

CHAPTER III: OBSERVATIONS

The study and observation of the installed gestured forms in the entry hall was based on and controlled by the dependent variable: 'movement patterns' of the occupants using the entry hall (Winkel and Sasanoff p.352-353 App.J). By using the movement patterns as a variable dependent on the activation of space resulting from the gestured forms, the observations would be structured to reflect the physical proxemic nature of the occupants; thereby demonstrating a validity to the thesis premise and execution. Using movement patterns (behavior mapping) avoids the difficulty of asking the occupants to describe the influence the forms have on their perceptions. Most of the occupants are unaware that any change in their behavior is taking place, since the affects from the gestured forms are primarily at a subconscious level of perception (Ittelson and Proshansky p.218-221 App.L; Ittelson and Proshansky p.232 App. K). First, the movements of individual occupants are recorded; restricted to the observations made when the entry hall was only occupied by one occupant, to eliminate any proxemic influences from other occupants. Then, the individual observations are grouped into patterns of similar movements (factor analysis), to reveal recurring behaviors linked to physical characteristics in the entry hall (Ittelson and Proshansky, p.222-224 App. L; Winkel and Sasanoff p.359 App.J). Any change in their behavior resulting from the adjustments of the forms is visible in these patterns and can be mathematically analyzed and validated to find the form's efficacy in influence over the occupant's behavior.

The observation of these movement patterns requires many controls, to create a study with only one dependent variable. One of these controls is the sample of occupants used in the study. In order to create a natural and unprovoked response to the installed forms, the occupants that were studied needed to be unaware of the study or its intent (Ittelson and Proshansky, p.229 App. G). To facilitate this, in addition to maintaining the same sample of occupants using the space over the duration of the study (including adjustments to the forms), the observations were conducted at the same time and day of each week: Tuesdays and Thursdays, one hour of time samples between 9 a.m. and 11 a.m., one hour of time samples between 1 p.m. and 3 p.m. (Table 1).

Another concern was the degree of the initial 'shock value' in the installation of the gestured forms into the existing space. The observations of the occupants in the existing condition is the result of many weeks, months, and sometimes years of the occupants exposure to the empty entry hall, a behavior that has become repetitive, familiar, and desensitized (Kipnis, Of Objectology p.105 App.A). In order to maintain a similar response after the forms were installed, a period of time allowing for significant exposure to eliminate the initial 'shock value' or 'exploratory' responses was necessary (Stea p.14 App.C; Downs and Stea p.9 App.C; Ittelson and Proshansky p.236-237 App.C). This was done by installing or adjusting the forms for a minimum of eight days before any observations were recorded. In addition, the second group of observations of the 'Installed Condition' was held back for an extra fourteen days, to verify the validity of this premise (Table 1). The results of these observations spread out over a four week period, in contrast to the observations of the 'Adjusted Condition' spread out over a two and a half week period, proved to validate the occurrence of a desensitizing initial response over repeated exposures to the context.

The recording of the movement patterns was done with two forms of visual observation: still pictures and moving pictures. The still pictures were taken with a Nikon FA 35mm camera, using Kodak Plus-X pan 125 asa speed film, and developed on Kodak Polycontrast III RC Lustre paper. The moving pictures were taken with a Quasar CCD Quarter Back palmcorder, using JVC VHS-C 90 min videotape. The entry hall was observed from the portico adjacent to the entry hall (ten feet away from the main entry); taken through the full height glazing system dividing the two spaces. The cameras were positioned to record the movements of the occupant's feet in relation to locational cues given from the tile work inlaid in the floor. In addition, the cameras also recorded the occupant's body orientation (and change in orientation) to the gestured forms, lateral displacement of the occupants, proxemic distances (and change in distances)

between the occupants and the gestured forms, gestures (degree of movement) of the occupants in relation to the gestured forms, kinesic isomorphism of the occupants in relation to the gestured forms, eye behavior of the occupants in relation to the gestured forms, and the occupant's bodily involvement seeking / avoiding contact with the gestured forms (Hall, Handbook p.57 App. K). These cues would provide much more information in a study that researched the spatial relationships involved with its occupants; however for this study of limited scope, the movement paths of each occupant (taken from their foot movements) was the only factor analyzed. The degree of accuracy for this type of visual recording was believed to be within a variance of six inch fluctuations (Craik, The Comprehension p.33 App.I). This variance, relative to the dimensions of the entry hall (12'-8" x 10'-4": 11'-4" ceiling) allowed for a margin of error ranging from 4.8 % to 12.5 % (this margin is tested against the pattern's median to arrive at an exact value, found later in this chapter). Although this variance factor is of a considerable magnitude, the final results of this study are intended to demonstrate the validity of a proxemic analysis of human behavior and architectural form, not the justification of any quantifiable influences attributed to any particular relationship between an occupant and a gestured form. In the event of a future study intended to reach a conclusion with a more sensitive relationship in proxemics, a more accurate means of observation would be recommended; such as an overhead camera perpendicular to the ground plane or some form of dust-film spread over the floor to record location and frequency of movement patterns.

After the observations of the entry hall were taken and reviewed, there were twenty-seven unique patterns of movement found from the occupants using the space (Canter, Psychology p.152-153 App.I; Barker, Ecological p.28-29 App.J; Rapoport, History p.214-215 App.J). The patterns were the occupant's movements entering the main entry to the stairs up, to the elevator, to the stairs down, to the President's office, or to the gallery; from the stairs up to the stairs down, to the President's office, out the main entry, or to the gallery; from the elevator to the President's office, out the main entry, or to the gallery; from the stairs down to the President's office, out the main entry, to the stairs up, to the elevator, or to the gallery; from the President's office out the main entry, to the stairs up, to the elevator, to the stairs down, or to the gallery; or from the gallery to the stairs up, to the elevator, to the stairs down, to the President's office, or out the main door. Of these twenty-seven patterns, six directly relate to the focus of this thesis study: the occupant's proxemic behavior (as influenced by the gestured forms) related to the defined spatial envelope adjacent to the elevator door (Table 2). Three of those six involved the occupants passing through the main entry: to the stairs up, to the stairs down, and to the President's office (Fig. 9 thru 12). The fourth pattern involved the occupants circling down the staircase: from the stairs up past the elevator to the stairs

down (Fig. 13 thru 16). The fifth pattern involved the reverse of the fourth pattern: from the stairs down past the elevator to the stairs up (Fig. 17). The last and most important pattern involved two behavior types: the movement of the occupants after they entered the main entry as they waited for the arrival of the elevator and the stationary points where the occupants located themselves (in between lateral movements) as they waited for the arrival of the elevator (Fig. 18 thru 24).

Table 2 shows the number of paths (for the six patterns studied) that were recorded during each condition that the entry hall experienced: the initial 'Existing Condition' (before any alterations were done to the space), the 'Installed Condition' (after the four forms were first introduced into the space), and the 'Adjusted Condition' (after two of the four forms were manipulated from their previous 'Installed Condition', refer to Fig. 4). Each pattern type is referenced with a percentage value for these paths in relation to the total number of paths that were recorded, for that pattern, during that condition period. And then the 'margin of error' is calculated, recording the amount of variation each condition period has to the original condition period; this demonstrating that the quantities of pattern types remains consistent throughout this thesis study, validating the accuracy of the time samples collecting a uniform distribution of patterns in each condition period (Ittelson and Proshansky, p.231 App. L). In addition, the sixth pattern type (Entering through the main entry and waiting for the arrival of the elevator) has a category for the number of stationary points recorded during the various condition periods; with a calculated ratio of the number of stationary points per individual path. To state in another way, the ratio is the average number of times that an occupant will pause at a stationary point, while moving about as they wait for the arrival of the elevator (Canter, Psychology p.113-123 App.D). It is interesting to note the last statistic (Percent decrease), which marks the percentage of drop off in the ratio value of one condition period from the previous condition period. This demonstrates that the frequency of the occupant to pause at a stationary point while moving about, significantly drops (from an average of a little more than three times per occupant in the 'Existing Condition' to an average of about two times per occupant in the 'Adjusted Condition') after the adjustments are made to the gestured forms.

The composited median lines in Figure 12 (for the entry patterns through the main door), record the shift of movement patterns over the duration of the study. As an example, the pattern of occupants moving from the main entry to the stairs up, progressively shifts to the left after the forms are installed, and later adjusted. To statistically validate these findings (Hall, Handbook p.102 App.L), the median line drawn for each of the three condition periods, was related through a percentage value against the proportionate

dimensions (the maps of the entry hall in Fig. 5 thru 24 are drawn at a scale of $3/8" = 1'-0"$) of the three composite line maps from each condition period (Fig. 9 thru 11). The percentage of shift in the median lines (from the 'Existing' to the 'Adjusted' Conditions, of the patterns to the stairs up) is 60.8 % to the left, in relation to the composite line maps' proportionate dimensions. After the 'margin of error' at a maximum of 12.5 % (as previously stated in this chapter) is deducted from the percentage of shift in the median lines, the result is still a significant difference of 48.3 % shift to the left. In contrast, the movement pattern from the main entry to the stairs down, shifts to the right 16.7 % and then back to the left 5.0 %, over the duration of the study. However, their percentage of shift after the 'margin of error' is factored in, at 4.2 - 11.9 % and 0.0 - 0.2% are both too marginal to insure a significant shift in movement. Therefore, as this example of a statistical analysis demonstrates, the first pattern records a significant shift to the left, of the occupant's movement paths; however the second pattern does not record a significant shift of the movement paths (due to the 'margin of error' present in the observational methods used), even though a shift of the movement paths might have actually existed. Based on this method of statistical validation, only the movement patterns that demonstrate a significant shift in their median lines will be listed and described; for future reference in the next chapter.

Figure 12 records a significant shift of movement paths in the patterns: From the main entry to the stairs up, shifting slightly with the installation of the forms and then a greater shift after the adjustment of two of the four forms. In addition, there is a significant shift inward toward the corner in the pattern from the main entry to the President's office.

Figure 16 records a significant shift of movement paths in the pattern from the stairs up to the stairs down: The median lines shift slightly inward as the occupants pass Form-B during the period of study between the 'Existing' and 'Installed' Conditions; but then shifts much greater outward during the period of study between the 'Installed' and 'Adjusted' Conditions. In addition, the outer perimeter paths (represented by the second set of three lines, below the median lines) of this pattern, show a dramatic shift: first a narrowing of outward swing in movement around the elevator and then, a lateral shift of the deepest point projecting into the center space, first left and then back to the right.

Figure 24 records a significant shift of the movement paths in the pattern from the main entry to waiting for the arrival of the elevator: The median lines (tracing the movement directly in and to the elevator call button) shift to the right over the duration of the study. In addition, the outer perimeter paths (represented

by the second set of three lines, circling the median lines) of this pattern, show a dramatic decrease in the 'exploratory' movements of the occupants in the center of the entry hall, while there is an increase in the movement toward Form-B over the duration of the study.