

**A COMPARATIVE STUDY OF THE TYPES AND WAYS IN WHICH  
ARCHITECTURAL PROGRAM INFORMATION IS USED  
IN THE DEVELOPMENT OF CORPORATE OFFICE SPACE:  
FIVE OFFICE RENOVATION CASE STUDIES.**

51

By

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submitted to the University of Manitoba  
in partial fulfillment of the  
requirements of the degree of  
**Master of Architecture**

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A Thesis submitted to the Faculty of Graduate Studies of the University of Manitoba  
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**Dedicated To....**

My parents, Gilbert and Doris, for all their support, understanding and patience throughout the many years of my formal education. Much love to you both.

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## ABSTRACT

Corporate consumers of office space are becoming more and more sophisticated and demanding, forcing design solutions to be rationalized more thoroughly than ever before. The role of architectural program information during this development process is critical. Current research on the how program information is being used is limited. In an effort to provide some insight into current architectural programming practices, this thesis describes and compares the types of program information and the ways in which this information was used in five recently completed office renovation projects.

The five case study sites represented 38% of all the interior office alteration projects registered with the City of Winnipeg over a two year period. The use of the program documents prepared for each project and the kinds of information contained in them was assessed by using a combination of interviews, content analysis, and archival analysis.

The findings suggest that the predominant types of information contained in architectural program documents being used in practice are Organizational and Physical with much less emphasis on a client organization's business and operating environments. Information on the nature of the business, the nature of the work being conducted, the nature of the individual workers occupying the space, and how these conditions may change over time, is not being made available to the designers. As a result, these conditions can not be addressed through any grounded, objective analysis. The findings also suggests that program documents are much less likely to be referred to in any systematic way over the course of a project. The most common ways most key project people tend to refer to program documents is ad-hoc, indirectly, and seldom or never.



In conclusion, the study indicates that architectural programs tend to play less of a role in the actual development of corporate office space than one might expect. The types of information contained in these programs are also limited and tend not to address many future conditions. The result is clearly a higher incidence of subjective decision-making and final design solutions that may be more prone to failure.

These findings underline the need for a further understanding of the relationship between architectural programming, the design process and the prevailing conditions designers, clients, and contractors face when producing office environments. They also imply the need for designers to challenge traditional thinking, programming models and service delivery practices in order to improve the application of information in the development process and ultimately improve their design products.

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## CHAPTER 1

### INTRODUCTION & LITERATURE REVIEW

Corporate consumers of office space are becoming more and more sophisticated largely in response to the constant and rapid development of information technology and the pressure of global competition with its simultaneous pressures to reduce costs, improve productivity and the quality of products, and to be able to respond quickly to changes, etc. These conditions are having a tremendous impact on how business is being conducted and the nature of the work place environment. Owners and users are becoming more demanding. In response, design consultants are being forced to rationalize their design solutions more thoroughly than ever before. Hence, it would be expected that the process of architectural programming and the programming documents themselves should be becoming more and more critical than ever before.

Much has been written on programming procedures and methods [Pena 1969; Sanoff 1977; Prieser 1975, 1985] and there has been countless case studies on a wide variety of building types describing various programming processes and procedures. There has been limited research however, on the evaluation of the design process and particularly in the area of how design information is actually being applied in practice [Sims 1993; Davis 1993].

In order to address this gap in current research literature, this thesis will attempt to provide some insight into existing architectural programming practices in the development of corporate office space. The purpose of this thesis is two-fold. First, to describe the nature of the programming information currently being applied in practice, and secondly to provide some insight into the ways in which this information is being used. Specifically, this thesis addresses the following questions:

- What are the various kinds of program information being made available to the designers, users, and builders of corporate office space?
- In what ways are these groups using this information?
- Is this information being used in the creative process of developing design alternatives?
- In evaluating design solutions and changes to the design solutions?
- In post-occupancy-evaluations of the space?
- If so, in what ways?
- Do designers, clients, and contractors use the program information made available to them in similar ways?

## **1.1 PRESSURES TO IMPROVE PROGRAMMING OF OFFICE ENVIRONMENTS**

In the planning, design, and managing of the office work place environment, well forecasted, rationalized programs are critical to the present and future health of a corporation [Becker, 1990]. The practice of identifying and documenting this information and how this information is put to practical use, has become very important to both the corporations and their design consultants.

Escalating building and operating costs, information technology, global competition, employee expectations and the cost of design mistakes are all causing corporations to be more aware of how their facilities impact on their business [Becker, 1990, p. 9]. As well, corporate facility management is becoming more sophisticated in coordinating the planning, design, and administration of the company's buildings, their systems, equipment, and furniture. More corporations are beginning to manage their facilities like capital assets and less like overhead

[Veale 1987]. They are also becoming more demanding and articulate in expressing their requirements to their consultants and better prepared to scrutinize the extent to which design proposals meet these requirements [Becker, 1990].

In response to these pressures, design consultants are being forced to rationalize their design solutions more thoroughly than ever before. If not done effectively, inadequate programming can increase the number of design re-drafts, change orders, and site instructions over the course of a project. This in turn can cause delays, more design errors, and increase the cost of the overall project as well as the designer's cost of doing business [Hill, 1993; Rodyck, 1993]. More importantly, inadequate or poor programming leads to buildings that just don't work well [Cox, 1975, p.4].

## 1.2 THE PROGRAM DOCUMENT

The creation of physical environments involves many processes including strategic planning, programming (or briefing), designing, evaluating, building, and procuring. The activity that ties these individual components together throughout the overall process is the programming of the space. The result of this activity, the program document, is the focus of this study.

Lang [1987] describes the procedures conducted in the programming phase as being concerned with the basic identification of problems, the setting of goals that the design is to achieve, and the constraints under which the future design will have to operate.

In a detailed handbook, the Royal Institute of British Architects describes the content of such a "brief" or program as containing the client's statutory requirements, site conditions, economic appraisal, identification of standards and reference to previous solutions and experience. Kaplan [1979]

refers to the program as the compilation of all the decoded programming data and statements of the specific criteria to be used to guide the design of space.

The Canadian Handbook of Practice for Architects published by the Royal Architectural Institute of Canada, describes design as a continuing process with its genesis in two stages that precede a Schematic Design Stage. These two stages, the Requirement and Pre-Design Stages, can involve a number of programming procedures that can take place in a variety of ways depending on the specific project conditions. This can include: a client initiated Program of Requirements or Design Brief that assesses all implications of the intended project; a Detailed Operational Program that catalogues functional and space requirements; a Detailed Facility Program that elaborates on and modifies the general requirements; and the Final Program of Requirements (Design Brief) that is a composite collection of all data compiled in the operational and facility programs, together with an outline or manual of project procedures to confirm following objectives, time and cost constraints, performance and quality parameters and goodwill considerations [RAIC, 1977].

### **1.3 THE PROGRAMMING PROCESS**

The architectural program and the programming process is probably as old as architecture itself. Every design project has had a program, implied or stated, that told what the design needed or should accomplish. Throughout architecture's formal history, a program has been more or less an informal matter - a verbal statement of what was required from one individual to another [Palmer 1981, p. 11].

In contemporary architecture however, the variety and complexity of space requires much more extensive analysis. By the early 70's, there were over



270 distinct building types in North America [Fitch 1972]. Today, the scope of contemporary architecture includes "the widest possible range of formal, technical, and institutional considerations, all variously intersecting with intellectual models, modes of production, and modes of consumption" [Ockman 1993, p.22].

Programming and design are two parts of the same process: development of architecture primarily to accommodate the needs of the client [Palmer 1981, p.16]. The relationship between these two parts, programming and design, is seen in many different ways with few architects agreeing on any one definition of how the two parts should operate together [Class & Koehler 1976; Pena 1959; Davis 1979]. Despite the variety of approaches, the objective of both parts remains the same - bringing the client's goal closer to the reality of a constructed, occupied, operating facility.

Through programming, the client's goals, circumstances, and influencing factors are translated into words and numbers describing the design requirements, performance criteria, parameters, and constraints. It focuses and filters the information for the designer to translate once again into a three-dimensional statement of the client's original desires and needs [Palmer 1981; Becker 1981].

Essentially, programming lays the foundation for design based on empirical evidence. It is what Mickey Palmer describes as an "information processing process." It is an assessment of all the human, physical and external influences on a facility design through systematic data collection, analysis, organization, communication and evaluation [Palmer 1981].

#### 1.4 TYPES OF ARCHITECTURAL PROGRAM INFORMATION

The programming process and the types of information that can be contained in program documents can be described in a variety of ways. Broadbent [1969, p. 201] identified three kinds of information that was required on an activity or group of activities. These were 1) environmental, 2) relational, and 3) physical. The aim of programming, according to Broadbent, was to record for each activity, or group of activities, the absolute minimum of information which would enable the designer to place it sensibly within the context of the site he called an "environmental matrix". Palmer [1981, p.9] described the scope of information to be contained in a program as "whatever is necessary and relevant to the efficient, effective design of a facility that accommodates the needs of the client".

Pena [1977] created a simplified classification of program information that included Form, Function, Time, Economy and Energy. White [1972] listed several pages of "typical" factors that he considered "traditional" architectural considerations or "facts" and broke them down into nine categories: 1) similar projects and critical issues, 2) client, 3) financial, 4) building codes, 5) planning by related organizations, 6) function, 7) site, 8) climate, and 9) growth and change. Palmer [1981 p. 19, 20] categorized the factors he considered necessary for comprehensive programming into three groups: 1) human factors, 2) physical factors, and 3) external factors. Ehrenkrantz, [1989, p. 23] identified four conditions that had to be identified including economic, climate, behavior, and image.

Becker's [1990, p.124] view on programming for the corporate office environment sees the program as more than just a design guide that should include a priori for decision making and an explicit basis for assessing the suitability of

the resulting design solutions. This includes information about the organization and its operating environment; job functions and work-styles; and space, furniture, and equipment used all within a present and future context.

### **1.5 FACTORS IMPACTING THE USE OF INFORMATION**

An indoctrination of a professional by his/her own understanding of their practice can limit the ways in which program information is applied. Cuff [1991], in her analysis of architectural practice, determined that architects tend to make design decisions based on information that is available and what information they themselves consider to be relevant to their decision-making process in the context of the architect's relationship with their client. Schon [1983, p.69] points out however, that many practitioners lock themselves into a view of themselves as technical experts, and find nothing in the world of practice to occasion reflection. They become skillful at techniques of selective inattention, junk categories, and situational control. They use these techniques to preserve the constancy of their knowledge-in-practice thus limiting themselves to an established protocol.

How information is perceived may also influence the way it is used. Becker [1981] identified how information transforms to and from ambiguous and unambiguous states as it moves through the building cycle. At each phase, what is initially ambiguous information becomes unambiguous as the information is transformed into something meaningful to the individuals at each stage. A problem with a space is realized by its occupants and is transformed into a program by the programmers. The program is then transformed into a drawing by the designers which in turn is transformed back into space by the builders. Who can understand and apply the information can thus depend largely in what state the information is in.

## 1.6 TRENDS TOWARDS PROGRAMMING EFFICIENCIES

Based on a series of studies conducted over the last 12 years in conjunction with private and public corporations and academic institutions, Gerald Davis and Françoise Szigetzi [1993] have developed a systematic procedure for quantifying the functionality and quality of an office building using a performance rating methodology referred to as "Serviceability Scales". Users rate their needs on organizational issues such as security or changes in staff size on a 9 point scale. These are combined into a "demand profile". Buildings (existing or proposed) are rated on these same dimensions by using a scale in which the performance of different types of buildings (or elements of buildings) have been rated by a panel of experts for their ability to deal with those issues. These are combined into a supply profile. The demand profile (needs) is then compared with the supply profile (building performance) to establish the match between building performance and organizational needs. Over-performance represents a waste of resources. Under-performance will result in organizational inefficiencies. The ideal is a "good fit" between supply and demand. Thus, quick and objective assessments can be done in both present and future time frames. Work of this nature is helping to improve basic programming efficiencies and should make quantifying programming applications more feasible in the future.

This work also underlines a trend towards more rationalized and standardized programming methods being used in actual practice. For example Steelcase Inc., an international office supply company and an initial participant in Davis's work, is promoting the use of a similar methodology for systematically determining user requirements and matching functional and operational needs in office workplace environments [Steelcase/Harris, 1987].

Other trends in the field of working place design include integrating a variety of professional disciplines in the management and development of office

spaces. Many industrial and human resource-related fields and interventions have been directly and indirectly affecting the design practice as experienced in the recent growth in work process reengineering; organizational design, organizational change, and change management consulting fields.

An example of an applied field merging with the design profession is illustrated in a series of publications entitled "From Training to Performance in the Twenty-First Century", organized by the National Society for Performance and Instruction. This series focuses on the use of Human Performance Technology to address real world problems of human performance in the workplace. The intent of the series is to provide practitioners with practical how-to techniques for implementing performance-enhancing interventions in real job situations and help them bridge the gap between: their professional training and the need to expand their worldview to include other performance-enhancing interventions; their desire to learn about other interventions and the difficulty of keeping current in all the fields from which they derive; and their desire to try performance-enhancing interventions and the lack of specific, practical guidance on how to do so.

Human Performance Technology has been defined as an engineering approach to attaining desired accomplishments from human performers and has a unique approach to synthesizing ideas borrowed from other disciplines. Human performance technologists are those who adopt a systems view of performance gaps, systematically analyze both gap and system, and design cost-effective and efficient interventions that are based on analysis data, scientific knowledge, and documented precedents, in order to close the gap in the most desirable manner [Stolovitch and Keeps, 1992a, p.7].

In one of several publications within the "From Training to Performance" series, Phyl Smith and Lynn Kearny [1994] have combined their expertise from the commercial interior design and human performance technology

fields, in an effort to improve human performance by improving the workplace environment. Together, they have produced a practical resource tool to help designers, performance technologists, client management and their employees locate causes of work environment performance problems, understand and invest in cost-effective, performance-based planning, and create more supportive and less stressful workplaces. Their publication entitled "Creating Workplaces Where People can Think" focuses on the first step in performance: thinking. Other publications in this series includes "Creating the Ergonomically Sound Workplace" by Lee T. Ostrom and "Making Computers People-Literate" by Elaine Weiss.

## **1.7 PURPOSE OF STUDY**

The critical role the architectural program can now play in the development and management of office space, the impact design has on the business occupying the space, the need for rationalizing the characteristics of the space, and the nature of how professionals tend to refer to information, underlines the need for a better understanding of how program information is actually being used in practice.

This thesis, therefore, is intended to extend the limited work done to date by analyzing several recently completed office renovation projects to establish a source to draw from and form ideas on the types of architectural program information currently being used and the ways in which the key people involved in the projects actually use them. In turn, the results of this study may lead to additional case studies to add to this body of knowledge or direct similar research in related areas of programming and architectural practice. Ultimately, the goal in this type of research is to provide the insight necessary for future

researchers and practitioners to develop better programming processes and methods that address actual working conditions.

## **1.8 RESEARCH OBJECTIVES**

There are three specific objectives to this thesis. They are: 1) to analyze the available program documents used in five office renovation case study projects to determine the types of information contained in them, 2) to identify and compare the ways in which the corporate client organizations, their design consultants, and the general contractor used the program documents, and 3) to identify the predominant patterns in the types of information being used and the various ways in which the information was referred to across all five case study sites.

Chapter 2 addresses the various methods and procedures used to obtain these objectives.

## CHAPTER 2

### RESEARCH METHODOLOGY

#### 2.1 RESEARCH DESIGN

The research questions posed in the introduction were explored by looking at five office renovation projects in a case study design. This approach was selected due to the complex and varied nature of the architectural programming process itself. No two client organizations, design consultants, or office spaces are ever the same. Recognizing this, a case study approach analyzed the phenomenon on an individual project basis. By applying a consistent framework for data collection and analysis, further generalizations could then be made across the case study sites. These generalizations were analytical in nature as opposed to statistical. By identifying a distinct source for identifying the case study sites, generalizations applied to the individual and collective projects could also be made within the same sample pool.

The projects selected as case studies differed greatly from one another in terms of the client organization, corporate culture, and project setting, as well as in how the Client Organizations operated and administered their corporate office facilities. The design firms also differed in their organization and approach to architectural programming. These differences were not qualifications for selection, but they did afford an opportunity to identify a wider range of programming information types, processes, procedures, and ways in which the client organizations and their design consultants are putting them to use within the context of producing and managing office space.

The intent of this research was not to determine whether the programming conducted was either "good" or "bad". It was to investigate current situations in which architectural programming had occurred and to identify the



types of information that they contained and compare the ways in which the available program information was used by the client organization, their design consultants and the general contractor. The goal was to identify and compare any predominant patterns or consistent themes in the types of information being used and the ways in which that information was applied in practice by these groups.

The results of the individual and collective case studies provided a source to draw from and form ideas on these two conditions or phenomenon. In turn, this study may lead to additional case studies being done to add to this body of knowledge or direct similar research in related areas of programming and architectural practice.

## 2.2 DEFINITIONS

For the purposes of this research, an "Architectural Program Document" is defined as "any available organizational, operational, physical, or workspace/job function information prepared for the purpose of planning, designing, and/or managing an office space." Management people were defined as any key project person responsible for the management of the space or Design Firm being studied. Implementation people were defined as any key project person who was responsible for implementing or coordinating the work. Production people were defined as any person responsible for the production of the construction documents. Staff were defined as any person whose working space was affected by the work (excluding senior management personnel).

Availability was a critical factor in defining the program document. This limited the study and the search for only information or documents that were accessible. This means it had to be recorded in a tangible form that was referred

to and shared by an unlimited amount of people. This excludes unrecorded verbal communication and individual expertise or knowledge bases.

Within the content analysis of the program documents, information that applied to existing or conditions forecasted up to the initial occupancy of the space was characterized as present information. Any information that was forecasted beyond the space's initial occupancy was characterized as future information.

### **2.3 SELECTION OF THE CASE STUDIES**

The selection of the case studies was not intended to be a representative sample of all the types and uses of architectural program information prepared for office space currently being applied in practice. Each case study represented an individual set of responses and practices as they had occurred over the duration of each project. The case studies selected provided a range of corporate client organizations, design firms, and project conditions to maximize the possible information types and applications for an office renovation project and keep within the practical limitations and resources available to the researcher. Access to the sites, key participants, and archived data were a limiting factor for the researcher in all cases. This precludes that all projects, corporations, and design firms were located in Winnipeg, Manitoba, Canada. The greater number of case studies, the greater the variety of information types and uses that could be identified. For the purposes of this thesis, a total of five case studies were conducted.

The projects selected as case studies were chosen from the building permits listed under "office building interior alteration" as issued by the City of Winnipeg's Building Permit Department over a two year period between May of

1992 and 1994. The minimum size for a case study project was \$250,000.00 (not including furnishings) with a minimum cost per square foot of approximately \$30.00. Collectively, the five case studies represented 38% of all the building permits issued for interior office alteration projects over \$250,000.00 that occurred in Winnipeg between this period of time. Appendix A contains the floor layouts of each of the five case studies.

These parameters ensured 1) a high likelihood that the projects had been completed and just recently occupied, 2) that the key participants in the project were still available, 3) that the relevant project documents were still easily accessible, 4) that the project likely had a sufficient degree of design complexity that required architectural programming, 5) that there was no bias in the selection of the projects by any of the participating companies, and 6) that they represented the prevalent programming conditions and practices occurring in office space development in Winnipeg at that time.

Only one project per corporate client organization and design consultant were used. This maximized the potential for identifying a wider variety of uses and types within the limits of this study. Federal, provincial, and civic government projects developed and implemented without the use of outside consultants were not considered in the selection of the case studies as government programming requirements are centrally controlled and not created or managed completely on a project to project basis.

## **2.4 DATA COLLECTION METHODS**

Three data collection methods were used to evaluate each of the cases. These instruments included: 1) an archival document analysis of the design consultant's project files to identify the program documents and describe the

context of the project, 2) a content analysis of the architectural program documents identified in the archival analysis, and 3) interviews with key participants from the client organization, their design consultants, and the general contractor.

The same instruments and procedures were used across each case study site. This ensured that the data could be compared across sites. Some tailoring was required in each case. For example, in the cases where individuals played more than one role in the project, their interview questions for each role were combined together. The data collection tools and basic procedures that were followed for each are described in detail in Appendixes C through H.

The multi-methods approach provided a thorough evaluation of the sites relative to the specific goals of the study and an understanding of the context for the events and activities that took place from a variety of sources including personal accounts and archived records.

#### 2.4.1 Overall Data Collection Procedure

Figure One outlines the basic data collection procedures that were followed through each case study site.

Data Collection Tasks	Data Collection Methods
1. Describe context of the project	ADA, INT
2. Identify the project program documents	ADA
3. Identify and categorize program information types	CA
4. Identify the ways program documents were used & referred to	INT

ADA - Archival Document Analysis; CA - Content Analysis; INT - Interview

Figure One

## **2.5 ARCHIVAL DOCUMENT ANALYSIS**

The purpose of the archival data analysis was to identify and describe 1) the architectural program documents that were made available to the project, and 2) the context of the project.

The context or project conditions that were identified and described include: 1) the key project participants and their company's organizational structure for the administration of the project, 2) the location, area, cost, scope of work, duration, and implementation stages of the project, 3) the final floor plans, 4) the programming procedures and methods applied during the project, 5) a chronological account of the programming events throughout the project, and 6) any internal and project review and approval procedures/events implemented by both the client and design groups.

### **2.5.1 Procedure**

Access to the design firm's project files in each case were obtained through a site contact. In most cases, it was the principal-in-charge of the project or the managing partner. All content analysis was conducted on site where the file material was located. No material was copied or removed from the site without authorization by the participating company first.

The sources for the program documents varied from centralized project filing systems to personal files maintained by the key project participants in the design firms. In each case, the researcher located and investigated all the available files maintained on the project with the assistance of the site contact and the cooperation of the key participants. Masked samples of parts of various program documents that were identified in the five case study projects are located in Appendix B.

### **2.5.2 Context of Project Files**

Project files and records reflect the bias of the record keepers.

However, the role of the design firms in each case study was ultimately to produce the final design solution. Therefore, the assumption was made that the design firms would maintain on file, all the programming information that was made available to the project regardless of its source. Ultimately they were the best and most accessible source for this material that could be attained by the researcher.

Additional questions were added to the interview questions to clarify any outstanding project conditions not originally found in the archival analysis.

## **2.6 CONTENT ANALYSIS OF ARCHITECTURAL PROGRAM DOCUMENTS**

A basic content analysis was conducted on each of the architectural program documents identified in the archival document analysis. The purpose of the content analysis was to identify and categorize the various kinds of information types contained in each document.

The recording unit for the analysis were themes or categories of information types. The main categories or themes of information types were based on the literature review conducted in chapter two [Becker 1990; Palmer 1981; Pena 1969; Prieser 1985; Sanoff 1977; White 1972, Smith & Kearny 1994] and include: organizational, operational, physical, and work style/job function types of information. The intent of the analysis was not to determine frequencies or amounts of each theme or category or type, but simply to establish if the

categories were in the documents or not. New categories and information types were added as they appeared out of the analysis of the programs.

In order to easily identify the themes, each category was broken down into sub-categories and types. Figure Two illustrates the initial categories or themes, the sub-categories, and the individual information types for each. Breaking the main themes into component elements also enabled contingency analysis in the event the initial structure for analyzing the data failed to produce reliable results (thus not wasting any data previously collected). Each information type was also categorized further to identify whether it was relative to present and/or future conditions.

## PROGRAM DOCUMENTS

### Main Categories

Organizational Information	Operational Information	Physical Information	Work Style & Job Function Information
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### Sub-Categories

Staff, Plans; Corporate Culture; Goals & Objectives; Work Groups	Business Conditions; Laws & Regulations; Labor Force Patterns; Competitive Actions; Lease Conditions	Inside & Outside Conditions; Building, Building I.T., Work Group, Work Station Conditions; Furniture & Equipment; Layout	Tasks, Adjacencies, Communication Conditions, Human Factors
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### Information Types

Strategic & Tactical Plans; Business Plans; Business Goals & Objectives; Operational Plans; Social Culture; Corporate Hierarchy; Staff Types, Amounts, Gender; Project Conditions Work Group Types, Amounts, Growth Rates	Market Conditions; Competitive Activities; Financing Conditions; Tax Laws; Building Bylaws & Zoning,; Demographics; Work Force Trends & Characteristics; Other Company Experiences; Building Code Req'mts;	Furniture & Equipment Inventories; HVAC Conditions; Electrical Conditions; Ergonomics; Climatic Conditions; Internal Security; Finishes; Access & Egress; Location; Partition Types; IT Types; Work Station & Work Group Layouts;	Job & Task Descriptions; Post Occupancy Evaluation Results; Communication Types, Frequencies, Locations; Individual & Group Adjacencies; Individual HVAC Req'mts; Individual Working Characteristics
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Figure Two

Because of the types of materials that can be included in program documents could vary, the settings or context units for identifying the information types included: a line in written text; a single graphic drawing or picture; and a single numerical table or list. The guidelines and an example worksheet used in the content analysis of the program documents are contained in Appendix C.

All content analysis was conducted on site where the material was located. No material was copied or removed from the site unless previously authorized by the appropriate company(s).

### **2.6.1 Reliability**

A test on the content analysis method was conducted by an independent judge to help verify its reliability. First, the judge was trained on the coding and procedures for conducting the content analysis as outlined above. The training began with a detailed explanation of the scoring system and then practice in scoring masked sample material. The judge was then asked to comment on any ambiguous conditions or terms and freely discuss any problems he/she encountered. When the judge had problems after a few practice trials, the coding system was revised and the procedure repeated until both the judge's and the researcher's coding were consistent.

The criteria for selecting judges to assess the analysis methodology included: 1) a graduate of an accredited architectural or interior design degree program, 2) a minimum of 5 years working experience, 3) familiarity with office programming, design and construction. The two judges used in the study (one before the pilot study and the other one after the pilot study) had over 5 years experience as an interior designer and extensive backgrounds in commercial office design and programming.



The final results from the first independent judge's analysis (prior to the pilot study) were consistent with 78% of the results conducted by the researcher on the same sample material.

## 2.7 INTERVIEWS

The main purpose of the interviews was to identify the ways in which key project participants used the program information made available to the project. Additional information was also solicited in the interviews on 1) the context of the project, and 2) the programming process and procedures utilized in the project.

A semi-structured interview approach was used to identify the conditions noted above. All respondents were asked the same questions, but the order in which they will be asked and the wording differed from one person to the next depending on the type of respondent being interviewed and the conditions of the project. Open-ended questions complete with neutral probes were used to solicit the most in-depth responses possible. Following each open-ended question that pertained to how a document was used, the respondents were asked to choose from a list the category which best described how he/she had referred to the document over the course of the project. This method was found to be the best way to focus the respondents on the nature of the question and keep them from wandering off topic.

Appendixes D, E, and F contain the questions for each of the three groups interviewed including the design firms, the client organization, and the general contractor. Appendix G contains the descriptions of ways the respondents had to choose from or add to.

### **2.7.1 Selection of the Interview Participants**

The purpose of the interviews was not to provide a random sample of responses from any individual who participated in the project. It was to gain important information from the key players in the client organization, the design firm, and the general contractor who were involved with either developing or using the space. The names of these key individuals were identified by the various site contacts and verified through the archival document analysis.

### **2.7.2 Procedure**

Interviews with these individuals were conducted on a one-to-one basis. Some follow-up interviews were required in one case and were again conducted in-person.

Interviews were recorded through tape recording and notes by the interviewer. At the beginning of each interview, the interviewer asked permission of the interviewee to tape the interview, explaining that the audio tape was required to categorize the responses and supplement the researcher's notes. All tape recordings were then transcribed into text and then destroyed. Each transcription was then coded to mask the various respondent's identity.

All participants were encouraged by the interviewer to consider the questions carefully and provide as much detail as possible, emphasizing that the richer the responses, the greater the value the final results would be to their own company as well as to the overall study.

### **2.7.3 Coding and Analysis**

All the interview responses were grouped according to questions answered. Because the main purpose of the interviews was to identify the various

ways in which the respondent's used or did not use the program documents, the coding involved categorizing the various "ways" as they appeared out of the interview data. The pre-coded descriptions of possible ways to make reference to the documents that were provided to the respondents was also applied later to a respondent's interview transcription if they failed to identify a way during the interview process itself.

The pre-coding of how the program documents could be referred to was as follows: (a) seldom or never, (b) in an indirect way, mostly by memory, (c) in a direct, ad-hoc way, (d) in a pre-determined, systematic way, and (e) in a pre-determined, systematic way to objectively measure performance.

In each case, the results were summarized and submitted to the individual respondents for their verification. A cross case summary of all five sites was then completed.

## **2.8 PILOT CASE STUDY**

A pilot case study was used to test the data collection methods prior to initiating the actual case studies. Since the nature of the research was dependent on accounts and records of past events, a pilot of an actual office renovation project was used to ensure data collection methods provided the data required to meet the research objectives and finalize the procedures for conducting the study. The pilot case also met the same criteria for selection as the actual case studies.

Following the pilot study data collection, a pilot case study report was prepared and reviewed by the examining committee for their input, revisions, and suggestions for analysis. A second test on the coding systems was also conducted on the content analysis and interview results by a second independent judge. The content analysis results were found to be consistent with the initial reliability

testing done previous to implementing the case study and with the researcher's analysis of the interview data.

The pilot study resulted in the simplification of several field procedures and data collection tools. This included limiting the archival analysis to the architectural program documents located in the design firm's project files; limiting the content analysis to identifying present and future categories, sub-categories and individual information types only; expanding the interviews and analysis to include the general contractor; and finally clarifying the intent of the interview question: "describe how you referred to the program document". Most respondents tended to describe the programming process that occurred as opposed to how they personally used it. To address this concern, the respondents were re-interviewed and asked to identify which way, from a written list of descriptions, best described how they referred to the particular program document over the course of the project (see Appendix G). This method proved successful in preventing the respondents from wandering off topic and focusing them on the question. It also simplified the final analysis of the interview responses by utilizing the pre-coded categories directly in the question.

After completing the four subsequent case studies, it was found that the responses to the questions asked in the pilot's re-interviews were consistent with the responses in the other four cases. Thus, the re-interviewing process did not appear to have biased the pilot case study interview results in any way.

Considering the integrity of the interview results were not compromised and the basic field procedures and methodology for the pilot case study were consistent with the other case studies, the pilot was added to the study as the fifth case and its results included in the overall cross case study analysis.

## 2.9 FIELD PROCEDURES

The following procedures were utilized as a guideline for administering the data collection activities at each case study site. Modifications to these procedures were made on an ad-hoc basis as required, depending on the field conditions encountered by the researcher.

1. Telephone principal partner of design firm of case study project; provide introduction and explanation for telephone call. Obtain an introductory meeting.
2. Introductory meeting: explain purpose of study, benefits to be gained by participating, and the commitments to be requested of the company. Obtain a commitment to participate and permission to approach the corporate client organization to solicit their participation. Identify key participants in the case study and schedule time to conduct the content analysis and interviews.
3. Telephone client organization, provide introduction and explanation for telephone call. Obtain an introductory meeting with company representative involved in administering the case study project.
4. Introductory meeting: explain purpose of study, benefits to be gained by participating, and the commitments requested from the company. Obtain a commitment to participate. Identify key participants in the case study project and schedule interview times (after completion of content analysis of the program documents).
5. Conduct the archival document analysis and the content analysis in the design consulting firm's offices (1-2 days).
6. Circulate memo (see Appendix H) prior to interviews with key participants from design firm, client organization, and general contractor.

7. Conduct interviews with key project participants from the design firm (4-5 days).
8. Conduct interviews with key project participants from the client organization (4-5 days).
9. Conduct interviews with key project participants from the general contractor (1 day).
10. Write project case study report.

## **2.10 RESEARCH CONCERNS ADDRESSED**

The participation in the study was solicited by emphasizing the individual benefits that companies involved in the project could obtain. For the client organization, the study can provide insight into the types of architectural information that can be used to help plan, develop, and manage their office space and the ways in which they may be able to better apply that information. For the design firms, the study will give them insight into the types of program information being used and not being used to develop and manage office corporate space and how client organizations, design firms, and contractors are actually applying this information in practice. As well, through supporting the study, the design firms could promote their commitment to research and developing their practice to improve their client services and the quality of their product being offered to the local corporate community.

Access to project documents was a critical component to the research. Preliminary discussions with local corporations and architectural firms indicated no adversity to allowing the researcher access to these sources [Hill 1993, Hocking 1993, Courtnage 1994, Rodyck 1993].

Confidentiality of proprietary information and procedures was also critical to the participating companies. All corporate and individual identities have been masked and final approvals have been given by all participating companies prior to this publication.

## CHAPTER 3

### CASE STUDY SITE - A

#### 3.1 PROJECT DESCRIPTION

Case Study A was the upgrading of 23,128 square feet of existing office space in the headquarters of a large retail company. The renovation was limited to one floor of a three story, historically designated building located in close proximity to the city's central downtown business district. The building is owned and operated by the Client Organization.

The area renovated represented about 84% of the building floor plate. The space is considered to be a class "B" office space within the local office real estate market with a base rental rate of approximately \$17.00/sf. The total construction cost per square foot for the renovation was approximately \$39.50 (excluding fees and furnishings).

The facility acts as the central headquarters for the administration and operations for the Corporation's retail outlets. The renovation involved the re-allocation and up-grading of general office space in several Marketing departments including the Store Planning and Construction department. All together, the renovation affected the working spaces of approximately 105 people.

##### 3.1.1 Project Participants

The Client Organization employs approximately 3,500 people across Canada and occupies in excess of 2.4 million square feet of space, most of which is retail space. Only about 5% or 120,000 square feet of that area is office space. The company also has their own in-house construction and planning department that is responsible for the development and maintenance of their retail properties.



This includes managing all facility operations with the exception of purchasing buildings and land.

The Design Firm is a privately owned, professional consulting practice with approximately 15 full time employees. The firm was founded in 1975 and offers full architectural and interior design services. In its 19 year history, the firm has been responsible for the design and development of well in excess of 1 million square feet of office space.

The general contractor is a privately owned construction company established in 1975. During this time the Company has been responsible for the construction of several million square feet of office space throughout Saskatchewan, Manitoba, and Northwest Ontario.

### **3.1.2 Roles and Responsibilities**

The Client Organization, being knowledgeable in the design and construction fields, defined the overall re-development process for the project and the roles and responsibilities of the various company's involved. The Design Firm was engaged initially to establish the feasibility of a number of renovation options that the Client Organization's planning department had previously identified. After the feasibility study was completed, the Design Firm's services were limited to producing the final design and construction documents. The Contractor was engaged directly by the Client Organization to provide advice on the construction costs and implementation procedures and to construct the space.

### **3.1.3 Project Goals and Objectives**

The renovation of the existing space was a result of the Client Organization's strategic business decision to centralize their Canadian operations

and maintain the location of the company's existing historical headquarters. The initial architectural programming and preliminary planning included a staff opinion survey, a building appraisal, and a feasibility report, all of which played a role in helping management make this decision.

The goals and objectives for the renovation were identified in the Architectural Programming outline and the Basic Requirements/Criteria for the building provided by the Client Organization. No set priori of these issues were identified in the program documents analyzed. However, management and implementation people from both the Design Firm and Client Organization acknowledged they had an understanding of what issues were most important.

#### **3.1.4 Project Implementation**

The Client Organization directed the initial facility assessment and played a predominant role in determining their own accommodation requirements. As an initial step, a Building Review Committee was formed within the company to solicit employee attitudes towards their location and facility needs. The results of the employee survey supported the company's decision to maintain their current location and upgrade their facility in lieu of relocating the headquarters to another property.

Following the survey, the Client Organization compiled a list of Basic Requirements/Criteria and a list of Staff and Square Footage Requirements. Some preliminary space planning was done by the planning department to help determine the viability of the proposed work and identify possible interior alteration options to accommodate the proposed area requirements within the existing building.

An appraisal was also completed at this time by an independent appraisal company to determine the building's current market value. The purpose of the valuation was to help management in the process of deciding to upgrade the facility and supplement the physical information compiled on the building itself.

Through these initial exercises, an outline of requirements to conduct a Feasibility Study was produced by the Client Organization, which included a general scope of work. At this point, the Design Firm was invited to submit their proposal for services to conduct the Study and provide the design and construction documents for the work. The Feasibility Study included completing the architectural programming, developing design options, cost estimates, and making the appropriate recommendations for action.

As a result of the feasibility report, which included two design alternative proposals, the scope of work became limited to renovating the single floor area. A final design was then submitted by the Design Firm and approved by the Client Organization.

After that point, the Design Firm's services were limited to the design and production of the working drawings and specifications. The administration of the construction and the coordination of the moving was managed in-house by the Client Organization's project manager.

The general contractor was also invited by the Client Organization to submit a price to construct the work in lieu of soliciting bids from other contractors or issuing a tender call. This approach was used by the Client Organization due to the limited amount of time available to complete the work to accommodate the relocated staff moving to Winnipeg in the upcoming fall. All the companies involved had previous experience and good working relationships with the Client Organization. The construction was also phased to enable the

Client Organization to maintain operating in the renovation area throughout the entire construction period.

A unique feature of this project was that the Client Organization was very knowledgeable with the programming, design, and construction processes. They had many pre-determined ideas and construction specifications which facilitated the production of the design and construction documents. They essentially "knew what they wanted" and had a lot of control in the direction and extent of the work done by the Design Firm.

The Feasibility Study was another unique feature normally not found in this type of renovation work. Essentially the study analyzed 1) what they wanted to do, and 2) identified and defined what they could afford to do.

## **3.2 ARCHITECTURAL PROGRAMMING PROCEDURES & METHODS**

### **3.2.1 Procedure**

The architectural programming of the space was completed by both the Client Organization and the Design Firm. Taking direction primarily from the Corporation's management and integrating results from the employee survey responses and their own planning experience, the Client Organization's Planning Department established the Basic Requirements/Criteria for the project. In addition to the Criteria list, the department also compiled the Square Footage Requirements for the various departments being renovated.

Once approved by the Corporation's Board of Directors, the Criteria and preceding documentation, including the Square Footage Requirements, were passed on to the Design Firm. Following a tour of the facility, the Design Firm

distributed the Room Data Sheets to the various departments who in turn filled them out on their own. Once the Data Sheets were returned and reviewed, the Design Firm met with the department managers to clarify any questionable or missing items.

After the Room Data Sheet material was completed, the design alternatives were developed and the final Feasibility Report was submitted to the Client Organization. Following the approval from the Corporation's Board of Directors to proceed with one of the alternatives, the Design Firm completed the final design and conducted the furniture assessment and inventory for the space.

### **3.2.2 Methods**

The Basic Requirement/Criteria and Square Footage Requirements compiled by the Client Organization's planning department were based primarily on the company's current space allotments, management experience, and best-guess estimates made by the individual departments. No evidence was found or references made in the interviews to any formal corporate standards or systematic projection techniques being applied in determining these requirements.

Specific tools applied by both the Client Organization and the Design Firm over the course of the project included the staff opinion survey, individual in-person interviews with department managers, and the standard Room Data Sheets.

### **3.2.3 Program Documents**

The following is a list and brief description of the "program documents" that were identified in the archival analysis of the Design Firm's project files. This list excludes the final design drawings and construction documents:

- 1) The results of a "Location Opinion Survey" conducted by the Client Organization's Building Review Committee prepared initially as a decision-making tool for management to help decide on whether they should stay in the same location or not.
- 2) A list of "Basic Requirements and Criteria" compiled by the Building Review Committee outlining specific issues and items to be addressed in the renovations.
- 3) An independent "Building Appraisal" of the existing facility.
- 4) The Design Firm's "Services/Fee Proposal".
- 5) The Client Organization's "Outline of Requirements for the Architectural Programming" required for the renovation.
- 6) The Client Organization's "Organizational Charts".
- 7) A "Room Data Sheet Survey" provided by the Design Firm and completed by the Client Organization's individual staff and department managers.
- 8) A summary of the existing and projected "Staff and Square Footage Requirements" compiled by the Client Organization.
- 9) A "Feasibility Report" initiated and directed by the Client Organization and produced by the Design Firm to evaluate options for accommodating the company's physical requirements. The report included a Building Code Review of the existing facility and a Functional Space Program of Requirements for the users of the space.
- 10) An "Inventory of Office Furniture and Equipment" compiled by the Client Organization for the users of the space.

### **3.3 ARCHITECTURAL PROGRAM INFORMATION**

#### **3.3.1 Types of Program Information**

Appendix I contains a summary of all the various types of information identified in the program documents listed above. The information types that were and were not emphasized in the main categories were as follows:

##### **3.3.1.1 Information About the Organization**

Information on the Staff and Work Groups included Types, Amounts, and Names. Descriptions of Gender Types and Relationships were limited to the naming of individuals and departments.

The Organization's Plans, Goals & Objectives identified were limited to specific project plans and operations. For example, "phasing the construction", "making more space available", "determining the feasibility of the options", project costs and schedules, and identifying "who will be doing what over the course of the project". The one Business Plan identified in the literature was the company's immediate plan to relocate people to Winnipeg from the east.

Information on their Corporate Culture was limited to the graphic representation of their organization in a chart form which provided the names of individuals and departments, and illustrated the basic reporting hierarchy within the company.

Conditions that projected beyond the initial occupancy identified under this category were limited to the Staff Types and Amounts.

##### **3.3.1.2 Information About the Organization's Operating Environment**

This category of information focused primarily on aspects directly related to the built environment. Information on Laws & Regulations, Building

Operations & Maintenance, and Business Conditions were specific to property zoning, bylaws, and code conditions. This also included specific property costs, value, taxes and office market conditions in the immediate vicinity. No information was found on actual business market conditions, labor force conditions or lease conditions under which the company or individual departments operate.

Of the conditions identified under all Operating Environment sub-categories, only the Real Estate Office Market condition referenced conditions projecting beyond the Client Organization's initial occupancy of the renovated space.

#### 3.3.1.3 Information About the Physical Conditions Within Existing Or Proposed Spaces

Information on physical conditions were identified in a variety of sub-categories including: Outside Conditions, Building Conditions, Building Information Technology, Work Group, Work Station, Furniture & Equipment, and Layouts. The Building, Work Station, and Furniture & Equipment categories were fairly inclusive with information about most component elements being identified. General descriptions and details were provided on the existing building history, size, finishes, image, structure, fenestration, mechanical, electrical, and fire prevention systems. Almost all the floor, wall, ceiling, and service component elements were also identified at the work station level.

The Outside Conditions were limited to a brief description of the neighborhood and building site with no information found on outdoor climate, security, site/building access, parking, or transit. Technology conditions identified



were less inclusive under all associated categories, especially in the work group, work station, and furniture categories.

Future conditions in this category were also limited. With the exception of the descriptions for future uses for some mechanical and furniture systems, the only other conditions projected beyond the initial occupancy were the numbers of people within the existing work groups and the amounts of work station types.

#### 3.3.1.4 Information About Individual Work Styles and Job Functions Within the Organization

There was significantly less information made available to the project in this category as revealed by the limited number of elements identified under each sub-category. Most of the information identified focused on aspects of the physical space and not on actual staff or job functions. For example, Task Analysis information identified the days, times, and types of use for when and how rooms were to be used. The only Human Factors identified listed the temperature and privacy requirements for individual rooms.

Individual or group adjacency requirements were not identified other than what could be implied through the Client's organizational charts. The meeting room conditions identified consisted of a single statement in the Basic Requirements provided by the Client Organization identifying that more small meeting rooms were needed. The information on Communication Patterns consisted of a checklist in the Room Data Sheets for identifying communication equipment used (i.e. telephones, faxes, etc.) and their locations. No data or recommendations on individual staff assessments or characteristics were identified in any of the documents listed.

Work Style and Job Function conditions that were included did not make any reference to conditions beyond the company's initial occupancy of the space.

### **3.3.2 Summary of the Types of Program Information Provided**

The predominate category of information types identified were Physical Conditions, with an emphasis on present Building, Work Station, and Furniture Conditions. The information types found on the Organization's Operating Environment were mainly project and building oriented as well. Information types identified on the Organization tended to emphasize project conditions and names, amounts, and types of Staff and Work Groups. Few types were identified under Individual Work Styles and Job Functions. A total of 7 information types out of 94 had conditions projected beyond the initial occupancy of the space.

## **3.4 HOW THE PROGRAM DOCUMENTS WERE REFERRED TO**

The results of the individual interview responses from the Design Firm, Client Organization, and the General Contractor are summarized and graphically illustrated in Appendix I.

### **3.4.1 Design Firm Responses**

Both the Firm's principal and key project people acknowledged referring to most of the program documents over the course of the project with the exception of the Technician.

The Firm's Principal identified "indirectly" as the best way to describe how he used the programs with more detailed information such as the

Organization Charts, the Room Data Sheets, the Square Footage Requirements, and the three parts of the Feasibility Study including the Functional Requirements. He “never or seldom” used the Building Review Survey or the Building Appraisal and identified “ad-hoc” as the best way to describe how he referred to the Project Requirements and their own Fee for Services Proposal. The Fee Proposal was also the only document he identified as using in a “systematic way”. He used it in this manner to monitor personnel time costs on a weekly basis.

“Ad-hoc” was the predominant way the firm’s key project personnel said they referred to the various program documents. “Indirectly” was the next most frequent way . Only the project architect identified “systematic” as the way he referred to the “Requirements/Criteria” program over the course of the project.

The technician only referred to the “Room Data Survey Sheets” as he needed to or in an “ad-hoc” manner during the production of the working drawings.

### **3.4.2 Client Organization Responses**

The most often “ways” identified to describe how the key people involved in implementing the project used the documents were “indirectly” and “ad-hoc”. Only the manager of the planning department acknowledged using the Square Footage Requirements in a “systematic way” on a regular basis to monitor the amounts of floor space against projected numbers of employees.

Most of the “ad-hoc” use of the program documents identified by the Client Organization’s management was by the vice-president of the areas directly affected by the renovation. Remaining management interviewed said they “seldom or never” used most of the documents. The staff interviewed did not

have access to any of the programming material except for the Organizational Charts and the Building Review Survey Results.

The O&M personnel interviewed used the documents in a similar manner as management. "Ad-hoc" or "seldom or never" was the most common responses.

### **3.4.3 General Contractor Responses**

Other than acknowledging an "indirect" use of the Building Code Review, the Construction Supervisor felt "seldom or never" best described his use of the program documents.

## **3.5 WAYS IN WHICH THE PROGRAM DOCUMENTS WERE USED**

### **3.5.1 In the Creative Process of Design**

In the creative process of design, the programs were used exclusively by the Interior Designer and Project Architect. During that process, the Interior Designer used "seldom or never" to describe how she used the program documents.

"It's (designing) just something that you get so familiar with doing that you don't, even when you are putting together a proposal for somebody, it comes so easily that you don't even think what you are doing".

The project architect however, explained that the program documents gave him the control of his team members (i.e., the designer) and directed which way the project should go. His reference to the documents during this process was described as "ad-hoc".

### **3.5.2 During Presentations to the Client**

In the initial presentation made to the client by the Principal-in-Charge and the Project Architect, the high-lights of the feasibility study were reviewed prior to presenting the preliminary planning options to “refresh memories of what was agreed on and approved”. Subsequent presentations made by the Interior Designer did not utilize any of the program documents directly.

“You become so familiar with the plan that you’re not needing to refer to those documents. You might for certain information, specifically for desk sizes and that, you need to refer to those. But in terms of the areas you already knew where one department was compared to the other and you knew how they functioned already within by that time so it wasn’t difficult to discuss that with the client”.

### **3.5.3 In Evaluating Design Solutions**

Individuals from both the Design Firm and the Client Organization acknowledged using program documents to evaluate the design solutions. All the key people from the Design Firm used “ad-hoc” to describe how they used the programs in their own evaluation process. As described by the Interior Designer:

“Only when I needed to check things to make sure they were included in the design”.

The Client Organization manager’s also used them in a similar fashion:

“Did they get the number in (furniture) and did we have enough space for filing cabinets and that sort of thing”, “The one about the square footage per person and the fact that did we have the fire code regulations, the elevators and stairwells right? Did we have enough washrooms in?”.

### **3.5.4 In Evaluating Changes to the Design Solution**

In evaluating any changes made to the design solution over the course of the project, the Design Firm's project team most often identified "seldom or never" to best describe how they referred to the program documents. "Indirectly" was their only other choice. Responses from the Client Organization and General Contractor were similar except one client manager that acknowledged referring to the documents "*as I needed to*" when evaluating changes to the design.

### **3.5.5 In Post-Occupancy Evaluations**

No formal Post-Occupancy-Evaluations were conducted by either the Design Firm or the Client Organization. In any informal evaluations that were done, no one acknowledged using any of the program documents to help in their evaluations.

### **3.5.6 Other Ways of Using the Program Documents**

Other ways of using the program documents that were identified included: 1) the Principal-in-Charge of the Design Firm said some of the documents may be used to market their services, and 2) the Client Organization's O & M Manager indicated that the department areas and staff numbers would be useful in planning the execution of future moves.

### **3.5.7 Summary of the Ways in Which the Program Documents Were Used**

The most common responses for how the program documents were referred to was "seldom or never", "indirect", and "ad-hoc". This pattern was consistent among all respondents in all three companies. "Systematically" and "in

a systematic way to measure performance” were rarely identified as a way to describe how the program documents were used.

Based on the responses from the key project people interviewed, the program documents were used predominately in the following ways over the course of the project:

- 1) “Seldom or Never” by the Interior Designer during the creative process of design.
- 2) “Indirectly” by the Design Firm during presentations of the design solutions to the Client Organization.
- 3) In an “ad-hoc” way by both the Design Firm and the Client Organization when evaluating the design solutions.
- 4) “Seldom or never” and in an “ad-hoc” way when evaluating changes to the design solution.
- 5) “Seldom or never” during informal post-occupancy evaluations.

## **CHAPTER 4**

### **CASE STUDY SITE - B**

#### **4.1 PROJECT DESCRIPTION**

Case Study B involved the construction of 14,280 square feet of interior office space to accommodate the expansion of the Data Processing Department of a large commercial bank. The area renovated was a single floor of a high-rise office tower located in the city's downtown central business district. The bank occupies several floors within the building including their regional head offices. The building is operated and maintained by the building Owner's Property and Tenant Services Department.

The space is considered to be a Class "A" office space with a rental rate of approximately \$22.00/sf. The total construction cost per square foot for the renovation was approximately \$54.00 (excluding fees and furnishings).

The type of work the area was designed for included the operation and administration of the Bank's data processing functions for the local region. The types of activities involved included administrative, training, file storage, and data entry. The total area renovated involved the working spaces of approximately 90 people.

##### **4.1.1 Project Participants**

The Banking corporation itself employs thousands of people and occupies several million square feet of banking and commercial office space all across Canada. For this project, the Bank was represented by the regional management from the Processing Centre and the Corporation's local and national Property Management Divisions.



The Design Firm is a privately owned, professional consulting practice with approximately 60 full time employees. The firm was founded in 1947 and offers full architectural, interior design, structural, mechanical, and electrical engineering services. Over the course of those 48 years, the firm has been responsible for the design and development of well in excess of one million square feet of office space.

The General Contractor is a privately owned construction company established in 1945. During this time the company has been responsible for the construction of several million square feet of commercial office space, throughout Manitoba and Northwest Ontario.

#### **4.1.2 Roles and Responsibilities**

The Client Organization was represented by the management of the Data Processing Centre and the Bank's local and national property management divisions. The role of the property management group was to act as the Owner representative. They were responsible for overseeing the project implementation, review, coordination, and move-in.

The Design Firm was contracted by the Client Organization to deliver a complete range of interior design services. These included developing the architectural program, producing the design and construction documents, administering the tendering and construction of the space, and procuring the furnishings.

The General Contractor was contracted by the Client Organization through a competitive tender process to construct the space.

### **4.1.3 Project Goals and Objectives**

The development of the Data Processing Centre was a result of the bank's decision to centralize all branch back-office operations. To accommodate the increased work load on the original central processing centre, the centre had to be revamped, modernized, relocated, and expanded. An initial renovation project to provide for those needs was under construction when the need to expand the Centre was identified. This second project subsequently addressed those expansion requirements and is the focus of this case study.

The goals and objectives for the expansion were identified in the Functional Space Program prepared by the Design Firm. Of the issues listed in the document and in other subsequent project correspondence analyzed, no set priori of issues were identified. However, management and implementation people from all three companies involved acknowledged having a clear understanding of what issues were most important.

### **4.1.4 Project Implementation**

The expansion to the Data Processing Centre began just before the construction of the new Data Processing Centre itself was completed. Because they were familiar with the Client and the Processing Centre and because the two projects were to be physically connected together, the Design Firm was also contracted to provide the architectural services for the development of the expansion area.

After selecting the Design Firm for the initial renovation, the Client Organization's Property Management Department acted as the Client Representative. They maintained design control and directed communications

between the user groups, consultants, and contractor, oversaw the construction, and eventually coordinated the move-in.

The Design Firm essentially defined and directed the development process in both projects. Once they had been informed to proceed with the expansion area, they conducted the functional programming for the space. This was followed by the development of the final design and eventually the production of the working drawings and specifications. After coordinating the tender process, the Design Firm helped administer the construction of the expansion area under the direction of the Client Organization's Property Management Department. Finally, the Design Firm procured and administered the installation of the furnishings and equipment for the space.

The development of the design, construction documents, and tendering of the Data Processing Centre project was also fast-tracked for the expansion area. The speed-up was initiated to facilitate the completion of initial renovation to the Data Processing Centre located on the two floors above. The programming, design, and production of the construction drawings for the expansion took approximately 3 1/2 months. Construction was completed in three phases over a period of approximately 5 months.

A unique feature of the project as identified by the Project Architect was to have a Functional Program completed for the space. In his experience with commercial office work, this is often not the case. Having to fast track the work and coordinate it with the previous job also made the project somewhat unique.

## 4.2 ARCHITECTURAL PROGRAMMING PROCEDURES AND METHODS

### 4.2.1 Procedure

The first step by the Design Firm in developing the Functional Space Program was to measure the existing space. Next, they began collecting information on the Users' physical requirements. Some information was provided by the Client Organization while the majority of it was collected by the Design Firm. Schematic plans were developed at the same time the Functional Program was being put together. As explained by the Interior Designer,

“We do a schematic as part of that (the functional programming) because now, with jobs speeding up in their delivery, phases overlap. Instead of collecting every piece of information you can, you are already trying to steer it, you are trying to sort of draw conclusions that could help direct you to what questions you need or what questions you ask.”

As additional information was collected it was compiled and organized into a preliminary program document to solicit further feedback from the Client Organization and the various User groups.

Once the initial program and schematic plan were reviewed, both were refined and re-submitted for a final approval. After the program and schematic plan were signed-off by the Client Organization, the final design development process began.

The Project Architect orchestrated the development of the program and edited the final document while most of the production and schematic design was done by the Interior Designer. The Architect and Technician were not involved in developing the program to any large degree.

#### **4.2.2 Methods**

At the time of the initial renovation and subsequent expansion, the Design Firm was initiating the use of a problem-seeking model in their office to enhance their existing architectural programming process. The Project Architect responsible for introducing this approach to the firm described it as a “matrix of function, form, economy, and time against goals, facts, needs, and concepts.” The result being a “definition of the problem at the end of the process”. This approach was based on the CRSS model developed by William Pena.

Specific tools used during the collection of the User requirements identified by the Design Firm included in-person interviews, group meetings, and working sessions with staff and management. The basic format and project objectives from the previous Functional Space Program completed for the initial project was also utilized in developing the Functional Space Program for the expansion area.

#### **4.2.3 Program Documents**

The following is a list of the “program documents” that were identified in the archival analysis of the Design Firm’s project files for the expansion area. This list excludes any design drawings and construction documents:

- 1) The Functional Space Program developed by the Design Firm.
- 2) Client/Design Firm Correspondence. The correspondence was comprised of minutes of meetings that occurred over the course of the programming, design, and construction stages.
- 3) The Project Schedule developed by the Design Firm.

## 4.3 ARCHITECTURAL PROGRAM INFORMATION

### 4.3.1 Types of Program Information

Appendix J contains a summary of all the various types of information identified in the program documents listed above. The information types that were and were not emphasized in the main categories were as follows:

#### 4.3.1.1 Information About the Organization

Information on Staff and Work Groups identified included the Types and Amounts of each and the Names of the various Work Groups involved in the renovation.

The majority of information categorized under Plans was on implementing the renovation itself. One Operational Plan was identified. This plan was implied in a project objective listed in the Functional Space Program which described the need for the design to accommodate further expansion of the Centre's operations at this location over the next five to ten years. This was also the only information about the organization that was projected beyond the initial occupancy of the space.

The same was found under the Goals & Objectives category. Information on project conditions like cost, schedule, and implementation requirements tended to be emphasized. This included one O & M Project Objective to provide after-hours heating and cooling in the new space.

Information identified under the Corporate Culture category was also limited to a project objective listed in the Functional Space Program that described the need for the space to "reflect the management philosophy of the company" which required that a "sense of teamwork be engendered" and that the "staff are to be treated as the most important resource of the organization".

#### 4.3.1.2 Information About the Organization's Operating Environment

One information type was identified on the organization's operating environment, the Building Code Requirements listed under the sub-category Laws and Regulations. No other information types were found or future conditions were identified under Business Conditions, Competitive Actions, Labor Force, Lease Conditions, or the Building's Operation & Maintenance.

#### 4.3.1.3 Information About the Physical Conditions Within Existing or Proposed Spaces

Information types describing physical conditions were identified in all sub-categories with the exception of Outside Conditions. The types of physical information identified were fairly inclusive especially under the Building, Building Information Technology, Work Station and Furniture & Equipment categories. Less information types were found under the Work Group category than under the Work Station category.

Physical conditions projecting beyond the initial occupancy of the space that were identified included the requirements for flexibility and the need to accommodate additional computer terminals.

#### 4.3.1.4 Information About Individual Work Styles and Job Functions Within the Organization

Information types under Task Analysis, Adjacencies, and Communication sub-categories were all identified. However, most of the content was limited to a list of equipment requirements. That is, the information identified under Communication included Types and Location and was essentially equipment check lists (telephone, data, computer network lines) for each work

station found in the Functional Space Program. Descriptions of working procedures, patterns, types, assessments of work flow and employee interaction, etc., were not identified. Few, 3 of 17 information types, were identified under Human Factors.

#### **4.3.2 Summary of the Types of Program Information Identified**

The predominate category of information types identified within the program documents analyzed were Physical Conditions with an emphasis on present Work Station and Furniture Conditions. Information types found on the Organization tended to emphasize project conditions as opposed to the business being conducted within the space or organization. Essentially no information was found on the Organization's Operating Environment. Information types found on Individual Work Styles and Job Functions were less limited, yet minimal. A total of 4 information types out of 96 had conditions projected beyond the initial occupancy of the space.

#### **4.4 HOW THE PROGRAM DOCUMENTS WERE REFERRED TO**

The results of the individual interview responses from the Design Firm, Client Organization, and the General Contractor are summarized and graphically illustrated in Appendix J.

##### **4.4.1 Design Firm Responses**

Of the three program documents analyzed, all five key project people from the Design Firm acknowledged referring to them all over the course of project.



The Firm's principal used "ad-hoc" to describe the way he tended to refer to all the program documents. "Ad-hoc" was also the most predominant way the implementation and production people chose to describe how they used the documents, the most consistently being how they all referred to the Functional Space Program. Other ways in which the Client/Design Firm Correspondence was used included "seldom or never" by the Design Architect and "systematically" by the Project Technician. Both the Project Architect and the Project Technician chose "systematically" and "systematically to measure performance" to describe their use of the Project Schedule while the Interior Designer felt "indirectly" best described how she had referred to it.

Other program documents identified by the respondents over the course of the interviews were the previous project's Functional Space Program and a standards manual called "Architectural Graphic Standards". The implementation people who acknowledged using these documents all chose "ad-hoc" as the best way to describe how they had referred to them.

#### **4.4.2 Client Organization Responses**

Management interviewed tended to chose "ad-hoc" as the way to describe how they used both Function Space Programs over the course of the expansion project. It is worth noting when considering their use of these documents that both managers had limited involvement in the expansion project during its construction. They both however, were heavily involved in the initial project and acknowledged using the initial Functional Space Program during that time in an "ad-hoc" manner as well.

There was a range of ways used identified by the Implementation people. The on-site project manager used "seldom or never" to describe his use of

the Functional Space Program while the Senior Manager for the Corporation's Facilities used "systematically to measure performance" to describe his. The Senior Facility Manager's described how he used the document as:

"a benchmark... where we were constantly having to go back and say, 'is this the way it is going to be?'. We were constantly challenging it".

The Client/Design Firm Correspondence was used mainly by management and the Senior Facility Manager in "ad-hoc" and "systematic" ways, while the staff and remaining implementation people identified "seldom or never" as the way they used the correspondence. Management tended to use the correspondence as checklists for deficiencies, predominately in the later stages of construction. The Facility Manager used the correspondence on an on-going basis to update his project diary and keep abreast of what was happening over the course of the project.

The staff interviewed indicated that they never saw any of the program documents after they had given their feed back on the initial draft of the Functional Space Program.

One additional type of program document, the cashflow documents, were identified by the Senior Facility Manager. He described his use of these documents as "ad-hoc" to compare the financial status of the project with the actual progress of the construction.

#### **4.4.3 General Contractor Responses**

The Construction supervisor used "systematically to measure performance" to describe how he used the Project Schedule. "Seldom or Never" best described his use of both the other documents.

## 4.5 WAYS IN WHICH THE PROGRAM DOCUMENTS WERE USED

### 4.5.1 In the Creative Process of Design

Both the Design Architect and the Interior Designer acknowledged using only the Functional Space Program in the creative process of design. Both identified “ad-hoc” as the predominant way in which they referred to it during the design process. Both described their creative process in very broad terms and did not make specific reference to times or conditions when the program Functional Space Program was referred to after becoming familiar with it initially.

The Design Architect described how the program helped his creative efforts by providing:

“...motherhood statements about what kind of qualities the place should have. I look through it (the program) and start thinking. That’s how it generates ideas. It’s a very holistic thing. We have this little diagram that shows schematically where the program areas should be laid out on the floor. And so, you have that to work with. But you also have this notion that you are trying to maximize the transparency of the space. So you synthesize the two.”

The Interior Designer explained how the initial schematic layout (as opposed to the Functional Space Program) helped her to creatively solve the problem:

“You get a feel for the shape of the space. The schematic definitely gave you a sense for how they had to be clustered. It made you choose certain solutions like, ‘I think we can really play up this group aspect, teamwork, connecting work stations, or...’ ”

#### **4.5.2 During Presentations to the Client**

Both the Design Architect and the Interior Designer acknowledged using the Functional Space Program during their presentations to the Client and described the way it was used as predominately “ad-hoc”.

The Interior Designer described part of the presentation process as such:

“You probably have in your mind an idea of which option you are going to recommend. But you are sort of walking them through part of the process you went through: ‘This is why we discarded this, this is why we discarded this’.”

During this process she felt the program would have been used:

“...mostly ad-hoc, referring to it only as we needed to”.

The Project Architect and Production Technologist felt the Functional Space Program likely wasn’t used at all during presentations to the Client.

“What generally happens is you write these programs, then you start designing. X day is when the program is complete. Then you start your design process... and then the program gradually becomes obsolete, throughout the design process. But without it you can’t get to this point to start. So, in terms of referring back to the program, a lot of it is obsolete by the time you are referring to it”.

#### **4.5.3 In Evaluating Design Solutions**

Only two of the six key people interviewed from the Client Organization acknowledged participating in reviewing the design proposals. Of these two, the Senior Facility Manager explained that his review incorporated :

“...the program, many years of knowledge, a view to economy, and the utilitarian.”

In this instance, referring to the durability of specific finishes. The sole manager who reviewed the designs described his use of the programs as

“a ‘check-list’, to make sure that we had been given adequate space, and what have you”.

The Design Firm unanimously felt that the programs were used when reviewing the designs and were referred to in an “ad-hoc” fashion

“...they might have been referred to ‘This is why I did this, because of this’”.

The other reason for referring to the Functional Space Program identified was to review physical relationships and sizes.

By these accounts, the program’s role was again more of a space check-list for the Client Organization and an ad-hoc reference for the Design Firm to help explain why they did what they did.

#### **4.5.4 In Evaluating Changes to the Design Solution**

“Ad-hoc” was the most predominant way identified to describe how the programs were used to evaluate any changes that occurred to the design solution over the course of the project. The Client Organization’s department Manager and site Project Manager chose “seldom or never” to describe how they used them to evaluate changes.

#### **4.5.5 In Post-Occupancy Evaluations**

The Design Firm did not conduct any formal post-occupancy evaluation of the space. In any informal post-occupancy-evaluations, none of the respondents from the Design Firm or General Contractor used any of the program documents to help with their evaluation.

One respondent from the Client Organization acknowledged using a program document in a post-occupancy evaluation. This was the Senior Manager of the Facilities Administration Department. After the completion of any new space, his department distributes a questionnaire to the users with a copy of the Functional Space Program attached. The questionnaire asks if the final space has met the requirements as they were laid out in the program. None of the respondents from the Client Organization acknowledged receiving a questionnaire at the time of the interviews.

#### **4.5.6 Other Ways of Using the Program Documents**

Other ways key project people identified using the program documents included: 1) the Principal-in-Charge of the Design Firm said the Functional Space Program may be used to market their services, and 2) as an indirect training tool for younger staff to “help order their thoughts and think in a more focused, clearer scenario”, 3) the Interior Designer acknowledged using the Functional Program as a format guide and data base for future projects, and 4) the Senior Facility Manager used the Functional Space Program as part of his project review process throughout the construction of the space.

#### **4.5.7 Summary of the Ways in Which the Program Documents Were Used**

Overall, the most common ways in which the various program documents were used by all levels within all three companies were “ad-hoc” and “seldom or never”. The least most common ways were “indirectly” and “systematically to measure performance”.

Based on the responses from the key project people interviewed, the project documents were used predominately in the following ways over the course of the project:

- 1) In an “ad-hoc” way by the Design Architect and the Interior Designer during the creative process of design.
- 2) Both “seldom or never” and in an “ad-hoc” way by the Design Firm during presentations of the design solutions to the Client Organization.
- 3) In an “ad-hoc” way by both the Design Firm and the Client Organization when evaluating the design solutions.
- 4) In an “ad-hoc” way when evaluating changes to the design solution.
- 5) “Seldom or never” during informal post-occupancy evaluations.

## **CHAPTER 5**

### **CASE STUDY SITE - C**

#### **5.1 PROJECT DESCRIPTION**

Case Study C involved the construction of 12,000 square feet of interior office space to accommodate a regional Call Centre for a national corporation. The area renovated was a single floor of an office tower located near the city's central business district. The building is operated and maintained by the building Owner's Property and Tenant Services Department.

The space is considered to be a Class "A" office space with a rental rate of approximately \$22.00/sf. The total construction cost per square foot for the renovation was approximately \$42.00 (excluding fees).

The space was designed for the operation and administration of a telephone call-in centre and a courier service. The types of activities occurring in the space included administrative, training, meeting, telephone call taking, a computer main-frame area, and basic employee support services including change rooms and a lunch room. The total area renovated involved the working spaces of approximately 120 people.

##### **5.1.1 Project Participants**

The Corporation itself employs thousands of people all across Canada and occupies approximately three million square feet of commercial office and distribution space. For this project, the Corporation was represented by its national management in charge of Call Centres across Canada and the Corporation's local and national Construction Management Divisions.



The Design Firm is a professional consulting practice offering full architectural and interior design services with approximately 30 full time employees. Over the last 35 years, the firm has been responsible for the design and development of well in excess of one million square feet of commercial office space.

The General Contractor was an employee owned construction company established in 1906. The company has been responsible for the construction of several million square feet of commercial office space all across North America.

### **5.1.2 Roles and Responsibilities**

The Client Organization was represented by their national Customer Service Development Department (CSD), their Corporation's Architectural Services Department (AS), and their local and national Construction Management divisions (CM). The CSD were responsible for the organization, program development, and operation of all the Corporation's Call Centres across Canada. CSD management provided the quantitative functional program requirements for the Call Centre to the Corporation's AS department. They in turn developed the qualitative building program for the space, established the Corporate Standards and technical building details, and selected the Consultants. The Construction Management division acted as the liaison between the Corporation's various departments, the Consultants, and the General Contractor. They were responsible for overseeing the project implementation, review, coordination, and move-in. Most of the key project people from the CSD, AS, and CM departments were stationed in the Corporation's headquarters located in eastern Canada.

The Design Firm was contracted by the Client Organization to deliver a limited range of interior design services. These included helping determine the

site, producing the design and construction documents, administrating the construction of the space to make sure it was built according to the construction documents, and finally procuring the furnishings and equipment.

The General Contractor was engaged by the Client Organization to manage the construction of the space. As construction managers, they solicited tenders from the various sub-trades and coordinated their work on site throughout the construction phase. They were responsible for having the space complete on time and on budget.

### **5.1.3 Project Goals and Objectives**

The development of this Call Centre was part of the Corporation's national plan to improve customer service by upgrading their communication technology and centralize their call-taking operations from ten divisional units into three regional centres across Canada.

The goals and objectives for the development of the space were limited to specific project tasks and physical details listed in the Building Project Brief provided by the Client Organization. In addition to the Functional Program Requirements, the Brief prioritized what conditions were desirable, what were essential, and what were mandatory. The Corporate Design Directives were desirable, the Corporate Design Standards were essential, and the Corporate Specifications were mandatory. No further set priori of issues were identified in the Brief or in any other subsequent programming documentation. However, management and the implementation people from all three companies involved did acknowledge having a clear understanding of what issues were most important. As described by several of the respondents:

“A program (Functional Program Requirements) like this is so basic, there’s no priority rating on here. So that has to come from questions, usually telephone conversations or faxes.”

“...no, they (the priorities) were not written down, like in a written form... but the designer had them in her head.”

“... I think it (the priorities) was kind of in the minds of everybody, but never formally put down - it would be implicit.”

#### **5.1.4 Project Implementation**

The development of the space was initially directed and conducted by the Corporation’s Architectural Services Department. First, they helped the CSD to identify and document their functional and spatial requirements for the Call Centre in the form of the Functional Program Requirement document.

Following the Functional Program Requirements, the AS prepared a Building Program Requirements document which listed the qualitative conditions for each work group and work station. This document however, was not found in the Design Firm’s project files or identified by any of the Design Firm’s key project people interviewed. A copy of the document was provided to the researcher by the Corporation’s Architectural Services Department and is included in the content analysis.

The AS department then compiled a series of documents that were given to the Consultants that were collectively referred to as the Building Project Brief. The Brief included the Call Centre’s Functional Program Requirements, budgets, and schedules, as well as the Corporation’s design directives, standards, specifications and general procedures.

At this point, the Construction Management Department took control of the project. The Design Firm was then selected and given the Building Project Brief.

Next, the location of the Call Centre was determined. Using the Building Project Brief and specifically the Functional Program Requirements, the Design Firm identified and evaluated four or five existing spaces prior to recommending its current location.

Following the site selection, the Design Firm proceeded to develop the planning and design for the space. During this time they met with the CSD and CM representatives and visited an existing call centre facility to clarify any outstanding issues not initially provided. A final design proposal was then submitted to the Corporation. It was reviewed, then revised, and subsequently approved. The Design Firm then proceeded with the production of the contract documents. The General Contractor subsequently coordinated the tender process for the various sub-trades. Once the tenders were accepted, the Design Firm administered the construction of the space and the procuring of the furniture and equipment under the direction of the Corporation's Construction Management Department.

The programming, design, and production of the contract documents for the space took approximately four months. Construction was completed in one phase over a period of approximately 2 months.

Except for the type of facility, the implementation procedure was fairly typical for both the Corporation and the Design Firm. The Design Firm acknowledged that having the Functional Program Requirements provided was quite common when working with large corporate clients. In their experience, most Corporations will have the in-house expertise to establish building standards and conduct their own space programming.

## **5.2 ARCHITECTURAL PROGRAMMING PROCEDURES AND METHODS**

### **5.2.1 Procedure**

The Manager of the Customer Services Development Department determined the number of call-takers that had to be accommodated based on the volume of calls that were projected for the facility. From there, using the Corporate Standards provided by the Company's Architectural Services (AS) Department, he was able to determine the types and amounts of work stations, offices, and support rooms that would be required in the space. The AS Department then calculated the amount of square footage required for each of the spaces.

Next, the AS Department defined the Building Program Requirements for the Centre. This included describing the basic architectural, structural, electrical, and mechanical requirements for each space listed in the Functional Program Requirements. The remainder of the Building Project Brief was copied from the Corporation's Master Building Project Brief. This included the following four sections: Design Directives, Codes and Regulations, Corporate Design Standards, and Corporate Specifications.

Once the Design Firm had reviewed the Building Project Brief, they visited an existing call centre facility, had in-person meetings, and personal communications with the various Client Organization departments to clarify any outstanding programming issues they required to design the space. These programming activities overlapped into the design development stage until ultimately the final design solution was determined and finally approved.

### **5.2.2 Methods**

The types and amounts of spaces that were identified for the Centre were based primarily on the projected volume of calls the facility was to handle and the personal experience of the Manager of the CSD Department. The Corporation's Master Building Project Brief was used to describe implementation procedures, building requirements, and calculate the square footage of the space.

The Design Firm used in-person meetings and personal communications extensively as well as personal observations of similar operations to help them identify the outstanding programming requirements. They did not however, memorialize these in writing but incorporated them directly into their on-going design proposal.

### **5.2.3 Program Documents**

The following is a list of the "program documents" that were identified in the archival analysis of the Design Firm's project files. This list excludes the Building Program Requirements and any design drawings and construction documents:

- 1) The Functional Program Requirements prepared by the Client Organization.
- 2) Corporate Standards provided by the Client Organization.
- 3) Client/Design Firm Correspondence comprised of minutes of meetings and hand notes that occurred over the course of the programming and design stages.
- 4) An Equipment List and Layout provided by the Client Organization.
- 5) The Project Schedule developed by the General Contractor.

## 5.3 ARCHITECTURAL PROGRAM INFORMATION

### 5.3.1 Types of Program Information

Appendix K contains a summary of all the various types of information identified in the program documents listed above. The information types that were and were not emphasized in the main categories were as follows:

#### 5.3.1.1 Information About the Organization

Information types about the Corporation were identified in five sub-categories. They included: Staff, Plans, Corporate Culture, Goals & Objectives, and Work Groups. Staff and Work Groups types focused primarily on present and future amounts of staff types within the various work groups. Types identified in the Building Project Brief under Plans and Goals & Objectives of the Organization tended to emphasize generic project issues and requirements. However, several business plans and goals & objectives were identified in the Client/Design Firm Correspondence including “consolidating call centres”, and “minimizing stress and maximizing production”. The types found under the Corporate Culture category also applied generically to the overall Corporation and was not specific to Call Centre conditions.

#### 5.3.1.2 Information About the Organization’s Operating Environment

The one information type identified in the Building Project Brief documents under this category was “Building Code Requirements”. Two other types, “Other Company Actions” and ‘Experiences”, were identified in the Client/Design Firm Correspondence. No other information types were identified under this category.

### 5.3.1.3 Information About the Physical Conditions Within Existing or Proposed Spaces

Information types describing physical conditions were identified in all seven sub-categories. The types of physical information identified were fairly inclusive especially under the Work Group and Work Station categories.

Physical conditions that projected beyond the initial occupancy of the space emphasized sizes and amounts of work groups, work stations, and I.T. equipment. No other information type identified under this category addressed any other future conditions.

### 5.3.1.4 Information About Individual Work Styles and Job Functions Within the Organization

Very little information referencing individual or specific job conditions was identified. This was likely due to the absence of staff involvement in the development of the new facility. Two information types on generic job functions were identified in the Building Project Brief while the remaining types were contained in the Client/Design Firm Correspondence.

## 5.3.2 **Summary of the Types of Program Information Identified**

The most predominant type of information identified in the program documents was clearly Physical. A fairly wide range of Organizational information was present, however it tended to emphasize project conditions as opposed to information on work or business conditions. Information about the Organization's Operating Environment and Individual Work Styles & Job Functions were much less inclusive with several categories of information types



absent including Building O & M; Business, Labor, and Lease Conditions; Individual Communication and Human Factors.

#### **5.4 HOW THE PROGRAM DOCUMENTS WERE REFERRED TO**

The results of the individual interview responses from the Design Firm, Client Organization, and the General Contractor are summarized and graphically illustrated in Appendix K.

##### **5.4.1 Design Firm Responses**

The most predominate way in which the key people from the Design Firm identified using the various programs tended to be "ad-hoc". The least predominant way identified was "systematically to measure performance". The Functional Program Requirements tended to be used mostly by Management and Implementation People and used in an "ad-hoc" manner. The remaining Building Project Brief and program documents were used by all three types of people in the firm. The various ways in which they were referred to included "indirectly", "ad-hoc" and "systematically".

Descriptions of how the documents were referred to included:

"I went through it (the Functional Program Requirements) with a fine tooth comb. Then I came up with my questions of things that I wasn't sure about, got all of my answers and, when I had it clear in my head what they wanted with this program, I would only refer back to it when I needed it... during planning to check back and say 'I can't remember what space they needed in this room', so you'd go back and look it up."

"The information (Client/Design Firm correspondence) really becomes part of your active memory, so that if you focus enough on the material, you don't have to keep going back to review it. It's there as a reference record."

#### 5.4.2 Client Organization Responses

The most predominate way in which the management and staff from the Customer Services Development Department identified using the various programs was clearly “seldom or never”. Ways not identified included “indirectly”, “systematically”, and “systematically to measure performance”. Both groups also identified “ad-hoc” to describe how they referred to the Functional Program Requirements, the Client/Design Firm Correspondence, and the Project Schedule.

The predominant ways in which the Implementation and O&M People referred to the program documents were “ad-hoc” and “seldom or never”. The Senior Project Manager consistently identified “ad-hoc” as the way to describe how he referred to the documents except the Project Schedule. He referred to this document on a regular basis in a “systematic” fashion to monitor the progress of each trade and the overall project.

Descriptions of how the documents were referred to included:

“If you don’t remember what the sizes were etc., you’d go back to it (the Functional Program Requirements) and say ‘yeah, we asked for ten square meters and we got ten square meters’... It’s a check.”

“I don’t really refer that much to it (Functional Program Requirements), other than myself having knowledge of what we are looking for. Then when we get a concept together, of looking that the concept drawing satisfies what has been asked for. From that standpoint then, other than for quick reference if someone was asking me, ‘All right, how many operators are there in this place’, I may research it. But other than that, once the working drawings are done, I refer to the working drawings.”

“When you ask me what do I do with the standards (Building Project Brief) after I get the design back, it’s a funny question. The only time I would look at the standards was if I didn’t remember what was in there, so I’d go back and check them.”

### **5.4.3 General Contractor Responses**

The Project Coordinator tended to refer to the various program documents in a one of three ways. He acknowledged the Functional Program Requirements or the Client/Design Firm Correspondence were “seldom or never” referred to while the remaining documents tended to be referred to either in an “ad-hoc” or “systematic” manner.

Descriptions of how the documents were referred to included:

“We needed to lay out this equipment, to make sure it fit. We did have some trouble making sure it fit. We had to switch it around. This plan here (Equipment List & Layout) for example, I think we went through about five generations of this plan before we found out we could fit everything in.”

## **5.5 WAYS IN WHICH THE PROGRAM DOCUMENTS WERE USED**

### **5.5.1 In the Creative Process of Design**

Both key people from the Design Firm responsible for the development of the design solution acknowledged using the program documents in an “ad-hoc” way during the creative process of design. Additional comments on the programs role in the creative process included:

“Well, it’s (the design solution) certainly open to personal interpretation, because somebody else... anyone else in our firm... or any other designer for that matter, could be given the same information, and they’d come up with a different solution that would be just as valid. There is more... you can’t help but have your personal taste influence the job. But for most of the design elements in the job, there was a reason.”

“Well, we had defined certain key issues, like acoustics, and that (the Building Project Brief) helped focus on issues, such as baffling the sound, that became design elements.”

### **5.5.2 During Presentations to the Client**

The Principal-in-Charge and the Interior Designer acknowledged using the Functional Program Requirements during their presentations to the Client and described the way it was used as both “ad-hoc” and “indirect”. The Client Organization’s Senior Project Manager identified “seldom or never” as the way he recalled the program documents being referred to during presentations.

Descriptions of the how the programs were used during client presentations included:

“I think we actually did refer back... there were a few times... because the design committee was so large, the people that we were presenting to... sometimes they can’t even remember what it was they asked for initially, and so I think we actually did go back and refer to the initial program. Saying, you know, ‘how many people did we say we were going to put here’, and go back and, ‘well this is how many you wanted’. We went back to it (Functional Program Requirements) a few times.”

“By the time they were doing this (the presentation) they had essentially prepared documents from a point of view of working documents and scope and what have you, so that could be referred to. But in general, to the client, it is more of a pictorial presentation... and a verbal, sort of description.”

### **5.5.3 In Evaluating Proposed Design Solutions**

In the process of evaluating their design solutions, the Design Firm respondents identified “seldom or never” and “indirectly” to describe how they tended to refer to the program documents. This was accounted for by the lack of change that occurred to the requirements over the course of the design. Thus, the key Design Firm people had essentially committed the main issues and criteria to memory. On the other hand, the Client Organization referred to the documents in predominately an “ad-hoc” manner when reviewing the design proposals, making

sure that room types and sizes appeared on the drawings as they appeared in the program. None of the respondents felt they used the programs in any kind of systematic fashion while evaluating proposed design solutions. Descriptions of evaluation processes included:

“Because it’s (design) such a progressive thing, I was referring to this (the Functional Program) more at the onset when I wasn’t as familiar with the job, and then as you go along, you use this information. But then they may change their mind about certain things, and the plan progresses. So, because it’s always progressing, and they always are responding to what the client wants, there’s really... I didn’t find there was any need to go back and check this, because it didn’t really change... they didn’t change it.”

“It’s just an ad-hoc way. It’s... I think the natural process is if... you know what you are looking at, and you have to refresh your memory, so it becomes more ad-hoc rather than... you don’t take the document and check off each item and say ‘yeah, yeah, yeah, you’ve done that...’ other than probably the functional program. Because you would want to make sure that every space that was requested does appear on the drawing.”

“I mean we did certain things when we did the design review, we’d make sure that everything that we wanted was in there. I don’t know if you would call that systematic. We’d just make sure every time that we saw something that... we made sure all the numbers and that ‘the training room was there, and the washrooms were there... and all the computers were there.’”

#### **5.5.4 In Evaluating Changes to the Design Solution**

“Ad-hoc” and “seldom or never” were the most predominant ways identified to describe how the programs were referred to when evaluating any changes that occurred to the design solution over the course of the project. Responses to whether the programs played a role in evaluating the changes included:

“No, I think as it came up and we discussed the merits of it with the client, and if it was agreed upon, we’d go ahead. But not from a point of view of referring to the documents, no.”

“It (the design) evolved. The client changed their minds as they go. So you just respond to that. So after that, these (the program documents) may not even be valid.”

“Where I would have used them (the programs) directly was if I felt that they (the changes) triggered services that weren’t anticipated in the scope of the work. If there’s a change in the scope of work from what you have agreed to, because they had a fixed fee, you had to have grounds to argue with them for additional fees.”

#### **5.5.5 In Post-Occupancy Evaluations**

The Design Firm did interview some of the staff after they were moved-in and using the space. They did not use the program documents during this process. Any informal post-occupancy evaluations done by Client Organization or Design Firm respondents also did not utilize any of the program documents.

#### **5.5.6 Other Ways of Using the Program Documents**

The only other way the program documents were used was as a reference or benchmark for future call centre projects. This was identified by both Design Firm and Client Organization respondents.

#### **5.5.7 Summary of the Ways in Which the Program Documents Were Used**

Overall, the most common ways in which the various program documents were used by all levels within all three companies were “ad-hoc”, “seldom or never”, and “indirectly”. The least most common ways were “systematically” and “systematically to measure performance”.

The program documents were also used most commonly in the following ways:

- 1) In an "ad-hoc" way during the creative process of design.
- 2) Both "indirectly" and in an "ad-hoc" way during presentations of the design solutions to the Client Organization.
- 3) "Indirectly", "seldom or never", and in an "ad-hoc" way when evaluating proposed design solutions and changes to the design solution.
- 4) "Seldom or never" during informal post-occupancy evaluations.
- 5) In an "ad-hoc" way on future projects.

## **CHAPTER 6**

### **CASE STUDY SITE - D**

#### **6.1 PROJECT DESCRIPTION**

Case Study D involved the construction of 27,780 square feet of interior office space to accommodate the Information Services Department of a large publicly-owned Corporation. The area renovated was a single floor of an historic office tower located in the city's central business district. The building is owned and operated by an independent Real Estate company.

The space is considered to be a Class "C" office space with a rental rate of approximately \$12.00/sf. The total construction cost per square foot for the renovation was approximately \$22.00 (excluding fees).

The space was designed to accommodate the operation and administration of the Corporation's Information Services Department. The types of activities occurring in the space included computer programming, research and development, administrative, group meetings, and basic employee support services including a staff room. The total area renovated involved the working spaces of approximately 205 people.

##### **6.1.1 Project Participants**

The Corporation itself employs thousands of people throughout the province of Manitoba and occupies in several hundred thousand square feet of commercial office, retail, and industrial space. For this project, the Client Organization was represented by the management of the Corporate Information Services Department (CIS) and its Real Estate Division.



The design team consisted of an architectural firm and an interior design firm. The architectural firm was founded in 1986 and had 3 full time employees while the interior design firm was founded in 1985 and had 4 full time employees. Both companies were sole proprietorships.

The General Contractor was a subsidiary company of the Building Owner. The company has been responsible for the construction of numerous commercial office spaces located predominately in Winnipeg.

### **6.1.2 Roles and Responsibilities**

The project was a turn-key development where the Building Owner negotiated and secured a lease arrangement with the Corporation's Real Estate department and subsequently contracted the consultants and General Contractor to design and construct the space. The CIS Department assigned an in-house representative who acted as the liaison between the consultants, user groups, and the department's management.

The Interior Design Firm was responsible for designing the tenant space, producing the construction documents, and procuring the furnishings. The architectural firm was responsible for coordinating the consultants and administering the design and construction of the tenant space. At the same time they were also engaged by the Building Owner to provide full interior architectural services to upgrade the building's core facilities to meet current Building Code requirements.

The General Contractor was engaged by the Building Owner to manage the construction of the space. As construction managers, they solicited tenders from sub-trades and coordinated the work on site throughout the construction

phase. They were responsible for having the space completed on time and on budget.

### **6.1.3 Project Goals and Objectives**

As a result of an expiring lease and the need to locate their operations closer to the city's central business district preferably on a single floor, the CIS Department initiated the move.

The goals and objectives for the development of the space that were identified in the program documents were essentially limited to specific project tasks. Of these conditions and issues, no set priori of importance were identified among them. Responses to how priorities were or were not understood included:

“There would have been objectives stated initially which unfortunately were quite loose objectives and very little was written down.”

“We didn't have a list of written priorities. But things were covered in the minutes in that way.”

“There were no design issues. It was just straight planning.”

### **6.1.4 Project Implementation**

The decision to move the department from their previous location was determined at the Vice President level of the Corporation's Real Estate and CIS departments. The Real Estate department identified potential sites and negotiated the final lease arrangement with the Building Owner on behalf of the CIS Department.

It wasn't until after the lease agreement was signed that the Design Consultants were brought in by the Building Owner to prepare the space for the new tenant.

Once the construction documents were finalized, the Construction Management Firm solicited bids from the various sub-trades and proceeded to implement the demolition and construction of the new space.

The programming, design, and production of the contract documents for the space took approximately 6 weeks. The construction phase was completed over a period of approximately 2 months.

## **6.2 ARCHITECTURAL PROGRAMMING PROCEDURES AND METHODS**

### **6.2.1 Procedure**

The two design groups basically worked independent of each other. The Architectural Firm was not involved in the programming or design of the Client Organization's space. This was the responsibility of the Interior Design Firm.

The Interior Design Firm began the development of the space by first meeting with the Corporation's Senior Project Manager and the representative from the User group. The representative provided them with the programming information on the CIS Department including types, amounts, and adjacencies of work groups and work stations as well as the Corporate Standards previously developed by the Real Estate Department. They then toured their existing facilities and conducted the furniture and equipment inventory. Next, they began developing the block plan for the space, meeting several times with the User group's representative due to changes to the initial programming information.

Once the block planning was confirmed, the more detailed planning and design of the space began.

Changes to the design were ongoing throughout the design process. This was largely a result of the short project time frame, additional client demands, and unknown building conditions that were discovered as the work progressed. A design was finalized and subsequently approved by the Client Organization prior to the Design Firm completing the construction documents.

### **6.2.2 Methods**

Specific programming tools applied by the Interior Design Firm included the Corporate Standards document provided by the Client Organization, in-person meetings, personal communications, and personal observations.

The sizes of the various spaces were initially based on the company's Corporate Standards. However, due to existing conditions within the new space, many of these standards were not incorporated into the final design.

### **6.2.3 Program Documents**

The following is a list of the various program documents that were identified in the archival analysis of the Design Firm's project files. This list excludes any design drawings or construction documents:

- 1) Corporate Standards developed by the Corporation's Real Estate Department.
- 2) The Client Organization's Organizational Charts developed by the Client Organization.
- 3) The Floor Plans and Work Group Layouts from the Client Organization's previous location.

- 4) The Client Organization's Employee List prepared by the Client Organization.
- 5) The Furniture & Equipment List prepared by the Interior Design Firm.
- 6) Client/Design Firm Correspondence comprised of minutes of meetings and hand notes that occurred over the course of the programming and design stages.
- 7) The Project Schedule prepared by the Project Architect.

### **6.3 ARCHITECTURAL PROGRAM INFORMATION**

#### **6.3.1 Types of Program Information**

Appendix L contains a summary of all the various types of information identified in the program documents listed above. The information types that were and were not emphasized in the main categories were as follows:

##### **6.3.1.1 Information About the Organization**

Information types about the Corporation were identified in five sub-categories. They included: Staff, Plans, Corporate Culture, Goals & Objectives, and Work Groups. Staff and Work Groups types focused primarily on present amounts of staff types within the various work groups. Types identified under Plans and Goals & Objectives of the Organization emphasized project issues and requirements. The information types found under the Corporate Culture category were derived mainly from the department's organizational charts. Few types were found that described conditions relating to the nature of the business or management of the department. Only one information type about the

Organization, under Plans, identified a future condition for the department. This was that the department would be growing.

#### 6.3.1.2 Information About the Organization's Operating Environment

Only one category was identified that related to the Corporation's or the CIS Department's operating environment. These were the code requirements contained in the minutes of a meeting. No information types, present or future, were found under Building O & M, Business Conditions, Competitive Actions, Labor Force, or Lease Conditions.

#### 6.3.1.3 Information About the Physical Conditions Within Existing or Proposed Spaces

Information types relating to physical conditions were identified in six of the seven sub-categories. Nothing was found on the Outside Conditions of the space. Very few types were noted under Building and Building Information Technology Conditions. The predominate category of physical information types were under the Work Group Conditions, Furniture & Equipment, and Layouts. However, none of the categories had extensive amounts of any of the types listed, especially Work Station Conditions. No physical conditions that projected beyond the initial occupancy of the space were identified in any of the six sub-categories.

#### 6.3.1.4 Information About Individual Work Styles and Job Functions Within the Organization

Only three information types referring to individual or specific job conditions were identified. One Task and two Adjacency Conditions were found

in Client/Design Firm Correspondence and extrapolated from the Department's Existing Floor Plans.

### **6.3.2 Summary of the Types of Program Information Identified**

The information types identified in the various program documents were limited primarily to Physical Conditions and Information About the Organization. However, none of the categories were comprehensive and all focused exclusively on present project conditions. Any information types found under Work Styles & Job Functions or the Organization's Operating Environment were found in Client/Design Firm Correspondence. The types identified in the Corporate Standards document referred predominately to Physical Conditions.

## **6.4 HOW THE PROGRAM DOCUMENTS WERE REFERRED TO**

The results of the individual interview responses from the Design Firm, Client Organization, and the General Contractor are summarized and graphically illustrated in Appendix L.

### **6.4.1 Design Firm Responses**

The most predominate ways in which the Design Firm's key people acknowledged referring to the program documents tended to be "ad-hoc" and "systematically". "Systematically to measure performance" was not identified by any of the respondents as a way of referring to the documents. The more formal program document, the Client Organization's Corporate Standards, were addressed primarily by the Senior Interior Designer in an "ad-hoc" manner.

Descriptions of how the documents were referred to by the Design Firm included:

“We referred to it (Corporate Standards) a lot at the beginning, when we had to heed the office standard sizes, and the cubicle sizes.”

“This (Client/Design Firm Correspondence) became our check-list of entering things on to the record. So as (the Client) made decisions, or (the Building Owner) was asked for formal requests, it would occur through these documents.”

#### 6.4.2 Client Organization Responses

The predominate ways in which the Client Organization’s management and implementation people referred to the program documents included “seldom or never”, “indirectly”, and “ad-hoc”. The way the Staff referred to the documents was clearly “seldom or never”. No O & M personnel were interviewed.

Descriptions of how the documents were referred to by the Client Organization included:

“This (the Corporate Standards) would be as a reference in more of an indirect... We are dealing with the issues surrounding the document and possibly questioning the need to apply these standards in a methodical way, to everybody...”

“Strictly for office sizes. Sizes of offices are number one in interior space configuration. I wasn’t particularly involved in any of the building standards or the finishes. It was merely reviewing the number, office sizing, and space available.”

“I would have used it (the Organizational Charts) during this project, mostly from memory, and may have had a copy in the file, if there was questions from the interior design consultant.”



### **6.4.3 General Contractor Responses**

The Construction Manager tended to refer to the certain program documents in a one of two ways. He acknowledged referring to various Client/Design Firm Correspondence and Building Code Requirements in an "ad-hoc" way and the project schedule on a weekly basis in a more "systematic" way. None of the other program documents listed were identified.

Descriptions of how the program documents were referred to by the General Contractor included:

"We were at subsequent meetings, and of course we discussed, particularly in April and May, exactly how we were going to build the space, and what we were going to do, and how it was going to be designed, and then what the requirements were, and basically we referred as we were building it... and we referred back to the minutes (Client/Design Firm Correspondence) to incorporate whatever they wanted."

## **6.5 WAYS IN WHICH THE PROGRAM DOCUMENTS WERE USED**

### **6.5.1 In the Creative Process of Design**

The key people from the Design Firms responsible for the development of the design solution felt that the program documents did not help them in the process of coming up with design alternatives:

"I wouldn't say they really helped in a creative way. More of an informational gathering... planning information to... have the work stations fully functional, but as to the creativity of them, no."

"Yes, I did use this, and I used all these things, but that was more for the logical side of my brain, like the logical side of the project. That is, what had

to happen and what had to work. I don't think that these contributed to my creative side."

### **6.5.2 During Presentations to the Client**

The Interior Designers both acknowledged using the previous or Existing Floor Plans/Layout during the presentation of the final design solution to the Client. They described their reference to it during this process as being both "ad-hoc" and "systematic". They used it to compare the new plan with the existing layout and to illustrate to the client that the new space accommodated all the existing work groups and work stations identified in the previous location.

"We used it at the presentation, and then questions would arise from it. But we would say 'OK, now we've got 12 people in this orange group, and here they are here. Have we missed anyone? Oh, well, I see that we should take this one and put them in, or adding one'... things like that."

No other program documents were identified by either the Design Firms or Client Organization respondents as being referred to during design presentations.

### **6.5.3 In Evaluating Proposed Design Solutions**

When evaluating the proposed design solutions, the Design Firms and Client Organization respondents used "ad-hoc" the most to describe how they tended to refer to the program documents. "Seldom or never" and "indirect" were also identified. In the descriptions of their evaluation processes, references made to the documents focused on using them to ensure things were included in the design.

“Minutes of meetings and client and consultant interactions became a check-list at the end, and periodically, to make sure that all things are dealt with.”

No mention of any kind of systematic reference was made by any of the respondents during the evaluation of the design proposals.

#### **6.5.4 In Evaluating Changes to the Design Solution**

“Ad-hoc” was also the most predominant way used to describe how the programs were referred to when evaluating changes that occurred to the design solution over the course of the project. “Seldom or never”, and “indirectly” were also identified.

#### **6.5.5 In Post-Occupancy Evaluations**

There were several post-occupancy evaluations done on the space that were conducted by both Design Firms and the Client Organization. These evaluations included a formal survey distributed by the Interior Design Firm as well as formal and informal walk-throughs. The survey solicited feedback and ratings on certain qualities of the finished space.

Only the Client/Design Firm Correspondence played a role during formal walk-through evaluations to help resolve several conflicts that occurred after the project was complete. Several respondents acknowledged referring to these documents during their evaluations in both an “ad-hoc” and “systematic” manner.

### **6.5.6 Other Ways of Using the Program Documents**

As mentioned during post-occupancy evaluations, the Client/Design Firm Correspondence also played a role in clarifying events and responsibilities over the course of the project. The Organizational Charts and the Corporate Standards remain in use today on a regular basis, assisting the Corporation's Real Estate Department to design and plan future moves.

### **6.5.7 Summary of the Ways in Which the Program Documents Were Used**

Overall, the most common ways in which the various program documents were referred to by all levels within all three companies were "ad-hoc" and "seldom or never". The least most common ways were "indirectly" and "systematically". "Systematically to measure performance" was not identified by any of the respondents.

The program documents were used and referred to over the course of the project in the following ways:

- 1) "Seldom or never" during the creative process of design.
- 2) In both an "ad-hoc" and "systematic" way during presentations of design solutions to the Client Organization.
- 3) "Indirectly", "seldom or never", and in an "ad-hoc" way when evaluating proposed design solutions and changes to the design solution.
- 4) "Seldom or never", "ad-hoc", and "systematically" during post-occupancy evaluations.
- 5) In an "ad-hoc" way during project reviews and on future projects.

## **CHAPTER 7**

### **CASE STUDY SITE - E**

#### **7.1 PROJECT DESCRIPTION**

Case Study E involved the construction of 13,575 square feet of interior office space to accommodate the regional headquarters of a large, international insurance company. The area renovated was a single floor of a high-rise office tower located in the city's central business district. The building is owned and operated by an independent Real Estate company.

The space is considered to be a Class "A" office space with a rental rate of approximately \$24.00/sf. The total construction cost per square foot for the renovation was approximately \$22.00 (excluding fees).

The space was designed to accommodate the operation and administration of two branches of the company's insurance sales offices. The types of activities occurring in the space included sales, training, administration, small group meetings, file storage, and basic employee support services including a staff room. The total area renovated involved the working spaces of approximately 90 people.

##### **7.1.1 Project Participants**

The Corporation employs thousands of people throughout Canada and the United States and occupies in excess of a million square feet of commercial office space. This project was a turn-key office package in which the Building Owners provided the Client Organization with a finished space for a fixed price. The Insurance Company's primary contact was the leasing coordinator from their

Property Division located in Toronto. Locally, the company's representatives were limited to the Director and his project coordinator.

The design team was comprised of an Architectural Firm and an Interior Design Firm. The Architectural Firm was founded in 1954. They currently employ approximately 20 full time staff and offer a full range of urban, architectural, and interior design services. The Interior Design Firm was a one-person practice specializing in commercial interiors.

The General Contractor was founded in 1985 and has been responsible for the construction of numerous commercial office spaces located throughout Winnipeg.

#### **7.1.2 Roles and Responsibilities**

The project was a turn-key development in which the Building Owner negotiated and secured a lease arrangement with the Insurance Corporation's Branch Office. The Architectural Firm and the General Contractor were contracted by the Building Owner to design and construct the space. An Interior Design Firm was contracted directly by the Branch Office to select the various room finishes and furnishings.

A leasing agent from the Insurance Company's Toronto Property Division acted as the Corporation's primary representative. Their role was to initially identify potential office locations, analyze the various spaces and lease conditions, and then make the appropriate recommendations to the Branch Director. In negotiating and setting out the lease conditions, the Property Division also dictated the Branch Office's construction and space standards.

The Architectural Firm was responsible for providing an initial layout of the space to secure the lease agreement, develop the final design, produce the

construction documents, and administer the construction of the space. The Principal-in-Charge of the project over saw the work produced and administered by one of the firm's senior designers. The Interior Design Firm was responsible for selecting the wall and floor finishes as well as procuring the new furnishings. The two firms worked independently from one another. For the purposes of this report, the Architectural Firm's senior designer will be referred to as the Interior Designer and the Interior Design Firm's key project person will be referred to as the Furniture Designer.

The General Contractor was engaged by the Building Owner to provide a construction budget and manage the construction of the space. As construction managers, they solicited tenders from the various sub-trades and coordinated their work on site throughout the construction phase. They were responsible for having the space complete on time and on budget.

### **7.1.3 Project Goals and Objectives**

The project was initiated as a result of the Branch Office's lease expiring at their previous location. The Corporation and Branch Office's objectives were to secure a space that would best accommodate their operational, functional, and economic requirements.

The goals and objectives for the design of the space that were identified in the program documents were essentially limited to specific project tasks. Of these conditions and issues, no set priori of importance were identified among them. The respondents acknowledged that despite not having any documented priori of issues or conditions, the important ones were basically understood by all.

“Nobody asked me if, since you are moving, what is it you absolutely want in any particular order of importance. We implicitly, I think, suggested that location on the floor was the most important.”

“Nobody will say, ‘make sure the branch manager has the best office because he’s the guy that is gong to give the final OK on the building.’ Yes, you know that.”

The leasing agent from the Corporation’s Property Division did however utilize a prioritized list of issues and conditions to help them analyze and identify the best potential sites for the Branch Office. The actual survey and the results of this analysis were not made available to the Design Firms or referred to by any other of the key project people interviewed.

#### **7.1.4 Project Implementation**

The first step in securing a new lease for the Branch Office was first to determine the amount of space required. The second step was to identify potential locations. Once the Branch Office submitted their space requirements to the Corporation’s Property Division for approval, the Property Division conducted a site survey to identify potential locations. In each case, the Building Owners were provided the space requirements and Corporate Standards to enable them to formulate their turn-key proposals. Each proposal submitted was in turn evaluated by the Property Division and used as the basis for further negotiations and counter proposals.

After the Corporation and the Branch Office accepted the final lease agreement, the Building Owner’s Architectural Firm proceeded to develop their final design and produce the construction documents. Once the construction documents were complete, the General Contractor solicited bids from the various sub-trades and began implementing the construction of the new space. At the



same time, the Furniture Designer selected the wall and floor finishes and prepared the tender call for procuring the furnishings and equipment.

The initial programming, layout, and lease negotiations took place over approximately four months. Finalizing the design, and producing the construction documents took approximately 4 weeks after the lease agreement was signed. The actual construction and procuring of the furniture and equipment was completed over a period of approximately 7 weeks. The move-in was coordinated by the Branch Office and done in one phase.

## **7.2 ARCHITECTURAL PROGRAMMING PROCEDURES AND METHODS**

### **7.2.1 Procedure**

Essentially, the bulk of the architectural programming occurred when the space calculations were initially completed by the Branch Office themselves. Because the Architectural Firm did not have access to the client initially, they developed their preliminary layout based on these requirements and the Corporation's Office Alteration Standards provided to them by the Corporation's Property Division.

Prior to developing the preliminary layout, the Architectural Firm revised the Corporation's Program to more accurately reflect their building conditions. This concluded with a leasing plan analysis to compare the initial program areas with the preliminary layout areas being proposed in the lease negotiations.

Any outstanding conditions or issues not addressed in the preliminary layouts were identified in meetings and discussions with the Corporation's leasing

agent, the Director of the Branch Office, and his project coordinator. Most of these items were noted in minutes and correspondence and incorporated directly into the final design that was being developed at the same time. The final layout of the space did not change much from the original proposal.

### **7.2.2 Methods**

The Corporation provided the Branch Office with a guideline for the various types and sizes of offices that were being applied to their retail office space all across North America. They also provided them with standard formulas to help them calculate the various office types and sizes they would need. These numbers were based on the Branch Manager's hiring criteria and his sales projections over a five year period. In developing the standard formulas and space requirements, the Corporation utilized a ratio/trend and projection technique to plot and project, through the use of their company's sales and size history, the square footage per sales per person for that particular region. The Corporation's Head Office in turn evaluated the Branch's calculations using a computer program that confirmed the number of people in each type and size of office space based on previous local and national retention periods.

No other programming techniques or methods were identified other than the in-person meetings and personal correspondence that occurred over the course of the project.

### **7.2.3 Program Documents**

The following is a list of the various program documents that were identified in the archival analysis of the Design Firm's project files. This list excludes any design drawings and construction documents:

- 1) Program developed initially by the Client Organization and reformatted by the Design Firm.
- 2) Leasing Plan Analysis completed by the Design Firm.
- 3) Lease Agreement & the Corporation's Office Alteration Standards developed by the Client Organization.
- 4) Client/Design Firm Correspondence comprised of minutes of meetings and hand notes that occurred over the course of the programming and design stages.
- 5) The Project Schedule prepared by the Building Owner.

### **7.3 ARCHITECTURAL PROGRAM INFORMATION**

#### **7.3.1 Types of Program Information**

Appendix M contains a summary of all the various types of information identified in the program documents listed above. The information types that were and were not emphasized in the main categories were as follows:

##### **7.3.1.1 Information About the Organization**

Types of information about the Corporation's Organization were identified under Staff, Plans, Goals & Objectives, and Work Groups. All the types identified focused exclusively on project conditions and present types and amounts of space. No information was found that described conditions relating to the nature of the business or management of the Branch. No future conditions were identified under any sub-categories.

#### 7.3.1.2 Information About the Organization's Operating Environment

Only one category was identified that related to the Corporation's operating environment. These were the current lease conditions contained in the Lease Agreement between the Branch Office and the Building Owner. No other information types, present or future, were found under Laws & Regulations, Building O & M, Business Conditions, Competitive Actions, or Labor Force.

#### 7.3.1.3 Information About the Physical Conditions Within Existing or Proposed Spaces

The Information types relating to physical conditions identified in the program documents were minimal in all seven sub-categories. They included two Outside Conditions, two Building Conditions, no Building Information Technology or Layout Conditions, and three Work Group Conditions. The information types under the Work Station and Furniture & Equipment categories were also limited to basic types and amounts. There were no physical conditions identified that projected beyond the initial occupancy of the space.

#### 7.3.1.4 Information About Individual Work Styles and Job Functions Within the Organization

Only one information type that related to a present adjacency requirement between two work stations, was identified under this category.

### 7.3.2 **Summary of the Types of Program Information Identified**

The types of information identified in the various program documents were very limited in all four main categories. All the information contained in the program documents focused exclusively on present project conditions. No future

conditions were found. The information types identified in the Program and the Corporation's Office Alteration Standards referred primarily to types, amounts, and sizes of work groups and stations.

#### **7.4 HOW THE PROGRAM DOCUMENTS WERE REFERRED TO**

The results of the individual interview responses from the Design Firms, the Client Organization, and the General Contractor are summarized and graphically illustrated in Appendix M.

##### **7.4.1 Design Firm Responses**

Of the four people interviewed, the Principal-in-Charge and the Interior Designer from the Architectural Firm were the only ones who acknowledged referring to the documents. The Furniture Designer and the Architectural Firm's Technician consistently used "seldom or never" to describe how they had referred to all the documents, except the Project Schedule. The Project Schedule was referred to in one of three ways: "indirectly", "ad-hoc", and "systematically to measure performance".

The Principal-in-Charge and the Interior Designer acknowledged referring to the documents in either an "ad-hoc" or "systematic" way.

Descriptions of how they referred to the documents included:

"...you basically have that (the Program) on your desk the whole time you are doing planning..."

"...once you have got the plan done then you go back and you check the areas and so this (the Leasing Plan Analysis) was provided to (the Building Owner) for their purposes of getting the client."

“... in my supervisory role, I simply referred to these documents (the Lease Argument & Corporate Alteration Standards) to see that we were doing the job that we were hired to do.”

“... I would read that (the Lease Agreement and the Corporation’s Office Accommodation Standards) at least once a week from cover to cover to memorize it, because you would have to know that information.”

#### **7.4.2 Client Organization Responses**

The most prevalent ways in which the Corporation’s management tended to refer to the documents were “ad-hoc”, “systematically”, and “systematically to measure performance”. The staff did not have access to any of the documents over the course of the project. The Project Coordinator acknowledged referring to only the Schedule and the Correspondence as she needed to. Examples of how management described referring to the documents included:

“...yeah, saying that those sizes were met. And that there was the right number for each scenario, understanding that sales manager’s offices, for instance, that there would be five, approximate two hundred square foot, corner, sales manager offices.”

“... I would refer back to our lease agreement, and to our standards and make sure that they were followed.”

#### **7.4.3 General Contractor Responses**

In this scenario the General Contractor’s Construction Manager was involved in the development of the lease proposal. Hence, they did have reason to refer to some of the program documents. How they referred to the Program and Standards was more “indirect”. The Schedule was something they referred to very “systematically”, while the correspondence was referred to only as they needed to.

“... in helping them come up with their price in court. We did use it (the Corporation’s Office Alteration Standards) indirectly in that sense. You know, ‘is it well worth it?’... ‘can we save a bit of money here?’...”

## **7.5 WAYS IN WHICH THE PROGRAM DOCUMENTS WERE USED**

### **7.5.1 In the Creative Process of Design**

The Architectural Firm’s Interior Designer responsible for the development of the design solution felt that the program documents did not help her in the process of coming up with design alternatives:

“As far as the planning goes... I’ve got many years of experience in this, so I can plan quickly, the first time. It’s just what you do. It’s hard to explain that one. You have a program and you know the various ways that you can change say a room size. It could be ten by ten, but it could be eight by twelve, and you have the same square footage... that’s what you look at.”

“All it (the Program) did was develop the limitations. From there I would go, ‘Well, what can I do with these limitations, how can I make that work?’”

### **7.5.2 During Presentations to the Client**

The Interior Designer acknowledged using the Program document during the presentation of the design solution to the Client. She described their reference to it during this process as being “ad-hoc”, to show that the space accommodated all the work groups and work stations listed in the Program.

“I would always take along this (the Program) in case they said, ‘Why did you do that?’ ‘Well, because I have to do that, it says right here...’”

“... that was the purpose of my meeting with them, it was strictly to say that the plan works... and then the leasing arrangements and square footage sizes were for someone else to deal with.”

No other program documents were identified by either the Design Firms or Client Organization respondents as being used as a reference during design presentations.

### **7.5.3 In Evaluating Proposed Design Solutions**

The Architectural Firm, the Client Organization, and the General Contractor's respondents used "ad-hoc" and "systematically" to describe how they tended to refer to the program documents when evaluating the design solutions.

Descriptions of this process included:

"... we had to meet various standards. That is why that document (the Leasing Plan Analysis), comparing the Program with the actual plan, was terribly important to review."

"We used it again as a check, and that's why I was saying, I would keep going back to the Alteration Standards. Because, once you do the plan, then you go back and say to yourself, 'Now did I get that room right, did I get the zoning...'"

"I utilized these ones (Program), because when I would see the design plan, I would say, 'We're supposed to have twenty-nine 'one hundreds', let's count them, etc., etc.'"

Essentially, the program documents were used as check lists to ensure space types, amounts and sizes were accommodated.

### **7.5.4 In Evaluating Changes to the Design Solution**

The various levels within the Design Firms and Client Organization tended to use the same program documents in a similar way to evaluate changes to the design as they did when they evaluated the design itself.



“Once you change the plan from 5 foot corridors to 4 foot corridors, you’re basically re-planning. So you went right back to stage one...”

#### **7.5.5 In Post-Occupancy Evaluations**

There was no formal post-occupancy evaluations done by any of the companies involved with the exception of the construction deficiencies and an informal walk-through by the Branch manager and his project coordinator. The only reference to any of the program documents was made during the informal walk-through. They tended to refer to the Program again, both in an “ad-hoc” and “systematic”, way to confirm actual room sizes and dimensions.

#### **7.5.6 Other Ways of Using the Program Documents**

The only other ways that the program documents could be used was identified by the Design Firm. The Principal-in-Charge and the Interior Designer both felt the Program could be used as an example to market their services in similar types of turn-key developments. The format for the Leasing Plan Analysis was also identified as being useful in similar future office projects.

#### **7.5.7 Summary of the Ways in Which the Program Documents Were Used**

Overall, the most common ways in which the various program documents were referred to by all levels within all three companies were “ad-hoc” and “systematically”. The least most common ways were “indirectly” and “systematically to measure performance”.

The program documents were used and referred to in the following ways:

- 1) "Seldom or never" during the creative process of design.
- 2) In an "ad-hoc" way during presentations of design solutions to the Client Organization.
- 3) In an "ad-hoc" and "systematic" way or "seldom or never" when evaluating proposed design solutions and changes to the design solution.
- 4) "Seldom or never", "ad-hoc", and "systematically" during informal post-occupancy evaluations.
- 5) In an "ad-hoc" way to market services and in similar future projects.

## **CHAPTER 8**

### **CROSS CASE STUDY ANALYSIS**

#### **8.1 ARCHITECTURAL PROGRAM INFORMATION**

##### **8.1.1 Types of Program Information Across Case Study Sites**

The architectural programming processes in most of the case studies consisted of a series of information gathering phases. With the exception of one case, basic programming activities all overlapped into design stages. As a result, a variety of different kinds of documents were identified that contained a variety of types of programming information. These included, but were not necessarily limited to, a range of corporate standards, minutes of meetings, project correspondence, lease agreements, feasibility studies, and property appraisals. Only one case study had a single program document prepared specifically for that particular project that contained a wide variety of programming information types.

A summary of all the various types of information identified in all five case studies is listed in Appendix N. The information types and categories that were and were not emphasized across all five case studies were as follows:

##### **8.1.1.1 Information About the Organization**

Organizational information was consistently found in all five cases under four sub-categories of information including Staff, Plans, Goals & Objectives, and Work Groups. Information about Corporate Culture was identified in only four of the five case studies.

The most predominant types of Staff information were Types and Amounts. Gender was identified in three cases. The least most common Staff types were Names, Location, and Opinions. The Types, Amounts, and Names

were also predominant under the Work Group category. No Historical or Projected Rates of Growth for any work group in any of the case studies were identified.

Types of information on Organizational Plans that were identified referred mainly to the implementation of the projects themselves i.e. either describing the project, the various individuals and groups involved in the project, or the various tasks that were to be done over the course of the work. Only two of the five cases included information about Plans that related to the business being conducted by the Client Organization. Operational Plans were identified in three cases. These plans were limited in detail, focused exclusively on project conditions, and tended to relate to only one condition i.e. the need for or the availability of space.

The information types found under Goals and Objectives also emphasized project conditions, predominately schedule and budget. In only one case study was a Client Organization's Business Goals & Objectives found.

Information types identified under Corporate Culture varied among the case studies, none being predominant throughout all five cases. In only two or three of the five cases were types found that referred to information on the Client Organization's Corporate Structure, Social Culture, Image, and Hierarchy. Overall, the cultural conditions found in the program documents tended to be more implicit, implied through organizational charts, previous plans, or lists of the various spaces/activities to be accommodated within the renovation area. Few explicit descriptions of cultural conditions or requirements were identified.

Three of the five Organizational categories identified had information types that referred to conditions beyond the initial occupancy of the space. Future Staff Types and future Operational Plans were found in two of the five case studies. Future Staff Amounts, Gender, Business Plans and Business and O & M

Goals & Objectives were identified only once each and were spread out among four of the five case study projects. Future Corporate Cultural conditions or requirements were not found in any of the case studies.

#### 8.1.1.2 Information About the Organization's Operating Environment

There was one Operational information category and one information type that was predominant in most of the case studies. Building Code Requirements, under the category of Laws & Regulations, was found in four of the five case studies. All other Operational information types and categories were found in only one out of five cases. No information on Labor Force conditions were identified in any of the five case studies.

Of the 17 information types found that referred to the Operating Environments of the Client Organizations, only two types referred to conditions beyond the initial occupancy of the spaces. One made reference to future trends in the local office real estate market. The other related to possible future action to be taken by another company in the same business with regards to the density of their workstations.

#### 8.1.1.3 Information About the Physical Conditions Within Existing or Proposed Spaces

Six of seven categories of Physical information were found in all five case studies. These included Outside Conditions, Building Conditions, Work Group Conditions, Work Station Conditions, Furniture & Equipment, and Layouts. Building Information Technology Conditions were found in four of the five cases.

Of the 139 information types listed under these seven categories, 12 were identified in all five cases. These included: Work Group Sizes; Work

Station Types, Sizes, Amounts, Floor Finish Qualities, and IT Equipment Types; Furniture Types, Sizes, Amounts, and Details; and Equipment Types. 11 information types appeared in four of the five cases, 27 types appeared in three cases, and 65 types were found in only one or two of the cases studies. 17 types were not identified in any of the five case studies. These included information on exterior conditions such as climate, public transit and site access, as well as specific building and Information Technology conditions like telephone service and security, and I.T. surge noise protection requirements.

The predominant physical information categories were the Work Station Conditions and Furniture & Equipment categories. Less emphasized categories included Outside Conditions and Building Information Technology Conditions.

A total of 7 of the 139 physical information types listed made reference to conditions beyond the initial occupancies of the five spaces and were found in only three of the five case studies. These 7 types appeared a total of one or two times each within all three of those case studies combined. The seven types included information on Work Group Sizes and Flexibility; Work Station Types, Sizes, Amounts, and I.T. Equipment Types; the need for future furniture requirements like file storage space; and the potential use of existing Building HVAC Systems in the future.

#### 8.1.1.4 Information about Individual Work Styles and Job Functions Within the Organization

Two of the four categories under this heading, Task Analysis and Adjacencies, were found in four of the five case studies. Human Factors were found in three cases and information on individual Communication conditions were identified in only two cases.

The information types found in the four case studies under Task Analysis tended to refer to brief descriptions of what, how and when an activity was being done. For example, answering phones on 8 hour shifts between 6:00 a.m. and 10:00 p.m. The information types on work group and work station adjacencies identified in four and three cases respectively were basically limited to short, written descriptions of the need to have "one group or work station be close to another". Information on individual or work group communication found in two of the cases was also limited in scope, essentially consisting of lists of equipment types (telephones, faxes, modems, etc.) and their room locations. Information types identified on individual Human Factors were the least prevalent. In only one or two cases were conditions or requirements found on temperature, acoustics, privacy, meeting, ambiance, natural lighting, and views/sight-line for individual users of the space. No information was identified in any of the case studies on individual characteristics of the people working in the spaces or requirements for individual conditions such as screening, stress, perceptions, productivity, or interaction.

Only 2 out of 33 listed conditions i.e., what was done and when, made any reference to future work styles or job functions within a Client Organization and both were identified in only one of the five case studies.

### **8.1.2 Summary of the Types of Program Information Identified Across Case Study Sites**

In most cases, the programming information was found dispersed within several different types of documents. In only one case was there an inclusive architectural program document, compiled specifically for the project and prior to any design activity, that contained a variety of programming information types.

The predominant categories of program information found in all five case studies were clearly Organizational and Physical. The least emphasized categories of program information were Operational and Individual Work Styles & Job Functions. In each case, very little program information referred to any condition beyond the initial occupancy of the spaces being constructed.

The predominant Organizational information focused on project conditions as well as types and amounts of work groups and staff. Information on client organizations' business and operating environments were not common or very detailed. The same was true for information types found on individual work styles and job functions within the five Client Organizations. The most common physical information tended to focus on work station and furniture conditions. Outside, Building, and Building Information Technology conditions were much less emphasized overall.

## **8.2 HOW THE PROGRAM DOCUMENTS WERE REFERRED TO**

The results of the individual interview responses from the Design Firm, Client Organization, and the General Contractor are summarized and graphically illustrated in Appendix N.

### **8.2.1 Design Firm Responses Across Case Study Sites**

Design Firm management acknowledged referring to the program documents in any of four ways. The most predominant ways included: "ad-hoc" (39%), "indirectly" (23%), "systematically" (20%), and "seldom or never" (16%). The most uncommon way management had made reference to the documents was clearly "systematically to measure performance" (2%). In the cases where the



program documents were referred to in a “systematic” way by Design Firm management, the Principals-in-Charge acknowledged referring less to documents that contained specific information on space conditions and more on documents that quantified the amount of work they were commissioned to do and the time their design teams had to do it in.

Implementation people, consisting mainly of Interior Designers and Project Architects, tended to refer to the documents in much the same way as their management, mostly “ad-hoc” (58%). The less prominent ways were also similar to their management including “indirectly” (20%), “seldom or never” (13%), and “systematically” (8%). “Systematically to measure performance” was never identified by any of the implementation people in any of the case studies. In the turn-key developments, the systematic way of referring to the documents was slightly more prominent. This was likely a result of the predominately quantitative nature of the programming information that was available in these projects (i.e., types and amounts of spaces and furniture) which was ultimately the focus of any evaluation process of the project.

Overall, the most predominate way in which production people tended to refer to the program documents was clearly “seldom or never” (68%). However, in two cases the production people were more involved with reviewing the changes that were being made as the design stage overlapped into the production stage. These two cases generally accounted for the remaining 32% of the responses which included “ad-hoc” (16%), “systematic” (8%), “indirect” (4%), and “systematically to measure performance” (4%).

The least most common way all three groups found they referred to the program documents was “systematically to measure performance” (2%, 0%, and 4% respectively).

### 8.2.2 Client Organization Responses Across Case Study Sites

On a whole, Client Organization management tended to refer to the program documents in predominately one of two ways: either “seldom or never” (41%), or in an “ad-hoc” way (39%). “Indirectly” (11%), “systematically” (6%), and “systematically to measure performance” (3%) were obviously less prominent ways management made reference to the documents. Comparing the individual case study responses did not reveal any significant use patterns among the Client Organization management.

Very similar to management, the Client Organization’s implementation people also identified “seldom or never” (33%) and “ad-hoc” (38%) as the most common ways of referring to the program documents. “Systematically to measure performance” and “systematically” were the least common (4% and 7% respectively) while “indirectly” was slightly more prevalent at 18%. There were no other discernible patterns identified between the individual groups of implementation people from each case study.

Clearly, in the majority of the case studies, staff had minimal involvement in the development process. This was reflected in the singularly most common response to how they referred to the program documents - “seldom or never” (92%). Most had not seen the program material. Few had direct input into the programming or feedback on the design of their spaces. In one case, the staff essentially did not even exist.

Of the two O & M people that participated in the study, “seldom or never” was clearly the most predominant way in which they referred to the program documents. “Ad-hoc” and “indirectly” was the only other way in which one of the respondents acknowledged referring to several of the program documents prepared for their particular renovation project. In this case however,

the respondent's duties were much more comprehensive and included operating and managing the entire Owner-occupied facility.

### **8.2.3 General Contractor Responses Across Case Study Sites**

In at least four of the five case studies, the General Contractor was more involved with the initial development of the spaces than what would normally occur in tendered situations. They provided their construction expertise on behalf of the Client Organizations in efforts to identify construction and budget requirements. During this process, they did have occasion to refer to several types of program documents including: corporate standards, furniture and equipment lists and layouts, project schedules, and project correspondence.

On a whole however, the implementation people from the various General Contractors tended to "seldom or never" refer to most of the program documents (61%). Of the ones they did, no patterns of how they referenced them in each case was evident. How they referred to them included: "indirectly" (12%), "ad-hoc" (12%), "systematically" (12%), and least of all "systematically to measure performance" (3%).

### **8.2.4 Comparison Analysis**

It would appear that both the Design Firm and the Client Organization's management and implementation people tended to refer to the program documents in similar ways, with some variations in the proportions of identical response categories. "Ad-hoc" was consistently a predominate way, accounting for between 33% and 58% of the collective responses in each group. "Seldom or never" was more prominent with Client management and implementation people (41% and 33%) verses Design Firm management and implementation people (16%

and 13%). “Indirectly” and “systematically” also appeared to be consistent ways these four groups and the Implementation people from the General Contractors, tended to refer to the program documents. In each of these groups, these two ways accounted for 11% to 23% and 8% to 20% of the responses.

The patterns of use established by the Design Firm production people and the General Contractor implementation people were extremely similar. “Seldom or never” was clearly the most common category of response in both groups, 68% and 62% respectively. All four of the remaining categories combined together to account for the 32% and 38% of the remaining responses.

Client Organization Staff and Operations & Maintenance people tended to refer to program documents very similarly. Only three ways of referring to the documents were identified by the key people interviewed in these two groups. By far the most predominate way was “seldom or never” (92% and 65% respectively). “Ad-hoc” and “indirectly” were the only other two ways identified.

Overall, the most prominent ways of referring to program documents by all the groups was clearly “seldom or never” and “ad-hoc”. The most uncommon way of referring to the documents by all groups was “systematically to measure performance”.

### **8.3 WAYS IN WHICH THE PROGRAM DOCUMENTS WERE USED**

#### **8.3.1 In the Creative Process of Design Across Case Study Sites**

Of all the Design Firm management interviewed, 67% felt they “seldom or never” referred to the program documents during the creative process of design. Of all the implementation people interviewed from the Design Firms, 57% used “ad-hoc” to describe how they referred to them during this process. In all cases,

the implementation people included those individuals who were primarily responsible for developing the design. In two cases the designers indicated that the program documents identified the conditions or requirements that they could choose to develop as design elements or themes. In one case, a project architect described how the program gave him control over his team members and directed which way the project should go. However, the designer in that case, felt the programs did not play a role in her creative process. The designers in the other three cases also made it clear that the documents, after setting out the guidelines for the conditions to include in the final solution, did not help them with the creative aspect of coming up with solutions.

In the two turn-key cases, the degree of design complexity was considered very limited by the people responsible for developing the designs. In both cases the designers referred to the design development as basically "planning exercises". This may explain their responses in which both the Design Firm management and implementation people unanimously chose "seldom or never" to describe how they referred to the program documents during the creative process of design. "Ad-hoc" and "seldom or never" were the only other ways that were identified to describe how the program documents were referred to during this process.

It would appear then, that in two cases, the program documents did play a role in helping initiate the creative process and were referred to during that time in an exclusively "ad-hoc" fashion. However, in the remaining cases, the designers clearly indicated that the program documents did not play a part in the actual creative process and as a result were "seldom or never" referred to during this process. Clearly, no systematic reference was made to any programming material during the creative process of design by any of the designers interviewed.

### 8.3.2 During Presentations to the Client Across Case Study Sites

The two most common ways in which the program documents were referred to during presentations of the design solutions by the Design Firms to the Client Organizations were “indirectly” and “ad-hoc”. 50% of the Design Firm management interviewed acknowledged referring to the programs “indirectly” during presentations to the client, while the same percentage of implementation people tended to refer to the programs in more of an “ad-hoc” manner. 25% of both groups identified referring to the documents “systematically” during this activity as well. The only other way noted was “seldom or never” by 13% of the implementation people interviewed. In no cases was “systematically to measure performance” identified as a way to refer to the program documents during a presentation to a client.

Why the two groups tended to refer to the documents differently is likely due to the implementation people, mainly designers, having more intimate knowledge of the program information than their management. Thus they would have been more readily able to refer to the information directly when questions arose over the course of a presentation.

In cases where more systematic references were utilized, the program documents that were referred to consisted of previous plans and lists of spaces and areas. These documents were used during the presentations to compare the design proposals with previous spaces and ensure all the rooms and sizes were correct. In the one case where a feasibility study was conducted prior to the renovation project, the Design Firm reviewed the study first, prior to presenting the final solution. They acknowledged however, that after that point in the presentation, they did not refer back to the study but focused on the drawings to illustrate the proposed design solutions.

Clearly the program documents did not play an integral role in the presentation of the design proposals in any of the case studies. At best, they were check-lists for ensuring areas and rooms or activities had been accommodated in the design and were referenced, either by memory or directly, only if questions required them to be.

### **8.3.3 In Evaluating Design Solutions Across Case Study Sites**

The way in which most key people referred to the program documents while evaluating the design solutions was predominately "ad-hoc". This was true for about 67% to 70% of the management and implementation people from both the Design Firms and the Client Organizations overall. The main exception was the Client Organizations' staff who, of the ones who had input, did not refer to the program documents to help them evaluate the designs.

The General Contractor also acknowledged reviewing design proposals in three of the case studies. Overall, the Contractors tended not to refer to the program documents during their evaluation process. However, in one of the turn-key projects, the Construction Manager did use them on an "as-needed" basis when developing their cost estimate for constructing the space.

From the descriptions of the various design review processes given by the key people involved in the projects from all three types of companies, it would appear the program documents tended to be used largely as check-lists, both formally and informally, during these evaluations. Similar to how the Design Firms tended to refer to the programs during presentations to the Client Organizations, most respondents described referring to them only if they needed to, to ensure the design accommodated all the spaces, sizes, furniture, equipment, and/or specific physical conditions listed in them.

This was also true in the turn-key project where the majority of the respondents identified “systematic” to describe how they referred to the program documents while evaluating the design proposals. In both the Design Firm and Client Organization’s descriptions, it was clear that the extent of their evaluations was to ensure the spaces and areas designed were equal to those originally listed in the program document(s).

#### **8.3.4 In Evaluating Changes to the Design Solutions Across Case Study Sites**

In only two of the cases did Design Firm management people acknowledge evaluating changes to the design solutions. Of the three respondents who did, one felt that he “seldom or never” referred to the program documents during that process. One indicated that they were referred to more “indirectly”, and the third acknowledged using them only if it was necessary, in an “ad-hoc” manner.

Approximately half of the remaining groups, including Design Firm Implementation and Production people, Client Organization Management, Implementation people and Staff, as well as the Contractor’s Implementation people, acknowledged using the programs at some point when they were evaluating changes to the design. When they did, they tended to do so predominately in an “ad-hoc” manner. The other half of the respondents in these groups however, indicated that they did not refer to the programs while evaluating changes to the design.

The only systematic reference made while reviewing changes to design solutions was identified by Client management in 9% of their responses. This can be accounted for by the nature of their assessments as described by most



Client management when evaluating changes to design solutions. The only purpose for referring to program documents when evaluating changes to the design solutions was to ensure types, amounts and sizes of spaces remained correct.

Therefore, like in the initial evaluations of the design solutions, the program documents again played at best “bit-parts” in any evaluation of changes to the design in all the case studies. Possible explanations for the large percentage of respondents who did not use the program documents to evaluate design changes could be that over the course of developing the spaces, the user requirements changed, making the original program requirements invalid. In a case where there was not a lot of change, the key people involved in the project could have become so familiar with the program requirements that they had less reason to refer back to them unless it was absolutely necessary.

### **8.3.5 In Post-Occupancy Evaluations Across Case Study Sites**

The majority of respondents in all the groups indicated that they did not conduct any formal post-occupancy evaluation of the finished spaces. In two cases, where both the Design Firm and the Client Organization did informal evaluations, the respondents did not acknowledge using any of the program documents when evaluating the final built spaces. The same was true for most of the management and implementation people and staff in all five case studies with a few exceptions.

One Client Organization’s Senior Project Manager felt that he did refer to some of the program documents, primarily the correspondence, when conducting his walk-through of the space. During this process the correspondence became his checklist to ensure all the changes that had occurred over the course of the project had been carried out as ordered. Similarly, the management of another

Client Organization used the documents in their walk-through to ensure that all the spaces were there and that their sizes were right. In another instance, a Client Organization's Senior Facility Manager indicated that the Functional Program was to be appended to a formal post-occupancy evaluation survey and distributed to the users of the space to confirm that they "got what they asked for". In these three cases, the respondents felt that the best way to describe how they referred to the documents during their evaluations was "systematically".

The only other way in which a key project person referred to a program document during an informal post-occupancy evaluation was in an "ad-hoc" way. Again, only if they needed to.

Overall, the program documents tended to play a minimal role in any kind of evaluation done on the spaces after they were constructed and occupied. At most, some of the more ad-hoc programming material, such as correspondence, acted as a deficiency check-list for specific physical conditions. In no cases were the documents referred to in an effort to evaluate performance (except to check square footage). This may have been a result of the limited types of information contained in most of the program documents as well as the lack of formal POE assessments conducted by the Client Organizations and the Design Firms.

#### **8.3.6 Other Ways of Using the Program Documents Identified Across Case Study Sites**

There were a variety of other ways of using the program documents that were identified by the key project people interviewed in the case studies. Three Design Firms acknowledged that they would use the formal program documents (as opposed to correspondence or schedules) to market their firms services if the potential work required a similar application. Individuals from four of the five

design firms and three Client Organizations felt the programs would also be used as reference documents in similar future projects. One Architect, one Interior Designer, and a senior Facility Manager also identified using some of the program documents, predominately the correspondence, to assist them in reviewing the project throughout the various stages.

Some of the more unique ways identified by Design Firms included assisting management in monitoring the scope of services for the project to ensure the costs for implementing changes to the design were appropriately reflected in their final fees. Using them as a training tool for their young designers was another way in which one firm acknowledged the program documents were used in their office.

Only one other way of using a program document was identified by a Client Organization. A Maintenance Supervisor acknowledged using the list of square footage prepared for the project to assist him with managing staff relocation on a day-to-day basis.

### **8.3.7 Summary of Ways the Program Documents Were Used Across Case Study Sites**

The program documents were identified as playing a role in initiating the creative process of design. However, according to the majority of the designers of the spaces, the documents did not play a role in the actual creative process of coming up with design alternatives.

In presentations to the clients, the documents tended to be referred to only if the need arose, either by memory or directly. The same ad-hoc way of referring to specific kinds of program information appears to be true both in evaluating design alternatives and evaluating changes to design solutions. In most

cases, quantitative programming information was at best, a check-list for both Design Firms and Client Organizations to ensure that specific types, amounts, and sizes of activities were in fact accommodated by a design alternative or by changes made to a design solution.

The program documents were even less involved in any kind of post-occupancy evaluations of the five spaces. This was due largely to the absence of any formal POE's being conducted. In only one case was a program document identified as being used as an appendage to a formal post-occupancy evaluation.

Other ways of using program documents included: as reference documents for future projects; as an aid in reviewing the project; in monitoring the scope of services provided by the Design Firm; as a training tool for young designers; and as a tool to assist the Client Organization with managing staff relocation.

## **CHAPTER 9**

### **CONCLUSIONS**

#### **9.1 ARCHITECTURAL PROGRAM INFORMATION**

In most cases, the programming information was found dispersed within several different types of documents. In only one case was there an inclusive architectural program document, compiled specifically for the project and prior to any design activity, that contained a variety of programming information types.

The most emphasized type of information found across all five case studies were clearly Physical and Organizational. Information on a Client Organization's business and operating environments was not common or very inclusive. Information on individual work styles and job functions within the Client Organizations was also much less emphasized overall.

The nature of these businesses, the nature of the work being conducted in these spaces, the nature of the individual workers occupying these spaces, as well as the nature of how that work and worker may change over time (i.e., future conditions) were largely, if not entirely, ignored in the programming of these interior office spaces.

As a result, the information not included in the program documents, could only have been considered through other means of discourse, including verbal communications, personal observations, and previous experiences. Therefore, the final design solutions were more likely open to subjective interpretation in lieu of grounded, objective analysis.

#### **9.2 HOW THE PROGRAM DOCUMENTS WERE USED**

Generally speaking, the role of the program documents tended to be fairly limited throughout the development of the five spaces. They were identified

as playing a role in the creative process of design, however, only in initiating the process, not in the actual creative process of coming up with design alternatives. In presentations to the clients, the documents tended to be referred to only if the need arose. This was similar when any of the study groups evaluated design alternatives and/or changes to design solutions. The use of program documents was even less prevalent in any post-occupancy evaluations done on the spaces.

Other ways key people identified using various programming material included: as reference documents for similar future projects; as an aid in reviewing the project; in monitoring the scope of services provided by the Design Firm; as a training tool for young designers; and as a tool to assist Client Organizations with managing staff relocation.

Design Firm and Client Organization Management and Implementation people tended to refer to program documents in similar ways. The most consistent way these respondents acknowledged referring to the program documents was in an "ad-hoc" manner (38% to 58%). The Design Firm production people and General Contractor implementation people also tended to refer to the documents in very similar ways, "seldom or never" being the most predominant way for both groups (68% to 62% respectively). Typically, Client Organization staff rarely used any programming material at all (92%). Interestingly, a significant portion of General Contractors (38%) did acknowledge using some programming material. Under more traditional development circumstances, this would not be expected. However, in most of the case studies, the General Contractors were involved very early in the development process, thus the likelihood and need for them to make reference to program information was increased.

The most significant pattern to appear out of the interview data was that the program documents were much less likely to have been referred to in any systematic way by any of the groups using the information. The two most

common responses across all the groups in all five cases was clearly "ad-hoc" and "seldom or never".

These findings support a conclusion similar to the one drawn in the previous section. If the documents were more likely referred to indirectly or in an ad-hoc manner (if at all), then it was more likely that the program information was open to personal, subjective interpretations (predominately the qualitative as opposed to the quantitative design issues).

### **9.3 FURTHER GENERALIZATIONS**

These five cases represent a significant sample (38%) of all the interior office alteration projects over \$250,000.00 that were registered with the City of Winnipeg between May of 1992 and 1994. Therefore, the programming conditions identified and the conclusions drawn can be extended, with sufficient reliability, to represent all the office renovation projects that were completed within this sample pool. Based on the total number of work stations affected in the five case studies (approximately 610), these conditions would apply to the programming of the working environments of over 1,600 people in Winnipeg during this period of time.

### **9.4 LIMITATIONS OF THE RESEARCH**

Caution must be exercised when applying findings of this research. Each corporate organization had special needs and different approaches to developing and managing their office space. Each design consultant had a different approach to programming. Results found in one case based on one set of conditions may not be replicated elsewhere. The context in which the program

information was developed and applied in was also essential in identifying and describing how that information was put to use.

One condition worth noting was that the documents identified in these case studies did not necessarily represent the best examples of current programming practices. Nor did the analysis of the material assess the accuracy, amount, or quality of the program information found in the documents. However, because the intent of the study was to describe what was actually being done in practice as opposed to what could be done, these limitations do not reduce the quality of the research or the value of the final conclusions drawn in any way.

Another limitation of the research was verifying the inclusiveness of the data collected. There was no way to confirm how comprehensive the available archival documents were and in particular, in identifying all the various ways in which the information were in fact used. As well, the information obtained through the interviews was limited to the spoken content and was subject to bias introduced by the human interaction in the interview process. Although these conditions may limit the study's comprehensives, it does not diminish the insights gained from the data that was collected. The pre-testing, pilot study, and the external review by the independent judges have minimized bias, improved the reliability of the data obtained, and contained the extent of the conclusions drawn from the data.

Ideally, the research would have followed the implementation of each project from its inception through it's requirement, pre-design, design, construction, and occupancy stages. This alternative was not considered a viable alternative due to the time constraints and limited resources available to the study.



## **9.5 IMPLICATIONS FOR FURTHER RESEARCH**

This study only begins to explore the nature of programming information and how it is actually being applied in practice. More work is needed to provide a clearer understanding of why these conditions prevail in practice and subsequently what can be done to improve the process of programming office space to effectively address these conditions.

The most overwhelming finding in the study suggests that systematic application of programming material is limited. Further investigation of the design process could yield a more in-depth understanding of the conditions necessary to facilitate more objective use of the material when creating design alternatives or evaluating design solutions. Conversely, understanding the emerging trends within office space development better could lead to more diverse yet dynamic programs that would allow designers, clients, and even contractors to refer to the information more effectively and systematically throughout the complete building cycle.

## **9.6 EXPANDING PROGRAM INFORMATION TYPES: ISSUES TO BE ADDRESSED**

In light of this study's results, it appears that specific types of program information are not being identified or addressed in the development of a lot of interior office space. Results from the five cases found that information on a client organization's business and operating environments as well their staff's work styles and job functions were not being documented or assessed in the programming of their space.

Several issues have to be addressed before this void in programming office space can be reduced:

- Institutionalized programming methods and procedures have to change;
- Clients and design practitioners have to be made more aware of and trained on innovative programming methods and techniques;
- An understanding of the relationship between organizational and individual performance (hence performance data) and the environment is required by both client organizations and their designers;
- A common language is required to ensure a proper understanding of the programming process (e.g. participatory performance programming can mean different things to different people);
- Establishing a client's philosophy has to become more of a priority in order to develop programs, and ultimately space, that supports that philosophy;
- The value of program information has to be recognized by the client;
- Programming methods and techniques have to address real world situations such as time, cost and change.

## 9.7 IMPROVING THE USE OF PROGRAM INFORMATION

The lack of systematic application of programming information, as established in the study, leads us to believe that in order to make better use of this program information, it likely has to be referenced more systematically. That is not to say that design cannot be spontaneous and creative. It does mean however, that in order for good design to be identified and assessed, the rationale and implications of the design must be understood by the people who are using and ultimately paying for the space.

To do so, designers will have to modify their current train of thought. The traditional, illusive decision-making process, prevalent in many creative design processes, has to be replaced with one that is more accessible and

measurable by other people and other professions. To do so, a framework is required for fitting in this new train of thought into.

Challenging the traditional linear programming model may also improve the use of program information. In this scenario, a programmer prepares a program who, in turn, hands it to a designer who designs the space who hands it to the client who manages the space who passes it on to the users who use the space, etc. This kind of production approach is falling apart in manufacturing processes everywhere as evidenced in the automotive industry in recent years. By bringing disciplines, knowledge and skills together from across the entire production line and integrating them into teams, North American automotive makers have drastically reduced their product development cycles and are now producing cars that are well built, less expensive, and that customers love to buy.

An alternative in architecture therefore, might be to utilize an integrated, cross-functional product team approach where the programmer, designer and client group work together, from day one, throughout the entire development process and building lifecycle. The "turn-key" development approach identified in a number of the case studies supports the idea of a more integrated project team.

One last notion for improving the use of program information is to approach programming more from the client side as opposed to the design side. Structuring a process for a client in which they can require the designer to produce and demonstrate how a design addresses issues critical to their organization is more likely to realize effective results than having the design industry take the lead in determining what is best for their clients. This is evidenced by the work currently being done by Becker & Sims & Associates in New York. Their role, as the Client's representative, is to identify and define the

criteria for design and then ensure that the product being produced satisfies those requirements.

As with any service industry, designers are susceptible to their own bias, experience and interests. It's not too different from asking a cook what you should have for breakfast. In most cases he'll offer what he knows how to cook as opposed to what you like or what is the most nutritional for you. The onus is on you to know what you want to eat, where to get it, and what you want out of it now and later on in life.

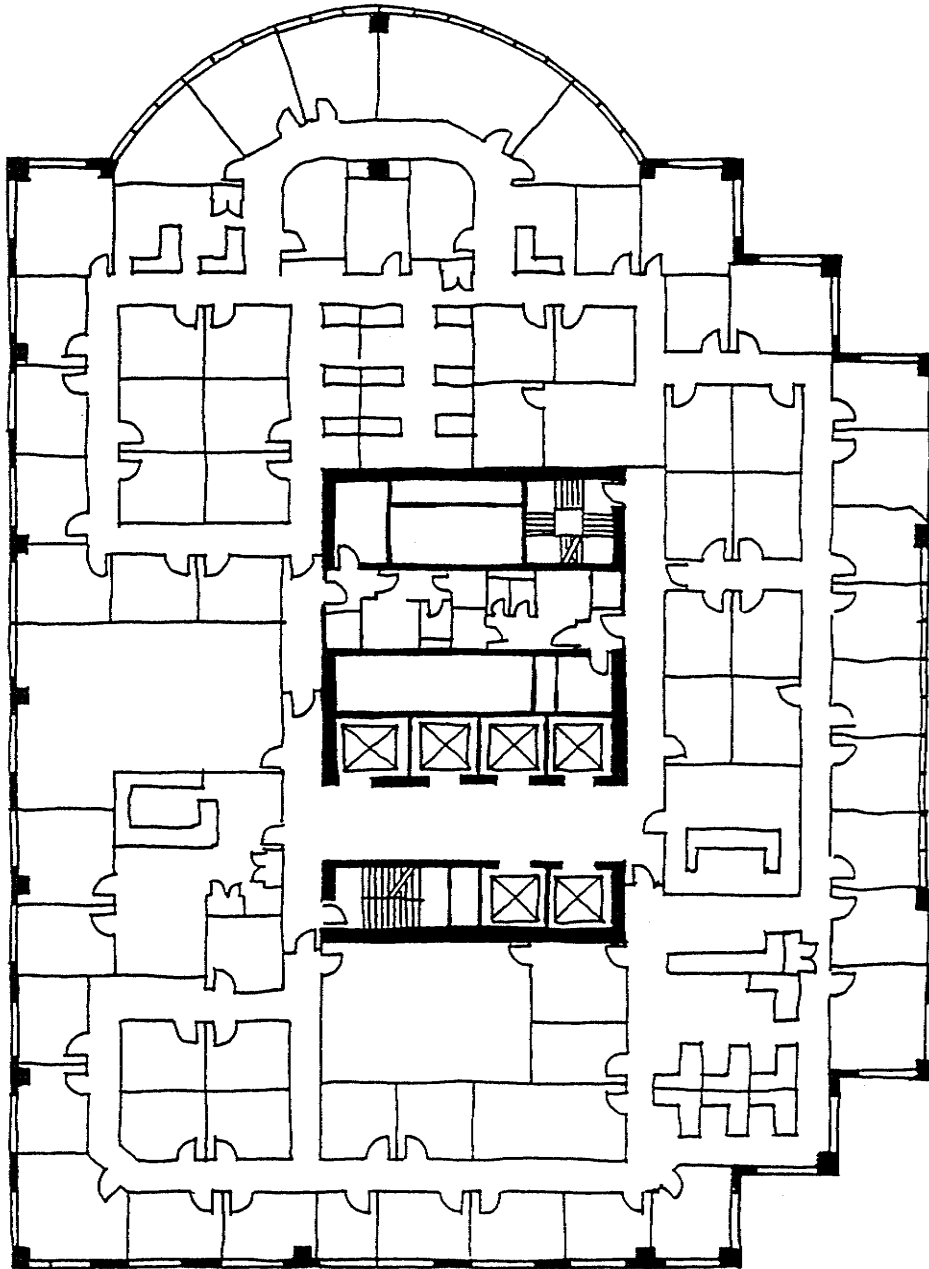
## 9.8 CONCLUSION

The content and use of the program document in the development of commercial office space in Winnipeg appears to be limited and subject to personal interpretation. That does not mean that the quality of the programming or the final design solutions are inferior. It means that the information compiled to define what is required of an office space, plays less of a role in the actual development of the final product than one might expect. The result is clearly a higher incidence of subjective decision-making and final design solutions that may be more prone to failure.

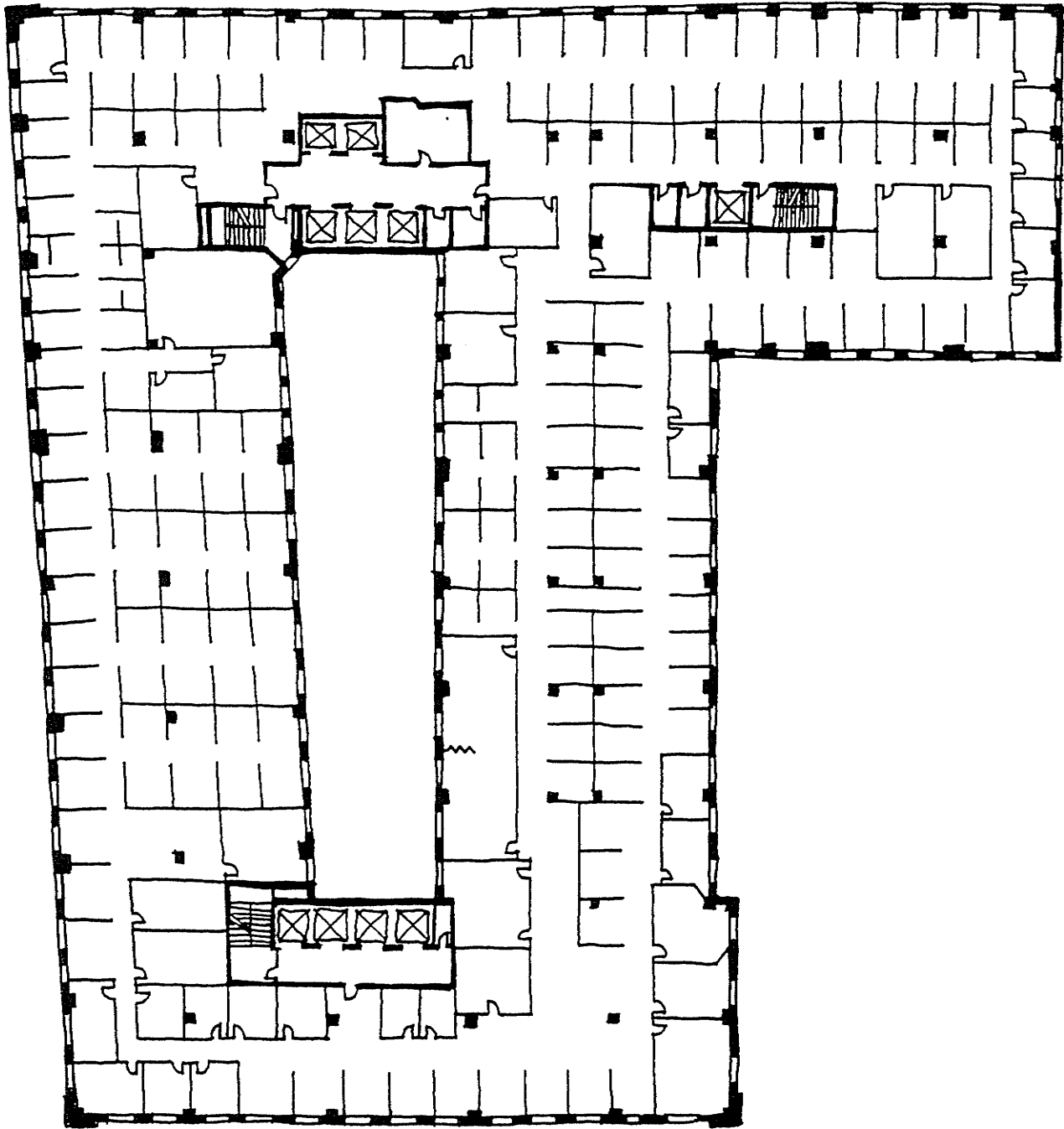
These findings underline the need for a further understanding of the relationship between architectural programming, the design process and the prevailing conditions designers, clients, and contractors face when producing office environments. They also imply the need for designers to challenge traditional thinking, programming models and service delivery practices in order to improve the application of information in the development process and ultimately improve their design products.

**APPENDIXES**

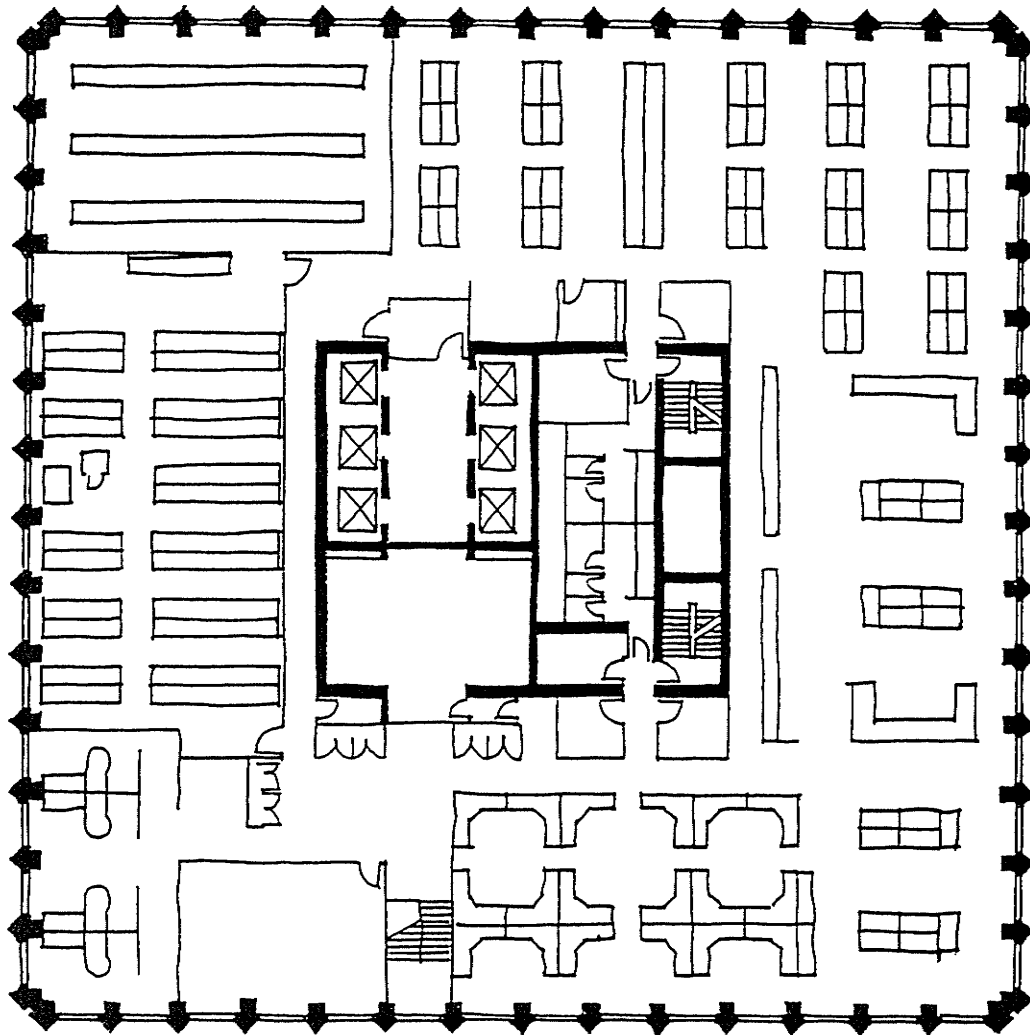
Appendix A: Case Study Floor Plan



Appendix A: Case Study Floor Plan

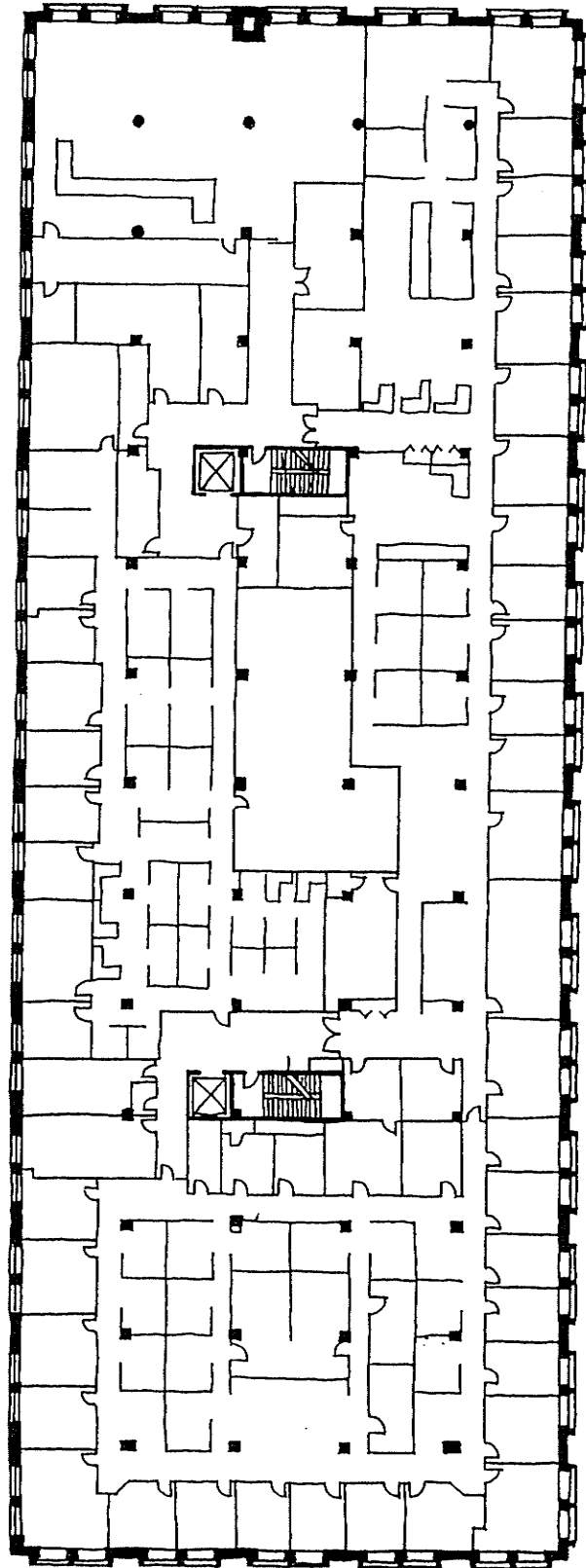


Appendix A: Case Study Floor Plan

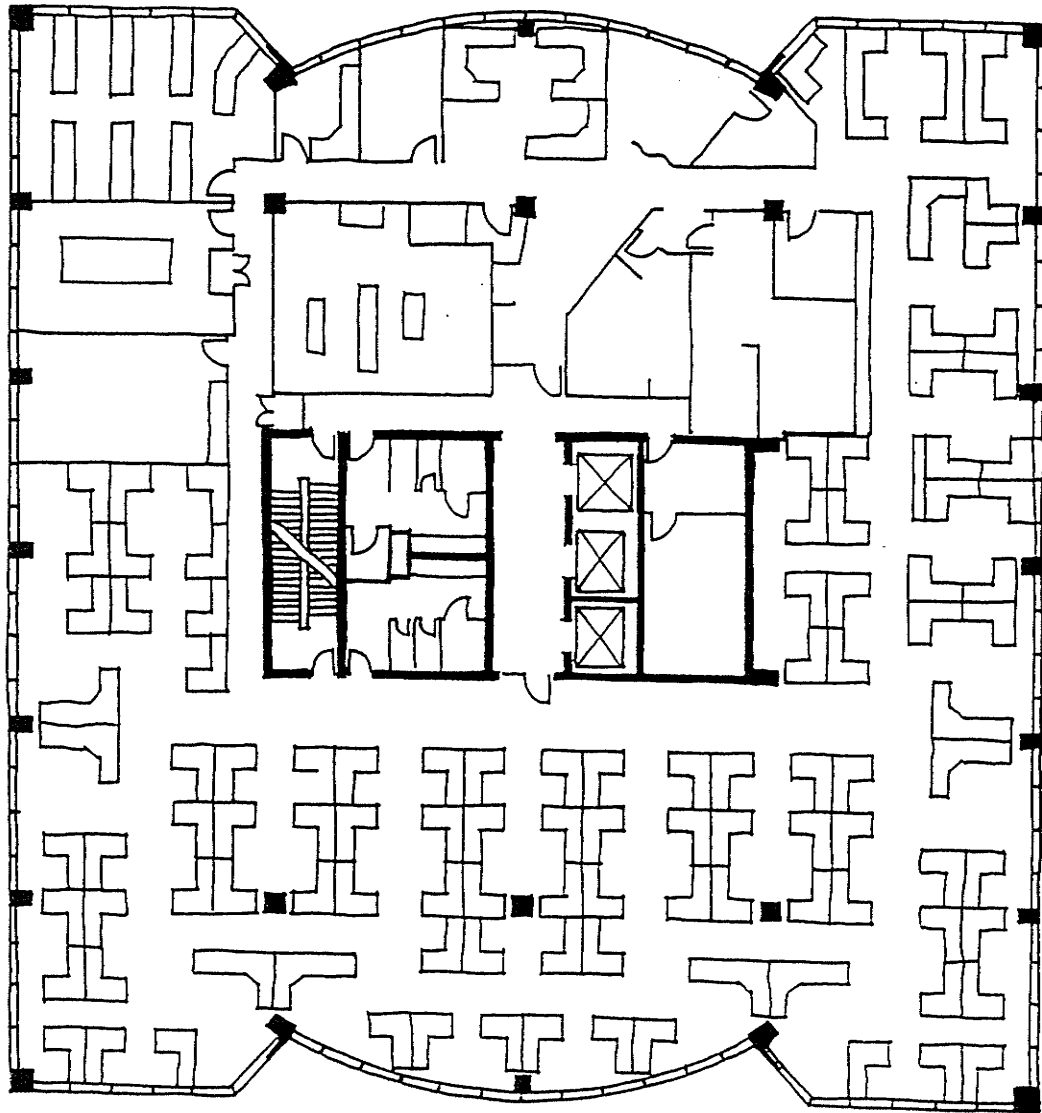




Appendix A: Case Study Floor Plan



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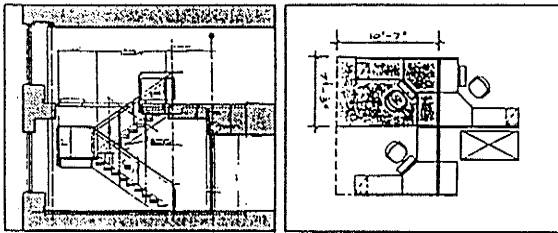


**Appendix B: Program Document Samples**

- 1. Functional Space Program**
- 2. Room Data Sheets**
- 3. Basic Requirements/Criteria**
- 4. Functional Program Requirements**
- 5. Building Program Requirements**
- 6. Corporate Design Directives**
- 7. Corporate Space Standards**
- 8. Organizational Charts**
- 9. Lease Agreement & Corporate Alteration Standards**
- 10. Program**
- 11. Client/Design Firm Correspondence**

Winnipeg, Manitoba  
Canada.

## PROCESSING CENTRE



## FUNCTIONAL SPACE PROGRAM

SEPTEMBER 28, 1992  
PROJECT NO.

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i

**2.0 EXECUTIVE SUMMARY**

Data Centre has undergone a major redevelopment program in the past 18 months. Formerly situated on the th floor of , the recently renamed "Processing Centre" now occupies both the th and st floors.

The mandate of the Processing Centre has recently been changed to include several additional functions and as a result, the th floor of has been leased by for the inclusion of these additional functions. The purpose of this functional space program is to identify functional and spatial needs for this expanded mandate. Several functions currently being performed on the th floor are to be moved up to the th to achieve a closer relationship with the th and st floors. It is anticipated that in order to ensure secure travel between floors and to enhance the concepts of transparency and interaction that an interconnected stair between levels and will be required.

The objectives of the project include ensuring that the Centre maintains the same high level of security established for the th and st floors while enhancing the management philosophy of

This study anticipates that all required functions for the th floor expansion can be accommodated in the 13,945 square foot space available. A total area within this limit has been identified as being required for these functions. The Returned Item Charge back System (RICS) function is to be located on the st floor which will require some re-configuration of space on that level.

Preliminary building systems analysis indicate that the new interconnected stair can be accommodated on the south side of the floor plate. Supplemental mechanical systems will be required to ensure that occupants of a second shift will have appropriate heating, air conditioning and humidification levels when the base building mechanical system is slowed down after hours. Security and communications systems will connect with levels and to ensure integrated systems.

As with the redevelopment of the th and st floors, the intent of the design is to maximize transparency and interaction in order to engender a team atmosphere within the entire Centre. Security must of course be maintained at all areas within and peripheral to the Centre.

Based on the information contained in this program, the redevelopment of the th floor is projected to have a construction cost of \$

**3.0 INTRODUCTION**

The purpose of this document entitled " Processing Centre - Functional Space Program" is to provide the Processing Centre with a detailed summary of functional and space needs for new functions to be located on the Floor of . The redevelopment will involve relocation of existing functions and will include all furnishings and miscellaneous fixtures. Purchase and installation of all computer hardware and equipment will be coordinated by

This program will be used for schematic and design development. The development of factual data for this program involved the efforts of Mr , Processing Centre Manager, Ms. and Ms. . The program has been compiled by and personnel.

Many meetings and working sessions were held to determine the organizational framework of Processing Centre functions to be located on level . Staff opinions and requirements were solicited in order to gather facts regarding functional and space needs. The results of these meetings and surveys are contained in this program.

**4.0 PROJECT OBJECTIVES**

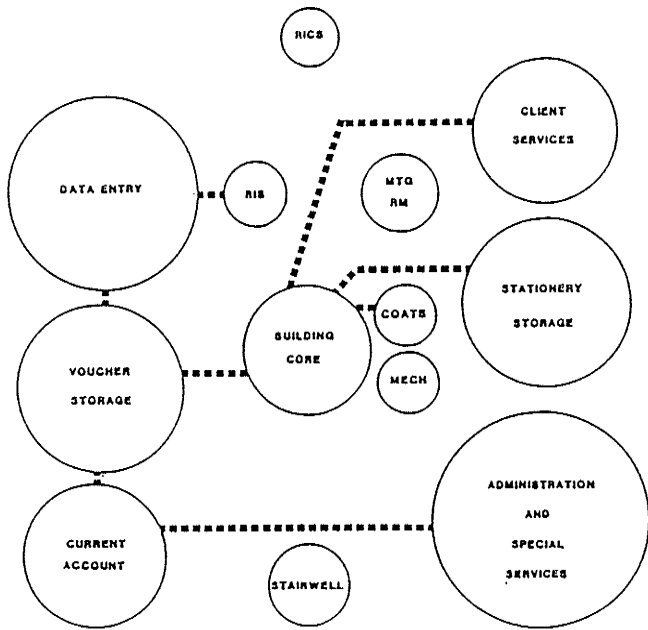
The primary purpose of this study is to outline the requirements for an expansion of the Processing Centre to the th floor of . The primary objectives of the project are outlined below.

- 4.1 To accommodate functions of the Processing Centre, some of which are currently on the th floor of , in appropriate new quarters on the th floor. The new space will be designed to accommodate future expansion anticipated over a 5 - 10 year time frame.
- 4.2 The degree of security which currently exists for the centre will be a continuing requirement for the new facility.
- 4.3 The new centre is to incorporate "State of the Art" technologies in order to ensure a level of quality and service appropriate to serve Processing Centre customers.
- 4.4 The design of the new Centre should reflect the management philosophy of . This philosophy requires that a sense of teamwork be engendered. Staff are to be treated as the most important resource of the organization.
- 4.5 The completion of the new Centre must minimize "Down Time" during construction. This is particularly important due to the 24 hour operation of the Processing Centre.
- 4.6 Flexibility to allow for future organizational and functional changes.
- 4.7 Provision of supplemental heating and air conditioning systems to provide services when the base building systems are slowed down after normal building hours.

**5.0 ASSUMPTIONS**

- 5.1 The expansion of the Processing Centre will occupy both the th floor of and will be connected by an internal stair to the th floor.
- 5.2 Storage functions previously programmed for the north west corner of the st floor have been displaced by the statement rendering function. The storage function which was displaced will be located on the th floor on the west side of the floor where loading is 150 pounds per square foot.
- 5.3 The dumbwaiter which is located on the west side of the th and st floors is to be extended down one level to . The dumbwaiter has been installed so that this extension downward should be relatively straightforward.
- 5.4 Construction must be accomplished while the Centre is fully operational. This will require minimal disruption of the dumbwaiter operation and appropriate hoarding at the location of the new stair.
- 5.5 The construction of the new stair will require use of the elevator to travel from levels and to the th during construction. Appropriate protocol is to be established by during this phase of the work.

**6.0 FUNCTIONAL RELATIONSHIP DIAGRAM**



Processing Centre - Functional Space Program

6.1

**7.0 FUNCTIONAL SPACE REQUIREMENTS**

Each functional requirement identified by through the programming process has been documented in detail in this section of the study. Specific requirements and relationships are identified including the Net Area requirements of each function. See section 8 for a summary of space needs.

Processing Centre - Functional Space Program

7.1

**7.1.0 ADMINISTRATION & SPECIAL SERVICES**

**7.1.1 Typical Workstation**

No. of Units - 48 @ 39 ft<sup>2</sup>  
 Net Area - 1872 ft<sup>2</sup>

**Activity Description:**

- manual verification, checking, balancing. Special Services performs analytical functions.

**Adjacencies:**

- directly adjacent to Current Account Statement area.

**Architectural:**

**Mechanical/Electrical/Structural:**

- data, telephone, & 2 electrical outlets.

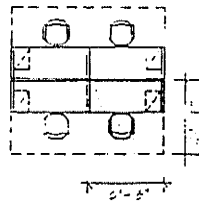
**Furniture/Equipment:**

- workstation 2 1/2' deep x 6' long.
- panel height 42"
- 1 storage pedestal - 2 box, 1 file
- calculator
- stapler
- garbage container
- paper management accessories to be determined.
- Two (2) supervisors workstations with PC's

**General Comments:**

- workstations to be grouped in clusters as shown.
- each cluster to be similar.
- panel heights to accommodate panel hung paper management accessories but not to prevent ease of communication between workstations.
- Future Growth: 48 of the 48 workstations (administration workstations) may utilize terminals for on screen verification.

**Schematic Layout:**



Processing Centre - Functional Space Program

7.2

**7.1.0 ADMINISTRATION & SPECIAL SERVICES**

**7.1.2 Photocopier, Fax, File Equipment**

Net Area - 167 ft<sup>2</sup>

**Activity Description:**

**Adjacencies:**

- close to workstation clusters.

**Architectural:**

**Mechanical/Electrical/Structural:**

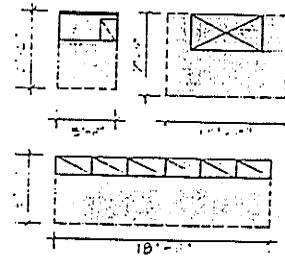
- telephone, & power lines.

**Furniture/Equipment:**

- panel hung worksurface min. width 4' wide x 2' deep
- tackable surface
- whiteboard
- 1 storage pedestal - 2 box, 1 file
- 6 lateral file cabinets, 5 high
- "secure chest" (safe) provide space for one 4 drawer 2 HR rated file cabinet with dual custody for each door (CIBC to confirm)

**General Comments:**

**Schematic Layout:**



Processing Centre - Functional Space Program

7.3



**7.1.0 ADMINISTRATION & SPECIAL SERVICES**

**7.1.3 COINS Terminals**

No. of Units - 6 @ 21 ft<sup>2</sup>  
 Net Area - 126 ft<sup>2</sup>

**Activity Description:**

- coins terminals for entering data

**Adjacencies:**

- central to workstation clusters

**Architectural:**

**Mechanical/Electrical/Structural:**

- data, & 2 electrical outlets.

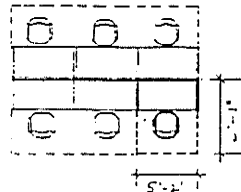
**Furniture/Equipment:**

- panel mounted 2 1/2' deep x 5' wide worksurface
- worksurface could be mounted at 36" high.

**General Comments:**

- terminals to be grouped into clusters
- clusters to be centrally located

**Schematic Layout:**



Processing Centre - Functional Space Program

7.4

**8.0 AREA SUMMARY**

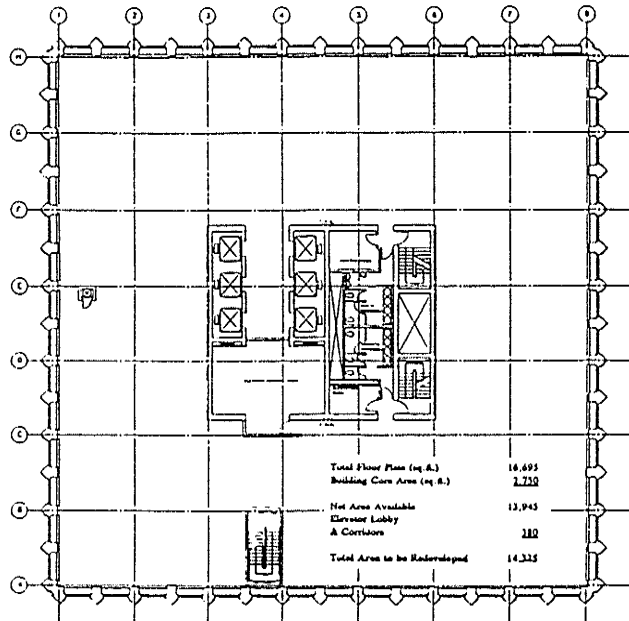
In order to determine accurate space needs for each floor functions, each functional grouping was assigned a Net Area as per Section 7.0. This represents the total space needs for this function exclusive of local circulation. To determine the local circulation needs, a Grossing Factor has been assigned to each functional grouping. This Grossing Factor is determined based on needs such as cart traffic, number of people moving within the area, etc. The Grossing Factor is multiplied by the Net Area to arrive at a Gross Area. All Gross square foot totals are added to determine a Total Gross Area. An additional space allocation is then assigned for general circulation and subservice electrical and communications areas within the floor plate to arrive at a Grand Total Area. Note that the RICS function is to be located on level and so is not included in the Grand Total.

Function	Grossing Factor	Net Area ft <sup>2</sup>	Gross Area ft <sup>2</sup>
<b>7.1.0 Administration &amp; Special Services</b>			
7.1.1 Typical Workstation	1.3	1,872	2,434
7.1.2 Photocopier, Fax, File Equipment	1.3	167	217
7.1.3 COINS Terminals	1.3	126	164
Sub total			2,815
<b>7.2.0 Data Entry &amp; Ledger Keepers</b>			
7.2.1 Data Entry	1.3	1185	1,541
7.2.2 Ledger Keeper Workstation	1.3	390	507
7.2.3 Supervisor Workstation	1.3	77	100
7.2.4 Photocopier, Fax	1.3	77	100
7.2.5 Sorting Slots, Table & Misc. Equipment	1.4	204	286
Sub total			2,534
<b>7.3.0 Client Services</b>			
7.3.1 Typical Workstation	1.3	488	634
7.3.2 Central Files, Fax, Printer	1.3	71	92
Sub total			726
<b>7.4.0 Current Account Statement Area</b>			
7.4.1 Typical Workstation	1.3	320	416
7.4.2 Department Equipment	1.5	236	354
7.4.3 Cheque Filing	1.5	324	486
Sub total			1,256
<b>7.5.0 RIS</b>			
7.5.1 Typical Workstations	1.3	152	198
Sub total			198
Processing Centre - Functional Space Program			8.1

9.0 EXISTING SYSTEMS ANALYSIS

9.1 BASE TH FLOOR PLAN

Showing proposed location of dumbwaiter extension and interconnected stair.



Processing Centre - Functional Space Program

9.1

9.2 BUILDING CODE REQUIREMENTS

Design solutions will be developed to comply with the Manitoba Building Code (MBC) 1985 (current edition). Reference to the 1990 National Building Code (NBC) will also be made. (The MBC follows very closely the NBC) Processing Centre space is classified as a 'D' occupancy. Particular attention must be paid to ensure a 2 HR fire separation between floors. This requirement will be of particular concern at the interconnecting stair and dumbwaiter extension. Another area of concern will be the manner in which exiting is achieved for occupants of the elevator lobby in an emergency situation in order not to compromise the secure nature of the Centre. A sprinkler system for the entire building has been installed recently.

9.3 STRUCTURAL ANALYSIS

The floor structure of the th through th floors are designed to provide a column free space which is designed for a live load of 50 psf except for the area immediately west of the central core. This area is designed for a live load of 150 psf. and is approximately 1700 sq. ft. in area.

The structural floor system includes two-way concrete joists in the corners of the building and one-way joists perpendicular to the central core. In essence, these one-way joists act as a series of T-beams. As a result, the top flange, which includes a portion of the slabs which span between the joists, is in compression when the joists are in bending. Any attempt to remove this slab would result in a reduction in capacity of the joists.

One requirement of this project is for an interconnected stair between levels and . Since the elevator machine room for the building's low rise elevators, occupies the preferred location for a stair, an alternate location has been identified and evaluated as being acceptable. This location is on the south side of the floor plate between grid lines 'A' and 'B' at grid line '4'. See page 9.1.

Processing Centre - Functional Space Program

9.2

## 9.4 MECHANICAL SYSTEMS

### 9.4.1 DESCRIPTION OF EXISTING SYSTEMS

#### 9.4.1.1 Air Conditioning Systems

- .1 The perimeter areas of the floor are served by the building induction unit system. This system is both heating and cooling, with night set back on heating and seasonal operation of the building's central chiller system on cooling.
- .2 The interior areas of the floor are served by the building interior zone central air system. This system is constant volume comfort cooling with hot water reheat. The system operates on scheduled basis to suit the overall occupancy of the building with seasonal operating constraints on the availability of mechanical cooling.

#### 9.4.1.2 Heating System

- .1 The perimeter areas of the building are served from the building induction unit system.
- .3 The supply air ductwork distribution systems have a number of hot water reheat coils each complete with control valve and space thermostat. The hot water coils are served from the base building system during normal occupancy hours.

#### 9.4.1.3 Plumbing Systems

- .1 The existing plumbing systems are primarily the base building washrooms which are presently confined within the building core.

#### 9.4.1.4 Humidification

- .1 The building central supply air system is humidified. The individual floors are not equipped with humidifiers.

## 9.5 ELECTRICAL SYSTEMS

### 9.5.1 DESCRIPTION OF EXISTING SYSTEMS

#### 9.5.1.1 Lighting

- .1 The existing lighting on the th floor incorporates the standard luminaire, which is a recessed fluorescent luminaire, approximately 18" x 36" with two F30 lamps and a framed prismatic acrylic lens.
- .2 The voltage of the existing fluorescent lighting is 347 volts.
- .3 Switching is provided via low voltage relays located in the ceiling space and low voltage switches. The majority of the th floor is vacant and many of the remaining walls are being demolished. Hence, all switching is provided from a central location.
- .4 Emergency lighting in the stairwells, elevator lobby and a minimal amount in the floor area to allow for safe egress, is fed from building's emergency power system. The emergency power panel is located on the nd floor.
- .5 Exit lighting is provided on the floor to indicate means of egress.

#### 9.5.1.2 Power and Distribution

- .1 The 347/600 volt lighting panel, A, on the th floor is located in the Core Electrical Room and is fed from the bus duct riser via th Level bus duct panel.
- .2 The 120/208 volt receptacle panels are fed from a 120/208 volt CDP and dry type transformer located on the th floor. This CDP feeds Panel F and G, each with a 100 amp, 3-pole breaker.
- .3 Power is distributed from the 120/208 volt receptacle panels to individual receptacles and small equipment by means of an under floor duct.
- .4 There is no evidence of any electrical distribution equipment dedicated for computer power (ie. UPS, power conditioning, shielding).
- .5 A splitter and disconnect type distribution in the main core electrical room is serving loads that are not specific to the th floor, but shall remain in place.

### 10.0 PROGRAMMATIC CONCEPTS

Programmatic concepts are abstract notions intended to stimulate physical design solutions. The following programmatic concepts will act as a guide in design decisions.

- 10.1 The concept of "transparency" was discussed at length during the design process for the 1st and 2nd floors. This idea involves ensuring that functions within the Centre are visually accessible to all staff in order to encourage teamwork and promote interaction. Transparency is to be a major programmatic concept in the design of the 1st Floor.
- 10.2 Management staff should be integrated in such a way as to promote "accessibility" for all staff.
- 10.3 "Interaction" should be promoted at every opportunity.
- 10.4 The Processing Centre must be "secure" from all sources external to the operation. Monitoring of the 1st floor elevator lobby from both the 1st and 2nd guard stations will also be required.

### 11.0 COST PROJECTIONS

As with any building project three factors impact project budget, with two of these factors determining the third. "Quantity" of work to be completed and the complexity of that work is one factor. The level of "Quality" desired is another, and the "Cost" to realize the completed project is the third.

The Processing Centre's available space and functional requirements as a result of this study have fixed the Quantity component. The 1st floor has approximately 14,325 sq.ft. of space which will require redevelopment. (Includes the elevator lobby and exit corridors)

From numerous discussions with the client group it has been determined that the level of "Quality" required to meet the project objectives is to be similar to the remainder of the Centre on levels 1 and 2, (i.e. "above average" to "high" quality). Furnishings are to be included in the project and the manufacturer is assumed to be Haworth, using the same system found in the remainder of the Centre.

With Quality and Quantity fixed, the third component of Cost has been determined for budget purposes. As the design proceeds Quantity and Quality will be defined more precisely and a more definitive cost projection will be developed. This cost projection is based on currently available information. Market conditions at time of tender will determine final costs.

Base Architectural	\$
Base Mechanical	\$
Base Electrical	\$
 Base Sub Total	
GST & OH & Profit	
 Total Base Construction Cost	\$
14,280 SQ.FT. @ \$ /ft <sup>2</sup>	
 Furniture (incl GST & PST)	
 TOTAL Base Construction & Furniture Cost	\$
5% Contingency	
 BASE GRAND TOTAL	\$
14,280 SQ.FT. @ \$ /ft <sup>2</sup>	

Appendix B: 2. Room Data Sheets

ROOM DATA SHEET	THE OFFICE BUILDING INC.	PAGE 1 OF 10 MARCH, 1993
PROJECT:	DEPARTMENT:	
COMMISSION NO.:	ROOM NAME:	<i>fax - room COMMUNICATIONS/Supply</i>
DATE:	ROOM NO.:	<i>2000</i>
REVISED:		<i>SUPPLY ROOM</i>
Instructions: Where applicable, give quantities and physical dimensions. Copies of product literature should be provided whenever available. Otherwise check mark the appropriate spaces.		
A. GENERAL DESCRIPTION <i>BOOTH AREAS &amp; SEATING</i> <i>LOIS</i>		
1. FUNCTION:	<i>GROUP MARKETING CO-ORDINATOR</i>	ROOM POPULATION: USUAL NO. <u>1</u> MAXIMUM NO. <u>3</u>
2. FREQUENCY OF USE: DAYS PER WEEK <u>5</u> <u>7</u>	WORKING DAY FROM <u>9:00</u> HRS TO <u>5:00</u> HRS	CONTINUOUS USE <input type="checkbox"/> INTERMITTENT <input checked="" type="checkbox"/>
B. ARCHITECTURAL REQUIREMENTS		
1. PRIVACY: ESSENTIAL <input type="checkbox"/> DESIRABLE <input checked="" type="checkbox"/> NOT NECESSARY <input type="checkbox"/>	2. SIGNAGE: ROOM IN USE <input type="checkbox"/> ROOM NO. ONLY <input type="checkbox"/> ROOM NO. & TITLE <input type="checkbox"/> OCCUPIED/VACANT <input type="checkbox"/> DO NOT DISTURB <input type="checkbox"/> OTHER <u>NONE</u>	

ROOM DATA SHEET	THE OFFICE BUILDING INC.	PAGE 2 OF 10 MARCH, 1993
II. ARCHITECTURAL REQUIREMENTS - CONTINUED		
3. WALLS: SOLID <input type="checkbox"/> GLASS PANEL <input type="checkbox"/> SLIDING <input type="checkbox"/> FOLDING PANEL <input type="checkbox"/> ACOUSTIC <input checked="" type="checkbox"/> SECURITY GRILLE <input type="checkbox"/> WIRE MESH <input type="checkbox"/> PARTIAL HEIGHT <input type="checkbox"/> OTHER <input type="checkbox"/>	4. CEILINGS: STANDARD HEIGHT <u>2590 MM/8'6"</u> SPECIAL REQUIREMENT <input type="checkbox"/>	
5. DOORS: STYLE SOLID (STANDARD) <input checked="" type="checkbox"/> DUTCH <input type="checkbox"/> HALF GLAZED <input type="checkbox"/> VIEW WINDOW <input type="checkbox"/> FULL GLAZED <input type="checkbox"/> SLIDING <input type="checkbox"/> FOLDING <input type="checkbox"/> WOOD <input type="checkbox"/> METAL <input type="checkbox"/> OVERHEAD <input type="checkbox"/> OTHER <input type="checkbox"/>	WIDTH: 800 MM/32" (STANDARD) <input checked="" type="checkbox"/> 900 MM/36" <input type="checkbox"/> 1200 MM/48" <input type="checkbox"/> 1500 MM/60" <input type="checkbox"/> 1800 MM/72" <input type="checkbox"/> OTHER <input type="checkbox"/>	
6. DOOR HARDWARE: HOLD OPEN <input type="checkbox"/> CLOSURE <input type="checkbox"/> SECURITY <input type="checkbox"/> LOCK <input type="checkbox"/> PRIVACY <input type="checkbox"/> PANIC BAR <input type="checkbox"/> LEVER <input checked="" type="checkbox"/> KNOB <input type="checkbox"/> COMMERCIAL DUTY <input type="checkbox"/> HEAVY DUTY <input type="checkbox"/> OTHER <input type="checkbox"/>	7. HATCHES/PASS THRU: <u>N/A</u> SIZE _____ HEIGHT ABOVE FLOOR _____ DOOR REQUIRED: YES <input type="checkbox"/> NO <input type="checkbox"/> DOOR STYLE: FOLDING <input type="checkbox"/> SLIDING <input type="checkbox"/> SOLID <input type="checkbox"/> SEE THRU <input type="checkbox"/> SECURITY <input type="checkbox"/> SHELF REQUIRED: YES <input type="checkbox"/> NO <input type="checkbox"/> ONE SIDE <input type="checkbox"/> 2 SIDES <input type="checkbox"/> DEPTH _____	

## Appendix B: 3. Basic Requirements/Criteria

COMMITTEE  
BASIC REQUIREMENTS/CRITERIA

1. Open workspace concept (use of cubicles, etc.)
2. Provide for smoking and non smoking staff.
3. Standardized office sizes by various levels or positions.
4. Work stations etc. must provide space for computer screens or PC's.
5. Adequate number of smaller meeting rooms required.
6. Facilities to accommodate up to \_\_\_\_ full time or full-time equivalent staff.
7. Master plan should be prepared in such a manner to permit a phased in approach to all floors.
8. Each work station should provide, at a minimum, the following:
  - 1 desk
  - 2 side chairs
9. Off site record storage at Distribution Centre.
10. Men's and ladies' shower rooms.
11. Physically handicapped.
12. Min. cost incurred to alter existing structure.
13. Accommodate marketing immediate requirements.

01/20/93

Page 1 of 2

**FUNCTIONAL PROGRAM REQUIREMENTS** 92-12-2

**A INTRODUCTION**

Facility purpose : Customer Service Call Centre  
 Occupancy date : APRIL, 1993; Operational by: June 1, 1993  
 Preferred location :  
 Project Number : 92-817

**B QUANTITATIVE REQUIREMENTS**

**CALL CENTRE WORK SPACE**

Customer Call Centre	area (m2)	special requirements
Operators & Supervisors		interview room - 1 @ 1 - no telephone
84 wk stn @ 4.2 sq m/stn	353.0	librarian desk - 1 @ 1 - no telephone
Priority Counter		private phone - 1 @ 1 - no telephone
Operators & Supervisors		private phone - 1 @ 1 - no telephone
29 wk stn @ 9.3 sq m/stn	270.0	operation 1-15.

**IT SPACE**

ICN Room	49.0	26'x20' preferred: Refer to attached layout; UPS
Telecom Entrance Room	54.0	
Technical Space	54.0	within ICN Room?

**ADMINISTRATION**

Arrival Area	57.0	5.0	- wall space for 8 files in a row admin area
Site Manager	150.0	14.0	Coat closet; 2 chairs; Corporate Identity rack for 6 people
Technical Officer	717.0	9.0	Card access system to work space. Call bell for visitors??
Analyst	9.0		Enclosed office
Admin Clerk	50.0	4.6	Enclosed office (security requirement)
Admin Support Area	258.0	24.0	Screened office
Meeting Room	430.0	40.0	Screened office
Training Room	538.0	50.0	File cabinets; Copiers; Fax.
Storage Room	650.0	6.0	15 person capacity; A/V facilities
			10 person capacity plus instructor; PC's for all
			A/V facilities, including VCR; close to Meeting Room
			Adjustable metal shelving

**EMPLOYEE SUPPORT**

Lunchroom	323.0	30.0	Counter w/ sink; microwave, fridge, overhead cupboards.
Men's Washroom		12.0	Space for 2 vending machines; bulletin board.
Women's Washroom		15.0	Accessible
Men's Locker Room	334.0	31.0	Coat Rack, (13+7=20) half height lockers/benches
Women's Locker Room	195.0	46.0	Coat Rack, (24+6=30) half height lockers/benches

**BUILDING SUPPORT**

Janitor	2.0		Slop sink; adjustable shelving
Mechanical / Electrical			Dependent on building

TOTAL AREA, NET 979.6

TOTAL AREA, GROSS (+15%) 1127.0 12000 sf

GROWTH ALLOWANCE sf

Page 2 of 2

**FUNCTIONAL PROGRAM REQUIREMENTS** 92-12-2

**C QUANTITATIVE REQUIREMENTS - SITE**

Signage	number	special requirements
		No exterior corporate signage.
		Interior signage per Corporate Sign Catalogue.
		Numbered workstations.
Parking		
Site Manager	1	
Employee		
Visitors	4	
Handicapped	2	
Communications		
Telecom Feeds	2	2 leads and entry points preferred.
Satellite/Microwave Potential		Building potential for satellite or microwave communications
		No power transmission lines in immediate area.
Location criteria		Public transportation.
		Access to childcare facilities.

**D QUANTITATIVE REQUIREMENTS - PERSONNEL**

Description	First Year	1995-1996	Max Shift
Customer Call Centre			
Operators		100	78
Supervisors		6	6
Site Manager		1	1
Technical Officer		1	1
Analyst		1	1
Administration Clerk		1	1
Priority Counter			
Operators		33	26
Supervisors		3	3
Largest Shift			117
Male/Female Ratio			40/60
Locker Population			113(45/68)
Washroom Population (M/F)			117(47/70)
Lunchroom Population			25

**E RELATIONSHIP CHART**

Refer to attached chart.

BUILDING PROGRAM REQUIREMENTS															
Architectural / Structural Page 1 of 3															
NO.	ROOM	Area M <sup>2</sup>	ARCHITECTURAL FLOORS		STRUCTURAL WALLS		Protection	STC	Fire Rating	CEILING Type	Height (mm)	Finish	MFC	Fire Rating	
			Live Load (kN/m <sup>2</sup> )	Finish	Type	Finish									
<b>CALL CENTRE WORK SPACE</b>															
	Operators Work Space	427	2.4	CPT	P1/SC	PT/DB		49		T&E	2048		0.88		
	Supervisors Work Space (8 Stations)	Incl. above	2.4	CPT	SC	N/A				T&E	2048		0.85		
<b>COMMUNICATIONS FACILITIES</b>															
	ICN Room (including UPS)	48	3.8	RF	P1	PT/DB		45		T&E	2744		0.80		
	Telco Communication Room	5	2.6	RF	P1	PT/DB				T&E	2744		0.85		
	Technical Work Space	5	3.8	RF	SC					T&E	2744		0.89		
<b>ADMINISTRATION</b>															
	Arrival Area & Visitor Coat Closet	5	2.4	CPT	P1	PT/DB		49		T&E	2048		0.88		
	Site Manager	14	2.4	CPT	P1	PT/DB		48		T&E	2048		0.85		
	Technical Officer	9	2.4	CPT	P1	PT/DB		48		T&E	2048		0.88		
	Analyst	9	2.4	CPT	SC					T&E	2048		0.88		
	Admin Clerk	5	2.4	CPT	SC					T&E	2048		0.88		
	Administration Support Area	24	2.4	CPT	P1	PT/DB		49		T&E	2048		0.88		
	Meeting Room	40	2.4	CPT	P1	PT/DB		49		T&E	2048		0.88		
	Training Room	50	2.4	CPT	P1	PT/DB		49		T&E	2048		0.88		
	Storage Room	6	2.4	VCT	P1	PT/DB				US			PT		
<b>EMPLOYEE SUPPORT</b>															
	Lunch Room	30	2.4	VCT	P1					T&E	2744		0.88		
	Men's Washroom	12	2.4	CER	P1	OC				T&E	2744		0.88		
	Women's Washroom	18	2.4	CER	P1	OC				T&E	2744		0.88		
	Men's Locker Room	21	2.4	VCT	P1	OC				T&E	2744		0.88		
	Women's Locker Room	44	2.4	VCT	P1	OC				T&E	2744		0.88		
<b>BUILDING SUPPORT</b>															
	Janitor Closet	7	2.4	GCNC	P1	PT/DB				US			PT		
	Mechanical Room	68 (incl)	2.8	GCNC	P1	PT/DB				US			PT		
	Electrical Room	68 (incl)	2.8	GCNC	P1	PT/DB				US			PT		
<b>TOTAL NET AREA</b>														878.6	
<b>TOTAL GROSS AREA</b>														1128.45	

FLOOR		CONCRETE, SEALED	VENT. COMPOSITE TILE	CARPET	CERAMIC TILE
CONC	LIGHTING	FLUORESCENT	BILEVEL SWITCHING	CHIMNEY SWITCH	VENTILATION
VCT	VENTILATION	PROVIDE VENT.			
CPT	WATER	PROVIDE WATER			
CER	TEMPERATURE & RELATIVE HUMIDITY	NO CONTROL			
BASE	FRISH	PART. LATEX	P11		
WALLS	PERMANENT PARTITIONS	P1			
	OPEN OFFICE SCREENS	SC			
CEILING	SUSPENDED ACOUSTIC TILE	T&E			
	UNDERSIDE STRUCTURE EXPOSED	US			

WALL & COLUMN PROTECTION		FRISH		GENERAL	
FL	FLUORESCENT	PT1	PART. LATEX	NA	NOT APPLICABLE
BS	BILEVEL SWITCHING	PT2	PART. OIL		
DM	CHIMNEY SWITCH	GC	GLAZED COATING		
X	VENTILATION				
Z	PROVIDE VENT.				

BUILDING PROGRAM REQUIREMENTS													
Electrical / Mechanical Page 2 of 3													
NO.	ROOM	ELECTRICAL LIGHTING Type	Light Level	MECHANICAL TEMP. (C)		MECH. HUM. (mm)	VMT	WATER	FIRE PROTECT.	MECH. ELEC. NOTES			
				Max	Min								
<b>CALL CENTRE WORK SPACE</b>													
	Operators Work Space	FL	200	26	18	60	25	X		Direct / indirect lighting			
	Supervisors Work Space (8 Stations)	FL	300	26	18	60	25	X		Refer also to Design Document 1			
<b>COMMUNICATIONS FACILITIES</b>													
	ICN Room (including UPS)	FL	500							Refer to CAC Equipment Specifications, Issue 1.			
	Telco Communication Room	FL	500										
	Technical Work Space	FL	500										
<b>ADMINISTRATION</b>													
	Arrival Area & Visitor Coat Closet	FL	200	26	18	60	25	X					
	Site Manager	FL	500	26	18	60	25	X					
	Technical Officer	FL	500	26	18	60	25	X					
	Analyst	FL	500	26	18	60	25	X					
	Admin Clerk	FL	500	26	18	60	25	X					
	Administration Support Area	FL	500	26	18	60	25	X					
	Meeting Room	FL/DM	300	26	18	60	25	X					
	Training Room	FL	200	26	18	60	25	X					
	Storage Room	FL	250	26	18	60	25	X					
<b>EMPLOYEE SUPPORT</b>													
	Lunch Room	FL	200	26	18	60	25	X	X	X			
	Men's Washroom	FL	200	26	18	HC	HC	X	X	X			
	Women's Washroom	FL	200	26	18	HC	HC	X	X	X			
	Men's Locker Room	FL	200	26	18	HC	HC	X					
	Women's Locker Room	FL	200	26	18	HC	HC	X					
<b>BUILDING SUPPORT</b>													
	Janitor Closet	FL	250	HC	18	HC	HC	X	X	X			
	Mechanical Room	FL	250	HC	18	HC	HC	X	X	X			
	Electrical Room	FL	250	HC	18	HC	HC	X	X	X			

**NOTES - GENERAL BUILDING REQUIREMENTS**

- The design shall conform to the requirements of the currently applicable:
  - National Building Code of Canada
  - Canada Occupational Safety and Health Regulations (SOR/86-304) & Amendments (SOR/88-085 Design Standards & Specifications)
  - Canadian Plumbing Code - Canadian Electrical Code
- The facility shall be designed and constructed according to National Building Code of Canada 'D' classification.
- Lighting levels are measured on a horizontal plane 1 m off the floor. Lighting (adjustable) levels are average minimum maintained (not mixed) with furnishings and equipment in place.
- The project site and building shall be designed to Barrier Free Design standards (CAN/CSA B651-1990) to permit access to ground floor of building by physically disabled people.
- Fire detectors heads and emergency exits are provided.
- There is to be no exterior corporate signage.
- Water signage is to be per the Concrete Sign Catalogue.
- Speaker system is required.



DESIGN DIRECTIVES	
Real Estate	
<b>4.2.9</b>	<b>Techniques</b>
4.2.9a	Use durable materials and finishes assembled with proven construction techniques.
<b>4.2.10</b>	<b>Economy</b>
4.2.10a	Design strictly within the allocated budget.
4.2.10b	Take into account the life of the building in the selection of the materials and apparatus and ensure construction methods and materials are commensurate with the use expectancy.
<b>4.2.11</b>	<b>Required Space &amp; Circulation</b>
4.2.11a	Provide individual rooms to the areas required in the Functional Program Requirements within a tolerance of plus/minus 2.5%.
4.2.11b	Provide ancillary space such as washrooms, janitor's room, furnace rooms, telephone equipment space, electrical panel and transformer rooms, storage rooms, transit and garbage holding areas, and other building service spaces not specifically listed in the Functional Program Requirements but essential to the effective operation of the building.
4.2.11c	Provide horizontal and vertical circulation space as necessary to accommodate the building function under normal and emergency evacuation conditions. Circulation routes shall be simple, practical, of adequate width for function, and kept as short as possible. Plan individual rooms to minimize circulation. Locate doorways to give the best use of adjacent floor and wall areas for furniture, fittings, etc.
4.2.11d	Plan to minimize ratio between circulation and working space.
<b>4.2.12</b>	<b>Maintenance</b>
4.2.12a	Select material and apparatus, and design for ease of cleaning and maintenance with adequate service space and access to piping and equipment, etc. Consider wall abuse by vandalism or by casual blunder (inside and outside). Pay special attention to the selection of floor covering for colours and pattern to mask dirt and usual marks, for finish to resist wear and rolling loads and for surface to be easily restored and maintained.
<b>4.2.13</b>	<b>Aesthetics</b>
4.2.13a	The Corporation expects imaginative treatment and recognized aesthetic expression on projects with high customer visibility. In such instances, contemporary design treatment is preferred.
4.2.13b	Where practical, design shall be regional in character, using local materials and construction techniques.
4.2.13c	Elevation treatment shall reflect the nature of the building and the needs of its various internal spaces in terms of window openings, doorways, canopies, change of material, orientation, etc. Aesthetic treatment shall be compatible with adjacent buildings.
4.2.13d	Consultants shall submit colour scheme for interior and exterior of the facility to Real Estate for approval.

93/08/16

Version 5.1

*Design Principles*

DESIGN DIRECTIVES	
Real Estate	
<b>4.2.14</b>	<b>Site Development</b>
4.2.14a	Siting, site services and access should account for the best possible use of land and the protection of entrances from natural elements such as dominant winds or recurrent storm fronts.
4.2.14b	Truck court approach, configuration, dimensions and elevations shall be established and approved prior to the establishment of the building's configuration and placement.
4.2.14c	Parking areas shall be paved and positively drained.
4.2.14d	A flag pole shall be provided when indicated by the Building Program Requirements.
4.2.14e	Landscaping shall be provided in such manner as to minimize future maintenance requirements and shall include: <ul style="list-style-type: none"> <li>- concrete pedestrian walkways</li> <li>- sod to otherwise undeveloped areas of the property</li> <li>- local areas of trees or bushes</li> <li>- concrete curbs to all roadways and parking areas</li> <li>- concrete pads to all building exits</li> <li>- concrete pad for garbage disposal bin(s)</li> <li>- fencing if indicated by Functional Program Requirements</li> <li>- drainage</li> </ul> <p>Landscape elements shall consider security of the building and property. Elements shall not obstruct surveillance or allow persons to gain access to the roof or other parts of the facility.</p>
<b>4.2.15</b>	<b>Reception Areas</b>
4.2.15a	Objective: <p>Public Reception areas shall emulate a Corporate Identity of an efficient, pleasant and businesslike environment for customers and employees. Reception Areas for Administrative offices are opportunity to convey a national pride in service and professionalism. The designer's commitment to this ideal is expected through design development and implementation.</p>
4.2.15b	Goals: <p>Customers should perceive the Reception Area's appearance to be:</p> <ul style="list-style-type: none"> <li>- A mark of professional commitment to national public service.</li> <li>- Efficient, pleasant and businesslike.</li> <li>- Clean neat and well organized.</li> </ul> <p>Employees should perceive the Reception Area's appearance to be:</p> <ul style="list-style-type: none"> <li>- A positive reflection of their professional and Corporate Identity.</li> <li>- An encouragement to give the best possible service.</li> <li>- A symbol of pride in their work and work environment.</li> </ul> <p>To achieve an appropriate Corporate appearance for the Reception Area, the following design guidelines are for direction.</p>

93/08/16

Version 5.1

*Design Principles*

GENERAL CIRCULAR 303.05

**SPACE STANDARDS**

**1. GENERAL**

**1.01** As of January 1992, all space will be planned in accordance with the following standards. These standards have been developed by Property Services assisted by a Space Standards Task Force. Each Vice-Presidential Group offered members to this team. Renovations will not be undertaken solely for the purpose of adapting space to these standards. The policy is clearly intended to apply on a going forward basis.

**1.02 Objectives** - The objective of this program is to develop workable and acceptable Space Standards that will:

- ensure equitable treatment of employees;
- ensure uniformity and control of corporate image;
- support an effective, efficient, well planned approach to facilities projects;
- control costs;
- guide and stay within facilities budgets;
- reduce design time and improve response time to client requests;
- reduce costs resulting from moving people not furniture; and
- ensure worker health, safety, satisfaction and quality of work life.

**1.03 Space Configuration** - This document is to be used as a guide to determine the size of office and workstations commonly used in the

Variances may occur when it is necessary to accommodate the particular module of a building.

Office A-1 and A-2 are for the use of Directors or General Managers. Offices B-1 and B-2 are granted based on the results of the Office Eligibility Matrix. *BY V.P. APPROVAL ONLY.*

For the remaining categories C-1, C-2, D and E-1, E-2, E-3 they are to be granted based on the specific job function. Your Project Manager will assist you in determining the appropriate workstation for each individual.

**1.04 Building Standards** - Wherever practical, employees should have access to natural light.

Based on the building and the number of offices to be constructed offices may or may not be on the window wall. Side lights will be considered if offices are built in an interior location.

**1.05 Building Finishes** - Where justified, exceptions may be made to standard building finishes for SBU's with customer interface.

**1.06 Common Areas** - Common areas will be provided for files, storage, fax machines, mail stations, computer resources, etc.

**1.07 Meeting Rooms** - General meeting rooms will be made available as space permits. They will provide support, particularly for those not permitted an enclosed office under these guidelines.

**1.08 Circulation** - Dependent upon the building configuration and the number of offices a 20% - 35% figure will be added for planning purposes to the total square footage to allow for circulation area.

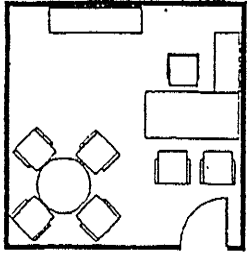
January 1992 Page 1 of 11

GENERAL CIRCULAR 303.05

**2. OFFICES**

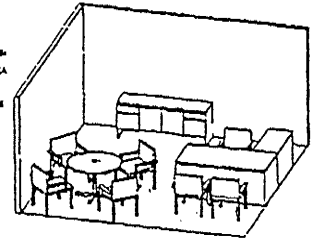
**2.01 Vice-Presidential Offices (300 square feet)\*** - Contact Property Services - Design and Construction for design consultation.

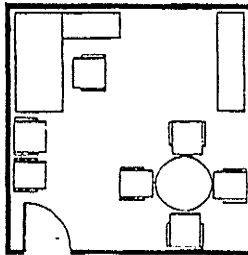
**2.02 Directors or General Managers Offices (225 square feet)\*** - Refer to Office A-1 and A-2.



OFFICE A-1 CONTAINS:  
 - 30 x 75 CHAIRS  
 - 18 x 72 DESK  
 - 18 x 36 RETURN  
 - 18 x 36 TABLE  
 - 1 VISITOR'S CHAIR  
 - 1 BOOK CABINETS

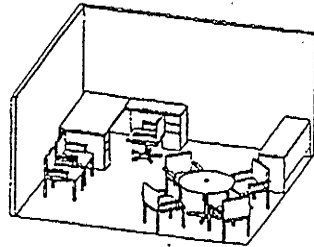
SEE OFFICE A-1  
 12.6/17 - 1-1-92





OFFICE A-2 CONTAINS:  
 - 30 x 75 CHAIRS  
 - 36 x 72 DESK  
 - 18 x 36 RETURN  
 - 18 x 36 TABLE  
 - 1 VISITOR'S CHAIR  
 - 1 BOOK CABINETS

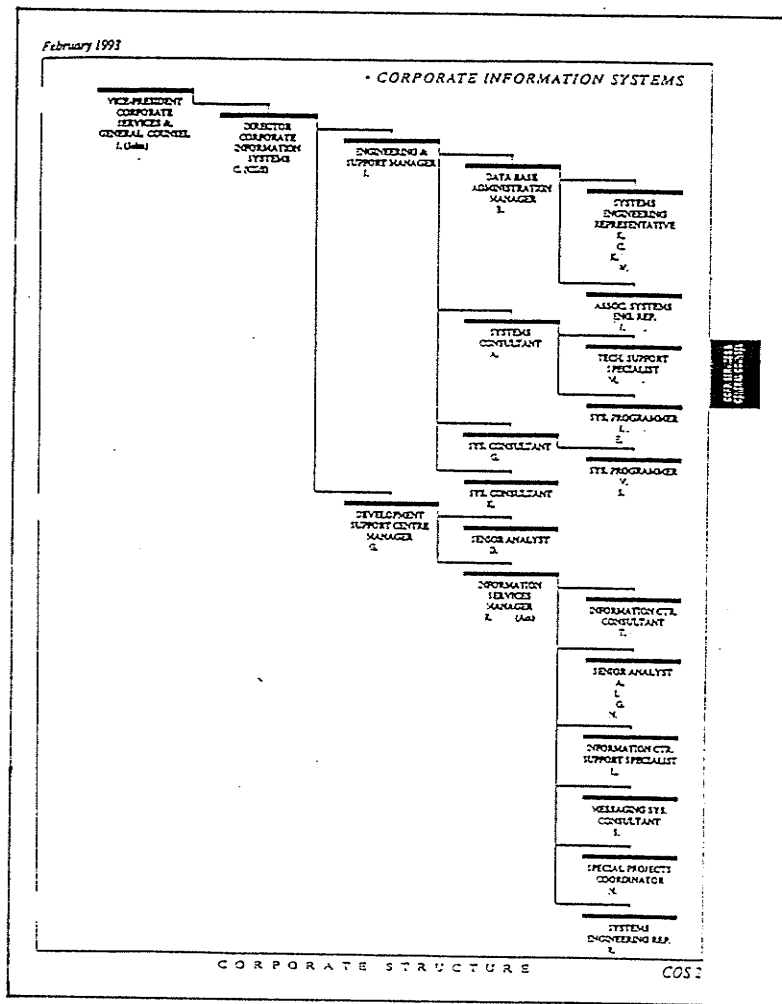
SEE OFFICE A-1  
 12.6/17 - 1-1-92



\* Office sizes may vary depending on the building construction module.

January 1992 Page 2 of 11

Appendix B: 8. Organizational Charts



ON  
Telephone (416)

February 17, 1994

Properties Ltd.  
Suite Centre  
P.O. Box  
Vancouver, B.C.

Attention: Mr. Tony  
General Manager, Leasing

Dear Tony:

Re: Proposed Office  
(Winnipeg Assiniboine Branch)  
in  
Winnipeg, Manitoba

This letter will serve to confirm that the  
is prepared to enter into a lease agreement as  
Tenant with Ltd. as Landlord for space  
(the "premises") on the floor of the above noted building  
upon the following terms and conditions:

Term: The term of the lease will be for

Area of Premises: The premises shall comprise an area  
outlined in red on the space plan  
(approx. 14,100 rentable square feet)  
known as Schedule "A" attached hereto and  
located on the eighth floor of the  
in Winnipeg.  
This area shall be subject to measurement  
and written verification as to the square  
footage therein by the Landlord's  
architect.

Basic Rental Rate: per rentable square foot

Rent Abatement: per rentable square foot per  
annum. (The rent abatement will coincide  
with the basic rent)

-2-

Properties  
February 17, 1994

Lease Takeover  
of Present Unit  
Office Lease:

See Appendix "A"

~~The Landlord agrees to take over all  
financial obligations of Lease  
of the premises located at  
Street West, Winnipeg, Manitoba  
(copy of this lease has been supplied to  
the Landlord) effective as of July 1,  
1994 until termination date of May 31,  
1995.~~

Moving Expenses: The Landlord will provide the Tenant with  
a per rentable square foot moving  
allowance. The Landlord will issue the  
cheque to the Tenant,  
on July 1, 1994 the  
lease commence date. This cheque should  
be mailed to the attention of David A.  
Branch Leasing Coordinator, th  
Floor, Street West, Toronto,  
Ontario.

Additional Costs: The Tenant shall pay its proportionate  
share of operating costs and realty  
taxes, including Hydro, applicable to the  
leased premises which has been estimated  
at \$ .00 per square foot in 1994.

Parking: The Landlord will make available to the  
Tenant during the term of the lease three  
(3) random, indoor parking stalls in the  
parking garage on the Property at no  
charge during the term of the lease and  
eleven (11) random indoor stalls at the  
current monthly rate of \$ .00 per  
stall. The Landlord will also make  
available another thirty (30) random  
parking stalls on a month-to-month basis  
only, at the current monthly rate of  
\$ .00 per stall. It is understood and  
agreed that the month-to-month parking  
stalls can be cancelled by either party  
upon (30) days written notice.

Right of  
First Refusal: ~~The Tenant shall during the term of the  
lease, have the right of first refusal on  
all available space on the floor  
of the~~  
See Appendix I

-3-

Properties Ltd  
February 17, 1994

Lease Form: See Appendix II  
~~The building standard lease form shall be utilized subject to such amendments as are reasonably approved by the Tenant's and Landlord's solicitors.~~

Tenant Improvements:

The Landlord agrees to undertake all Tenant improvements required in the demised premises on a fully turnkey basis, and at no cost to the Tenant, in accordance with the space plan attached, area outlined in red known as Schedule "A" and as per office alteration standards as described on Schedule "B" attached. Please note that window side lights are to be supplied for interior offices only.

Such improvements shall include carpet, carpet base, entrance doors and interior partitioning, T-Bar ceiling and lighting, mechanical and air conditioning, all power and telephone outlets including all outlets and circuits required to house tenants computer equipment, all millwork required, all plumbing required including sink, water access at coffee station, building standard window coverings, individual light switch for Manager's office, conference room and at night entrance with main light switch at main entrance. The Landlord shall also obtain the necessary building permit, space plans, working drawings, engineer's drawings. Millwork shall be deemed to include all millwork requirements in reception area, storage, lunch room, closing/computer ("P.C.") room and training room and will be completed in accordance with instructions adapted from specifications furnished by the Tenants Property Management Department. The reception area shall include a clothes closet. The Tenant shall have the right to select the colour of the carpet, vinyl and paint.

*Handwritten notes:*  
 - *Carpet, carpet base, entrance doors and interior partitioning, T-Bar ceiling and lighting, mechanical and air conditioning, all power and telephone outlets including all outlets and circuits required to house tenants computer equipment, all millwork required, all plumbing required including sink, water access at coffee station, building standard window coverings, individual light switch for Manager's office, conference room and at night entrance with main light switch at main entrance.*  
 - *CONDUIT*  
 - *INITIALS U E*  
 - *INITIALS U E*  
 - *INITIALS U E*  
 - *INITIALS U E*  
 - *INITIALS U E*

SCHEDULE "B"

DESCRIPTION OF  
OFFICE ALTERATION STANDARDS

*Over the apply to Group and Architecture (Frank)?*

Office alteration standards include the following:

Carpet	A minimum of 28 oz. pile throughout the Branch except in the Manager's Office which shall be a minimum of 32 oz. pile. Conference Room also has 32 oz. carpet.
Baseboard	Carpet baseboard is to be used.
Tile	Staff lunch room and storage room shall be finished in tile.
Vinyl and Paint	All walls in Manager's Office, Conference Room and Reception area to be finished in vinyl. Balance of surfaces to be painted with one base coat plus two regular coats.
Glass Partitions	18 inch glass sidelights are to be used for interior office partitions that face corridors.
Sound Proofing	The Branch Manager's Office and the Training Room are to be soundproofed by extending the drywall partitions to the slab, such partitions to be packed throughout with "Roxul" soundproofing insulation. The stud size and thickness of the drywall on both sides shall follow the appropriate provincial building code. However should the building code in question not specify the thickness of the drywall, it is understood that the drywall will not be less than one-half inch thick on both sides.
Internal Partitions:	<del>Such partitions are to be packed with insulation material throughout.</del>

*Handwritten notes:*  
 - *Don't not agree with just better to group*  
 - *INITIALS U E*  
 - *INITIALS U E*

-2-

Office Doors and Coat Hooks Individual office doors should be full height solid core doors with coat hooks behind each door.

Locking Hardware Locks are required for the Manager's Office, Stock Room and Conference Room. Latch sets are acceptable on the balance of individual office doors.

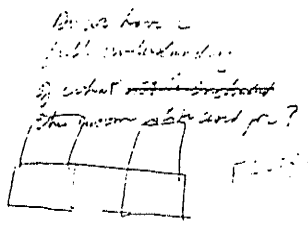
Millwork A counter and cabinet to be installed in the Staff Lounge to provide space for the sink, microwave and any other electrical appliances.

The stock room should have pigeon-holes for the mail and a counter with locked doors for the postage meter, fax machine, etc.

For those agents located in the open area, the P.C. room should be provided with a counter for the computer.

*Can not agree with this*

Conference Room A wood counter to be built along one wall of the Conference Room with two cabinets, one at each end of the counter, and having cupboards and drawers underneath, so that the audio-visual equipment can be locked and hidden in that cabinet. In addition to a projection screen recessed in the ceiling. *size? electric w/ vent? built in?*



A dimmer switch should be installed on pot-lights gathered in the centre of the room in addition to incandescent lighting.

Due to the extra heat produced by the PC's and the overhead projector during training sessions, air-conditioning should be boosted for the comfort of all participants.

Two electrical outlets are to be installed on each wall, except the counter section which has to be treated separately. *can TV VCL*

-3-

Partitions: As per building standard. If a building standard has not been established the partition should be painted drywall.

Outlets: An adequate number of power and telephone outlets are to be furnished in all offices and at work station locations. The Secretarial staff, approximately 13 in number, locations are equipped with IBM system 36 equipment and the required separate circuit outlets should be included at these stations. The Landlord shall not be required to supply wire or hook up to computers.

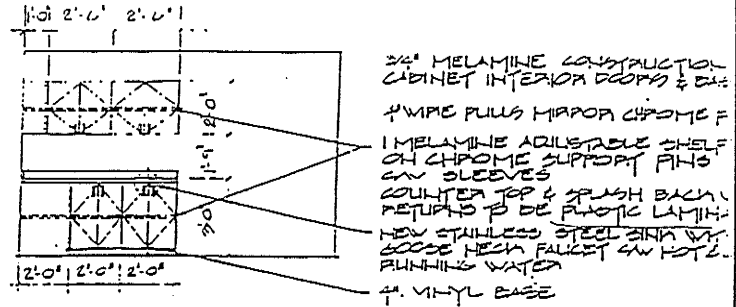
*Handwritten initials/signature in a box.*

- 2 -

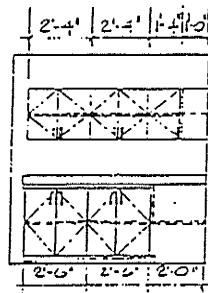
GENERAL NOTES FOR MILLWORK EXAMPLE ONLY

The following notes pertain to all millwork. Any deviations or additions pertaining to specific details are noted on the details.

- . all units for 3/4" melamine construction unless otherwise noted. *OK*
- . all shelves, gable ends, cabinet fronts to be melamine.
- . all drawer sides, backs and bottoms for 1/2" particle board construction.
- . all support blocking within millwork is to be concealed from view.
- . all units to be firmly scribed to blocking within partitions, all fastening methods to be plugged and concealed as much as possible, for finish to match the remainder of the unit.
- . whenever millwork abuts a partition, use blocking to create a 1/2" reveal, to be melamine to match the remainder of the unit.
- . all spaces between adjustable shelves and side gables, between millwork door fronts and drawer fronts to be minimum possible without interfering with smooth action of adjustable shelf/drawer/door.
- . where water is present, use plywood in place of particle board, for counter tops, splashbacks.
- . all doors for fully concealed spring loaded hinges, colour to match millwork unit as specified, sample to be submitted to Designer for approval prior to ordering.
- . all adjustable shelves on chrome finish shelf support pins plus pins c/v sleeves.
- . all drawers to run on full extension, side mounted, silent running drawer slides.
- . all coat rods to be chrome plated finish 1 1/2" diameter.
- . cabinet hardware to be 1" wire pulls mirror chrome finish.



1 ELEVATION COFFEE COUNTER  
D1 SCALE: 1/4" = 1'-0"



\* REFER TO FINISH SCHEDULE FOR COLOURS

2 ELEVATION COFFEE COUNTER  
D1 SCALE: 1/4" = 1'-0"

Project	Date MAY 29, 1966
	Scale 1/4" = 1'-0"

## Appendix B: 10. Program

INTERIOR DESIGNERS		WINNIPEG, MANITOBA	
Comm. No.		Revised October 15, 1993 October 8, 1993	
PROGRAM			
Branch Manager's Office	1 x 300 =	300	
Vice President's Office	4 x 150 =	600	
Sales Manager's Office	5 x 200 =	1,000	
Agent Office	29 x 100 =	2,900	
Agent Office	20 x 120 =	2,400	
*Agent W/S - small	9 x 40 =	360	Concatrix Black Trim
*Agent W/S - large	4 x 70 =	280	
Executive Secretary W/S	1 x 70 =	70	
Secretaries W/S	7 x 70 =	490	
Receptionist (2 share)	300 =	300	(18 x 16)
Office Supervisor's Office	1 x 100 =	100	
*Training Room	1 x 700 =	700	
*Closing Room	3 x 100 =	300	
*Store Room	1 x 220 =	220	Access 2 Sides Pigeon Holes
Coat Storage	40 =	40	
*Coffee Room	1 x 150 =	150	
Facilities - open/partially closed			
Files, Copier, Fax, Computer Equipment	1 x 200 =	200	
*Copy Room	1 x 75 =	75	
Branch Office	750 =	750	
Subtotal		11,235	
Circulation Factor (30%)		3,372	
Total Area Programmed		14,607	
<ul style="list-style-type: none"> <li>* Locate at interior</li> <li>Locate store room close to secretaries W/S - visible entrance</li> <li>Locate office supervisor adjacent to secretaries</li> <li>Locate coffee room adjacent to open area staff</li> <li>Locate millwork on plans, in training room, stock room, and coffee room</li> <li>PC room equipment to be located in closing room</li> </ul>			
<u>Summary</u>			
Actual Area (to line of glass, incl. columns)		12,025	
Actual Circulation (all 5'-0" wide corridors)		3,385	
Lobby		400	
Total Usable Area		15,810	
Actual Circulation Factor		23.3%	



## Appendix B: 11. Client/Design Firm Correspondence

(CIS) BUILDING	
MEETING NO. 1 - START-UP MEETING	
DATE:	April 07, 1992 - Group Boardroom
<u>MINUTES OF MEETING DISCUSSIONS:</u>	
IN ATTENDANCE:	C.W. The Group
	David Bldg.
	Bob - Real Estate Div.
	Wayne - Design & Const.
	Elaine - Design & Const.
	Bill - ID Project Manager
	Ralph Architect
-----	
The following items were discussed:	Action by:
<u>INTENT OF MEETING:</u>	
To co-ordinate the START-UP related to Corporate Information Systems move to the Building.	
<u>1.0 START-UP MEETING:</u>	
1. 1 <sup>st</sup> Floor Tenant to be CORPORATE INFORMATION SERVICES division, currently located at Avenue.	TENANT CONFIRMED
2. CIS space will basically be "open plan" utilizing existing lower level partition systems from Avenue. Power and communications from ceiling via power poles.	OPEN SPACE PLAN
3. CIS equipment basically desktop PC's, no main frame equipment at this location. CIS will be tied to Local Area Network system.	PC BASED COMPUTERS
4. CIS is a secure (card access) floor space. Elevator and Stair Lobbies will be public. with access to CIS by card reader.	CARD ACCESS FLOOR
5. MTS to confirm their "standard carpet spec." with static reduction backing.	CARPET
6. General Project Timing was reviewed, and is illustrated on the Project Time Schedule attached to these minutes. CIS must be in place by August 01, 1992.	PROJECT SCHEDULE

## Appendix C: Content Analysis Work Sheet Example

### CONTENT ANALYSIS PROCEDURE:

1. Indicate each main heading or section of the document.
2. Identify whether line(L), graphic (G), or table (T).
3. Indicate lines, graphics, or tables that are simply explanatory.
4. Identify the component element(s) contained in the line(s), graphic, or table (if not on existing component element lists, add it to the appropriate list or establish a new main category and sub-category for it).
5. Indicate an example of the component element.
6. Classify component element into sub-category (if the existing sub-categories are inappropriate, establish a new sub-category).
7. Classify sub-category into main category (if the existing main categories are inappropriate, establish a new main category).
8. Indicate if component element refers to Present or Future.

### DEFINITIONS:

**Program Document:** Documented information made available to plan, design, manage, and/or use the space.

**Work station:** A individual work space.

**Work group:** A group of workstations or a single activity space.

**Present:** Information that is on existing conditions forecasted for initial occupancy only.

**Future:** Information that is forecasted beyond initial occupancy.

Appendix C: Content Analysis Work Sheet Example

DOCUMENT: FUNCTIONAL SPACE PROGRAM			CASE STUDY:		DATE: 940503.				
LINE (1) TABLE (2) GRAPHIC	CHECK OFF COMPONENT ELEMENT	EXAMPLE	SUB-CATEGORY	ORGANIZATION	OPERATION	PHYSICAL	WS/JIF	PRESENT	FUTURE
	TABLE OF CONTENTS								
L1-56	EXPLANATORY.	—							
	FUNCTIONAL SPACE PROGRAM APPROVAL DECLARATION								
L1-5	EXPLANATORY.	—							
	EXECUTIVE SUMMARY								
L1	EXPLANATORY.	—							
L2	WORKGROUP LOCATION.	PROCESSING ON 20, 21	WG. COND.			X			
L3	PROJECT LOCATION	19 <sup>th</sup> FLOOR	BUILD. COND.			X			
L4	PROJECT TASK	PURPOSE OF F.S.P.	PLANS	X					
L5-6	" DESCRIPTION.	FUNCTIONS TO MOVE	"	X					
L7	PROJ IMPL./ PROJECT TASK	ENSURE SEC. + ENHANCE MAT. SHIL.	GTD / PLANS	X					
L8-9	BUDG. PER. SIZE.	AREA OF FLOOR	BUDG. COND.			X			
L10	WG. LOCATION.	RISCS ON 21	WG. COND.			X			
L10-12	PROJECT TASK / <sup>SEE PROJ</sup> LOCATIONS	WORK ON 21	PLANS.	X					
L13	WHEN ITS BEING DONE	AFTER HIS WORK REOP.	TASK ANALYSIS				X		
L14	SOCIAL CULTURE	ENHANCE TEAM ATMOSPHERE	CORP. CULTURE	X					
L15	PROJ IMPL / PROJECT TASKS	MAINTAIN SECURITY	GTD / PLANS	X					
L16	PROJECT COST	CONST. COST. EST.	GTD	X					
	INTRODUCTION								
L1	EXPLANATORY.	—							
L2	PROJECT PARTICIPANTS / DESC	DEVELOP. MLL INVOLVE ...	PLANS	X					
L3	" TASKS.	PURCHASING BY CLIENT	PLANS.	X					
L4	EXPLANATORY.	—							
L5-6	PROJECT PARTICIPANTS.	BB/MG/DE/SC	PLANS.	X					
L7-9	EXPLANATORY.	—							
	PROJECT OBJECTIVES.								
L1	EXPLANATORY.	—							
L3	OPERATIONAL PLANS	ACCOM. MOVE EXP. 15-10	PLANS.	X					
L2	OTM GOALS + OBJECTIVES	TO ACCOM. FUNCTIONS.	GTD	X					
L4-5	PROJ. IMPL / PROJ. TASKS	MAINT. SECURITY.	"	X					
L6-8	STAFF IMAGE / MGMT PHLOS	TEAMWORK - TREAT STAFF W.B.	CORP. CULTURE	X					
L9	PROJ. GTD / PROJ IMPL.	MIN. DOWN TIME.	GTD	X					
L10	OTM GTD / <sup>W/B</sup> FLEXIBILITY.	PUSHABLE PUSHING	GTD / WG. COND.	X	X				
L11	OTM GOAL + OBJECTIVES	HYAL. PROVISIONS.	GTD.	X					
L5	PROJECT GTD / SERVICE PHLO	STATE OF ART TECH. <sup>TO BE</sup> USED.	GTD.	X					
	ASSUMPTIONS.								
L1	PROJECT LOCATION	ON 19 <sup>th</sup>	BUILD. COND.			X			
L2-3	WG. LOCATION.	STORAGE TO BE ...	WG. COND.			X			
L4-5	SERVICE AREA LOCATION	CONVENEIENT TO 19.	"			X			
L6-7	OPERATIONAL PLAN.	REMAIN OPERATIONAL.	PLANS.	X					

## Appendix D: List of Client Organization Interview Questions

### Purpose

The purpose of this interview is to identify the ways in which the key people that were involved in the project used the program information that was made available to him/her. The following questions need not be asked in exactly this order, but indicate a general sequence which might be followed. Additional questions may be added to probe for more information.

Did you have any specific role or responsibilities in the development of this space? If yes, what were they?

In my review of the architect's files, I've identified a number of documents that contain architectural programming information on this project. (Use the following prompts for each document):

Are you familiar with this document? How did you use this information over the course of the project? After the project? How would you say best describes the way you referred to this document over the course of the project?

Were there any other program documents that you utilized at any time over the course of the project that I may have missed? If so, please describe the information and how you used it.

Did you participate in reviewing the various design proposals prepared for the space? If yes, did you use any of these program documents to help you evaluate the design proposals? If yes, describe how you used that information to evaluate the proposals. How would you say best describes the way in which you referred to the program documents when evaluating the design proposals?

Did you review any of the changes to the design that were proposed over the course of the project? If yes, did you use any of these program documents to help you evaluate these change when they were proposed? If yes, describe how you used this information to help you evaluate these proposed changes. How would you say best describes the way in which you referred to the program documents when evaluating changes to the design?

Were the design issues identified for this project prioritized in any way? If yes, describe how these issues were prioritized. How would you say these priorities were identified? Explain.

Have you personally conducted any kind of post-occupancy evaluation on the renovated space? If yes, did you use any of these program documents to help you conduct the evaluation? Describe how you used this information to help you conduct your POE. How would you say best describes the way you referred to the program documents when conducting your POE?

Can you think of any other ways in which you personally may have used these program documents or information? If yes, please describe.

### Additional Questions:

Did you use any of these program documents to help you manage the staff relocation? If yes, please describe.

## Appendix E: List of Design Firm Interview Questions

### Purpose

The purpose of this interview is to identify the ways in which various key people that were involved in the project used the program information that was made available to him/her. The following questions need not be asked in exactly this order, but indicate a general sequence which might be followed. Additional questions may be added to probe for more information.

What was your role and specific responsibilities in the development of this space?

Was there anything different or unique about this project in terms of the process involved in developing the architectural programs, design, and construction documents for this space? If yes, what was unique or different about it?

Briefly describe the architectural programming process that took place over the course of this project:

In my review of the architect's files, I've identified a number of documents that contain architectural programming information on this project. (Use the following prompts for each document):

Are you familiar with this document? How did you use this information over the course of the project? After the project? How would you say best describes the way you referred to this document over the course of the project?

Were there any other program documents that you utilized at any time over the course of the project that I may have missed? If so, please describe the information and how you used it.

Did you do any of the design work on this project? If yes, did any of these program documents help you in the creative process of coming up with design alternatives? If yes, describe how that information helped you in this creative process. How would you say best describes the way in which you referred to the program documents during this process?

Did you participate in presenting the various design alternatives to the client? Did you use any of these documents to help you present the design alternatives to the client? Describe how you used that information to present the design alternatives to the client. How would you say best describes the way in which you referred to the program documents during those presentations?

Did you participate in evaluating the various design proposals prepared for the space? If yes, did you use any of these program documents to help you evaluate the design proposals? If yes, describe how that information helped you to evaluate the proposals. How would you say best describes the way you referred to the program documents when evaluating the design proposals?

Did you review any of the changes to the design that were proposed over the course of the project? If yes, did you use any of these program documents to help you evaluate these change when they were proposed? If yes, describe how you used this information to help you evaluate these proposed changes. How would you say best describes the way you referred to the program documents when evaluating changes to the design?

Were the design issues identified for this project prioritized in any way? If yes, describe how these issues were prioritized. How would you say these priorities were identified? Explain.

Have you personally conducted any kind of post-occupancy evaluation on the renovated space?  
If yes, did you use any of these program documents to help you conduct the evaluation?  
Describe how you used this information to help you conduct your POE. How would you say best describes the way you referred to the program documents when conducting your POE?

Can you think of any other ways in which you personally may have used these program documents or information? If yes, please describe.

**Additional Questions:**

Did you use any of these program documents to market your firm services?

Briefly describe how your project team was organized and the roles and responsibilities of your staff who worked on it.

How was the client represented and who did they involve in the project?

## Appendix F: List of General Contractor Interview Questions

### Purpose

The purpose of this interview is to identify the ways in which various key people that were involved in the project used the program information that was made available to him/her. The following questions need not be asked in exactly this order, but indicate a general sequence which might be followed. Additional questions may be added to probe for more information.

What was your role and specific responsibilities in the development of this space?

In my review of the architect's files, I've identified a number of documents that contain architectural programming information on this project. (Use the following prompts for each document):

Are you familiar with this document? How did you use this information over the course of the project? After the project? How would you say best describes the way you referred to this document over the course of the project?

Were there any other program documents that you utilized at any time over the course of the project that I may have missed? If so, please describe the information and how you used it.

Did you participate in evaluating the various design proposals prepared for the space? If yes, did you use any of these program documents to help you evaluate the design proposals? If yes, describe how that information helped you to evaluate the proposals. How would you say best describes the way you referred to the program documents when evaluating the design proposals?

Did you review any of the changes to the design that were proposed over the course of the project? If yes, did you use any of these program documents to help you evaluate these change when they were proposed? If yes, describe how you used this information to help you evaluate these proposed changes. How would you say best describes the way you referred to the program documents when evaluating changes to the design?

Have you personally conducted any kind of post-occupancy evaluation on the renovated space? If yes, did you use any of these program documents to help you conduct the evaluation? Describe how you used this information to help you conduct your POE. How would you say best describes the way you referred to the program documents when conducting your POE?

Can you think of any other ways in which you personally may have used these program documents or information? If yes, please describe.

**Appendix G: Descriptions of How the Program Documents Were Referred To**

**A. "Seldom or never used it"**

You hardly ever referred to the information in the document over the course of the project.

**B. "In an indirect way"**

You mostly referred to the document indirectly (i.e. mostly by memory).

**C. "In an ad-hoc way"**

You mostly referred to the document directly on an "as-you-need" type basis.

**D. "In a systematic way"**

You mostly referred to the document at pre-determined times in a very methodical, formulated way.

**E. "In a systematic way to measure performance"**

You mostly referred to the document at pre-determined times in a very methodical, formulated way to evaluate the performance of various project conditions.



**Appendix H: Standard Introduction Memo**

MEMO: July 13, 1994

TO:

FROM:

SUBJECT: Participation in University of Manitoba Corporate Office Programming Study

A few weeks ago, Doug McKay, a graduate student at the University of Manitoba, asked if we would participate in a local study he is conducting for his masters thesis in Architecture. The study involves several case studies on recently completed office renovation projects here in Winnipeg. Specifically, Mr. McKay has asked if he could use our new office space at \_\_\_\_\_ as one of his case study sites.

The goals of the study include identifying the various ways in which the client organization used the architectural program information made available to them. We feel this study might give us some unique insight into how we used this kind of information and how it may be used in future projects.

This memo is to let you know that we have agreed to participate in the study, and would ask for your cooperation.

Mr. McKay will be contacting you within the next few days to arrange an in-person interview (out of town interviews will be conducted by telephone). The interviews will be brief (10 to 15 minutes maximum) and made to accommodate your schedule. Mr. McKay will be taking notes and tape recording the conversation as back-up. If you have any strong objections to being recorded, please advise Mr. McKay when he contacts you so other arrangements can be made. All information will remain confidential and the identities of all participating companies and individuals will be masked in the final report.

Please contact me if you have any questions or concerns. Your cooperation is greatly appreciated.

**Appendix I: Survey Data for Case Study Site - A**

**Content Analysis**

**How the Program Documents Were Referred To**

**Ways In Which The Program Documents Were Used**

INFORMATION ABOUT THE ORGANIZATION							
STAFF	PLANS	CORPORATE CULTURE	GOALS & OBJECTIVES	WORK GROUPS			
<b>F</b> STAFF TYPES <b>F</b> STAFF AMOUNTS STAFF NAMES STAFF GENDER STAFF LOCATION STAFF OPINION RESULTS	<b>BUSINESS PLANS</b> <b>OPERATIONAL PLANS</b> O & M PLANS <b>PROJECT - DESCRIPTION</b> <b>PROJECT - PARTICIPANTS</b> <b>PROJECT - TASKS</b>	<b>ORGANIZATIONAL STRUCTURE</b> SOCIAL CULTURE CORPORATE IMAGE STAFF IMAGE <b>CORPORATE HIERARCHY</b> MNGMT - PHILOSOPHY PROJECT ORGNZTNL STRUCTURE	<b>BUSINESS GOALS &amp; OBJECTIVES</b> O & M GOALS & OBJECTIVES <b>PROJECT - SCHEDULE</b> <b>PROJECT - BUDGET</b> <b>PROJECT - COST PROJECTIONS</b> PROJECT - IMPLEMENTATION	<b>WORK GROUP TYPES</b> <b>WORK GROUP AMOUNTS</b> <b>WORK GROUP NAMES</b> HISTORICAL RATES OF GROWTH PROJECTED RATES OF GROWTH			

INFORMATION ABOUT THE ORGANIZATION'S OPERATING ENVIRONMENT							
LAWS & REGULATIONS	BUILDING O & M	BUSINESS CONDITIONS	COMPETITIVE ACTIONS	LABOR FORCE	LEASE CONDITIONS		
TAX LAWS <b>BUILDING CODE REQUIREMENTS</b> <b>BUILDING USE DEFINITIONS</b> <b>ZONING BYLAWS</b> LEGAL DESCRIPTIONS	<b>PROPERTY VALUE</b> <b>PROPERTY TAXES</b> <b>O &amp; M COSTS</b>	<b>BUSINESS MARKET CONDITIONS</b> COMPETITION ACTIVITIES ECONOMIC CONDITIONS <b>OFFICE MARKET CNDTNS</b> <b>PAST OFFICE MARKET CNDTNS</b>	OTHER COMPANY PLANS OTHER COMPANY ACTIONS OTHER COMPANY EXPERIENCES	DEMOGRAPHICS TRENDS CHARACTERISTICS	LEASE RATES DURATION OF LEASE SIZE OF AREA LEASED TENANT IMPROVEMENT TERMS LANDLORD IMPROVEMENT TERMS INSURANCE TERMS	DEPT. CHARGE-BACK TERMS	

INFORMATION ABOUT THE PHYSICAL CONDITIONS WITHIN EXISTING OR PROPOSED SPACES							
OUTSIDE CONDITIONS	BUILDING CONDITIONS	BLDG. I.T. CONDITIONS	WORK GROUP COND.	WORK STATION CONDITIONS	FURNITURE & EQUIP.	LAYOUTS	
CLIMATE EXTERNAL SECURITY <b>NEIGHBOURHOOD CHRCTRCS</b> SITE ACCESS (CAR, PEDESTR.) PARKING TYPES PARKING AMOUNTS PARKING LOCATIONS PARKING CONDITIONS PUBLIC TRANSIT <b>BUILDING LOCATION</b> <b>SITE SIZE</b> <b>AMENITIES</b> LANDSCAPING CONDITIONS	<b>BUILDING FINISHES</b> <b>BUILDING HISTORY</b> <b>BUILDING SIZE</b> <b>BUILDING IMAGE</b> BUILDING SECURITY <b>BUILDING STRUCTURE</b> <b>BUILDING FENSTRATION</b> BUILDING DOOR HARDWARE <b>HVAC SYSTEMS</b> <b>PLUMBING SYSTEMS</b> <b>HUMIDIFICATION SYSTEMS</b> <b>TEMPERATURE CONTROLS</b> <b>FIRE SUPPRESSION SYSTEMS</b> <b>FIRE ALARM SYSTEMS</b> <b>AMBIENT LIGHTING SYSTEMS</b> <b>SERVICE AREA - TYPES</b> <b>SERVICE AREA - SIZES</b> <b>SERVICE AREA - AMOUNTS</b> <b>SERVICE AREA - LOCATIONS</b> <b>PROJECT LOCATION</b> <b>PROJECT SIZE</b>	<b>IT - NETWORK EQUIP TYPES</b> <b>IT - NETWORK EQUIP LOCATION</b> <b>IT - NETWORK EQUIP AMOUNTS</b> <b>IT - NETWORK EQUIP DETAILS</b> <b>IT - HORIZONTAL DISTRIBUTION</b> <b>IT - FEEDER/RISER</b> <b>IT - RISER/DIST SHIELDING</b> <b>IT - GROUNDING</b> <b>IT - SECURITY</b> <b>IT - HUMIDITY/DUST CONTROL</b> <b>IT - SURGE &amp; NOISE PROTECTION</b> <b>IT - CABLING DETAILS</b> <b>TEL - BUILDING SERVICE</b> <b>TEL - FEEDER/RISER</b> <b>TEL - RISER/DIST. SHIELDING</b> <b>TEL - HORIZ DISTRIBUTION</b> <b>TEL - SECURITY</b> <b>TEL - REGULATIONS</b> <b>SAT - TYPES</b> <b>SAT - DETAILS</b> <b>ELEC - BLDG SERVICE CNDTNS</b> <b>ELEC - FEED/RISER</b> <b>ELEC - HORIZ DISTRIBUTION</b> <b>ELEC - RISER/HOR SHIELDING</b> <b>ELEC - GROUNDING CONDITIONS</b> <b>ELEC - SURGE &amp; NOISE CNDTNS</b> <b>ELEC - BACK-UP</b>	<b>F</b> SIZES <b>LOCATION</b> <b>SECURITY</b> IMAGE FLEXIBILITY MEETING REQMTS ACOUSTICS PRIVACY AMBIANCE NATURAL LIGHTING HISTORICAL ACCMMDTN INFO WINDOW TREATMENTS <b>SIGNAGE REQMTS</b> PLANTING ART WORK <b>HVAC - SYSTEM TYPES</b> HVAC - SYSTEM LOCATIONS HVAC - SYSTEM DETAILS HUMIDITY CONTROL TEMPERATURE VENTILATION POLLUTION & DUST CONTROL LIGHTING LEVELS	<b>F</b> TYPE <b>SIZE</b> <b>AMOUNTS</b> <b>LOCATION</b> <b>FLOOR LOADING</b> <b>STORAGE REQMTS</b> <b>SECURITY</b> <b>PARTITION - TYPES</b> <b>PARTITION - FINISH QUALITIES</b> <b>PARTITION - DETAILS</b> <b>CEILING - TYPES</b> <b>CEILING - FINISH QUALITIES</b> <b>CEILING - DETAILS</b> <b>FLOOR - TYPES</b> <b>FLOOR - FINISH QUALITIES</b> <b>FLOOR - DETAILS</b> MATERIAL COLOURS <b>LIGHTING - FIXTURE TYPES</b> LIGHTING - FIXTURE LOCATION LIGHTING - FIXTURE DETAILS <b>ELEC - RECEPTAL TYPE</b> <b>ELEC - RECEPTAL AMOUNTS</b> <b>ELEC - RECEPTAL LOCATIONS</b> <b>PLUMBING - FIXTURE TYPES</b> PLUMBING - FIXTURE LOCATIONS <b>PLUMBING - FIXTURE DETAILS</b> <b>IT - EQUIP TYPES</b>	<b>IT - EQUIP SIZES</b> <b>IT - EQUIP AMOUNTS</b> <b>IT - EQUIP LOCATIONS</b> <b>IT - EQUIP DETAILS</b> <b>IT - EQUIP MANUFACTURERS</b> <b>IT - SURGE &amp; NOISE REQMTS</b> <b>IT - GROUNDING REQMTS</b> <b>IT - POWER REQMTS</b>	<b>FURNITURE - TYPES</b> FURNITURE - BRAND NAMES <b>FURNITURE - SIZES</b> <b>FURNITURE - AMOUNTS</b> <b>FURNITURE - LOCATIONS</b> FURNITURE - ERGONOMICS <b>FURNITURE - DETAILS</b> <b>EQUIP - TYPES</b> <b>EQUIP - SIZES</b> <b>EQUIP - AMOUNTS</b> <b>EQUIP - LOCATIONS</b> <b>EQUIP - DETAILS</b> SYS FURNITURE - CABLE CAP SYS FURNITURE - ELEC RECP DIST SYS FURNITURE - BRAND NAMES SYS FURNITURE - DETAILS	<b>FLOOR</b> <b>WORK GROUP</b> WORK STATION CIRCULATION CONDITIONS

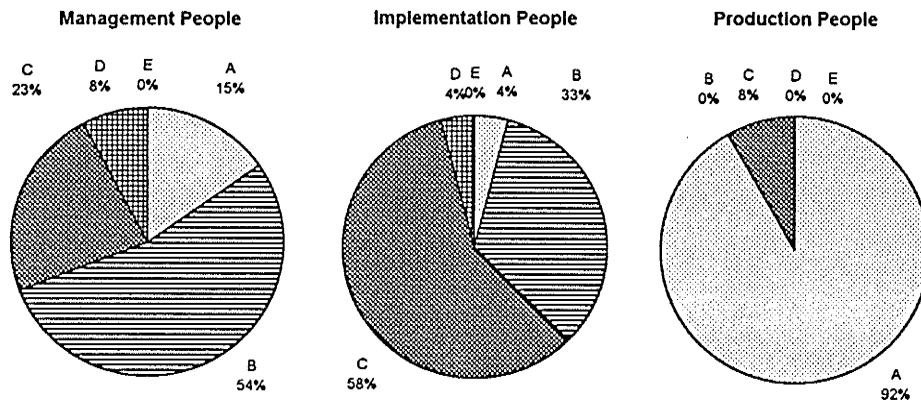
INFORMATION ABOUT INDIVIDUAL WORK STYLES AND JOB FUNCTIONS WITHIN THE ORGANIZATION							
TASK ANALYSIS	ADJACENCIES	COMMUNICATION	HUMAN FACTORS				
WHAT IS BEING DONE <b>HOW IS IT BEING DONE</b> <b>WHEN IS IT BEING DONE</b> WHY IS IT BEING DONE WHO IS DOING WHAT SEQUENCE OF EVENTS TYPE OF WORK	INDIVIDUAL / WORK STATION WORK GROUP BUILDING SITE	<b>TYPES</b> FREQUENCIES <b>LOCATION</b> TIME DEGREE OF IMPORTANCE	<b>TEMPERATURE</b> VENTILATION HUMIDITY POLLUTION & DUST CONTROL LIGHTING CONTROL ACOUSTICS <b>PRIVACY</b> <b>MEETING CONDITIONS</b> <b>AMBIANCE</b>	NATURAL LIGHTING VIEWS/SIGHTLINES OCCURS IND SCREENING CHRCTRCS IND. STRESS ASSESSMENTS IND PERCEPTIONS/PRIORITIES IND PRODUCTIVITY ASSESSMENTS IND INTERACTION NEEDS			

**BOLD TEXT** - Indicates information type WAS identified in the content analysis of the program documents

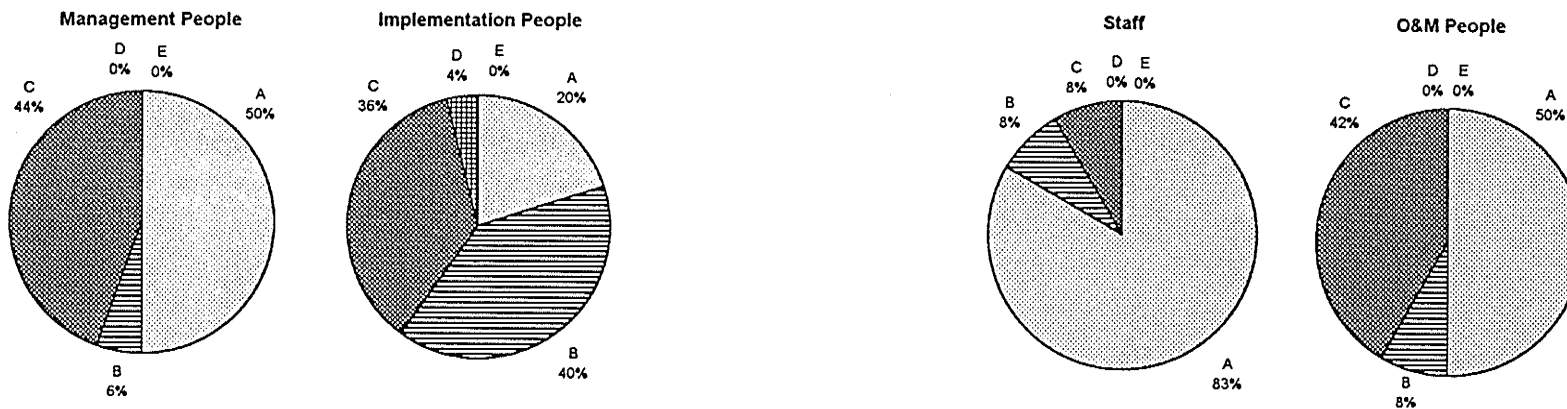
LIGHT TEXT - Indicates information type WAS NOT identified in the content analysis of the program documents.

**F** - Indicates the information type identified referred to conditions beyond the initial occupancy of the space.

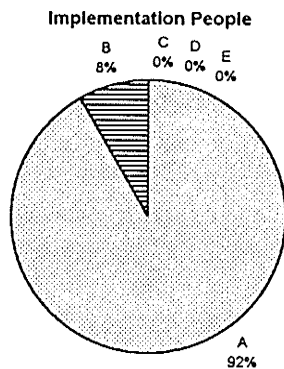
DESIGN FIRM



CLIENT ORGANIZATION



GENERAL CONTRACTOR



A - SELDOM OR NEVER  
 B - INDIRECTLY  
 C - AD HOC  
 D - SYSTEMATICALLY  
 E - TO MEASURE PERFORMANCE

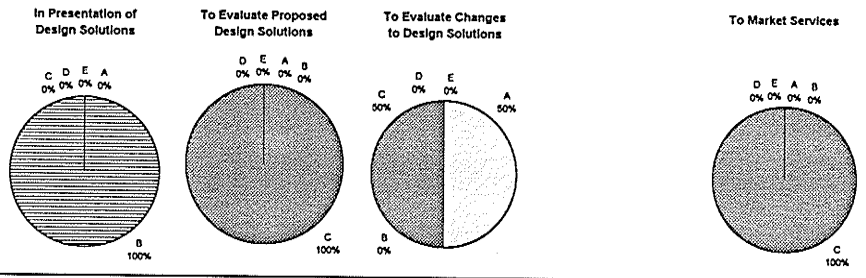
□ A   ▨ B   ▩ C   ▪ D   ■ E



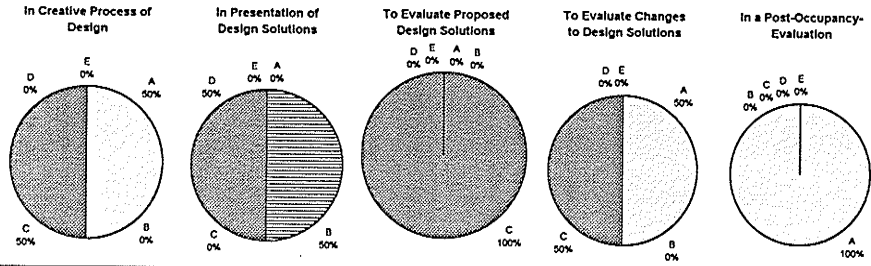
WAYS IN WHICH THE PROGRAM DOCUMENTS WERE USED: DESIGN FIRM

CASE STUDY - A

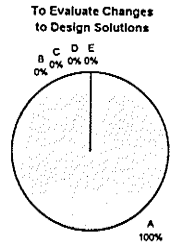
MANAGEMENT PEOPLE



IMPLEMENTATION PEOPLE



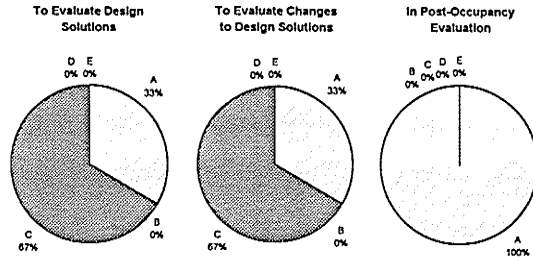
PRODUCTION PEOPLE



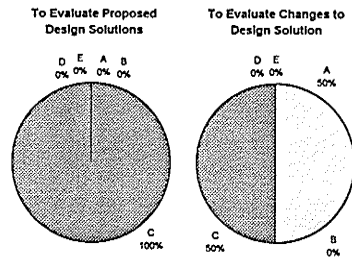
A - SELDOM OR NEVER  
 B - INDIRECTLY  
 C - AD HOC  
 D - SYSTEMATICALLY  
 E - TO MEASURE PERFORMANCE

□ A   ▨ B   ▩ C   ▤ D   ■ E

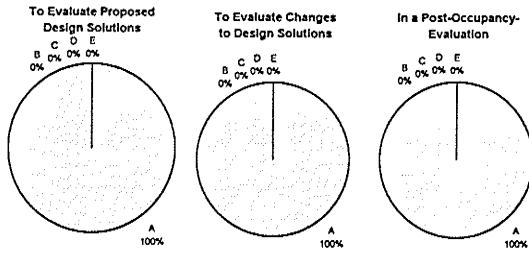
MANAGEMENT PEOPLE



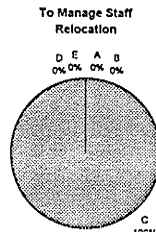
IMPLEMENTATION PEOPLE



STAFF



O & M PEOPLE

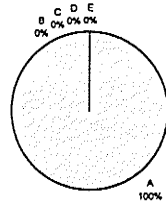


A - SELDOM OR NEVER  
 B - INDIRECTLY  
 C - AD HOC  
 D - SYSTEMATICALLY  
 E - TO MEASURE PERFORMANCE

□ A   ▨ B   ▩ C   ▤ D   ■ E

IMPLEMENTATION PEOPLE

To Evaluate Changes to  
Design Solution



A - SELDOM OR NEVER  
B - INDIRECTLY  
C - AD HOC  
D - SYSTEMATICALLY  
E - TO MEASURE PERFORMANCE

□ A   ▨ B   ▩ C   ▪ D   ■ E





**Appendix J: Survey Data for Case Study Site - B**

**Content Analysis**

**How the Program Documents Were Referred To**

**Ways In Which The Program Documents Were Used**

INFORMATION ABOUT THE ORGANIZATION							
STAFF	PLANS	CORPORATE CULTURE	GOALS & OBJECTIVES	WORK GROUPS			
<b>STAFF TYPES</b> <b>STAFF AMOUNTS</b> STAFF NAMES STAFF GENDER STAFF LOCATION STAFF OPINION RESULTS	BUSINESS PLANS <b>F OPERATIONAL PLANS</b> O & M PLANS <b>PROJECT - DESCRIPTION</b> <b>PROJECT - PARTICIPANTS</b> <b>PROJECT - TASKS</b>	ORGANIZATIONAL STRUCTURE <b>SOCIAL CULTURE</b> CORPORATE IMAGE <b>STAFF IMAGE</b> CORPORATE HIERARCHY <b>MNGMT - PHILOSOPHY</b> PROJECT ORGNZTNL STRUCTURE	<b>F BUSINESS GOALS &amp; OBJECTIVES</b> <b>O &amp; M GOALS &amp; OBJECTIVES</b> <b>PROJECT - SCHEDULE</b> <b>PROJECT - BUDGET</b> <b>PROJECT - COST PROJECTIONS</b> <b>PROJECT - IMPLEMENTATION</b>	<b>WORK GROUP TYPES</b> <b>WORK GROUP AMOUNTS</b> <b>WORK GROUP NAMES</b> HISTORICAL RATES OF GROWTH PROJECTED RATES OF GROWTH			

INFORMATION ABOUT THE ORGANIZATION'S OPERATING ENVIRONMENT							
LAWS & REGULATIONS	BUILDING O & M	BUSINESS CONDITIONS	COMPETITIVE ACTIONS	LABOR FORCE	LEASE CONDITIONS		
TAX LAWS <b>BUILDING CODE REQUIREMENTS</b> BUILDING USE DEFINITIONS ZONING BYLAWS LEGAL DESCRIPTIONS	PROPERTY VALUE PROPERTY TAXES O & M COSTS	BUSINESS MARKET CONDITIONS COMPETITION ACTIVITIES ECONOMIC CONDITIONS OFFICE MARKET CNDTNS PAST OFFICE MARKET CNDTNS	OTHER COMPANY PLANS OTHER COMPANY ACTIONS OTHER COMPANY EXPERIENCES	DEMOGRAPHICS TRENDS CHARACTERISTICS	LEASE RATES DURATION OF LEASE SIZE OF AREA LEASED TENANT IMPROVEMENT TERMS LANDLORD IMPROVEMENT TERMS INSURANCE TERMS		DEPT. CHARGE-BACK TERMS

INFORMATION ABOUT THE PHYSICAL CONDITIONS WITHIN EXISTING OR PROPOSED SPACES							
OUTSIDE CONDITIONS	BUILDING CONDITIONS	BLDG. I.T. CONDITIONS	WORK GROUP COND.	WORK STATION CONDITIONS	FURNITURE & EQUIP.	LAYOUTS	
CLIMATE EXTERNAL SECURITY NEIGHBOURHOOD CHRCTRCS SITE ACCESS (CAR, PEDESTR.) PARKING TYPES PARKING AMOUNTS PARKING LOCATIONS PARKING CONDITIONS PUBLIC TRANSIT BUILDING LOCATION SITE SIZE AMENITIES LANDSCAPING CONDITIONS	BUILDING FINISHES BUILDING HISTORY <b>BUILDING SIZE</b> BUILDING IMAGE BUILDING SECURITY <b>BUILDING STRUCTURE</b> BUILDING FENSTRATION BUILDING DOOR HARDWARE <b>HVAC SYSTEMS</b> <b>PLUMBING SYSTEMS</b> <b>HUMIDIFICATION SYSTEMS</b> TEMPERATURE CONTROLS <b>FIRE SUPPRESSION SYSTEMS</b> <b>FIRE ALARM SYSTEMS</b> <b>AMBIENT LIGHTING SYSTEMS</b> <b>SERVICE AREA - TYPES</b> <b>SERVICE AREA - SIZES</b> <b>SERVICE AREA - AMOUNTS</b> <b>SERVICE AREA - LOCATIONS</b> <b>PROJECT LOCATION</b> <b>PROJECT SIZE</b>	<b>IT - NETWORK EQUIP TYPES</b> <b>IT - NETWORK EQUIP LOCATION</b> IT - NETWORK EQUIP AMOUNTS <b>IT - NETWORK EQUIP DETAILS</b> <b>IT - HORIZONTAL DISTRIBUTION</b> <b>IT - FEEDER/RISER</b> <b>IT - RISER/DIST SHIELDING</b> <b>IT - GROUNDING</b> IT - SECURITY IT - HUMIDITY/DUST CONTROL <b>IT - SURGE &amp; NOISE PROTECTION</b> <b>IT - CABLING DETAILS</b> TEL - BUILDING SERVICE <b>TEL - FEEDER/RISER</b> TEL - RISER/DIST. SHIELDING <b>TEL - HORIZ DISTRIBUTION</b> TEL - SECURITY <b>TEL - REGULATIONS</b> SAT - TYPES SAT - DETAILS <b>ELEC - BLDG SERVICE CNDTNS</b> <b>ELEC - FEED/RISER</b> <b>ELEC - HORIZ DISTRIBUTION</b> <b>ELEC - RISER/HOR SHIELDING</b> <b>ELEC - GROUNDING CONDITIONS</b> <b>ELEC - SURGE &amp; NOISE CNDTNS</b> ELEC - BACK-UP	<b>SIZES</b> <b>LOCATION</b> <b>SECURITY</b> <b>IMAGE</b> <b>F FLEXIBILITY</b> MEETING REQMTS ACOUSTICS PRIVACY AMBIANCE NATURAL LIGHTING HISTORICAL ACCMMDTN INFO WINDOW TREATMENTS SIGNAGE REQMTS PLANTING ART WORK HVAC - SYSTEM TYPES HVAC - SYSTEM LOCATIONS HVAC - SYSTEM DETAILS HUMIDITY CONTROL TEMPERATURE VENTILATION POLLUTION & DUST CONTROL LIGHTING LEVELS	<b>F TYPE</b> <b>SIZE</b> <b>AMOUNTS</b> LOCATION <b>FLOOR LOADING</b> <b>STORAGE REQMTS</b> SECURITY <b>PARTITION - TYPES</b> PARTITION - FINISH QUALITIES <b>PARTITION - DETAILS</b> CEILING - TYPES CEILING - FINISH QUALITIES CEILING - DETAILS FLOOR - TYPES <b>FLOOR - FINISH QUALITIES</b> FLOOR - DETAILS MATERIAL COLOURS <b>LIGHTING - FIXTURE TYPES</b> <b>LIGHTING - FIXTURE LOCATION</b> LIGHTING - FIXTURE DETAILS <b>ELEC - RECEPTICAL TYPE</b> <b>ELEC - RECEPTICAL AMOUNTS</b> <b>ELEC - RECEPTICAL LOCATIONS</b> <b>PLUMBING - FIXTURE TYPES</b> PLUMBING - FIXTURE LOCATIONS PLUMBING - FIXTURE DETAILS <b>F IT - EQUIP TYPES</b>	IT - EQUIP SIZES <b>IT - EQUIP AMOUNTS</b> <b>IT - EQUIP LOCATIONS</b> IT - EQUIP DETAILS IT - EQUIP MANUFACTURERS IT - SURGE & NOISE REQMTS IT - GROUNDING REQMTS IT - POWER REQMTS	<b>F FURNITURE - TYPES</b> <b>FURNITURE - BRAND NAMES</b> <b>FURNITURE - SIZES</b> <b>FURNITURE - AMOUNTS</b> <b>FURNITURE - LOCATIONS</b> <b>FURNITURE - ERGONOMICS</b> <b>FURNITURE - DETAILS</b> <b>EQUIP - TYPES</b> EQUIP - SIZES EQUIP - AMOUNTS <b>EQUIP - LOCATIONS</b> <b>EQUIP - DETAILS</b> <b>SYS FURNITURE - CABLE CAP</b> <b>SYS FURNITURE - ELEC RECP DIST</b> <b>SYS FURNITURE - BRAND NAMES</b> <b>SYS FURNITURE - DETAILS</b>	FLOOR WORK GROUP <b>WORK STATION</b> CIRCULATION CONDITIONS

INFORMATION ABOUT INDIVIDUAL WORK STYLES AND JOB FUNCTIONS WITHIN THE ORGANIZATION							
TASK ANALYSIS	ADJACENCIES	COMMUNICATION	HUMAN FACTORS				
<b>WHAT IS BEING DONE</b> <b>HOW IS IT BEING DONE</b> <b>WHEN IS IT BEING DONE</b> WHY IS IT BEING DONE WHO IS DOING WHAT SEQUENCE OF EVENTS TYPE OF WORK	INDIVIDUAL / WORK STATION <b>WORK GROUP</b> BUILDING SITE	<b>TYPES</b> FREQUENCIES <b>LOCATION</b> TIME DEGREE OF IMPORTANCE	TEMPERATURE VENTILATION HUMIDITY POLLUTION & DUST CONTROL LIGHTING CONTROL <b>ACOUSTICS</b> <b>PRIVACY</b> MEETING CONDITIONS AMBIANCE	<b>NATURAL LIGHTING</b> VIEWS/SIGHTLINES ODOURS IND SCREENING CHRCTRCS IND. STRESS ASSESSMENTS IND PERCEPTIONS/PRIORITIES IND PRODUCTIVITY ASSESSMENTS IND INTERACTION NEEDS			

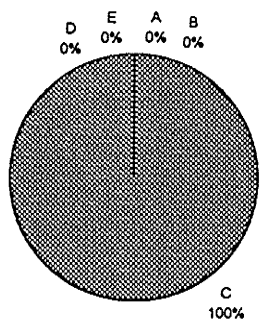
**BOLD TEXT** - Indicates information type WAS identified in the content analysis of the program documents

LIGHT TEXT - Indicates information type WAS NOT identified in the content analysis of the program documents.

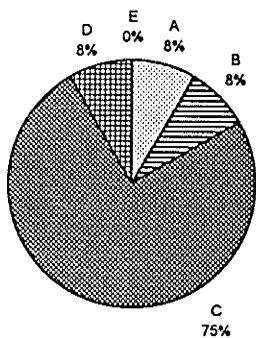
F - Indicates the information type identified referred to conditions beyond the initial occupancy of the space.

DESIGN FIRM

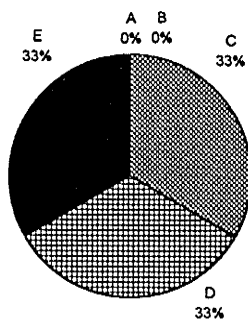
Management People



Implementation People

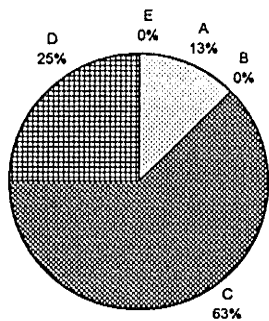


Production People

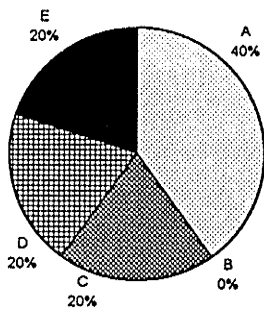


CLIENT ORGANIZATION

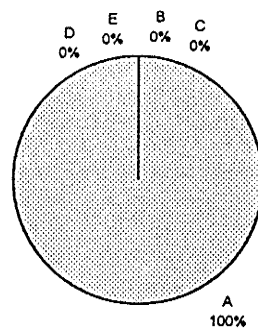
Management People



Implementation People

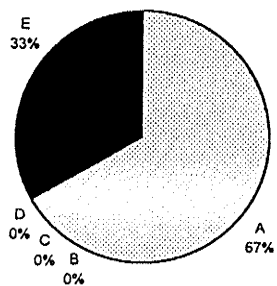


Staff



GENERAL CONTRACTOR

Implementation People



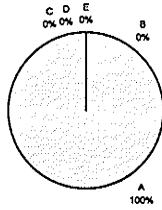
A - SELDOM OR NEVER  
 B - INDIRECTLY  
 C - AD HOC  
 D - SYSTEMATICALLY  
 E - TO MEASURE PERFORMANCE

□ A   ▨ B   ▩ C   ▧ D   ■ E

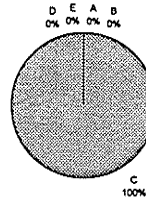


MANAGEMENT PEOPLE

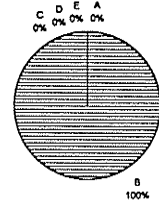
To Evaluate Proposed Design Solutions



To Market Services

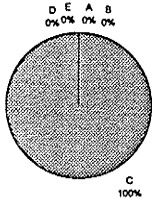


To Train Staff

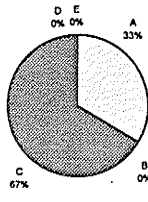


IMPLEMENTATION PEOPLE

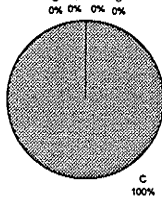
In Creative Process of Design



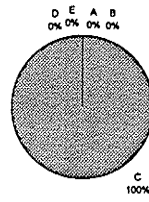
In Presentation of Design Solutions



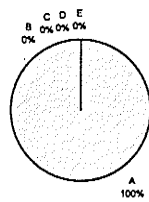
To Evaluate Proposed Design Solutions



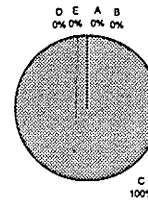
To Evaluate Changes to Design Solutions



In a Post-Occupancy-Evaluation

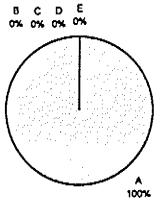


In Future Projects

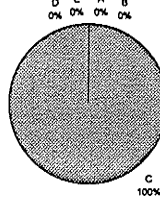


PRODUCTION PEOPLE

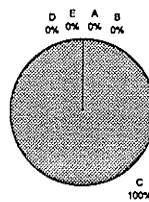
In Presentation of Design Solutions



To Evaluate Proposed Design Solutions



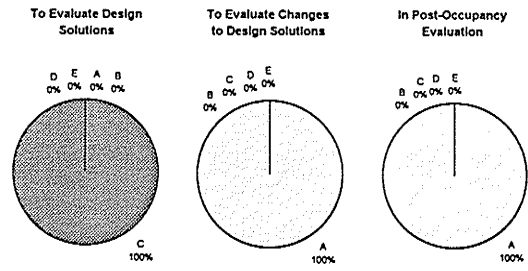
To Evaluate Changes to Design Solutions



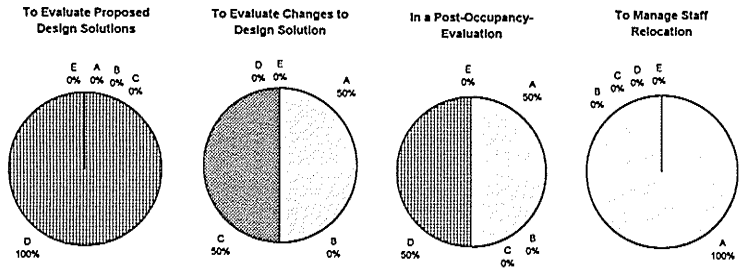
A - SELDOM OR NEVER  
 B - INDIRECTLY  
 C - AD HOC  
 D - SYSTEMATICALLY  
 E - TO MEASURE PERFORMANCE

□ A   ▨ B   ▩ C   ▪ D   ■ E

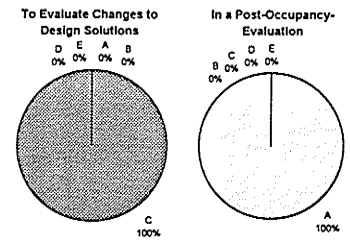
MANAGEMENT PEOPLE



IMPLEMENTATION PEOPLE



STAFF



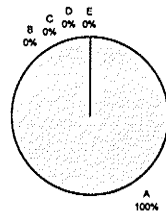
O&M PEOPLE

A - SELDOM OR NEVER  
 B - INDIRECTLY  
 C - AD HOC  
 D - SYSTEMATICALLY  
 E - TO MEASURE PERFORMANCE

□ A   ▨ B   ▩ C   ▪ D   ■ E

IMPLEMENTATION PEOPLE

To Evaluate Changes to Design Solution



A - SELDOM OR NEVER  
B - INDIRECTLY  
C - AD HOC  
D - SYSTEMATICALLY  
E - TO MEASURE PERFORMANCE

□ A   ▨ B   ▩ C   ▪ D   ■ E





**Appendix K: Survey Data for Case Study Site - C**

**Content Analysis**

**How the Program Documents Were Referred To  
Ways In Which The Program Documents Were Used**

INFORMATION ABOUT THE ORGANIZATION							
STAFF	PLANS	CORPORATE CULTURE	GOALS & OBJECTIVES	WORK GROUPS			
<b>F</b> STAFF TYPES STAFF AMOUNTS STAFF NAMES <b>F</b> STAFF GENDER STAFF LOCATION STAFF OPINION RESULTS	<b>F</b> BUSINESS PLANS OPERATIONAL PLANS O & M PLANS PROJECT - DESCRIPTION PROJECT - PARTICIPANTS PROJECT - TASKS	ORGANIZATIONAL STRUCTURE <b>SOCIAL CULTURE</b> CORPORATE IMAGE STAFF IMAGE CORPORATE HIERARCHY MNGMT - PHILOSOPHY PROJECT ORGNZTNL STRUCTURE	<b>F</b> BUSINESS GOALS & OBJECTIVES O & M GOALS & OBJECTIVES PROJECT - SCHEDULE PROJECT - BUDGET PROJECT - COST PROJECTIONS PROJECT - IMPLEMENTATION	WORK GROUP TYPES WORK GROUP AMOUNTS WORK GROUP NAMES HISTORICAL RATES OF GROWTH PROJECTED RATES OF GROWTH			

INFORMATION ABOUT THE ORGANIZATION'S OPERATING ENVIRONMENT							
LAWS & REGULATIONS	BUILDING O & M	BUSINESS CONDITIONS	COMPETITIVE ACTIONS	LABOR FORCE	LEASE CONDITIONS		
TAX LAWS <b>BUILDING CODE REQUIREMENTS</b> BUILDING USE DEFINITIONS ZONING BYLAWS LEGAL DESCRIPTIONS	PROPERTY VALUE PROPERTY TAXES O & M COSTS	BUSINESS MARKET CONDITIONS COMPETITION ACTIVITIES ECONOMIC CONDITIONS OFFICE MARKET CNDTNS PAST OFFICE MARKET CNDTNS	<b>F</b> OTHER COMPANY PLANS <b>OTHER COMPANY ACTIONS</b> <b>OTHER COMPANY EXPERIENCES</b>	DEMOGRAPHICS TRENDS CHARACTERISTICS	LEASE RATES DURATION OF LEASE SIZE OF AREA LEASED TENANT IMPROVEMENT TERMS LANDLORD IMPROVEMENT TERMS INSURANCE TERMS		DEPT. CHARGE-BACK TERMS

INFORMATION ABOUT THE PHYSICAL CONDITIONS WITHIN EXISTING OR PROPOSED SPACES							
OUTSIDE CONDITIONS	BUILDING CONDITIONS	BLDG. I.T. CONDITIONS	WORK GROUP COND.	WORK STATION CONDITIONS	FURNITURE & EQUIP.	LAYOUTS	
CLIMATE <b>EXTERNAL SECURITY</b> <b>NEIGHBOURHOOD CHRCTRCS</b> SITE ACCESS (CAR, PEDESTR.) PARKING TYPES <b>PARKING AMOUNTS</b> PARKING LOCATIONS <b>PARKING CONDITIONS</b> PUBLIC TRANSIT BUILDING LOCATION SITE SIZE AMENITIES <b>LANDSCAPING CONDITIONS</b>	BUILDING FINISHES BUILDING HISTORY BUILDING SIZE BUILDING IMAGE <b>BUILDING SECURITY</b> BUILDING STRUCTURE BUILDING FENSTRATION BUILDING DOOR HARDWARE <b>HVAC SYSTEMS</b> PLUMBING SYSTEMS HUMIDIFICATION SYSTEMS TEMPERATURE CONTROLS <b>FIRE SUPPRESSION SYSTEMS</b> <b>FIRE ALARM SYSTEMS</b> AMBIENT LIGHTING SYSTEMS <b>SERVICE AREA - TYPES</b> <b>SERVICE AREA - SIZES</b> <b>SERVICE AREA - AMOUNTS</b> SERVICE AREA - LOCATIONS PROJECT LOCATION <b>PROJECT SIZE</b>	<b>IT - NETWORK EQUIP TYPES</b> IT - NETWORK EQUIP LOCATION IT - NETWORK EQUIP AMOUNTS IT - NETWORK EQUIP DETAILS <b>IT - HORIZONTAL DISTRIBUTION</b> IT - FEEDER/RISER IT - RISER/DIST SHIELDING IT - GROUNDING IT - SECURITY IT - HUMIDITY/DUST CONTROL IT - SURGE & NOISE PROTECTION <b>IT - CABLING DETAILS</b> TEL - BUILDING SERVICE TEL - FEEDER/RISER TEL - RISER/DIST. SHIELDING TEL - HORIZ DISTRIBUTION TEL - SECURITY TEL - REGULATIONS SAT - TYPES <b>F SAT - DETAILS</b> <b>ELEC - BLDG SERVICE CNDTNS</b> ELEC - FEED/RISER ELEC - HORIZ DISTRIBUTION ELEC - RISER/HOR SHIELDING ELEC - GROUNDING CONDITIONS ELEC - SURGE & NOISE CNDTNS <b>ELEC - BACK-UP</b>	<b>F</b> SIZES <b>LOCATION</b> <b>SECURITY</b> <b>IMAGE</b> <b>F</b> FLEXIBILITY MEETING REQMTS ACOUSTICS PRIVACY <b>AMBIANCE</b> NATURAL LIGHTING HISTORICAL ACCMMDTN INFO WINDOW TREATMENTS SIGNAGE REQMTS PLANTING ART WORK HVAC - SYSTEM TYPES HVAC - SYSTEM LOCATIONS HVAC - SYSTEM DETAILS HUMIDITY TEMPERATURE VENTILATION POLLUTION & DUST CONTROL LIGHTING LEVELS	<b>F</b> TYPE <b>F</b> SIZE <b>F</b> AMOUNTS LOCATION FLOOR LOADING STORAGE REQMTS SECURITY PARTITION - TYPES PARTITION - FINISH QUALITIES PARTITION - DETAILS CEILING - TYPES CEILING - FINISH QUALITIES CEILING - DETAILS FLOOR - TYPES FLOOR - FINISH QUALITIES FLOOR - DETAILS MATERIAL COLOURS LIGHTING - FIXTURE TYPES LIGHTING - FIXTURE LOCATION LIGHTING - FIXTURE DETAILS ELEC - RECEPTICAL TYPE ELEC - RECEPTICAL AMOUNTS ELEC - RECEPTICAL LOCATIONS PLUMBING - FIXTURE TYPES PLUMBING - FIXTURE LOCATIONS PLUMBING - FIXTURE DETAILS <b>F</b> IT - EQUIP TYPES	IT - EQUIP SIZES IT - EQUIP AMOUNTS IT - EQUIP LOCATIONS IT - EQUIP DETAILS IT - EQUIP MANUFACTURERS IT - SURGE & NOISE REQMTS IT - GROUNDING REQMTS IT - POWER REQMTS	<b>FURNITURE - TYPES</b> FURNITURE - BRAND NAMES <b>FURNITURE - SIZES</b> <b>FURNITURE - AMOUNTS</b> <b>FURNITURE - LOCATIONS</b> FURNITURE - ERGONOMICS <b>FURNITURE - DETAILS</b> <b>EQUIP - TYPES</b> <b>EQUIP - SIZES</b> <b>EQUIP - AMOUNTS</b> <b>EQUIP - LOCATIONS</b> <b>EQUIP - DETAILS</b> SYS FURNITURE - CABLE CAP SYS FURNITURE - ELEC RECP DIST SYS FURNITURE - BRAND NAMES SYS FURNITURE - DETAILS	FLOOR <b>WORK GROUP</b> <b>WORK STATION</b> CIRCULATION CONDITIONS

INFORMATION ABOUT INDIVIDUAL WORK STYLES AND JOB FUNCTIONS WITHIN THE ORGANIZATION							
TASK ANALYSIS	ADJACENCIES	COMMUNICATION	HUMAN FACTORS				
<b>F</b> WHAT IS BEING DONE HOW IS IT BEING DONE <b>F</b> WHEN IS IT BEING DONE WHY IS IT BEING DONE WHO IS DOING WHAT SEQUENCE OF EVENTS TYPE OF WORK	<b>INDIVIDUAL / WORK STATION</b> <b>WORK GROUP</b> BUILDING SITE	TYPES FREQUENCIES LOCATION TIME DEGREE OF IMPORTANCE	TEMPERATURE VENTILATION HUMIDITY POLLUTION & DUST CONTROL LIGHTING CONTROL ACOUSTICS PRIVACY MEETING CONDITIONS <b>AMBIANCE</b>	NATURAL LIGHTING <b>VIEWS/SIGHTLINES</b> ODOURS IND SCREENING CHRCTRCS IND. STRESS ASSESSMENTS IND PERCEPTIONS/PRIORITIES IND PRODUCTIVITY ASSESSMENTS IND INTERACTION NEEDS			

**BOLD TEXT** - Indicates information type WAS identified in the content analysis of the program documents

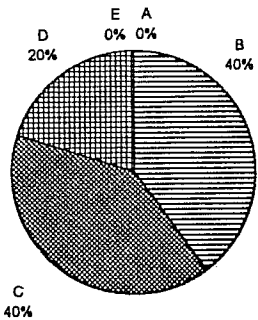
LIGHT TEXT - Indicates information type WAS NOT identified in the content analysis of the program documents.

**F** - Indicates the information type identified referred to conditions beyond the initial occupancy of the space.

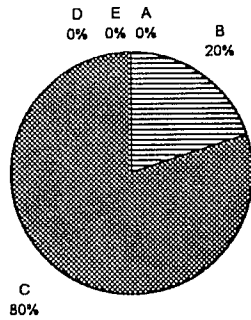
# HOW THE PROGRAM DOCUMENTS WERE REFERRED TO

## DESIGN FIRM

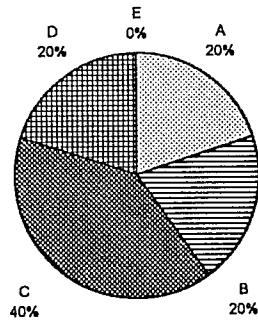
Management People



Implementation People

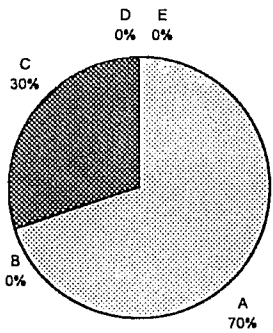


Production People

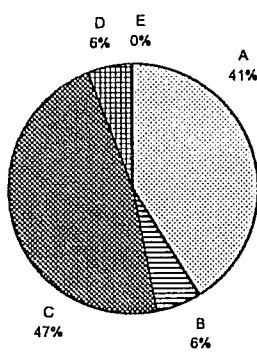


## CLIENT ORGANIZATION

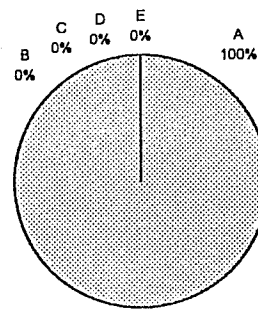
Management People



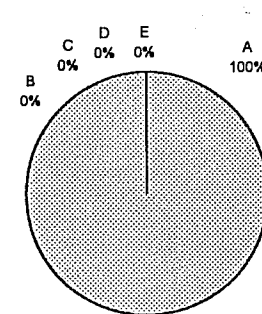
Implementation People



Staff

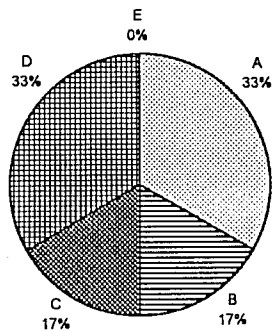


O&M People



## GENERAL CONTRACTOR

Implementation People



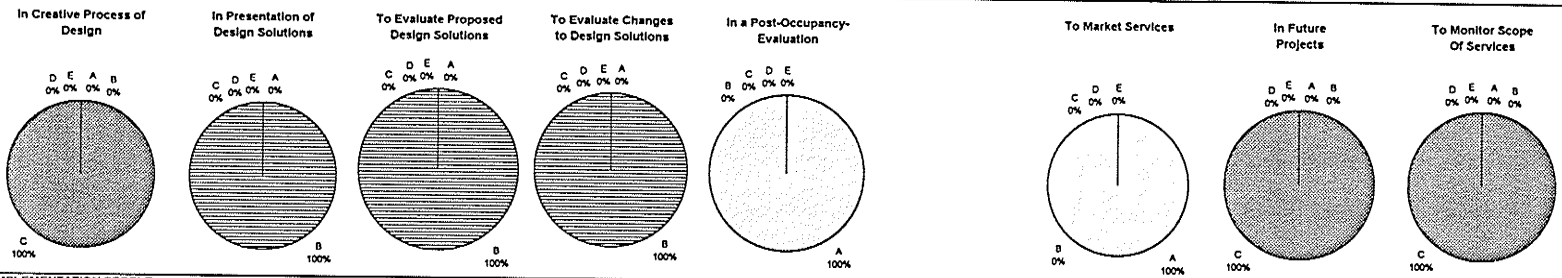
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 B - INDIRECTLY  
 C - AD HOC  
 D - SYSTEMATICALLY  
 E - TO MEASURE PERFORMANCE



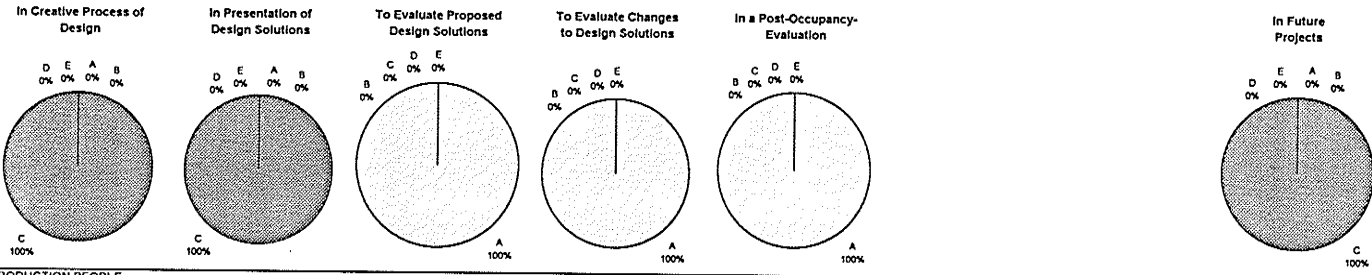


WAYS IN WHICH THE PROGRAM DOCUMENTS WERE USED: DESIGN FIRM

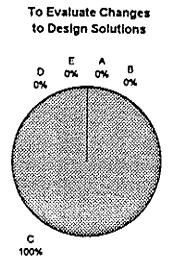
MANAGEMENT PEOPLE



IMPLEMENTATION PEOPLE



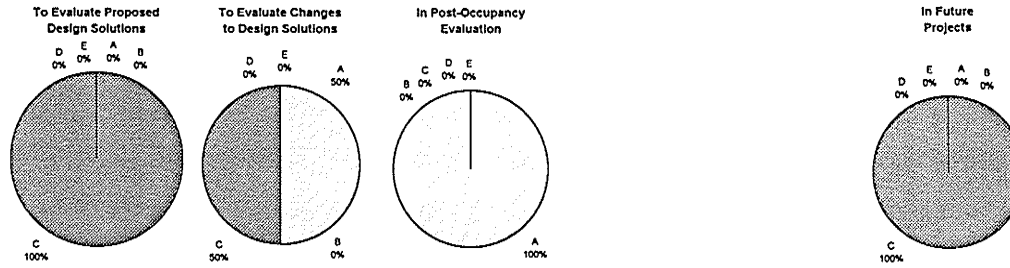
PRODUCTION PEOPLE



A - SELDOM OR NEVER  
 B - INDIRECTLY  
 C - AD HOC  
 D - SYSTEMATICALLY  
 E - TO MEASURE PERFORMANCE

□ A   ▨ B   ▩ C   ▧ D   ■ E

MANAGEMENT PEOPLE

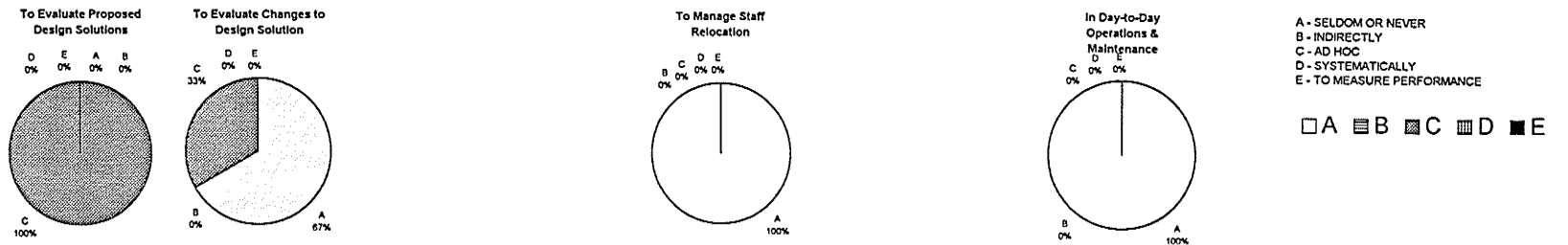


IMPLEMENTATION PEOPLE



STAFF

O&M PEOPLE

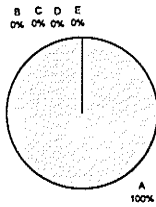


A - SELDOM OR NEVER  
 B - INDIRECTLY  
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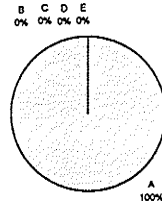
□ A   ▨ B   ▩ C   ▤ D   ■ E

IMPLEMENTATION PEOPLE

To Evaluate Proposed Design Solutions



To Evaluate Changes to Design Solution



A - SELDOM OR NEVER  
B - INDIRECTLY  
C - AD HOC  
D - SYSTEMATICALLY  
E - TO MEASURE PERFORMANCE

□ A   ▨ B   ▩ C   ▪ D   ■ E





**Appendix L: Survey Data for Case Study Site - D**

**Content Analysis**

**How the Program Documents Were Referred To**

**Ways In Which The Program Documents Were Used**

INFORMATION ABOUT THE ORGANIZATION							
STAFF	PLANS	CORPORATE CULTURE	GOALS & OBJECTIVES	WORK GROUPS			
STAFF TYPES STAFF AMOUNTS STAFF NAMES STAFF GENDER STAFF LOCATION STAFF OPINION RESULTS	F BUSINESS PLANS OPERATIONAL PLANS O & M PLANS PROJECT - DESCRIPTION PROJECT - PARTICIPANTS PROJECT - TASKS	ORGANIZATIONAL STRUCTURE SOCIAL CULTURE CORPORATE IMAGE STAFF IMAGE CORPORATE HIERARCHY MNGMT - PHILOSOPHY PROJECT ORGNZTNL STRUCTURE	BUSINESS GOALS & OBJECTIVES O & M GOALS & OBJECTIVES PROJECT - SCHEDULE PROJECT - BUDGET PROJECT - COST PROJECTIONS PROJECT - IMPLEMENTATION	WORK GROUP TYPES WORK GROUP AMOUNTS WORK GROUP NAMES HISTORICAL RATES OF GROWTH PROJECTED RATES OF GROWTH			

INFORMATION ABOUT THE ORGANIZATION'S OPERATING ENVIRONMENT							
LAWS & REGULATIONS	BUILDING O & M	BUSINESS CONDITIONS	COMPETITIVE ACTIONS	LABOR FORCE	LEASE CONDITIONS		
TAX LAWS BUILDING CODE REQUIREMENTS BUILDING USE DEFINITIONS ZONING BYLAWS LEGAL DESCRIPTIONS	PROPERTY VALUE PROPERTY TAXES O & M COSTS	BUSINESS MARKET CONDITIONS COMPETITION ACTIVITIES ECONOMIC CONDITIONS OFFICE MARKET CNDTNS PAST OFFICE MARKET CNDTNS	OTHER COMPANY PLANS OTHER COMPANY ACTIONS OTHER COMPANY EXPERIENCES	DEMOGRAPHICS TRENDS CHARACTERISTICS	LEASE RATES DURATION OF LEASE SIZE OF AREA LEASED TENANT IMPROVEMENT TERMS LANDLORD IMPROVEMENT TERMS INSURANCE TERMS	DEPT. CHARGE-BACK TERMS	

INFORMATION ABOUT THE PHYSICAL CONDITIONS WITHIN EXISTING OR PROPOSED SPACES							
OUTSIDE CONDITIONS	BUILDING CONDITIONS	BLDG. I.T. CONDITIONS	WORK GROUP COND.	WORK STATION CONDITIONS	FURNITURE & EQUIP.	LAYOUTS	
CLIMATE EXTERNAL SECURITY NEIGHBOURHOOD CHRCTRCS SITE ACCESS (CAR, PEDESTR.) PARKING TYPES PARKING AMOUNTS PARKING LOCATIONS PARKING CONDITIONS PUBLIC TRANSIT BUILDING LOCATION SITE SIZE AMENITIES LANDSCAPING CONDITIONS	BUILDING FINISHES BUILDING HISTORY BUILDING SIZE BUILDING IMAGE BUILDING SECURITY BUILDING STRUCTURE BUILDING FENSTRATION BUILDING DOOR HARDWARE HVAC SYSTEMS PLUMBING SYSTEMS HUMIDIFICATION SYSTEMS TEMPERATURE CONTROLS FIRE SUPPRESSION SYSTEMS FIRE ALARM SYSTEMS AMBIENT LIGHTING SYSTEMS SERVICE AREA - TYPES SERVICE AREA - SIZES SERVICE AREA - AMOUNTS SERVICE AREA - LOCATIONS PROJECT LOCATION PROJECT SIZE	IT - NETWORK EQUIP TYPES IT - NETWORK EQUIP LOCATION IT - NETWORK EQUIP AMOUNTS IT - NETWORK EQUIP DETAILS IT - HORIZONTAL DISTRIBUTION IT - FEEDER/RISER IT - RISER/DIST SHIELDING IT - GROUNDING IT - SECURITY IT - HUMIDITY/DUST CONTROL IT - SURGE & NOISE PROTECTION IT - CABLING DETAILS TEL - BUILDING SERVICE TEL - FEEDER/RISER TEL - RISER/DIST. SHIELDING TEL - HORIZ DISTRIBUTION TEL - SECURITY TEL - REGULATIONS SAT - TYPES SAT - DETAILS ELEC - BLDG SERVICE CNDTNS ELEC - FEED/RISER ELEC - HORIZ DISTRIBUTION ELEC - RISER/HOR SHIELDING ELEC - GROUNDING CONDITIONS ELEC - SURGE & NOISE CNDTNS ELEC - BACK-UP	SIZES LOCATION SECURITY IMAGE FLEXIBILITY MEETING REQMTS ACOUSTICS PRIVACY AMBIANCE NATURAL LIGHTING HISTORICAL ACCMMDTN INFO WINDOW TREATMENTS SIGNAGE REQMTS PLANTING ART WORK HVAC - SYSTEM TYPES HVAC - SYSTEM LOCATIONS HVAC - SYSTEM DETAILS HUMIDITY CONTROL TEMPERATURE VENTILATION POLLUTION & DUST CONTROL LIGHTING LEVELS	TYPE SIZE AMOUNTS LOCATION FLOOR LOADING STORAGE REQMTS SECURITY PARTITION - TYPES PARTITION - FINISH QUALITIES PARTITION - DETAILS CEILING - TYPES CEILING - FINISH QUALITIES CEILING - DETAILS FLOOR - TYPES FLOOR - FINISH QUALITIES FLOOR - DETAILS MATERIAL COLOURS LIGHTING - FIXTURE TYPES LIGHTING - FIXTURE LOCATION LIGHTING - FIXTURE DETAILS ELEC - RECEPTICAL TYPE ELEC - RECEPTICAL AMOUNTS ELEC - RECEPTICAL LOCATIONS PLUMBING - FIXTURE TYPES PLUMBING - FIXTURE LOCATIONS PLUMBING - FIXTURE DETAILS IT - EQUIP TYPES	IT - EQUIP SIZES IT - EQUIP AMOUNTS IT - EQUIP LOCATIONS IT - EQUIP DETAILS IT - EQUIP MANUFACTURERS IT - SURGE & NOISE REQMTS IT - GROUNDING REQMTS IT - POWER REQMTS	FURNITURE - TYPES FURNITURE - BRAND NAMES FURNITURE - SIZES FURNITURE - AMOUNTS FURNITURE - LOCATIONS FURNITURE - ERGONOMICS FURNITURE - DETAILS EQUIP - TYPES EQUIP - SIZES EQUIP - AMOUNTS EQUIP - LOCATIONS EQUIP - DETAILS SYS FURNITURE - CABLE CAP SYS FURNITURE - ELEC RECP DIST SYS FURNITURE - BRAND NAMES SYS FURNITURE - DETAILS	FLOOR WORK GROUP WORK STATION CIRCULATION CONDITIONS

INFORMATION ABOUT INDIVIDUAL WORK STYLES AND JOB FUNCTIONS WITHIN THE ORGANIZATION							
TASK ANALYSIS	ADJACENCIES	COMMUNICATION	HUMAN FACTORS				
WHAT IS BEING DONE HOW IS IT BEING DONE WHEN IS IT BEING DONE WHY IS IT BEING DONE WHO IS DOING WHAT SEQUENCE OF EVENTS TYPE OF WORK	INDIVIDUAL / WORK STATION WORK GROUP BUILDING SITE	TYPES FREQUENCIES LOCATION TIME DEGREE OF IMPORTANCE	TEMPERATURE VENTILATION HUMIDITY POLLUTION & DUST CONTROL LIGHTING CONTROL ACOUSTICS PRIVACY MEETING CONDITIONS AMBIANCE	NATURAL LIGHTING VIEWS/SIGHTLINES ODOURS IND SCREENING CHRCTRCS IND. STRESS ASSESSMENTS IND PERCEPTIONS/PRIORITIES IND PRODUCTIVITY ASSESSMENTS IND INTERACTION NEEDS			

**BOLD TEXT** - Indicates information type WAS identified in the content analysis of the program documents

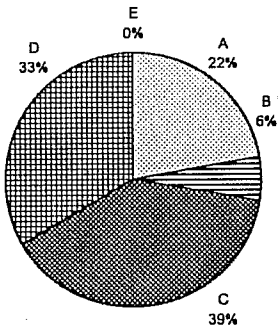
LIGHT TEXT - Indicates information type WAS NOT identified in the content analysis of the program documents.

F - Indicates the information type identified referred to conditions beyond the initial occupancy of the space.

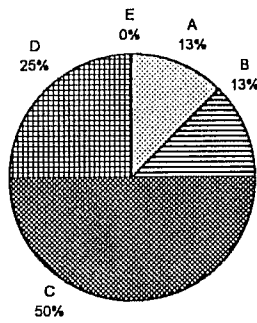
# HOW THE PROGRAM DOCUMENTS WERE REFERRED TO

## DESIGN FIRM

Management People

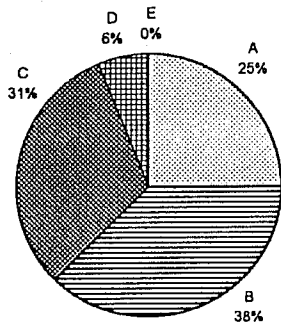


Implementation/  
Production People

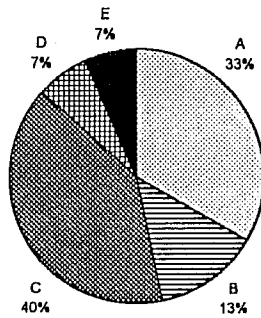


## CLIENT ORGANIZATION

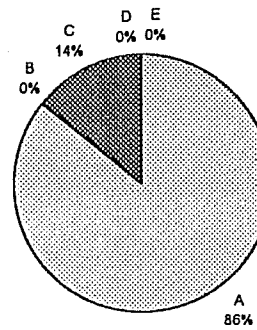
Management People



Implementation People

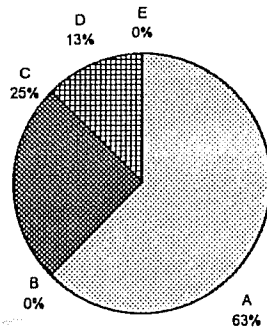


Staff



## GENERAL CONTRACTOR

Implementation People



A - SELDOM OR NEVER  
 B - INDIRECTLY  
 C - AD HOC  
 D - SYSTEMATICALLY  
 E - TO MEASURE PERFORMANCE

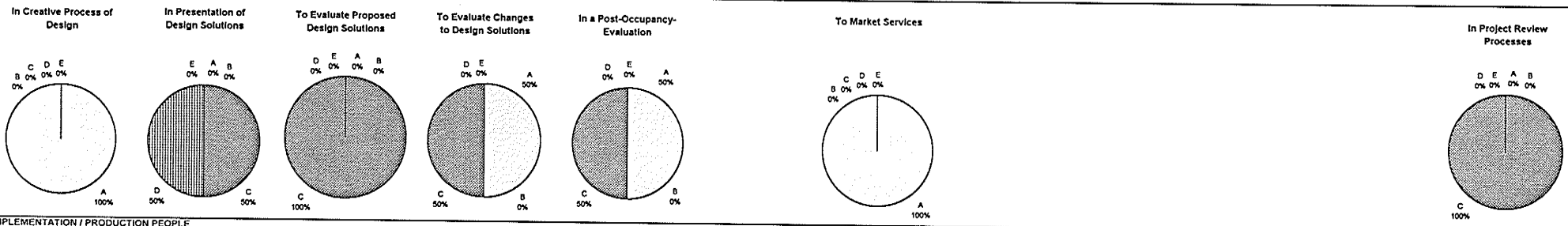




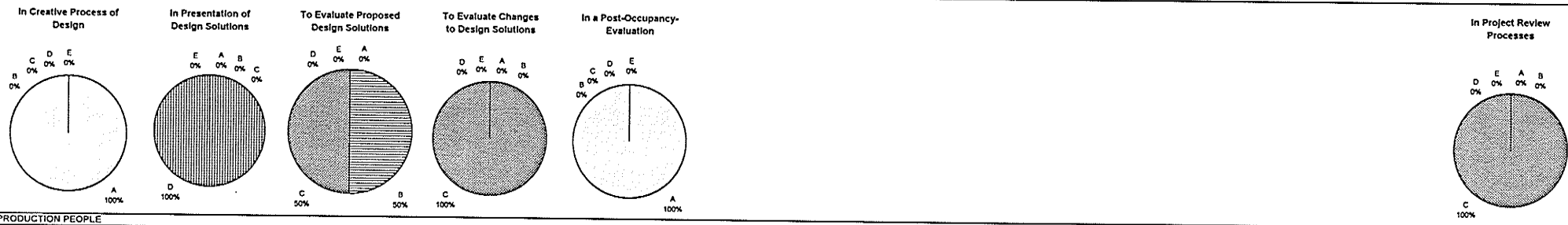
WAYS IN WHICH THE PROGRAM DOCUMENTS WERE USED: DESIGN FIRM

CASE STUDY - D

MANAGEMENT PEOPLE



IMPLEMENTATION / PRODUCTION PEOPLE



PRODUCTION PEOPLE

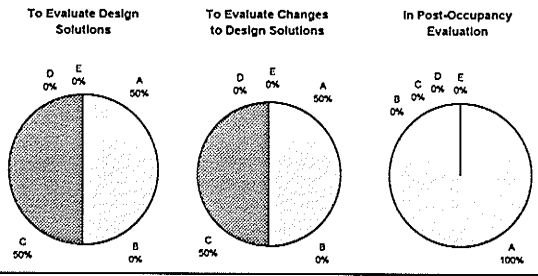
A - SELDOM OR NEVER  
 B - INDIRECTLY  
 C - AD HOC  
 D - SYSTEMATICALLY  
 E - TO MEASURE PERFORMANCE

□ A   ▨ B   ▩ C   ▤ D   ■ E

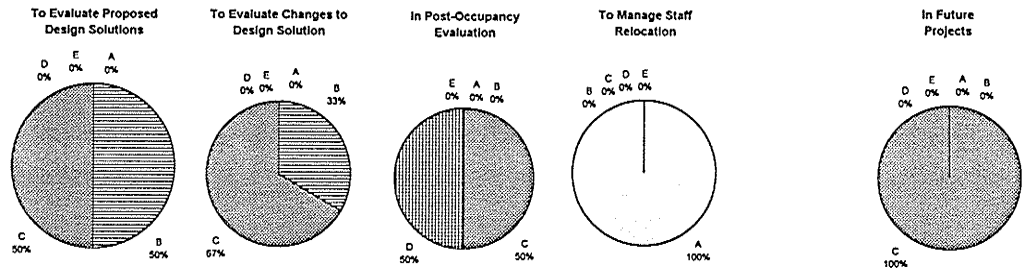
WAYS IN WHICH THE PROGRAM DOCUMENTS WERE USED: CLIENT ORGANIZATION

CASE STUDY - D

MANAGEMENT PEOPLE



IMPLEMENTATION PEOPLE



STAFF

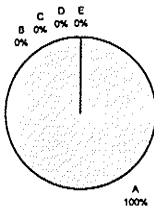
O&M PEOPLE

A - SELDOM OR NEVER  
 B - INDIRECTLY  
 C - AD HOC  
 D - SYSTEMATICALLY  
 E - TO MEASURE PERFORMANCE

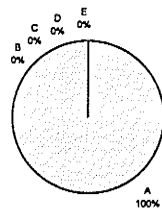


IMPLEMENTATION PEOPLE

To Evaluate Proposed Design Solutions



To Evaluate Changes to Design Solution



A - SELDOM OR NEVER  
B - INDIRECTLY  
C - AD HOC  
D - SYSTEMATICALLY  
E - TO MEASURE PERFORMANCE

□ A   ▨ B   ▩ C   ▪ D   ■ E





**Appendix M: Survey Data for Case Study Site - E**

**Content Analysis**

**How the Program Documents Were Referred To**

**Ways In Which The Program Documents Were Used**

INFORMATION ABOUT THE ORGANIZATION							
STAFF	PLANS	CORPORATE CULTURE	GOALS & OBJECTIVES	WORK GROUPS			
<b>STAFF TYPES</b> <b>STAFF AMOUNTS</b> STAFF NAMES STAFF GENDER STAFF LOCATION STAFF OPINION RESULTS	BUSINESS PLANS OPERATIONAL PLANS O & M PLANS PROJECT - DESCRIPTION <b>PROJECT - PARTICIPANTS</b> <b>PROJECT - TASKS</b>	ORGANIZATIONAL STRUCTURE SOCIAL CULTURE CORPORATE IMAGE STAFF IMAGE CORPORATE HIERARCHY MNGMT - PHILOSOPHY PROJECT ORGNZTNL STRUCTURE	BUSINESS GOALS & OBJECTIVES O & M GOALS & OBJECTIVES <b>PROJECT - SCHEDULE</b> PROJECT - BUDGET PROJECT - COST PROJECTIONS PROJECT - IMPLEMENTATION	<b>WORK GROUP TYPES</b> <b>WORK GROUP AMOUNTS</b> <b>WORK GROUP NAMES</b> HISTORICAL RATES OF GROWTH PROJECTED RATES OF GROWTH			

INFORMATION ABOUT THE ORGANIZATION'S OPERATING ENVIRONMENT							
LAWS & REGULATIONS	BUILDING O & M	BUSINESS CONDITIONS	COMPETITIVE ACTIONS	LABOR FORCE	LEASE CONDITIONS		
TAX LAWS BUILDING CODE REQUIREMENTS BUILDING USE DEFINITIONS ZONING BYLAWS LEGAL DESCRIPTIONS	PROPERTY VALUE PROPERTY TAXES O & M COSTS	BUSINESS MARKET CONDITIONS COMPETITION ACTIVITIES ECONOMIC CONDITIONS OFFICE MARKET CNDTNS PAST OFFICE MARKET CNDTNS	OTHER COMPANY PLANS OTHER COMPANY ACTIONS OTHER COMPANY EXPERIENCES	DEMOGRAPHICS TRENDS CHARACTERISTICS	<b>LEASE RATES</b> <b>DURATION OF LEASE</b> <b>SIZE OF AREA LEASED</b> <b>TENANT IMPROVEMENT TERMS</b> <b>LANDLORD IMPROVEMENT TERMS</b> <b>INSURANCE TERMS</b>	DEPT. CHARGE-BACK TERMS	

INFORMATION ABOUT THE PHYSICAL CONDITIONS WITHIN EXISTING OR PROPOSED SPACES							
OUTSIDE CONDITIONS	BUILDING CONDITIONS	BLDG. I.T. CONDITIONS	WORK GROUP COND.	WORK STATION CONDITIONS	FURNITURE & EQUIP.	LAYOUTS	
CLIMATE EXTERNAL SECURITY NEIGHBOURHOOD CHRCTRCS SITE ACCESS (CAR, PEDESTR.) BUILDING SECURITY <b>PARKING AMOUNTS</b> PARKING LOCATIONS PARKING CONDITIONS PUBLIC TRANSIT <b>BUILDING LOCATION</b> SITE SIZE AMENITIES LANDSCAPING CONDITIONS	<b>BUILDING FINISHES</b> BUILDING HISTORY BUILDING SIZE BUILDING IMAGE BUILDING SECURITY BUILDING STRUCTURE BUILDING FENSTRATION BUILDING DOOR HARDWARE HVAC SYSTEMS PLUMBING SYSTEMS HUMIDIFICATION SYSTEMS TEMPERATURE CONTROLS FIRE SUPPRESSION SYSTEMS FIRE ALARM SYSTEMS AMBIENT LIGHTING SYSTEMS SERVICE AREA - TYPES SERVICE AREA - SIZES SERVICE AREA - AMOUNTS SERVICE AREA - LOCATIONS <b>PROJECT LOCATION</b> PROJECT SIZE	IT - NETWORK EQUIP TYPES IT - NETWORK EQUIP LOCATION IT - NETWORK EQUIP AMOUNTS IT - NETWORK EQUIP DETAILS IT - HORIZONTAL DISTRIBUTION IT - FEEDER/RISER IT - RISER/DIST SHIELDING IT - GROUNDING IT - SECURITY IT - HUMIDITY/DUST CONTROL IT - SURGE & NOISE PROTECTION IT - CABLING DETAILS TEL - BUILDING SERVICE TEL - FEEDER/RISER TEL - RISER/DIST. SHIELDING TEL - HORIZ DISTRIBUTION TEL - SECURITY TEL - REGULATIONS SAT - TYPES SAT - DETAILS ELEC - BLDG SERVICE CNDTNS ELEC - FEED/RISER ELEC - HORIZ DISTRIBUTION ELEC - RISER/HOR SHIELDING ELEC - GROUNDING CONDITIONS ELEC - SURGE & NOISE CNDTNS ELEC - BACK-UP	<b>SIZES</b> LOCATION SECURITY IMAGE FLEXIBILITY MEETING REQMTS <b>ACOUSTICS</b> PRIVACY AMBIANCE NATURAL LIGHTING HISTORICAL ACCMMDTN INFO WINDOW TREATMENTS SIGNAGE REQMTS PLANTING ART WORK HVAC - SYSTEM TYPES HVAC - SYSTEM LOCATIONS <b>HVAC - SYSTEM DETAILS</b> HUMIDITY CONTROL TEMPERATURE VENTILATION POLLUTION & DUST CONTROL LIGHTING LEVELS	<b>TYPE</b> <b>SIZE</b> <b>AMOUNTS</b> LOCATION FLOOR LOADING STORAGE REQMTS SECURITY PARTITION - TYPES <b>PARTITION - FINISH QUALITIES</b> <b>PARTITION - DETAILS</b> <b>CEILING - TYPES</b> CEILING - FINISH QUALITIES CEILING - DETAILS FLOOR - TYPES <b>FLOOR - FINISH QUALITIES</b> FLOOR - DETAILS MATERIAL COLOURS <b>LIGHTING - FIXTURE TYPES</b> LIGHTING - FIXTURE LOCATION LIGHTING - FIXTURE DETAILS ELEC - RECEPTICAL TYPE <b>ELEC - RECEPTICAL AMOUNTS</b> ELEC - RECEPTICAL LOCATIONS PLUMBING - FIXTURE TYPES PLUMBING - FIXTURE LOCATIONS PLUMBING - FIXTURE DETAILS <b>IT - EQUIP TYPES</b>	IT - EQUIP SIZES <b>IT - EQUIP AMOUNTS</b> <b>IT - EQUIP LOCATIONS</b> IT - EQUIP DETAILS IT - EQUIP MANUFACTURERS IT - SURGE & NOISE REQMTS IT - GROUNDING REQMTS <b>IT - POWER REQMTS</b>	<b>FURNITURE - TYPES</b> <b>FURNITURE - BRAND NAMES</b> <b>FURNITURE - SIZES</b> <b>FURNITURE - AMOUNTS</b> <b>FURNITURE - LOCATIONS</b> FURNITURE - ERGONOMICS <b>FURNITURE - DETAILS</b> <b>EQUIP - TYPES</b> EQUIP - SIZES EQUIP - AMOUNTS EQUIP - LOCATIONS EQUIP - DETAILS SYS FURNITURE - CABLE CAP SYS FURNITURE - ELEC RECP DIST SYS FURNITURE - BRAND NAMES SYS FURNITURE - DETAILS	FLOOR WORK GROUP WORK STATION <b>CIRCULATION CONDITIONS</b>

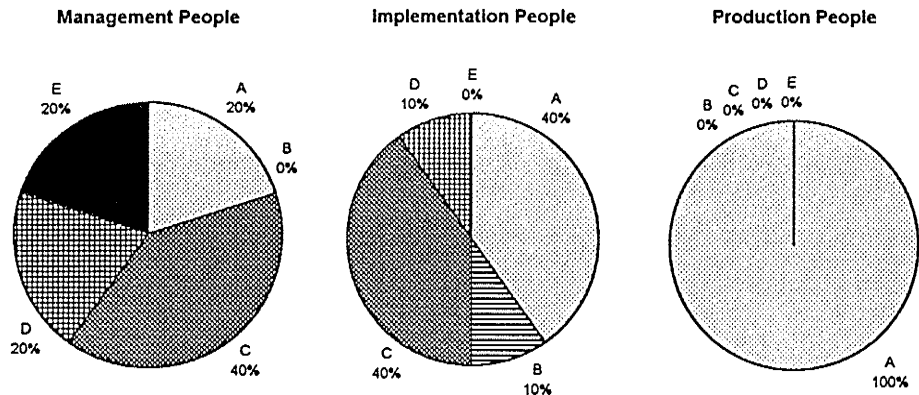
INFORMATION ABOUT INDIVIDUAL WORK STYLES AND JOB FUNCTIONS WITHIN THE ORGANIZATION							
TASK ANALYSIS	ADJACENCIES	COMMUNICATION	HUMAN FACTORS				
WHAT IS BEING DONE HOW IS IT BEING DONE WHEN IS IT BEING DONE WHY IS IT BEING DONE WHO IS DOING WHAT SEQUENCE OF EVENTS TYPE OF WORK	<b>INDIVIDUAL / WORK STATION</b> WORK GROUP BUILDING SITE	TYPES FREQUENCIES LOCATION TIME DEGREE OF IMPORTANCE	TEMPERATURE VENTILATION HUMIDITY POLLUTION & DUST CONTROL LIGHTING CONTROL ACOUSTICS PRIVACY MEETING CONDITIONS AMBIANCE	NATURAL LIGHTING VIEWS/SIGHTLINES OCCURS IND SCREENING CHRCTRCS IND. STRESS ASSESSMENTS IND PERCEPTIONS/PRIORITIES IND PRODUCTIVITY ASSESSMENTS IND INTERACTION NEEDS			

**BOLD TEXT** - Indicates information type WAS identified in the content analysis of the program documents

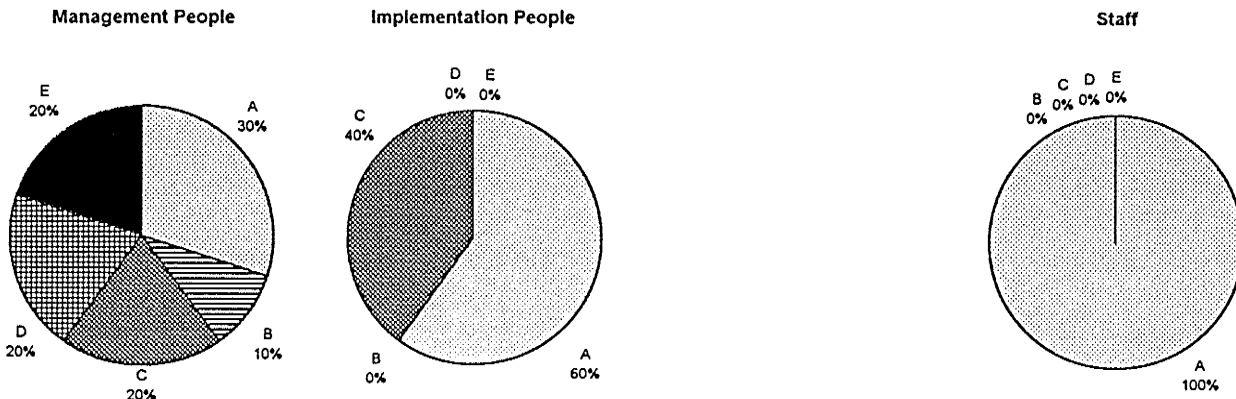
LIGHT TEXT - Indicates information type WAS NOT identified in the content analysis of the program documents.

F - Indicates the information type identified referred to conditions beyond the initial occupancy of the space.

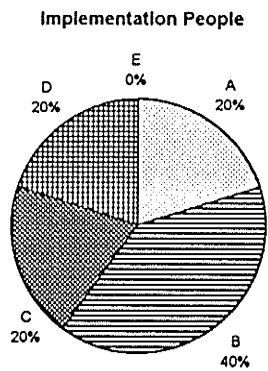
DESIGN FIRM



CLIENT ORGANIZATION



GENERAL CONTRACTOR



A - SELDOM OR NEVER  
 B - INDIRECTLY  
 C - AD HOC  
 D - SYSTEMATICALLY  
 E - TO MEASURE PERFORMANCE

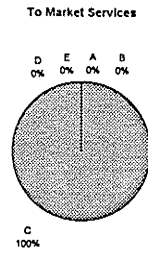
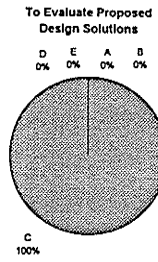




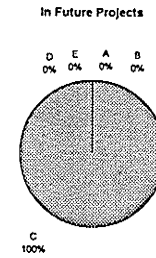
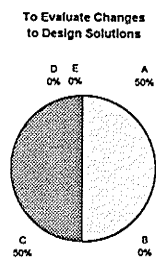
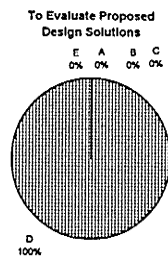
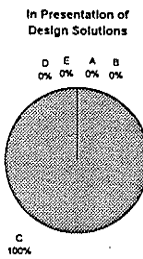
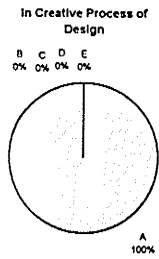
WAYS IN WHICH THE PROGRAM DOCUMENTS WERE USED: DESIGN FIRM

CASE STUDY - E

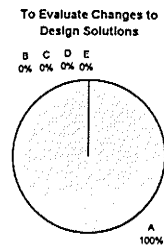
MANAGEMENT PEOPLE



IMPLEMENTATION/PRODUCTION PEOPLE



PRODUCTION PEOPLE



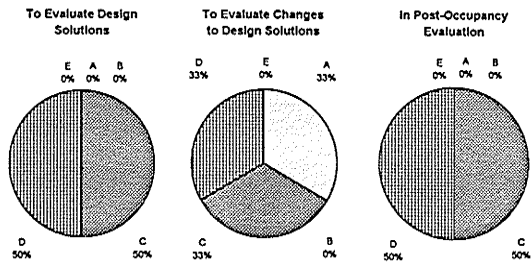
A - SELDOM OR NEVER  
 B - INDIRECTLY  
 C - AD HOC  
 D - SYSTEMATICALLY  
 E - TO MEASURE PERFORMANCE

□ A   ▨ B   ▩ C   ▪ D   ■ E

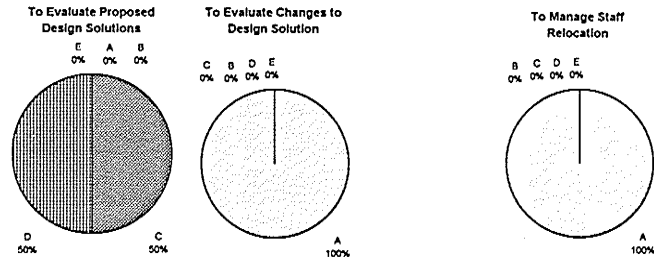
WAYS IN WHICH THE PROGRAM DOCUMENTS WERE USED: CLIENT ORGANIZATION

CASE STUDY - E

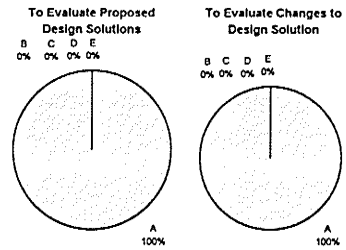
MANAGEMENT PEOPLE



IMPLEMENTATION PEOPLE



STAFF



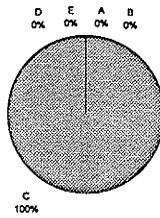
O&M PEOPLE

A - SELDOM OR NEVER  
 B - INDIRECTLY  
 C - AD HOC  
 D - SYSTEMATICALLY  
 E - TO MEASURE PERFORMANCE

□ A   ▨ B   ▩ C   ▧ D   ■ E

IMPLEMENTATION PEOPLE

To Evaluate Proposed  
Design Solutions



A - SELDOM OR NEVER  
B - INDIRECTLY  
C - AD HOC  
D - SYSTEMATICALLY  
E - TO MEASURE PERFORMANCE

□ A   ▨ B   ▩ C   ▪ D   ■ E





**Appendix N: Cross Case Survey Data Analysis**

**Frequencies of Information Types**

**Frequencies of Information Types That Referred to Conditions  
Beyond the Initial Occupancy of the Space**

**How the Program Documents Were Referred To**

**Ways In Which The Program Documents Were Used**

5 INFORMATION ABOUT THE ORGANIZATION									
5 STAFF		5 PLANS		4 CORPORATE CULTURE		5 GOALS & OBJECTIVES		5 WORK GROUPS	
5 STAFF TYPES	2 BUSINESS PLANS	2 ORGANIZATIONAL STRUCTURE	1 BUSINESS GOALS & OBJECTIVES	5 WORK GROUP TYPES					
5 STAFF AMOUNTS	3 OPERATIONAL PLANS	3 SOCIAL CULTURE	2 O & M GOALS & OBJECTIVES	5 WORK GROUP AMOUNTS					
2 STAFF NAMES	O & M PLANS	2 CORPORATE IMAGE	5 PROJECT - SCHEDULE	5 WORK GROUP NAMES					
3 STAFF GENDER	3 PROJECT - DESCRIPTION	1 STAFF IMAGE	3 PROJECT - BUDGET	HISTORICAL RATES OF GROWTH					
1 STAFF LOCATION	5 PROJECT - PARTICIPANTS	2 CORPORATE HIERARCHY	2 PROJECT - COST PROJECTIONS	PROJECTED RATES OF GROWTH					
1 STAFF OPINION RESULTS	5 PROJECT - TASKS	1 MNGMT - PHILOSOPHY	2 PROJECT - IMPLEMENTATION						
		1 PROJECT ORGNZTNL STRUCTURE							

4 INFORMATION ABOUT THE ORGANIZATION'S OPERATING ENVIRONMENT									
4 LAWS & REGULATIONS		1 BUILDING O & M		1 BUSINESS CONDITIONS		1 COMPETITIVE ACTIONS		1 LEASE CONDITIONS	
TAX LAWS	1 PROPERTY VALUE	BUSINESS MARKET CONDITIONS	1 OTHER COMPANY PLANS	DEMOGRAPHICS	1 LEASE RATES	DEPT. CHARGE-BACK TERMS			
BUILDING CODE REQUIREMENTS	1 PROPERTY TAXES	COMPETITION ACTIVITIES	1 OTHER COMPANY ACTIONS	TRENDS	1 DURATION OF LEASE				
BUILDING USE DEFINITIONS	1 O & M COSTS	ECONOMIC CONDITIONS	1 OTHER COMPANY EXPERIENCES	CHARACTERISTICS	1 SIZE OF AREA LEASED				
ZONING BYLAWS		1 OFFICE MARKET CNDTNS			1 TENANT IMPROVEMENT TERMS				
LEGAL DESCRIPTIONS		1 PAST OFFICE MARKET CNDTNS			1 LANDLORD IMPROVEMENT TERMS				
					1 INSURANCE TERMS				

5 INFORMATION ABOUT THE PHYSICAL CONDITIONS WITHIN EXISTING OR PROPOSED SPACES													
3 OUTSIDE CONDITIONS		5 BUILDING CONDITIONS		4 BLDG. I.T. CONDITIONS		5 WORK GROUP COND.		5 WORK STATION CONDITIONS		5 FURNITURE & EQUIP.		5 LAYOUTS	
CLIMATE	1 BUILDING FINISHES	3 IT - NETWORK EQUIP TYPES	5 SIZES	5 TYPE	1 IT - EQUIP SIZES	5 FURNITURE - TYPES	1 FLOOR						
EXTERNAL SECURITY	1 BUILDING HISTORY	1 IT - NETWORK EQUIP LOCATION	4 LOCATION	5 SIZE	4 IT - EQUIP AMOUNTS	2 FURNITURE - BRAND NAMES	3 WORK GROUP						
NEIGHBOURHOOD CHRCTRCS	2 BUILDING SIZE	1 IT - NETWORK EQUIP AMOUNTS	4 SECURITY	5 AMOUNTS	4 IT - EQUIP LOCATIONS	5 FURNITURE - SIZES	3 WORK STATION						
SITE ACCESS (CAR, PEDESTR.)	1 BUILDING IMAGE	1 IT - NETWORK EQUIP DETAILS	3 IMAGE	2 LOCATION	1 IT - EQUIP DETAILS	5 FURNITURE - AMOUNTS	2 CIRCULATION CONDITIONS						
PARKING TYPES	1 BUILDING SECURITY	3 IT - HORIZONTAL DISTRIBUTION	2 FLEXIBILITY	3 FLOOR LOADING	5 FURNITURE - LOCATIONS	1 FURNITURE - ERGONOMICS							
PARKING AMOUNTS	2 BUILDING STRUCTURE	1 IT - FEEDER/RISER	2 MEETING REQMTS	2 STORAGE REQMTS	1 IT - EQUIP MANUFACTURERS	5 FURNITURE - DETAILS							
PARKING LOCATIONS	1 BUILDING FENSTRATION	1 IT - RISER/DIST SHIELDING	3 ACOUSTICS	1 SECURITY	IT - SURGE & NOISE REQMTS	1 FURNITURE - TYPES							
PARKING CONDITIONS	BUILDING DOOR HARDWARE	2 IT - GROUNDING	1 PRIVACY	4 PARTITION - TYPES	1 IT - GROUNDING REQMTS	5 EQUIP - TYPES							
PUBLIC TRANSIT	3 HVAC SYSTEMS	1 IT - SECURITY	1 AMBIANCE	3 PARTITION - FINISH QUALITIES	4 IT - POWER REQMTS	3 EQUIP - SIZES							
BUILDING LOCATION	2 PLUMBING SYSTEMS	IT - HUMIDITY/DUST CONTROL	2 NATURAL LIGHTING	4 PARTITION - DETAILS		3 EQUIP - AMOUNTS							
SITE SIZE	2 HUMIDIFICATION SYSTEMS	1 IT - SURGE & NOISE PROTECTION	1 HISTORICAL ACCMMDTN INFO	3 CEILING - TYPES		4 EQUIP - LOCATIONS							
AMENITIES	1 TEMPERATURE CONTROLS	3 IT - CABLING DETAILS	1 WINDOW TREATMENTS	2 CEILING - FINISH QUALITIES		3 EQUIP - DETAILS							
LANDSCAPING CONDITIONS	3 FIRE SUPPRESSION SYSTEMS	1 TEL - BUILDING SERVICE	1 SIGNAGE REQMTS	2 CEILING - DETAILS		1 SYS FURNITURE - CABLE CAP							
	3 FIRE ALARM SYSTEMS	1 TEL - FEEDER/RISER	1 PLANTING	3 FLOOR - TYPES		1 SYS FURNITURE - ELEC RECP DIST							
	2 AMBIENT LIGHTING SYSTEMS	TEL - RISER/DIST. SHIELDING	1 ART WORK	5 FLOOR - FINISH QUALITIES		1 SYS FURNITURE - BRAND NAMES							
	4 SERVICE AREA - TYPES	2 TEL - HORIZ DISTRIBUTION	3 HVAC - SYSTEM TYPES	2 FLOOR - DETAILS		1 SYS FURNITURE - DETAILS							
	3 SERVICE AREA - SIZES	1 TEL - SECURITY	1 HVAC - SYSTEM LOCATIONS	1 MATERIAL COLOURS									
	3 SERVICE AREA - AMOUNTS	1 TEL - REGULATIONS	3 HVAC - SYSTEM DETAILS	4 LIGHTING - FIXTURE TYPES									
	3 SERVICE AREA - LOCATIONS	SAT - TYPES	2 HUMIDITY	2 LIGHTING - FIXTURE LOCATION									
	3 PROJECT LOCATION	1 SAT - DETAILS	1 TEMPERATURE	1 LIGHTING - FIXTURE DETAILS									
	3 PROJECT SIZE	3 ELEC - BLDG SERVICE CNDTNS	1 VENTILATION	3 ELEC - RECEPTICAL TYPE									
		1 ELEC - FEED/RISER	POLLUTION & DUST CONTROL	4 ELEC - RECEPTICAL AMOUNTS									
		1 ELEC - HORIZ DISTRIBUTION	1 LIGHTING LEVELS	2 ELEC - RECEPTICAL LOCATIONS									
		1 ELEC - RISER/HOR SHIELDING		3 PLUMBING - FIXTURE TYPES									
		1 ELEC - GROUNDING CONDITIONS		PLUMBING - FIXTURE LOCATIONS									
		1 ELEC - SURGE & NOISE CNDTNS		2 PLUMBING - FIXTURE DETAILS									
		1 ELEC - BACK-UP		5 IT - EQUIP TYPES									

5 INFORMATION ABOUT INDIVIDUAL WORK STYLES AND JOB FUNCTIONS WITHIN THE ORGANIZATION									
4 TASK ANALYSIS		4 ADJACENCIES		2 COMMUNICATION		3 HUMAN FACTORS			
2 WHAT IS BEING DONE	4 INDIVIDUAL / WORK STATION	2 TYPES	1 TEMPERATURE	1 NATURAL LIGHTING					
3 HOW IS IT BEING DONE	3 WORK GROUP	FREQUENCIES	VENTILATION	1 VIEWS/SIGHTLINES					
3 WHEN IS IT BEING DONE	BUILDING	2 LOCATION	HUMIDITY	CDOURS					
WHY IS IT BEING DONE	SITE	TIME	POLLUTION & DUST CONTROL	IND SCREENING CHRCTRCS					
WHO IS DOING WHAT		DEGREE OF IMPORTANCE	LIGHTING CONTROL	IND. STRESS ASSESSMENTS					
SEQUENCE OF EVENTS			1 ACOUSTICS	IND PERCEPTIONS/PRIORITIES					
TYPE OF WORK			2 PRIVACY	IND PRODUCTIVITY ASSESSMENTS					
			1 MEETING CONDITIONS	IND INTERACTION NEEDS					
			2 AMBIANCE						

**BOLD TEXT** - Indicates information type WAS identified in the content analysis of the program documents.

**LIGHT TEXT** - Indicates information type WAS NOT identified in the content analysis of the program documents.

# - Indicates how many case studies the information type or category was identified in (maximum 5).

FREQUENCY OF INFORMATION TYPES THAT REFERRED TO CONDITIONS BEYOND THE INITIAL OCCUPANCY OF THE SPACE - CASE STUDIES A, B, C, D, & E

4 INFORMATION ABOUT THE ORGANIZATION							
2 STAFF	3 PLANS	CORPORATE CULTURE	2 GOALS & OBJECTIVES	WORK GROUPS			
2 <b>STAFF TYPES</b> 1 <b>STAFF AMOUNTS</b> STAFF NAMES 1 <b>STAFF GENDER</b> STAFF LOCATION STAFF OPINION RESULTS	1 <b>BUSINESS PLANS</b> 2 <b>OPERATIONAL PLANS</b> O & M PLANS PROJECT - DESCRIPTION PROJECT - PARTICIPANTS PROJECT - TASKS	ORGANIZATIONAL STRUCTURE SOCIAL CULTURE CORPORATE IMAGE STAFF IMAGE CORPORATE HIERARCHY MNGMT - PHILOSOPHY PROJECT ORGNZTNL STRUCTURE	1 <b>BUSINESS GOALS &amp; OBJECTIVES</b> 1 <b>O &amp; M GOALS &amp; OBJECTIVES</b> PROJECT - SCHEDULE PROJECT - BUDGET PROJECT - COST PROJECTIONS PROJECT - IMPLEMENTATION	WORK GROUP TYPES WORK GROUP AMOUNTS WORK GROUP NAMES HISTORICAL RATES OF GROWTH PROJECTED RATES OF GROWTH			

2 INFORMATION ABOUT THE ORGANIZATION'S OPERATING ENVIRONMENT							
LAWS & REGULATIONS	BUILDING O & M	1 BUSINESS CONDITIONS	1 COMPETITIVE ACTIONS	LABOR FORCE	LEASE CONDITIONS		
TAX LAWS BUILDING CODE REQUIREMENTS BUILDING USE DEFINITIONS ZONING BYLAWS LEGAL DESCRIPTIONS	PROPERTY VALUE PROPERTY TAXES O & M COSTS	BUSINESS MARKET CONDITIONS COMPETITION ACTIVITIES ECONOMIC CONDITIONS 1 <b>OFFICE MARKET CNDTNS</b> PAST OFFICE MARKET CNDTNS	1 OTHER COMPANY PLANS 1 <b>OTHER COMPANY ACTIONS</b> OTHER COMPANY EXPERIENCES	DEMOGRAPHICS TRENDS CHARACTERISTICS	LEASE RATES DURATION OF LEASE SIZE OF AREA LEASED TENANT IMPROVEMENT TERMS LANDLORD IMPROVEMENT TERMS INSURANCE TERMS	DEPT. CHARGE-BACK TERMS	

3 INFORMATION ABOUT THE PHYSICAL CONDITIONS WITHIN EXISTING OR PROPOSED SPACES								
OUTSIDE CONDITIONS	1 BUILDING CONDITIONS	1 BLDG. I.T. CONDITIONS	3 WORK GROUP COND.	3 WORK STATION CONDITIONS	2 FURNITURE & EQUIP.	LAYOUTS		
CLIMATE EXTERNAL SECURITY NEIGHBOURHOOD CHRCTRCS SITE ACCESS (CAR. PEDESTR.) BUILDING SECURITY PARKING TYPES PARKING AMOUNTS PARKING LOCATIONS PARKING CONDITIONS PUBLIC TRANSIT BUILDING LOCATION SITE SIZE AMENITIES LANDSCAPING CONDITIONS	BUILDING FINISHES BUILDING HISTORY BUILDING SIZE BUILDING IMAGE BUILDING SECURITY BUILDING STRUCTURE BUILDING FENSTRATION BUILDING DOOR HARDWARE 1 <b>HVAC SYSTEMS</b> PLUMBING SYSTEMS HUMIDIFICATION SYSTEMS TEMPERATURE CONTROLS FIRE SUPPRESSION SYSTEMS FIRE ALARM SYSTEMS AMBIENT LIGHTING SYSTEMS SERVICE AREA - TYPES SERVICE AREA - SIZES SERVICE AREA - AMOUNTS SERVICE AREA - LOCATIONS PROJECT LOCATION PROJECT SIZE	IT - NETWORK EQUIP TYPES IT - NETWORK EQUIP LOCATION IT - NETWORK EQUIP AMOUNTS IT - NETWORK EQUIP DETAILS IT - HORIZONTAL DISTRIBUTION IT - FEEDER/RISER IT - RISER/DIST SHIELDING IT - GROUNDING IT - SECURITY IT - HUMIDITY/DUST CONTROL IT - SURGE & NOISE PROTECTION IT - CABLING DETAILS TEL - BUILDING SERVICE TEL - FEEDER/RISER TEL - RISER/DIST. SHIELDING TEL - HORIZ DISTRIBUTION TEL - SECURITY TEL - REGULATIONS SAT - TYPES 1 <b>SAT - DETAILS</b> ELEC - BLDG SERVICE CNDTNS ELEC - FEED/RISER ELEC - HORIZ DISTRIBUTION ELEC - RISER/HOR SHIELDING ELEC - GROUNDING CONDITIONS ELEC - SURGE & NOISE CNDTNS ELEC - BACK-UP	2 <b>SIZES</b> LOCATION SECURITY IMAGE 2 <b>FLEXIBILITY</b> MEETING REQMTS ACOUSTICS PRIVACY AMBIANCE NATURAL LIGHTING HISTORICAL ACCMMDTN INFO WINDOW TREATMENTS SIGNAGE REQMTS PLANTING ART WORK HVAC - SYSTEM TYPES HVAC - SYSTEM LOCATIONS HVAC - SYSTEM DETAILS HUMIDITY TEMPERATURE VENTILATION POLLUTION & DUST CONTROL LIGHTING LEVELS	2 <b>TYPE</b> 1 <b>SIZE</b> 1 <b>AMOUNTS</b> LOCATION FLOOR LOADING STORAGE REQMTS SECURITY PARTITION - TYPES PARTITION - FINISH QUALITIES PARTITION - DETAILS CEILING - TYPES CEILING - FINISH QUALITIES CEILING - DETAILS FLOOR - TYPES FLOOR - FINISH QUALITIES FLOOR - DETAILS MATERIAL COLOURS LIGHTING - FIXTURE TYPES LIGHTING - FIXTURE LOCATION LIGHTING - FIXTURE DETAILS ELEC - RECEPTICAL TYPE ELEC - RECEPTICAL AMOUNTS ELEC - RECEPTICAL LOCATIONS PLUMBING - FIXTURE TYPES PLUMBING - FIXTURE LOCATIONS PLUMBING - FIXTURE DETAILS 2 <b>IT - EQUIP TYPES</b>	IT - EQUIP SIZES IT - EQUIP AMOUNTS IT - EQUIP LOCATIONS IT - EQUIP DETAILS IT - EQUIP MANUFACTURERS IT - SURGE & NOISE REQMTS IT - GROUNDING REQMTS IT - POWER REQMTS	2 <b>FURNITURE - DETAILS</b> EQUIP - TYPES EQUIP - SIZES EQUIP - AMOUNTS EQUIP - LOCATIONS EQUIP - DETAILS SYS FURNITURE - CABLE CAP SYS FURNITURE - ELEC RECP DIST SYS FURNITURE - BRAND NAMES SYS FURNITURE - DETAILS	FLOOR WORK GROUP WORK STATION CIRCULATION CONDITIONS	

1 INFORMATION ABOUT INDIVIDUAL WORK STYLES AND JOB FUNCTIONS WITHIN THE ORGANIZATION							
1 TASK ANALYSIS	ADJACENCIES	COMMUNICATION	HUMAN FACTORS				
1 <b>WHAT IS BEING DONE</b> HOW IS IT BEING DONE 1 <b>WHEN IS IT BEING DONE</b> WHY IS IT BEING DONE WHO IS DOING WHAT SEQUENCE OF EVENTS TYPE OF WORK	INDIVIDUAL / WORK STATION WORK GROUP BUILDING SITE	TYPES FREQUENCIES LOCATION TIME DEGREE OF IMPORTANCE	TEMPERATURE VENTILATION HUMIDITY POLLUTION & DUST CONTROL LIGHTING CONTROL ACOUSTICS PRIVACY MEETING CONDITIONS AMBIANCE	NATURAL LIGHTING VIEWS/SIGHTLINES ODOURS IND SCREENING CHRCTRCS IND. STRESS ASSESSMENTS IND PERCEPTIONS/PRIORITIES IND PRODUCTIVITY ASSESSMENTS IND INTERACTION NEEDS			

**BOLD TEXT** - Indicates the information type DID refer to conditions beyond the initial occupancy of a space and WAS identified in a program documents.

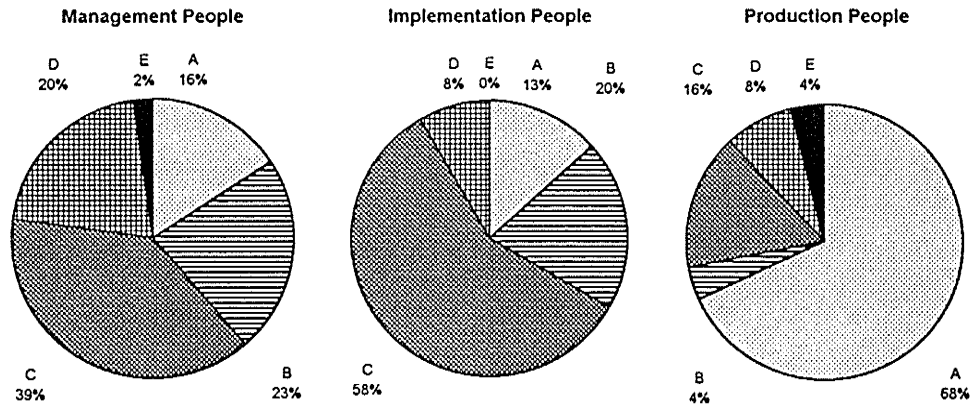
LIGHT TEXT - Indicates the information type DID NOT refer to conditions beyond the initial occupancy of a space.

# - Indicates how many case studies the information type or category was identified in (maximum 5).

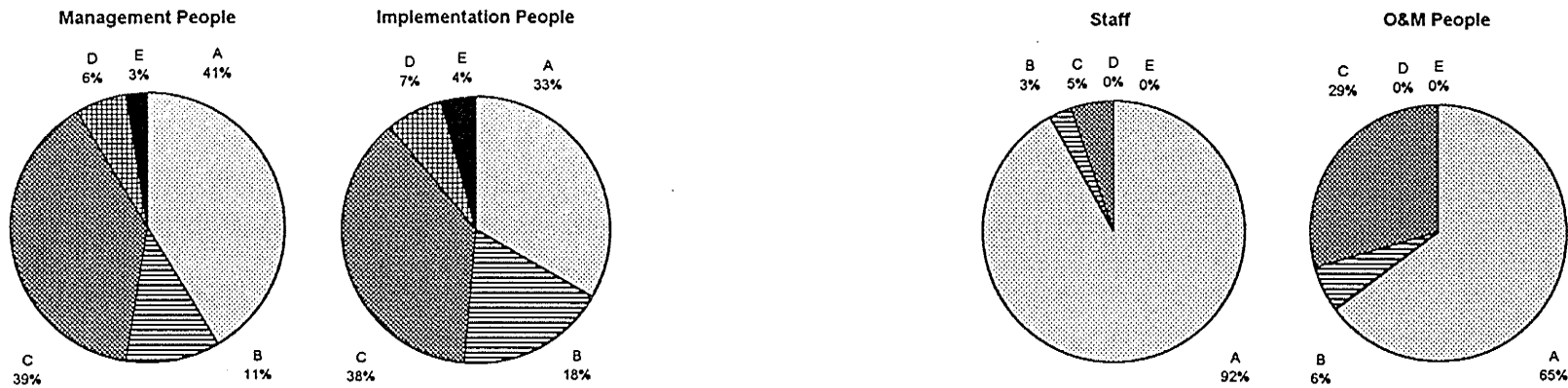
HOW THE PROGRAM DOCUMENTS WERE REFERRED TO

CASE STUDIES - A, B, C, D, E

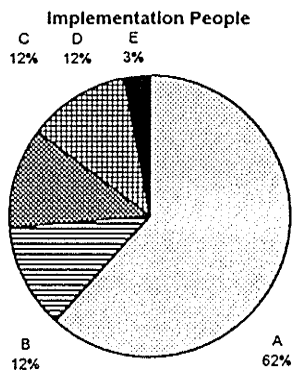
DESIGN FIRM



CLIENT ORGANIZATION



GENERAL CONTRACTOR



A - SELDOM OR NEVER  
 B - INDIRECTLY  
 C - AD HOC  
 D - SYSTEMATICALLY  
 E - TO MEASURE PERFORMANCE



HOW THE PROGRAM DOCUMENTS WERE REFERRED TO

CASE STUDIES - A, B, C, D, E

A - SELDOM OR NEVER B - INDIRECTLY C - AD HOC D - SYSTEMATICALLY E - TO MEASURE PERFORMANCE

GROUPS Program Users	PROGRAM DOCUMENTS																																						
	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D

DESIGN FIRM

Management People

Principal -In-Charge	●					●					●					●	●				●					●					●					●				
Principal -In-Charge		●					●					●					0					0					0													
Principal -In-Charge		●					●					●					●					●					●					●					●			
Project Architect	●						●					●					●					●					●					●					●			
Sr. Interior Designer		●					●					●					●					●					●					●					●			
Principal -In-Charge		●					●					●					●					●					●					●					●			

Implementation People

Project Architect		●					●					●					●					●					●					●			
Interior Designer		●					●					●					●					●					●					●			
Project Architect		●					●					●					0					0					0					0			
Design Architect		●					●					●					0					0					0					0			
Interior Designer		●					●					0					●					●					●					●			
Interior Designer		●					●					●					●					●					0					0			
Interior Designer, Tech	●						●					●					●					●					●					0			
Interior Designer		●					●					●					●					●					●					●			
Furniture Designer	●						●					●					●					●					●					●			

Production People

Technician	●						●					●					●					●					●					●			
Technician		●					●					0					0					0					0					0			
Technician	●						●					●					●					●					0					0			
Technician	●						●					●					●					●					●					●			

CLIENT ORGANIZATION

Management People

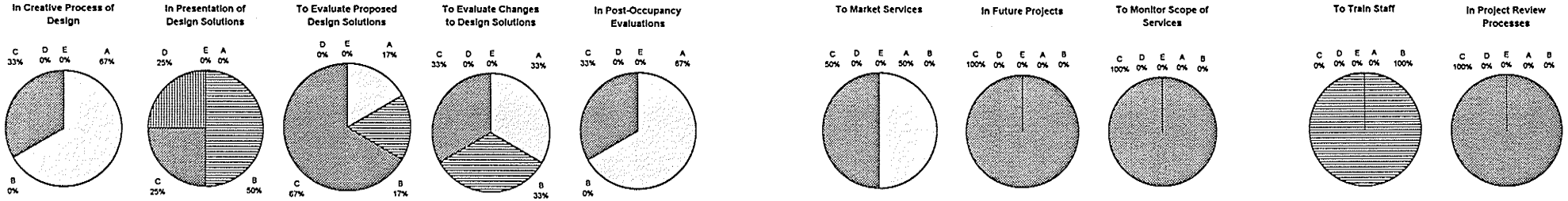
**Vice-President		●					●					●					●					●					●					●			
**Manager		●					●					●					●					●					●					●			
**Manager		●					●					●					●					●					●					●			
Manager		●					●					0					0					0					0					0			
Manager	●						●					0					0					0					0					0			
Director		●					●					●					●					●					0					0			
Manager	●						●					●					●					●					0					0			
**Director		●					●					●					●					●					0					0			
**Manager		●					●					●					●					●					0					0			
**Director		●					●					●					●					●					0					0			
Leasing Coordinator		●					●					●					●					●					0					0			



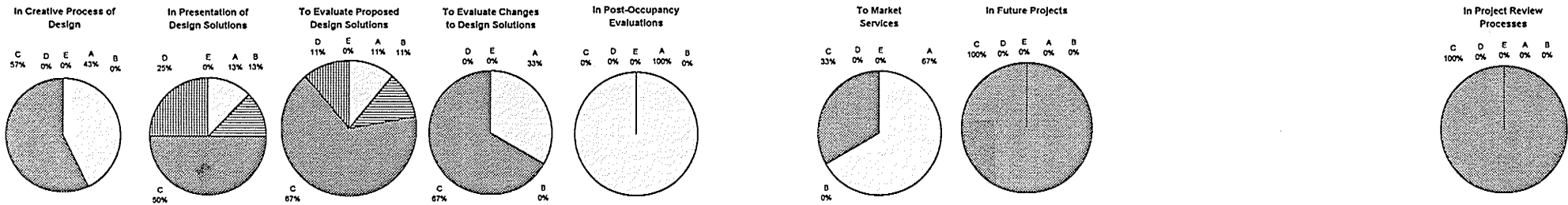
WAYS IN WHICH THE PROGRAM DOCUMENTS WERE USED: DESIGN FIRM

CASE STUDIES - A, B, C, D, E

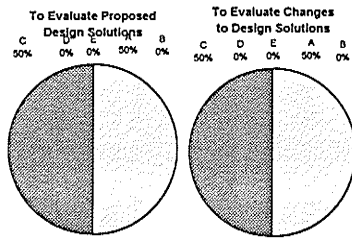
MANAGEMENT PEOPLE



IMPLEMENTATION PEOPLE



PRODUCTION PEOPLE



A - SELDOM OR NEVER  
 B - INDIRECTLY  
 C - AD HOC  
 D - SYSTEMATICALLY  
 E - TO MEASURE PERFORMANCE

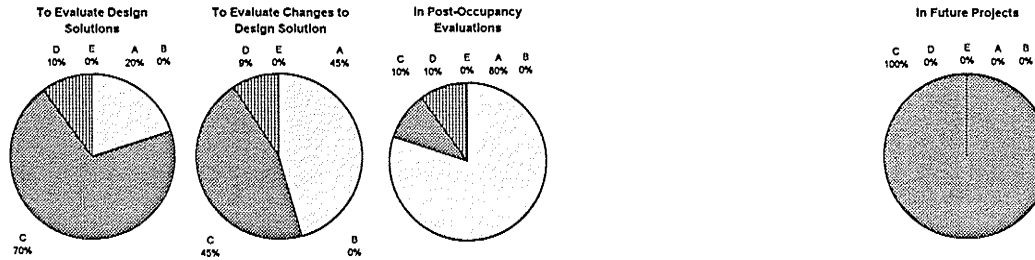
□ A   ▨ B   ▩ C   ▤ D   ■ E



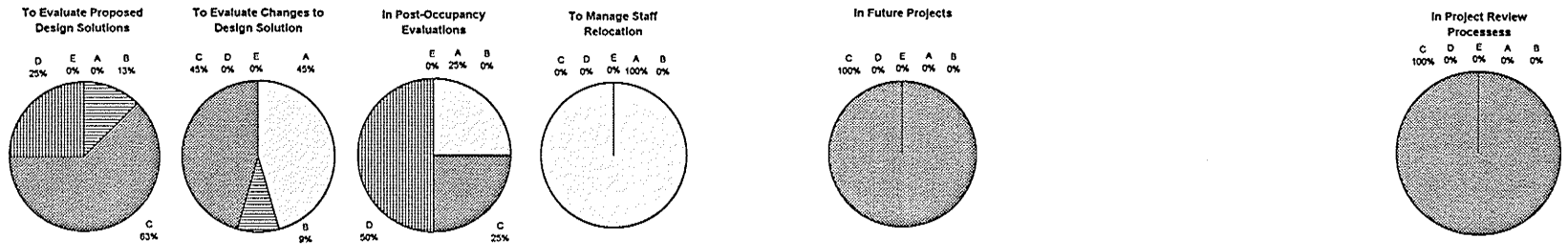
WAYS IN WHICH THE PROGRAM DOCUMENTS WERE USED: CLIENT ORGANIZATION

CASE STUDIES - A, B, C, D, E

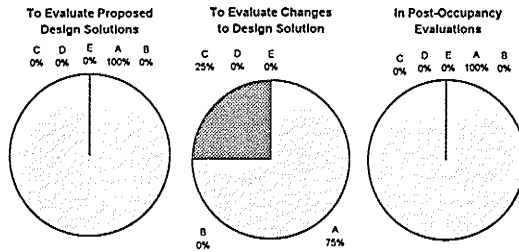
MANAGEMENT PEOPLE



IMPLEMENTATION PEOPLE



STAFF



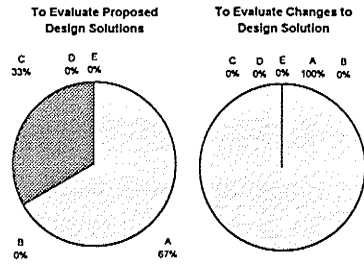
O & M PEOPLE



A - SELDOM OR NEVER  
 B - INDIRECTLY  
 C - AD HOC  
 D - SYSTEMATICALLY  
 E - TO MEASURE PERFORMANCE

□ A   ▨ B   ■ C   ▩ D   ■ E

IMPLEMENTATION PEOPLE



A - SELDOM OR NEVER  
B - INDIRECTLY  
C - AD HOC  
D - SYSTEMATICALLY  
E - TO MEASURE PERFORMANCE

□ A   ▨ B   ▩ C   ▪ D   ■ E





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