with speeches before the United Nations General Assembly. During the year, governments are encouraged to sponsor programs bringing people with disabilities into the mainstream of their

	societies. The Telecommunications for the Disabled Act mandates telephone access for deaf and hard-of-hearing people at important public places, such as hospitals and police stations, and that all coin-operated phones be hearing aid-compatible by January 1985. It also calls for state subsidies for production and distribution of TDDs (telecommunication devices for the deaf), more commonly referred to as TTY's. In an editorial in the *New York Times*, Evan Kemp, Jr. writes that the Jerry Lewis National Muscular Dystrophy Association Telethon "reinforces a stigma against disabled people." (see 1991)
1983	American Disabled for Accessible Public Transit (ADAPT) is organized at the Atlantis Community headquarters in Denver. For the next seven years ADAPT conducts a civil disobedience campaign against the American Public Transit Association and various local public transit authorities to protest the lack of accessible public transportation. The United Nations expands the International Year of Disabled Persons into the International Decade of Disabled Persons, to last from 1983 to 1992. The Disabled Children's Computer Group (DCCG) is founded in Berkeley, CA. The World Institute on Disability is founded in Oakland, CA by Ed Roberts, Judy Heumann and Joan Leon.
1984	George Murray becomes the first wheelchair athlete to be featured on the Wheaties cereal box. The Voting Accessibility for the Elderly and Handicapped Act mandates that polling places be accessible or that ways be found to enable elderly and disabled people to exercise their right to vote. Advocates find that the act is difficult to enforce. The Uniform Federal Accessibility Standards (UFAS) went into effect. Until the ADA in1990 most states and local building codes were based on ANSI and UFAS (Accessibility Space Team, 1996).
1985	Wry Crips, a radical disability theatre group is founded in California. The U.S. Supreme Court rules, in City of Cleburn v. Cleburn Living Center, that localities cannot use zoning laws to prohibit group homes for people with developmental disabilities from opening in residential areas solely because the residents are disabled. The Protection and Advocacy for Mentally Ill Individuals Act

	is passed, setting up protection and advocacy agencies for people who are in-patients and residents of mental health facilities.
1986	The Air Carrier Access Act is passed, prohibiting airlines from refusing to serve people simply because they are disabled and from charging them more for airfare than non-disabled travelers. The National Council on the Handicapped issues "Toward Independence", a report outlining the legal status of Americans with disabilities, documenting the existence of discrimination and citing the need for federal civil rights legislation (what will eventually be passed as the Americans with Disabilities Act of 1990). The Rehabilitation Act Amendments of 1986 defines supported employment as a "legitimate rehabilitation outcome."
1987	Deaf actress Marlee Matlin wins an Oscar for her performance in Children of a Lesser God. The U.S. Supreme Court, in School Board of Nassau County, Florida v. Arline, outlines the rights of people with contagious diseases under the Rehabilitation Act of 1973. It establishes that people with infectious diseases cannot be fired from their jobs "because of the prejudiced attitude or ignorance of others."
1988	The Technology-Related Assistance Act for Individuals with Disabilities is passed, authorizing federal funding to state projects designed to facilitate access to assistive technology. The Fair Housing Amendments Act adds people with disabilities to those groups protected by federal fair housing legislation and establishes minimum standards of adaptability for newly constructed multiple-dwelling housing. Congress overturns President Ronald Reagan's veto of the Civil Rights Restoration Act of 1987. The act undoes the Supreme Court decision in Grove City v. Bell and other decisions limiting the scope of federal civil rights law, including Section 540 of the Rehabilitation Act of 1973. Students of Gallaudet University, Washington D.C., organize a week-long shut-down of their campus to demand the selection of a deaf president. Gallaudet administration and the board of trustees selects I. King Jordan as the university's first deaf president.
1989	The Center for Universal Design (originally the Center for Accessible Housing) is founded by Ronald Mace in Raleigh, North Carolina. *Mouth: The Voice of Disability Rights* begins publication in Rochester, N.Y.

1990	The American with Disabilities Act is signed by President George Bush on July 26. The law is the most sweeping disability rights legislation in history, for the first time bringing full legal citizenship to Americans with disabilities. It mandates that local, state, and federal governments and programs be accessible, that business with more than 15 employees make "reasonable accommodations" for disabled workers, that public accommodations such as restaurants and stores make "reasonable modifications' to ensure access for disabled members of the public. The act also mandates access in public transportation, communication and other areas of public life. With passage of the ADA, American Disabled for Accessible Public Transit (ADAPT) changes its focus to advocating for personal assistance services and changes its name to American Disabled for Attendant Programs Today and its focus to advocating for personal assistance services. The Education for All Handicapped Children Act is amended and renamed the Individuals with Disabilities Education Act (IDEA). The Ryan White Comprehensive AIDS Resources Emergency Act is passed to help localities cope with the burgeoning HIV/AIDS epidemic.
1991	Jerry's Orphans stages its first annual picket of the Jerry Lewis Muscular Dystrophy Association Telethon (Brown, 2005)
1993	Robert Williams becomes commissioner of the Administration on Developmental Disabilities, the first developmentally disabled person to hold that post (Brown, 2005).
1995	The American Association of People with Disabilities is founded in Washington, D.C. The U.S. Court of Appeals for the Third Circuits, in Helen L. v. Snider, rules that the continued publicly funded institutionalization of a disabled Pennsylvania woman in a nursing home, when not medically necessary and where the state of Pennsylvania could offer her the option of home care, is a violation of her rights under the ADA. Sandra Jensen, a member of People First, is denied a heart-lung transplant by the Stanford University School of Medicine because she has Down Syndrome. After pressure from disability rights activists, administrators there reverse their decision, and in January 1996, Jensen becomes the first person with Down syndrome to receive a heart-lung transplant. *When Billy Broke his Head...and other Tales of Wonder*

	premiers on PBS. The film is, for many, an introduction to the concept of disability rights and the disability rights movement Brown, 2005).
1996	Not Dead Yet is formed by disabled advocates to oppose Jack Kevorkian and the proponents of assisted suicide for people with disabilities. Sen. Robert Dole becomes the first person with a visible disability since Franklin Roosevelt to run for president of the United States. Dole publicly acknowledges the extent of this disability. He was defeated by incumbent Bill Clinton. Disabled Persons' Independence Movement-Oral History of the Berkeley Movement is funded by the National Institute on disability Research and Rehabilitation (Brown, 2005).

The Influence of Litigation on Disability Advocacy

Landmark court decisions further advanced the educational opportunities for children with disabilities. A 1954 Supreme Court decision, Brown v. The Board of Education, [347 U.S. 483,74 Supreme Court 686, 98 L. Ed. 873 (1954)], litigated as a case for the education of African American children, provided, in its equal education opportunity language, benefits for all children, including those with disabilities (Paul, 1998). Eighteen years later a District of Columbia court mandated equal education on behalf of disabled students (348 F. Supp 866 D.D.C. 1972). In 1971, the Pennsylvania Association for Retarded Citizens v. Commonwealth, and in 1972 Mills v. Board of Education of the District of Columbia established the responsibility of states and localities to educate children with disabilities (U.S. Department of Education, 2006). The right of every child with a disability to be educated is grounded in the equal protection clause of the 14th Amendment to the United States Constitution (U.S. Department of Education, 2006). Although neither of these rulings has had any direct impact on higher

education, the equal opportunity message of each, combined with the civil rights movement of the 1960's, has inspired persons with disabilities and other minorities to reach beyond the limitations of vocational training toward expanded education and career opportunities in higher education (Kaplan, 1985).

Federal Legislation

Societal opinions toward equal rights changed dramatically in the last half of the 20th century and the concept of affirmative action began to influence admission standards throughout education. In the 1950' and 1960's, the Federal government, with support of family associations, began to develop programs and services of early intervention and special education for children with disabilities (U.S. Department of Education, 2006). These critical Federal laws began to open doors of opportunity for children with disabilities. Notable examples include:

1. Training of Professional Personnel Act, 1959 (PL 86-158), which helped train leaders to educate children with mental retardation,
2. Captioned Films Acts, 1958 (PL 85-905), providing accessible films viewed by more than 3 million persons who were deaf,
3. training provisions for teachers of students with mental retardation, 1961 (PL 85-926) and (PL 87-715),
4. Teachers of the Deaf Act, 1961 (PL 87-276), which trained instructional personnel for children who were deaf or hard of hearing,
5. PL 88-164, which expanded previous specific training programs to include training across all disability areas,
6. Elementary and Secondary Education Act, 1965 (PL 89-10) and the State Schools Act, 1965 (PL 89-313), which provides states with direct grant assistance to help educate children with disabilities,
7. Handicapped Children's Early Education Assistance Act, 1968 (PL 90-538) and Economic Opportunities Amendments, 1972 (PL 92-424) authorized support for exemplary early childhood programs and increased Head Start enrollment.

The Rehabilitation Act of 1973-74, Section 504, was the first significant piece of affirmative action legislation to mandate equal opportunity in higher educational institutions that accepted federal funds.

The 1980's was a decade of national concern for young children with disabilities. The Education of all Handicapped Children Act (EAHCA) [PL 94-142] of 1975 provided for the inclusion of children with disabilities in mainstream K-12 classrooms, and consequently, channeled these students into colleges and universities. EAHCA was a congressional response for two groups of children: the more than one million children with disabilities excluded entirely from the educational system and the children with disabilities who were receiving inappropriate or inadequate education due to limited access. The EAHCA guaranteed a free, appropriate public education to each child ages 3 to 21 years of age with a disability and articulated a compelling national mission. Changes implicit in this law included efforts to improve how children with disabilities were identified and educated, to evaluate the success of these efforts, and to provide due process protections for children and families. The law offered financial incentives to states and localities to comply (U.S. Department of Education, 2006).

In 1986 amendments [PL 99-457] to EAHCA mandated that states provide early intervention and preschool programs from birth so that children with disabilities will be prepared to meet academic and social challenges that lie ahead in school and in life. EAHCA is currently enacted, and has been renamed the Individuals with Disabilities Education Act (IDEA). Several key amendments were made between 1975 and 1997. The 1983 Amendments [PL 98-199], the 1990 Amendments [PL 101-476]; which changed the Act's name; and the IDEA Amendments of 1997 [PL 105-17] mandated

transition services from high school to adult living by requiring that each student's Individualized Education Program (IEP) must include transition plans for employment and successful adult living (U.S. Department of Education, 2005).

The U.S. Department of Education states that the last 25 years have witnessed significant changes in the fate of many individuals with disabilities. Before the 1960's and the enactment of EAHCA little attention was paid to the needs of the disabled. Too often persons with disabilities were merely accommodated in institutions, many provided only minimal food, clothing, and shelter, rather than assessed, educated, and rehabilitated. Testing, when done, was often inaccurate and led to inappropriate labeling and ineffectual educational efforts for children with disabilities. Parents were not involved in the assessment, planning or placement decisions. Resources were not available to enable many children with significant disabilities to live at home and attend schools in their communities (U.S. Department of Education, 2005).

In the 1970's U.S. schools educated only one in five children with disabilities. Many states had laws excluding deaf, blind, emotionally disturbed, or mentally retarded children from public schools (U.S. Department of Education, 2006). Today, nearly 200,000 eligible children and their families are provided early intervention programs. Almost 6 million children are offered special education and related services to meet their individual needs. The U.S. Department of Education (2006) reports that accomplishments directly attributable to IDEA include:

1. educating more children in their neighborhood schools with non-disabled peers, rather than in segregated schools and institutions,

2. a 14% increase in the rate of high-school graduation among youth with disabilities, post-secondary school enrollments,
3. post school employment rates for youth served under IDEA are twice those of older adults with similar disabilities who did not have the benefit of IDEA,
4. 2.6% of college freshmen reported disabilities in 1978 which increased to 9% in 1996, more than tripling the number of students with disabilities in higher education (Office of Civil Rights, 2006)

Students with disabilities, whose educational rights in the K-12 arena have been protected and guaranteed by IDEA, change legal status at graduation. One of the major goals of IDEA is to level the field for students with disabilities so that they have increased opportunities and encouragement to matriculate into higher education. However, IDEA, which is the dominant legislative force during a student's elementary and secondary years, is no longer relevant and services received in high school under IDEA do not transfer to post-secondary settings. (U.S. Department of Education, 2006 and McGuire, J.M., 1998). IDEA (and its predecessor, the Education of All Handicapped Children Act of 1975), the Americans with Disabilities Act (ADA) and Section 504, are all nondiscriminatory, civil rights legislation as they guarantee protection from discrimination on the basis of disability and provide equivalent access to school (Section 504) and work (ADA). There are critical differences between the special education legislation of IDEA, in force during elementary and secondary years, and the civil rights legislation of Section 504 and the ADA, which guide the delivery of services to students with disabilities enrolled in higher education. Children, who were entitled to participation and assistance in the elementary and secondary grades may not be eligible

for matriculation into higher education or for the assistance recommended on their secondary IEPs. Advocacy and its mandating benefits, offered under IDEA at the secondary level is replaced at the post-secondary level by the nondiscriminatory protections of the ADA and Section 504. While students with disabilities are guaranteed equal access and participation in the programs and activities of the post-secondary institution under the ADA and Section 504, the rights of the institution are also protected to set reasonable standards to prevent lowered or substantially altered programs, even though students with disabilities may assert that those standards are discriminatory. In post-secondary settings, the education of students with disabilities is compared to that of non-disabled students to ensure that their educational experiences are equivalent and that there is no separate programming or discrimination based on disability. To receive the protections of 504 and the ADA, there must be an individual determination by the institution that a particular student has met admission or other standards determined by the school. Post-secondary institutions are not obliged to accept or retain students with disabilities simply because they are disabled. The burden of qualifying for and receiving special services, provided only after a student declares and proves to have a disability, lies with the student. Each post-secondary school translates the requirements for determining disability into institutional policy. Because post-secondary institutions differ in their degree of resources, rigor and selectivity, students with disabilities may be qualified in some institutions but not in others. Students with disabilities who were previously accustomed to their parent's advocacy and were passive participants in the IEP process must, at the post-secondary level, act as their own advocate, at their own personal expense, to warrant accommodations. Heywood (1999) and McQuire (1998)

have stated that institutions of higher education are required to provide accommodations only after there is a specific request by the student, appropriate documentation of a disability is submitted and there is a reasonable amount of time to review the requested accommodations. Post-secondary accommodations are "outcome neutral (Heywood, 1999) and are instigated to level the academic playing field, but not to add a competitive advantage in meeting academic and technical requirements for students with disabilities over students not offered similar accommodations (U.S. Department of Education, 2006). Accommodations are described as "effective" when they achieve their nondiscriminatory goal and provide access to qualified students with disabilities.

The passage of time and the evolution of social consciousness regarding the equal rights of persons with disabilities culminated, finally, in national legislation: ADA. The Americans with Disabilities Act (ADA) of 1990, the most recent and far reaching legislation, has two purposes: to provide "a national mandate for the elimination of discrimination against individuals with disabilities," and to provide strong "enforceable standards addressing discrimination against this population" (U.S. Code of Congressional and Administrative News, 1990, p. 39). Although at times vague and difficult to enforce, the ADA is still a forward movement in establishing equal rights.

Providing Services in Higher Education for People with Disabilities in the Past

It has only been a little more than a century ago that the rights and, specifically the educational needs, of any group of persons with disabilities have been formally addressed. In a remarkably forward thinking manner, the concept of providing post-

secondary education for persons with disabilities was established in the U.S. when Congress authorized, and President Abraham Lincoln signed, the federal charter in 1864 authorizing the conferring of college degrees by the Columbia Institution for the Instruction of the Deaf and Dumb and the Blind, which eventually became Gallaudet University. In 1860 the Maryland legislature provided state funds for the education of deaf and blind students (Gallaudet University, 1997; Kaplan, 1985).

In 1918, in response to the needs of World War I veterans, legislation was enacted to fund education and job training for all veterans, including those who were physically disabled. After World War II Americans stepped up their obligation to returning veterans with the GI Bill of Rights, or the Servicemen's Readjustment Act of 1944. This Act provided loans, unemployment and education allowances to millions of veterans. Funding for tuition, books, and living expenses were provided those who wished to enroll in higher education. All veterans who had served at least 90 days in the military and were not more than 25 years old when they enlisted received one year of schooling, monthly subsistence allowance while in school, and money for fees, books, and supplies (Author unknown. Bookrags. com, GI Bill of Rights History Summary).

Enrollment in colleges and universities skyrocketed in the years immediately following the end of WWII as predominantly young men, and some young women, took advantage of the U.S. Government's offer of a post-secondary education. In the GI Bill's peak year, 1947, nearly 49% of U.S. college students were veterans. From the GI Bills enactment in June 1944 to its end on July 25, 1956 approximately 7.8 million of the eligible 15 million veterans received educational or vocational training under the bill's coverage. Of these, approximately 2.2 million attended colleges and universities. Others

received training from vocational school, on-the-job and farm training. Over the 12 years the bill was in effect the U.S. paid out 14.5 million dollars for the education portion (Author unknown. Bookrags.com).

Higher education in the U.S. changed dramatically as a result of the GI Bill. Some universities tripled in size, the traditional age of students rose and students were often married and had families. Instead of flooding the job market, as happened after WWI, veterans opted for higher education or vocational training, which in turn made them more valuable contributors to society. For many, the GI Bill's benefits democratized the American dream by offering veterans opportunities that, prior to the war, were out of reach for many.

Although veterans who were disabled were included in the coverage of the bill the opportunity to take advantage of its offering was limited by the physical accessibility of college campuses. Some colleges and universities made goodwill efforts at accommodating disabled veterans by installing wheelchair ramps. However, it isn't hard to imagine, in light of today's extensive ADA code accessibility requirements, that the addition of a few ramps was a woefully inadequate solution toward accommodating those students with physical disabilities.

Despite this national level of recognition of the educatibility of those with hearing and sight impairments, additional efforts to integrate persons with disabilities was nearly non-existent until the 20th century. As cited by Paul (1998) congressional efforts prior to the 1970's were limited to vocational training and career development, rather than academics (Hendrickson & Gibbs, 1986). Many students with disabilities were denied admission to colleges and universities. In a 1962 survey of 92 Midwestern colleges and universities, J.L. Angel revealed that 65 universities would not accept students who used wheelchairs. A 1974 survey, as cited in Fonosch (1980), 1000 universities and colleges rejected admission to applicants who used wheelchairs or who were hearing or sight impaired.

Students with Disabilities, The Experiment at the University of Illinois

In the folklore of disability rights the University of California at Berkeley is usually mentioned as being the first university to accommodate students with disabilities on campus. This is undoubtedly due to the level of activism by, and on behalf of, students with disabilities that occurred at UCB during the churning political times of the 1970's. Although it's history within the disability movement is not as well known, it was at the University of Illinois that the first university sanctioned program for students with disabilities was begun. In 1947-48 the University of Illinois, to accommodate WWII veterans wanting to use GI Bill money to earn their college degrees, opened a satellite campus in a former Veterans Administration Hospital in Galesburg, Illinois. After only one academic year the university closed the Galesburg campus. The Galesburg program director appealed unsuccessfully to hundreds of other universities and colleges to adopt the "Rehab Program." The program's director, Timothy Nugent, and some of its students demonstrated at the University of Illinois main campus in Champaign-Urbana, for continuation of the program. Demonstrators, in response to the administration's claim that students with severe physical disabilities could not be accommodated on the main campus, erected ramps from wooden planks to show how easily temporary, inexpensive ramps could accommodate wheelchairs. The efforts of the demonstrators indicated to a wary university administration that, with minimal architectural and individual personal assistance, students with disabilities could negotiate the campus. The rehabilitation program was granted experimental status. For the first 8 years the university admitted only one in every 15 students who applied. No university funds were granted to the program. Dorms for the first group of rehabilitation program students were provided in

unheated WWII surplus quonset huts. After a few years as the number of students with mobility impairments rose the university built dorms with accessible rooms. These rooms included accessible shower stalls with fold-down seats and toilets with accompanying grab bars. The rehabilitation expanded to include non-veterans and housing was extended to include graduate and married students.

By the mid 1950's students of the Rehabilitation-Education Program, as it was then named, were offered medical services, counseling, and physical and occupational therapy. Several lift-equipped buses shuttled students hourly around the campus. Sports and recreational activities included wheelchair basketball and track, judo for the blind, and quadriplegic rugby (Brown, 2005. "History").

Initially the University of Illinois equated physical self-reliance with the ability to succeed in an academic environment. Students with physical disabilities were required to report to campus a week earlier than their ambulatory peers for "functional training". The "training" week was a screening process to access the students' level of independence. If students could not independently dress, bathe, use the toilet, transfer in and out bed, maneuver ramps and get to bus stops in a reasonable amount of time they were rejected and invited to reapply when these skills were stronger (Brown, 2005; "History").

In the 1960's these restrictions were relaxed and students with severe physical impairments were admitted to the academic program. Those with the most severe impairments were required to live, for purpose of care, in a nearby nursing home (Brown, 2005: "History").

The University of Illinois' groundbreaking acceptance of students with disabilities in the 1950's allows the university to claim the following firsts (Brown, 2005; "History"):

1. the seminal research which led to the development of the first architectural accessibility standards that would become the American National Standards Institute Standards
2. the first wheelchair accessible fixed route bus system
3. the first university service fraternity and advocacy group comprised of students with disabilities, Delta Sigma Omicron
4. the first collegiate adapted sports and recreation program for students with disabilities, which also produced the first wheelchair athlete in the world to win an Olympic Gold Medal

The University of California, Berkeley and Ed Roberts

In 1962, Ed Roberts, a post-polio, ventilator-using quadriplegic applied to the University of California at Berkeley. No mention of his disability was asked for, or given, by Roberts on his application for admission. The only indication that Roberts might not have the abilities of a traditional ambulatory student would have been the number 85 in the space asking for his weight. University officials assumed that Roberts had meant to insert the number one before 85 so his admittance was granted. Roberts arrived early on campus to insure that university housing could accommodate his iron lung but shocked officials, who had no idea of the severity of Robert's disability, scrambled to find a place to house him. No dorm room available on the campus was large enough to house his iron lung so space was made for him in the student health center. Roberts became the first student with a disability of this significance to attend an American university (Brown, 2005).

Roberts began to attract media attention when an area newspaper printed an article entitled "Helpless Cripple Goes to School" and, as a result, more people with

disabilities were admitted to UCB. Under nursing supervision all of these students with physical disabilities lived in the health center, eventually taking over an entire floor. The students, who identified with one another, organized themselves into a student organization called the Rolling Quads. They developed and taught a class called "Strategies of Independent Living, in which they conceived methods for living outside the health center. The Rolling Quads became known for their activism. Discouraged at the lack of accessible routes off campus and the city of Berkeley's refusal to make curb cuts, with the help of ambulatory volunteers they took sledge hammers to curbs near campus and created makeshift ramps by pouring tar (Brown, 2005).

Roberts and the Rolling Quads translated their knowledge and activism into the Physically Disabled Students Program (PDSP) at UCB with federal funds. PSDP on the Berkeley campus began to receive pleas for assistance from San Francisco residents with disabilities who could find no other resources. As a result the Center for Independent Living evolved from PDSP. In 1975 California Governor Jerry Brown appointed Roberts as director of the Department of Rehabilitation, making Roberts the chief of the same state agency that had once denied Robert's request for financial assistance on the basis that he was too severely disabled to ever work (Brown, 2005).

Synthesis of Relevant Research Studies

Prior to the 19th century the primary purpose of universities and colleges was to educate those entering leadership, the clergy, and academia (Brubaker & Rudy, 1976). The evolution of higher education within the 20th century has led to expanded educational opportunities and career development for an increasingly diverse student and employee

population who are offered a more extensive curricula and a greater range of activities and services (Garland, 1985).

Over the past 20 years enrollment in post-secondary institutions has significantly increased for students with disabilities, although the rate of enrollment for students with disabilities remains disproportionately lower than enrollment rates for non-disabled students. Nonetheless, enrollment numbers for students with disabilities continues to steadily increase. In 1976 less than 3% of students entering colleges and universities reported disabilities. In 1994 the percentage of students with disabilities had grown to 9% (Roessler & Kirk, 1998). Paul (1998) cites the 1995 report by the American Council on Education showing that students with disabilities make up 8, 5, and 6 percent of enrollment at community colleges, public 4 year institutions, and independent 4 year colleges respectively. In 2000 the National Council on Disability reported 17% of students with disabilities transitioning from high school to higher education, as compared with 65% of non-disabled students. By 2003 that enrollment figure increased to 27% for students with disabilities.

In 1999 the U.S. Department of Education reported that only 33% of students with disabilities, who were enrolled in 4-year postsecondary institutions, completed their bachelor's degrees as compared to 48% of students without disabilities. In two-year institutions, associates degrees were earned by only 7% of students with disabilities versus 18% of non-disabled students.

Paul (1998) cites West et al. (1993) in the connectiveness of school facilities as factors determining student satisfaction and adjustment. "The better the facilities and accommodations the more satisfied the students. The more satisfied the students the

longer they stayed in the system." (Paul, 159) Physical accessibility to buildings and facilities was critical to the students' integration within the university environment. Garrison-Wade (2004), as quoted in an unpublished paper by Garrison-Wade and Lehmann, cites factors that include instructor's attitudes, architectural barriers, limited support services, and inadequate student preparation as contributing to the "dismal rates of completion" in college for students with disabilities. Hart, Zafft, and Zimbrich (2001) suggest that another factor contributing to low matriculation and graduation rates for students with disabilities might be the lack of supportive community and campus infrastructures such as reliable, convenient, and accessible public transportation systems. Burgstahler, Crawford, and Acosta (2001) state that difficulties and discouragement in securing financial assistance may have an impact on students with disabilities entering, staying and finishing college.

For traditional-aged students (18-22 years old), or those entering directly from secondary settings, most commonly high school, colleges and universities function as settings for transition between adolescence and adulthood. The campus milieu offers an opportunity to examine and develop new social roles and relationships, life philosophies, and independence and career options (White, 1980).

Students with disabilities also face adjustment challenges in personal development and relationships (career direction, independence, intimacy) as do their able-bodied classmates, but these challenges are likely to be secondary to functioning successfully in an environment that is new and foreign (Paul, 1998). In a doctoral study regarding self-advocacy and self-concept among college students with disabilities, Appleby (1994) found that nearly half of students with disabilities seek professional

counseling and various other support services within their schools to help with extreme adjustments.

There are only just a few studies reported regarding the daily life experiences of university students who are disabled (Collins, 1995; Synatschk, 1994). Gonzalez (1998) lamented the lack of compiled and published information regarding post secondary institutions experiences as measures are implemented for students with disabilities. Gonzalez' found that although much has been written about Section 504 and the ADA pertaining to higher education, the literature is limited primarily to the description of programs and services put into place to comply with federal mandates. Gonzalez further states that most of the literature available concerning students with disabilities addresses issues related to learning disabilities.

Paul's (1998) doctoral study about the university experiences of wheelchair users sought to take an "inside look" at both barriers and facilitating factors. Paul's study intended to identify issues that might lead to the design of supportive services and policies and add to a university's ability to facilitate successful experiences for students with physical disabilities.

A college education helps in fulfilling personal goals, competing in the job market, gaining employment, and contributing to independence and financial security. In a 1993 census, employment figures for college graduates with a disability is approximately 60% of non-disabled graduates, whereas without a degree the employment rate drops to 30%. Data indicate that once a student with a disability enters a 4-year post-secondary program they graduate at a rate of approximately 33% as compared to students without disabilities (48%) (U.S. Department of Education, 1999).

Paul (1998), in his doctoral study on the university life experiences of student wheelchair users, lists several factors that were taken into consideration in the choice of a university by these students. These included: academic standing of the university, physical accessibility features, disability services, urban location, and closeness to home. Other factors taken into consideration were financial assistance, diversity of the student population and housing choices. Undergraduates preferred dormitories, which they equated with an opportunity to live away from the constant protection of family (Paul, 153). However, the importance of a personal support network assisting their college life was evident. Support networks consisted of family, friends, offices to assist students with disabilities, external agencies, and faculty.

Issues of physical accessibility mentioned by students include accessible buildings, adequate number of elevators, direct access to classrooms, no special back entrances, no secret passages through basements, adequate wheelchair accessible rest rooms, accessible desks, housing facilities for wheelchair users, library facilities, curbcuts, university transportation system, distance between buildings and the time it would take to travel between classes, accessible recreation facilities, and accessibility to different academic and social events taking place within the university (Paul, 1998).

Participants in Paul's study (1998) believed that their university was responsible to assist them in attaining academic success by providing equal opportunities and reasonable accommodations that would make it possible to compete with able bodied classmates. Some students found frustration in the bureaucracy of decision making and the administrative ignorance of the needs of wheelchair users. All participants encountered limitations in the physical environment of the university in the form of

structural barriers. For example Garrison-Wade was told by a post-secondary student of an inconvenient public restroom situation:

"I had a three hour lab my first semester and unfortunately there was no handicap restroom. So if I needed to go to the bathroom, I went across the parking lot [to a (sic) nearby dorm]. This was a problem because I was running out of my lab in snowy weather, but then an accessible bathroom was installed. (Garrison-Wade and Lehmann, unpublished).

The students in Paul's study (1998) discussed their opinions regarding similarities and differences of all types of disabilities and comparing themselves to other students with disabilities who do not use wheelchairs. Some students felt that wheelchair users were the most difficult and expensive to accommodate and require more attention from the school administration. One student expressed that students with less obvious physical disabilities are least able to "cover up" their disability if they desire.

"Wheelchairs you see automatically...from a distance you can see me coming in a wheelchair. It is sort of obvious (Paul, 1998)."

The students in this study viewed all types of disabilities as some form of dependence that relies on the appropriate type of assistance.

"Each one of us has our own situation. A person who is hearing impaired...they have to rely on sign language...I could not go through a narrow doorway, negotiate a staircase. Everyone of us have some sort of dependence...everyone of us have our own disability (Paul, 1998)."

One student wheelchair user in Paul's (1998) study defined her idea of a successful college experience. She said that she "would like to be able to say that she loved her university life...a feeling that you blended in with others, achieved educational goals." Another student described his experience as an opportunity to feel like a college student without having to think of his disability first, being able to participate in normal

university activities. These opportunities to "blend" into the university community are issues of equal opportunity and access in education provided for by law.

In Paul's study (1998) housing emerged as an important concern for students. Paul states that "making a wheelchair user's stay comfortable within the university is very important because it reduces the energy spent adjusting to physical barriers so that they can focus on academics, the primary goal of university life. Being able to stay in the dormitory, being able to live away from family and take care of one's self was considered as an indicator of independence and success.

Even though the students reported that their university had made minor changes in their living accommodations, such as lowering light switches and doorknobs, extensive changes, such as redoing a shower, were confounded and delayed. The confusion and chaos of construction was distracting and unnerving to these students. Two students reported having visited the school prior to enrolling to discuss general academics and accessibility, but admitted they did not visit the residence halls.

> "Just generally that was...my downfall. We should have asked more questions about housing and checked the bathroom and dorm facilities before I moved in...after I moved in they had to redo my bathroom which took time and a lot of frustration. I use an open shower which they did not have in the dorm...I called the school to ask if they...have one they were like...somewhere around...we'll just relocate you once you get here. It took six to eight weeks for them to decide and make the changes. This could have...been avoided had I insisted on checking out the dorm facilities (Paul, 1998)."

Some students with physical disabilities discussed their dismay at having to fill the role of "ground breakers", as they have had to do so many times before in their lives, by identifying and reporting barriers. They expected the university to have had experience accommodating students with disabilities, and to be prepared to help them integrate into the system. The students interviewed (Paul, 1998) were hopeful that their

own struggles would be a "learning experience" and would help their university to create an environment conducive to future students with disabilities.

> "I was the first student that (a roll-in shower) was done (sic). Since then they have done three. I think they realize that even before a student moves in you need to make consideration. What happened was they developed a series of questions to ask...because...some of the things we didn't think of until we actually got here. I think they realized the difficulties I had gone through (Paul, 1998)."

All participants believed that the supportive, positive attitudes of faculty, staff, and students increased their satisfaction and success in the academic setting. (Paul, 154) Faculty plays a prominent role in the implementation, specifically academic accommodation, of legislation. Gonzalez (1998) found that providing more sensitivity training and enhancing the awareness of legislation for faculty increases the provision of accommodations for persons with disabilities. Marketing and promotion of services and accommodations for persons with disabilities were recommended by students and administrators as a way of increasing enrollment of students with disabilities.

Fornadel (1993), in his doctoral study of ADA compliance issues in public higher education, indicated that specific disability legislation is "piecemeal" in empowering individuals with disabilities. Fornadel mailed his survey to public college and university presidents with hopes that the survey would be passed on to campus ADA coordinators. The intent of the survey (population = 497,sample size = 480) was to gather data regarding the organizational practices, concerns, and compliance initiatives as colleges and universities implemented the ADA.

Under the initiatives of the ADA, colleges and universities were required to achieve the following:

1. Name an individual as the campus ADA officer

2. Establish an ADA grievance procedure
3. Distribute a non-discrimination policy announcing the ADA officer and grievance procedure
4. Complete a transition plan
5. Complete a self-evaluation plan.

Universities were also required to form a policy regarding reasonable accommodation that must be provided to qualified individuals by the institution. Interpretation of what constitutes reasonable accommodation is left to the university. Administrative policy and procedure may indicate the spirit and intent of how the institution intends to implement the law. Fornadel's (1993) survey results indicate that 84% of colleges and universities responding had instituted a policy for reasonable accommodation provisions, either under Section 504 or ADA.

While 58% of the universities had previously established a reasonable accommodation policy under Section 504, the ADA urged institutions to create an entirely new set of plans since the completion of their 1978 Section 504 plans. The implementation date for self-evaluation and transition plans was January 26, 1993. At the time of the survey, Fornadel (1993) found that 24% of the reporting universities, who had extant 504 plans, intended to update these plans to meet the requirements of ADA despite encouragement to formulate new plans. Fornadel reported that 60% of the universities responding to his survey had, at that time, completed an entirely new set of transition and self-evaluation plans demonstrating what Fornadel described as "a high degree of harmony with the spirit and intent of the ADA legislation." He further stated that "the ADA appears to be perceived by administrators as legislation that will have an

impact upon colleges and universities" and it is a law that will "require their concerted action"(Fornadel, 93-98).

These reviews, respondents reported, would include a new and complete review of campus buildings. Most institutions responded that few changes in academic programming would be necessary since their self-evaluation under Section 504. More emphasis was put on facilities compliance than program areas, which indicated to Fornadel that colleges and universities recognized the need to update facilities to meet UFAS and ADAAG standards that were not met previously under Section 504. Fornadel surmised that, whereas program changes may be accomplished more easily and with much less cost than procuring and allocating money to pay for physical facility changes. In reporting the major obstacles or issues that confounded the implementation of the ADA on campuses, 54% of the universities said the cost of providing physical access and updating to meet legislated ADA standards (ADAAG) was most troubling. Other concerns included the cost of program access, staff support, and the attitudes and culture of the campus community.

At the time of Fornadel's study in 1993, universities reported that 88% had designated an ADA officer. Only 8% of these universities had ADA officers whose sole responsibility was ADA related tasks. Most officers performed other job duties that included student services, affirmative action, facilities and grounds management, human resources, and personnel duties.

ADA officers on campuses were found to have a reporting relationship that indicated a high administrative position and institutional commitment toward ADA compliance. Most ADA officers reported directly to the university president, but other reporting

relationships included the vice president for student affairs, the equal opportunity director, personnel director, the vice presidents for administration and finance, and the academic provost (Fornadel, 1993).

ADA officers listed the following as typical tasks and responsibilities:

compliance initiatives
federal regulations
self-evaluation plans
program inquiries
transition plans
employee accommodations
student disability services
consulting with departments
academic accommodations
legal advisor

ADA officers offered an interesting insight into the compliance efforts of their colleges and universities under Section 504 (71% perceived to be at full compliance) as compared to their efforts under the then recently enacted ADA. Fornadel discovered that universities' commitment to Section 504 indicated "a lack of assertion...to meet the full spirit and requirements of Section 504 more than 10 years after it's passing." In contrast, just two years after the passage of the ADA nearly one-half of ADA officers felt that their universities were near full or at advanced compliance with the more restrictive requirements of the ADA. However, Fornadel reported that as of 1993 not one ADA officer perceived their institution to be 100% compliant. Doctorate granting institutions were most often perceived at near full compliance (89%), while liberal arts colleges were least compliant (55%).

The ADA seems to have "jolted a response" from colleges and universities reluctant to enact policies and procedures under Section 504. Fornadel surmised that the higher education seemed to be indicating a two-fold response in that institutions are

"covering their bases to be prepared to serve their constituents best" and/or institutions have "been scared into action by potential threat of more litigation and the demand for access." (Fornadel, 1993).

In future efforts toward ADA compliance Fornadel had several recommendations for public colleges and universities. In light of funding shortages, he recommended crossing departments within institutions to utilize support personnel (eg. facilities managers with ADA training) versus contracting to outside consultants, such as architects. He also recommended that universities "not trust entirely" to architects, designers and facilities managers and that ADA officers should be included from the start in all phases of construction and rehabilitation projects (Fornadel, 1993).

In a 1987 doctoral study regarding the implementation of Section 504 regulations Liberman (1987) suggested that for "maximum efficiency and compliance" the disabilities coordinator be placed within the campus organizational structure to review all proposed construction and alterations in the planning stages.

Summary

This chapter has examined three themes of literature related to the issue of handicap accessibility in higher education. The first theme examines the history of disability issues and includes a discussion on disability discrimination, the affect of wars on eventual laws, funding, and programs for the disabled population; a chronological look at disability milestones in the United States late 1800's to the turn of the 21st century, and legislative efforts that have led to current disability laws. The second theme of this chapter examines how higher education has historically provided services for

persons with disabilities including the GI Bill of Rights and two examples of activism on the part of students that led to greater inclusion of students with disabilities at the University of Illinois and the University of California, Berkeley. The last theme of this chapter is a synthesis of previous research reports related to this dissertation's topic including a description of experiences students with disabilities have encountered in the academic environment, the positive impact of higher education on academic and career goals, and the findings of other researchers regarding federal funding and disability legislation, such as the ADA and Section 504 of the Rehabilitation Act, on campus design.

The Common Hope of Independence

Every person is unique. We all differ in our abilities. Our over-arching goal is independence in our daily lives. Segregation and discrimination exist, whether the intent is on purpose or inadvertent, in the opportunities that make up our economics, politics, society, religions, medicine and other aspects of living. Some of us are more determined to overcome discrimination and segregation through our activism. It is the actions of these people, seeking equality and basic civil rights that inspires us to change our culture, our laws, our environment to be more inclusive, be more welcoming. For people with disabilities the physical environment is especially challenging if it segregates them from their goals. On her website, Leibrock (undated), author, designer and international lecturer gives her view regarding the responsibility of design professionals as they create environments for people with disabilities:

"This is the power of design. Products and environments create people with disabilities or empower them. People are not disabled by their physical or mental

differences; we all have physical and mental differences. We are only disabled when we can't do what we want to do. Designers have the power to make this difference, the choice to empower or disable by design.

Designers also have the creative skills to integrate the technology and its users or to segregate by design. It's not O.K. to place disabled people in institutions, to segregate people in wheelchairs to ramps or separate bathrooms, or to force older people to live in healthcare facilities. We have the technology to prevent this, but it is all too easy to design products and projects which become emblems of age and disability providing a "separate but equal" approach. Designers must use their creative skills to universally design products and projects which accommodate all users, not just those of average size and ability.

In doing so, designers can make an enormous contribution. By designing universally, they can leave a design legacy that will continue to contribute for decades after they are gone."

CHAPTER THREE

Methodology

Introduction Issue Identification

The primary objectives of this study were to examine the process by which physical barrier removal and compliance with the Americans with Disabilities Act (ADA) is accomplished on a public university campus and to identify the offices and individuals who most influence these projects. This chapter presents a rationale and plan for a qualitative case study. The methodology for this study included three types of data gathering: a) interviews, b) direct observations, c) archival records and documents search.

Rationale for Qualitative Methodology

The study was bounded by and limited, in both the interview and observation phases, to the main campus of Colorado State University. The case was limited to Summit Hall, a recently constructed residence hall on the main campus. It was thought that it might be necessary to go beyond the campus boundary for the interview phase of this study. (For example, CSU contracted with a private architectural firm for the design of the new residence hall and interviewing the primary architect would be important to the objective of this study.) As it turned out the only participants interviewed were administrators and facilities managers of CSU because these individuals were identified as those most instrumental to the processes of funding, designing and constructing

Summit Hall. Data collected in this study came from these interviews, an observation of the site, records in the form of programming plans, website contents, building documents and building codes or design guidelines, such as the Americans with Disabilities Act Accessibility Guidelines for Buildings and Facilities. The results of this study revealed a sequential story, rich with human context, about the financing, designing, and building of a residence hall.

Qualitative methodology was selected as the most appropriate methodology type for this study. Creswell (1998, p. 15) defines qualitative research as "an inquiry process of understanding based on distinct methodological traditions...that explore a social or human problem." The qualitative researcher, according to Creswell, "builds a complex, holistic picture, analyzes words, reports detailed views of informants, and conducts the study in a natural setting." In addition, Creswell sees the researcher as a key instrument in the data collection process and the role he or she takes as being that of an "active learner who can tell the story from the participants view rather than as an expert who passes judgement on participants".

The decision to conduct this study using qualitative methodology was based on the nature of the topic and the type of research questions that were addressed by this study. Creswell (1998, p. 16) provides a list of characteristics for qualitative studies that were useful in qualifying this study's research type. The reasons for undertaking this study with qualitative methodology are:

1) This study's research questions sought to understand the "who", "how", and "what" issues of a *process*, rather than "why" kinds of issues inherent in quantitative methodology. Creswell (1998, p. 17) stresses that this distinction is

the fundamental difference between qualitative and quantitative methodology. Merriam (1998, p. 6-7) says that the decision to chose qualitative methodology can stem from the fact that the researcher is "interested in insight, discovery, and interpretation rather than in hypothesis testing." Qualitative research is driven by the desire to understand and learn from the experience and perspectives of the participants, not the researcher's (Merriam, 1998, p. 6 and Yin, 1989, p. 19).

2) The expressive, story-telling language inherent in qualitative methodology is appropriate to meet the methodological needs of this study's topic and intended audience. Merriam (1998, p. 7) states that it is usually necessary for the qualitative researcher to physically visit the field; visit the people and site. Because of this connection to site and people, the researcher becomes the primary instrument for data collection and analysis. This characteristic differentiates the human researcher from other data collection instruments, such as questionnaires. The bulk of the data necessary to "tell the story" that this researcher hoped to tell came from the first-hand accounts of participants.

3) The researcher feels that the topic of the study; the process of implementing handicap accessibility in a university residence hall; is one that needs closer examination, is pertinent to the times, and can impact the population as a whole—not just those with special needs. Merriam (1998, p. 19) states that "insight gleaned from case studies can influence policy, practice and future research."

There is much to be learned about the decision process of the design and construction of campus buildings and the consequential impact on accessibility.

Rationale for Descriptive Case Study Methodology

The decision to approach this topic as a descriptive case study was based on the desire to:

1) "gain an in-depth understanding of the situation and meaning for those involved" (Merriam, 1998, p. 19)
2) "describe a single, bounded phenomenon"—or as in this study, a residence hall on a university campus (Miles and Huberman, 1995, p. 25).

Creswell (1990, p. 60) defines a case study as an "exploration of a bounded system...over time through detailed, in-depth data collection involving multiple sources of information (observations, interviews, audio-visual material, documents, and reports) rich in context whether physical, social, historical, and/or economic." Merriam (1998, p. 27-28) states that case studies report the way "particular groups" or people deal with "specific" situations or problems. Yin (1998, p. 27-28) makes a distinction between a historic study and a case study. The historic study is a "dead history" relying primarily on documents or artifacts, as no individuals remain alive to report occurrences. The case study may use archival data plus "live" sources of data such as interview participants and direct observations by the researcher. Stake (1995, pp. 4- 12) stresses that the goal of case study research is to learn about *one* case and to catch the nuances of that single phenomenon, as well as the sequential happenings in the context of the natural setting.

Researcher's Experience and Biases

Many authors on the topic of research biases stress the importance of establishing the researcher's position and any biases or assumptions at the outset of the study. Creswell (1998, p. 202) states that the researcher should comment on past experiences and orientations that have "likely shaped the interpretation and approach to the study". Stake (1995, p. 1) suggests that the researcher be willing to "put aside many presumptions" for the sake of learning. In the spirit of Stake's suggestion, I will be forthright from the outset about personal biases brought to this study and will inform the reader of these biases by providing a brief history of relevant education, career and personal experiences that may influence my work. I hold Bachelor's and Master's degrees in interior design and taught interior design at both university and community college levels. ADA guidelines, design for accessibility, and universal design have been an integral part of my study, practice, and teaching for many years. I am a practicing interior designer and successfully passed the National Council for Interior Design Qualification (NCIDQ) examination, one of the highest levels of accomplishment for professional interior designers. Qualifying to sit for the NCIDQ examination means that the individual has completed a specified combination of both education and field experience that total a minimum of six years. The examination's content presupposes that the individual has had extensive training in design for accessibility, and specifically the Americans with Disabilities standards.

As many people do, I count among friends, family, clients and colleagues many individuals who are disabled. Knowledge and observation of their daily living patterns has had great influence on how I view the built environment. Philosophically, I believe

that, in an ideal world, the minimum acceptable standard would be good-faith efforts towards making all public buildings, new and old, accessible and compliant with ADA requirements. Even more desirable would be construction that moves beyond the letter of the law and reaches out with design that is sensitive to not only the physical needs of users, but also to emotional needs, and is fully inclusive and welcoming. For example many newly constructed buildings have been designed with accessible entries located on the side or rear of the building, which does not send a welcoming message to those persons who require these entries. An example of more sensitive and inclusive type of design would be main entry doors that are in themselves accessible, or are located adjacent to primary building entries, rather than as supplemental doors located away from main-stream traffic. While this situation is understandable in the remodeling of existing buildings, especially older buildings or those of historical significance, it is hard to understand the insensitivity of architects or designers who disregard the need for this main-stream inclusiveness in new construction projects.

I am currently a doctoral candidate in the School of Education at Colorado State University. This study, my doctoral dissertation, is bounded by and limited to the campus of CSU and because of that it seems appropriate to note that this study may have been affected by my long familiarity of CSU. Creswell (1998, p. 114-115) offers a cautionary note to researchers against studying situations in ones "own backyard", for instance focusing on your own institution as a setting or your own acquaintances as participants. Researchers, he says, with prior knowledge of the situation may bring biases to the study. Conversely participants, for personal or political reasons, may distort or withhold information. This researcher acknowledges the risks inherent in a

"backyard" study but feels that the use of a methodology that includes triangulation (multiple types of data sources), an ethical approach, and a conscientious attempt toward non-bias reporting will minimize this risk.

Before this study began of the six individuals who participated in interviews, five of these were strangers to me and I was acquainted with one person. The last individual and I, prior to our interview, had never discussed the topics relevant to this study.

Research Questions

Stake (1995), addressing the topic of research questions used in naturalistic fieldwork, states that the use of research questions brings discipline, structure, and organization to the case study method. Issues can be complex with political, social, historical and personal contexts and that all of these will impact data. Research questions are the cognitive structures that guide data gathering and, when designed well, will direct the data gathering process to the issues that are the foci of the study. Stake (1995, p. 15) recommends using issues about the topic to help construct the research questions, as these issues will draw the researcher's attention to the problem and concerns. Stake (1995, p. 33) expresses that "the best research questions evolve during the study". He further states that not only do the questions guide the work during data gathering and the report writing, they sharpen the meanings of previous studies and illuminate the differential utility of prospective findings. Good research questions are especially important for case studies because case and context are infinitely complex and the phenomena are fluid and elusive." (Stake 1995, p. 33)

The following research questions were addressed in this study:

1. How are the physical adaptations and new construction details for handicap accessibility determined on a public university campus?

2. Who becomes involved in the decision process and when and how does this involvement take place? (The term "involvement" may indicate a person, team of people, or office and the contributing role played.)

3. What knowledge has been gained from the design process, specific to accessibility, in this case (residence hall) that will inform university campus communities?

Research Participant Selection

Interview Partcipants

The principle reason for doing a case study was to obtain the descriptions and views of those involved in, or related to, the issue. Issues will not always be viewed the same by everyone and, therefore, multiple views or realities will exist (Stake, 1995, p. 3). The focus of this section involves the selection of the sample for the subsequent collecting of data by interview method. This study sought to identify the people (university personnel, contracted professionals, and invested or involved individuals) that contributed to the design, funding, regulation, or construction of the specific case (residence hall) named in this study. Participants were selected purposefully by the researcher to ensure that those most involved in this specific case (and perhaps most projects involving handicap accessibility issues on campus), were interviewed. Merriam (1998, p. 61) explains that purposeful sampling is "based on the assumption that the investigator...must select a sample from which the most can be learned". In this case study the primary consideration for selecting interview participants was not the number

of respondents but rather the "potential of each person to contribute to the development of insight and understanding of the phenomenon" (Merriam, 1988, p. 77).

Gonzalez (1998), in her doctoral study at Richard Stockton College, New Jersey, reported on the experiences of students with disabilities and administrators who were responsible for implementing and maintaining compliance of Section 504 and the ADA. Gonzalez listed 16 administrators on the campus of Richard Stockton College who had responsibility for enacting or regulating compliance for the RSC campus. This list was as follows:

Senior Vice President for Administration and Finance
Director of Facilities Planning
Director of Plant Management
Vice President for the Division of Educational and Support Services
Dean of Students
Learning Disabilities Consultant
Dean of Enrollment Management
Dean of Records
Compliance Coordinator
Assistant Dean of Students/ Director of Athletics
Academic Vice President
Dean of Humanities
Dean of Natural Sciences and Mathematics
Dean of Social and Behavioral Sciences
Dean of Professional Studies
Dean of General Studies

Because this case study was limited to one on-campus residence hall, rather than an entire campus, the preliminary list of participants was smaller in number than in Gonzales' study. Participants were limited to individuals (or organizations) that had involvement in the funding or were involved in design and/or construction. The expectation at the beginning of this study was that the preliminary list of participants would include:

Director for Disabled Students
Campus ADA officer
Provost
Facilities Manager
Project Manager
Equal Opportunity Officer
Director of Housing
Architect/Planners
Invested staff, faculty, and students

The initial interview list of potential participants, above, was a "purposive", or a selected sampling type, based on the assumption that individuals who were selected were involved in the case study site (residence hall) in some way. Goetz and LeCompte (1984) call this "criterion-based" sampling because an established list of criteria or standards are developed and then the sample is found to match these criteria. Creswell (1998, p. 62) states his preference for a purposeful sampling selection because this type of sampling should display multiple perspectives on a problem.

The list of participants was not completely defined at the beginning of this study. The identities of additional participants evolved from previous interviews and referrals to other participants once fieldwork began. This chain, snowball, or network (Merriam, 1988) sampling method, in which each successive participant or group is named by a proceeding group or individual, provided a rich method for reaching well informed individuals. It was determined that 'well-informed' individuals would have insight into the organizational structure of the campus and how the ADA was implemented for the case. The size of the sample, or the number of interview participants in this study, was inconclusive at the outset due to the inherent nature of snowball sampling methodology. Merriam (1998, p. 64) quotes Lincoln and Guba (1985) as recommending that sampling

numbers remain open and that sampling continue to the point where "no new information is forthcoming from new...units". Patton (1990, p. 186) suggests that the researcher specify a minimum sample size with acknowledgement that this number will probably be adjusted during the data collection phase. It was the plan that interviews would continue until it was supposed that all opinions critical to the purpose of the study had been heard or until the data gathered appeared redundant.

According to Merriam (1988, p. 75), key informants are individuals who, in understanding the culture, can articulate details to the researcher from an insider's point of view and can become "a valuable guide in unfamiliar territory". These individuals are useful in referring a researcher to successive interviewees, in acting as gate-keepers (Merriam, 1998) for access to the site and other potential sources of data, and for providing insight into the specific culture surrounding the problem. As it turned out any of the participants could have acted as key informants but the first two participants who were interviewed named all of the individuals who were subsequently interviewed.

Elite interviewees, as distinguished from key informants by Dexter (1970), made up the remainder of the interviews. Elite interviewees are persons with specialized information related to the research topic. Good elite interviews, as outlined by Merriam (1988, p. 76), are unstructured and reveal that "particular person's definition of the situation" (Merriam, 1988, p. 75). The elite respondent, differing from the key informant, need not have an in-depth understanding of the culture (Merriam, 1988, p. 76). In this study an example of an elite interview participant was the Vice President for Student Affairs. VPSA provided a valuable description of the financing and approval process but added little regarding design and construction of Summit Hall.

In my original methodology the sample size for interviews was estimated to begin with approximately 8-10 people and snowball to a larger number. The final number of individuals interviewed for this study turned out to be much smaller than expected but the resulting quality and substance of data was far greater than anticipated. At the completion of the interviews only 6 participants had been identified as key or elite members involved in the planning of Summit Hall. Interview participants, identified by their position titles, were:

for Finance Negotiation
- former Vice President for Student Affairs

for Facilities Management/Bids and Contracting
- Assistant Director of Construction Project Management

for Housing and Dining Services
- Executive Director
- Director of Residence Life
- Facility Planner

for Handicap Accessibility
- Director of Resources for Disabled Students

Approval of the Human Subjects Committee-CSU, for the involvement of interview participants, was sought before this study began to ensure that the rights of human subjects were protected (Appendix A, Application for Human Subjects Research Review).

Collecting and Recording Interview Data

As previously outlined data collection was done in four phases: a) interviewing key and elite participants, b) observing the selected site, and c) searching archival materials and researching pertinent documents.

Prior to Interviews

Prior to each interview session the researcher contacted the individuals, offices, or organizations pertinent to this study (previously identified from document review and key informants) by sending a cover letter inviting these individuals to participate. The cover letter (Appendix B) introduces the study's intent and informs prospective participants of the expectations, privacy protections, potential risks, and benefits. A description of the interview session informed participants of the amount of time needed for a typical interview and the recording equipment that would be used during the interview. Also addressed in the cover letter is a description of the storage system planned for the securing of all research notes and other records during and after completion of the study. The cover letter includes contact information and encouragement to ask questions of the researcher. The letter also states that participants should expect the researcher to phone or email them to schedule interview sessions.

It was of the utmost importance that issues, such as anonymity and confidentiality, surrounding the protection of interview participants were addressed in the cover letter and the form for the consent to participate (appendix). Publication of data can put the involvement and opinions of interview participants at risk of negative judgement by readers. Merriam, on the subject of the ethical publication of data, quotes Cassell (1978, p. 141): "Exposure of the case through publication or other means of dissemination poses several risks. Among these risks are the danger of presenting the case in a manner offensive to the participants or "the violation of anonymity, subjecting

an individual or group to unwelcome publicity." Merriam (1988, p. 183) further adds his caution of avoiding "exposing people to legal, institutional or governmental sanctions because of behavior revealed by the fieldworker. Merriam (1998, p. 217) notes that, with studies done at the local level, which is precisely where this study is set, it is "nearly impossible" to guarantee or protect the identity of individuals or organizations. Furthermore, attempts to provide anonymity or to disguise identities may have a negative effect in that insiders may guess wrongly at the identities of participants. Because of the smallness and specificity of the elite sample, and the local quality of this case study, attempting to protect the anonymity of participants, especially interviewees, did not seem logical, or perhaps, desirable. Participants of this study are unique and singular in their positions and can be easily discovered because the setting (CSU) has been named. The prime method used for protecting the confidentiality of interview participants was the use of position titles (no surnames) as identifiers. In lieu of the guarantee of anonymity every reasonable effort was made to safeguard the confidentiality of participants and a pledge was given to present all data with as little distortion as possible. Conscious effort was made to avoid negative impact toward all participants by taking special care to resolve any ethical dilemmas situationally and morally. (Punch, 1994, p. 84 and Kimmel, 1998, p. 83-97) Events such as these were confided and discussed with my academic faculty advisor.

Interviews

The order of interview sessions was not predetermined. Interviews happened in random order based on the schedule availability of participants. Personal oral interviews (data collection involving human subjects) were expected, and announced in the cover

letter, to take 30-60 minutes. Most interviews lasted longer and most participants seemed willing and able to extend their time. All interviews were conducted in the offices of the participants or in conference rooms. Before beginning the interviews participants were advised once again of the intent of the study, the format of the interview (topics to be covered and the anticipated time needed), the scope of their involvement, and the confidentiality risk to themselves. Subjects were asked to read, date, and sign a letter of consent (appendix) to be interviewed. A copy of this consent form was provided to each participant. The signed original consent form has been kept as part of research documentation. All subjects were advised of the right to withdraw from the study at any point in time. Participants were asked their permission for recording the interviews. All participants were informed of their rights to review audio-tapes of their interview and to request that all or any portion of the tapes not be used. To date no participant has instituted these rights.

Stake warns that "case study fieldwork regularly takes the research in unexpected directions, so that too much commitment in advance" can be "problematic." (Stake, 1995, p. 28) He recommends that the researcher make a "flexible list of questions that can progressively redefine the issues and seize opportunities to learn the unexpected." (Stake, 1995, p. 28) Open-ended questions, as recommended by Creswell (1998, p. 19) offer the researcher the opportunity to explore and listen to participants. Participants were interviewed in an unstructured, open-ended format that resulted in an affable dialogue.

A list of preliminary topics was given to participants at the outset of each interview. This interview guideline (Merriam, 1998), or schedule, assisted me in retaining a level of consistency from one interview to another, especially because

interviews were intended, and allowed, to evolve in an open-ended way. I made a conscious effort to approach and maintain all interviews with a nonjudgmental, sensitive, and respectful (Merriam, 1998) attitude. During the interview, participants were asked about their professional involvement and opinions on the design, construction, and occupation phases of the residence hall. These questions focused specifically on the issue of Summit Hall's accessibility. Interview topics included:

- confirmation of the professional position of the individual or group
- the stage of the process when the individual became involved
- whether their participation was formal or informal (informal involvement could be said to mean that an individual's opinion was sought or given but the individual was not a member of the design or construction team)
- the time length and level of the individual's participation
- satisfaction of their own opportunity for contribution
- their opinion regarding the professional contribution of others
- their opinion about the success of the process and the finished project
- suggestions for future projects regarding accessibility issues
- suggestions for names of other individuals for further interviews

Qualitative research authors vary on their opinions on the use of recording devices for the interview process. Merriam (1998, p.87) feels that "the practice ensures that everything said is preserved for analysis." Yin (1989, p.91) concurs with Merriam, but feels that there may be circumstances that would discourage the use of a tape recorder. Such circumstances might be when an interviewee is uncomfortable in the presence of a recorder, refuses permission for taping, or when there is no plan for systematically listening to or transcribing the interview. Stake (1995, p.56) says that taping is efficient

for catching exact words but that the cost of transcribing and possible negative response of the interviewee out-weigh the use of recorders. He feels that the time taken to transcribe audio-tapes results in transcripts that are lacking in the context and immediacy of the interview's moment. It is Stake's (1995, p.66) view that interviewees, in reviewing transcripts of their own interview, are often disappointed with the "inelegance of their own sentences" or that they "did not convey what they intended". He recommends, as an alternative, that the researcher develop note-taking skills and a shorthand method to capture the essence, or meaning, rather than "exact words."

The two methods that I determined were best for the collection of data during the interview phase of this study were audio-taping and note taking. The decision to tape record interviews for this study rested on two factors: 1.) the desire for a record of all interviews that could be used as a check of accuracy against note-taking and 2.) my limited physical ability to take rapid notes due to some inflexible joint movement in my hand. I requested oral permission for taping before beginning each interview. The process of note-taking was a hindrance in my sustaining eye-contact with participants, staying focused on topics, and maintaining the pace of conversation. Because of this written notes from each interview were brief and incomplete. Audio-tapes became the primary means of record for each interview. As a precaution against mis-recording two tape recorders were used during each interview and duplicate audio-tapes were made.

After Interviews

Word-for-word written transcripts of each interview were made. Consent-to- interview forms, audio tapes and notes made during interviews will be kept, after the conclusion of this project, in a secured location on the CSU campus for a minimum of 3 years as

required by federal regulations. If after 3 years the investigator no longer wishes to store materials, consent to interview forms and notes will be shredded and discarded. Audio-tapes, used only once for this study, will be cut and discarded.

I transcribed all of the interviews and discovered that the process of transcribing (one I had never performed) was tedious and time consuming. However, transcribing my own interviews gave me an opportunity to review, with great concentration, the content of the interviews. The task of transcribing also provided an opportunity for self-critique and for altering questions or topics for up-coming interviews. In retrospect had my audio-tapes been transcribed by a professional transcriptionist it would have been necessary to review, sift and refine all text for content, corrections and technical terms.

Field Visit (Observation)

The primary focus of this section is the second type of collected data, the observation, or field site visit. A field visit was intended for viewing the building's layout, appearance, and especially aspects of its handicap accessibility. The residence hall was constructed in 2003-2004 and was first occupied at the beginning of Fall Semester 2004. As the newest residence hall on the CSU campus the design should be the most accessible for persons with disabilities. Following is a review on the topic of field visits (observations) as discussed by several prominent authors of qualitative research methodology.

Merriam (1998, p111) defines *fieldwork* as "going to the site, or field, to observe the phenomenon under study". Yin (1988, p. 91) notes that such visits serve as an additional "source of evidence". Stake (1995, p. 60) states that observations move the

researcher toward a greater understanding of the case. Merriam (1988) says that observation combined with interviews and document search gives a "holistic and first hand account" and that there is no substitution for observation. Stake (1995) feels that the goal of observation is to develop an incontestable description through a good recording of events. Creswell (1998, p. 125) says that field visits offer a view of the setting's environmental conditions and the resulting relevant behaviors of the occupants. Merriam (1998, P. 94) offers a two-fold definition of the difference between an interview and an observation as:

1) observations take place in the natural field rather than in a predetermined interview location and
2) the resulting data from observations is the researcher's first-hand account, as compared to the second-hand version gained from an interviewee.

Merriam (1998, p. 94) outlines primary differences between a routine casual observation and a research observation. Each of these differences is named and their relationships to this study are discussed:

1. "*Research observation serves a formulated purpose to the study.*"
   Observation, toward the purpose of this study, was conducted so that the researcher could:
   a) add to the knowledge and understanding of the problem,
   b) view the site first hand rather than relying on interview accounts and primary documents, such as construction plans.

2. "*Research observation is planned deliberately.*"

   The observation, or site visit, served as a purposeful and valuable part of data gathering. The number of visits, the sequence of these visits within the study, and the time spent at each visit was not predetermined. The physical setting, residence hall, was the sole object for observation. No data was collected regarding human occupants or their behavior within the site. There was minimal concern regarding the safety, privacy, or the confidentiality of human subjects. The researcher was non-participatory and as unobtrusive as possible to the site's occupants.

3. "*Research observation is subjected to checks and controls on reliability and validity.*" Reliability and validity are discussed later in this chapter under a specific heading. However, it seems appropriate to again note that the researcher acted as a neutral and unobtrusive observer and did not participate in human events or maneuver or manipulate the site or its occupants in any way. Permission for access and clearance through all appropriate levels of administration and security was requested prior to any, and all, field visits to the residence hall.

Document and Archival Search

The nature of this study lends itself well, and was enriched, by viewing and reporting on the physical evidence of pertinent documents and archival materials. For the purpose of this study a broad working definition for *documents or archival material*, as suggested by Merriam (1998, p. 113), was used. Merriam defines this to mean "just

about anything in existence prior to the research at hand", "the paper trail of things" that have taken place before evaluation, or "things that cannot be observed" in real time.

The importance of documents to the case study process included their usefulness in verifying information (e.g. correct spelling and naming of organizations or individuals, and the sequence and details of events). Reviewing archival and documented material helped to stimulate thinking about interview topics and observation priorities. Merriam (1998, p. 126) calls documents "non-reactive" because they were created independent of research, are unaffected by the research and are, therefore, grounded in real events.

The extent of the search, time allotted for searching, or the types and depth of materials to be seen was difficult to estimate. Merriam (1998, p. 133) states that because documents are produced for reasons other than research, it is left to the researcher's ingenuity and discretion to locate, and consequently, determine the value of documents for the study at hand. Suggestions by several authors, chief among them are Merriam (1998), Yin (1989), and Creswell (1998), proved useful in developing criteria for the determination of the value and scope of documentary material. These criteria included: 1) data that are relevant to the study's research question(s) and fit within the boundaries and limitations of the study and 2) data that can be acquired in a systematic and reasonably practical manner.

Documents pertinent to this study included:

- *construction documents* (e.g. building plans and specifications)programming reports)
- *mass media reports* (e.g. articles found in newspapers, magazines, and professional or academic journals)
- *government or internal university records of a public nature* (brochures and construction programming documents)

Not all documents were openly and publicly available (e.g. building plans). For such documents permission for access was requested to the organization or individuals in repository or ownership of such documents. Some archival materials is in public record. Materials belonging to, or currently in, the public domain, such as websites or journal articles, were acknowledged for sources and authors.

Data Reduction and Coding

As mentioned previously I transcribed all interviews from audio-tapes into written text. The process of doing this provided an initial and concentrated opportunity to begin reducing, coding, and thematizing raw data. Further examination of data by coding revealed three patterns or types of coded data: Process (showing data in stages, phases, chains or as sequences), Interactive (showing data as mutual or interactions of effects), and Consensus (showing data as agreements or mutual expectations). Several clusters, or horizons, of data showed a repetition of elements or motifs and were grouped as "themes" (Moustakas,1994). Interestingly, some of these themes developed independently of the data used to answer the research questions asked in this study. For example, the theme of students' choice of a different residence hall was a topic not originally associated with this investigation. This theme was repeated frequently and its consequence to the issue of accessibility seemed to require the theme be noted. The research questions guided an additional examination of the data for facts about the accessibility of Summit Hall and who is responsible for the implementation. This information was synthesized and graphically displayed in a matrix (Table 4.1).

Yin (199, p. 103) states that in descriptive case studies, because the burden of proving theory, or links, to other situations is usually not required, there is minimal need for data analysis. Emphasis, is instead, put on reporting in the form of extensive, descriptive narrative (Stake, 1995, p. 123), summarizing data, and on the issue-relevant meanings that emerge.

In this study data from interviews emerged, primarily, as stories revealing the chronology of the design and construction processes of the residence hall and the role each of the interviewees played in decisions. Information gained from the site visits and document findings was worked into the descriptive narrative whenever these best added to the story of Summit Hall.

Assumptions Regarding Qualitative Research Methods

It is not in the focus of this study to argue the theoretical underpinnings of qualitative research. Many authors have done so more adeptly and enthusiastically than I could ever hope to do. What is noticeable amid the writings on qualitative research is wide variety of definitions and descriptions regarding qualitative methodology. Rolfe (2006) states, in his journal article (about the qualitative methodological issue in nursing), that after a quarter century of debate qualitative researchers still have not reached a consensus about how best to judge the nature or the merit of qualitative research. As there seems to be no unified body of theory that can collectively describe qualitative research it is Rolfe's argument that applying a predetermined criteria of assessment (validity) is inappropriate and futile and that each study would be best served if judged on its own merits. In Rolfe's opinion 'value' assessments are linked to the rigors of scientific

quantitative studies. More appropriate, he says, to the judgement of the goodness of qualitative theory is the application of 'trustworthiness'. Rolfe, quoting an earlier position made by Sandelowski (1993), defines trustworthiness as a "matter of persuasion that allows the reader of the research to judge the study trustworthy." To create this the researcher should make his practices visible and auditable by leaving a decision trail such that the reader feels he could track and verify the research process.

For the purpose of this study this researcher believes some things to be true about qualitative research. It is presupposed that qualitative research is textual and descriptive. Qualitative research offers a means to capture what is inherently subjective in the highly personal interpretation of the participants. Individual subjects express their own reality, or subjective impression of events and what is reported in the study is the *essence* of the phenomenon as experienced by the participants. This essence can be understood as a type of reality grounded in people's lived experiences.

The researcher also believes that qualitative research studies are individual and that each study is unique in its focus, procedures and outcome. Because of this qualitative studies can never be replicated. There is a high level of researcher involvement and reciprocity with the participants. Therefore, it is also unlikely that another researcher could describe the same data and come to the same conclusions.

This researcher understands that some things are consistent to good qualitative methodology. Clear criteria for credibility and transparency by researchers allows the reader to evaluate the trustworthiness of the study. In a broad sense, and for the purpose of this study, trustworthiness in qualitative methodology is based on:

1.) a consistent, clearly stated, and systematic approach to the collection of data

2.) research procedures that are visible, and therefore, auditable (allowing the procedures and findings to be open by providing a clear, defensible link for each step from raw data to reported findings).

Creating Trustworthiness in This Study

Important implications follow from these observations. First, judgements about the trustworthiness of the study are made, not by the researcher, but by the reader. How the research is conducted, and ultimately reported to the reader is a function of the transparency of the study. It is left to the reader to appraise this quality and judge, for him or herself, the level of trustworthiness of the study. Second, it is the responsibility of the researcher to conduct and report the study in such a way as to give the reader a sense of trust. In other words, in a way that convinces the reader that the researcher has considered and carried out all procedures in an ethical and systematic manner. Three methods were employed in this study to offer transparency:

1.) The researcher made audio-tapes of all interviews. Audio-tapes were transcribed verbatim by the researcher. This transcription provides a written, factual account of all interviews used in the reporting of the data. Audio-tapes and transcriptions can act as historic documents of the content of the interviews. Findings were reported so that they are 'grounded' in the raw data through the use of quotes.

2.) The researcher kept a reflexive research diary for a two-fold purpose. First, the diary serves as a means of recording the events of the data collection procedures. For example the ease of scheduling interview sessions

and dates/times these events occurred. Second, the diary was used to record the researcher's impressions. This diary also became a reflection on the author's personal biases, social, ethical, and political. It also furnished an opportunity to record the author's self-appraisal and self-critique as an interviewer and researcher. A reflexive research diary, in disclosing the process of the author's analysis and conclusions, provides additional detail to the audit-trail and should, consequently, add to the trustworthiness of the study.

3.) The researcher checked all data with the faculty advisor. Data and methodology was also checked with members of the faculty committee. Any data determined as possibly detrimental to interview participants or adjunct subjects was, upon the advisement of those overseeing this study, removed from the final report of the study.

CHAPTER FOUR

Findings and Discussion

Section One
General Discussion and Background

During the 1950-60's Colorado State University built a series of new on-campus residence halls in a modern European style of prefab metal grids and wooden skin panels. Five residence halls were constructed between 1953 and 1957. These were nearly all identical, with the footprint forming the shape of a splayed out "H". The cross bar of the "H" contained the main lobby area, center dining hall, recreation areas, and administrative offices. Connected to both the right and left of the building's main terminal by floor-to-ceiling glass walkways, traditional double occupancy dorm rooms branched out in four angular directions (see Appendix A-Braiden Hall First Floor Plan). Most of these residence halls offered one gang, or shared, bathroom located centrally on each floor of each wing.

No new residence halls were built on the CSU campus for approximately forty years until 2003-2004. The first residence hall constructed on campus since 1967, Summit Hall was opened for occupancy in fall semester of 2004. Summit Hall was constructed at a cost of $17,215,400 (Aller-Lingle, undated). Summit Hall was intended as "swing space", or transitional space, to house students while older residence halls were demolished. (Two residential buildings of Academic Village, a multi-phase project

designed to integrate residential life with academics, opened in January 2008 on the site of the demolished buildings.) Project Manager for Facilities Management summarized the intent of Summit Hall:

> "So this one was essentially just a standard residential situation where we wanted to have a good quality residential space that students could move into and then move out of as they decided to move off campus but not necessarily with the intent of creating any kind of programs specifically."

The location, footprint, and orientation of Summit Hall was determined by the space available on campus for construction, the shape of site, and its proximity to, and future connection with, Academic Village. The "S"-shaped building has 5 distinctive wings defined by roofline step-downs at the end of each wing (see Appendix B-Summit Hall First Floor Plan). The pitched roofs consist of pre-engineered wood trusses with localized stick framed construction. Lateral stability was achieved through sheathed wood framed shear walls. Foundations are grade beams spanning between spread footing. Exterior wall finishes are a combination of stucco and brick veneer with stone and brick veneer (Loris, date unknown). The layout was derived from site planning concepts that orient the central lobby block along a diagonal circulation spine connecting the main campus to the northeast and resident parking to the southwest, creating courtyards on each side. The original RFP (Request for Proposals) called for a multi-storied residence hall with approximately 700 beds in double rooms with a shared bathroom between two rooms. Later changes to floor plans reduced the number of beds to 535 in suites that combined one double room with one single room (see Appendix C-

Summit Hall Single-Double Suite Floorplan)[1]. Three residents share a single bathroom located between the rooms.

The central lobby area, a two-storied space with a bridge link connecting upper floor level corridors, controls visitor traffic and security from central entries. Security was a primary design consideration in the RFP, which resulted in the final design's electronic security system. Students use electronic key fobs to activate exterior entry, corridor and room door locks. Summit Hall includes a central core, or common area, on the first floor that contains a lobby, recreation rooms, classrooms, vending areas, one elevator and laundry (located in the basement). A dining hall was not included in the building's plans as it was intended that occupants of Summit Hall use a central dining hall located across the street in the future Academic Village complex.

CSU intended from the beginning steps of their master housing plan that Summit Hall be a "design-build" project. The RFP (Request for Proposal) specified that the selected architectural firm (concept to final construction plans) work in concert with the construction contracting firm. The primary reason for this decision was the need to expedite the project due to demolition of old residence halls and the need to accommodate students displaced by demolition. Later delays in funding and approval with state level agencies revealed that the decision to construct Summit Hall as a design-build project was fortuitous and helped to make up in design time for time lost in negotiations.

[1]The website for Aller-Lingle Architects states that there are 175 two-room suites in Summit Hall. This figure does not reflect the change created by shifting the shared wal.

The business of housing and food services on the campus is not limited to the principal academic period between August and May. Colorado State University provides facilities for an active season of summer conferences and summer semester classes. Housing and Dining Services regards, and uses, their facilities as year-round properties. Summit Hall, one of a few residence halls on campus with air conditioning and private in-room bathrooms, has filled a need for more hotel-like space for conference attendees.

Academic Village, the most recent residence hall constructed on the CSU campus, differs from Summit Hall significantly. While Summit Hall is a residence hall intended to house the general student population of the university, Academic Village was designed as a program-based residence hall to include, not just student rooms but also classrooms, faculty and graduate student apartments, and laboratory/computer facilities for the Engineering and Honors programs. Academic Village student rooms are larger than their counterparts in Summit Hall and have private, in-room bathrooms. The quality and quantity of common areas in Academic Village are vastly upgraded and in-house meal service is provided in a central dining hall.

Design Team Members Interviewed for this Study

As further background to the design and construction of Summit Hall, this section will provide a brief summary of the primary individuals and offices involved in the negotiations, design, and construction that were interviewed for this study. As detailed in Chapter Three, confidentiality of interview participants will be protected using only position titles (no surnames). The individuals selected for interviews in this study are representational, and were identified as the most pivotal, of the people involved in the

planning of Summit Hall. For example, many staff members of the Housing and Dining Services office were involved in the planning and execution of Summit Hall but the individuals selected for interviews were limited for purposes of this study to those whose roles were considered more administrative.

Interview participants, identified by their position titles, were:

for Finance Negotiation
former Vice President for Student Affairs

for Facilities Management/Bids and Contracting
Assistant Director of Construction Project Management

for Housing and Dining Services
Executive Director
Director of Residence Life
Facility Planner

for Handicap Accessibility
Director of Resources for Disabled Students

This chapter includes the recollections of the individuals whose involvement in the Summit Hall project have been most outstanding. Through these recollections, themes (or issues) emerged from interviews. Some of these themes were repeated frequently by all those interviewed, such as the theme of construction delays due to problems in the funding phase. Some themes were rarely discussed but became important aspects that define Summit Hall (and future construction projects), such as the unintended benefit of the bathroom mock-up. Themes that emerged from the data were:

Funding Phase (Finance Negotiations) for Summit Hall

RFP and Design Phase

Specifics of Accessibility in Summit's Design

Mock-up (Model) of Summit Hall's Typical Bathroom and Lessons Learned

With a New, More Accessible Residence Hall on Campus Why Do Students with Disabilities Prefer an Old Residence Hall?

The Design Team's Expertise

Section Two
Themes

Theme 1: Funding Phase (Finance Negotiations) for Summit Hall

In 2001 Colorado State University's leadership developed a long-range master plan for the renovation of existing, and the construction of new, residential facilities. Included in this master plan was the concept of the first new residence hall to be constructed on the CSU campus in nearly thirty years. Most of those involved, according to the Vice President for Student Affairs, in the planning, financing and construction of this building, to become known as Summit Hall, had "not done anything other than renovate existing facilities by mostly patch-work kinds of things like putting in elevators, ...re-doing carpeting, painting, ...fixing systems as they broke down." The leadership team for the master housing plan intended that Summit Hall would be constructed inexpensively (costs kept in control in consideration of subsequent phases of the master plan) while maintaining good quality construction.

As the first phase of a multi-phase university housing project on the campus of a state funded university, it was financed using public funds. Summit Hall was funded by student housing fees. Since the state of Colorado did not contribute money to the building it does not have to approve construction (Endres & Scarda, 2005). Involved in CSU leadership of this venture were the Vice President for Student Affairs and the Vice President for Finance Administration. The decisions, specific to the preliminary design

and location of Summit Hall, were made at the university level then submitted for approval to the State Board of Governors (SBG). The SBG is a 13 member board that supervises and controls the academics and research of the system of Colorado State University (Board of Governors of the Colorado State University System, 2008). The Colorado Commission of Higher Education (CCHE), a legislative appointed board that oversees the long-range planning (including all capital construction projects) of all state funded higher education (Colorado Department of Higher Education, 2008), begins the next level of approval. According to CSU's former Vice President for Student Affairs, it was at this stage that negotiations for Summit Hall's approval began to sour between CSU Administration and CCHE. Colorado's former governor favored the eventual privatization of many public funded and operated institutions. Under this policy CCHE strongly encouraged CSU to investigate the potential for privatizing and outsourcing its residential housing. Colorado State University proposed that Summit Hall, and future phases of the master housing plan, be owned and operated by the institution. Along with the suggestion for outsourcing Summit Hall's construction and management, CCHE also proposed that CSU's forthcoming residential buildings be privatized.

The Vice President for Student Affairs believes that members of CCHE did not understand, or possibly believe, that CSU's cost calculations for construction, ownership and management of Summit Hall were accurate. According to the Vice President, CCHE's view seemed anchored around the idea that releasing the project construction, ownership, and management to a private sector academic housing company would cost the state less money in the short and long term. CSU Administration's position and

proposal, in the view of the Vice President, was that retaining control of residential housing by the university would be a more cost effective method.

> "...it was an earlier point where we were talking about getting permission for us to go forward and that it was cheaper for us to do it rather to outsource it. They kept telling us that we...couldn't possibly be right. The reason(s) that it was cheaper for us...was we were able to borrow money at a cheaper rate than a private contractor could do...and because we were able to do it on our own property, we didn't pay taxes on certain facets of the project."

Prolonged negotiations for approval with SBG and CCHE delayed ground breaking for Summit Hall by approximately 18 months, according to the Vice President. Delays in the Summit Hall phase of the master plan eventually caused the second phase, a proposed apartment complex to be built near the School of Veterinary Medicine, to be cancelled. The entire master plan was initially expected to be well underway, if not completed, in 12-14 months. However protracted negotiations and meetings expanded the finish date for Summit Hall to 3 years.

The Vice President for Student Affairs was clear that the university's policy regarding outsourcing services to the private sector is open for exploration and that she, personally, is not opposed to outsourcing. However her experience with outsourcing housing and dining has been that the revenue stream must be seriously investigated.

> "My sense is that if somebody can do something privately there might be ways that we can do it in the public sector and do it less expensively because there is always the profit motive on the other side. People only get involved in these kinds of ventures if they're going to make some money."

Final construction costs for Summit Hall totaled $17,215,400 (Aller-Lingle Architects, 2008). Summit Hall was funded by student housing fees. Since the state (Colorado) did not contribute money to the building of Summit Hall, the state legislature

does not have to approve construction or funding (Collegian, 2005). The final approval of the Summit Hall project was granted by CCHE.

Theme 2: RFP and Design Phase

CSU's administrative team, having completed the funding portion of the project, gave the project over to Colorado State University Research Foundation (CSURF) to develop the criteria and specifications to be included in the Request for Proposal (RFP). CSURF is a private, not-for-profit corporation developed to assist the CSU system in their research and educational efforts. Functions of CSURF include patent and licensing management; equipment leasing and municipal lease administration; financing of equipment, real estate and buildings through mortgage debt obligation(s); and land acquisition, development and management.

The RFP, completed under the oversight of the administrative team and Housing and Dining Services, was released to architects and general contractors as an invitation to bid and propose design and construction programs. Summit Hall, intended as a design-build project, was unusual in this approach. The Facility Planner for Housing and Dining Services described the procedure:

> "As a design-build project it was a little different for the state to undertake. I don't know if we were the first design-build project but we were certainly one of the first. That involved us from the standpoint of building the original program plan and the design objectives as detailed as we could before going out to bid, as compared to a more standard design format where you work hand and hand with the architect and design from the ground up."

According to the Construction Project Manager-Facilities the RFP specified "basic state requirements that go into any state building" that include all applicable building codes. The Americans with Disabilities Act (ADA) was among these criteria for

proposals to meet the specifications. Proposals submitted by architects and general contractors were narrowed to five selected for presentations. Project Manager for Housing and Dining Services recalls that at least 3 of 5 applicants were nation-wide corporate college housing builders. (The winner of the construction contract went to a local architect and contractor team. The Project Manager described some of the attributes of the design and the company selected as the winner of the proposal competition:

"They fit the project on the site without asking us to go elsewhere for more land. They fit our specifications much better and they used university standards in the construction of the building. Even though it was different than most of our university residential hall buildings it, at least, met our basic construction standards. They did the gypcrete coatings on the floor (and) they worked with our vibrations consultant stiffening it up...its a lot better built building. It is still a wood-stick constructed building with dry walls but it is a lot better than what low bid was. In fact...they were one of the higher bids."

All older residence halls on the CSU campus were built with dining facilities in each building and each of these is still operating. Summit Hall has no dining facilities. Residents may dine on their meal plan in any of 10 dining facilities on campus. The closest dining hall is located across the street in the new Academic Village complex. The choice made to exclude dining facilities from Summit sparked controversy. Former Vice President for Student Affairs discussed the choice:

"A lot of campuses have one facility that feeds everybody and everybody is used to that. But we have a culture here where there were dining facilities in every residence hall...this is going to be the first time where we're going to build a residence hall where that's not the case. How do we accommodate the needs of students and also the culture around having that available right on the spot? That was a difficult decision. Now I think people are pretty used to it and it seems to work fine but initially that was an issue."

The Director of Residence Life predicted that CSU will eventually transform all of its in-house dining halls to centralized dining facilities. Reasons for making this

transformation include keeping pace with changes in the culture, budget, and accessibility.

"We are moving away from the down-the-line with a tray cafeteria style to more choices where food will be made to order. We are dealing with more eating life-styles from allergies to vegetarian or vegan. Some of it is budget and making certain that money is being spent on the student. Also...making sure that you have the ability to keep your staff going 12 months out of the year. That includes students with disabilities coming into our dining centers. They are looking for different things, like how close can I get to that counter? Can I visually see the food that's being prepared for me?"

The decision to exclude dining facilities from Summit Hall specifically was also based on construction budget and the limited, awkwardly shaped land CSU allotted for Summit. The RFP for Summit Hall specified the exclusion of dining facilities.

Another controversial decision made about Summit Hall was inclusion of one elevator to service the rambling 4 story, 5 wing building. This seems to have been a budget-driven decision. The Construction Project Manager-Facilities discussed the issue of one elevator:

"Some people thought, and maybe still think, that there should be two (elevators). We asked for one so we got one. If you want two you have to plan for two and pay for two. You have a fixed amount of money you could bond, so if you put that elevator in you would have had somewhere there would be something less, there would be some less space...there would be less money because it's expensive and you can do other things with it. Decisions are made, most of them are lived with, some of them are altered, some of them are regretted."

Theme 3: Specifics of Accessibility in Summit's Design

In Summit Hall there are approximately 535 beds distributed in double and single rooms. ADA building code specifies that 10% of the available accommodations be handicap accessible accommodations. Summit Hall has 48 accessible rooms in both single and double units and therefore meets, and exceeds, the number required by ADA

code. ADAAG (Americans with Disabilities Act Accessibility Guidelines) groups accessible sleeping rooms in Transient Lodging, Section 9 into two categories: "fully accessible" and "hearing-impaired". "Fully accessible" units must comply with accessible criteria for mobility, sight and hearing impairments. "Hearing-impaired" units (this inexplicably also includes compliance guidelines that encompass accommodations for people with sight-impairments) must comply only with those accessible criteria that relate to both visual and audible alarms, notification devices, and telephones (ADAAG, 2002). Colorado State University has chosen to make all accessible rooms comply with the first category, "full accessible". Therefore, these rooms must include visual and audible alarms integrated into the building's alarm system, text telephones or tele-typewriter (TTY), telecommunication display devices (TDD) and notification devices that alert the resident to door knocks or door bells (Accessible Space Team, 1996).

ADA code does not specify the location of accessible rooms within a building. At the advice of the Director for Resources for Disabled Students (DRDS), accessible rooms are distributed throughout Summit Hall, with 12 single rooms on the first floor and 12 double rooms each on the second, third and fourth floors. On each of the four floors the distribution of accessible rooms results in six accessible rooms located on both the east and west sides of the Summit's central core.

"...I do vividly recall having things reviewed by (the Director for Disabled Students). Her suggestions often worked into the fact that we don't have, and I will use a term that she uses with me, that we don't make a gimp floor where all the handicap rooms are in one line and in one corridor."

The central core contains Summit's elevator. Accessible rooms, placed at the beginning of the long corridors radiating from the central core, are in close proximity to the elevator and to stairwells.

DRDS also recommended that accessible rooms be available to students in different types of room configurations. For example, students needing accessible accommodations may choose either a double or single room on any of the four floors in Summit Hall. Project Manager for Facilities recounted the advice offered by the Director for Resources for Disabled Students (DRDS) on this topic:

> "Through her office we'll get her preferences. In other words you can meet the numbers that are called out in ADA. For example how many rooms there are. A lot of it has to do with how those rooms are distributed. DRDS is involved in saying, for example, she doesn't want all of them in one section. She would like to have them distributed throughout the building in different ways."

The standard configuration of rooms in Summit Hall; one single room joined to one double room by a shared bathroom (see Appendix D-Summit Hall Single-Double H/C Suite), has resulted in what seems to be an unintentional bonus. The configuration of the two units provides a good arrangement for housing a student with a disability requiring the care of a live-in assistant.

While attention has lately focused on the new Academic Village complex, CSU's new showpiece combining residential living with academic facilities, Summit Hall is noteworthy for the university in that it is the first residential facility to be built on campus since the inception of the Americans with Disability Act. In the past, as handicap accessible spaces were needed existing residential accommodations had always been adapted. Off-campus CSU apartments, constructed under the guidelines of Section 504, were built with floor space allowances that could be altered as required. However initial construction did not include detailed elements such as grab bars, roll-in showers, or kitchen appliances with front edge controls. The opening of Summit Hall gave CSU's Housing and Dining Services it's first opportunity to provide handicap accessible units

that were equipped as such right from the start. This was particularly beneficial for housing summer conference visitors. Facility Manager for Housing and Dining Services outlined the gains to his department:

"I like that format (new construction that includes accessible units) better because few, if any, of the requirements (ADA code) aren't completely usable by all individuals. Why not do it up front and have it done and not rely on a future maintenance man to put the grab bars in. We can't react overnight with grab bars and roll-in showers for summer requirements as we use these facilities as hotel-motels during the summer conference season. Having those facilities done and complete and always available as handicap facilities gives us a function we never had before and that we need to have if we are going to maintain our summer conference operation...The code requires many more units than we typically have (need for). We probably stand a greater likelihood of using more of them at one time during the summer than we do during the school year. Eighteen-year-old students tend to be able bodied. During the academic year handicap needs to be more temporary, like ski injuries...we are more likely to have multiple types of handicaps at one time (during our summer conference season)."

There are two staff apartments available in Summit Hall but neither of these is specifically designed or finished for residents with physical disabilities. Each unit contains 2 bedrooms with one shared bathroom, living room, and kitchen. A lesson taken from Summit Hall, and utilized in the later design of Academic Village, is the inclusion of accessible living units for every level of students; undergraduates and graduate students; and for every level of staff. Planning for the inclusion of the possibility of future staff members with disabilities is another first for the university. Director of Residence Life discussed the knowledge about accessibility gained in the process of designing and building Summit Hall:

"...If you take the Summit design it's step forward from that...What we have provided in Academic Village is that for every room type we have there is a sister, or matching handicap room. Which is like 3 steps further than where we were back in the 60's in the design...we provided spaces that are RA (Resident Assistant) spaces thinking that...an RA could be someone...in a chair, someone who is blind...or has a hearing impairment. We thought 'how can we do the room as well as provide them the opportunity to be in the position?' We were able to do those accommodations to meet

their needs as well as have them be on staff, to have them employed, and to do the job that we need of them."

Standard furniture for each individual consists of a single bed, dresser and desk. Furniture for the new residential buildings was selected with flexibility as a factor; dressers fit comfortably into closets, drawer bases designed to go under desks are free-standing and can be shifted from right to left, standard bed heights adjust to become loft height. Handicap accessible rooms are furnished with the same basic pieces but the university will move, substitute, or construct furniture as needed for students with disabilities. At the recommendation of DRDS the Housing and Dining Services staff will provide furniture after the student tours the facilities and discusses their specific needs for furniture. Executive Director of Housing and Dining Services talked about this approach:

"...we shouldn't make the decision for the occupant, we should have them say what they'd like. We (provided) an adjustable desk we constructed for a student who is paraplegic. The next person could have a roll-under desk and it wouldn't be an issue. So, that's where we don't presume to know what works best in that area."

Handicap accessible dormitory rooms are designed to meet minimum ADAAG (Americans with Disabilities Act Accessibility Guidelines), ICC/ANSI A117.1 Accessible and Usable Buildings and Facilities (American National Standard Institute), UFAS Uniform Accessibility Standard, and UBC (Uniform Building Code) requirements. However a person with a physical disability may require, or desire, auxiliary equipment in the room that is not called for in these codes. For example, the student mentioned earlier who is paraplegic also needed a puffer-system that would activate door operations by blowing into a device.

"This is the first time we've had a situation where we had someone use a puffer. I think there was a head switch too. When we designed the room we designed it so that we have the requirements in there but then as we outfit the room we (ask) "how can we best

outfit this room to meet this person's needs?' You don't know what those needs are going to be so you've got to leave the flexibility open."

Examples of adaptations that CSU has made to the basic handicap accessible room for students with disabilities have included: lowered closet rods, relocated towel and grab bars, voice activated telephones, additional Braille signage, floor pads that open doors with pressure, and voice activated lights.

The width of all doors in new campus residence halls has been adjusted from the once common 32" wide to a new campus standard of 36" wide. This is a change that is not limited to handicap accessible rooms but will include all doors throughout buildings. The philosophy behind this is the flexibility and inclusiveness offered to people with physical disabilities, and most especially to individuals using wheelchairs. Facility Planner for Housing and Dining Services discussed his opinion on this decision:

"My feeling being that, yes, some rooms are handicap accessible but it doesn't mean that the individual doesn't want to visit the next room. Can he get in the door to the next room? We've made (door width) conversions for people but they were literally limited to their own room. They can't get in (other rooms) so we've extended some standards to be like that in all rooms. And virtually at no-cost. The difference between a 2'-8" door and a 3'-0"in every opening is miniscule compared to the flexibility it gives you and it gives the individual. There are always temporary handicap situations where a guy or a girl needs this for a month or so. Why should they have to move to another room for a month because they can't get through the door of their room?"

Exterior access to Summit Hall has been designed, as specified in ADAAG, with pathways of travel that are accessible from parking spaces to the interior of the building. ADAAG specifies that there be one accessible entry to a building that is step-free. Planners for Summit Hall made a conscious decision to make all exterior doors step-free by providing ramping at all entry points. Main exterior doors are equipped with automatic door operators activated by push buttons or electronic keycards. Building security was a prime consideration for residents and is tighter in the newer facilities of

Summit Hall and Academic Village than in older campus residence halls. Security has been described as having 3 levels: exterior entries, corridors or building wings, and individual rooms. Layering of security adds potential barriers, in the form of more doors to open and close, for the individual with physical disabilities. If the operation of doors is difficult or impossible for residents CSU is prepared to install electronic door systems that are appropriate for residents' needs.

Because accessible rooms are available on all four floors of Summit Hall it is expected that residents with physical disabilities will use the elevator for vertical travel. Summit Hall's elevator is equipped to run on an emergency generator in a power failure. Each floor has a designated area of "rescue assistance", an area, which has direct access to an exit, where people who are unable to use stairs may remain temporarily in safety to await further instructions or assistance during emergency evacuation.

This researcher conducted 3 out of 6 interviews before the plumbing mock-up of Summit Hall was mentioned. This researcher had no prior knowledge of the mock-up so did not ask about it in earlier interviews. The mock-up was made at the beginning of the construction phase and in essence belonged to a phase that was directed by Housing and Dining Services. CSU's administrators (guiding the funding) and Facilities Management, (guiding the design/build and contracting) had completed their responsibilities to the Summit Hall project before the mock-up was built. The first mention of the mock-up occurred after the formal tape-recorded interview session, and as an aside parting remark, by the Executive Director of Housing and Dining Services so the interviewer had little opportunity to ask for more information. The Executive Director of HDS suggested that the researcher talk more about the topic with the Facility Planner of HDS. The following

section details the building, use and knowledge gained by planners and administrators from the unplanned and fortuitous mock-up of Summit Hall's bathroom.

Theme 4: Mock-up (Model) of Summit Hall's Typical Bathroom and Lessons Learned

Mock-up of a Typical Bathroom

The design-build approach to the construction of Summit Hall resulted in a sequence of procedures, not uncommon in contemporary construction, which allowed for Summit's foundation and exterior shell to be under construction prior to the finalizing of the interior spaces. The RFP for Summit called for all student rooms to be double (2 person) configuration. Exterior construction was well underway when the contracted plumbing company questioned the size and location designated in the shared mechanical wall between two double rooms. The plumbing contractor decided to construct a full-scale mockup of one room unit (two standard student rooms and one bathroom) to determine if the mechanical wall was sufficient to contain their piping components as well as electric wiring, ducts and air handling unit called for in the RFP. The mockup room, built in the plumbing contractor's warehouse, came to fill more than its intended purpose of predicting plumbing problems. The mockup was rough stud wall construction without sheet-rock on the walls or finished floors but CSU's Housing and Dining Services took the opportunity, in the plumbing warehouse, to fit standard student furniture in the model. Facility Planner for Housing and Dining Services described the experience:

"We took the opportunity, though it was just rough framing with no sheet rock, to move our basic furniture in to it. We did that to make sure it would fit. We knew that the dimensions of the rooms, particularly in the length of the room, was in most cases, within

an inch to an inch and a half of the combination dimension of a desk, bed and dresser unit. In fact it proved to be that we couldn't double sheet rock one wall or it would be too small and we couldn't get it (all the furniture) in. We put the furniture in there and decided these were just not very nice rooms with that much furniture in that small a space."

Summit Hall's original floor plan specified smaller student rooms built in 20 feet wide units (each individual room would have an interior dimension approximately 9'-8" feet wide x 10'10" long), as compared to the more typical 24 feet wide units found in most campus residence halls. According to Facility Planner for Housing and Dining Services (HDS) the decision, and problem, of the smaller units could be traced back to the programming stage of planning:

"The problem was to fit this many rooms on this small site we had to go to...a twenty foot module (two rooms, each approximately 10 feet wide). That is the difference in being able to touch the furniture (on either side of the room) with both hands. That two feet of room difference is the difference in being able to touch the furniture with both hands. We are used to 12 foot rooms in the housing system, so when you see a 10 foot room you immediately go...it makes a lot of difference. That makes a lot of difference in appeal. It doesn't show in plan."

The "plan" referred to the Facility Manager would be the scaled floor plan. It is unclear in interview data whether, at any stage of design, anyone on the design team attempted to add scaled furniture to a scaled plan of a standard student room (two dimension). This step might have alerted designers at an earlier stage to the problem of fitting typical student furniture (standard size and number) in to a reduced room module. The experience of seeing actual furniture, in three-dimension, in a full sized room model made planners aware of the space problems.

It was at this stage, while the exterior shell of Summit Hall was under construction, that a decision was made to change all double-double room modules (2 occupants, or beds, in each room, to total 4 beds per module) to double-single modules by

shifting the shared wall approximately 14 inches. This would allow for one room's width dimension to expand to approximately 10'-10" and shrink the adjoining room to an approximate width of 8'-7". No adjustments were made to handicap accessible rooms, which remained at approximately 10'-10" each, as these rooms were allotted more space initially to provide necessary space for accessibility. The shift of one interior wall in each standard module had the effect of down sizing the occupancy of Summit Hall from the initial plan of 700 beds to 535 beds. As a project that was scrutinized in a protracted financing process and ultimately approved as a 700 bed residence hall, the reduction of 165 beds would be expected to be an issue of contention with the boards that gave approval. Facility Planner for HDS recalls the events after the decision to down-size occupancy:

" Politically it was a real iffy one because we had stated 700 in our program. We were afraid of reverberations because we were approved for self-built and now we were building something else than what we had proposed."

Recall that the completion of Summit Hall was necessary for housing students before demolition could begin on old residence halls. The "driving goal" behind Summit Hall, as described by the Executive Director of Housing and Dining Services was to "get as many beds as we could on that site." The question for CSU, and the financing boards, was whether the reduction of occupancy would house enough students so that older dorms could be torn down and whether this reduction would keep Summit Hall financially feasible for the university. The Facility Planner for HDS described why the reduction of beds in Summit Hall was a realistic option:

"It turned out it never became an issue with either the board or the commission. The biggest issue was internally whether we could make it work at 535 instead of 700

and could we make it work financially. The older dormitories are in the 400-428 bed range. We needed 400 beds, let's say, in order to begin demolition. The 535 still gave us a hundred more spaces. Obviously our minimum was 400 realistically but 535 was acceptable for us to do that and financially workable."

In retrospect the decision to create double-single modules, reducing standard suites from 4 people to 3 people per suite, has been beneficial. The change has resulted in "rooms that are more acceptable to us", a stock of single rooms that meets students' requests for "more privacy", and single rooms that are often requested and fill easily during the summer conference season. On the topic of housing summer conference attendees the Executive Director for HDS said:

> "If we have a crunch in summer conferences we can put in a bunk bed for the youth groups and get by with two (in a room designed for singles) if need be. Right now this is our most attractive design and when people renew and come back this fills up first."

Another construction detail revealed in the mock-up room was the necessity of incising the floor under each roll-in shower for handicap accessible bathrooms. Shower stalls that allow for the smooth entrance of wheelchairs must be level with the finished floor surface. This means that unfinished floors below the shower stall must be lower than the unfinished flooring in the rest of the bathroom. Without this, wheelchair accessible showers must be ramped slightly and this ramping often results in a shower that allows water to drain out on to the bathroom floor. Facilities Manager for HDS recalls that twenty years ago most of the products designed for use by people with physical handicaps were not available and it was necessary to improvise with existing products. At that time, he said, standard shower stalls were retrofitted to create roll-in showers by tearing out the floor to lower the shower to a level even with bathroom's

finished floor. Today, accessible products are readily available but specific thought is often required during design and construction to insure that these products are installed appropriately.

"If you want a roll-in shower you block out in the concrete floor so they can put the shower in there. Otherwise you're stuck with everything being built up to it. The products are available but you need to think how you're going to use them and make sure those are planned in and specified as you design the facility so they are in fact used correctly. A roll-in shower that you have to build the floor up to isn't worth it. Too often we get caught in that and say, oh yeah, we should have done that differently. It's usually too late after you've poured concrete."

Lessons Taken from Summit Hall's Mock-up Model

One mock-up model, built by a plumbing contractor, saved the university from building approximately 300 walls in the wrong place that would have resulted in over 650 "too small" standard rooms. The experience of viewing, and using, the mock-up room was an eye-opener for facilities planners and housing officials at CSU. The result of this happenstance was that CSU planners intentionally constructed two full-scale mock-ups of a typical student room for their next residential project, Academic Village. Facility Manager for HDS estimated that the cost of the mock-ups was $50-60,000 but may have saved $250,000 in errors corrected before room details were installed in the building itself.

"You start making $100-200 mistakes and you multiply that times 300 and it gets real expensive real quick. Instead of having to tear out 300 of them we tore out one."

Unlike the partially finished mock-up for Summit Hall, facility planners constructed one bathroom mock-up that detailed framing, sub-flooring, and mechanical, electrical and plumbing requirements and another mock-up that included all finishes.

The mock-ups were built on site and allowed contractors an opportunity to work out details before and during construction of Academic Village.

"In Academic Village we had the mock up to say, now work out your problems in framing...in plumbing...electric. Now finish it. Let's sheet-rock it. Let's figure out where the towel racks are going to hang, see what the doors look like. We wanted to see everything. So we built the complete mock-up, carpeted, drapes, completely finished with real paint. The architect had located (the towel bar) on the end of the stub wall. The first time I walked into the room I ran into it. I said that's gotta move. Things like that we found very helpful. Our accessory man did move it to locate it from the wall to the back of the door. We made the electrician move the outlets so they didn't fall behind the bedposts of the bed. That's the level of the detail that we went to."

"In some cases we didn't follow the detail all the way through. The draperies were one case. We used the same drapery spec for Summit, which is a one-way pull, because (Summit) had slider windows. Academic Village has double hung (windows). We got in there and they looked terrible. The drapery was all wrong for a double hung window. (I said) we've gotta come back in here with a standard two-way pull on this drapery. The drapery contractor came back in and said yeah, that's what I would put in there but your spec said one way. We said yeah, our spec was wrong, we admit it, so what's it gonna take to change the drapes? He said, well, he hadn't built them yet so it didn't cost us very much at all. We had seen it in the mock-up and we didn't have 300 pairs of draperies made wrong. We caught it before they were made."

The process of building the mock-up showed construction managers intricate details for sequencing labor and for tolerances in tight spaces.

"We worked out some details with respect to the shower, plumbing, the end wall plumbing of the shower and how the toilet fit into that alcove and all the dimensions. Because of it being wood framing, the tolerances and the sheet rock, to get that shower cabinet to slide in there and the base mounted in that wood floor, required some pretty tight tolerances. They did a panel shower so they also did a shower mock up to work out some of those difficulties. Even the vent shafts behind there were in sequences that had to be done with sheet rock fire lining in those vent shafts. That has to be done as the building goes up. There was no excuse for the sheet rocker to not know he had to get in there and sheet rock when it got to this point or we would progress beyond him and he couldn't get in there."

In spite of the construction team's intention to identify as many uncertainties as possible through the Academic Village mock-up, a few unexpected situations were not

revealed until the actual rooms were being finished. For example the corrected draperies were installed in the mock-up but were not pulled open and closed to test the operation of the hardware. It was later discovered that the drapery hardware specified for the rooms did not have the correct brackets for drapery returns (the end portion of the drapery that covers the bracket edge of the rod and "returns" to the wall). The compensation for this error was the installation of eye-hooks in the wall to hold drapery returns in place.

Carpet layers had begun installing carpet in one building of the Academic Village when construction managers noticed the carpet in closet areas was being laid perpendicular to the carpet in the rooms' main floor area (typically the direction of carpet weave should be maintained in all areas unless otherwise specified). Carpet sub-contractors were shown the mock-up and told to fix their error. Mock-ups were used daily, according to Facility Manager for HDS to illustrate what methods and materials were to be used in the actual construction and to settle disagreements with workers.

"It saves on a lot of legal problems afterwards. It gives your construction manager an opportunity to say, yeah, it's right there and does it look like that? If it doesn't look like that it isn't right."

During the Summit Hall project the trial run of furniture in the mock-up came as an after thought and the furniture used was taken from CSU's warehoused supply. In the Academic Village project the company that won the furniture bid sent HDS a complete room's worth of furniture from the pending order for trial in the mock-up. Furniture for Academic Village was selected as much for versatility as for its fit in the typical room space. For example the beds that were chosen convert from loft types that lift the bed approximately 5 feet above the floor (additional furniture, such as a desk or dresser can be located under the bed freeing floor space). Beds easily convert to a conventional

height that may be more desired during summer conferences and that do not require facilities staff to replace the loft type bed with another bed. This transforming bed frame, along with a desk that has a removal drawer base, can make standard rooms more accessible and desirable for a wider range of residents.

An unforeseen benefit of the Academic Village's mock-up was its use to represent a student room to prospective residents. Visiting students were shown the finished mock-up on the edge of the construction site. Visitors, without boots and hardhats, were not walking in construction areas putting themselves at risk and disrupting construction personnel.

Theme 5: With A New, More Accessible Residence Hall on Campus--Why Do Students with Disabilities Prefer an Old Residence Hall?

As discussed previously in this chapter Summit Hall, the newest non-programmatic residence hall on campus, offers students in-suite bathrooms, the option of single or double rooms, individually controlled air-conditioning and heating, digital cable television, wireless and high-speed internet connections, and the highest level of security available. Common areas include laundry facilities, recreation areas, and study lounges. Summit Hall is the first residence hall to be constructed since the initiation of the ADA. The Director for Students with Disabilities advised the design team that students with disabilities have indicated they dislike being clustered together on one floor in one building and want a choice of room types and room locations. Summit Hall was designed, with extra effort on the part of the university, towards making it the most desirable residence hall for students with physical disabilities. Then why are students with

physical disabilities choosing older residence halls, specifically Braiden Hall, over Summit Hall?

With all that Summit Hall has to offer students with disabilities, housing officials say they "struggle" to understand why these students prefer accommodations in Braiden Hall. The research questions guiding this study were not designed to investigate this issue, however this is a theme that four out of six interviewees (unprompted by the interviewer) discussed. It is the hope of the researcher that more information regarding housing for students with disabilities may assist university administrators and staff in planning new construction and rehabilitating extant buildings. It is for this reason that the information about this theme is included in this study.

When those who mentioned the question of why students choose Braiden one of the reasons for this choice was attributed to Braiden's nearness to the geographic and academic heart of the campus. Braiden Hall is the closest residence facility to the student center, library, and most academic buildings. In addition to the convenience of living next to these facilities, the task of maneuvering through snow and other types of inclement weather may also affect student's decisions to choose Braiden. Summit Hall may be perceived by students as a being located on the outer edge of the main campus. Administrators feel that this perception will alter as new academic and residential buildings are built nearer to Summit Hall. (Accessible van transportation around campus is available to students with disabilities by request through Resources for Disabled Students.)

"It might be better right now for some students to be in Braiden. But when they start doing the Academic Village and all the other retrofits, tearing down buildings, putting up new. Summit will be in the middle of that. It will be more desirable once that happens. Right now it's sort of on the outskirts of campus and it feels like it's far away.

It's a good start to build residence halls in a different way. I think it will be more desirable as it's built up. Braiden, as long as they have that open, it is the best place for students with mobility impairments. We have a very small amount of students with mobility impairments, a very small number of students in wheelchairs. But we have students throughout the semester who break their leg, who have mobility impairments temporarily. What if they are on the third floor of a residence hall with no elevator? Summit can work for them. Yeah, it might be a little bit further but they can figure out how to get to campus. We have a van, we will pick them up, supports are in place for any student with a disability to live in Summit. We are building up the options for the future. That's what I like about Summit."

In the past, when students with disabilities enrolled at CSU, these students were encouraged to live in Braiden Hall. Housing officials seem to have chosen Braiden as the facility most logical to house these students for the same reason as students continue to choose Braiden—for it's convenience. Therefore, over the last thirty years Braiden has been retrofitted repeatedly for accessibility so these rooms are available and ready. Director of Resources for Disabled Students puzzled over students' choice for an adapted, older building over a fresh, new building:

"Summit was a big improvement over the old residence halls, I think, in terms of making it more useful. Braiden was a retro-fit and continues to be a retro-fit. Even in the design of the bathrooms. When (a quadriplegic student) was looking for a place he looked at Summit, he looked at Braiden. He chose Braiden even though he has a power chair and he could get across campus. Part of that was the configuration of the bathroom. It worked better for him in Braiden. That was a surprise to me."

Accessible student rooms in Braiden are located on the first floor so no means of vertical transportation (elevator) is necessary. In Summit Hall, where effort has been made to locate accessible rooms throughout the building so students with disabilities are not clustered in one hallway, there is one elevator serving four floors. However, accessible rooms are located close to the center core of the building and the elevator. Director of Resources for Disabled Students recalls a discussion with members of the Summit's design team:

"I talked to them about where the elevators should be, where the accessible rooms should be in relationship to the elevator; that you aren't having someone traipse across the whole building just to get to their room just because of where you put the elevator. But if you were going to have accessible rooms throughout the building to have them closer to the elevator in the center so you don't come up the elevator and have to go clear down the hall. I mean that's not really very convenient for some people. That was one of the things that I was asking for in that building because many of the other residence halls don't have that."

Another reason students with physical impairments may not be choosing Summit Hall is the lack of in-house dining available to them. Executive Director of Housing and Dining Services talked about the importance of offering students with disabilities options for housing:

"I think, because there is not dining that people are not choosing to live here. Because Braiden has dining and because of the proximity they are choosing that, but it's the student making the decision and not us saying all the handicapped people need to be in this wing on this floor of this section of this building."

Braiden Hall is one of the campus' oldest residence halls, built during the wave of construction in the 1960's, and was one of several identical halls that all included a dining hall. Today the dining hall continues to offer food service and likely will until Braiden is closed and demolished.

The Director of Residence Life stated that she has been surprised at students' decisions and the reasons that might influence those choices. Summit Hall is brand new, has the most up-to-date technology, and she and her staff took extra measures to design a residence hall that would be attractive and appropriate housing for all students. Director of Residence Life stated that she enlisted the assistance of both able-bodied and disabled students in fine-tuning the design details for Summit Hall:

"I know that with Summit, when we were getting down to the finishing touches, at that time we had students on campus who were willing to work with me, who came in, and we went through the facility as well. You know just to get another set of eyes and ears...on that facility. For me it was making sure that this building will meet all students

needs...not knowing who is going to be housed there. Clearly we knew that those (students with disabilities) were going to need designated handicapped rooms when applications came in. But for some students Summit Hall was not a preference because...it was viewed as being too far away...even though Summit had the most updated features."

Recall that CSU's decision to build Summit without an in-house dining hall was based on economics, a movement to centralize dining facilities on campus, and plans to construct a large dining facility across the street from Summit (Academic Village complex). Summit Hall was opened for occupancy three years before the Academic Village dining hall was completed so the nearest dining available in this time period was in two old dorms. Even though this was viewed as a temporary solution for providing dining for students residing in Summit, the Director of Resources for Disabled Students questioned the quality of the accessibility:

"I found it inconvenient. I talked to them about wheelchair users and where the closest food would be located and how people could get in there. They told me about a couple of the residence halls that are across the street. But a couple of those residence halls are not accessible and to get into the eating part might require them to go through a side entrance or a back entrance. I didn't find that really workable. I think that when they get the dining facility for Academic Village constructed it will solve that problem. Right now I think it makes living there harder for someone in a wheelchair."

The former Vice President for Student Affairs addressed the topic of distance, lack of in-house dining, and one elevator in Summit Hall as a factor in students' choice of residence halls:

"You know I don't think I ever got a complaint from anybody. No one ever said to me 'there's some real issues here in terms of accessibility.' I think its location and the fact that it's not immediately adjacent to a food service kind of thing. That could be an issue in the dead of winter for somebody in a wheelchair, having to try to get over early in the morning for breakfast. I think that one of the biggest issues for some people is the fact that there is only one elevator and where it's located in the facility made it somewhat difficult for people at the farther ends of the facility to get access to it."

This researcher queried the Executive Director of Housing and Dining Services about feedback from students with disabilities regarding the applicability and accessibility of Summit Hall's facilities. He stated that because no students with extreme physical limitations (hearing, sight or mobility impaired) have lived in Summit there has been no feedback. Director for Resources for Disabled Students concurred with this and also stated that in her recollection no student in a wheelchair has chosen to live in Summit Hall.

Theme 6: The Design Team's Expertise on Accessibility and How It Was Applied to Summit Hall

In the conception of this thesis this researcher anticipated that there would exist for Summit Hall a formal team made up of architects, contractors, facilities planners, administrators, housing staff members, and a representative from the office of Resources for Disabled Students (specifically for accessibility). While all of these had roles in the construction and design of Summit, their roles were defined differently and their parts were played in a much less formal fashion than expected. The researcher estimated that all members of the design team worked initially on the concept and programming process together, splitting after this phase to complete responsibilities specific to their specialization and passing on the next phase of the project to the next person (or office) in the chain. While all these individuals did meet at various stages it appears that not all of these individuals met in a formal session at the same time. For example, funding administrators passed on the Summit project to facilities planners who, along with staff of Housing and Dining Services (who would eventually operate the facility), judged the

design/build proposals submitted by architect and contracting teams. Table 4.1 details the approximate sequence and the involvement of members of the design team. The term "design team", as used in this study, has evolved to mean individuals or offices that had primary administrative/oversight functions affecting the design, construction, and beginning operation of Summit Hall.

Table 4.1 Approximate Sequence of Involvement and Influence Regarding Accessibility of the Design Team Principals

Who were the key people/offices involved in the design and construction of Summit Hall?	***When did their involvement with the project begin?***	***What role did they have in the project?***	***How long was their involvement?***	***How much did this person/office influence decisions that affected accessibility?***
Vice President for Student Affairs	Funding and project approval Development of Master Plan and Summit conception	Getting project started Bonding and funding Reviewed project program and early designs	18 months (due to delays in funding process involvement was extended)	Limited influence, as design evolved was consulted about general concept but not specifics such as accessibility details
Project Manager-Facilities Management	RFP written and advertised by CSURF but later assigned to Facilities and project manager	Facilities Management administered design/build project (Summit) Project Manager acted as liaison for CSU in budget, schedules, contracts	14-16 months, as project went to construction less involved	Some influence, especially in early stages. RFP called for Summit project to meet codes, including ADA. Facilities Manager oversaw code application by architects. Outside consulting architect

				reviewed designs for codes applications.
Executive Director-Housing and Dining Services	Project conception to development of design program to completion of construction	Chief administrator for Summit and all residence and dining facilities. Asked HDS Facilities Planner to postpone retirement to manage Summit's construction	3 years (from project's conception to opening of Summit Hall) Continues to be chief administrator for HDS	Strong influence, very involved in entire project including H/C accessibility. Consulted often on project and in past ventures with DRDS. Is Aware of all details of accessibility and students or staff with disabilities in HDS facilities
Facility Planner (construction manager)-Housing and Dining Services	Development of design Construction management	Responsible for coordinating entire construction process Intermediary between HDS, architects, contractors, subcontractor, regulatory personnel	3 years	Strong influence, responsibility for details of ADA application in planning and construction
Director of Residence Life-Housing and Dining Services	Beginning stages of construction to student room assignments	Advise designers, administrators, facilities planners on residence hall needs. Continues to work closely with DRDS over-seeing placement for all students including students with disabilities	Approximately 18 months to 2 years (was not at CSU during funding and initial design phase	Some influence, consulted regularly with construction manager on interior com-ponents/spaces after structural shell was started Consulted with DRDS regarding accessibility for Summit

Director-Resources for Disabled Students	Periodically, but informally from early stages of design to beginning of construction	Consultant on generalities and specifics of accessibility	12-18 months	Consulted with HDS and FM about early design plans and accessibility Advocate voice for people with disabilities

Section Three

Research Questions

The following research questions guided this study concerning the implementing process of designing for accessibility on a public university campus:

1. *How are the physical adaptations and new construction details for accessibility determined on a public university campus?*
2. *Who becomes involved in this decision process and when does this involvement take place?*
3. *What knowledge has been gained from the design process, specific to accessibility, in this case (residence hall) that will inform university campus communities?*

The following paragraphs are summaries of how data gathered in this study have answered the above research questions:

Research Question #1: *How are the physical adaptations and new construction details for accessibility determined on a public university campus?*

On a public university campus a typical new large-scale construction project or a large-scale remodeling of an existing building would most likely be in a sequence similar to this:

A. Administration determines the project (e.g. new dormitory), then secures funding and approval.

B. Facilities management (possibly in combination with the university's research foundation) write and advertise a Request for Proposals (RFP).

RFP include general specifications for the project, building and engineering codes to be considered, and site details. Typically proposals are submitted by architectural and construction companies. Proposals that are submitted might include: contract details, preliminary cost estimates, plans and specifications (architectural and engineering), project schedules and timelines. A list of applicable codes, including ADA, may be attached to the RFP, however licensed design professionals will be familiar with codes and prepare plans accordingly.

C. Proposals are judged, and a winner is selected by Facilities Management, Administration, and other interested parties (e.g. college deans, department chairs). In the case of this study, a residential facility, the proposal was reviewed by Housing and Dining Services.

D. The university and the proposal winner (usually an architectural firm or construction contracting firm) develop a design program that outlines the

specifications and considerations for the building project. Throughout this process details sketched in the proposal are refined. Construction plans and specifications are reviewed for building codes including ADA Design Guidelines. Experts may be consulted earlier or at this stage (e.g. for acoustics in a performing arts venue).

E. Construction contracts are awarded to a selected contracting firm. State purchasing regulations dictate that traditional sealed bids are the preferred method of awarding public construction contracts. But there are many exceptions — times when the particulars of the project require a different arrangement. A high-tech facility, for instance, may have complexities that mean exact costs and designs are not determined at the outset. This delivery method, known as a "construction manager at risk" contract, allows the manager to continue negotiating on plans and budget with customer and the architect as construction moves forward (provided construction doesn't exceed a maximum cost).

F. A construction manager or facilities planner is assigned the project and is responsible for coordinating the entire process, from initial planning and foundation work, through the final coat of paint in the last room. The construction manager is the intermediary between his clients and his workers, between the architect and his subcontractors, and between the project and any regulatory personnel.

As mentioned, this is a more characteristic sequence of the progression of design through construction and a more characteristic list of the individuals likely to be involved. The design and construction process for Summit Hall, as a "design-build" project, deviated from this typical procedure in the second stage of the process. The RFP called for the designer and the builder to act as a team and to submit one proposal for the project that covered the initial design phases through to the final phases of the construction. Because the flow of the procedure was altered for Summit Hall, some job responsibilities, and possibly the individual's degree of influence, were also altered. Most noteworthy would be the construction contractor who, in a design-build proposal, signs on to the project much earlier and is likely to have more voice in design decisions.

Specific to the issue of how details of accessibility, for both new construction and for the remodeling of extant buildings, is determined the answer seems to be two-fold. The first part of this answer is the simplest. All construction on a public university campus, whether it's "ground-breaking new" or the alteration of an existing facility, is determined by applicable building codes. Handicap accessibility is legislated in the Americans with Disabilities Accessibility Guidelines for Buildings and Facilities (see Appendix E-ADAAG Transient Housing, Section 9). ADAAG's Purpose Statement reads:

> "This document contains scoping and technical requirements for accessibility to buildings and facilities by individuals with disabilities under the Americans with Disabilities Act (ADA) of 1990. These scoping and technical requirements are to be applied during the design, construction, and alteration of buildings and

facilities covered by titles II and III of the ADA to the extent required by regulations issued by Federal agencies, including the Department of Justice and the Department of Transportation, under the ADA." (ADAAG, 2002)

It is worth repeating that ADA guidelines are minimum, base-line standards for design and construction and must be met at several stages of the project for construction to move forward. These standards are exact in specifying dimensions and design details such as ramps, grab bars, hallways and drinking fountains. However, the ADAAG does not legislate the most convenient, sensitive or aesthetic method for accomplishing accessibility in design.

So then how are *these* details (convenience, sensitivity and aesthetic application) of accessibility determined? The second part of this answer is far more complex. The answer is less about legislated regulations and more about human involvement and personal philosophies.

For those individuals who were involved in the design and construction of Summit Hall this was about providing the most inclusive means of accessibility possible with the knowledge, funds and technology available. Why are these individuals concerned whether their building reaches beyond minimum standards? The answer to that question seems to be it is the experiences that each of these people bring to the project. The researcher entered this study with the expectation that a story about designing for and implementing accessibility would emerge but that this story would be mostly about technical aspects of design and construction (ADA, deadlines, technology,

specifications). Intriguing and unexpected facets of this research were the personal anecdotes that were volunteered by many of the interview participants. For example:

"I've been in a wheelchair. Fortunately I'm not in a wheel chair now but I've needed those facilities and they are appreciated when you've got them...when you don't it's not an inconvenience, it's an impossibility. I've been on both sides of that fence and it's given me a...different appreciation for why we do what we do. I've had mother-in-law in a wheel chair. My daughter has MS and walks with a cane when necessary. Yes, it happens very unexpectedly in anyone's family. It gives you an appreciation for what's out there and I'm sure its part of what spurs my interest in (accessibility)."

" My parents firmly believed that we needed to be exposed to differences in people. My parents wouldn't think of themselves as diversity educators, but now in hindsight I say they were. I've also learned from the jobs (I've had) and choices I've made in my life. In one of my jobs I ran a handicapped accessible residence hall. That was an eye-opening experience for me to have...590 students, 45 of those were in chairs. I learned that people are people and it didn't matter the packaging they came in."

"I think that's the missing piece (a voice from someone who is disabled). Non-disabled people are always going to miss it. I live it everyday so I don't miss it. I can go into a room and automatically tell you it's not going to work. You can go over to that room and not see what I see. That's what most architects are...blind to. They don't know that they don't get it because they rely on the code (ADA) to say this is 'enough'. The code is minimal. It's not treated that way. It's treated as though this is all we have to do. So we continue to have built environments that continue to present problems."

Added to their personal experiences all of the individuals on the design team for residence hall construction are acquainted with the quadriplegic student mentioned earlier in this study. This student was ambulatory when he enrolled at CSU but he was severely impaired in a falling accident on campus. He was determined to return to the university to finish his degree. CSU has welcomed him by accommodating his very distinct and extreme physical limitations. Each of the people interviewed for this study talked with pride about what has been accomplished to allow this student to continue his education. These accommodations range from the invention of technology (voice activated doors) to

specially constructed furniture to changes in facilities (restructuring not just rooms but buildings). Each of the administrators interviewed spoke about the affect that providing accommodations for this student has had on them personally and on the university's inter-departmental efforts.

"What I'm proud of is that we will do it. That's something that I'm very proud of here at CSU. It's very collaborative, it's something that I know that if I need something I have a team, whether it be in our own department, or in other offices on this campus who are willing to help."

"They (departments) made the difference for (quadriplegic student). They were the ones saying 'what do we need to do?' rather than 'no we can't do this'. They were open to the idea and it was going to require a lot. Even when their staff said 'wow, this is going to require a lot of work' the directors said 'so what, do it'. It was because they were at the top and saying it is possible and we will spend the money. They made it happen. I just said 'this student needs to come in' and they said 'OK, we think we can manage it'... We can't think about how much money or work it will take. It doesn't matter. There is a payoff in the end. It may not be immediate but there will be a payoff. Once (the student) gets through school he is employable. He'll put money back into the system. It's the right thing to do. He's capable, he can't move his body but he's got a mind. How do we help him maximize his potential? The way that we do that is to keep him in school. How do we normalize his life to where his disability is not...a tragedy? How do we help him move on so he doesn't have to be a tragedy? We did it...we did it as a team. It's unfortunate for his accident but his life isn't over."

Research Question #2 *Who becomes involved in this decision process and when does this involvement take place?*

The second research question was asked to help understand who the individuals are that make the critical and important decisions that drive the design and construction of the building used for this case study and when in the sequence of this project their involvement took place. The typical sequence of design and construction events and the individuals and offices most likely to have been involved is outlined in Research Question #1 above. In the case of Summit Hall these offices or firms consisted of:

- Vice President for Student Affairs and Vice President for Financial Affairs representing the Office of the President
- office of Facilities Management
- primary architectural and construction firms
- office of Housing and Dining Services

For advice on issues about the general physical accessibility of Summit Hall some members of the above listed offices consulted with the Director of Resources for Disabled Students (DRDS). These consultations began in early stages of design by showing DRDS architectural floor plans for Summit Hall. When asked if there was any specific time that she was brought into the loop this is how she recalls the timing:

"I don't think if I'm necessarily in the loop the whole way. I'm in the loop when it's necessary and I don't often have follow-up. It's whenever they decide to bring it (the plans) over to me. And I don't know when that is. I don't know if it's a formal process. Like when they remember, they call me up and say we want to show you these plans. I say OK. I look at a lot of blueprints."

After the ground-breaking ceremonies for Summit Hall had been celebrated the construction project became the concern of Housing and Dining Services, and specifically the responsibility of its Facility Manager (FMDS). The prime job of the Facility Manager was, putting it simply, to build a building. It became his responsibility to coordinate schedules and remaining design issues with the architects, engineers, contractors, and subcontractors. Other members of Housing and Dining Services were also involved during the construction phase, especially the Executive Director and the Director of Residence Life and their staffs. All of these individuals recalled in interviews that they had sought advice regarding accessibility with the Director of Resources for Disabled Students (DRDS). DRDS said she consulted with these individuals at various

times throughout construction but none of these meetings were formal or included more than DRDS and one other person.

"It's like I said, I don't consider myself as part of that team because I don't remember us talking as a team. I'm just telling you what I remember. I never felt that it was a formal arrangement. I remember talking to a lot of people about Summit at different points in time. I remember seeing the plans with (Facility Manager for Housing and Dining Services). I remember going through the building with (Director of Residence Life) after it was done and pointing out some things."

Some of the topics regarding the accessibility that DRDS recalls talking about were: placement of the elevator, laundry room, accessible student rooms; arrangements for dining facilities; accessible pathways for the exterior and interior; electronic keys for main entry doors and hallway doors; the availability of bathtubs in some accessible rooms; and front loading washers in the laundry.

"Especially the basement, we talked about where doors were placed...I remember thinking that it would be a good option for students to have (bathtubs) in a residence hall because the other places that bathtubs are located (on campus) are not accessible."

DRDS considers the advice she gave on Summit to have been well-received but neither she or the individuals she consulted with followed up to inform her if this advice was actually utilized. For example DRDS does not know if front loading washers were used in the laundry or if bathtubs are available in some accessible rooms.

DRDS expressed a desire to be included on future design teams in a more official manner (to be invited to attend planning meetings) and to be involved in projects throughout both the design and construction phases.

"Yes, I would like to be on the design team in a formal way. I know Academic Village is going up, is almost finished but I don't know what it's going to look like in its final phase."

Although she is a member of the Physical Development Committee (she was invited to participate by the former Director of CSU Facilities Management) where. in meetings, she does hear about building ideas and concepts at an early stage (before construction details are worked out). However she feels that her involvement in projects sometimes occurs too early or too late. About her early participation DRDS said:

" You know the difference between concept and actual built is...well, anything can happen in between."

Regarding her frustration at having her advice sought after facilities have been constructed:

" I remember when they were doing the Transit facility for example. They came to me and asked me about the desk they had out there to make it more accessible. There were steps up to the entrance. There was a path that went around to get to the door and I asked them why they would do it that way. They said something about the elevation. But again no one came to me and said that this was the only way that we can do that. They just did it. I looked at the handicap parking. I said if you are going to have the access over here then you are going to have to move that handicap parking, because...people are going to have to go all the way around for access. (I told them), so put the handicap parking here so they have a direct shot. They did do that. They moved that (parking) finally. I catch a lot of things after the fact when it's too late. They've already done it. I didn't know they couldn't make that a level entrance and they had to put steps there. They didn't talk to me about it and say here's the problem that we have and is this going to be OK? So that kind of gets out of the process. I think they use me in a general way but it's sort of hit or miss about whether I see plans or not. Sometimes I see plans when they can't figure out how to do something accessible and they...ask if it's going to be alright if we don't do it this way..."

DRDS said there are limits to how much assistance she can offer because floor plans are often too technical for her, the spaces that she evaluates are scaled drawings for which she has no size reference, and these spaces are shown to her in two-dimensional drawings. Some suggestions she had to increase her ability to help planners with areas that require the greatest details of accessibility (such as accessible student rooms in a residence hall, dining hall food service counters, or laboratory spaces) were:

1. Present details of plans (such as accessible student rooms) in a larger scale (for example ¼"=1'0" versus 1/8"=1'-0"). Larger scaled drawings would allow details to be more easily seen.
2. On detail plans include typical furniture so that spaces can be evaluated more accurately when furnished.
3. Add a scaled representation of a person using a wheelchair and a person who is ambulatory so that scaled drawings include a size reference.
4. Present elevations (elevations are scaled drawings of walls that show missing 3-dimensional aspects not seen on floor plans) with furniture included so that heights of objects can be evaluated. For example heights of window controls, sinks, towel bars, light switches, electrical and technical outlets, and closet rods for comparison with the heights and locations of beds, desks and dressers.
5. Invite her to view models and mock-ups of rooms. Even typical room models and mock-ups, especially furnished, might be good indicators of clearance and height problems that could occur in accessible rooms.

When DRDS was asked about her level of satisfaction with her contribution to the Summit Hall project this is how she responded:

"I'm generally satisfied. I wish I had paid more attention to what I suggested to see if they actually followed through. I think I would have liked to have been able to give more input on the details. I only saw the big stuff on the floor plans. I didn't see the furniture. I didn't see the bathroom. I knew how big the bathroom was. I could figure that out but I didn't get a chance to see how somebody would actually function in that space. If they built a room (mock-up) I would have liked to have seen that room and seen how somebody would be able to be there, put myself in that room. I would have been able to say what would work and what wouldn't work. The reason I say that is because those are details. I travel a lot, I go to hotels, I ask for the accessible bathrooms. It works

fine in terms of me getting my wheelchair in. But where it doesn't work is sometimes in the height of the sink. There's no counter space for me to put my stuff. Those are details. Those are the kind of things that I would like to have given more input on."

When asked if viewing a model or a mock-up would aid her in evaluating a room for its accessibility she gave this answer:

"A model would be good. Especially if they got a scale model of a person in a wheelchair and they could run it through to see how that works. It gives me a better perspective in terms of heights and spaces if things are there, rather than just seeing the box. If they tell me sizes I wonder what does that mean? I don't know. I also wonder what are they going to have in that room?"

Research Question #3: *What knowledge has been gained from the design process, specific to accessibility, in this case (residence hall) that will inform university campus communities?*

This research question was for the purpose of knowing how the information gained in the designing, construction and use of one building could inform future building projects for a campus community. The *combined* insight gained about this topic from the individuals interviewed for this study follows:

- There is no such thing as a "universal disability". People are unique in their abilities. There is no one solution to creating an accessible built environment. ADA code, as a minimum standard, is a baseline that establishes general accessibility, or a level of accessibility, that will accommodate most people with disabilities. Designers, planners and facility managers must be prepared to work beyond standard code requirements when the need arises because inevitably someone will come along to challenge that standard.

- Codes, or standards, demand an attitude on the part of builders, retrofitters and maintenance personnel that accessible environments are the norm rather than the exception.

- People with disabilities may fill roles in all aspects of a university community. They may be staff, faculty, students, conference attendees, or visitors. All types of spaces must offer accessibility options such as student rooms, classrooms, labs, dining halls and kitchens, faculty and administrative offices, theatres, chapels, gyms and libraries.

- University facilities must be designed for flexible use as these facilities may be used year-round, in not only the traditional academic sense, but also for commercial aspects such as summer conferences, seminars, and event venues. Every room in every building on every campus must play host to year-round use and must be as accessible as is realistically possible to meet expanding needs.

- The design and construction phases of new facilities that have typical spaces that are to be repeated many times, such as student rooms in a residential hall or faculty offices, can benefit from a full-scale mock-up. The unplanned mock-up of a student room for Summit Hall revealed so many design flaws and saved so much time and money that builders used two planned mock-ups for Academic Village's student rooms. While the time and cost of constructing a mock-up for a standard room that will be duplicated hundreds of time is reasonable, the application of a mock-up for handicap accessible rooms, duplicated less than 50 times, would be inordinate. However a scaled model (depicting details and furniture) of representative accessible

student room could be used to demonstrate clearances, furniture fit, height and placement of details. Computer aided 3-dimensional depictions provide the opportunity for a virtual "walk-through" and can be viewed by planners, consultants on accessibility, and potential residents.

- The truism of students with disabilities choosing to live in a forty year old residence hall instead of a new residence hall is an indicator that that some characteristics offered by the older building makes that building more appealing. Administrators, planners and housing officers speculate that this appeal may be due to the inclusion of in-house dining opportunities or that the building is in closer proximity to the core of campus.

- ADA codes are minimum standards that must be met by law for new construction to go forward. Just because designers and builders meet code does not guarantee that the way in which that compliance was met is the best method for doing so. For example, ADA code specifies that an accessible entry to a building must be available but the code does not specify that that access must be a front entrance. Accessible entrances can be located elsewhere, such as the sides or backs of buildings, but this can be inconvenient and discriminating. Thoughtful and sensitive planners can design new construction and remodel existing facilities so that they feel more welcoming and inclusive to people with disabilities.

- Advice and assistance on accessibility can come from many sources. A university community may offer diverse resources who can be consulted or contracted, such as

an office that advocates for students with disabilities; architectural, interior or landscape designers; structural, electrical or technical engineers; or assistive technology experts. Furthermore individual members of faculty, staff and students who are disabled can offer insight for their unique needs about what works and what doesn't in buildings.

CHAPTER FIVE

Summary, Implications, Recommendations, Reflections and Conclusions

A university campus is a unique environment that often functions as a city unto itself. On an academic campus one will find the expected classrooms, lecture halls, laboratories, research facilities, administrative, faculty and staff offices, and conference rooms. A large university may also offer residential buildings, libraries, health service, pharmacies, food services of varying types, shopping and personal care (such a hair stylists), banks, police services, transportation centers, parking lots and structures, entertainment venues in many forms, computer/technology laboratories and support. A student center acts as a hub for the campus and fills the role of a town square. Administrative offices act as a sort of civic center. Sport centers may contain gymnasiums, exercise rooms, swimming pools, courts for basketball and racquet games, football stadiums, and rinks of various kinds. Behind the scenes of more public spaces are a multitude of support agencies such as workshops, kitchens, studios, daycare facilities, storage and warehouses, greenhouses, barns, garages, print shops and mailrooms. The task of maintaining and building these facilities is enormous. One can only imagine the stress and demands that were placed on universities and campuses in the 1990's by the requirements of new ADA regulations and its mandate to produce accessibility for people with disabilities.

Summary and Statement of the Problem

What is the problem? What was examined?

The Americans with Disabilities Act (ADA), civil legislation enacted in 1990, mandates the removal of architectural and communication barriers and establishes clear, enforceable standards addressing discrimination and civil rights protection for people with disabilities. The ADA has made it possible for more people with disabilities than ever before to study, work at, and visit public or private universities and colleges. The construction of accessible buildings and the removal of barriers from extant buildings can have great impact on issues such as: recruiting students, faculty, and staff; fashioning a university's public image of inclusiveness; planning for building costs and budget; the raising of both public and private funding; and marketing the campus for conferences and seminars. Implementing the compliance of ADA regulations throughout campuses requires the diligence and dedication of informed administrators, directors, and facilities managers. As universities add new facilities and renovate existing facilities these projects will be guided by ADA Accessibility Guidelines that are clear, minimum specifications for accomplishing accessibility. However design elements that signify their specific use for people with disabilities (such as isolated ramps and doors) can stigmatize, and sometimes segregate, users. The challenge for universities on tight construction budgets is to make campus facilities usable by all people, to the greatest extent possible, and to do so by removing the stigma of the obvious markings for handicap accessibility.

This case study examined the general internal decision and design processes, and more specifically the process of accomplishing accessibility, on a public university

campus. The study was bounded by, and limited to, a newly constructed residential housing facility on the campus of Colorado State University. Individuals that influenced funding, design and construction decisions were interviewed. Qualitative methodology was selected as the most appropriate methodology for this study based on the type of research questions that were asked and because qualitative methodology "builds a complex, holistic picture, analyzes words, reports detailed views of informants, and conducts the study in a natural setting." (Creswell, 1998).

Importance of the Study

Why is the topic important? What did the study attempt to do?

This study attempted to explicate the procedure of designing and constructing a residential hall on a public university campus with specific attention given to the element of accommodations for handicap accessibility. The topic of this study is important because of its timely attributes. Universities and colleges, both public and private, are replacing aging facilities that were built during in the building boom after WWII into the 1960's. As universities face the task of replacing buildings they do so with the challenge of stretching tight construction dollars, offering more sophisticated amenities, and meeting more complicated building codes. This study, in addition to the investigation regarding accessibility, delineates some inherent issues in design and construction that complicate procedures such as building costs, time frames, codes, administrative oversight and red-tape, building trends, and technology.

One of the great challenges to older universities and colleges is that of fashioning campuses that have evolved from milieus that once disregarded and discouraged,

unintentionally and intentionally, people with disabilities into welcoming and inclusive environments. Since WWII and the first surge of veterans who entered higher education under the GI Bill of 1944 (PL 78-346) universities and colleges have steadily adjusted attitudes, policies and physical facilities to include people with physical and cognitive disabilities. The generation of children with disabilities first mainstreamed and educated in K-12 classrooms under the Education of All Handicapped Children Act (PL 94-142) of 1975, later renamed the Individuals with Disabilities Education Act (PL 101-476) offered new challenges for colleges and universities in meeting that generation's academic needs. In the 1990's, with the ADA mandating and guiding accessibility on campuses there has been a steady increase of people with disabilities. These people are not just students but faculty, staff and visitors.

The degree and quality of physical accessibility in facilities can have great impact on a university's public image of inclusiveness and on the recruitment of students, faculty and staff. Accommodations for accessibility can also affect building costs and budgets, the raising of public and private funding, and the marketability of the campus for events beyond academic uses, such as conventions, conferences, meetings and entertainment. The topic of this study is well timed to offer insight about the building of one residential facility that can have general application to many kinds of facilities on university campuses. For example, knowledge gained in the building of an unplanned, but fortuitous, mock-up can be applied to other situations that require the construction of repeated identical (or similar) spaces such as faculty offices in new academic structures.

As discussed in Chapter 2, military actions and wars impact post war society by increasing the number of people with disabilities, advancing medicine that reduces the

number of deaths, and accelerating disability policies. At the present time, academia and our country's society face the daunting task of supporting and providing services for returning disabled military personnel from the Iraq War. Colorado State University anticipates their role in accommodating these "wounded warriors"[4]. Members of the armed forces disabled during their service will undoubtedly need residential facilities of a different type than those typically offered to traditionally aged university students. Residential choices and dining halls for returning military personnel and older students may require the building of facilities with more appropriate attributes that are independent from standard residence halls. Information gathered in this study can be useful in the planning and construction phases of any residence halls including facilities specifically planned for disabled military and other adults. There is a need to understand the siting of resident halls respective to the location of other services on campus. For

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[4] "Wounded warriors" is rapidly becoming a generic term used for military personnel who have been wounded physically, mentally or emotionally during their service time. The Wounded Warrior Project (WWP) is a non-profit organization aimed at assisting and honoring men and women of the United States armed services who have been severely injured during conflicts in Iraq, Afghanistan, and other locations around the world (Wounded Warrior Project, 2008). Many of the injuries are traumatic amputations, gunshot wounds, burns and blast injuries that will retire these people from military service. WWP aids in the recovery process and smoothes the transition back to civilian life. To be considered for the WWP a soldier must suffer from injuries or illness incurred after September 10, 2001 in support of the Global War on Terror. The soldier must also receive a 30% rating on one or more injuries rated by the Physical Disability Evaluation System in categories such as:

*Loss of vision and blindness
*Loss of limb
*Spinal cord injury and/or Paralysis
*Permanent disfigurement
*Severe burns
*Traumatic brain injury
*Post traumatic stress disorder
*Fatal or incurable disease

disabled military veterans it may be important to locate their residence halls adjacent to health care and exercise facilities. Different kinds of amenities, such as apartment options or kitchenettes, may also be desired or necessary.

What did this study add to the body of literature on this subject?

Since the passing of the ADA in 1990 public and private universities and colleges have been required to remove physical barriers (e.g.: curb cuts), provide alternative means of access (e.g.: ramps in addition to stairs), and design new construction to meet ADA code. This study adds pertinent information to the body of knowledge surrounding these requirements. Over time, as mandated accessibility becomes the norm and improved technology offers more solutions to creating accessible facilities, studies such as this one will reveal details about the design and build process that can assist university communities to use all of these elements more effectively. This study makes a contribution to the literature on handicap accessibility, construction management, architecture, interior design, and facility management for collegiate campuses.

Overview and Organization of the Study

How was the study designed to contribute to our understanding of the topic?

In my original plans for the methodology of this study I anticipated that the architect(s) for Summit Hall would be a significant person to interview. My second interview was with the Project Manager for Facilities Management (PMFM). During this interview I inquired about the necessity of meeting with the architect and what such an interview might reveal. PMFM indicated that, while it was my choice to make, the

architect's responsibility was to deliver a building plan that met the university's requirements specified in the Request For Proposals (RFP) document and nothing more. After interviewing the PMFM and other administrators of the Summit Hall project I decided I had gathered sufficient data to accurately represent the process of designing and building for accessibility and to answer my research questions on the Summit Hall case. As an interior designer I am also conscious that architects can be reluctant to give away time that can otherwise be billable. Because I felt that Housing and Dining Services and Facilities Management fairly represented the part of the architectural firm and that nothing further could be learned I did no interviews with either the architects or the consulting firm hired for Summit Hall.

The list of individuals significant to the process of administrating, designing and constructing the Summit Hall project was not completely defined at the beginning of this study. It was my plan to use a snowball or networking sampling method (Merriam, 1998) to determine additional key individuals for interviews. In this snowball method the suggestions of additional participants evolved from previous interviews and referrals to other key individuals. This method proved to be an effective means for determining individuals who were significant to this case study.

Perceived Shortcomings of this Study

The following section outlines issues of this study that could be viewed by readers as insufficient and will explain why these issues were addressed in the manner that they were.

- A brief field visit was conducted of Summit Hall with the assistance of the Director of Residence Life. The field visit, originally intended to be a thorough observation of the building's layout, appearance and aspects of handicap accessibility, was limited to a walk through of the lobby, recreation areas and one standard student room. The curtailed field visit, scheduled at the convenience of DRL, occurred during the open house of Academic Village and a week prior to the beginning of fall semester. Therefore DRL's time to show me through Summit Hall was limited. DRL suggested the appointment time because she would be across the street at Academic Village's open house and because Summit Hall would be empty only one day longer as students would begin checking in the next day. In retrospect I should have requested a time to visit Summit that would have allowed me more time for observation and the opportunity to see an accessible student room.

- I requested to see the program plan for Summit Hall when I interviewed the Project Manager for Facilities Management. He responded that he no longer had this document in his office. However he described the requirements that are given in most RFP write-ups for construction of campus buildings and requirements that were specific for Summit Hall. At the time I was satisfied with his description but I now wish I had pursued my search for Summit's programming plan. The former Vice President for Student Affairs loaned me a copy of the program plan for Academic Village as an example of the CSU's goal for new residence halls. My first interview for this study was with the VPSA so I saw this document early in the data gathering process. Merriam (1998) suggested that reviewing archival materials, such as the

Academic Village program plan, would stimulate potential interview topics and priorities for observation, which was indeed the case.

- The suggestion was made early in this study that I interview Summit Hall residents with disabilities for their views on the handicap accessibility of the building. According to administrators in Housing and Dining Services and the Director of Resources for Disabled Students few students with declared physical disabilities have lived in Summit Hall and of those most were minor or temporary impairments. Data for this study was gathered during a summer semester so students were not in residence in Summit Hall. In lieu of meeting students I considered the Director of Resources for Disabled Students an excellent representative on the views of students with disabilities.
- I was given copies of the floor plans for Summit Hall to use as reference documents with the agreement that I will not, at any time, publish these plans for security reasons. The floor plans of residence halls that are provided in the appendix section of this dissertation were obtained from internet sources and are available to the public.

Implications

This section lists the three research questions that guided this study and a summary of the answers that emerged in the study's data gathering phase. Included in the discussion of each of the following topics is statement of how this information can be generalized to a broader application.

Research Question #1: How are the physical adaptations and new construction details for accessibility determined on a public university campus?

The answer to this question has a two-part character. The first part is that details of accessibility are regulated by ADA Accessibility Guidelines for Buildings and Facilities (ADAAG). These guidelines are minimum, baseline codes that specify dimensions and design details. All construction of buildings and facilities on a public university campus must comply with ADA standards just as they comply with other building codes, such as fire, electric, or structural codes. Public buildings and facilities are inspected prior, during, and after construction and must be code compliant for a facility to gain its permit for occupancy.

The second part of this answer is more complex. While ADAAG specifies the physical attributes of buildings that must comply with the code, it does not specify the application of these attributes in ways that are convenient for users, sensitively placed or aesthetically designed. The second part of the answer has to do with human involvement and personal philosophies. This is a variable that is unique to this project as the members of the design and construction team are unique. The individuals who were most involved in the building that became the case for this study added another dimension beyond code requirements. These individuals have had personal experiences with physical disability and they have developed philosophies about providing accessibility that influence their involvement. On this project, and on future projects, they become an inter-departmental team that interprets the accessibility aspects of convenience, sensitivity and aesthetics in the most inclusive way possible with the knowledge, funds and technology available.

Research Question #2: Who becomes involved in this decision process and when and how does this involvement take place?

With respect to this specific case study the individuals who most influenced the design and construction of Summit Hall were:

*Vice President for Student Affairs (VPSA)

*Project Manager for Facilities Management (PMFM)

*Executive Director for Housing and Dining Services (EDHDS)

*Facility Planner for Housing and Dining Services (FPHDS)

*Director of Residence Life for Housing and Dining Services (DRLHDS)

*Director of Resources for Disabled Students (DRDS)

The involvement of these individuals varied in the length and degree of their participation and their participation occurred at different phases of the project. Table 4.1 outlines the approximate sequence of their involvement and their influence regarding accessibility. Vice President for Student Affairs became involved during the beginning phases of funding and the initial concept of the project (approximately 18 months). Her influence on accessibility issues was limited. Project Manager for Facilities Management administered the Request for Proposals that called for the building codes to be met, including ADA. His involvement (approximately 14-16 months) occurred early in the programming and design phase of the project and he was moderately influential on aspects of accessibility. Executive Director for HDS was involved in the project from its conception to the completion of construction (approximately 3 years). His influence and stake on accessibility issues was strong because the building, upon completion, would be

administered by his department. Facility Planner for HDS was involved from the earliest stages of design and remained with the project as construction manager (approximately 3 years). His influence may have been the strongest and longest as he worked on this project from its earliest phases of design. Once finished drawings were complete he assumed daily responsibility for all construction. Director of Residence Life for HDS moved onto the campus, relocating from a former job, during the beginning stage of construction. Her involvement with the project (approximately 18 months) was almost daily at some stages and her influence (she consulted regularly with the construction manager) on accessibility was moderate because most aspects of the design were completed before her arrival. Director of Resources for Disabled Students acted as an advocate voice for people with disabilities and was consulted about generalities and specifics of accessibility. Her influence on aspects of accessibility for Summit Hall was limited but important to issues such as the varied locations and configurations of accessible student rooms and the placement of the laundry room with respect to the elevator. Her involvement was sporadic (she was consulted when questions arose) and occurred over a period of 12-18 months.

Research Question #3: What knowledge has been gained from the design process, specific to accessibility, in this case (residence hall) that will inform university campus communities?

The data gained in the interviews, in the site observation and in the document search revealed many points of knowledge for a university community to inform and improve the process of designing and building for accessibility. Some of these points

emerged as themes repeated by participants in interviews. The following is a list of these themes and a summary of the discussion of each theme as given in Chapter 4.

Themes

Funding Phase (Finance Negotiations) for Summit Hall

Summit Hall, the first residence hall to be constructed on Colorado State University's campus in 30 years, was financed using public funds. The initial stage of the project was guided by CSU Administration seeking approval from the State Board of Governors and the Colorado Commission of Higher Education. Prolonged negotiations for approval delayed the groundbreaking for Summit Hall by approximately 18 months. The point of knowledge gained in this process that can be extended to future campus construction projects is that there can be vast differences of opinion amongst administrators and board members that delay projects significantly. In this case the disagreement was about outsourcing construction and eventual administration of Summit Hall to private sector companies.

While this theme, "Funding Phase for Summit Hall", had little to do with the issue of providing accessibility it should be considered an important segment of Summit Hall's story. It was during this phase that significant project delays occurred that resulted in scrapping part of the university's master housing plan. These delays pushed the Summit project into a compressed design and construction schedule. This may have affected many aspects of the project including the quality of the building's handicap accessibility.

RFP and Design Phase

Criteria for Summit Hall's RFP were developed by Colorado State University Research Foundation with the oversight of the administrative team and Housing and Dining Services. The project was awarded to an architect-contract team that fit their proposed building onto the site and met the criteria of the RFP in a more desirable way than in proposals submitted by competing teams. Controversy developed over the exclusion of an in-house dining hall and specifications that asked for only one elevator in a building with five wings and four floors. The decisions made about these issues were based on the proposed construction budget and the limited, awkwardly shaped site.

The RFP for Summit Hall specified basic state requirements including all applicable building codes. ADAAG was among these codes. The RFP specified the inclusion of one elevator and did not include an in-house dining hall. Summit Hall is on a site located further away from the core of academic buildings, the library and the student center than some older residence halls. These may be factors that influence why students with disabilities repeatedly select an older residence hall over Summit Hall. More amenities, a variety of locations for typical accessible student rooms, and landscaping graded to create step-free entries were among the ideas related to accessibility that were included in the RFP. The point of knowledge gained in the RFP and design phase is that all projects will have limitations be it budget, space and site, time, materials and technology, human resources, etc. Predicting these situations is an impossible feat because many will present themselves after the drawings and specifications are completed, during construction, and perhaps even after the occupancy of the facility. Evaluations of past construction projects can guide the success of future

projects. For example the question might be asked, about Summit Hall, if the change from the intended double-double room to double-single configuration became a benefit for Summit's year-round use.

Specifics of Accessibility in Summit's Design

The number of handicap accessible student rooms in Summit Hall meets the number required by ADA code. Rather than being clustered together accessible rooms are distributed throughout the building on all floors but located in close proximity to the elevator. Students with disabilities may choose either double or single rooms with accessible bathrooms attached. All accessible rooms are "fully accessible" and comply with the criteria for mobility, sight and hearing impairments.

Staff apartments in Summit Hall were not designed for handicap accessibility, a limitation that may impede the hiring of a staff member with physical disabilities. In contrast, for every room type available in Academic Village planners included matching accessible rooms. This choice was based on knowledge they took from Summit Hall.

Summit Hall's designers made a statement of inclusiveness by specifying a standard door width of 36" for all doors in this facility (as compared to the more typical 32" wide door found in older buildings). Most wheelchairs need wider doors for clearance. Wider doors throughout the building will expand the areas that can be visited by people with physical disabilities. Building security was a prime consideration and is tighter in the newer facilities of Summit Hall and Academic Village than in older campus residence halls. Planning for advanced levels of security in residence halls can be problematic to accessibility because additional security doors can be pathway impediments for people with physical disabilities.

As mentioned above, Summit Hall was constructed with one elevator to service four floors with five wings. The total building houses approximately 535 students. Accessible rooms are located on each floor so it is expected that the elevator will be used for vertical travel by many residents with physical disabilities. The adequacy of one elevator for a residence hall of this scale is an issue that should be examined and the results should be used to inform future residence hall construction.

Providing accommodations for a diverse range of physical disabilities can be a challenge for facilities planners. One interview participant stated that he was certain he and his colleagues have not yet encountered every type of disability. Other aspects that will undoubtedly present challenges for planners will be advancing and ever-changing technologies, materials, and techniques. One factor that seems to be consistent in providing accessibility is the initial provision of adequate space for whatever furniture, equipment or fixtures are needed by the user. Inevitably, in adapting existing rooms, there comes the question: "Is the space large enough to make the changes or house the equipment?" The lesson that can be taken from this is that practical facilities will be facilities that adapt readily to new innovations and demands. The key to this may be as simple as making *large rooms*. How large should rooms be? This may be a target that will be ever moving and the solution never determined but further study of this question could result in answers that will assist architects, facility planners, interior designers, and university communities in designing facilities that have far ranging and lengthy service potential.

Mock-up (Model) of Summit Hall's Typical Bathroom and Lessons Learned

The RFP for Summit Hall called for all student rooms to be double (2 person/2 bed) configuration. During construction of the shell of Summit Hall the plumbing contractor questioned whether the size designated in the shared mechanical wall between two double rooms was sufficient to contain their piping components as well as electric wiring, ducts and the air handling unit called for in the RFP. To answer this the plumbing contractor constructed a full-scale mock-up of a typical student room. Housing and Dining Services took the opportunity to fit standard student furniture in the model. This test showed that the furniture intended for use in the new building would not fit in the rooms and that, when furnished, the rooms were determined as uncomfortably small for two people. All double-double room configurations were changed in mid-construction to double-single rooms by shifting a shared wall approximately 14 inches. (No adjustments were made to handicap accessible rooms as these rooms were initially allotted more square feet to provide sufficient space for accessibility.) The plumbing contractor and the construction manager stumbled onto, unwittingly and advantageously, a significant architectural flaw. Correcting this flaw early in the construction process likely saved the university considerable time and money. Their solution to this problem may have resulted in a building that will supply the university with a more useable and marketable facility for academic housing and summer conference rental. As a result of this happenstance, mock-ups were purposely built to represent a typical residence room of Academic Village. Mock-ups were used for fitting furniture, sequencing labor, detailing materials and application methods, indicating tight tolerances, settling labor disputes, and as a marketing model for prospective residents.

The knowledge gained from the inadvertent mock-up experience of Summit Hall was used purposefully by planners of Academic Village to improve the process of design, construction and ultimately even the marketing of this facility. This method of representing, in a full-scale mock-up, spaces that are repeated in type has been shown to be a useful and cost-effective way of determining potential problems before construction. This method could be generalized to the construction of other types of campus buildings with spaces that are repetitive such as academic buildings with many faculty offices.

With a New, More Accessible Residence Hall on Campus Why Do Students with Disabilities Prefer an Old Residence Hall?

Summit Hall, the newest non-programmatic (the more recently constructed Academic Village houses students of the Engineering and Honors programs) residence hall on campus offers students amenities not available in older residence halls. Summit is the first residence hall to be constructed under the requirements of ADA and contains rooms that were made accessible initially, another first for the university. Accessible accommodations in older residence halls were adapted from non-accessible student rooms. With all that Summit Hall offers students in the way of amenities and freshness, the question is why are students with disabilities choosing an old residence hall over newer Summit Hall. This topic was spoken of repeatedly, and voluntarily, in interviews by participants of this study. Primary speculations as to why this phenomenon is happening were the exclusion of a dining hall in Summit Hall and Summit's distance from the center of the campus. Secondary speculations include other factors: space available for aides or assistance animals, close proximity to exterior doors, and fewer doors (security levels) in older residence halls.

It appears that administrators have minimally questioned students with disabilities about the factors that influence their choices of residence hall preference. To better understand this phenomenon future research is recommended on the preferences and culture of students with disabilities so that new residence halls and other campus facilities can be designed to better meet their needs. Universities and colleges will benefit from this knowledge in providing more applicable and desirable facilities for students, faculty, staff and visitors to their campuses. This information could improve recruitment and marketing efforts for year-round operation and will be useful for campus communities and professionals or construction companies that do business with academic communities.

The Design Team's Expertise on Accessibility and How It Was Applied to Summit Hall

The list of individuals who made up what might be defined as a "design team" is given in on page 135, Research Question #2. While all of these people had significant impact on the construction and design of Summit, their roles were played in a much less formal fashion than expected. All members of the team have some experience with providing accessibility on a university campus. Most members have a working knowledge of and experience with ADA and its corresponding guidelines. Several members have formal training in housing, design, or construction management.

While all these individuals did meet at various stages it appears that not all of these individuals met in a formal session concurrently. As each phase of the project was completed, responsibilities were passed on to the next person (or office) in the chain.

Table 4.1 (pg. 109) details the approximate sequence and the involvement of members of the design team.

One exception to this linear sequencing of responsibilities was the role given to the Director of Resources for Disabled Students. She referred to her involvement as being "used in a general way whenever there were questions." Several members of the design team turned to her for her specialized expertise and as a consultant. A recommendation for the planning committees of new university facilities would be to include DRDS as a more formal planning member to oversee the application of ADA requirements and to advise architects, contractors, and planners on better ways of implementing handicap accessibility for a variety of physical disabilities.

Recommendations for Future Practice and Research

Future Practice

In this section are the researcher's recommendations for amending or adding handicap accessibility to future university campus facilities, especially residence halls. The design and construction of Summit Hall revealed several pieces of information that might inform future construction projects. The following suggestions will add to the life-span and versatility of facilities.

- Design spaces that have "universal"[5] accessibility. Examples of this are entries that are accessible by everyone with step-free pathways and wider, easily opened doors.

[5] "Universal" Design as specified in the North Carolina State University Construction Guidelines is the design of products and environments to be useable by all people, to the greatest extent possible, without the need for adaptation or specialized design. All elements of handicap accessible use only shall be avoided whenever a universal design solution can be used.

Eliminate, as much as possible, architectural elements like ramps or separate doors that segregate or stigmatize users.

- Construct buildings with "good bones" (i.e. flexible, roomy interior spaces that have the capacity for the addition of future technology, equipment and furniture).

- Private rooms such as student dorm rooms or offices may require expansion at some point to allow space for aides, assistance animals or assistance equipment. This should be a consideration in the initial design. Mechanical cores in walls should, if possible, be located so that rooms can be expanded.

- Bathrooms in accessible dorm rooms should include adequate space for the inclusion of bathtubs when needed. A standard bathtub (5'-0") can be exchanged for a standard roll-in shower (5-'0" wide) or a standard transfer shower enclosure (3'-0") combined with adjacent linen storage (2'-0"). Every residence hall should include the option of tubs for students with disabilities. Individuals with skin conditions or those who are small in stature may require a bathtub.

- A tight construction budget for Summit Hall limited the building to one elevator servicing a population of approximately 535 students and providing only one means of daily vertical transport for people with disabilities. Open cores, such as stacked storage rooms, that can be utilized later as future elevator shafts should be planned into buildings.

- Director of Disabled Students (or a university's equivalent position holder) is a valuable resource on implementing ADA code in innovative, non-stigmatizing. and convenient ways. Suggestions from this person should be documented for future construction projects in a retrievable manner.

In the interview session with the Director of Resources for Disabled Students questions were asked about DRDS's satisfaction with her involvement in construction projects on campus. DRDS, having extensive knowledge of handicap accessibility, said she is willing to consult with planners but feels frustrated sometimes that she is consulted infrequently and often times too late for her suggestions to be used. When she has given advice she seldom knows whether her ideas are implemented or disregarded. She expressed an interest in being included in the planning process at an earlier stage and in a more formal way to represent the view of people with disabilities and to offer suggestions about how to best implement ADA code. DRDS has no formal training for interpreting construction drawings. Drawings that are typically shown to her are small scaled (1/8=1'-0"), include few details and are spaces that are depicted unfurnished. Larger scaled drawings indicating details and standard furniture, especially for handicap accessible rooms, could depict clearances, pathways, and needed fixtures in a manner that can be interpreted by people with limited construction knowledge.

Computer assisted drawings allow the projection of 2-dimensional drawings, such as floor plans, to be extended into 3-dimensional drawings. Housing and Dining Services has discovered the advantage of using a full-scale model and will likely utilize this method in future construction. However, the addition of 3-D representations of some rooms, particularly incommodious areas that are expected to serve as accessible, would

aid DRDS and others in their efforts to evaluate the design. A 3-dimensional virtual "walk-through" could reveal many problems with tolerances and dimensions before construction begins.

Future Research

After being closely absorbed in any research study it is natural to include, in introspection, how the topic of a study might be furthered, either for your own use or for the consideration of some other researcher with similar interests. There seemed to be, for this study, two distinct modes that were appropriate for presenting these ideas: 1) based on what the study *did* find and 2) on what the study *did not* find.

*Based on what the study **did** find*

Even though the research questions for this study did not ask about students' preferences in accessible housing, interview participants repeatedly mentioned this issue. A strong indicator that one theme begs for further examination is the repetition of that theme by participants. Why is it that students with disabilities prefer one residence hall over another? To add to the knowledge about physical accessibility on university campuses more investigation is needed on factors that influence the attractiveness or appropriateness of residential halls for people with disabilities. Based on comments from participants the following are factors that may play a large part in students' choices:

1. in-house dining or other dining halls that can be easily reached, especially in inclement weather, by people who use wheelchairs
2. close proximity to the central campus, library, etc.

3. a variety of options in room types (i.e. singles versus doubles, space for aides or assistance animals) and a variety of room locations within residential halls
4. accessible pathways and close proximity to elevators and stairwells

The above ideas were speculations by university administrators and planners. Interviews or questionnaires with students with disabilities may reveal additional, or different, factors. Due to truism that students at CSU make the choice to live in one specific residence hall these are questions that I have pondered: 1) Are the choices in selecting a residential hall so pragmatic? 2) Is part of their choice that students with disabilities want to live with other students with disabilities because of a mutually supporting culture? (As a non-disabled person I recognize that my knowledge of the culture of disability is limited and I intend no offense in this inquiry.)

*Based on what the study **did not** find*

Topics that may be interesting to investigate that were not addressed in this study are:

- The current Iraq War and other military conflicts will increase the number of people with disabilities in the U.S., and ultimately on university campuses. How will universities prepare to meet this challenge? Will the needs of veterans with disabilities be vastly different from those of traditionally aged students with disabilities?
- Providing handicap accessibility for the diverse facilities and services offered by any university or college is formidable. Further studies about the methods used (in

financing, planning and construction) and the resulting effectiveness of these methods at one university could inform many academic institutions.

- America's aging population is steadily increasing as more Baby Boomers (born between 1946 and 1964) reach age 65 by the year 2010. By 2050 it is projected that 20% or more of the U.S. population will be 65 or older (2001, U.S. Department of Health and Human Services, National Institute on Aging). A generation better than educated than any generation before will be visiting university campuses for summer conferences, entertainment and sporting events, library facilities and other campus offerings. A university campus, designed for young, active adults can be unnavigable for the elderly and disabled. Research on the topic of designing a campus environment that can be attractive and fitting for a more diverse population would aid campus communities in planning and marketing efforts.
- Colorado State University does not have an Accessibility Map. The intent of this would be to provide a map for vehicular and pedestrian access to the most frequently visited buildings on campus. Future research or efforts by CSU could result in the creation of a map of this kind that would be of great use.

Personal Reflections

This section is a self-reflective treatise about the fieldwork process of this study including a brief description of how one event affected me as a researcher, a retrospective about my procedural methodology, and a reflection on the case study that is Summit Hall.

- One interview participant did not keep a scheduled appointment and did not give notice. His colleague, with no prior information, appointment or invitation to participate agreed good naturedly to substitute for his absent boss. Though I was offended at the discourtesy shown me by the first person, I was also grateful to the second person for his graciousness in accommodating my request for an interview. The substitution was fortuitous because the person I actually interviewed was more involved with the case than the individual with whom I had originally scheduled the interview.
- The 'can-do' attitude of those I interviewed surprised me. I admit to stereo-typical thinking that university administrators fuss in angst over budgets and will take the path of least expense. Those I had the fortune to interview sincerely care about the opportunities they help make for all people regardless of the monetary cost or complications. As one expressed "It's the right thing to do."

Retrospective about procedure

- Interviews were held during the summer semester period. Though the timing of this phase was unintentional, it was immediately apparent that this was a good time to conduct interviews because participants' schedules were less hectic. This resulted in casual and less hurried meetings.
- My proposed approach to coding data was not as explicit as it should have been and when I began sorting data I regretted this. However, I transcribed all interview audio-tapes and while this is a tedious, time consuming process it became an ideal opportunity to develop categories and begin sorting data.

Reflections about the case

Wolcott (1990) states that it is not unreasonable to expect researchers to have formed a personal opinion as a result of their inquiry-oriented perspective or to expect them to have something to contribute in the way of recommendations. In the spirit of Harry C. Wolcott's urging here is my view on the residence facility known as Summit Hall.

Simply put, it is what it is. In 2001-2002 administrators at Colorado State University conceived the first new residence hall to be built on their campus in over 30 years. The purpose of this residence hall was to replace, quickly and cost-effectively, beds lost in the demolition of two older residence halls. The site designated for this "swing-space" building is awkwardly shaped and relatively small compared to sites allocated older dorms. Approval to fund and construct Summit Hall was delayed 1½ years, a delay that compressed construction time significantly. Construction deadlines were adjusted and work began on the foundations and shell before interior details were finalized. Errors and oversights occurred as they do in all construction. Changes were made and construction continued. Some things about Summit may be regretted, foremost among these would be the plan and action of building Summit with only one elevator. This must cause chaos during the 1-2 days that 535 students move their belongings in and out of this four-story building. The handicap accessibility in Summit Hall appears well designed and sensitively done. Suggestions made by Director of Resources for Disabled Students were highly regarded by members of the design and construction team and seem to have been utilized. The facade of the building, with it's dropped height wings, variety

of finishes and fluctuating roof lines, is interesting and not unpleasant but it is not a facade that fits easily into the campus. The footprint of the building is a unique shape but sits well on the site. In a general sense the design of Summit Hall is practical and serviceable. It was never intended as an architectural show piece. Given the restraints of budget, time, and intent the planners of Summit Hall successfully accomplished their goal of constructing a utilitarian residence hall. Though the product of their efforts is not a remarkable building, they did, as they have told me, learn things from the process that they will carry to future projects.

Conclusion

This section provides an opportunity to distill from this study ideas the conclusions that I wish the reader to keep. These ideas form my "walk-away" messages and are enduring lessons I have learned from this endeavor.

- Each person involved in the design and construction of Summit Hall brought to the project not only their professional expertise but also personal experiences and philosophies. Caring, empathetic people create enduring, welcoming, and livable environments.

- The next construction project "stands on the back" of previous projects. Planners can learn from every project and use the knowledge gained to improve future projects.

- People with disabilities have historically been ostracized and segregated from main stream society. Though there is still discrimination, intended and unintended, that expels people with disabilities from employment, education, services, and entertainment, the 20th century, and especially the last 30 years have seen exceptional progression in civil rights and inclusion of people with disabilities. The design of today's buildings and facilities provides special accommodations for accessibility such as ramps in addition to stairs, accessible rooms in addition to typical standard rooms. Future design may be more universal and less segregating. For example, the grounds surrounding facilities may be graded to provide step-free entrances and signage will be in standard readable text but will also include audible and Braille interpretation options. Advances in technology may result in "smart rooms" that anticipate or respond to verbal or physical signals from the residents.

- The Summit Hall project, as described in this study, may seem to have had a capricious and unorganized appearance. Even though the process may have been depicted as somewhat chaotic the resulting structure is a testament to the good hearted, well-intentioned and empathetic people who envisioned and constructed this new residence hall. Special attention and sensitivity on their parts concluded in a welcoming and inclusive building for people with physical disabilities.

- Large construction projects, such as university residence halls, are inherently complicated with a multitude of considerations and seemingly endless decisions that must be made. Regulations such as building codes must be met continuously throughout design and construction phases. ADA and its accompanying ADA

Accessibility Guidelines are just one of many codes that must be complied with. Providing accessibility is only one small piece of a much larger responsibility for the safety and welfare of the public. It has been stated many times in this document that access guidelines (to be considered alongside other laws intended to prevent discrimination) are minimum standards. Making public facilities accessible by reasonable accommodation is required by law. However, design, construction and facilities professionals would do well to treat these codes as tools for helping them determine how best to implement universal accessibility.

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Pub. L. 101-476 (1990) Renaming EAHCA to IDEA

Pub.L. 103-31 (1993) National Voter Registration Act

Pub. L. 104-104 (1996) Telcommunications Act

Pub. L. 105-17 (1997) IDEA for IEPlans Amendments

Pub. L. 108-446 (2004) Individuals with Disabilities Education Improvement Act

APPENDICES

Appendix A

Cover Letter

Date

Dear_____,

I am a doctoral graduate student at CSU in the School of Education, Special Needs. I am currently planning a research study that will take an in-depth look, through a case study, at the internal decision and design process of constructing an on-campus residence hall and the influence of those individuals or offices whose opinions or expertise were sought and/or utilized in the handicapped accessibility design and construction phases. The title of my project is The Implementing Process of Designing for Accessibility on a Public University Campus. The research study is supervised by Dr. Jean Lehmann, School of Education, 212 Gibbons Building, 970-491-0799.

You have been identified as an individual who may have been involved in the design and/or construction, and specifically the handicapped accessibility, of the residence hall used for this case study. I need your help to complete this study and I am requesting your participation in **ONE** interview session. The interview is estimated to take **30-60 minutes**. Questions will be open-ended but will likely explore some of these issues (among others): your input/contribution (related to the handicapped accessibility), your satisfaction regarding the outcome of the project, and your suggestions for future projects regarding accessibility issues.

All interviews will be audio-taped for the purpose of checking the accuracy of notes after the interview. Neither audio-tapes nor notes will be made public. You will have the option to review the tapes of your interview and request that all or any portion of the tapes not be used. Audio-tapes and notes will be stored in a secure campus location for at least 3 years after the conclusion of the project in the event of a future audit and according to Federal Regulations. After the 3 year period notes will be cross-cut shredded and audio-tapes will be cut. Both tapes and notes will be discarded.

Your participation in this study is voluntary. You may withdraw from participation in this study at any point in time. Due to the uniqueness of the case location (CSU and Fort Collins) and professional positions of those interviewed, there is a possibility that the identities of interview participants may be discerned by others. Therefore, the anonymity of participants can not be guaranteed. However, the names of interview participants will not be used in this study (position titles will be used as identifiers) and the researchers will take all reasonable safeguards to keep your identity confidential. While it is not possible to identify all potential risks to you in this research, the researchers have taken reasonable safeguards to avoid possible detriment or discomfort to you.

Please consider the importance of your voice in this study. Your participation is critical to its success. There will be no direct benefit (monetary compensation) for participating. However, through your assistance, it is hoped that this research will benefit Colorado State University, professional construction and planning personnel, administrators, facilities managers, architects, designers, and ADA coordinators in the process of designing and constructing handicap accessible facilities for academic environments.

Thank you for your cooperation and time. Please feel free to contact me if you wish additional information. Later I will contact you to schedule an interview at a time and setting convenient to you.

Sincerely,

Gayle Wernsman
School of Education
970-402-5290
IDTeach@aol.com

Appendix B

Consent to Participate

Consent to Participate in a Research Study
Colorado State University

TITLE OF STUDY:
The Implementing Process of Designing for Accessibility on a Public University Campus

PRINCIPAL INVESTIGATOR: **Dr. Jean Lehmann**

CO-PRINCIPAL INVESTIGATOR: **Gayle Wernsman**

WHY AM I BEING INVITED TO TAKE PART IN THIS RESEARCH?
You are invited to participate in a personal interview because of your contribution and/or interest in the design and construction of the C.S.U. residence hall used for this case study.

WHO IS DOING THE STUDY?
This is a research study for the fulfillment of a Ph.D. program for M. Gayle Wernsman, a student at the School of Education at Colorado State University in Fort Collins, Colorado.

WHAT IS THE PURPOSE OF THIS STUDY?
This study will take an in-depth look, through a case study, at the internal decision and design process of constructing an on-campus residence hall. The influence of those individuals or offices whose opinions or expertise were sought and/or utilized in the handicapped accessibility design and construction phases will be examined.

WHAT WILL I BE ASKED TO DO?
You will be asked to participate in a personal interview to share your understanding, views and perspectives on the decision and design process for the accessibility component for a residence hall on the campus of Colorado State University.

Your participation in this study is voluntary. You may withdraw from participation in this study at any point in time. If you agree to participate in this study, your participation will be limited to an individual personal interview session at a location and time convenient to you. The researcher will answer any questions about the research and the interview session you might have before proceeding with the interview. The interview session will be tape-recorded and the researcher will take notes.

Due to the uniqueness of the case location (C.S.U. and Fort Collins) and the need to indicate the professional positions of those interviewed, there is a possibility that the identities of interview subjects may be discerned by others. Therefore, the anonymity of participants can not be guaranteed. However, names of interview subjects will not be used in this study and the researchers will take all reasonable safeguards to keep your identity confidential.

WHERE IS THE STUDY GOING TO TAKE PLACE AND HOW LONG WILL IT LAST?

The interview will be held either at your office or at a location of your choice and will take 30-60 minutes.

ARE THERE REASONS WHY I SHOULD NOT TAKE PART IN THIS STUDY?

Participation in this study is voluntary. If you have no involvement and/or interest in the design, construction, or administration of the residence hall being used for this case study or in the planning of physical facilities that meet accessibility compliance regulations at Colorado State University you may not be interested in participating in this study.

WHAT ARE THE POSSIBLE RISKS AND DISCOMFORTS?

There are no known risks involved with this study. While it is not possible to identify all potential risks to you in this research, the investigators have taken reasonable safeguards to avoid potential risks, detriment, or discomfort to you. Participation in this study is voluntary and you may withdraw from participation at any point in time.

ARE THERE ANY BENEFITS FROM TAKING PART IN THIS STUDY?

There is no benefit or compensation to you, as an individual participant, in this study. It is hoped that this research will indirectly benefit Colorado State University, professional construction and planning personnel, administrators, and facilities managers in the process of their own procedures for planning physical facilities that meet accessibility compliance regulations. Please consider the importance of your voice in this study. Your participation is critical to its success.

DO I HAVE TO TAKE PART IN THE STUDY?

Your participation in this research is voluntary. If you decide to participate in the study, you may withdraw your consent and stop participating at any time.

WHAT WILL IT COST ME TO PARTICIPATE?

The personal interview session is estimated to last 30-60 minutes.

WHO WILL SEE THE INFORMATION THAT I GIVE?

We will keep private all research records that identify you, to the extent allowed by law. Your information will be combined with information from other people taking part in the study. When we write about the study to share it with other researchers, we will write about the combined information we have gathered. You will not be identified, by name, in these written materials but you may be identified by your professional position. Some of your statements may be quoted in support of any statement.

WHAT HAPPENS IF I AM INJURED BECAUSE OF THE RESEARCH? The Colorado Governmental Immunity Act determines and may limit Colorado State University's legal responsibility if an injury happens because of this study. Claims against the University must be filed within 180 days of the injury.

WHAT IF I HAVE QUESTIONS?

Before you decide whether to accept this invitation to take part in the study, please ask any questions that might come to mind. Later, if you have questions about the study, you can contact the investigators, Dr. Jean Lehmann at 970-491-0799 or Gayle Wernsman at 970-402-5290 or IDTeach@aol.com. If you have any questions about your rights as a volunteer in this research, contact Janell Meldrem, Human Research Administrator at 970-491-1655. We will give you a copy of this consent form for your records.

Your signature acknowledges that you have read the information stated and willingly sign this consent form. Your signature also acknowledges that you have received, on the date signed, a copy of this document containing 3 pages

Signature of person agreeing to take part in the study Date

_____

Printed name of person agreeing to take part in the study

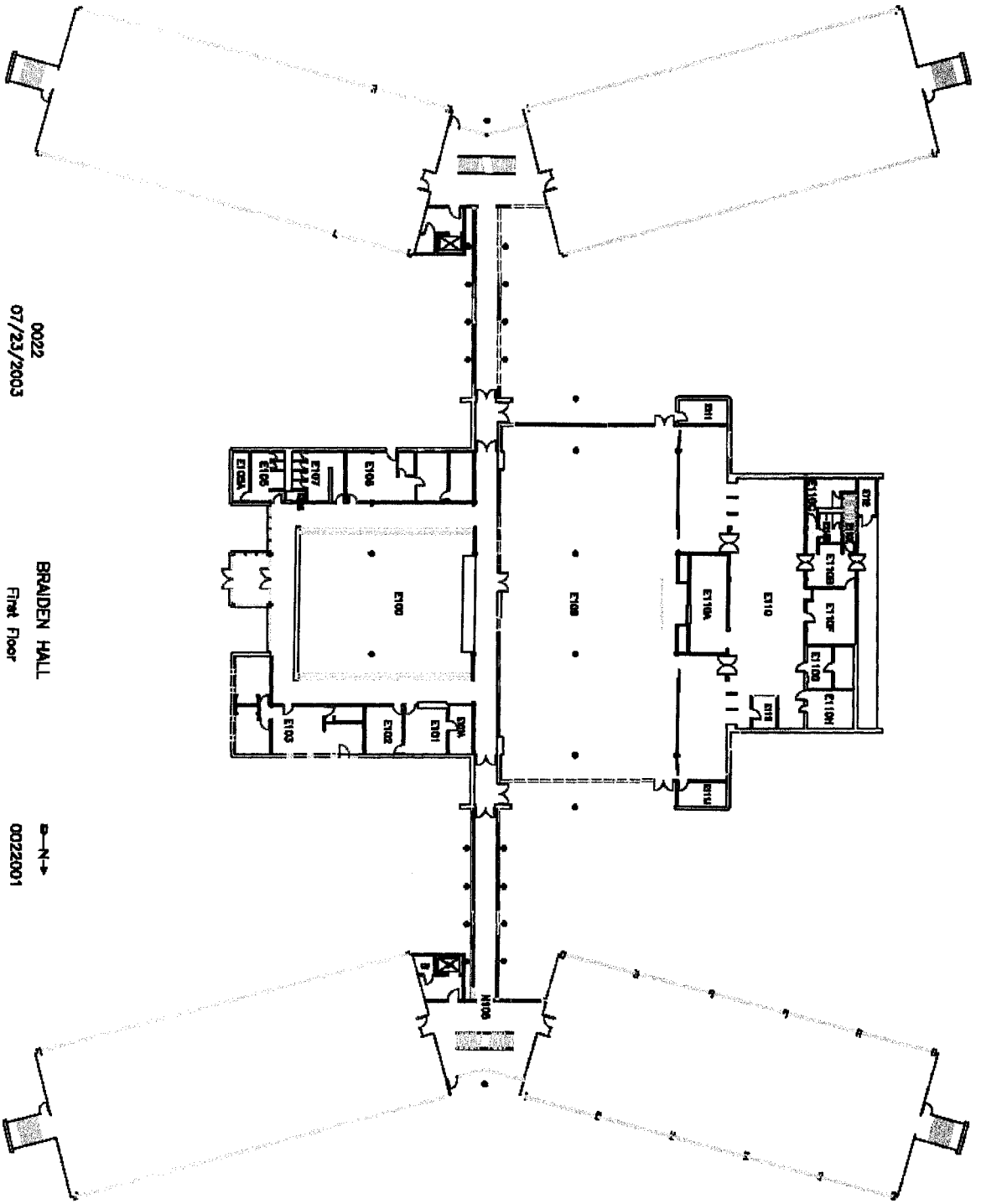
_____ _____

Name of person providing information to participant Date

_____

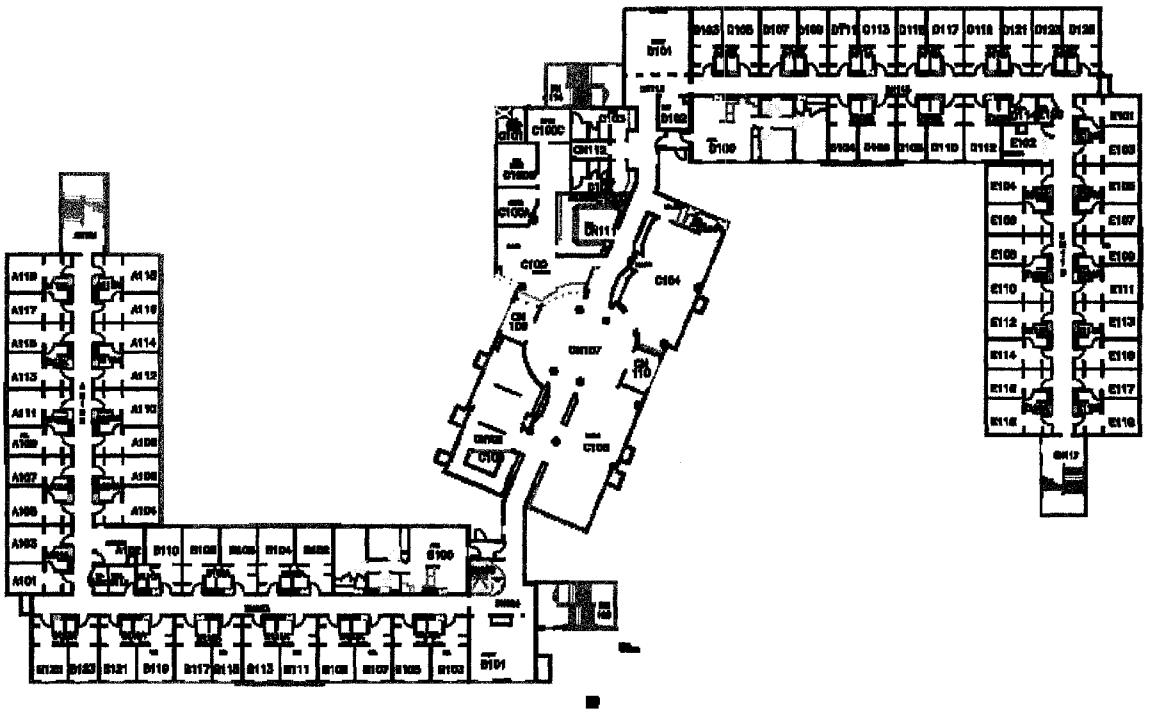
Signature of Research Staff

Appendix C



Braiden Hall-First Floor Plan

Appendix D-Summit Hall-First Floor Plan



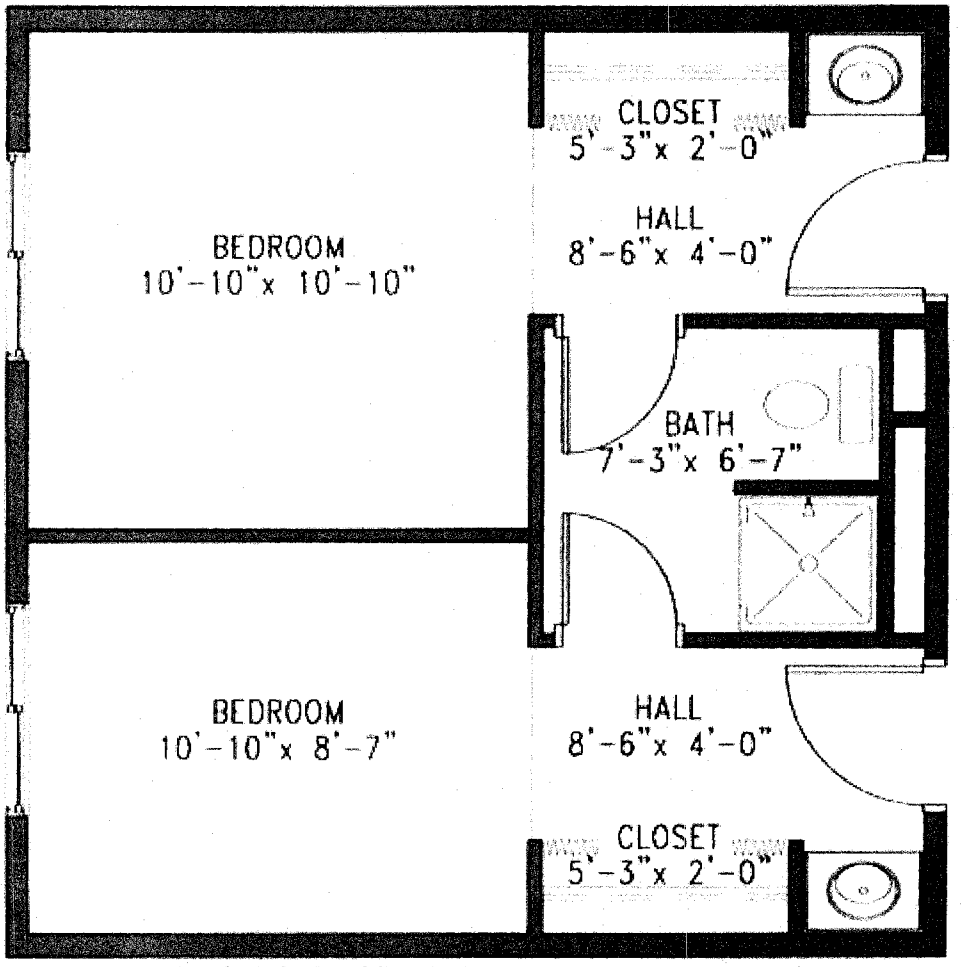
←N→
8/18/2004

Summit Hall
FIRST FLOOR

Bldg. 0035
Level 001

Appendix E

Summit Hall-Single/Double Suite Floor Plan

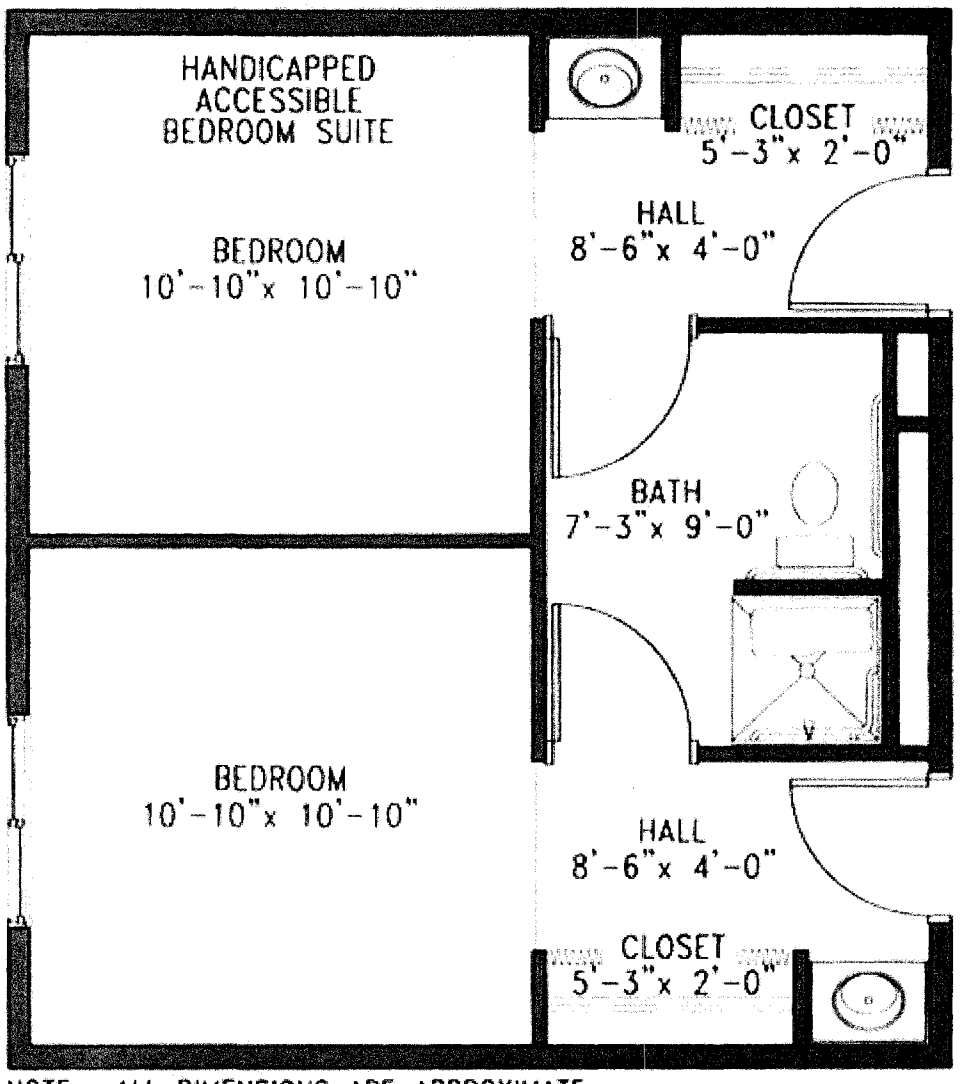


NOTE: ALL DIMENSIONS ARE APPROXIMATE.

SINGLE / DOUBLE SUITE

Appendix F

Summit Hall-Double/Double HC Suite Floor Plan



NOTE: ALL DIMENSIONS ARE APPROXIMATE.

DOUBLE / DOUBLE H.C. SUITE

Appendix G

ADAAG Accessible Transient Lodging-Section 9.0

ADA Accessibility Guidelines for Buildings and Facilities (ADAAG)

As amended through September 2002

9. ACCESSIBLE TRANSIENT LODGING.

(1) Except as specified in the special technical provisions of this section, accessible transient lodging shall comply with the applicable requirements of section 4. Transient lodging includes facilities or portions thereof used for sleeping accommodations, when not classed as a medical care facility.

9.1 Hotels, Motels, Inns, Boarding Houses, Dormitories, Resorts and Other Similar Places of Transient Lodging.

9.1.1 General. All public use and common use areas are required to be designed and constructed to comply with section 4 (Accessible Elements and Spaces: Scope and Technical Requirements).

EXCEPTION: Sections 9.1 through 9.4 do not apply to an establishment located within a building that contains not more than five rooms for rent or hire and that is actually occupied by the proprietor of such establishment as the residence of such proprietor.

9.1.2 Accessible Units, Sleeping Rooms, and Suites. Accessible sleeping rooms or suites that comply with the requirements of 9.2 (Requirements for Accessible Units, Sleeping Rooms, and Suites) shall be provided in conformance with the table below. In addition, in hotels, of 50 or more sleeping rooms or suites, additional accessible sleeping rooms or suites that include a roll- in shower shall also be provided in conformance with the table below. Such accommodations shall comply with the requirements of 9.2, 4.21, and Figure 57(a) or (b).

Number of Rooms	Accessible Rooms	Rooms with Roll-in Showers
1 to 25	1	
26 to 50	2	
51 to 75	3	1
76 to 100	4	1
101 to 150	5	2
151 to 200	6	2
201 to 300	7	3
301 to 400	8	4
401 to 500	9	4 plus 1 for each additional 100 over 400
501 to 1000	2% of total	
1001 and over	20 plus 1 for each 100 over 1000	

9.1.3 Sleeping Accommodations for Persons with Hearing Impairments. In addition to those accessible sleeping rooms and suites required by 9.1.2, sleeping rooms and suites that comply with 9.3 (Visual Alarms, Notification Devices, and Telephones) shall be provided in conformance with the following table:

Number of Elements	Accessible Elements
1 to 25	1
26 to 50	2
51 to 75	3
76 to 100	4
101 to 150	5
151 to 200	6
201 to 300	7
301 to 400	8
401 to 500	9
501 to 1000	2% of total
1001 and over	1 for each 100 over 1000

9.1.4 Classes of Sleeping Accommodations.

(1) In order to provide persons with disabilities a range of options equivalent to those available to other persons served by the facility, sleeping rooms and suites required to be accessible by 9.1.2 shall be dispersed among the various classes of sleeping accommodations available to patrons of the place of transient lodging. Factors to be considered include room size, cost, amenities provided, and the number of beds provided.

(2) Equivalent Facilitation. For purposes of this section, it shall be deemed equivalent facilitation if the operator of a facility elects to limit construction of accessible rooms to

those intended for multiple occupancy, provided that such rooms are made available at the cost of a single occupancy room to an individual with disabilities who requests a single-occupancy room.

9.1.5. Alterations to Accessible Units, Sleeping Rooms, and Suites. When sleeping rooms are being altered in an existing facility, or portion thereof, subject to the requirements of this section, at least one sleeping room or suite that complies with the requirements of 9.2 (Requirements for Accessible Units, Sleeping Rooms, and Suites) shall be provided for each 25 sleeping rooms, or fraction thereof, of rooms being altered until the number of such rooms provided equals the number required to be accessible with 9.1.2. In addition, at least one sleeping room or suite that complies with the requirements of 9.3 (Visual Alarms, Notification Devices, and Telephones) shall be provided for each 25 sleeping rooms, or fraction thereof, of rooms being altered until the number of such rooms equals the number required to be accessible by 9.1.3.

9.2 Requirements for Accessible Units, Sleeping Rooms and Suites.

9.2.1 General. Units. sleeping rooms, and suites required to be accessible by 9.1 shall comply with 9.2.

9.2.2 Minimum Requirements. An accessible unit, sleeping room or suite shall be on an accessible route complying with 4.3 and have the following accessible elements and spaces.

(1) Accessible sleeping rooms shall have a 36 in (915 mm) clear width maneuvering space located along both sides of a bed, except that where two beds are provided, this requirement can be met by providing a 36 in (915 mm) wide maneuvering space located between the two beds.

(2) An accessible route complying with 4.3 shall connect all accessible spaces and elements, including telephones, within the unit, sleeping room, or suite. This is not intended to require an elevator in multi-story units as long as the spaces identified in 9.2.2(6) and (7) are on accessible levels and the accessible sleeping area is suitable for dual occupancy.

(3) Doors and doorways designed to allow passage into and within all sleeping rooms, suites or other covered units shall comply with 4.13.

(4) If fixed or built-in storage facilities such as cabinets, shelves, closets, and drawers are provided in accessible spaces, at least one of each type provided shall contain storage space complying with 4.25. Additional storage may be provided outside of the dimensions required by 4.25.

(5) All controls in accessible units, sleeping rooms, and suites shall comply with 4.27.

(6) Where provided as part of an accessible unit, sleeping room, or suite, the following spaces shall be accessible and shall be on an accessible route:

(a) the living area.

(b) the dining area.

(c) at least one sleeping area.

(d) patios, terraces, or balconies.

EXCEPTION: The requirements of 4.13.8 and 4.3.8 do not apply where it is necessary to utilize a higher door threshold or a change in level to protect the integrity of the unit from wind/water damage. Where this exception results in patios, terraces or balconies that are not at an accessible level, equivalent facilitation shall be provided (e.g., equivalent facilitation at a hotel patio or balcony might consist of providing raised decking or a ramp to provide accessibility).

(e) at least one full bathroom (i.e., one with a water closet, a lavatory, and a bathtub or shower).

(f) if only half baths are provided, at least one half bath.

(g) carports, garages or parking spaces.

(7) Kitchens, Kitchenettes, or Wet Bars. When provided as accessory to a sleeping room or suite, kitchens, kitchenettes, wet bars, or similar amenities shall be accessible. Clear floor space for a front or parallel approach to cabinets, counters, sinks, and appliances shall be provided to comply with 4.2.4. Countertops and sinks shall be mounted at a maximum height of 34 in (865 mm) above the floor. At least fifty percent of shelf space in cabinets or refrigerator/freezers shall be within the reach ranges of 4.2.5 or 4.2.6 and space shall be designed to allow for the operation of cabinet and/or appliance doors so that all cabinets and appliances are accessible and usable. Controls and operating mechanisms shall comply with 4.27.

(8) Sleeping room accommodations for persons with hearing impairments required by 9.1 and complying with 9.3 shall be provided in the accessible sleeping room or suite.

9.3 Visual Alarms, Notification Devices and Telephones.

9.3.1 General. In sleeping rooms required to comply with this section, auxiliary visual alarms shall be provided and shall comply with 4.28.4. Visual notification devices shall also be provided in units, sleeping rooms and suites to alert room occupants of incoming telephone calls and a door knock or bell. Notification devices shall not be connected to auxiliary visual alarm signal appliances. Permanently installed telephones shall have

volume controls complying with 4.31.5; an accessible electrical outlet within 4 ft (1220 mm) of a telephone connection shall be provided to facilitate the use of a text telephone.

9.3.2 Equivalent Facilitation. For purposes of this section, equivalent facilitation shall include the installation of electrical outlets (including outlets connected to a facility's central alarm system) and telephone wiring in sleeping rooms and suites to enable persons with hearing impairments to utilize portable visual alarms and communication devices provided by the operator of the facility.

9.4 Other Sleeping Rooms and Suites. Doors and doorways designed to allow passage into and within all sleeping units or other covered units shall comply with 4.13.5.

9.5 Transient Lodging in Homeless Shelters, Halfway Houses, Transient Group Homes, and Other Social Service Establishments.

9.5.1 New Construction. In new construction all public use and common use areas are required to be designed and constructed to comply with section 4. At least one of each type of amenity (such as washers, dryers and similar equipment installed for the use of occupants) in each common area shall be accessible and shall be located on an accessible route to any accessible unit or sleeping accommodation.

EXCEPTION: Where elevators are not provided as allowed in 4.1.3(5), accessible amenities are not required on inaccessible floors as long as one of each type is provided in common areas on accessible floors.

9.5.2 Alterations.

(1) Social service establishments which are not homeless shelters:

(a) The provisions of 9.5.3 and 9.1.5 shall apply to sleeping rooms and beds.

(b) Alteration of other areas shall be consistent with the new construction provisions of 9.5.1.

(2) Homeless shelters. If the following elements are altered, the following requirements apply:

(a) at least one public entrance shall allow a person with mobility impairments to approach, enter and exit including a minimum clear door width of 32 in (815 mm).

(b) sleeping space for homeless persons as provided in the scoping provisions of 9.1.2 shall include doors to the sleeping area with a minimum clear width of 32 in (815 mm) and maneuvering space around the beds for persons with mobility impairments complying with 9.2.2(1).

(c) at least one toilet room for each gender or one unisex toilet room shall have a minimum clear door width of 32 in (815 mm), minimum turning space complying with 4.2.3, one water closet complying with 4.16, one lavatory complying with 4.19 and the door shall have a privacy latch; and, if provided, at least one tub or shower shall comply with 4.20 or 4.21, respectively.

(d) at least one common area which a person with mobility impairments can approach, enter and exit including a minimum clear door width of 32 in (815 mm).

(e) at least one route connecting elements (a), (b), (c) and (d) which a person with mobility impairments can use including minimum clear width of 36 in (915 mm), passing space complying with 4.3.4, turning space complying with 4.2.3 and changes in levels complying with 4.3.8.

(f) homeless shelters can comply with the provisions of (a)- (e) by providing the above elements on one accessible floor.

9.5.3. Accessible Sleeping Accommodations in New Construction. Accessible sleeping rooms shall be provided in conformance with the table in 9.1.2 and shall comply with 9.2 Accessible Units, Sleeping Rooms and Suites (where the items are provided). Additional sleeping rooms that comply with 9.3 Sleeping Accommodations for Persons with Hearing Impairments shall be provided in conformance with the table provided in 9.1.3.

In facilities with multi-bed rooms or spaces, a percentage of the beds equal to the table provided in 9.1.2 shall comply with 9.2.2(1).