Design Project: Proposed International Student Center

by

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(ABSTRACT)

One of the important forums for cultural exchange on the campuses of most large Universities in the United States is the International Student Center (ISC). These centers open doors to the world by promoting opportunities to reach beyond cultural and political barriers so as to foster better understanding of humans, and their cultural differences and similarities. Even though these centers serve an important function on campus, they often are housed in spaces which have been adapted for the purpose rather than being designed specifically to meet the needs of the various ISC programs. The ISC at Virginia Polytechnic Institute and State University (VPI & SU) is such an example.

The purpose of this project thesis was to develop a design program and design proposal for an ISC at VPI & SU, based on user needs assessment. The plans and renderings are to be used to seek support for building a facility on campus which has been specifically designed to meet the needs of the International Student Organization.

Students, both graduate and undergraduate, and the staff of the ISC were surveyed to develop a design program. A site adjacent to the Hillcrest dormitory was selected and a new ISC was designed. The proposed ISC was designed according to the user needs assessment and design program. Drawings included conceptual sketches, adjacency diagrams, detailed floor plans, elevations, sections, and perspective views.
Acknowledgements

It is difficult to accept that this document marks the termination of my formal education in design. Looking back, I have become aware that the path has not been very clear and the ride not very comfortable. During all these years, I have been exposed to different points of view, ideas, concepts, and experiences. I have become aware that the basis for our success rests on the people that gave us tutelage, patience, time, support, encouragement, and inspiration.

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Chapter 1

INTRODUCTION

Rapid changes in every aspect of human activity and the globalization of the economy have made it imperative for people of different cultures to interact with one another. One important forum for this cultural exchange takes place on the campuses of most large universities in the United States. To accommodate international student organizations and to encourage interaction between national (U.S. citizens) and international students, special facilities are typically provided and are designated as International Student Centers (ISC).

A place for such cultural exchange, if facilitated, should be for the benefit of both national and international students. It helps the internationals overcome their loneliness in an alien culture, in addition to sharing and learning more about what they have in common with Americans and with each other. For nationals, these centers can open doors to the world, promoting an exchange which reaches beyond cultural and political barriers to foster a better understanding of humans and their needs.

Typically, large universities in United States have a sizeable contingent of foreign students, primarily
furthering their education, and secondarily contributing to the campus environment by providing an opportunity for cross-cultural exchange of ideas, traditions, customs and values. In addition, the university is the place to be exposed to different kinds of experiences and to become aware of the political happenings and issues. It helps students and the academic community gain an appreciation for the cultural differences of people from around the world. Hence, a center that promotes this cultural exchange and interaction is essential to the educational experience. In this context, International Student Centers in universities can play a pivotal role in a student’s educational experience.

Though internationals coming from different countries have access to the same campus facilities available to other students, the international students often have differing needs for support. For example, most international students need time to become acclimatized to the new environment. For most it takes a period of time to overcome language barriers. Students from other countries can have differing social interests which vary depending upon their cultural background.

Academic pressures, limited leisure time, limited resources, and foreign surroundings are all constraints for meeting the international students’ differing needs. This
emphasizes the fact that having access to campus facilities which specifically serve their extra curricular needs would be important to the success of the international students' adjustment to their new educational environment. Presently, in numerous universities in the United States that have international students, their needs for a center are accommodated. This accommodation often is a less than an ideal arrangement.

Typical of the type of space for international student activities is that found on the campus at Virginia Polytechnic Institute and State University (VPI & SU), Blacksburg, Virginia. VPI & SU, a land-grant university located in the mid-Atlantic region, is an integral part of a small town community. Approximately 24,000 students attend the university with more than six percent of the student body being international students. Space for the international student center is located in a former residence, adjacent to campus, called the Cranwell International Center. This building was built around the 1930's as a family residence and was donated to the VPI & SU Foundation in 1983. In 1986, all international student activities and programs were moved to this building. The Cranwell International Center has rooms and spaces designed to serve the needs of a family. The design of the house places numerous constraints on the activities that can take
place within the building, hence forcing the activities to be accommodated by an array of different spaces in scattered locations. Coordinating the activities and communicating pertinent information to students often poses a problem. This problem contributes to decreased participation and defeats the staff’s efforts to foster increased interaction between U.S. citizens and the international students.

Consideration of maximizing the potential of this existing facility, in terms of an addition to the structure, were abandoned following an assessment by Mr. Leonard Currie, a practicing architect in Blacksburg. According to Mr. Currie, further additions to this existing building were not feasible because of structural limitations and also because the surrounding space is too limited for further expansion.

Recognition of the need for improved facilities has led to an interest in, and support for, developing a building plan to provide adequate space to accommodate the activities of the international student body. In addition, it was thought that new structure would help foster increased interaction between internationals and nationals.

This study addressed the need for a new international student facility and subsequently developed plans for use in promoting the concept with relevant influential and decision-making groups. In addition, this study could serve
as a model for further research in designing international student centers at other universities.

The main objectives of an International Student Center are to promote cultural exchange and to quicken the acclimatization process (Cranwell International Center Notes, Spring, 1989). To succeed in these objectives the center needs a structure that projects the image of an international center. Though the building form helps in attracting attention and drawing one inside, it is the interior that is largely responsible for helping to establish an identity within the space, enjoy the space, and want to visit it again. This is explained by Zevi (1957), who states that,

the most exact definition of architecture that can be given today is that which takes into account interior space. Beautiful architecture would then be architecture in which interior space attracts us, elevates us and dominates us spiritually (as in the case of Chartres Cathedral) (p 28).

At VPI & SU, there is a student organization in Cranwell International Center which serves six percent of the total student body, but the activities of the organization are confined to a limited facility which does not fully complement/support the center’s objectives. Hence, making the disparity between the actual physical form and the sustaining activities seemingly more acute. As a step towards decreasing this disparity and increasing the
potential of meeting the center's objectives, an architectural design and a design of interior spaces for a new International Student Center for Virginia Polytechnic Institute and State University was proposed.
Chapter 2

CONCEPTUAL BASIS FOR DESIGN

Design is an intuitive art (Pena, 1977). It does not follow a scientific formula that generates a design solution for a given set of requirements. Numerous alternatives can be generated that meet the requirements of a given project. There is no single solution expected from the requirements or criteria.

In an attempt to rationalize and advocate the design process various design decision models have been developed by professionals in design related fields. Of these models, the following approaches are widely practiced by designers. They are the rationalizing model (Alexander, 1964), heuristic model (Kates, 1978), phenomenological model (Norberg-Schultz, 1980), participatory model (Hester, 1978), cognitive model (Kaplan & Kaplan, 1982), to name some of the most commonly used. Though the approaches of the above mentioned models are different, there is a considerable degree of overlap in their methodologies (Norberg-Schultz, 1980). A good number of designs when approached by, and evaluated against, a particular design decision model show that the designs follow that particular model. Very few design solutions (for example, Falling Water, Ronchamp
Chapel) would fully satisfy the requirements of more than one model.

Design solutions tend to be unique because of their wide range of potential responses to a design problem. Design consists of abstract attributes which cannot be achieved solely by following a design process; however, an attempt was made by Christian Norberg-Schultz (1980) in his book *Genius Loci*. He explains, the various design aspects that need to be considered for an holistic approach in a design. An holistic design is one that considers as many as possible variables in the design. It also predicts and provides for future needs and changes. It is one that is sensitive to user needs and is function responsive. Design theorists have rationalized that design attempts can be made more holistic if a systematic method (not necessarily one particular method, but whatever works best in the solution) is used. These systematic methods had roots in the controlled design fields such as product design i.e. machines, equipment or furniture design (especially in mass production of furniture), and slowly evolved into design processes that could be adopted in architectural design.

**Design process**

Design is the imaginative creation of possible forms and is done in many ways. It develops clouds of possibilities, both fragments and whole systems, in
places vague, in others precise, in a state of which alternates between childish suggestibility and stern criticism. It is a dialogue between the designer and the growing, shifting forms that he is developing - not a determinate, logical process but an irrational search over a ground prepared by a knowledge of principles... (Lynch and Hack, 1983, p 9).

The design process is a decision-making process that requires development of design criteria upon which design decisions are based. Such design criteria are not the result of analysis of those factors inherent in the micro-scale environment alone, but are also related to macro-scale surroundings. Each design problem or project has its own set of criteria and requirements, but there may be one or more alternative solutions. It is by the use of design criteria in conjunction with trade-off assessments that these alternatives should be evaluated.

The design process is a sequence of steps/stages that answer the questions of the previous stage and asks the questions for the next stage (Nutt, 1974). It can be broadly classified into three categories: an initial state, a method or process of transformation state, and an imagined future state (McGinty, 1979). These categories define the functions of a designer as identifying problems, identifying methods for achieving solutions, and implementing these solutions. In other words these functions are programming, generating alternative designs, and implementing plans (Wade, 1977).
A formalized design process had its earliest roots in the more controlled product designs. Initially, it was the operations research field that pioneered the exploration of design processes. Studies were undertaken in the 1920's to identify the steps that comprised the design process as to product design. Subsequently, these studies on the steps that comprised design process was established as a field in its own right (Broadbent & Ward, 1969). This influence spread to other design fields and first made its mark in the architectural design field in the 1950's. However, the first definitive step in the architectural design process was documented by Alexander (1964) in *Notes on the Synthesis of Form*. He was the first person to view the design process as a scientific and mathematical system. This method, now called "First Generation Design Methods", used atomistic and fit as its key concepts. Just as all material things in the universe constitute of building groups (atoms), so is design composed of different elements. The requirements of a space can be atomized or reduced to small individual groups. Solutions can be achieved by appropriately using these individual groups. The term fit is used for the configuration of these individual groups. A successful configuration of the individual groups that meets the user requirements is termed a good fit.

With increased development in researching and
practicing different design processes, various views and theories have evolved since the 1950's. Of these, Moore's eight step design process (1974), Jones's design methods (1970), Alexander's mathematical approach (1964), and Alexander and Chermayeff's pattern language (1963), are notable works. On reviewing and analyzing these processes for possible similarities and dissimilarities, McGinty (1979), came up with the following classification:

1) **Initiation** is the phase of recognizing or defining the problem to be solved.

2) **Preparation** is a systematic collection and analysis of information about the problem to be solved. In other words it is the stage of "programming".

3) **Proposal making** is the phase of synthesizing the large number of issues to arrive at design proposals.

4) **Evaluation Process** is the phase of evaluating the design as to its meeting the requirements.

5) **Action phase** is the process of execution and optimization.

Zeisel (1981), further elaborated on the design process as being cyclic in nature. He says that an evaluation phase always follows an action phase to evaluate the executed
design as to its meeting the requirements, this ultimately leading to a cyclic process.

The design process in interior design, though not established as either a formal process or field of research, is definitely being followed by practicing interior designers. Each designer follows a process that suits his/her method of problem solving and the specific project in question. The evolution and development of the interior design process is basically from architectural design processes, but with changes in focus and scale. The change in focus is because architecture envelopes the interior. In other words, architecture is concerned with both interior and exterior whereas, the interior involves only the architecture. The change in scale is due to the fact that the interior design process deals with specific needs of individual or groups of users, whereas the architecture deals with peripheral satisfaction of larger requirements such as site setting, property codes, footprint and outline of the building with regards to adjacent structures, etc.

The interior design process, a problem solving process, places emphasis on the definition of the problem, systematic collection and analysis of data, and generation of alternate design solutions (Pena, 1977; Farbstein, 1978). In pursuit of a satisfactory design solution, a problem definition should be identified. After identifying the problem, a
planning process, termed programming (Palmer, 1981), has to be developed for collecting information about user wants and needs.

The programming and planning processes are not fixed for all kinds of projects. Different projects are approached in different ways, but the purpose of the process is the same (i.e. to help clients explore options for meeting their facility requirements). There are two schools of thought with respect to programming. The first school treats the programming phase as distinct from the design phase and also advocates that it be done by a different group, preferably by professionals other than designers (Pena, 1977; Davis, 1979). The second school treats the programming section to be an integral part of the design process and advocates that it be done simultaneously with the design process (Farbstein, 1978). The theories that the second school advocates are iterative by nature. This iterative nature, being cyclic and dynamic, allows more flexibility in programming and in the designing phases of large scale facilities and buildings.

Kurtz, a private practitioner, believes that programming is never complete, because users and needs keep changing continuously (as quoted in Palmer, 1981). Programming follows a sequential order from the most generic long range decisions to the specifics. The long range
decisions do not change throughout the programming process, but the specific requirements are reviewed and reiterated for a better solution. Programming is carried out simultaneously and interactively within the phases of design, construction, and occupancy to achieve higher degrees of accuracy and a more efficient building facility.

Various methods in the design field are used for collecting the data. They are questionnaire surveys, telephone surveys, case studies, personal interviews, observations and behavioral mapping. Of these the most commonly used programming techniques are questionnaire surveys and face-to-face personal interviews (Marans, 1978). They are more or less free from the biases, values, and predispositions of the designer or researcher (Marans, 1978). For a multiple-use facility, face-to-face personal interviews with the concerned personnel is suggested (Zeisel, 1980).

The above mentioned tools help in collecting data during the initial stages of planning and design. Data derived through these tools influence current decisions as well as test the assumptions underlying past decisions. In addition, the data helps establish the design program for interior space.
**Interior Space**

According to Zevi (1957), interior space is that space which can be grasped and felt only through direct experience. The key to understanding an interior space is "to grasp its space and to know how to see and evaluate that space" (p 11). This is amply exemplified in the pioneering works of Falling Water, Ronchamp Chapel, Farnsworth house by the architects, Frank Lloyd Wright, Le Corbusier and Mies Van Der Rohe, respectively. They have defined the term architecture to be one that takes into account, interior space. This is further emphasized by Zevi (1957), in his statement that

...the facade and walls of a house, church or palace, no matter how beautiful they may be, are only the container, the box formed by the walls; the content is the internal space... (p 24).

The immediate impact of an interior space is often determined by how well the space reflects the activities that take place there. Saarinen (1962) emphasized the importance of a building reflecting the vitality of its interior activities. Trans World Airlines building at John F. Kennedy International Airport, designed by Eero Saarinen, is a good example of how a structure can express the vitality of the activities that take place there. Eero Saarinen (1962), commenting on his works stated that, the challenge was
... to design a building in which the architecture itself would express the drama and specialness and excitement of travel.... We wanted the architecture to reveal the terminal, not as a static, enclosed space, but as a place of movement and of transition (p 60).

An interior space is evaluated with respect to different attributes that have a legitimate place in the history of architecture (Zevi, 1957). The attributes according to Zevi, accepted by all pioneers of architecture (Wright, 1955; Le Corbusier, 1968; Saarinen, 1962; Kauffman, 1950), are:

...truth, movement, force, vitality, sense of outline, harmony, grace, breadth, scale, balance, proportion, light and shade, eurythmics, solids and voids, symmetry, rhythm, mass, volume, emphasis, character, contrast, personality, analogy (p 21).

However no single element, even if dominant over the others can have an absolute effect on the theme of the interior (Wright, 1943; Vickery, 1983; Zevi, 1957). The attributes and their effects can also be viewed as the factors forming a dynamic constellation, each of which contributes in some part to the overall theme of a space. The overall theme can be further accentuated with an effective use of design elements such as light and shadow, shape and texture, pattern and color, and natural and artificial light. These accentuating elements should not override the message.

However, in addition to the principles and elements of design mentioned above, there exist many other contextual elements such as culture, climate, economy, technology, and
time, that might have an impact on both the building and the interior.

Since this project, the design of an international students center, should reflect the cultural diversity of the various international contingents a review of literature on culture and its effect on space is relevant.

Influence of Culture on Design

The influence of cultures on design and architecture can be found throughout the ages. The direction of architecture in any given era was determined by its ideological presuppositions (Gowans, 1972). The changing styles which form the history of architecture, among other things, obviously do express different social systems. They show where power, wealth, and dominance was vested, such as with Egyptian Pharaohs and the Roman Emperors (Broadbent, 1979).

The natural environment (geographical features or landscape), often influence the development of cultural practices in any given society (Aiello & Thompson, 1980). In an attempt to adjust to the environment, people develop certain patterns of living which allow for successful adaptation. The worshipping of objects in nature by people near the River Nile in Egypt and the wandering of certain nomadic tribes within a defined geographical region to
secure food supplies, illustrate the impact the natural environment has had on shaping cultures.

Instead of merely adapting to the natural environment, the cultural practices have influenced people to change the physical setting by constructing man-made structures, like houses and offices. These man-made structures are frequently altered to human needs and to reflect their customs and prevailing styles. Thus cultural practices and values influence people's perceptions and views about the environment, which in turn influence design.

Many studies on culture and its concurrent effect on the built form have been conducted. However, almost all these studies tend to focus more on the physical structure itself (architecture - building envelope). Little or no research correlating cultural influences on the micro-environment, the interior space itself, has been done. This could be partly due to the fact that no clear distinction was made between interior design and architecture. This does not mean that boundaries do not exist between the two allied fields. The boundaries are often dynamic in the total design environment but are not perceived as a definite dividing line between the two.

Until the twentieth century, the architecture and interior design were not treated as two separate professions. The profession of architecture included
interior design as a part of the architectural design. Since architecture included interior design also, the literature on the influence of culture on architecture is referred to. Architecture defined by Webster's dictionary is "the Art or Science of building," specifically the art or practice of designing and building structures, especially habitable structures, in accordance with principles determined by aesthetic and practical or material considerations.

The characteristics of architecture and culture are interrelated and continuously evolving. These characteristics are interdependent and do not exist in isolation. In addition, they also influence the way in which architecture and its surrounding environment are perceived by users. These characteristics work together affecting decision making in design (Rapaport, 1979). The different perceptions concerning architecture have made architects, designers, and planners more aware of cultural issues and their effects on the built environment. This sensitivity in design and care for cultural influences would enhance the environment's effectiveness, both as a functional and aesthetic setting which is well documented by Hall (1969) in his book *The Hidden Dimension*.

Focussing on the interior, several researchers have been striving to determine which cultural influences effect spatial requirements and standards. Various studies
focussing on particular aspects of interior design itself were done, such as ethnography (Turnbull, 1961), anthropology (Gregor, 1970; Roberts & Gregor, 1971; Geertz, 1973) and culture and environment (Altman, 1975; Hall, 1969; Chermayeff and Alexander, 1963; Sommer, 1969). Extensive research in the area of ethnography and anthropology paved the way for initial studies carried out on environment and culture.

Studies done by Hall in 1969, Aiello and Jones in 1971, Aiello and Cooper in 1972, Bauer in 1973, and Altman and Chemers in 1980, show that proxemics behavior varies according to different cultures. Of the various studies that were done, one that evoked the most interest was Edward Hall’s (1969) study, reported in his book The Hidden Dimension. Hall (1969) defines and uses the term proxemics as "the interrelated observations and theories of man’s use of space as a specialized elaboration of culture" (p, 1). It reveals how people unknowingly and involuntarily define an arbitrary space around them. This space is dependent on numerous variables which were not clearly stated in his book of 1969. In his later works Hall (1974) further clarified the ambiguities and widened the range of variables. Hall (1974) was explicit in describing variables that influence proxemic behavior by categorizing them under context (culturally specific), emotion (affect) and personality
differences as seen against a cultural background. Altman and Vinsel (1977) in an attempt to increase the range of influences, categorized them into individual factors such as age, sex, race and other demographic variables; interpersonal factors such as attraction and liking, intrusion and status; and setting environmental factors, such as formality of the setting and physical arrangements.

Altman and Vinsel (1977), however, in their review of research on Hall’s proxemics behavior express concern for lack of sufficient considerations for effects of different cultures and sex factors in relation to proxemic behavior, decreasing the chances of substantiating Hall’s behavior framework. Nevertheless, Hall’s work is still considered to be the seminal work in proxemics space planning.

**Proxemics and Culture**

The creation of social, economic, and political situations, combined together form culture. Culture (from the Webster’s dictionary) is defined as "a particular stage of advancement in civilization".

In Hall’s view different kinds of spatial behaviors are involuntary influences of man’s cultural paradigms. The cultural paradigms and man are interrelated, in which man and his environment each contribute in molding the other.

Culture is variously defined by researchers for the
benefit of their research. But the most accepted and frequently cited definition of culture is that of Kroeber and Kluckhohn (1952) which includes elements such as "patterns, explicit and implicit, of and for behavior required and transmitted by symbols constituting the distinctive achievements of human groups and ideas and their attached values" (p 121). A further extension to the above definition of culture was given by Geertz (1973), "culture denotes a historically transmitted pattern of meanings embodied in symbols, a system of inherited conceptions expressed in symbolic forms of which men communicate, perpetuate, and develop their knowledge about attitudes toward life" (p 52). This definition has paved the way for further cross-cultural psychological research.

The studies that were done and are being done in the field of culture and proxemics behavior are basically comparing one culture to the other. These studies were typically aimed at accepting or rejecting Hall's proxemics theory. The studies are not aimed at multi-cultural spatial behavior in a space. They also do not interpret these studies into design parameters. Interpretation of these studies, if started, would provide the designers a direction to follow.

Another important aspect of the conceptual basis of design in a holistic approach is the cognitive processes
involved in interacting with the environment, termed as "environmental knowing". The following section provides the background information on perceptual analysis to make a decision regarding the site identification and the campus setting.

**Environmental Knowing**

Cognition according to Webster's dictionary, is "an intellectual process by which knowledge is gained about perceptions and ideas." Environmental Knowing is a cognitive process that has been approached in different ways by different professionals. Theorists have diverging views about what constitutes a mental image or a cognitive map and how cognitive maps work. Though the first attempt on what constitutes a mental image and the cognitive process was made in 1948 by Tolman, little attention or appreciation was shown for his research until Lynch reintroduced the theme of environmental knowing in his book, *Image of the City* (1960). Though Lynch's research is limited to different ways of understanding environmental cognition and its use in design, a number of disciplines have examined the cognitive process by applying Lynch's methodology. The idea of cognition has already been explored in anthropology (Fischer, 1971), education (Reif, 1974), sociology (Suttles, 1972), and psychology (Ittelson, 1973, Kaplan & Kaplan, 1982). The
major tool in the above mentioned studies are variations on
Lynch's elements of Imageability and the authors refer to
his book, *Image of the City*. For example Thomas Saarinen
(1973), in his article on "The Use of Projective Techniques
in Geographic Research," stated that in

... several classes over the past few years, I have
used a modified version of a technique developed by
Lynch (1960) to try to determine the image of the
campus held by University of Arizona students (p 42).

A look at Lynch's theory and his elements of
Imageability gives us a better understanding of how to
perceive the surroundings and its structures. It also helps
the designer to decide upon how a proposed building form
should be, so as to blend physically and visually in the
existing surroundings. This design theory is useful as a
decision making tool during the site selection process.

**Kevin Lynch's Theory of Imageability:**

Imageability is "that quality in a physical object
which gives it a high probability of evoking a strong image
in any given observer" (Lynch, 1960, p. 9). It could be the
shape, color or arrangement that facilitates the making of
vividly identified, powerful structures, that are highly
useful in creating mental images of the environment.

According to Kevin Lynch, environmental images are the
result of a two way process undergone between the observer
and his/her environment. In view of ones own purposes each observer adapts and organizes what he/she has seen and endows it with a meaning. Through a high degree of adaptability, the distinctions (subtle differences) in the environment are organized and endowed with meaning. In a constant interacting process the meaning of the image so developed, defines and emphasizes what is seen. This image is being regularly tested against the perceptual input. Therefore, between different observers the image of a given identity may vary to a certain extent.

The coherence of the image may arise in several ways, gaining identity through long familiarity or by having striking features. For example, even though an individual bears his/her own interpretation of the image, there seems to be a general agreement as to the image an environment projects. The common mental images carried by a large number of inhabitants or users of a particular environment are termed "public images". Paths, edges, nodes, districts and landmarks all serve to create public images in an environment.

All the above mentioned definitions and their examples are with regards to a city. Public images are also created on university campus/buildings/interior spaces, and become an important consideration in planning a new facility such as an international student center.
Site Planning and Site Designing

Though site planning and site designing do not directly influence the interior spaces, the site has considerable influence on the building/structure shape, ultimately affecting the design of the interior spaces (Dober, 1963; Lynch and Hack, 1983). Hence, a review of the site elements that need to be considered during a design process is provided.

Site planning to many designers, is an art of arranging forms and features on given land and shaping the spaces between them. The shaping of spaces between the existing land features and forms, determine its objectives and activities (Lynch and Hack, 1983; De Chiara & Koppelman, 1978; Dober, 1963). The crucial part of site planning and problem solving lies in converting the data obtained for each and every individual feature/form of the existing land into a new configuration, that will respond to the proposed intervention. Lynch and Hack in 1983, stated that the

...image of the site guides the design. It does not create the design, however, nor is there a unique solution latent in a site, waiting to be uncovered. The plan develops from the effort of the designer. But it must respond to the site, not ignore it (p 46).

In the spirit of the above definition, designs are limited to imagining patterns of activity, circulation and physical form as they occur in the site. The major elements that influence a site design, like topography, plant cover,
climate, shading, and building orientation should be taken into consideration (Todd, 1985; Robinette, 1972).

Apart from the functional and physical requirements of a space, there are some mandatory laws that should be considered. They are the building codes and handicap accessibility guidelines.

**Building Codes**

Building codes are systematic bodies of law. They have been formulated in an effort to establish adequate standard of practice, uniformity of workmanship, and minimum level of performance. There are four commonly used codes that different states in the U.S. adhere to. Depending upon the state in which the project is being undertaken, the codes enforced by that particular state should be met. The four major building codes are:

1) National Building Code (NBC)
2) Uniform Fire Code (UFC)
3) Building Officials and Code Administrators Intermediate (BOCA)
4) Southern Building Code (SBC).

The state of Virginia follows BOCA building codes. Hence, any proposed facility for VPI & SU must follow the standards set by the BOCA and the local building requirements.
Handicap accessibility considerations

One of the major issues and concerns of the sixties and seventies was that of making all public buildings accessible to the handicapped. The struggle for barrier free public building was fruitful in the year 1973 after the Civil Rights Act was passed. Section 504 of this Act prohibits discrimination against handicapped in all federally funded buildings.

Architectural barriers for accessibility includes getting to the building, entering the building, negotiating within the building, and using fixtures, appliances, study areas, tools and machines. Potential barriers are approaches to the building (parking, approach ramp, buffer doors at the entrance), travel within the building (stairs, elevators, floors, carpeting) and services and facilities (rest rooms, water closets, lavatory, water fountains, coin operated telephones, controls, draperies, heat). The potential barriers any of these features might present should be considered simultaneously with the design criteria.

Typically the exterior and interior spaces are not designed in isolation as separate entities and then given cosmetic treatment to blend with others. Space most often is considered as one unit and designed iteratively in its entirety to achieve an homogenous composition.
The above discussed sections on what is design, design process, interior space, interior space planning, influence of culture on design, proxemics and culture, environmental knowing, site planning and designing, building codes, and handicap accessibility considerations could be categorized under physical, psychological, mandatory, aesthetical, clientele and user requirements. But the more complex the design criteria become, the more satisfying and challenging it is for the designer (Lynch, 1983). In addition, the greater the number of variables in the design, the higher is the sensitivity of the design in meeting user needs (Alexander, 1964). In order to achieve an acceptable design solution for different users and their requirements the design approach should be holistic (Norberg-Schultz, 1980).

This holistic approach requires an understanding of the topics reviewed in this chapter. Every topic is an important part of the design process, but when considered together the resulting solution to the design problem becomes greater than the sum of the parts. An holistic approach was undertaken for this design project.
Chapter 3

PROGRAM DEVELOPMENT AND METHODOLOGY

Design Problem

Problem

The International Student Center at VPI & SU, currently housed in a residential dwelling, is inadequate to meet the needs and objectives of the International Student organization.

Purpose

The purpose of this design project was to develop a plan for a new International Student Center that meets the following objectives:

* to develop a design which will accommodate all activities relevant to the interests of the international student body and the staff of the ISC.
* to create an environment conducive to increased interaction between nationals and internationals.
* to design space to accommodate the maximum number of activities in the least amount of space.
* to present the design solution through renderings, sketches, and CAD drawings to scale, appropriate for use in promoting, support for a new International
Student Center on the campus of VPI & SU.

**Design concept**

In consideration of any proposed addition to the VPI & SU campus, the blending of a new structure to its surroundings is a crucial element of the design solution. The solution is directly related with the functions that take place within the interior spaces. The objective of the design solution presented herein was to preserve the theme and image of the campus, and allow the new building to add a new dimension to the campus. The building should depict a character and have an appeal of its own to ensure greater participation of the academic community. The building's form should be a reflection of the diversity of activities that are being undertaken therein.

In the design process, criteria help establish priorities and act as guidelines. It is by incorporating these criteria in the design solution that the resultant physical form gains acceptance. According to the Master Plan for VPI & SU prepared in 1983, for any new addition to the campus the following were considered to be of utmost importance in setting up design criteria.
Macro-scale considerations.

The highlighted points in bold and are the ones related to display areas are emphasized in this project. The amount of emphasis on each of these factors varied and underwent modifications after frequent review and evaluation. The remaining unhighlighted criteria were not discussed because they cannot be evaluated at this stage of the design process. For example, consideration of mechanical systems and calculations would be possible only at the stages of evaluation and optimization phases of design.

1. Relation to the University campus.
2. Impact of new building on existing site.
3. Building codes.
4. Relation to surrounding structures.
5. Relation to surrounding activities.
6. Orientation of structure to the sun and wind.
7. Pedestrian and vehicular circulation.
8. Response to the surrounding textures.
9. Relation to surrounding foliage.
10. Scale of new facility to its surroundings.

Micro-scale considerations

1. Building efficiency and ease of utilization.
2. Circulation and maintenance.
3. Meet user requirements.
4. Consideration for the handicapped.
5. Mechanical systems consideration.
7. Management and operation of the facility.
8. Consideration for HVAC.
10. BOCA building Codes.
11. Lighting and electrical consideration.
12. Consideration for materials and colors.
13. Consideration for furniture and furnishings.

The steps followed for this design project are:

1) to identify a site for a new international students center,
2) to complete a user needs assessment involving the staff and students,
3) to develop a design program based on user needs data collected,
4) to develop a design solution for the new international student center, and
5) to prepare visuals for use in promoting the idea for a new international student center to the academic community.
Step 1. Site identification and its analysis

Discussions with the University Planning Office revealed three building sites on campus for an international student center. They are located:

(A) towards the north-east of the existing ISC,
(B) beside Schultz Dining Hall, and
(C) beside Hillcrest Graduate Dormitory (See Figure 1).

In a previous study done by the author in 1989 on the existing international center, students indicated that they preferred a new center to be near campus, be a site away from Squires student center so that its identity will not be lost when compared to the larger student center, and be a site that aids in the distribution of activities around campus, especially during the evening hours.

The site northeast of ISC was omitted, since it is located approximately one-half mile from the student on-campus housing, a distance considered to be far away from the hub of activities. The site beside Schultz dining hall was omitted due to its close proximity to the existing Squires Student Center. The third site, near Hillcrest dormitory, was selected because it meets all three student preferences.

During the day, there is a very high degree of activity throughout the campus. Observation of the evening activities indicates that use of buildings on campus shifts
dramatically to the south side (library and Squire’s student center are located on the south side) of the drill field.

By selecting the Hillcrest site on the north end, student activities will be dispersed over a larger portion of the campus. This site will also provide an independent image from Squires student center. In addition, this site offers greater convenience for increased participation due to its near proximity to the graduate dormitory and a portion of the undergraduate student housing area, while still being close to the hub of activities that take place on campus during the day time hours.

The international center should enhance the image of VPI & SU as an international university. This might help the university in attracting more international students, since most students come on the advice of their friends who are presently attending the university or from alumni. The image of the international student center can be enriched by designing it in a way as to act as a landmark at VPI & SU. A building is regarded as a functional landmark based upon the activities that take place in that building. For example Sandy Hall, that houses the graduate school and the international student office, is considered a landmark to international graduate students due to the functions that occur within it, rather than its physical appearance.

The imposition of a new physical form on a particular
Figure 1. Aerial view of VPI & SU campus.
site has an impact upon its character as a place. This impact can be obtained either by blending the structure into the surrounding or by contrasting the structure with its surroundings. To maintain continuity and harmony, the exterior stone texture of the physical form must be similar to that of the stone used for other buildings on campus. The facade characteristics should vary gradually, but not drastically. The facade characteristics should be unique, but with strong similarities to the surrounding buildings in order to hold a sense of continuity.

Step 2. Data Collection

Identification of user needs was done through interviews and surveys. Personal interviews of the administrators at ISC were conducted. An interview document was developed (See Appendix A) to collect data from the staff ISC to accomplish the following objectives:

1) to obtain staff insights as to how the existing facility is being used, and to record staff suggestions and recommendations for the ideal design of a new facility,

2) to determine the present and future programs being sponsored by the center,

3) to record the number of events sponsored by the center,

4) to determine the kind of activities that attract large
number of American and International students,
5) to explain their opinions on the uniqueness of an ISC when compared to any other meeting facility,
6) to obtain their projections for future needs,
7) to determine the staff spatial relationships with regards to their office spaces, and space needs for tasks performed by them, and
8) to record the staff suggestions on utility areas like kitchen, display areas, and storage spaces.

The data collection instrument for obtaining the user needs (students) is a questionnaire survey (Appendix B) developed by the researcher. The data obtained from this questionnaire was useful in designing user perceived space needs and requirements. The questionnaire was designed to collect the following information:
1) purpose of the student's visits to the existing center,
2) frequency of the student's visits,
3) the type of activities of interest to them,
4) the extent of their interest in learning about other cultures, and
5) develop a profile of the students who do and do not use the existing ISC.

Sample

An earlier study done by the author indicated that more
than ninety percent of the present users of the ISC are international students (current users). In the same study a majority of the participants including the ISC staff expressed concern for the limited participation by American students. To determine the reason behind this disparity of participation and to examine the drawbacks of the existing facility, a questionnaire survey was administered to two sample student bodies of VPI & SU, graduate and undergraduate.

The total enrollment at VPI & SU for Spring semester, 1991 was 22,223 of which 1253 are international students. Approximately 110 of the international students live on campus, out of which 44 internationals reside in Hillcrest dormitory. Hillcrest, a graduate dormitory inhabited by 44 internationals and 63 Americans, was chosen for the graduate student survey.

The undergraduate student sample consisted of a typical undergraduate class which is not confined to any specific major only. The survey was distributed to fifty students representing all four undergraduate academic levels and various majors from across campus.

Together, the two samples represented diversity in the student body at VPI & SU. The two samples encompassed a wide variety of users including undergraduate and graduate, and internationals and Americans.
Step 3. Develop a design program

The information gathered was programmed to make design decisions. The design decisions were made by posing what-if situations where needed. The programming, the design decision, and the design solution phases were iterative in nature and underwent changes where required. The Kurtz's programming methodology was used to develop a list of requirements from the obtained data to design a new international student center. The final list of requirements to be met for the design of a new international student center is included in chapter 4.

Step 4. Develop a design solution for new international student center

The proposed plans are for developing a design concept for a new facility for international students. All efforts were made to design a facility that was unique in style and adhering to the campus codes. The design phase started with conceptual plans and ended with space planning. All conceptual plans and criteria are shown in flow charts and graphics. Structural calculations, building specifications, interior finishes, furnishing specifications and samples were not done for this design project, as the proposed design was only to promote the idea of a new international center.
Step 5. Documentation process

The design phase is comprised of meeting selected macro- and micro-scale considerations. The resultant design solutions included the following:

1. Conceptual plans and sketches. 
   bubble diagrams - adjacency requirements
2. Schematics.
3. All floor plans with furniture layout.
4. One exterior elevation.
5. Two transverse sections.
6. Two interior perspectives.
7. Conceptual site plan.

During this phase of data gathering a site was selected and the tools for obtaining the user need assessment were developed. Since the design for this study did not go beyond the proposed phase, the evaluation and action phases of the design process were not conducted.
Chapter 4

DATA ANALYSIS, DISCUSSIONS AND DESIGN PROGRAM

This chapter, organized into three sections, discusses the results of the student questionnaire surveys, ISC staff interviews and the design program. The first section presents the findings of the surveys from the graduate and undergraduate students. The second section covers the results of the ISC staff interviews. The third section discusses the design program for a new international student center based on the survey findings and staff interviews.

Summary of student questionnaire surveys

A student questionnaire was developed and administered to both graduate and undergraduate students. The purpose of the survey was to determine (1) the type of events which national and international students have attended, (2) the reasons for non-attendance at activities sponsored by ISC, and (3) what types of activities would attract current participants and non-participants. The results of the survey are discussed under three sub-sections: graduate, undergraduate, and combined student samples. The responses from the two groups were analyzed separately and the combination of these two is the combined student sample.
In reporting the results of the student surveys, the percentages for each answer were rounded to the nearest whole number. The sum of the percentages for the responses is expected to range from 99 to 101. The students were allowed to check any number of answers with respect to the type of events that they would most likely attend, reasons for non-participation, and type of events attended.

**Characteristics of the sample populations**

**Graduate students**

The graduate student survey was administered on April 27, 1991 at the Hillcrest dormitory. Residents of the occupied rooms were asked to participate in the survey. A brief introduction of the purpose of the project was given to the students before requesting their participation in the survey.

Thirty one students completed the graduate students questionnaire. Two of the responses were disregarded since the respondents were not residents of Hillcrest dormitory. Thus, there were a total of twenty-nine usable graduate student responses.

Twenty-four (83%) of the respondents were in the Master’s program and only five respondents (17%) in the doctoral program (Table 1). Fifteen (52%) of the respondents were U.S. nationals and thirteen (45%) were of
<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>ACADEMIC STATUS</th>
<th>NATIONALITY:</th>
<th>SEX:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NUMBER</td>
<td>PERCENT</td>
<td>NUMBER</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>COMBINED ST</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>STUDENT SAMPLE</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>UNDERGRADUATES</td>
<td>29</td>
<td>37</td>
<td>13</td>
</tr>
<tr>
<td></td>
<td>50</td>
<td>63</td>
<td>47</td>
</tr>
<tr>
<td>GRADUATES</td>
<td>79</td>
<td>100</td>
<td>62</td>
</tr>
<tr>
<td></td>
<td>15</td>
<td>30</td>
<td>34</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>6</td>
<td>34</td>
</tr>
</tbody>
</table>

*INTERNATIONAL* | *U.S. CITIZEN* | *NO RESPONSE* | *MALE* | *FEMALE* | *NO RESPONSE*
other nationalities. One of the students did not want to
reveal his/her identity. Nineteen students (66%) were males
and eight students (28%) were females, while two students
remained unidentified.

Undergraduate students

Students attending class in the course, HIDM 2404
Consumer Problems, on April 22, 1991, formed the
representative sample of undergraduate students. A brief
introduction of the purpose of the project was given to the
students before the survey was conducted.

Fifty students attended the class on that day and the
questionnaire was administered to all. Of the fifty, forty-
seven (94%) were U.S. citizens, two internationals (4%), and
one of the respondents did not answer the question on
his/her nationality (Table 1). Thirty four (68%) of the
respondents were females and fifteen (30%) of the
respondents were males with one unanswered.

Combined student sample

The demographic figures for the combined graduate and
undergraduate respondents included a total of seventy-nine
students (Table 1). Predominantly, the respondents were
citizens of United States (78%). Thirty-four (43%) of the
respondents were male and forty-two (52%) were female.
The next three sections summarizes the responses concerning student participation and non-participation in ISC activities.

(a) Type of events attended.

Graduate students

Three-fourths of the twenty-nine graduate students surveyed responded affirmatively to having attended a program at ISC. Table 2 summarizes the type of events the graduate students had attended. Eighty-six percent had attended at least an international dinner, while 73% had participated in an international festival. Almost two-thirds of these attendees gave socializing and meeting new people as their reason for having attended functions at the ISC. Almost half (45%) of this group had attended lectures and educational displays.

Undergraduate students

Only ten percent of the undergraduate students had attended an event at the ISC (Table 2). Forty percent of these had attended association meetings while the rest had either visited ISC to meet friends at social events or attended cultural displays.
<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>GRADUATES</th>
<th>UNDERGRADUATES</th>
<th>COMBINED STUDENT SAMPLE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NUMBER</td>
<td>PERCENT</td>
<td>NUMBER</td>
</tr>
<tr>
<td><strong>STUDENTS REPORTED HAVING ATTENDED AN EVENT AT C.I.C.</strong></td>
<td>22</td>
<td>75</td>
<td>5</td>
</tr>
<tr>
<td><strong>TYPE OF EVENTS ATTENDED:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>* INTERNATIONAL DINNERS</td>
<td>19</td>
<td>86</td>
<td>1</td>
</tr>
<tr>
<td>* INTERNATIONAL FESTIVALS</td>
<td>16</td>
<td>73</td>
<td>--</td>
</tr>
<tr>
<td>* ARTS AND CRAFTS DISPLAY</td>
<td>4</td>
<td>18</td>
<td>--</td>
</tr>
<tr>
<td>* ASSOCIATION MEETINGS</td>
<td>6</td>
<td>27</td>
<td>2</td>
</tr>
<tr>
<td>* INTERNATIONAL CLUB MEETINGS</td>
<td>7</td>
<td>32</td>
<td>1</td>
</tr>
<tr>
<td>* TO MEET FRIENDS/SOCIALS</td>
<td>15</td>
<td>68</td>
<td>1</td>
</tr>
<tr>
<td>* LECTURES AND EDUCATIONAL DISPLAY ON VARIOUS CULTURES</td>
<td>10</td>
<td>45</td>
<td>1</td>
</tr>
</tbody>
</table>
Combined student sample

Thirty-four percent of the total number of respondents had attended events at the ISC (Table 2), of which seventy-four percent (48% nationals, 48% internationals, and 4% unidentified) reported that they had attended international dinners. This suggests that food from different countries has a distinct appeal to the student body. International festivals which feature a combination of food, cultural events, and exhibits were attended by 59% of the students. Educational lectures were attended by 41% of those reporting having been to the ISC. Various association meetings had been attended by more than half (63%) of these students. Of the respondents who attended events at ISC, 30% had attended international club meetings, while only 15% of this group had been attracted to an arts and crafts event.

Attendance at the various events would be determined, at least in part, by the frequency in which each event was made available to the students. Information regarding an estimate of events held per year was obtained during the interviews with the staff of the Center. Approximately 1200 events are hosted by the Center during an year ranging from English speaking classes and association meetings on a small scale, to an international week on a large scale. According to the student responses, the most frequently attended events are the international dinners/lunches, international
festivals, socials, lectures, and educational displays. Attendance for association meetings tends to be low. Perhaps the low attendance is due to the frequency with which these groups meet or that the meetings tend to be issue, context, or situation oriented. In contrast, due to 1253 international students currently enrolled for the Spring Semester, 1991, at VPI & SU and twenty-two student association bodies from different countries in force, the frequency of sponsoring events like international lunches, festivals, lectures and educational displays on various cultures is very high. This could be the reason for the students' higher frequency of visits, which ranged between four to six times per month for the above listed events. One of the students expressed his/her opinion that international festivals should be sponsored more frequently.

(b) Reasons for non-participation.

Graduate students

The students who reported that they had not attended an event at ISC, were asked to explain the reasons for their non-participation. Seven students (25%) out of twenty-nine responded negatively to having attended an event at ISC (Table 3). Reasons given by three graduate students were that they did not know the location of the center, and four reported that they were unaware of when the events were
held, and two said that they did not have time to attend ISC activities.

**Undergraduate students**

Forty-five (90%) undergraduate students out of the fifty reported having not attended a function at ISC. Table 3 summarizes the reasons given by the students for non-attendance. Twenty-seven of this group of respondents (60%) had never heard of ISC and nineteen of them (42%) were unaware of when events were held. Seven respondents did not know the location of the Center. Only two students gave their reasoning for non-participation as having little interest in attending the activities held at the Center.

**Combined student sample**

For most students, the primary reason given for having not attended events at the ISC was due to their being unaware of the Center and its activities. For some, even though they may have heard of the ISC, they did not participate because they did not know of its location. Fourteen indicated other reasons for non-participation: reasons which included being unaware of such a center, never hearing of the events that are held by the center, etc. One of the reason given by a student that offered a different insight was that he/she was not aware that the events also
### Table 3. Reasons for Non-Panicipation

<table>
<thead>
<tr>
<th>Description</th>
<th>Graduates</th>
<th></th>
<th>Undergraduates</th>
<th></th>
<th>Combined Student Sample</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>Percent</td>
<td>Number</td>
<td>Percent</td>
<td>Number</td>
<td>Percent</td>
</tr>
<tr>
<td>Number of students not attended an event at C.I.C.</td>
<td>7</td>
<td>25</td>
<td>45</td>
<td>90</td>
<td>52</td>
<td>66</td>
</tr>
<tr>
<td>Reasons for non-participation:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>* Never heard of it</td>
<td>1</td>
<td>14</td>
<td>27</td>
<td>60</td>
<td>28</td>
<td>54</td>
</tr>
<tr>
<td>* Heard of it but do not know where it is</td>
<td>3</td>
<td>43</td>
<td>7</td>
<td>16</td>
<td>10</td>
<td>19</td>
</tr>
<tr>
<td>* Too far to walk</td>
<td>1</td>
<td>14</td>
<td>--</td>
<td>--</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>* None of the activities held there interest me</td>
<td>--</td>
<td>--</td>
<td>2</td>
<td>4</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>* No free time to attend activities held there</td>
<td>2</td>
<td>29</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>* Limited parking space</td>
<td>--</td>
<td>--</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>* Unaware of when events are held there</td>
<td>4</td>
<td>57</td>
<td>19</td>
<td>42</td>
<td>23</td>
<td>44</td>
</tr>
<tr>
<td>* Others</td>
<td>3</td>
<td>43</td>
<td>11</td>
<td>24</td>
<td>14</td>
<td>29</td>
</tr>
</tbody>
</table>
were open to American students.

(c) Types of activities that would interest students.

Graduate students

All the graduate students (100%) indicated an interest in the activities sponsored by ISC. When asked to identify the types of events they most likely would attend (Table 4), the highest percentage (72%) preferred international festivals, while 69% of this group identified international dinners. Sixty-six percent of the students preferred social events to meet and make new friends and 62% showed an interest in lectures and educational displays of various cultures.

Undergraduate students

Of the fifty undergraduate respondents, 78% showed an interest in attending activities (Table 4). The highest number indicated that international festivals (56%) were of greatest interest, followed closely by international arts and crafts display at 54%. Forty-four percent of the respondents were interested in the international dinners and social gatherings. A substantial number of students indicated an interest in lectures or educational displays on various cultures (39%).
### Table 4. Types of Activities That Would Interest Students.

<table>
<thead>
<tr>
<th>Description</th>
<th>Graduates</th>
<th></th>
<th>Undergraduates</th>
<th></th>
<th>Combined Student Sample</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>Percent</td>
<td>Number</td>
<td>Percent</td>
<td>Number</td>
<td>Percent</td>
</tr>
<tr>
<td>Students interested in attending events at C.I.C.</td>
<td>29</td>
<td>100</td>
<td>39</td>
<td>78</td>
<td>68</td>
<td>86</td>
</tr>
<tr>
<td><strong>Type of events attended</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>* International dinners</td>
<td>20</td>
<td>69</td>
<td>17</td>
<td>44</td>
<td>37</td>
<td>54</td>
</tr>
<tr>
<td>* International festivals</td>
<td>21</td>
<td>72</td>
<td>22</td>
<td>56</td>
<td>43</td>
<td>63</td>
</tr>
<tr>
<td>* Arts and crafts display</td>
<td>13</td>
<td>45</td>
<td>21</td>
<td>54</td>
<td>34</td>
<td>50</td>
</tr>
<tr>
<td>* Association meetings</td>
<td>4</td>
<td>14</td>
<td>1</td>
<td>3</td>
<td>5</td>
<td>7</td>
</tr>
<tr>
<td>* International club meetings</td>
<td>9</td>
<td>31</td>
<td>1</td>
<td>3</td>
<td>10</td>
<td>15</td>
</tr>
<tr>
<td>* To meet friends/socials</td>
<td>19</td>
<td>66</td>
<td>17</td>
<td>44</td>
<td>36</td>
<td>53</td>
</tr>
<tr>
<td>* Lectures and educational display on various cultures</td>
<td>18</td>
<td>62</td>
<td>15</td>
<td>38</td>
<td>33</td>
<td>49</td>
</tr>
</tbody>
</table>
Combined student sample

When asked "Would you be interested in attending activities of the ISC?", graduate students (100%) expressed greater interest than did the undergraduates (78%). The preferences for the events that would interest them varied somewhat between the graduate and undergraduate students. Graduate students showed more interest in international dinners, international festivals, lectures and educational displays on various cultures, and in using the center to meet and socialize with friends. Graduate students (33%) expressed greater interest than the undergraduates (3%) in attending international club meetings.

In response to the question to all the students, "What type of activities would encourage you to use the ISC more often?", several interesting possibilities emerged. One of the respondents expressed an interest in helping new international students with English, a very effective way of promoting friendships between Internationals and Americans. Some students wanted to see an international talent show and some thought that having a private auditorium for special events would increase attendance. Another suggestion was to introduce cooking nights instead of a prepared dinner, where students could participate in the actual cooking. Some students suggested setting up permanent showcases from different cultures instead of a one-time international
festival where exhibits are dismantled once the festival is over.

Student responses to the survey, helped identify important features that should be included in the design of new International Student Center. They are as follows:

(1) A multi-purpose room to facilitate hosting a variety of events, such as cultural festivals, cultural functions, and social opportunities.

(2) A good cooking and eating facility to accommodate international dinners and international festivals.

(3) A language laboratory to further interaction between Americans and Internationals.

(4) A large conference room for lectures and educational displays.

(5) Provision for permanent display areas to accommodate the students' interest for having more long term exhibits of arts and crafts.

Increased publicity of events and programs by the center would probably assure higher participation by all students. In addition, an increased awareness of the location of the International Student Center might occur if all major events were held in the same facility.

**Summary of Cranwell International Center staff interviews**

An interview document was developed to collect data
from the staff of ISC. The purpose of the interviews was,

1) to obtain staff insights as to how the existing facility is being used, and to record staff suggestions and recommendations for the ideal design of a new facility,

2) to estimate the type of present and future programs being sponsored by the center,

3) to record the number of events sponsored by the center,

4) to determine the kind of activities that attract large number of American and International students,

5) to record their opinions on the uniqueness of an ISC when compared to any other meeting facility,

6) to obtain their projections for future needs,

7) to determine the staff office needs, spatial relationships with regards to their office spaces, and the tasks performed by them, and

8) to record the staff suggestions on utility areas like kitchen, display areas, and storage spaces.

The individual interviews with three members of the Center's staff were conducted on 7 May, 1991. The results of the interview are discussed in the following order:

a) present and future number of staff required and tasks performed by them

b) arrangement of staff work spaces

c) staff recommendations for general and utility areas,
and

d) staff recommendations for current and future activities and programs.

a) Present and future number of staff required and tasks performed by them

Out of five staff members presently working at the Center, two are in managerial positions. The Center’s staff operate as a close-knit group where jobs are not rigidly defined, except at the management level. Three members of the staff work full-time hours while the other two are employed on a part-time basis. Staff members agreed that one additional full-time staff position was needed in the future. They feel a staff of four full-time members, including the director and assistant director, and two part-time members would be adequate for an efficient operation.

According to the Center’s staff, the most time-consuming job on a typical day is counselling students and meeting with visitors. They reported that four of the staff members including the assistant director, spends an average of two hours a day, fulfilling these responsibilities. The interaction between the students and the director and one staff member is comparatively low. The jobs performed by the staff are interrelated and therefore they spend approximately two hours daily conferring with colleagues to
get useful feedback about their tasks. The rest of the day is spent by the staff doing routine office jobs like data processing, photocopying, filing and running errands.

b) Arrangement of staff work spaces

Having used the existing Center and its facilities, the staff has become familiar with the shortcomings of the present facilities. Thus, the staff members were asked to identify an ideal working arrangement for their office spaces in view of their job requirements. When asked about the importance of proximity to the entrance, their responses indicated that all office spaces related to interaction with students should be situated near the entrance. In other words, the assistant director’s office, receptionist/secretary’s office, and two staff offices needed to be placed close to the entrance. The director’s office and one staff office could be located away from the entrance since their interaction with the students was comparatively low. In response to spatial adjacency with co-workers, the staff indicated that all their office spaces be either adjacent or in close proximity to each other. The staff also preferred that the non-administrative spaces like multi-purpose room, large conference rooms, copy machine and kitchen, to be situated at a distance from their office spaces so as not to interfere with their daily activities.
The staff was asked about equipment needed for an efficient office space. They preferred modern office amenities/conveniences such as adjustable seating, adjustable heating/A.C., adjustable tasklight, workspace to spread projects, storage and file space, extra chair at the desk, and a computer table. It was inferred from interviewing with them that the above mentioned office facilities would help improve their efficiency. In addition, it was also inferred in their responses that separate offices for the staff would improve their working efficiency due to their different job responsibilities.

**Staff recommendations for general and utility areas**

Most of the suggestions about the kitchen area were in relation to the existing facility. The suggestions were crucial since all the staff emphasized that food from different countries was the major attraction for any of the International Center's sponsored event. The suggestions included larger workspaces, locked storage space for different associations and an institutional/industrial oven. The assistant director suggested an outdoor barbecue as an additional facility that might attract more students to a "cooking night".

When the staff was asked about the items that are generally displayed at the center, the responses included
tapestries, posters, artifacts, art exhibits, paintings, and rugs. The staff preferred lockable, designated display areas to avoid the inconvenience of dismantling and replacing them on a regular basis and they also recommended tackable walls and lockable glass shelves. Adequate lighting for all display areas was also identified as a major requirement.

Other suggestions for storage spaces included provisions for stackable tables, and chairs. A coat rack accessible to the staff and the students was requested. Individual storage space for different associations was also recommended. A separate storage provision for documents was requested for seasonal activities, such as orientation materials for all new students, social security registration forms for international students, etc.

Staff recommendations for current and future activities and programs

VPI & SU recently celebrated its thirty-third international week and this is only one out of an array of programs organized by the Center every year. During the Fall semester of every year the staff is responsible for planning and carrying out a week long orientation for incoming international students which includes assisting them with completing social security applications, obtaining
identification cards, introducing them to their host families, campus, and other available facilities. English classes are conducted for international students and their spouses. Knowledge of different cultures is imparted through films, speakers, and lectures. The social aspect of a student’s college experience is catered to by events like the international week, international dinners and pooja (prayer) group meetings. The Center not only provides for the needs of the international community, but also issues travel guidance and identification cards for specific American students at VPI & SU going overseas. The Center also accommodates weekly meetings of different associations, marriage receptions on a smaller scale, along with large-scale receptions for the visiting dignitaries hosted by the President of VPI & SU.

Annually, the Center sponsors an average of 1200 events in-spite of the space constraint. If the space were made available, the Center could introduce programs on a larger scale. If space were not a constraint, the staff reported that they would like to celebrate a country’s culture and traditions every month, possibly based on its national day, throughout the year. The staff also expressed interest in conducting informal children’s programs, international game nights, folk dancing nights, and language labs for all students.
The staff observed that events featuring international foods tended to attract larger number of American students. The opportunity to learn languages like French/German also drew increased numbers of American students. For international students, the biggest attraction is food also, and the opportunity to participate in social gatherings. Discussions on controversial topics hold a special appeal for both American and international audiences.

The staff had specific suggestions on special features they wanted to see incorporated in the design of a new International Student Center. They stressed the importance of having a multi-purpose room (with movable dividers) with a seating capacity of approximately two hundred, and preferably including a stage. It was also suggested that the furniture be modular seating so as to ensure flexibility in use of the space. An important suggestion was for the provision of a self-sufficient apartment within the center to host visiting scholars, speakers, and dignitaries. Another staff member suggested a workroom to correlate office work (photocopying, faxing, filing, etc.). In the opinion of the staff the overall design of International Center should be unique in style in terms of materials and decor. One of the staff suggested incorporating special touches or symbols from other countries (for example, a welcome sign in Japanese or Chinese) which would create a
comfortable, homely feeling for the International students.

The goals and objectives of the ISC are unique from any other organization on campus. The students it caters to are also a special minority group on campus. So, the design and decor of ISC should reflect this uniqueness. Most international students view ISC as a base where they can discover a home away from home. It is a place to discover the common threads underlying different cultures. ISC is also a foundation from where all international events around campus are coordinated. The design should also reflect the unity in diversity of different cultures to create the "home atmosphere" that all international students seek in an International Student Center.

Summarizing the results of the interviews conducted with the International Student Center staff, the most important features that need to be included in a new ISC are as follows:

(1) A multi-purpose room, with dividers to accommodate smaller crowds, that is adequate enough to accommodate seating for approximately two hundred students.

(2) A storage space to accommodate stackable chairs and tables should be provided in close proximity to the multi-purpose room.

(3) A patio that would facilitate hosting events like outdoor barbecues and cooking nights, that would be in
close proximity to the multi-purpose room and kitchen.

(4) Two large conferences that would facilitate hosting events such as, lectures and discussions, lectures and educational displays on various cultures, association and international club meetings, English and International language classes, and pooja (prayer) group meetings.

(5) A small conference room, easily accessible for staff and students, for discussions and counselling with staff and students.

(6) A self sufficient private apartment that would house visiting scholars, speakers and dignitaries within the center.

(7) A reception area that would facilitate a literature rack of current activities and programs, permanent and movable display cases for art and craft exhibits, informal and movable seating with international newspaper and magazine stand. In addition, the reception area should depict a decor that is representative of various cultures.

(8) Five staff offices, including that of the director and assistant director, should be in closer proximity to facilitate interaction between themselves.

_Design program_
Design program

Programming is a systematic collection and analysis of information about the problem to be solved (McGinty, 1979). Programming is the most crucial part of the design process. During this phase, the designer converts the user needs to area or space requirements. These area or space requirements lead to the proposal-making phase in the design process, i.e. synthesizing a large amount of information to arrive at the design proposals.

For this project, it was difficult to estimate the maximum number of people using the Center at a given time since the Center is open to all university students. Further, one of the objectives of the Center is to increase the number of participants in the future. However, the assistant director’s recommendations for a multi-purpose room with a seating capacity of approximately two hundred was used as a base for design decisions. A maximum capacity was set at 275 for the number of people who might use the facility at any one time. This number laid the foundation for other area requirements in the new Center. All the approximate area requirements for various spaces mentioned below were calculated using Architectural Planning Standards.

International Student Center.

An ISC with an approximate area, not exceeding 11,000
sq.ft. was programmed. The new International Students Center would have as a minimum, the defined spaces and area that are listed below:

1. Reception lobby (1500 sq. ft.)
   (a). Reception desk to accommodate ten to twelve square feet of clear workspace, a computer terminal, a typewriter, a telephone, two drawer storage pedestal, and a secretarial posture chair.
   (b). A literature rack (accessible to public) for information regarding current activities and programs.
   (c). Coat storage, locked storage for visual materials available for public check-out i.e. slides, films, video cassettes, audio cassettes (forty lineal feet of shelving), four water fountains, one telephone booth.
   (d). Visitor seating for twelve to fifteen people.
   (e). Display areas - lockable glass cases, movable tackable display areas, display walls.

2. 3 Staff offices (150 sq.ft. each)
   (a). Three office spaces. Each requires a work area to accommodate a computer, ten to twelve square feet of worksurface, nine lineal feet of filing, and six to eight lineal feet of open shelving. Each requires a managerial chair and one extra chair near the desk. Two of the staff offices should be located in closer proximity to the entrance.
3. ISC Director's office (150 sq.ft.)
   (a). A private office.
   (b). A work area to accommodate a computer, twelve to fifteen feet of worksurface, fifteen to eighteen lineal feet of filing, double pedestal desk, executive chair, two chairs near the desk.

4. ISC Assistant Director's office (150 sq.ft.)
   (a). A private office located in near proximity to the entrance.
   (b). A work area to accommodate a computer, twelve to fifteen feet of worksurface, fifteen to eighteen lineal feet of filing, double pedestal desk, executive chair, two chairs near the desk, an extra chair.

5. Work room (200 sq.ft.)
   (a). Should be accessible to the entire staff and the receptionist.
   (b). Should accommodate a copy machine, fax machine, one laser printer, thirty square feet of storage space for office supplies, a minimum of sixty lineal feet of storage for various program materials, eighteen square feet of workspace.

6. Kitchen (550 sq.ft.)
   (a). A minimum of forty square feet of counterspace, cabinets including some with lockers, an industrial size oven, cooking range, large size refrigerator, two
sinks and other appropriate appliances to accommodate food functions related to luncheons, dinners, meetings, conferences and receptions.

7. Multi-purpose room (4000 sq. ft.)
   Should accommodate approximately two hundred seated with a stage, blackout shades, chairs, tables, projection screen, movable partitions, provision for overhead and slide projectors.

8. Two conference rooms (500 sq. ft. each)
   With blackboard, blackout shades, chairs, tables, projection screen, movable partitions, provision for overhead and slide projectors.

9. One conference room (250 sq. ft.)
   With blackboard, shades, chairs, table, projection screen, movable partitions, provision for overhead and slide projectors should be easily accessible from the center’s staff.

10. Rest rooms (300 sq. ft.)
    Men’s: four urinals, three toilets, two hand dryers, three lavatories with mirrors, one changing area with mirror.
    Women’s: four toilets, two hand dryers, four lavatories with mirrors, one changing area with mirror.
    Both restrooms should be handicap accessible.

11. Self-sufficient apartment (1000 sq. ft.)
A living area with seating for four people, television, two sleeping areas (one with a full bed and the other with two single beds), a dining area for two, kitchen with refrigerator, sink, cooking range, and a microwave, and a bathroom with lavatory, toilet, and a bathtub/shower.

The design program for the new international students center was formulated by making several iterations during programming and the proposal-making phases, by posing what-if situations where needed. It was realized that programming and design were inseparably linked in a dynamic process, and hence were performed simultaneously.

The following chapter will discuss the design proposal and solutions for a new ISC to satisfy all the design program requirements. It also discusses the specific situations where a particular design decision was implemented.
Chapter 5

DESIGN DEVELOPMENT OF INTERNATIONAL STUDENT CENTER

The next phase of the design process is proposal making. A design framework was developed during this phase in response to the design theories and models reviewed, the information gathered, and the broad guidelines identified through the design program.

At this stage it must be reiterated that the design process for this thesis was holistic, and the design programming and design decisions were done iteratively. According to Kurtz, a private practitioner, programming and proposal making phases are linked in a dynamic process (as quoted in Palmer). In order to explain his notion of design methodology a graphic relevant to this design project (Figure 2) was developed. The proposal making process had been classified into three phases: conceptualization, schematics, and space planning. Conceptualization is the phase of drawing general and broad guidelines for the design. Schematics is the phase of screening the broad concepts arrived during the conceptualization phase and retaining the relevant concepts. Space planning is the last phase of realizing the product of the design process.

This chapter, organized into three sections, discusses
Figure 2. Modified version of Kurtz’s Programming Methodology
the evolution of design for the new ISC with a brief discussion on the site and its location.

**Site**

The selected site is located at the intersection of West Campus Drive and the road leading to the President’s House (The Grove) (Figure 3) with Hillcrest graduate dormitory on the south and Saunders Hall on the east across Campus Drive. The overall shape of the site is triangular with a steep gradient of approximately twenty feet towards the intersection from south-east and south-west corners. Further down the slope is the amphitheater. Presently, the site is thickly vegetated with eleven fully grown trees.

The inherent geographic features of the site placed several constraints on the shape, structure, and the design of the building. In addition, the effect of the proposed ISC building on the adjacent buildings were also considered during the design process. In other words, any proposed building on this site should not overshadow the President’s House. Further, it should not spoil the view for the Hillcrest dormitory residents of the wooded beauty surrounding the amphitheater.

Every proposed facility at VPI & SU had to follow the building codes set by BOCA. After satisfying the code requirements a footprint of the buildable space on the
CONCEPTUAL SITE PLAN

Figure 3. Conceptual site plan of the proposed ISC.
selected site was achieved. This set the stage for drawing broad guidelines for the conceptualization phase of design process.

Guidelines for conceptualization

(1) The overall form of the ISC had to be such that it could fit in with the site plan.

(2) The square footage arrived at during the programming phase had to be followed with a certain amount of flexibility. This flexibility allowed designed spaces to be plus or minus 10% of the allocated square footage. As per the programming methodology proposed by Kurtz, the areas that varied largely over the range of flexibility needed to be reprogrammed and the conceptualization process had to be started all over.

(3) One of the important criterion discussed during the site selection process was that a new facility should be designed to attract maximum number of students.

(4) The most important point that was voiced by the ISC staff was that an international center should visually reflect its purpose and that the center should feature different elements from various cultures. Since the exterior of the building had to adhere to the rules set by the University Planning Office, attention was focussed on the interior areas.
The space requirements that evolved from the design program were classified under four categories: public, semi-public, semi-private, and private. These four categories were defined as follows:

1) **Public spaces** are the spaces that could be easily accessed by all users. For example, multi-purpose room, large conferences, kitchen, restrooms, reception and display areas.

2) **Semi-public spaces** are the spaces that are used by the center’s staff and are easily accessible by the center’s staff and students for counselling. The assistant director’s office, two of the staff offices, and the small conference room were designed as semi-public spaces.

3) **Semi-private spaces** are the spaces that are used by specific personnel (in this case the center’s staff) with easy access to the staff and with limited public access. The director’s office, one of the staff offices, and the work room belong to this category.

4) **Private spaces** are the areas that have only limited access for the center’s staff and its invited guests. Housing for dignitaries and visiting scholars fall into this category.

This categorization helped in the understanding of spaces that were to be immediately accessible to students and the
Overall Spaces

Public
- Multi-purpose room
- Large conference rooms
- Kitchen
- Reception
- Display areas
- Outside patio
- Rest rooms

Semi-Public
- Assistant director's office
- 2 staff offices
- Small conference

Semi-Private
- Director's office
- 1 staff office
- Work room + storage

Private
- Visiting dignitary housing

Figure 4. General criteria: Overall Spaces
ones that were not. Figure 4 shows how the design progressed during the conceptualization phase. Since the public and semi-public spaces were open to large crowds and traffic, a "what-if" scenario was posed in order to solve the issues of whether the multi-purpose hall, conference rooms and kitchen had to be isolated from or included with the staff areas. Public areas were grouped on the right side of the entry while the semi-public and semi-private spaces were grouped on the left. The advantages of this arrangement are as follows:

(1) noise could be controlled between public and semi-public spaces,

(2) public areas could be open for longer or different hours than the semi-public spaces, and

(3) traffic could be reduced in semi-public and semi-private spaces.

Concepts that were also given consideration in the design process included, symmetry/asymmetry and balance, shape and texture, light and shade, scale and proportions, time and context, pattern and color, climate, and technology. The limited scope of this project does not allow detailed discussions on each of the above parameters. However, they have been incorporated during the design phase.

In addition, thumb nail sketches helped steer the design through more viable channels. Figures 11 and 12
developed during the conceptualization phase paved the way to the next phase of design proposal making, i.e. the schematics. The refined views of the same are explained under the space planning section.

**Schematics**

Adjacency diagrams for various spaces were generated in view of the broad guidelines developed during the conceptualization phase and schematic phase (Figure 5). This was just the beginning of putting pieces and concepts together. As a precautionary measure the programming, conceptualization, and schematic phases were reworked in order to avoid major pitfalls in the proposed design.

The first step in assimilating these broad pieces together was the footprint of the possible designable space generated during conceptualization phase. The space tablets generated for major spaces were placed on the footprint following the adjacency diagram arrived at earlier. The laying of space tablets on the site brought certain features of the design process like massing of the building, horizontal and vertical spread of the building, and landscaping as a design element into focus. Most importantly, laying of space tablets brought to light the crucial and inherent feature of the site, i.e. the steep slope. This had generated various thoughts for designing a
building that would look like a building mass cropping out of the earth. In addition, the questions of trade-offs regarding spaces that need to be on the side facing the roads in order to make provisions for natural light and spaces that could be located toward the Hillcrest dormitory. In view of the above discussed points it was decided to place staff areas, multi-purpose room, and the reception lounge facing the road. In addition, it was also decided to place the kitchen closer to the parking lot, facilitating for easy loading and unloading of needed equipment. Design elements such as indoor and outdoor landscaping, elements of interest (international displays), etc., were also considered during the schematic phase.

Space planning

This phase of the design process was simplified by including the major criteria during conceptualization and schematic stages. In this design of an ISC, all the criteria that governed the outcome were duly considered by posing what-if questions at every decision taken. Figure 6 and 7 show the floor plans with furniture layouts. Figure 8 shows the front elevation of the proposed ISC.

The main objectives considered during space planning phase are as follows:

(1) to design a space for dual or multiple uses,
Figure 6. First floor plan with furniture layout.
VISITOR'S HOUSING

Figure 7. Visitor's housing plan with furniture layout.
Figure 8. Elevation of the proposed ISC.
(2) to create a sense of homely feeling for internationals,
(3) to depict the character and theme of an ISC,
(4) to provide an observer's sense of orientation through all spaces, and
(5) to design an overall space that would speak for itself.

The reception/lounge presented the greatest design challenge in that it needed to serve all the above mentioned objectives (Figure 9). In addition, the lounge acts as a buffer space between the public spaces and semi-public and semi-private spaces.

The reception/lounge area becomes the focal point of the building by serving as the entrance, the lobby to the multi-purpose room and as a gallery for the display of arts and crafts. In addition, the centrally located display areas provided the necessary visual barriers between public and semi-public spaces. The rectangular display space has glass cases and movable display areas with mountable seating. The lobby area floor is to be done in marble, with traffic and display areas defined by different colors. This allowed for an informally defined display gallery in the center of the lounge. The rectangular display area was further accentuated and defined with a same shape and size cove light ceiling. The displays were further accentuated with track lighting. Provision of track lighting increased the much needed flexibility for the display cases and
Figure 9. Detailed plan of the display areas.
tackable walls. An international statue is located in the center of the display areas to immediately focus the observer's attention and provide a sense of space and environment. Structural framework for displaying banners from the ceiling is provided for obtaining a three dimensional effect and increasing the verticality of the reception areas. Neutral colors were selected for the reception areas so as to provide a setting which accentuates the arts and crafts displays. The materials used for the walls, ceiling, fixtures, and furnishings, used in the reception/lounge would need to be selected for their sound absorbency. Provision for displaying wall and floor exhibits for the various student associations during their festivals and celebrations was made at the rear end of the reception/lounge. Three dimensional forms and tackable surfaces were provided. Figure 10 shows a tranverse section of the display areas. Figures 11 and 12 are the perpective views of the display areas.

A multi-purpose room (Figure 13) was designed to accommodate approximately two hundred seated people at a given time. In addition, it was provided with movable dividers to accommodate smaller crowds. A stage in close proximity to the changing rooms (provided in the restrooms) was designed. The stage was provided with adequate lighting and electrical outlets. Figure 14 shows a tranverse
Figure 11. Perspective view of the display areas.
Figure 12. Perspective view of the display areas
Figure 13. Detailed plan the Multi-purpose room.
Figure 14. Transverse section of the Multi-purpose room.
section of the multi-purpose room. Since the multi-purpose room would act as an auditorium and also as a dining area, the circulation from the multi-purpose room to the kitchen, and from the kitchen to the multi-purpose room and outside patio were considered to be crucial. The plan accommodates large crowds to move easily by exiting from the top right hand corner of the multi-purpose room, past the kitchen serving window/counter, and back into the multi-purpose room through the opposite corner door, or exiting through the door to the patio. In addition, the corridor widths were increased to avoid congestion near the entry and exit doors of the multi-purpose rooms.

The proposed design of the new ISC is very flexible for future growth and change. An increase of two more staff members can be accommodated in the small conference room. The activities of the small conference room can be facilitated in one of the large conference rooms. If needed to accommodate larger crowds in the multi-purpose room the stage can be replaced with a flexible and easily mountable platform.

The other spaces, like large conference rooms (Figure 15), staff areas (Figure 16), restrooms, and dignitary housing (Figure 7), provided considerably lesser design challenge and creativity. These spaces were mostly governed by the design program, codes, and standard requirements from
Figure 15. Detail plan of large conference.
Figure 16. Detail plan of staff areas.
Architectural Planning Standards. Occupancy load, number of exits, widths of the corridors and handicap accessibility requirements were considered and incorporated into the design where and when required. Herman Miller furniture (on state contract) was used for the furniture.
Chapter 6

SUMMARY

Globalization of economic and technological advancements has made it imperative that people of different cultures and traditions interact with one another. One of the important forums for cultural exchange on the campuses of large universities in the United States is the International Student Center (ISC). These centers help internationals overcome language barriers and loneliness in an alien culture. For Americans, these centers open doors to the world by providing opportunities to reach beyond cultural and political barriers so as to foster better understanding of humans and their cultural differences and similarities. In all, the ISC is trying to make students realize the common threads underlying various cultures. This realization helps students and the academic community gain an appreciation for the cultural differences of people around the world and discover the unity in diversity among them. Even though ISC's serve an important function on campus, these programs often are housed in spaces which have been adapted for the purpose rather than being designed specifically to meet their needs. Typical of the type of spaces for international student activities is found at Virginia Polytechnic Institute and State University (VPI &
SU). The ISC at VPI & SU is located in a former residence which puts numerous constraints on the activities that can take place within the building. Hence, forcing the activities to be accommodated by an array of different spaces, in scattered locations around the campus. Recognition of the need for improved facilities had led to an interest in generating support for promoting a plan for a new ISC facility. This project was carried out to develop a preliminary plan which could be used to gain support (and ultimately funding) to realize a new center in the near future. The development of the design met the following objectives:

* to develop a design which will accommodate all activities relevant to the interests of the international student body and the staff of the International Student Center.
* to create an environment conducive to increased interaction between nationals and internationals
* to design space to accommodate the maximum number of activities in the least amount of space
* to present the design solution through renderings, sketches, and CAD drawings to scale, appropriate for use in promoting a plan for a new International Student Center on the campus of VPI & SU.

In addition, this study would help in serving as a model for further research in designing ISC’s at other universities.

In order to accomplish the above mentioned objectives an
user need assessment was conducted through student questionnaire surveys and staff interviews. A design program was developed keeping in mind an ideal, but practical, design solution. If this project were to be realized there are constraints not known at this time which would also have an impact on design decisions, constraints such as budget, time, schedules, some of the more specific design details, etc. Since the design is still in its preliminary stages, detailing and specifications for the proposed ISC could not be done. In addition, as the design was still on paper and not realized into a physical form, post occupancy evaluations of the center were not possible.

Implications for future developments of the design of an ISC

Unlike a recreation center, all international student centers at various universities are designed to meet different requirements that are unique to that particular university and the international student body. Such requirements are generally dictated by factors like size of the international student body, its diversity, availability of resources, possible site, etc. Moreover, according to the assistant director of the ISC at VPI & SU, most International Student Centers on University campuses have come into existence in the past five to ten years. In addition, these existing centers have not been constructed exclusively for serving the
international students' needs. Typically in most universities, the ISC's are accommodated in existing buildings with some adaptations to fulfill the Center's requirements.

Literature reviews of related design theories and approaches provided important insights for this project. Literature, though not specifically focused on this kind of design project, provided an opportunity to look into different design decision models and theories and choose the best approach for this project. Since there is little documentation of the design successes or failures of existing International Student Centers, further studies similar to this project would lead to better understanding of how universities and colleges might best support international programs by providing well-designed facilities. Post Occupancy Evaluation of one ISC designed specifically for serving the needs of the international student community would provide useful documentation of successful designs.

This thesis project is only a beginning in bringing awareness to the University administration of VPI & SU concerning the need for a well-designed ISC. In addition, it is a start for compiling documented information on design criteria for an ISC.
Bibliography


List of definitions

Paths - **Paths are the channels along which the observer customarily, occasionally or potentially moves.** These may be streets, walkways, transit lines etc (Lynch, 1960).

Trade-off assessments - in decision making, selecting the choice from analysis of advantages and disadvantages of two or more alternatives.
APPENDIX A

STAFF SURVEY FORM
INTERVIEW SCHEDULE
INTERNATIONAL STUDENT CENTER (ISC) STAFF

Staff name ____________________ Position Title ____________________

No. of years employed at Center ___ Full time/part time position?

Job description: ________________________________________________________
______________________________________________________________________
______________________________________________________________________

Tasks Performed:                                                         Approx. Hours for a typical day
___ answering phone                                                      __________________
___ using typewriter                                                      __________________
___ using computer                                                       __________________
___ conferring with director/asst. director                             __________________
___ conferring with co-workers                                          __________________
___ conferring with students                                            __________________
___ conferring with visitors/newcomers                                  __________________
___ filing                                                               __________________
___ photocopying                                                         __________________
___ running errands outside of office                                   __________________

What would be an ideal number of full time staff? ________
of part-time staff? _______

Given your job requirements where would be an ideal arrangement of your office space in relation to:

<table>
<thead>
<tr>
<th>Space description</th>
<th>(very close)</th>
<th>(very far)</th>
</tr>
</thead>
<tbody>
<tr>
<td>director/asst. director</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Co-workers</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Students</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Visitors/newcomers</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Entrance</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Conference/meeting rooms</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Multi-purpose rooms</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Copy Machine</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Kitchen</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

Describe what would be needed for an efficient office for you:
___ adjustable seating
___ adjustable heating/A.C.
___ adjustable task light
___ workspace to spread projects
___ storage and file space
___ extra chair at the desk
___ computer table
Is your present kitchen adequate? If not, what improvements would you make?

_________________________________________________________

_________________________________________________________

_________________________________________________________

_________________________________________________________

Are there any special needs due to being I.S.C. that a standard cooking facility would not normally incorporate.

_________________________________________________________

_________________________________________________________

_________________________________________________________

What types of items are often displayed at the center?

_________________________________________________________

_________________________________________________________

_________________________________________________________

Describe the types of display areas that would be most useful. For example, display cases, takable walls, shelves, others (please rank order them).

_________________________________________________________

_________________________________________________________

_________________________________________________________

Describe any special storage spaces that are needed.

_________________________________________________________

_________________________________________________________

_________________________________________________________

Estimate number of activities (programs) held at ISC per

Day _________ Week _________ Month _________ Year_________
Identify types of programs sponsored in one academic year at the ISC currently:

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

If space were available, what program changes or additions would you make?

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

What types of programs attract the largest audiences?

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

What types of programs attract the largest number of Americans?

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

Describe any special features that you would like to see included in the design of a new International Student Center.

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

In your opinion what should make the I.S.C. different from any other general meeting facility.

________________________________________________________________________
APPENDIX (B)

STUDENT SURVEY FORM
INTERNATIONAL STUDENT CENTER SURVEY

Your response to the following questions concerning Cranwell International Student Center would be helpful in developing plans for a future new facility. This survey is being carried out in partial fulfillment of a design project for my Master's thesis. Your participation is appreciated.

Thank You. Srinivas K. (Sharma) Bulusu

Dr. J. Bowker, Major Advisor

(Please check one)

1. Undergraduate___ Master's program___ Ph.D program___

2. International Student___ U.S. citizen ___

3. Male ___ Female ___

4. Have you ever attended an event at the Cranwell International Center. Yes___ No___

5. If NO was response to No.4, Check any of the following reasons which explain why you have not been to the Cranwell Center.

___ Never heard of it

___ Heard of it but do not know where it is

___ Too far to walk

___ None of the activities held there interest me

___ No free time to attend activities held there

___ Limited parking space

___ Unaware of when events are held there

___ Others, please specify ____________________________

__________________________________________________

6. Would you be interested in attending activities of the international center? Yes___ No___

continue on reverse side
7. If YES was response to No. 6, what types of activities would you be interested in attending?
   ___ International dinners
   ___ International festivals
   ___ Arts & Crafts display
   ___ Association meetings
   ___ International club meetings
   ___ To meet friends/socials
   ___ Lectures and educational display on various cultures
   ___ Others (please specify) _________________________________

   If you answered NO to No. 4, you have completed the questionnaire. Thank you.

8. If YES was your response to No. 4, indicate the type of events you attended and also give an estimate of the frequency of attendance.

   Number of times per month
   1-3  4-6  7-10  more

   International dinners
   International festivals
   Arts & Crafts display
   Association meetings
   International club meetings
   To meet friends/socials
   Lectures/educational displays
   Others (please specify) _________________________________

9. What type of activities would encourage you to use the Cranwell Center more often?
   _________________________________
   _________________________________
   _________________________________

   You have completed the questionnaire. Thank you.
VITA

Srinivas K. Bulusu (Sharma), son of Mr. & Mrs. B.Kameswara Rao, was born on April 24, 1965, in Vijayawada, India. In 1982, he graduated from his higher secondary studies from Siddhartha College, Vijayawada. He appeared for Common Architecture Entrance Examination and was ranked second in the state. He then attended College of Fine Arts and Architecture, Jawaharlal Nehru Technological University, Hyderabad, India; and in 1987 received a Bachelor's degree in Architecture. During this period, he worked for two architectural firms M/s Modulor and M/s Raj Expedith Associates.

In March 1988, the author entered the Graduate Program of Housing, Interior Design, and Resource Management at Virginia Polytechnic Institute and State University, Blacksburg, VA. He also held a graduate assistantship in Interior Design during his Master's program. Presently, the author is working for Greenberg Farrow Architecture Inc., an Architecture, Design and Planning firm based in Atlanta.

Srinivas K. Bulusu (Sharma)