

SAINT PAUL'S EPISCOPAL CHURCH, CLAY CENTER, KANSAS:
A POST OCCUPANCY EVALUATION

by

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A MASTER'S THESIS

submitted in partial fulfillment of the

requirements for the degree

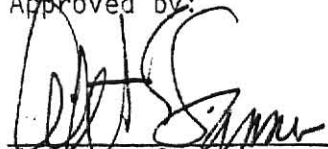
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Chapter 1

INTRODUCTION

Statement of the Problem

The purpose of this thesis is to conduct a post occupancy evaluation of a church and gain insight into the feasibility of using post occupancy evaluation as a tool in the total design process. The vehicle for this thesis is Saint Paul's Episcopal Church, Clay Center, Kansas, designed and built in 1975 by Manhattan, Kansas architect and former Kansas State University associate professor, Charles L. Hall. (See Figure 1).

It is abundantly clear that very limited knowledge is available to members of the architectural profession in the form of client feedback. Therefore it is believed that the information derived from this thesis will help establish some insight into the successes as well as inadequacies of the building from the user viewpoint. Relating the intentions of the users and architect and then evaluating the resultant building should provide an identification of problem areas in this design which may be avoided by this architect in future similar projects.

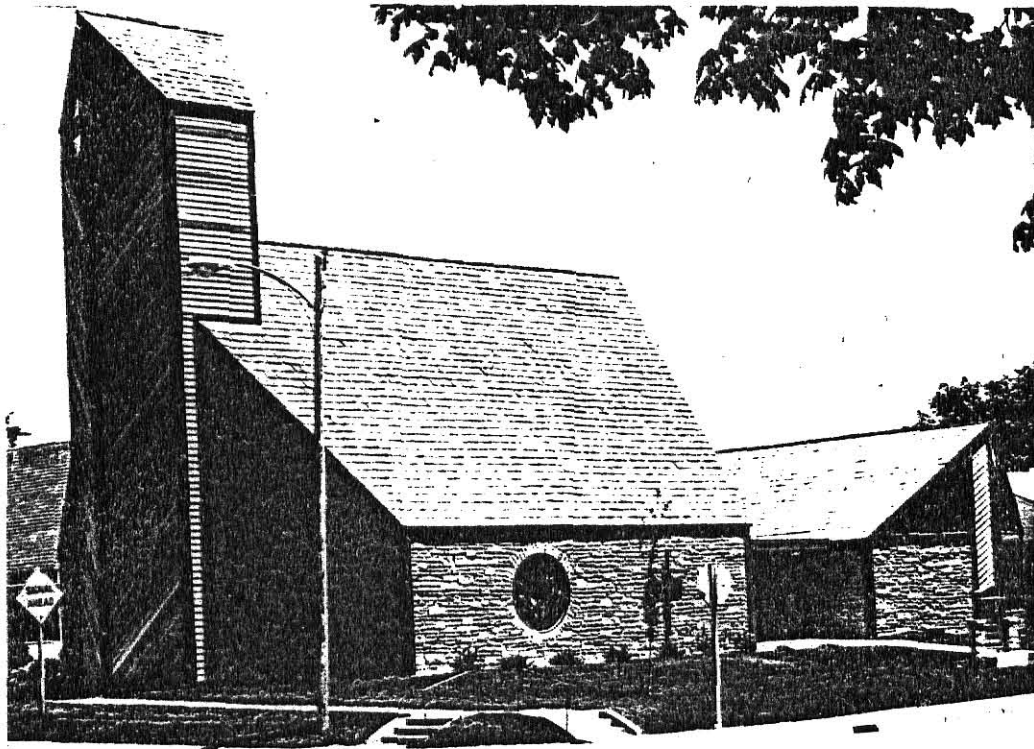
The decision to use Saint Paul's Episcopal Church as a model for a post occupancy evaluation is based largely upon the strong programmatic input from the congregation and the architect's interest in the church as a building type. Initial plan and program reviews, discussions with the architect and priest-emeritus, Father Earl Minturn, and visits to the site allowed the identification of five major design issues. These issues are the basis for data gathering, analysis, and ultimately evalu-

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Figure 1

Photograph of Saint Paul's Episcopal Church



ative conclusions.

The Issues in the Study

The issues in this study are as follows:

- 1) The functionality of the multi-purpose spaces.
- 2) The mobility of the elderly within and without the building.
- 3) The success of the Nave as a worship/inspirational space.
- 4) The aesthetics of the physical design.
- 5) The functionality of the administrative/service spaces.

Theoretical Background

Literature Review on Post Occupancy Evaluation as a Design Tool

As we do evaluations, we do these in order to accumulate information and develop theory. In turn the theory can formulate better programs from this theoretical approach. The literature search not only provided insight into the various methods of conducting post occupancy evaluations but initially emphasized the overwhelming need for post occupancy evaluation as part of the complete design cycle.

Post occupancy evaluation, as John Zeisel (1974) points out, is part of a larger continuing cycle of design. It is the feedback loop which allows the designer to have insight into his decisions, while offering the client/user a documentation of the intended use of their building. The educational experience offers the evaluator insight into the complexities involved from the conceptual planning of a building to the actual built structure. Deasy (1974) states that: "Feedback from users is the missing element in self-conscious architecture....". This leads us to a discussion of three basic procedures for conducting post occupancy evaluation.

The Design Cycle

According to Zeisel (1974), post occupancy evaluation can be feed-back into the design cycle as shown in Figure 2 developed by Zeisel, Mason and Popper (1974) and Griffin (1973). We note here that the purest method of conducting a post occupancy evaluation is to base evaluative measurements on explicit pre-design programming decisions, when available. Brill (1976) expands on this model by outlining very specifically how evaluation needs to be conducted with respect to the performance concept. The objectives of the design (which are to meet the needs of the user) and the activities taking place (patterns of user behavior) must have been clearly stated to allow evaluation of building performance in meeting user needs. Performance specifications which state characteristics of a product, space, etc., rather than naming specifics, are the basis on which he states we can conduct evaluation of environmental characteristics, activities, and objectives. Brill's argument to echo and expand that of Zeisel is that "the utility of evaluation is dependent on its utility in an ongoing design process". This process can be useful only if evaluation and measurement of objectives and activities can be met.

Hypothesis Testing

In the absence of an explicit program to guide evaluation, the evaluator will need to reconstruct the background and evolution of the project to provide a basis for hypothesis (Zeisel, 1974). This is accomplished by investigating project files, preliminary sketches, working drawings, and most importantly, talking with the client and architect to ascertain as clear an overall understanding of the project as possible. Through the use of these investigative techniques, significant design issues will eventually "fall together". The intentions of the client

and architect must be clear to allow a valid evaluation to occur. There may not be a consensus, therefore the evaluator may need to decide. As Zeisel (1974) states, interviews with the architect specifically allow the evaluator to explore the architect's design ideas and objectives, which provide information on how and why specific design decisions were made.

Post Hoc Observation

Extensive evaluation can be accomplished through careful post hoc observation of behavior. In this manner, the evaluator is able to determine what behavior a given space is actually accommodating by watching and recording what people are doing in the space.

Barker (1960) was a forerunner in the field of evaluation when he observed behavior settings. Behavior setting theory links the study of people to the way they function in their accustomed physical and social environments. He states "(Physical and social) settings have plans for their inhabitant's behavior, and inputs are activated within the limits of the setting's control systems to produce the planned behavior."

Edward T. Hall (1966) describes behavior in a spatial context also. The evaluator can use fixed and semi-fixed feature spaces as observational units and identify how the space elicits users to maintain one or more of the "four distances" (intimate to public) he describes in The Hidden Dimension. Sandra Howel (1978) is currently conducting evaluations of public/private sectors in retirement homes for the elderly by observing activities and doing behavioral mapping. From such observations, she is establishing guidelines for design of retirement homes for the elderly.

Justification of the Study

Selection Criteria

A preliminary investigation of church projects completed by The Hall Associates yielded a list of three churches which would be worthy of further study. Projects by The Hall Associates only were chosen as the author intends to make the results of this thesis his contribution to the firm. The criteria for determining the selection were as follows:

- 1) A program, in the traditional sense, had to have been supplied for the building that evidenced that programming efforts by the client had been somewhat organized.
- 2) A project had to exhibit complete contractual design and working drawing effort on the architect's part.
- 3) The building must have been occupied one year or longer.

Upon establishing the list of buildings that met these criteria, a preliminary discussion was conducted with the pastor and/or head of the building committee of each. In each discussion I explained that, not only was I representing The Hall Associates but that I was contemplating selecting his church and congregation, staff, etc., as a study model for a more in-depth post occupancy evaluation, as part of a Masters thesis in architecture.

Buildings Under Original Consideration

The three church buildings under original consideration for evaluation were as follows:

- 1) First Presbyterian Church, Manhattan, Kansas. This building underwent an interior remodeling of the sanctuary and some main floor ancillary areas, and was completed in 1971.
- 2) Peace Lutheran Church, Manhattan, Kansas. This was a new

building completed in 1966 for a new congregation, which along with the Lutheran Church of America organization, imposed stringent guidelines for the size and budget.

- 3) Saint Paul's Episcopal Church, Clay Center, Kansas. This new building, completed in 1975 and recipient of an AIA Annual Merit Award in 1976, was designed and constructed to replace a very traditional neo-Gothic type structure destroyed during a tornado in 1974.

Selection of Saint Paul's

Saint Paul's Episcopal Church in Clay Center, Kansas, best met the preceding criteria by being:

- 1) A building that had strong programmatic input from congregational members for every portion of the building.
- 2) A completely new facility, where the constraints of an existing building were not put upon the congregation's desires or the architect's design flexibility.
- 3) A new building, where the congregation had not outgrown the facility, as was the case with Peace Lutheran Church, but where they had had time to establish patterns of usage in the building.

Description & Identification of Design Issues for Evaluation

The specific design issues stated in the introduction to this chapter evolved as being the most pertinent to a post occupancy evaluation of Saint Paul's Episcopal Church.

Issue 1: The Functionality of the Multi-Purpose Spaces

The program states the need for spaces which serve multiple purposes. These are the Parish Hall, the Undercroft (large dining/meeting room in

basement), the Narthex (vestibule), the Preschool/Nursery classroom, and to some extent the Nave. These spaces were to flow together in order to be easily accessible from one to another.

Upon initial plan evaluation and inspection of the building, after a discussion with Father Minturn, it appeared that the building did meet these basic requirements. Discussions with the architect indicated he basically accepted this as a client requirement and within physical site limitations, spaces were made as large, flexible, and accessible as feasible to permit the greatest amount of traffic flow from one area to another. It was felt that the central Narthex could be used as a congregating space for interaction immediately before and after worship services and would contribute a unity to main floor space.

A subsequent series of visits to Sunday morning worship services and coffee hours began to identify that some spaces, particularly on the main floor level, were being used as programmed quite heavily for various meetings. The larger spaces on the basement level appeared to be underutilized by the congregation and thus delegated to light use by groups needing only exceptionally large spaces.

Table 1 shows the existing spaces as programmed and the current amount of use. The floor plans in Figures 3 and 4 show the locations of the spaces in the building. Table 1 shows that the upper level spaces have not only been used by the majority of the church related groups, but all of the community based groups using the building have vied for use of these spaces as well. Initial observations indicated that the large multiple use spaces on the basement level were only used when it was physically impossible to accommodate larger numbers of people in the Parish Hall on the main floor. Such occasions are dinners, rummage sales, etc.

Table 1

Allocation and Frequency of Activities by Space

Space	Time In Use		
	More than Once/Week	At Least Weekly	Monthly or Less
Nave	Worship	Choir Practice	Praise Gathering Weddings Funerals
Parish Hall		Coffee Hour Weight Watchers	Alcoholics Anonymous Drug Abuse Programs Receptions
Administrative Offices	Daily Office Work		
Undercroft		Quilting Church School	Church Bazaar- annually Episcopal Women's Group-monthly Community Dinners- semi-annually
Multi-Use Room		Church School	
Kitchen			Episcopal Women's Group-monthly Community Dinners- semi-annually
Outdoor Spaces			Fellowship

Figure 3
First Floor Plan

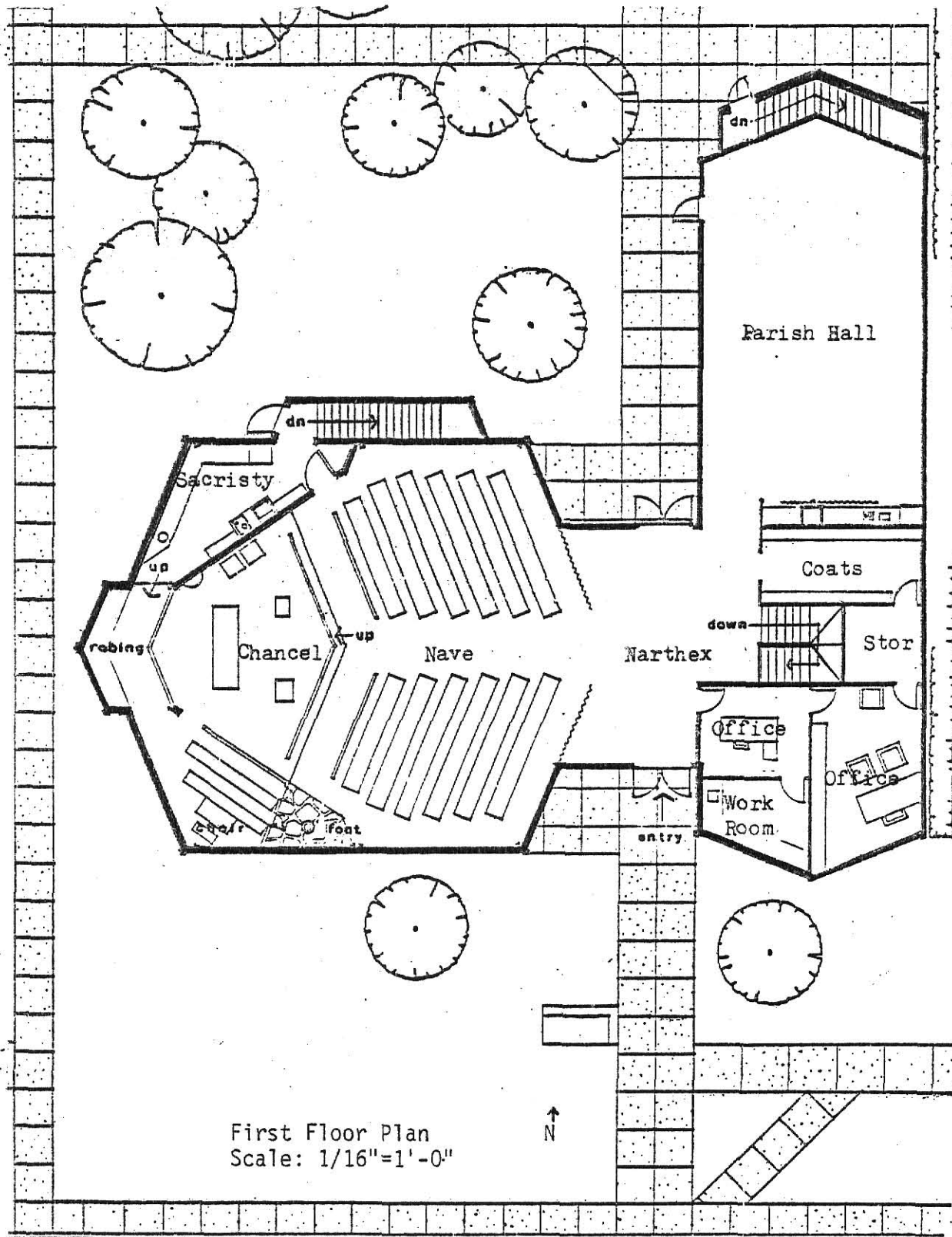
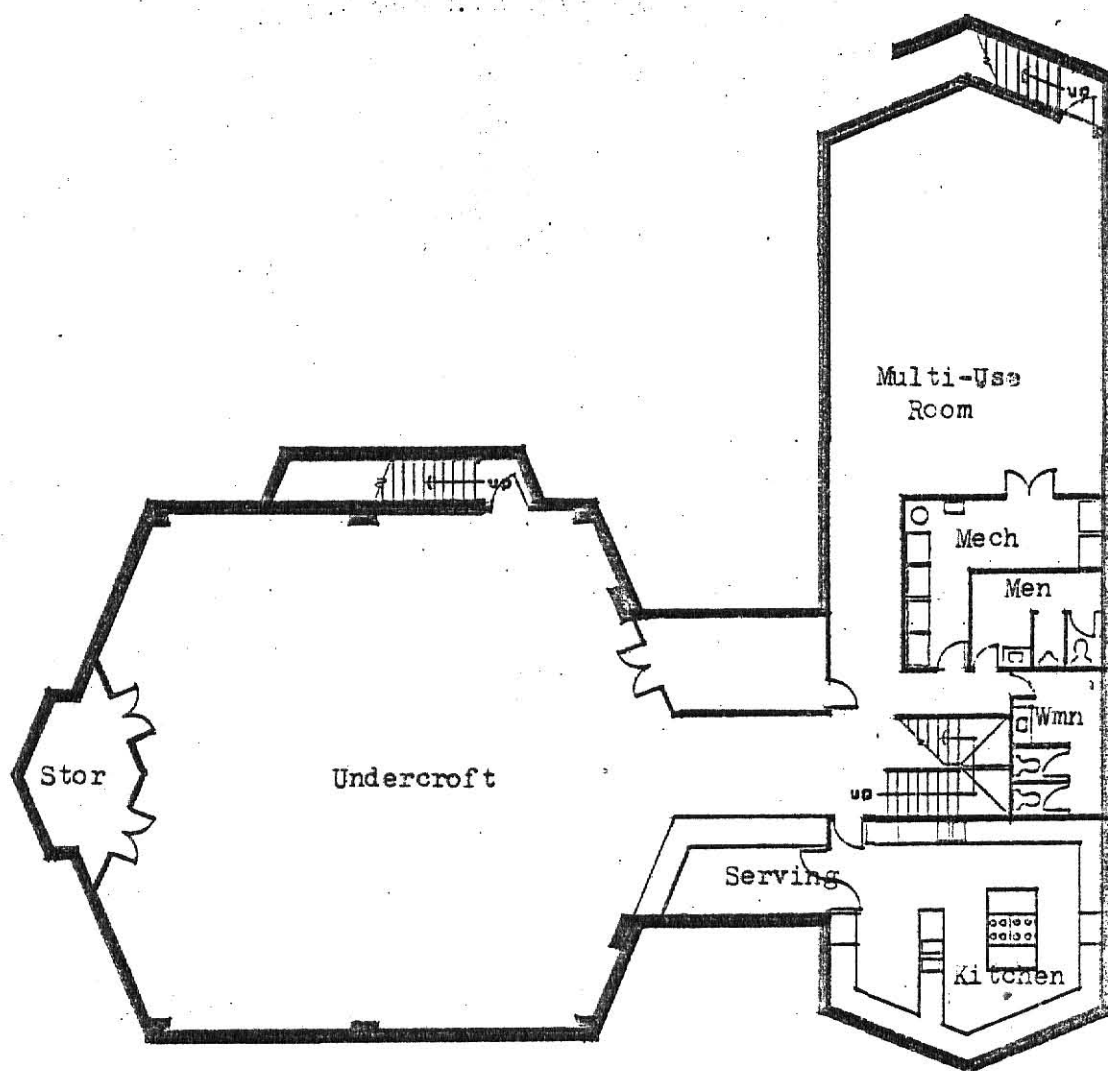


Figure 4
Basement Floor Plan



Basement Floor Plan
Scale: 1/16"=1'-0"

Technical questions, specifically concerning acoustic properties in all of the multi-purpose spaces, emerged. Initial observations indicated that the "openness" of the building plan was very conducive to noise infiltration from one area to another and from one floor to another. Physical design features, angled walls particularly, caused speakers in spaces other than the Nave to be unheard by audiences. The extent to which this is true for all spaces is to be discussed in the chapters concerning findings and conclusions.

With this information base including congregation, priest, and architect input and initial observations made, it became evident that the ability of the multi-purpose spaces to function as they were intended was a primary issue deserving evaluation in this thesis.

Issue 2: The Mobility of the Elderly Within and Without the Building

Although not discussed at length in the program, but discussed with Father Minturn, was the fact that the somewhat elderly congregation had to be able to easily maneuver around the building. As a sizeable portion, approximately sixty percent, of the congregation is age sixty or older, it is evident that their needs had to be considered in the design of the building. Therefore, the design issue of how well people in general, but particularly the elderly portion of the user group, function within and without the building as a whole is of interest to this evaluation.

In an effort to design for the somewhat elderly congregation, the architect felt there had been an attempt to provide minimal level changes and place the most used facilities on the main floor. It was acknowledged, however, that certain problems do exist in the building which could hinder use by the elderly.

During floor plan evaluations, it was immediately evident that a poor stairway design and the location of toilet rooms on the basement

level could pose severe problems for the elderly, and likely the rest of the congregation as well. During the initial visits, it became evident that these two items were major complaints from most everyone, not just the elderly. Casual observations indicated that the stairway was not extensively used by most elderly persons who did attend church. To support the tendency of the elderly to avoid the stairs, it can be hypothesized that most activities were scheduled on the first floor, as Table 1 indicates. A question that may eventually be answered with regard to behavior, is whether an inability to use the stairs to get to the toilet can deter elderly congregation members from attending church completely.

Issue 3: The Success of the Nave as a Worship/Inspirational Space

The Nave, from the client's viewpoint, was to be an extremely important space with respect to the worship service. For the purpose of this thesis, the Chancel area (located within the Nave, see Figure 3) will be included when the term Nave is used. An important aspect in making the Nave inspirational for them was the potential re-use of artifacts from their previously destroyed building. Artifacts listed in the program to be reused included the reredos, alter, christus rex, lecturn, and several stained glass windows. The seating capacity required by the program was 125, as the congregation is not large and is not growing greatly.

Through discussions with the architect, it was learned that of primary importance to him was that the Nave design demonstrate the philosophy of trying to get the "Word", meaning feeling of religiosity, close to the people. In so doing, his design was intended to elicit attention and interest on the part of the members of the congregation attending worship services. He felt that he could accomplish this objective not only through the use of the remaining artifacts from the previous build-

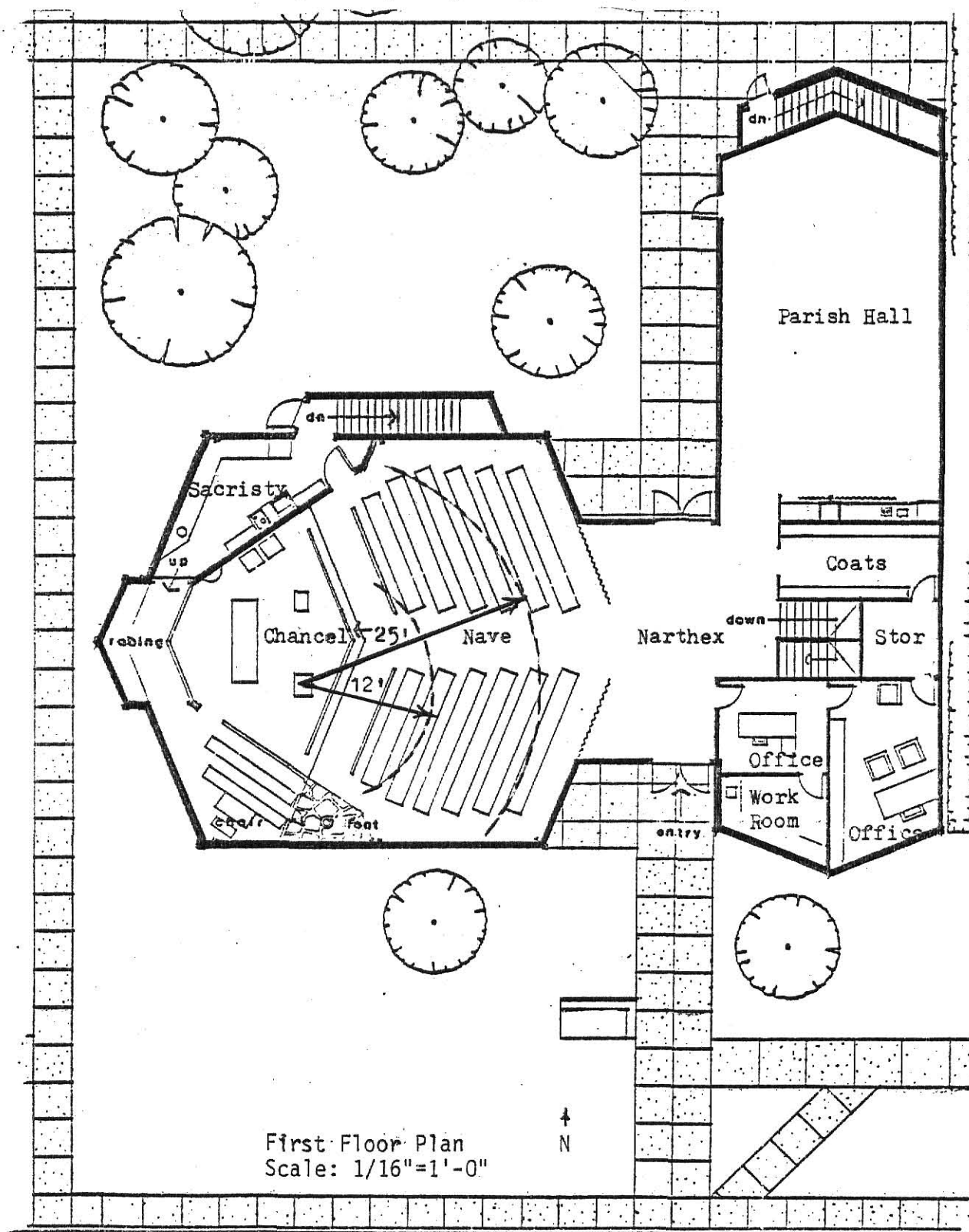
ing, but through the use of several design elements in the space. Angled pews have been used for seating. All members of the congregation face "in" to a Chancel area that projects out into the rest of the Nave. This feature essentially eliminates anyone from having to sit at the "back" of the space, as the pews are six rows deep, but somewhat elongated.

During initial observations during worship services, note was taken of the reuse of the previously mentioned artifacts. All have been reused in the new Nave and pieces of shattered stained glass from the previous building have been incorporated into a large round, south-facing window. Brief comments received from several members of the congregation indicated that the presence of these items at a minimum made them "feel at home" in the new building.

The architect's intention of eliciting attention in the service by the congregation was preliminarily studied by two methods. Through floor plan evaluation, it was noted that the angled seating plan got members of the congregation closer to the priest than would a traditional basilica plan. With respect to Edward Hall's "four distances" which he describes in "The Anthropology of Space: An Organizing Model" (1966) this arrangement allows several additional persons to be within a radius of twelve feet, the far phase of social distance. It also allows a small additional portion of the congregation to be within a radius of twenty-five feet, the far phase of public distance. See Figure 5. Hall describes his "four distances": intimate, personal, social and public with close and far phases in each category. These distances directly relate to how far persons are from each other in differing social situations. Intimate distance ranges from close physical contact to a separation of about 18 inches. Personal distance ranges 18 inches to about four feet. Social distance ranges from four to twelve feet. And public distance ranges

Figure 5

Seating Location in Relation to Speaker



from twelve feet and over.

While conducting mapping with regard to seating in the Nave during a usual Sunday morning worship service (attendance at 50-80 persons), it became evident that seating patterns did exist. Initial observations showed that the most elderly locate to the left middle area (rows 2-5) first and then to the left and right front rows. See Figure 5 for chancel arrangement and row locations. Middle-aged and younger persons tended to choose locations to the left rear first and then fill in the right side of the Nave. Those families with children usually took whatever seating was available, but the right side initially appeared to be the choice as the left side filled first.

Subsequent observations were made on Easter Sunday, 1978, to compare normal attendance with an overflow group (130). Stationing myself as early as possible, it was apparent that the elderly and late middle-aged who had usually chosen the left mid-section were in place first. It was extremely difficult to continue recording changes as people entered and others moved to accommodate them. However, the younger and middle-aged persons were congregated to the very rear (sixth row) on the left and dispersed on the right. Most families with children were left to choose space on the right side of the Nave or fill in the overflow space in the Narthex. Approximately sixteen persons were seated in that space, but it did not fill to capacity.

A research question appeared to be emerging with regard to the inspirational quality of the Nave. This was: Does the choice of seating location during a worship service affect a member's involvement in the proceedings, and to what extent, if any, does the pew relationship to the Chancel reinforce this involvement? The latter point directly addresses the architect's hypothesis. An additional question arises and

this is: Is this seating choice actually a result of certain surface physical controls? These being the location of the priest during the sermon, lighting quality, acoustics, the ability to see the artifacts better, etc.....

The elderly, who according to church records, are the long time members, appeared to be somewhat in control of seating patterns. If seating location is directly related to the inspirational benefit derived during a worship service, how strong is it for those sitting in all areas of the Nave? It is these questions which have evolved from program/congregation input, architect input, and initial observations that identify the Nave as an extremely important element for evaluation.

Issue 4: The Aesthetics of the Physical Design

The issue of aesthetics is of interest with respect to user reaction to the actual physical design, form and features of the building. This issue was raised primarily because the program specifically stated that a traditional building, "not too mod" was the terminology used, was requested. The building, however, is distinctly contemporary. The original intentions of the congregation, voiced by the priest-emeritus, called for a duplicate of their original building.

During discussions with the architect, it was learned that unity of physical expression through the use of strongly related exterior and interior focal points was considered to be very important to him in the overall design. Although the congregation had not requested a contemporary building, the architect demonstrated through preliminary proposals that materials, such as stone, wood, etc., which had been requested in the program, should be and could be used most cost effectively with remaining items from the previous building in a contemporary manner to give them the type of building they needed. (See Figure 1).

During my initial visits to the site, it was evident that the design met the architect's objective of trying to meet the congregation's desires through the use of a contemporary design. However, as the original program stated, a rather traditional building was requested. Immediate reactions received from informal discussions with several members of the congregation indicated that those individuals were, however, pleased with the design and especially with some aspects of stained glass usage. However this was not necessarily valid information concerning the congregation as a whole. Questioning a large majority of the congregation members to identify specific reactions to material usage, vaulted ceilings, stained glass usage, the "image" that the building presented to the community, and their general impressions about the building "looking like what a church should look like" were questions which needed further investigation.

A specific technical issue relating to aesthetics, noted during the initial visits, which warranted further investigation was that of adherence to specific design features, i.e. angled walls, vaulted ceilings, etc., thus possibly allowing acoustics to suffer in several meeting spaces. More than one person remarked to me during my talk in the Parish Hall, for example, that they could not hear me, even though I was speaking rather loudly. Upon further questioning, I learned that I was not the first person who had gone unheard in that particular space. This occurrence appeared to indicate that for aesthetics sake, behavior, i.e., the ability to hear, was being compromised. Therefore, it is believed that an evaluation of the aesthetic design of the building, from the user's viewpoint, plays an important role in the complete evaluation of the building. Not only did the "look at" aspects of the design emerge as being important, but how they affect use of the interior/exterior spaces as intended is relevant.

Issue 5: The Functionality of the Administrative/Service Spaces

A considerable portion of the program and my discussions with Father Minturn were devoted to the functions which the administrative/service spaces had to accommodate. The administrative suite was to accommodate the priest's office, secretary's office and a large workroom. The information supplied by those individuals who use the building daily would appear to be valuable. Therefore, the ability of these spaces to support required secretarial, custodial, and office functions etc., must be considered as a significant design issue requiring evaluation.

During discussions with the architect, it was learned that to specifically design for the administrative functions within the building, he again used the somewhat explicit program requirements. In addition to these requirements, however, features to include an exterior stairway were provided to specifically allow for access by service and delivery persons to the lower level without having to enter through the building.

From initial floor plan evaluation, the administrative suite appeared to meet programmed space requirements. Subsequent observations indicated, however, that natural light, which is introduced from large windows in the priest's office and work room to the south, was much too intense and had been covered with sun ray screening material, which is somewhat effective. The location of the thermostat in relation to the angle of the sunlight has prevented proper air-conditioning of these spaces, according to Father Minturn. A programmed rear entrance into the priest's private office was not in use and actually blocked, as a priest no longer lives on the site and has had no need for private access. The question of possible security problems concerning control by the secretary over entry into the building appeared to be important. Preliminary input from service persons was not obtained due to unavailability.

Questions which emerged in addition to the general utility of the office spaces included: a. Justification of certain aesthetic features to the detriment of the space functioning technically, b. The actual need for some programmed items in these spaces, and c. The forethought on the part of the congregation. Because of the basic satisfaction with these spaces by the staff and apparent discrepancies in actual benefit to them, the issue of these spaces functioning to capacity for the users is important to the evaluation of the building as a whole.

Conclusions

The five major design issues have been presented in further detail. Supportive reasoning has been given concerning the importance of each issue to a meaningful evaluation of Saint Paul's Episcopal Church. As demonstrated in the discussion of each issue, the program, conversations with the client and architect, and initial observations of behavior occurring in the building formulated the basis for identification of each topic as an evaluation issue.

Essentially, the events which transpired during the initial investigative procedures of this thesis utilized each of the post occupancy evaluation "models" discussed previously. By gleaning available information through the use of each method when pertinent, valuable research questions have been identified.

In subsequent chapters data gathering and analysis methods, findings, and conclusions will be addressed with regard to these issues. A final comment will be made with regard to the value of post occupancy evaluation as an investigative tool in the design process.

Chapter 2

METHODS AND PROCEDURES

Collection of Data

A series of methods and procedures was used to investigate the design issues outlined in Chapter one. These procedures occurred in a somewhat sequential order during the Spring of 1978. The sequence began with the literature review discussed in Chapter 1 and culminated with selected individual interviews. A discussion of the latter methods follows.

Observation

Observation within the church took primarily two forms, formal and informal. As the great majority of usage the building receives is on Sunday morning, most of my formal observation occurred at this time. The highly utilized spaces at this time are the Nave, and Parish Hall. The Undercroft and Multi-use room in the basement are also used but not as extensively.

The primary objective of my formal observation was to study seating patterns in the Nave and possibly relate these to design considerations. The Nave is composed of twelve rows of pews, six to each side of a center aisle, see Figure 6. All pews are angled inward toward a projected Chancel area at the front of the Nave and the choir and priest's pulpit are located to the left side of the Chancel as one faces it.

As a result of my initial observations during the first Sunday morning visit which contributed to the identification of Issue 3: The Suc-

Figure 6

Observation Location for Seating Tabulation

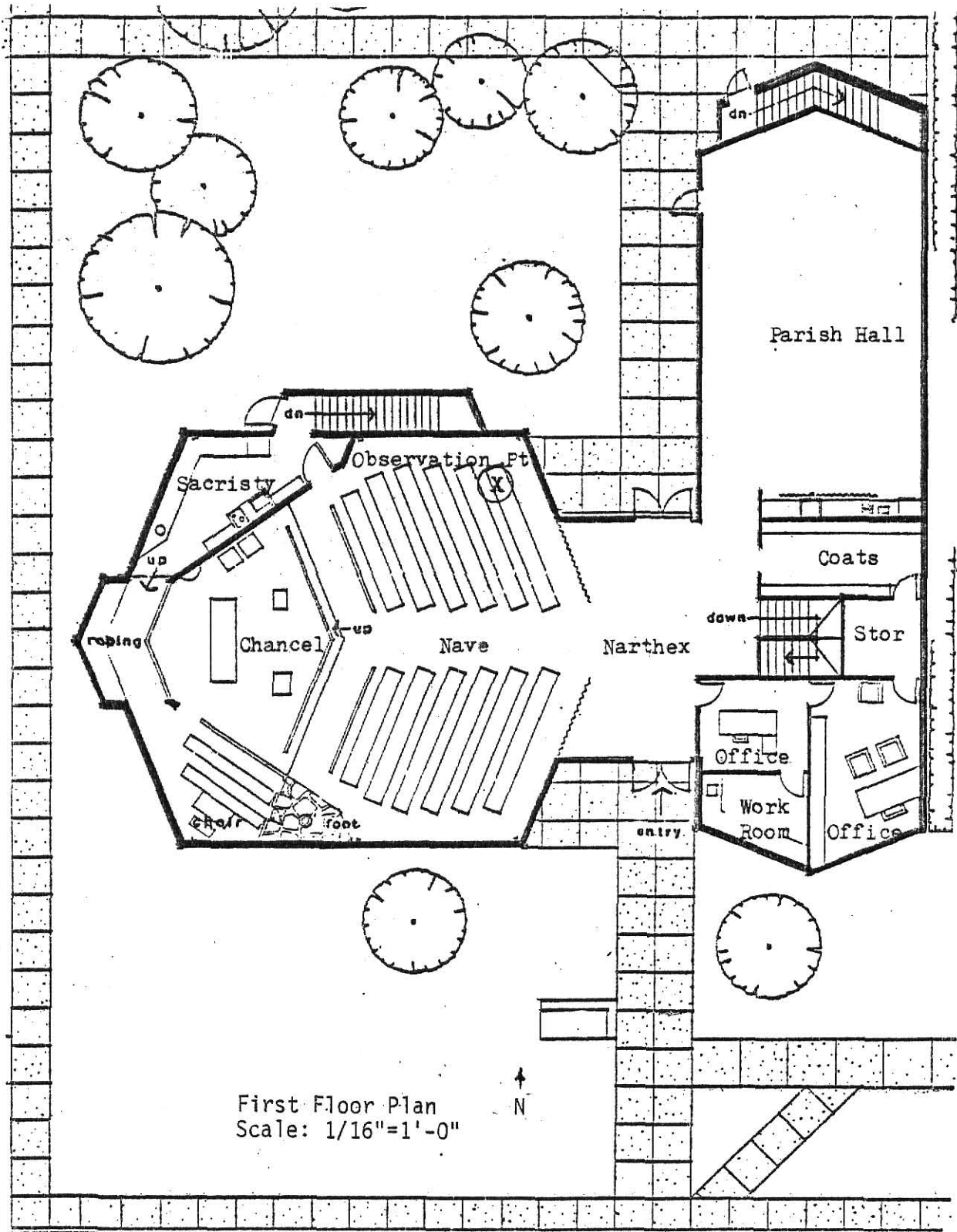


Table 2

Sample Tabulation of Seating Location

Row	Left Side								Right Side							
	Male				Female				Male				Female			
	E	M	Y	C	E	M	Y	C	E	M	Y	C	E	M	Y	C
1		1	1		2		1	1	1			1	2		1	1
2	2			1	4			1		2				3	1	1
3		2	1			2	1			3		1	1	2		3
4		2	1	1	2	3	1	1		2		2	1	2	2	2
5	2	1			4	1			1				1	5	1	
6	2		2		4		1			2	2	1	2	2	1	
Over- Flow		1	2			2				2		1		3	2	1

Note: The sample data for Table 2 were collected during a Sunday worship service on Easter, 1978.

Legend: E - Elderly: appeared to be age 60 or over.
M - Middle Age: appeared to be age 40-60.
Y - Young: appeared to be under 40.
C - Child

cess of the Nave as a Worship/Inspirational Space, the series of seating pattern studies which followed was to identify which groups, if any, chose particular seating locations on a somewhat continuous basis. If substantiated, reasons for these choices could be of importance to the overall evaluation. Observations were conducted from the point indicated on Figure 6. From this location I could see all of the pews and all persons seated in them. Locations further forward would have eliminated my ability to remain as inconspicuous as possible. See Table 2 for data recording. The total observation schedule for this data was three different Sunday morning worship services; in late February, early March and Easter Sunday, in late March.

The second type of observation conducted was simply informal. As our normal course of events on a Sunday morning was quite similar to most members of the congregation we were usually in the mainstream of any activity which was occurring in any particular location. In this way I was able to take advantage of these situations to watch how people were behaving in various parts of the building throughout the morning. Specific data was not recorded other than notes were made after a service concerning conversations held or simple observations made.

Questionnaire

The need to determine attitudes and opinions of the congregational members concerning their building was paramount from the beginning of this thesis. Therefore a formal means to identify these attitudes and opinions was required. A questionnaire was developed for use by all members of the congregation. See pages 76-82 in the appendix.

The questionnaire was designed to primarily determine feelings concerning Issues one through four being addressed in this thesis. To re-

iterate these are:

- 1) Issue 1: The functionality of the multi-purpose spaces.
- 2) Issue 2: the mobility of the elderly within and without the building.
- 3) Issue 3: The success of the Nave as a worship/inspirational space.
- 4) Issue 4: The aesthetics of the physical design.

Issue 5, The functionality of the administrative/service spaces was not appropriate for questioning with the entire congregation. Short interviews which are discussed shortly were used for Issue 5.

The questionnaire was divided into four main sections. Each section asked for a different type of information and different questions provided a different response format. The main sections are as follows:

- 1) You and Saint Paul's Episcopal Church. This section requests demographic data such as sex, age, length of church membership, etc.
- 2) Using Your Building. This section provided 18 questions, 17 of which included a three point (agree, neutral, disagree) scale to rate potential space usage, space flexibility, space accessibility and the acoustic and temperature amenities of various spaces. The 18th question was concerned with frequency of use of five major spaces and also provided a three point (once per week/month/year) scale. These questions were used in this section with the intention of verifying input from the architect, informal comments made by congregational members, and identify possible mobility problems of the elderly.
- 3) Your Nave and Chancel. This section provided 8 questions, 4 of which provided the 3 point scale. These questions primarily

addressed issues raised by the architect as being important to church design. This section also included a plan of the Nave/Chancel areas with the objective being to verify seating patterns which had been recorded during observation and obtain reasons for seating choice. As the reuse of several of the artifacts from the previous building had been programmed for reuse, a final objective of this section was to determine from the congregational viewpoint how well they actually fit the new surroundings.

- 4) The Architectural Design of Your Church. This section included 5 questions, 3 of which provided the 3-point response format. The issue being addressed here was generally how well the overall aesthetic design of the church met the congregation's mental idea of what a church should look like. Also included in this section was a list of various building materials and architectural design features commonly used in church design and construction. The 3-point (appropriate/neutral/inappropriate) response format was provided for each feature. A final "open-ended" question was included to identify various parts of the building with which members were not satisfied. The intention here was to permit any additional candid comments from respondents which the questionnaire may not have specifically addressed.

The final questionnaire format was decided upon after several drafts and a pre-test conducted with five members of the church vestry (governing committee). This pre-test helped to identify the significant questions, problems with wording and a manageable length of the overall format. Upon final revision the questionnaire was mailed to all adult members of the congregation which included 56 men and 89 women for a total of 145.

Of this group there were 51 married couples, 38 single women and 5 single men. The decision to administer the questionnaire to all adult members was based largely upon the relatively small size of the congregation and the potential return rate I would get, not being able to personally administer the questionnaire to each person. A stamped self-addressed envelope was enclosed with each questionnaire to simplify return mailing procedures for the respondents.

A cover letter and "Agreement to Participate" form, see appendix page 75, were included with each mailing to explain the purpose of the questionnaire. Each person was asked to return his form to the church the following Sunday if possible, otherwise mailing would be acceptable. The initial mailing was spread over approximately two days on the 4th and 5th of May, 1978. The following Sunday, May 13, 1978, I attended the morning worship service to collect what forms had been completed at that time. Return mailings were received through approximately three weeks after the initial mailing had occurred. Table 3 shows the total return rate and pertinent percentages.

Interviews

With the exception of the informal interviews, the author placed telephone calls to establish an appointment for the interview. My initial meeting with Father Minturn in November, 1977 aided in the formulation of subsequent questions asked of him and others and in the formulation of the questionnaire. Formal personal interviews were conducted with the priest-emeritus, Father Minturn; the church secretary, Mrs. Lillian Wylie; the church custodian; Mrs. Wilma Auchenbach; Father David Fly, KSU Episcopal priest and frequent guest priest at Saint Paul's, and several elderly members of the congregation. Fathers Minturn and Fly were asked the same general questions. Mrs. Wylie and Mrs. Auchenbach were asked a

Table 3

Questionnaire Return Rate

Sex	Questionnaires Distributed	Questionnaires Returned	Return Rate
Male	56	16	29%
Female	89	40	45%
Total	149	56	39%

different series of questions pertaining to their specific duties within the building.

The interviews with the elderly congregation members were of a more informal nature. Interviews were conducted by the author with elderly persons who had been congregation members for many years and had witnessed the destruction of their previous building and the construction of the new one. Most of these conversations occurred immediately after Sunday morning worship services during the coffee hour in the Parish Hall. Although no specific sequence of questions had been established I tried to as frequently as possible randomly talk with individuals about their feelings towards the building and steer the conversation toward their ability to maneuver around it. Reactions to various parts of the building were obtained in this manner and discussions often led to the reuse of the artifacts in the Nave. At times notes were taken, but usually I was simply able to listen and take notes later.

Chapter 3

FINDINGS AND DISCUSSION

Reporting of the Findings

The observations schedule discussed in Chapter 2 was used as an investigative tool in the early stages of this thesis in the effort to identify certain issues. From this investigative observation and issue identification portions of the format in the questionnaire were made possible. As seating patterns did exist and were described as such in Chapter 1 this information will not be repeated in this chapter.

It is the intent of this chapter to report the findings from the questionnaire and personal interviews conducted with respect to the five major issues as outlined in this thesis. These again are as follows:

- 1) Issue 1: The functionality of the multi-purpose spaces.
- 2) Issue 2: The mobility of the elderly within and without the building.
- 3) Issue 3: The success of the Nave as a worship/inspirational space.
- 4) Issue 4: The aesthetics of the physical design.
- 5) Issue 5: The functionality of the administrative/service spaces.

In order to report these findings as clearly as possible the method chosen is to report in table form responses to specific questions from the questionnaire as they pertain to each of the five major spaces in the building. Additionally, the number and its relevant percentage of

responses received for each possible choice to each question is shown. An "*" indicates that the statistic is significant at the .05 level. Additional information received from interviews is included in the narrative synopsis accompanying each table.

The Multi-Use Capacity of the Narthex, Parish Hall, Multi-use Room, Nave and Undercroft

Table 4 addresses the functionality of all five of the major spaces in their capacity as multi-use spaces which directly relates to Issue 1.

With respect to the ability of each space to accommodate a range of activities the Parish Hall and the Undercroft received the highest percentage of responses with 82% and 68% respectively. The spaces least capable of accommodating a range of activities were the Narthex and Multi-Use Room with only 14% and 16% positive response indicated respectively.

In an effort to identify which spaces may be able to accommodate two or more gatherings at the same time it was discerned that once again the Parish Hall and Undercroft received the highest percentage of positive response with 48% and 77% respectively. The Undercroft clearly is the one space, undoubtedly because of its size, that respondents agreed could handle more than one activity at a time. The Nave and Multi-Use Room spaces received very little support in their ability to accommodate more than two activities with 8% and 10% positive response respectively. The Narthex was unable to accommodate more than one activity at a time according to all respondents.

Of the five major spaces, disregarding the Nave at this point, only the Parish Hall was judged (93%) as being used for the purposes it was originally intended to serve when the building was originally constructed. The Narthex, Multi-Use Room and Undercroft received only 20%, 25%, and 27% respectively in positive response to this question.

Table 4

Percentage Distribution for the Multi-Use Capacity
of the Narthex, Parish Hall, Multi-Use
Room, Nave and Undercroft

Question	Response					Significance of χ^2
	N	Yes	%	No	%	
Which of the following spaces in your opinion, lends itself to accommodate a range of congregation or community gatherings?						
Narthex	56	8	14	48	86	*
Parish Hall	56	46	82	10	18	*
Multi-Use Room	56	9	16	47	84	*
Nave	56	22	39	34	61	*
Undercroft	56	38	68	18	32	*
In which of the following spaces could two (or more) meetings or social gatherings occur without noise or visual distraction from one gathering affecting the other(s)?						
Narthex	56	0	0	56	100	*
Parish Hall	56	27	48	29	52	*
Multi-Use Room	56	10	18	46	82	*
Nave	56	8	14	48	86	*
Undercroft	56	43	77	13	23	*

Table 4 (Continued)

Percentage Distribution for the Multi-Use Capacity
of the Narthex, Parish Hall, Multi-Use
Room, Nave and Undercroft

Question	N	Response				Significance		
		Yes	%	No	%	of χ^2		
Which of the following spaces is most often used for the purpose for which it was intended when the building was originally constructed?								
Narthex	56	11	20	45	80	*		
Parish Hall	55	52	93	3	5	*		
Multi-Use Room	56	14	25	42	75	*		
Undercroft	56	15	27	41	73	*		
How frequently do you attend activities in the following spaces?								
		1/week		1/mo.		1/yr.		
		Yes	%	Yes	%	Yes	%	
Narthex	56	47	84	4	7	5	9	*
Parish Hall	56	39	70	13	23	4	7	*
Multi-Use Room	56	3	5	5	9	48	86	*
Nave	56	50	89	5	9	1	2	*
Undercroft	56	17	30	12	21	27	49	*

Note. *Significant at .05 level

To aid in the understanding of responses to the previous questions a question was posed concerning the frequency of use each respondent had for each of the five major spaces. It was tabulated that the Nave had the highest frequency of use with 89% of the respondents using it weekly. An equally high percentage, 84%, indicated that they used the Narthex on a weekly basis, indicating that most respondents were regular worship service attendees as would be expected.

The Parish Hall was used by 70% of the respondents on a weekly basis and an additional 23% on at least a monthly basis. The lower level spaces, the Multi-Use Room and Undercroft, were the least frequently used by the respondents with a total of 70% using the Undercroft no more than monthly or yearly and 86% using the Multi-Use Room only on a yearly basis with an additional 5% possibly using it on a monthly basis. All distributions in Table 4 were significant at the .05 level.

The Functional Aspects of the Narthex

The Nature of the Narthex is essentially that of a circulation and "standing" activity area. However 57% of the persons responding to the question of use for more meetings etc., felt that this space could receive more use than it does. It will be noted here that although other spaces were made available, an original intent of the congregation was to use this space for small group meetings. The further emphasis of this point is that 50% of the persons answering the question concerning the ability to hear someone speaking in this space felt that there is no difficulty whatsoever.

The question of physical comfort in each of the spaces was addressed in the questionnaire. As the Narthex is the most physically open space in the building with double doors to the north and south, temperature control in this area could be the most difficult in the building. It is

Table 5

Percentage Distribution For the Functional Aspects of the Narthex

Question	Response							Significance of χ^2
	N	Agree	%	Neutral	%	Disagree	%	
I feel that the Narthex (Vestibule) could be used for more meetings, gatherings, or activities than it currently is.	53	32	57	17	30	4	7	*
I feel people have difficulty hearing a speaker while he is speaking in the Narthex.	53	5	9	20	36	28	50	*
	Response							
	Yes		%	No		%		
I feel that the temperature in the Narthex is usually: Just right (yes), too warm/cool (no)	56	47	84	9	16			*

Note. * Significant at .05 level

shown in the table however that 84% of the respondents felt that the temperature control in this space was satisfactory as it relates to circulation and standing space. All responses to Table 5 were significant at the .05 level.

During the interview with Mrs. Wilma Auchenbach, the church custodian, the following point was made concerning the Narthex. The bright red carpeting is fading. The large south facing windows although good for winter conditions, allow a great amount of light to enter this space during mid and late summer afternoons and the overhang is not deep enough to shield the sun completely from this space.

The Functional Aspects of the Parish Hall

Responses to the ability of the Parish Hall to accommodate more activities than it currently does indicate 48% positive and 52% negative. From informal discussions during the information gathering process it was somewhat discernable that many people felt that the Parish Hall was being over-used. The responses to this question however could have occurred by chance as these were not significant at either the .05 or .10 levels. Refer to Table 6.

As the patio/courtyard was originally intended to serve as an overflow activity area for the Parish Hall, it was felt that it may be of significance to determine if there was a decided attitude towards the possibility of additional use or not. The response breakdown however did not clear this point as the distribution of agree, neutral, disagree was 32%, 27%, 36%, resulting again in a chance response distribution at the .05 level.

In addressing the issue of the mobility of the elderly within the building the question concerning accessibility to the Parish Hall was posed. Eighty-eight percent of the respondents felt that it was easy

Table 6

Percentage Distribution for The Functional Aspects of the Parish Hall

Question	Response							Significance of χ^2
	N	Agree	%	Neutral	%	Disagree	%	
I feel that the Parish Hall could be used for more meetings, gatherings, or activities than it currently is.	54	21	38	17	30	16	29	
I feel that the Parish Hall is easily reached from other areas of the building.	55	49	88	4	7	2	4	*
I feel that the Patio/Courtyard could be used for more social gatherings and overflow than it currently is.	53	18	32	15	27	20	36	
I feel that people have difficulty hearing a speaker while he is speaking in the Parish Hall.	56	14	25	11	20	31	55	*
	Response							
	Yes		%	No		%		
I feel that the temperature in the Parish Hall is usually: Just right (yes), too warm/too cool (no).	56	50	89	6	11			*

Note. * Significant at .05 level

to reach. As 68% of the total number of respondents to the questionnaire were over 60 it is of interest to note this as will be reported in findings on accessibility to other spaces. The decision to use persons over sixty rather than sixty-five in the "elderly" category was made because of the minimal number of persons in that category and a clear age break in respondents ages sixty and below.

The question of the ability to hear a speaker in this space was addressed in response to the experience discussed in chapter one of this thesis. The assumption was not substantiated however with 55% of the respondents indicating that they disagreed with the statement, and 25% indicating agreement. Once again as indicated in the Narthex, 89% of the respondents indicated that the temperature control in the Parish Hall is usually to their liking. The response to questions 2, 4, and 5 as listed in Table 6 were all significant at the .05 level.

The following observations were made during interviews with Mrs. Auchenbach and guest priest Father David Fly. Mrs. Auchenbach mentioned the carpeting specifically in that it is particularly fuzzy and does not vacuum as smoothly as does the carpeting in other portions of the building. Father Fly offered that the small kitchenette in the room is a very good feature, however the length of the space and the ability to feel close to people at the far north end is minimal. He felt that persons there were isolated from others in the space. A difficulty with the space he felt was the "bottleneck" at the entrance to the room from the Narthex, a point mentioned during informal conversation with various members of the congregation.

The Functional Aspects of the Multi-Use Room

The findings concerning the Multi-Use Room or "Sunday School" room as most members call it indicates it to be somewhat less versatile than

Table 7

Percentage Distribution for the Functional Aspects of the Multi-Use Room

	Response							Significance of χ^2
	N	Agree	%	Neutral	%	Disagree	%	
I feel that the Undercroft (basement) and Multi-Use Room (Pre-School/Nursery) are easily reached from all areas of the building.	55	38	68	6	11	11	20	*
If furnished differently, do you feel that the Multi-Use Room (Pre-School/Nursery) could be used for more meetings, gatherings, or activities than it currently it?	53	15	27	17	30	21	38	*

Note. * Significant at .05 level

other spaces. It was most interesting to note that although 68% of the respondents felt that this space and the Undercroft, both in the basement, were easily reached from all other areas of the building a full 86% had occasion to use this room only once per year if that often. Refer to Table 7.

A slight plurality, 38%, felt that even if furnished "differently", indicating adult size chairs etc., or with furnishings to accommodate other functions it still could not be used for other than Sunday School activities. Response distributions to both of these questions were significant at the .05 level.

With respect to access by the elderly, responses indicate that of the 68% (38 of 56) who felt that this area was accessible, 25 of the 38 (65%) were over 60. Further discussion of these findings will occur in the synopsis of the Undercroft.

Observations concerning the finishing of the Multi-Use Room were again made by Mrs. Auchenbach. The carpeting in this space is much easier to keep clean than that in the Parish Hall due primarily to the type of material, however she noted that the seams are separating from use. This condition is attributable to a poor installation rather than the quality of the material used. She also mentioned that the walls in this room are difficult to keep clean. Although they are wood paneled, displays put up with celophane tape and then removed leave excess tape and adhesive on the wood and it is very difficult to remove.

The Functional Aspects of the Undercroft

The Undercroft scored the highest (at 73% of the respondents) indicating that it is not frequently used for its original intended purposes, i.e. congregational dinners etc., when the building was constructed. Refer to Table 4. This point is further substantiated in Table 8 by

Table 8

Percentage Distribution of the Functional Aspects of the Undercroft

Question	Response							Significance of χ^2
	N	Agree	%	Neutral	%	Disagree	%	
I feel that the Undercroft could be used for more meetings, gatherings, or activities than it currently is.	53	28	50	15	27	10	18	*
I feel that the Undercroft (basement) and Multi-Use Room (Pre-School/Nursery) are easily reached from all areas of the building.	55	38	68	6	11	11	20	*
I feel that the toilet rooms are easily reached from all areas of the building.	55	16	29	3	5	36	64	*
I feel that people have difficulty hearing a speaker while he is speaking in the Undercroft.	56	11	20	16	29	27	48	*
	Response							
	Yes		%		No		%	
The temperature in the Undercroft is usually: Just right (yes), too warm/cool (no).	56	51	91	5	9			*

Note. * Significant at .05 level

the fact that 50% of the respondents definitely felt that the Undercroft could be used for more activities than it currently is. Only 18% felt that it could not.

The question of accessibility to this area, joined with that of the Multi-Use Room (Sunday School) was posed and then compared with the attitude towards the accessibility of the toilet rooms. Although it was discerned that 68% of the respondents felt that the Undercroft/Multi-Use Room were easily reached from all areas of the building, only 29% felt that the toilet rooms, immediately adjacent, were easily reached from all areas of the building. It is interesting to note that of those saying the toilets were accessible, only 17% were over 60 while 65% of those over 60 indicated that the Undercroft and Multi-Use Room were accessible. This would imply that the frequency use variable is not independent of the accessibility variable in that infrequent desired use is alright but more frequent use by necessity is not alright.

Even though the Undercroft is relatively large at 40' x 50' (2000 sq. ft.) 48% of the respondents generally felt that hearing a speaker in this space was no problem. This is compared to 20% who did feel that this was a problem and 29% neutral on this issue. The Undercroft is the only space discussed in which the temperature appears to be a problem, with 91% stating that it is either too hot in the summer or too cool in the winter. All responses to questions listed in Table 8 were significant at the .05 level.

Mrs. Auchenbach offered the following concerning the Undercroft. The major difficulty in keeping this space clean is the vinyl tile on the floor. It is not a resilient type and heel scuff marks are quite difficult to remove. Additionally, adhesive is coming up between the tiles and is equally difficult to remove. It would appear that the lack of

resilience is inherent in low grade vinyl tile and the adhesive problems relate directly to the installation.

The Functional and Inspirational Aspects of the Nave

The Nave posed a significant situation in needing to know how it individually functioned as a worship space. It was of importance to discern attitudes towards the design of the Nave as seen by the respondents. Therefore, the question was posed as to whether the Nave and Chancel met their idea of what a Nave and Chancel should look like. It is significant to note that 93% of the respondents indicated a positive reply with 5% being neutral in their attitude and no replies received that it was not one's idea of a Nave and Chancel.

Several questions were posed to discern if there were any specifics which supported this strong response. The angle of the seating supported one's feeling of being spiritually involved in the service as 42 of 54, 75%, agreed positively on this point. The reuse of many artifacts from their previous building was quite important in contributing to their attitude with 52 of 56, 93%, positive response indicated. The reuse of the credence table and window followed in appropriateness and fit with a positive response of 91%. The cross with 86% positive response followed with the reuse of the stained glass being appropriate and fitting well with the design commanding an 84% positive response. All response distributions were significant at the .05 level. See Table 9.

It was also discerned from observations discussed in Chapters 1 and 2 that seating choice may determine the person's attitude towards the Nave and Chancel. Shown on the adjacent floor plan, see Figure 7, is a talley of seating locations preferred. The χ^2 test indicates that the selection distribution is significant at the .05 level. Of those locations preferred, 80% responded that they were usually able to sit in

Table 9

Percentage Distribution for the Functional and
Inspirational Aspects of the Nave

Question	Response								Significance of χ^2					
	N	Agree	%	Neutral	%	Disagree	%							
The Nave, including the Chancel meets my idea of what a worship space should be.	55	52	93	3	5	0	0	*						
Noise from other parts of the building distracts me during a worship service in the Nave.	53	6	11	7	13	40	71	*						
The angle of the seating helps me to feel as if I am spiritually involved in the worship service, rather than just an onlooker, when seated in the Nave.	54	42	75	11	20	1	2	*						
Section														
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%		
On the floor plan of your Nave and Chancel below (see Figure 6), indicate with an "X" where you prefer to sit.	55	8	14	12	30	6	11	4	7	10	18	10	18	*

Table 9 (Continued)

Percentage Distribution for the Functional and
Inspirational Aspects of the Nave

Question	N	Response				Significance of χ^2
		Yes	%	No	%	
In regard to the previous question, do you usually have the opportunity to sit in this location?	55	45	80	10	18	*
I prefer this location for the following reasons. (Yes-chosen, No-not chosen)						
I can see the speaker and choir.	56	36	64	20	36	*
I can hear the speaker and choir.	56	33	59	23	41	*
The light to read by is good.	56	21	38	35	62	*
It is where my friends sit.	56	5	9	51	91	*

Question	N	Response						Significance of χ^2
		Fit Well	%	Fit Fair	%	Fit Poorly	%	
How well do the items listed below from your previous church fit with the new design of the Nave (church)?								
Reredos	53	52	93	1	2	0	0	*
Alter	52	52	93	0	0	0	0	*

Table 9 (Continued)

Percentage Distribution for the Functional and
Inspirational Aspects of the Nave

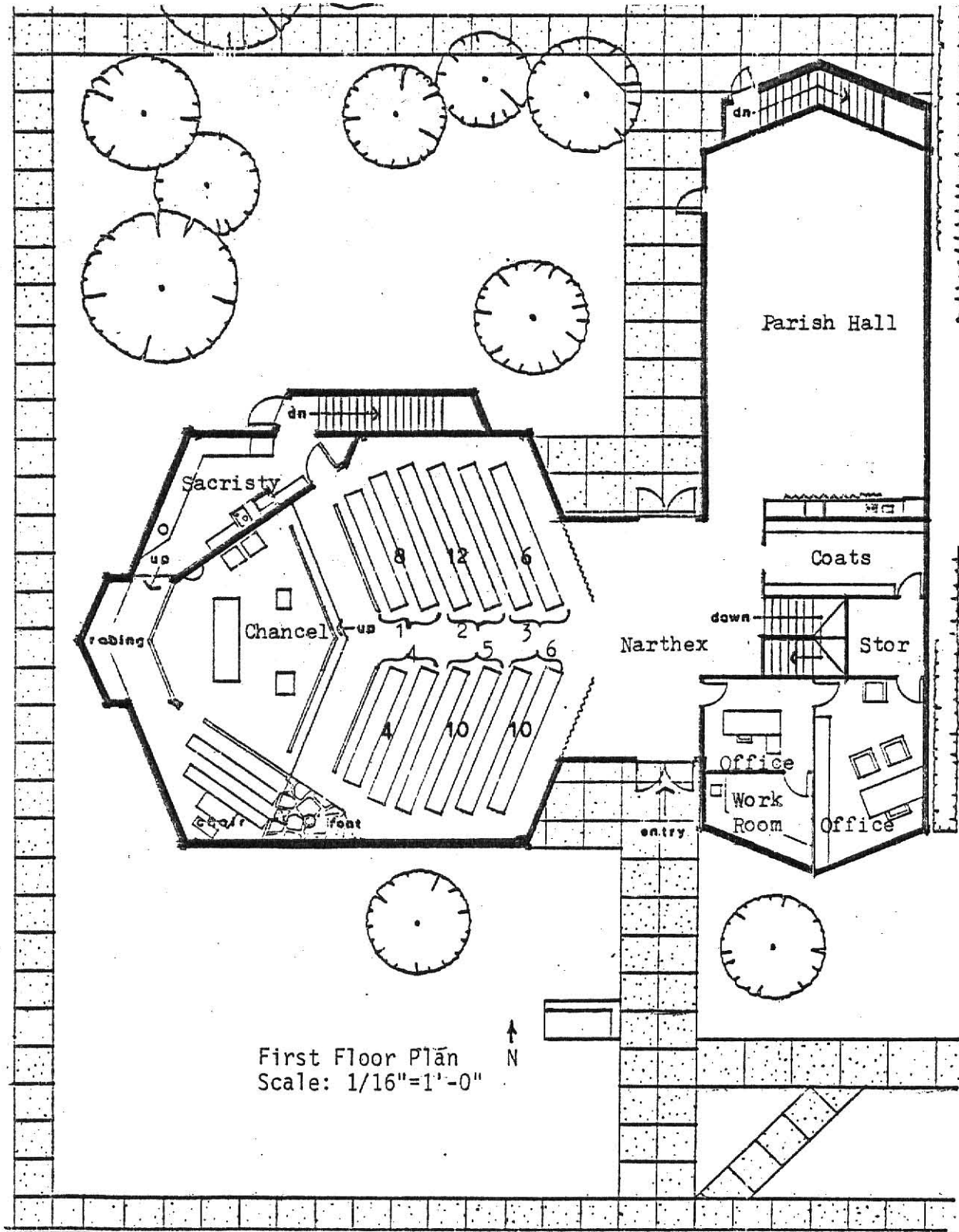
Question	Response							Significance of χ^2
	N	Fit Well	%	Fit Fair	%	Fit Poorly	%	
Christus Rex (cross)	52	48	86	1	2	3	5	*
Lecturn	53	52	93	1	2	0	0	*
Stained Glass Windows	53	47	84	2	4	4	7	*
Credence Table and Window	53	51	91	2	4	0	0	*

	Response							*
	Important	%	Neutral	%	Unimportant	%		
How important is the re-use of these items in the Nave?	53	47	84	4	7	2	4	*

Note. * Significant at .05 level

Figure 7

Seating Location Preference



that location.

The most frequent response to the reasons for choosing the particular location was the ability to see the speaker and choir, with 64% choosing this response. The ability to hear the speaker and choir followed in preference with 59% followed by 38% indicating preference in the light being good and only 9% indicating that they chose their seat because of proximity to family and friends. Several additional comments received which did not relate to the four specific points were: "I feel comfortable and relaxed there" and "Habit" for section 2, "There are not hot or cold currents here" and "I can see the reflection of the stained glass (in the tower) better" for section 5, and finally one person added "Anyplace is fine". Noise from other areas of the building was not significant as a distraction during worship services with 71% of the respondents disagreeing with the statement. All response distributions in Table 9 were significant at the .05 level.

In addition to the previous findings individual questions were posed to priest emeritus, Father Earl O. Minturn, guest priest, Father David Fly, now former secretary, Mrs. Lillian Wylie, and the custodian Mrs. Wilma Auchenbach. Both priests and Mrs. Auchenbach addressed questions on the Nave. The question will be stated and a narrative summary of the response will follow.

Question: With regard to the Chancel and alter, does it function well from your point of view?

Father Minturn: The projection of the Chancel was good in that it got him out to the people. The angled pews with the open ends help in this respect also. He finds no difficulty in feeling close to the overflow group either. The alter, he states, was originally intended to be free standing, to reflect the revised church liturgy,

and the floor of the chancel was designed for it also, but the congregation decided to keep it against the wall out of old line preference. The only comment made with regard to improving this area was that a railing and kneeler should have been supplied for the acolytes (alter boys).

Father Fly: He feels that the openness is good in that everyone can be seen. The space is rather "undefined" however in that he is not sure exactly where to stand at times. He does not always stand at the pulpit, lecturn, etc. He does not feel that the alter rail visually blocks access to the congregation. The "critical question" he feels is why the alter is on the wall. The Episcopal Church is "alter centered". He feels they probably never asked the question. He says that he feels uncomfortable with the alter on the wall as he is the only one facing a wall in a large open space. In addition to these points he feels that there is an excess amount of clutter involved at the credence window with the acolytes chairs and flags all in very close proximity.

Question: A separate sub-committee to the building committee was used to design the sacristy and robing area. How well do you feel this functions?

Father Minturn: He felt that the sacristy was very important to the building and the changes made in the Nave plan in this instance made a better building. There is accessibility to all areas and it is actually larger than is really required.

Father Fly: He feels the sacristy is adequate however the robing area is too small as is the dressing table. The sensitivity to the eucharist and liturgy are not good here. He feels the access to this area from the rear of the Nave should be better, rather than

having to come up from the Undercroft. The stairway in the winter is extremely cold.

Question: It has been mentioned that the choir area could be larger, do you have any thoughts on this subject?

Father Minturn: The choir area is large enough. As the choir is not large (10-12 maximum) and not growing it is adequate for the type of choir there. The only thing that would help however would be a "slanting board" for the choir books built into the front rail.

Father Fly: No comment.

Question: Is the lighting at the Chancel in the Nave adequate?

Father Minturn: In the evening when the timed lights in the tower first come on they are distracting to him, but only then. The general use of lighting is good. He noted that he liked the daylight through the stained glass in the tower, and the use of light and color is good in that it lends an atmosphere all its own to the building.

Father Fly: The lighting in the area is good. Additional comment: He does not feel the need for the speaker system.

During the discussion of the building with Mrs. Auchenbach she offered the following comments about the Nave. Some areas of the building she is just not able to get to in order to clean. The tower windows, the windows above the rear of the Nave and the windows above the back stair from the Nave to the Undercroft simply are not cleaned. The major portions of the Nave are otherwise manageable. She does however find that she must use diluted white vinegar on stains on the pews. The material on the pews is a textured "herculon" fabric with a soil-resistant coating. One final comment concerning the Nave was that while cleaning the building she must

use the stair door to the basement stairs leading from this space and the Sacristy. The door is evidently quite heavy for her while moving cleaning materials and has no closure or hold-open on it. Upon investigation this door is a solid core door with solid wood "car-siding" 3/4" thick applied to it in order to make it visually indistinguishable from the rest of the wall.

Preferences and Attitudes Towards the Architectural Design of the Church

The issue of physical design was identified as an issue deserving attention in the early investigation of this thesis. The questions posed attempted to identify preference and compatibility of design to personal preference. See Table 10.

The physical design of the church met most persons' idea of what a church should look like with 79% of the respondents agreeing with the question and 82% indicating that the church presents a favorable "image" of the congregation to the city of Clay Center. To investigate the architect's intention that the tower be the exterior focal point of the building the question was posed and 84% of the respondents agreed that it was the focal point. All responses were considered significant at the .05 level.

In conjunction with the individual's preference in architectural design it was felt that to substantiate these a listing of building materials and features would give some insight into actual preferences. The selections of stone walls, stained glass windows and carpeted floors, received the closest to a 100% "appropriate" response, therefore these selections were not entered into the computer on data cards.

All material or features were responded to either as appropriate, neutral, or not appropriate. The majority of the selections received either an appropriate or neutral overall rating. All selections were

Table 10

Percentage Distribution for the Preferences and Attitudes
Towards the Architectural Design of the Church

Question	Response							Significance of χ^2
	N	Agree	%	Neutral	%	Disagree	%	
The physical design of Saint Paul's expresses my idea of what a church should look like.	53	44	79	7	12	2	4	*
The exterior design of the church presents a favorable "image" of our congregation to city of Clay Center.	53	46	82	5	9	2	4	*
In general, the tower serves as the focal point of the building.	53	47	85	3	5	3	5	*

	N	Appro-		Neutral	%	Not Appro-		Significance of χ^2
		priate	%			priate	%	
Below, please state how appropriate to your idea of a church you feel the following features or materials are in a church design.								
Brick Walls	37	15	27	18	32	4	7	*
Stone Walls	49	43	88	4	8	2	4	*

Table 10 (Continued)

Percentage Distribution for the Preferences and Attitudes
Towards the Architectural Design of the Church

	N	Appro- pate	%	Neutral	%	Not Appro- pate	%	Significance of χ^2
Wood Sided Walls	40	23	41	15	27	2	4	*
Columns	36	17	30	14	25	5	9	*
Cathedral Ceilings	43	36	64	7	13	0	0	*
Covered Entry	41	31	55	9	16	1	2	*
Stained Glass Windows	50	49	98	1	2	0	0	*
Large expanse of glass in eaves	37	13	23	16	29	8	14	*
Arches	41	32	57	9	16	0	0	*
Carpeted Flooring	51	47	92	4	8	0	0	*
Wood Flooring	38	7	13	19	34	12	21	*
Vinyl Tile Flooring	37	12	21	12	21	13	23	*
Traditional "raised" wood panel	32	16	29	13	23	3	15	*
Stained wood paneling	36	25	45	10	18	1	2	*
Building Siting	45	38	68	6	11	1	2	*

Note. *Significant at .05 level

significant at the .05 level with the exception of the selection of vinyl tile flooring which was not significant and therefore the distribution is attributable to chance. Those items chosen as most appropriate were wood sided exterior walls, columns, cathedral ceilings, covered entries, arches, traditional "raised" wood panels, stained wood paneling and the way the building is situated on the site. Those items which the majority of the respondents felt were neither appropriate or inappropriate were: brick walls, large expanses of glass in the eaves, and wood flooring. None of the items listed were chosen as clearly inappropriate.

An open-ended question relating to the architectural design was posed. "Are there any parts of the architectural design of the building which you do not like?" Please list and state why. Comments received are as follows:

- 1) The stairway is too dangerous.
- 2) There are no restrooms on the first floor and the elderly have difficulty getting to them.
- 3) The wood exterior portions of the building are improperly treated for ease of maintenance.
- 4) A drinking fountain is needed.
- 5) There is a lack of permanent expandability of the Nave capacity.
- 6) There is a shortage of choir seating.
- 7) The kitchen has too much wasted space.
- 8) The storage room between the cloak room and the priest's study could be put to a better use, such as a restroom.
- 9) There should not be a flat roof over the Narthex. (Indicating a lack of preference for flat roofs or potential leakage problems)
- 10) The Nave is too small.
- 11) The large south facing windows transmit too much heat.

- 12) The choir loft should not be at the front of the church.
- 13) The stained glass windows (from the previous building) should have been in the side walls and not over the rear of the Nave.
- 14) There should be wind lock entry doors into the Narthex.
- 15) There should be better lighting in the office areas.
- 16) There is no way to section off the Undercroft into separate rooms.

Observations made by Mrs. Auchenbach concerning the use of materials and finishes in general were as follows: The rough cedar wood throughout the building is difficult to keep clean, especially the rough wood beams in the Parish Hall and stringers on the basement steps. The other wood areas of the building are able to be kept clean with just a damp rag. She feels that the great amount of wood in the building requires a lot of dusting but she is able to alternate areas that she takes care of. She also commented that the use of a semi-gloss paint on the walls rather than a flat, especially in the toilet rooms would have been more appropriate as they would be easier to keep clean.

The Functionality of the Administrative Spaces

Information concerning Issue 5: The functionality of the administrative/service spaces was derived solely from interviews with priest emeritus, Father Minturn, Mrs. Wylie, and Mrs. Auchenbach, as these individuals were most familiar with this area. The questions posed along with the narrative response were as follows:

Question: With regard to your office space, do you feel that it functions well and gives you enough privacy?

Father Minturn: He felt that it functioned well and was large enough to hold several persons at one time. (At a later date the entire Vestry and I had held our questionnaire pre-test in the office).

Privacy was good. The back entrance planned from the cloak room was not used however, as he no longer lived in the parish house and did not have a need for the back entrance. Lighting was good, but the high south facing windows had to be screened with a smoke grey plastic film to reduce the heat and glare in the office and work room areas. He also mentioned that unfortunately the thermostat had been placed in a direct line with the sun entering these south windows causing the air-conditioning to run excessively in the office areas. (See Figures 1 and 3).

Question: Do you find your office adequate in size for the tasks which you must perform?

Mrs. Wylie: The office and work areas are large enough.

Question: Is the storage and the work room large enough for your needs?

Mrs. Wylie: The storage area is very adequate and upper cabinets are used for most items. She has trouble reaching the top shelves at times.

Question: Should there be additional counterspace/storage or should it have been arranged differently in order that it could help you with your work?

Mrs. Wylie: She has enough counterspace and the arrangement is good.

Question: Is the lighting level adequate for the work you must do?

Mrs. Wylie: The lighting is not right. The lighting in the office is not good but the lighting in the work room is alright. She feels a larger light is needed in the office. The dark walls in the office as well as the dark carpet do not reflect light.

Question: If someone enters the building, can you usually see who it is if seated at your desk?

Mrs. Wylie: People can slip in the north door of the Narthex and

she may not notice them. There are problems of being in the Nave and not seeing people entering (she is also the church organist). She observed that she could move her typewriter desk to the north side of her desk and observe better.

Question: If you are in the work room does it bother you that someone could enter the building unnoticed?

Mrs. Wylie: When she is in the work room it does not bother her as much as when her back is to the door and she cannot see people entering.

Question: Do you feel that you have to do an excessive amount of walking between rooms or different areas of the building to accomplish your work?

Mrs. Wylie: She is in the office most of the time and tries to stay there. Walking is not a great problem and there is not much up and down. Most bulk storage is in the work room and as she needs it she can transfer it to her desk.

Only one observation concerning this area was made by Mrs. Auchenbach in addition to her other general comments about materials and finishes. In the work room, mimeograph ink gets on the plastic laminate counter tops and is difficult to remove. She must use a de-greaser to accomplish this.

Chapter 4

CONCLUSIONS AND DISCUSSION

Concluding Remarks

This chapter draws conclusions from the findings as reported in Chapter 3. The format will follow the presentation of the findings. Therefore conclusions will be drawn initially as to the ability of the specific spaces discussed to meet the requirements of respectively pertinent issues followed by conclusions concerning aesthetics and administrative spaces. The issues again are as follows:

- 1) Issue 1: The functionality of the multi-purpose spaces.
- 2) Issue 2: The mobility of the elderly within and without the building.
- 3) Issue 3: The success of the Nave as a worship/inspirational space.
- 4) Issue 4: The aesthetics of the physical design.
- 5) Issue 5: The functionality of the administrative/service spaces.

Once these conclusions are drawn a general evaluation statement will be made with regard to the building. A discussion of the feasibility of using post-occupancy evaluations as an actual tool will conclude the remarks.

Conclusions Concerning the Narthex

Conclusions with respect to the Narthex will be drawn first with re-

spect to this space's applicability to Issues 1 and 2. The Narthex is satisfying its basic objective of being a circulation and overflow space. It is used by the majority of persons using the building on a frequent basis simply because of its physically central location. Most persons indicated that the space could be used more frequently for originally intended small meetings. This is the result however of believing that they would actually use the space for small group meetings and this simply has not occurred. Other spaces, particularly the Parish Hall and occasionally the Undercroft have taken on an habitual use for most such meetings. The space is simply not large enough to accommodate sizeable groups and offers no privacy for small groups due to noise and visual distraction from people entering and leaving the building. Should the space eventually be used for small (3-5) group meetings it could be quite satisfactory from an intimate standpoint if no one else is using the building, as the other major meeting spaces are too large to project this feeling. The priest's office is actually much better suited for these meetings if available however.

From a mobility standpoint with respect to the elderly, observations showed that the absence of steps into the Narthex from both the north and south entrance doors contributed to ease of entry and exit. Comments received however indicated that the weight of the doors and the incline of the south sidewalk were detrimental to some persons in their ability to comfortably enter the building. Once inside the Narthex all areas on the first floor were readily accessible.

In the final analysis the Narthex facilitates moderate circulation and allows for a reasonable amount of overflow from the Nave due to the lack of space for permanent expansion. A large group of sixty to eighty using the space after a meeting elsewhere in the building or a worship

service however finds it somewhat small and difficult to navigate through as the development of "bottlenecks", especially at the entrance to the Parish Hall and coat room effectively limits circulation. Given its apportioned size and basic requirements of circulation and standing etc., as a central core to the building the Narthex handles these relatively well.

Conclusions Concerning the Parish Hall

Conclusions concerning the Parish Hall acknowledge that it is the most used space, with the exception of the Nave, in the building. It is being used as programmed for church and civic meetings as well as the weekly coffee hour on Sunday mornings.

With respect to Issue 1: The functionality of the multi-purpose spaces, the Parish Hall is being made to meet the needs of the congregation and civic groups as it is the space which is used in preference to lower level spaces. As the response distribution to the question of ability to accommodate more meetings was not significant, it cannot be absolutely discerned if it is being over used as indicated in informal conversations during the early stages of this thesis. The basic accessibility of the space from grade and all areas of the first floor however is excellent which makes excessive use of the space quite likely.

From information gathered it can be concluded, however, that it is used for some meetings originally scheduled for the Undercroft as responses which will be discussed concerning that space shortly, show that the Undercroft is not being used for as many gatherings as it could be. Although the "bottleneck" entrance to the Parish Hall from the Narthex is an irritation due to its narrowness and proximity to the coat room, it does not completely impede traffic flow into and out of the space. The convenience amenities of the room: grade access, and large openings to the

courtyard and kitchenette, make it a welcoming space for gatherings from ten to sixty or more. And as indicated by responses to the questionnaire which contradict selected preliminary remarks, there is evidently little difficulty in hearing a speaker in the room if everyone is paying attention. The final analysis indicates that the space, in general, is serving its purpose and for all but the larger meetings or dinners comfortably accommodates most group functions.

Conclusions Concerning the Multi-Use Room

Conclusions concerning the lower level Multi-use Room indicate that it is at best used on a marginal basis. The Multi-use Room is used for its major intended purpose of church-school and pre-school nursery, however it is under used for other purposes. Both the Narthex and the Multi-use Room scored the lowest in potential to accommodate a range of activities. Even though most respondents felt that the Multi-use Room was easily reached from all areas of the building they were unable to envision the room serving any other function than church school for one or two hours per week. No indications were given as to why, other than this was a primary original intended purpose of the room.

It is important to note at this point that concern about stair usage, mentioned repeatedly in early discussions as a deterrent for elderly persons using the basement, was not overwhelmingly substantiated in the final analysis of this space or the Undercroft. As it is not as large as the Parish Hall, it does not permit gatherings of up to 50-60 people, but does however have a somewhat "warmer" aesthetic nature to it than does the Parish Hall due to wood paneled walls, carpeted floors and a small communion table amidst the miniature tables and chairs, book cases etc. used by the children. It is felt that for medium size group meetings of fifteen

to twenty-five this space could be ideal. It is not actually physically appointed in a manner which is conducive to performing several uses therefore it is not perceived as being able to facilitate other uses than the church school.

As an actual church school space the Multi-Use Room does not function as one would normally expect, as the openness has not allowed church school groups of differing ages to effectively utilize the space simultaneously. The space is not large enough to lend itself to partitioning with folding doors, nor would this reduce the noise transmission factor between classes. Visual break is all that this means would satisfy. From observation and questionnaire response it appears that this space was simply "left over" and, rather than constructively assign church school and separate nursery functions to it or arrange it to accommodate church school on Sundays and meetings during the week, it has been left to the user to figure out how to use it and he has not been totally successful at it either.

Conclusions Concerning the Undercroft

Conclusions concerning the Undercroft indicate that it is the one space in the building which is actually the most versatile. Originally planned as a space to be used for larger congregational meetings, and community dinners it has ultimately evolved into a space used for overflow from other areas.

From conversations and observations it was learned that it is used for choir rehearsal prior to a worship service on Sunday morning, along with the adult church school class, and at times the older children's class. During the week it is used by a few women of the church who quilt, but not on a daily basis, and monthly the Episcopal Church Women use it for their luncheon meetings along with the kitchen and serving areas.

Once per year the church bazaar is held in this area and on occasion (2-3 times per year) there are congregational or community dinners. These dinners, originally thought to be the main purpose of the space, have simply not been held on the semi-monthly or so basis as predicted. This is not due to any specific reason, nor is it a fault of possible inaccessibility of the space. As well as could be determined it is a matter of lack of attendance and the ability of the congregation to actually conduct them that has decreased their frequency.

The space serves most requirements of a multi-use space very adequately. Size, arrangement, flexibility to accommodate different types of groups, multiple groups at one time, and even accessibility, according to the findings, are met. It is the one space in the building which will accommodate most size groups up to one-hundred plus. It is however not an intimate space and is not as aesthetically warm as are the Parish Hall and Multi-Use Room. The limited amount of use however is basically wasting the space. Most community groups that do use the building use either the Nave or the Parish Hall because of the perceived inaccessibility of this space due to the poor stairway design. The Parish Hall is basically large enough to handle all but the largest groups therefore there has been no reason to use this space to its fullest potential.

Conclusions Concerning the Functional and Inspirational Aspects of the Nave

Conclusions concerning the Nave will be addressed individually with respect to Issue 3: The Nave as a Worship/Inspirational Space. The Nave from all findings appears to have been the most successful of all spaces in meeting the requirements and expectations of the congregation. Findings support the indication that more thought by both client and architect went into this space than some others in the building.

The Nave does not necessarily accommodate a range of activities beyond Sunday morning worship nor was it entirely meant to, beyond the addition of the community Praise Gathering and choir practice. It therefore can be concluded that it is not a multi-use space in the sense that the Parish Hall or Undercroft would be, but for worship and related activities it does function as required.

It is, understandably, the space used with the greatest frequency. The conception that both client and architect had, to make this an intimate space has succeeded. The major success of this space, from the congregation's viewpoint, can be contributed to the seating arrangement and the reuse of artifacts from the previous building. The angled seating reinforces a person's feeling of involvement in the worship service, a strong point made for non-traditional basillica seating patterns.

In serving the needs of this particular congregation, it may not meet the needs of the priest completely. It is acknowledged that even with the great care the committee expended on the sacristy and robing area, that all contingencies for all possible priests were not foreseen. Although the architect indicated that this particular information was used with little of his input, it is to the architect's credit that an effort was made to create a familiar atmosphere which was so important to this particular congregation. Through his strong attention to detail this space does respectably serve as a fit worship and inspirational space for this congregation.

Conclusions Concerning the Aesthetics of the Physical Design

The issue of aesthetics has been addressed as a response to initial input in this thesis that a "traditional" building was preferred to a "contemporary" building. With respect to Issue 4: The Aesthetics of the

Physical Design, it can be concluded that the building from an "artistic" point of view is compatible with the general attitude of the congregation as to what their church should look like. As the check of building features and materials in the questionnaire (see Table 10) shows, most of the selections rated as appropriate coordinate with features in the building. The open-ended question responses perhaps enlightened us to a greater extent that it is not necessarily the aesthetics which are questioned by congregation members but rather, to some extent, space usage in the planning process. It is here that the issue of personal preferences in the design of the building take place.

The aesthetic nature of the building is actually in keeping with preferences of the majority of the respondents. It is understood that individuals are at times not aware of some preferences until alternatives, in this case a contemporary building design, are presented. Although contemporary, the design is conservative which reflects the basic attitude of the congregation. In this respect the architect was able to use his own philosophy concerning church design to accurately reflect the congregation's personality.

Conclusions Concerning the Functionality of the Administrative/Service Spaces

Conclusions concerning Issue 5, indicate that in light of the respective space allotted to each area of the building, the office area is very adequate. The privacy afforded the priests' office is basically good. The physical arrangement of furnishings in the space and current poor artificial lighting conditions make it less than effective. Mrs. Wylie acknowledged that the poor furniture arrangement is totally at her preference and is of no basic fault of the spatial design. If the desk and typewriter were turned 90 degrees and placed against the glass partition she would have excellent visual control of both entrances to the Narthex. The

electric lighting condition is merely a matter of study to correct and improve for her purposes.

The one design feature which was not totally appreciated by Father Minturn and Mrs. Wylie from a summer heat gain standpoint, was the large expanse of glass in the south facing eaves. Although this is welcome in winter, some type of overhang or louvers should have been part of the original design of the building for this space if these windows were to be retained. Though they do complement the building aesthetically, the problem with their use was not thought through completely. The secretary's office has an advantage over the priest's with respect to heat gain which in this case is preferable. This is due to the more frequent hours of use which the priest's office does not receive. The work room is likewise very adequate for the functions it must serve. It is well lit with the high windows, however the same observation is made here as was made at the priest's office. The use of a sun screen or blinds appears to be the only basic solution to the heat gain problem in the summer.

As a suite of rooms the administrative space functions well together and as a whole relates well to the rest of the building. Deficiencies in some aspects of the space which have been discussed are correctible in part and are not of the severity of the stair problem for example.

General Conclusions Concerning the Building

In addressing this evaluation of the building to a more general scope the following conclusions are drawn.

Discussion of Building Performance

The major spaces addressed in this thesis meet their functional requirements with different degrees of success. The perceived inaccessibility of the lower level spaces has created a high frequency of use for

upper level spaces. It is fortunate however, that these spaces function relatively well, are accessible and meet most needs.

As the congregation is not large and the potential for growth of this church in Clay Center is not great the amount of space in total is very adequate. It is recognized however that the distribution of that space is not completely satisfactory and this may be the major inadequacy of the building. The building in essence has two Parish Halls, one too small and one too large, education space which is not totally conducive to church school activities, and a Narthex which actually should be larger if for no other purpose than to ease circulation of large groups.

The physical confinement of the small site is the major contributor to the allocation of space to respective areas. It is at this juncture that the architect recognizing this problem and the potential duplication and waste of precious space could have suggested further modifications in the defined spatial arrangement. Specifically education purposes could have been more adequately served and possibly one large Parish Hall would have sufficed.

The accessibility factor which has been mentioned often in this thesis has been determined in the findings to be a serious problem for a minority of the elderly at this point in time. It cannot be concluded now if, as the membership grows older and a greater percentage of the group become elderly, the stairs and remote toilet facilities will become a serious problem for more individuals. In short however, it has been acknowledged by both client and architect that the situation should not have ever been allowed to occur in the first place, that even one person would have potential difficulty in maneuvering within the building.

Programming, which was almost totally the responsibility of the client, was conducted in a responsible manner to the extent of the client's ability.

However because of a lack of thoroughness portions of the findings have indicated some portions of the design have been adversely affected. The conclusion that the Nave/Sacristy area received the bulk of the attention in the programming process is evident. The architect's attention to this space is also understandable as it allowed for the most creativity in the design process. The Nave design reflects this creativity and is the most successful space in the building with respect to function and aesthetics. Given space allocations this space is truly welcoming in nature and inspirationally satisfying.

Aesthetically the building is essentially successful from both a professional and congregational viewpoint. Given the architect's past experience in working with church congregations he has maintained a certain sensitivity to the group's wishes. The proportions of the building relate well to the confined site and the scale of the materials relate to the building elements. The use of native materials in a simple conservative design both on the interior and exterior have achieved a subtle richness in the general appearance of the building which has grown to be basically agreeable with the congregation.

As the functionality of the office space directly affected very few people in the congregation the amenities of the space could have easily been totally overlooked during the planning process. The final product works well from the spatial aspect however adherence to aesthetics have pre-empted basic recognized design guidelines with respect to climate and sun control. Had this portion of the design received more careful attention most features of this suite would have worked well for the staff.

Potential Further Study

It is understood that this research was conducted with one group of people in one church and therefore cannot serve as a general guideline

for all post-occupancy evaluations or for all churches. Additional investigation which may be warranted at a future date would ideally address each issue as an individual study in more detail. For the purposes of this thesis however a broader study was warranted in order to establish a basis for evaluation.

The Use of Post-Occupancy Evaluation

A statement addressing the feasibility of using post-occupancy evaluation as a tool in the total design process is in order.

Post-Occupancy Evaluation in the Design Process

In evaluating the process by which this thesis evolved it can be observed that the identification of the issues by which to center the evaluation can be the most difficult step in the process. If, as in this particular circumstance, the program is not the product of both client and architect, additional "front end" research involving selected interviews with both are required to help establish the basis for evaluation. Therefore a good program is invaluable to the evaluation process. Once specific issues, basic to the philosophy of both client and architect, have been identified investigative and evaluative processes involving questionnaires, analysis and conclusions are basically organized and systematic.

In the total scope of the design process this information can be invaluable. Traditionally pre-design client input and incomplete trial and (undiscovered) error architectural experience have been the sole basis for building design. Through the use of post-occupancy evaluation an important additional basis for design is possible. First hand user information concerning likes and dislikes which act as feedback into the preliminary design process give the architect an additional set of criteria upon which to make his decisions. This information translates directly

into the category of user needs which a strong program can subsequently address. Prior successes and failures from the user's viewpoint when analyzed by the architect can then be fed back into the design process making it possible to eliminate previous mistakes in future projects.

The entire process of conducting post-occupancy evaluations in standard architectural practice is not currently common. Limitations on its practical use are primarily the economic availability of in-house man hours to devote to time consuming research. It is not commonly felt to be profitable to have "non-productive" staff which is not producing construction documents or pursuing marketing and new business goals. Most persons in standard architectural practice do not have the proper training to adequately conduct post-occupancy evaluation and are very reluctant to engage the help of a social scientist on a team basis. For these reasons, and the still common fact that most architects do not actually want to know how truly unsuccessful their projects may have been, we find a very limited use of post-occupancy evaluation by members of the profession.

Promotion of the Use of Post-Occupancy Evaluation

For post-occupancy evaluation to become a viable and respected service of the profession, a systematic marketing endeavor by a professional organization will be required. Concentrated educational efforts to members of the profession on the hows and whys of conducting post-occupancy evaluations and promotion to the public as a service of the profession can make strides in the real feasibility of using post-occupancy evaluation. This would indicate that such research, as an ongoing effort by universities and/or other researchers should have every opportunity to be published. The value of this research for specific building types can provide a wealth of resource material for all designers in future projects.

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APPENDIX

MEASUREMENT INSTRUMENT

CLIENT'S PROGRAM

May, 1978

TO: Members of the congregation of St. Paul's Episcopal Church,
Clay Center, KS

FROM: Bruce E. McMillan
College of Architecture & Design
Kansas State University
Manhattan, Kansas

SUBJECT: Post Occupancy Evaluation of St. Paul's Episcopal Church

Dear Member:

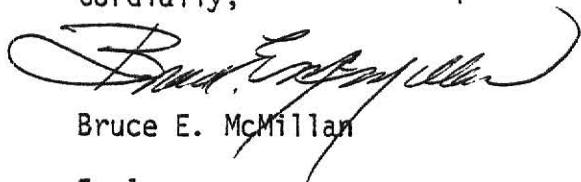
Enclosed are a questionnaire and statement of agreement that I would appreciate having you take a few moments to complete. It concerns your church designed and built by The Hall Associates, Architects, in 1975.

As stated in the instructions, this questionnaire is part of a study called a post occupancy evaluation. This is simply an effort to determine how well your church building is meeting your needs, now that you have had a chance to become familiar with it.

This evaluation is also serving as the subject matter for a thesis for the degree, Master of Architecture. I would appreciate your taking time to complete this questionnaire as soon as possible. A stamped, return addressed envelope is enclosed should you desire to use it. I would ask, however, that if possible, that you place the completed form(s) in the envelope and bring it with you to church next Sunday and leave it in the office. In this way, postage expenditures can be reduced.

I would like to thank each of you in advance for your help and interest in this matter, as well as the continued friendship which you have shown my family and me during our Sunday morning visits with you.

Cordially,



Bruce E. McMillan

Enclosures

ST. PAUL'S EPISCOPAL CHURCH: POST OCCUPANCY EVALUATION QUESTIONNAIRE

This questionnaire is part of a study being conducted to determine how well your new church building, completed in 1975, has met your needs and expectations. This study is an attempt to identify those aspects of your building which have been successful, as well as those which have not. Information gained from this study will contribute to the attempt to improve the quality of church design. Your participation is a significant and necessary contribution to this effort.

Please read the following statements and sign at the bottom indicating your understanding of those statements and your willingness to participate.

- 1) Participation in this study through completion of this questionnaire is completely voluntary and you may at any time and for any reason terminate your association with this study.
- 2) While none of the information gathered is of a personal nature, all information given on this form will be held in strictest confidence. Any results publicly reported will be in the form of anonymous numerical data untraceable to any individual.
- 3) Any questions you may have concerning this study or the findings will be answered as fully as possible upon completion of the study.

I would ask that you give full consideration to each question and the best possible answer from your standpoint. The results of the study can only be as good as the data that goes into it. I would appreciate married couples completing their forms individually before conferring about answers. Thank you.

YOU AND ST. PAUL'S EPISCOPAL CHURCH

Please complete the following information before going on to the questionnaire.

- 1) Your age: _____
- 2) Your sex: M ____ F ____
- 3) How many years have you been a member of St. Paul's Episcopal Church? _____
- 4) As a member of St. Paul's, in which of the following church related organizations/committees/groups do you participate?

Vestry _____	Hands Group _____
Altar Guild _____	Adult Bible Study _____
Episcopal Church Women _____	Church School Teacher _____
Choir _____	Coffee Hour Host/Hostess _____
Evening Prayer Group _____	Other (Please specify) _____

USING YOUR BUILDING (Circle one choice)

- 1) Which of the following spaces, in your opinion, lends itself to accommodating a range of congregation or community gatherings?

Narthex (Vestibule) Nave (Church) Parish Hall

Multi-use Room (Preschool/Nursery)

Undercroft (Basement room under Nave)
- 2) In which of the following spaces could two (or more) meetings or social gatherings occur without noise or visual distraction from one gathering affecting the other(s)?

Narthex Nave Parish Hall Multi-use Room

Undercroft
- 3) Which of the following spaces is most often used for the purpose for which it was intended when the building was originally constructed?

Narthex Parish Hall Multi-use Room Undercroft

4) How frequently do you attend activities in the following spaces?

	AT LEAST ONCE PER WEEK	AT LEAST ONCE PER MONTH	AT LEAST ONCE PER YEAR
NARTHEX (Vestibule)			
NAVE (Church)			
PARISH HALL			
MULTI-USE ROOM (Preschool/Nursery)			
UNDERCROFT (Basement)			

5) I feel that the Narthex (Vestibule) could be used for more meetings, gatherings, or activities than it currently is.

Agree

Neutral

Disagree

Why? _____

6) I feel people have difficulty hearing a speaker while he is speaking in the Narthex.

Agree

Neutral

Disagree

7) I feel that the temperature in the Narthex is usually:

Too warm

Just right

Too cool

8) I feel that the Parish Hall could be used for more meetings, gatherings, or activities than it currently is.

Agree

Neutral

Disagree

Why? _____

9) I feel people have difficulty hearing a speaker while he is speaking in the Parish Hall.

Agree

Neutral

Disagree

10) I feel that the temperature in the Parish Hall is usually:

Too warm

Just right

Too cool

- 11) I feel that the Parish Hall is easily reached from other areas of the building.

Agree Neutral Disagree

- 12) I feel that the Undercroft (basement) and Multi-use Room (Preschool/Nursery) are easily reached from all areas of the building.

Agree Neutral Disagree

- 13) I feel that the Undercroft could be used for more meetings, gatherings, or activities than it currently is.

Agree Neutral Disagree

Why? _____

- 14) I feel that people have difficulty hearing a speaker while he is speaking in the Undercroft.

Agree Neutral Disagree

- 15) The temperature in the Undercroft is usually:

Too warm Just right Too cool

- 16) I feel that the Toilet Rooms are easily reached from all areas of the building.

Agree Neutral Disagree

- 17) If furnished differently, do you feel that the Multi-use Room (Preschool/Nursery) could be used for more meetings, gatherings, or activities than it currently is?

Agree Neutral Disagree

Why? _____

- 18) I feel that the Patio/Courtyard could be used for more social gatherings and overflow than it currently is.

Agree Neutral Disagree

Why? _____

30) Below, please state how appropriate to your idea of a church you feel the following features or materials are in a church design.

	APPROPRIATE	NEUTRAL	NOT APPROPRIATE
BRICK WALLS			
STONE WALLS			
WOOD SIDED WALLS			
COLUMNS			
CATHEDRAL CEILINGS			
COVERED ENTRY (Front porch)			
STAINED GLASS WINDOWS			
LARGE EXPANSES OF GLASS IN EAVES			
ARCHES			
CARPETED FLOORING			
WOOD FLOORING			
VINYL TILE FLOORING			
TRADITIONAL "RAISED" WOOD PANELS			
STAINED WOOD PANELING			
THE WAY THE BUILDING IS SITUATED ON THE SITE			

31) Are there any parts of the architectural design of the building which you do not like? Please list and state why. _____

BUILDING COMMITTEE SUGGESTIONS

- I. SITE - construction on the present site or location
- II. PLANS - alternate
 - (a) new church to tie on to present parish house
 - (b) new church - remove present parish house - retain rectory for office use, remodeling the exterior to conform to new church
 - (c) new church and new administrative area - remove present rectory - in other words, an entirely new complex
- III. CONSTRUCTION
 - A. MATERIAL
 - Stone or brick facing exterior
 - Possible use of pre-stressed concrete
 - Wood paneling for interior
 - Laminated wood beams with vaulted ceiling in church
 - Pitch of roof not as high as old church
 - Carpeted floors in church - tile in dining area - carpeted floors in administrative area, excepting possibly in work room
 - Andersen windows which require little maintenance - excepting, of course, in the church
 - B. SIZE
 - To accommodate 125 persons - with an area provided for larger rooms
 - C. STYLE
 - More of the traditional or Gothic style, in keeping somewhat with what we had - in other words, something not too mod

D. ROOMS

A. CHURCH - only one or two steps at entrance

Entrance and lobby - inside stairway to undercroft - double doors of sufficient width to accommodate all

occasions (funerals, for instance)

Nave - with center and side aisles

Rood beam between chancel and nave

Chancel includes the choir and sanctuary

Extension of nave, with expandable partition to be opened for crowds - this extension could be used as a parlor, also, where smaller meetings for 25 or so could be held - no pews here.

Chancel should be at least one step above the nave - with pulpit and altar one step higher - thus enabling all to see

Some use made of present stained glass windows - with lighting effect so they could be seen outside of church

(See suggestions attached)

B. SACRISTY - for use by the Altar Guild - for vesting of clergy and acolytes

(See suggested plan of arrangement and need attached)

C. UNDERCROFT (area under church)

Kitchen and dining room

(See suggestions attached)

Choir vesting area - near stairway leading upstairs - this area to have a closet for the choir robes

Rest rooms directly available to undercroft

D. ADMINISTRATIVE AREA

Room for secretary and work room

Study and lounge for the priest

(See suggestions attached)

E. PRE-SCHOOL AND/OR NURSERY

In this area space should be provided for the children's altar and organ; for cribs, playpens, for blocks and games, shelves for supplies, etc.

F. STORAGE AREA

Provision should be made for custodian's supplies (perhaps there could be more than one storage area for the cleaning supplies); provision should be made for storage of yard tools, mowers, etc.; for church supplies such as Christmas decorations and other seasonal supplies. This area could be under the administrative wing, with OUTSIDE entrance to the rear.

* * * *

OTHER SUGGESTIONS:

The existing reredos, altar and Christus Rex to be used; also the present lecturn.

Comfortable pews

Carpeted throughout, excepting possibly the dining and kitchen area

Open arrangement in many areas if possible

Red doors

The old red doors could possibly be used as an entrance to the administrative area or out to the Memorial courtyard.

A Memorial courtyard to be seen from Sixth Street - possibly using some

of the rock from the present foundation for benches, etc. - as base for fence or grillwork - it would be well to have an entrance to this courtyard from the church or from the undercroft

Parking area along the alley

Plan the building so it could be converted to another use if necessary

It might be that instead of a Sunday School oriented church building, one could be provided for worship and Christian outreach.

Church

The "Church" area can be a maximum of 3200 square feet. This area will be divided into two parts: the Nave and the Chancel.

The Nave should provide pew sittings for 150 persons. This area should have a sufficiently wide center aisle for 3 persons and side aisles sufficiently wide for passing.

A baptistery (including font on a raised platform) and background may be provided at the rear of the Nave.

The Chancel should be sufficient in size to give maximum movement and to include a free-standing altar, electric organ, choir seats for 12 persons, a reredos and retable as background for the Altar.

The Chancel should be divided from the Nave by one 5" step with rail providing wide center and narrow side exits and a rood beam overhead. The Altar Base should be at least 6" higher than the floor of the Chancel large enough for the original Altar and surrounded on three sides by the altar rail with a gate opening toward the Nave.

The Lecturn should be placed at the left end of the chancel rail facing the congregation.

The Pulpit should be installed at the right end of the chancel rail facing the congregation. The pulpit floor should be 6" higher than the floor of the Chancel.

Maximum space should be reserved between the chancel rail and the first pews.

The floor should be carpeted throughout.

Open beam construction is preferred.

Conduits for lighting and public address system installed.

Easy and direct access from the Chancel to Sacristy is necessary.

ADMINISTRATION

Administrative Suite

The administrative suite should be centrally located to serve the Church and Parish House. Public access is important. This space should include the Rector's Office, Secretary's Office, Workroom - Storage. The total square feet for this area should be at least 400 square feet.

Rector's Office

The Rector's Office should have direct access to the Secretary's Office and separate "outside" entrance. The office should be equipped with a large desk and chair, two 5-drawer filing cabinets, one typewriter with stand, one 5' x 7' section of book shelves with bottom portion enclosed. The floor should be carpeted and at least one baseboard electrical outlet should be installed in each wall. At least two standard chairs should be provided for use of visitors in the office.

Secretary's Office

Adequate area should be provided to allow the secretary to work efficiently not only as secretary but as receptionist.

Primary activities in this area demands direct access to the Rector's office and work area. This area also must have direct outside public access. The space will be equipped with a secretarial desk and chair, at least one 2-drawer filing cabinet, typewriter with stand and a cloak space to serve four people. A bulletin type tackboard 4' x 4' is important to this space. Baseboard electrical outlets should be provided, at least four in number, and placed to allow for convenient use of business machines and desk lights.

Workroom

Best use of workroom space can be achieved through the use of a work counter along one side of the long axis of the room. This counter with waterproof surface should be at least two feet deep with storage under-the-counter and above-the-counter wall cabinets. At least three back counter outlets should be installed. The counter will be used for mimeograph and address-o-graph work. The only needed access to this space is from the secretary's office. The material to be stored in this area would include: 10 reams $8\frac{1}{2}$ x 11 paper; 4 boxes (500 sheets each) $8\frac{1}{2}$ x 11 letterhead paper; 4 boxes $6\frac{1}{2}$ x $3\frac{3}{4}$ envelopes; 4 boxes $9\frac{1}{2}$ x $4\frac{1}{2}$ envelopes; 5 cartons $8\frac{1}{2}$ x 11 miscellaneous paper; mimeograph stencils and other supplies including paper clips, carbon paper, rubber bands, addressograph stencils and equipment, pencils, cards, file copies of Bulletins, etc.

Other

1. The entire administrative complex should be year-round air conditioned.
2. Each work station should be provided a minimum of 50 ft./candles of light at work level.
3. The Rector's office should have special acoustical treatment.
4. A telephone intercommunication should be installed between the Rector and Secretary.
5. The complex should be carpeted throughout except, perhaps, in the work area where a good quality - light colored asphalt or vinyl - asbestos tile might be used.
6. Walls and ceilings should be painted with white or pastel colors to reflect maximum light.

KITCHEN

Facilities needed for serving from 25 to 125 persons:

Parish Dinners

Pancake Suppers

Serving family dinner of deceased

Coffee hour following services

Women's meetings -- Luncheon

Now, the kitchen needs to have a counter-pass folding window to dining area --

No bottleneck at the door leading into the dining room -- access free to enter and leave both kitchen and dining area.

Work counters of light formica on long walls of kitchen with cupboards built below and above for storing complete place settings for 100; cups, saucer, plate, bread and butter, dessert, tumbler, plus such necessary extras as pitchers; serving trays; baking pans; perhaps one cupboard for stapled goods.

Drawers for kitchen utensils -- dish towels and cloths;

Two sinks; one on either side of kitchen; one double sink and the other equipped with a garbage disposal.

Six burner stove with double oven and exhaust fan.

Electrical outlets all around cabinet working area.

It is more feasible to have kitchen in two divisions -- or perhaps an L

shape where salads and desserts could be prepared -- preferable on a cabinet type counter -- shelves above working area for putting prepared salad or desserts until time to be served -- Below this area cupboard space big enough for coffee urns -- punch bowl; large mixing bowls and salad and dessert plates.

Refrigerator of double door type for food; also used for keeping flowers fresh for altar use.

Hot water heater;

Wall phone in main kitchen.

Good ceiling lighting and spot lights above sinks;

Sound-proof kitchen to avoid noise in after-dinner meetings in dining area.

Perhaps broom closet for cleaning supplies and mops could be in this area.

DINING AREA

Facilities needed for serving from 25 to 125 persons:

Parish Dinners

Pancake Suppers

Serving family dinner of deceased

Coffee hour following services

Women's meetings -- Luncheon

Children's Christmas party

Sunday School classroom for pre-school children

Multi-purpose room as well; for recreation

Room free of pillars.

Good lighting -- preferably light walls and floor.

Folding tables and chair plus space for storage when needed.

Table arrangement so as to be plenty of traffic room for serving or closely oriented for speaker.

Provisions for hanging coats and hats.

Immediate access to bathrooms.

Electrical outlets for coffee makers -- projectors -- Xmas tree etc.

Heat and ventilation varied in relation to needs determined by size of group using this area.

Cabinet space below serving window from kitchen for silverware; salt - peppers; linens, such as tablecloths -- top of this counter could be used for buffet - type serving.

This room, a multi-purpose type room could also be used for Sunday School for pre-schoolers -- using small tables and chairs-blackboard-metal cabinet for their supplies. Also when cleared could be used for recreational purposes.

Submitted by Committee:

Viola Bauer; Kate Carlson; Luella Tripp; Mildred Mason and Jo Conrad

ST. PAUL'S EPISCOPAL CHURCH, CLAY CENTER, KANSAS:
A POST OCCUPANCY EVALUATION

by

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AN ABSTRACT OF A MASTERS THESIS

submitted in partial fulfillment of the

requirements for the degree

MASTERS OF ARCHITECTURE

Department of Architecture

KANSAS STATE UNIVERSITY
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1981

This thesis investigates the ability of the St. Paul's Episcopal Church building in Clay Center, Kansas, to function, as planned for the congregation, after approximately three years of use. The selection of St. Paul's Episcopal was made from a group of three churches which had been previously identified by the author as candidates for a post-occupancy evaluation. Through discussions with church members and the building architect, five design issues were identified which formed the basis for the evaluation. These were:

Issue 1: The functionality of the multi-purpose spaces.

Issue 2: The mobility of the elderly within and without the building.

Issue 3: The success of the Nave as a worship/inspirational space.

Issue 4: The aesthetics of the physical design.

Issue 5: The functionality of the administrative/service spaces.

The study was undertaken with the following objectives: 1) to learn if the building was meeting the congregation's needs; 2) to learn how to perform a post occupancy evaluation; and, 3) to determine the feasibility of using post occupancy evaluation as a tool in the total design process.

The rationale for this study is based on the relationship of man and his environment. The man/environment relationship is seen as a general theory concerning the determinants of behavior. Through post occupancy evaluation, we can "test" the ability of a built environment to meet man's needs, provided specific criteria are used to originally plan that environment. These criteria then become the basis for the evaluation.

Information was gathered from congregation members by three methods: observation, personal interview, and an attitude scale questionnaire. Statements in the interviews and questionnaires specifically addressed

the five major issues as previously outlined. The questionnaire was organized to address each issue individually and a biographical section accompanied it.

Findings indicated that of the five design issues, Issue Three, the success of the Nave as a worship/inspirational space; was judged by the respondents to have been best fulfilled. Issues One, Two, Four, and Five were met with varying degrees of success.

Conclusions were: 1) The total amount of space in the building is adequate; however, the distribution of that space is not satisfactory. 2) The accessibility to all areas is a problem for a minority of the elderly at this time. 3) The Nave is the most successful space in the building with respect to function and aesthetics. 4) The aesthetic nature of the building is agreeable with the majority of the congregation. 5) The administrative/service spaces work well; however, climate and sun control problems make this area somewhat less than ideal.

A final comment on the feasibility of using post occupancy evaluation as a design tool was made. It can be used if both the client and architect are willing to establish a sound workable program and follow it through the complete design process. This program will then serve as the basis for a later evaluation. Current problems in the implementation of post occupancy evaluation into standard architectural practice include: expense, availability of trained staff, and basic disinterest on the part of members of the profession.