

THE EVALUATION OF FAMILY SATISFACTION WITH THE DESIGN OF THE STACKED MAISONETTE

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The problem is set at the determination of the mix and weight of behavioral and demographic pre-selected factors in the organization of family types of residential satisfaction. To solve this problem a research design is constructed which affords personal and extended multi-method contacts with a sample of twelve families occupying stacked maisonette houses. In the analysis, three family types are isolated which appear to share consistent satisfaction factors, including both behavioral and demographic indicators.

1.0 Introduction:

Our contention is that many of the important factors in housing design research have been isolated if not completely explained in relation to residential satisfaction. Thus such factors as stage of the family life cycle (factorial ecology studies, 1971), stage of the housing mobility cycle (Michelson, 1973), the pull of privacy and community (Chermayeff and Alexander, 1963) activity patterns and adaptation level (Perin, 1972), economic factors (many studies), furniture arrangements and fit (Teasdale, 1970), household inventories (Valentine, 1970), geographic location and migrational factors (Michelson, 1970), site plan (Carey and Mapes, 1972), and design fault patterns (Beck, Rowan, and Teasdale, 1974) -- such factors have all, and there are more, proved to explain part of the variance in predicting satisfaction with aspects of housing. What we seek now is to balance and weigh some of these factors within families -- to see how they add up, link or fit together, perhaps to rank the factors in importance. Only an intimate knowledge of the families will enable the research team to assess the various proportions of these decision-making factors for a given family. More risky will be our attempt to type clusters of families who share common characteristics vis-à-vis the variables expressed above and others throughout the course of a pilot study of a low middle income, low density (20-40) stacked 3BR maisonettes occupied by families with two or more children, ranging from 0 to 16 years.

In order to attack the problem thus expressed we must first assemble for you a model of man-behavior environment, relate this to residential satisfaction and expose the research design which generated the data. All this leads to a presentation of the family type analysis in part 8.0 in which each of the factors to be analyzed is defined and placed

in a form (matrix) by which pattern analysis may be facilitated. For the moment, the matrix suffices until our N forces us to manipulate data mathematically. We shall add 5 more projects later in the year when the study samples locations in Eastern Canada from Ottawa to Sydney, Nova Scotia.

We have a second objective in this paper and that is to articulate and lay open our research design. This is justifiable given the focus on measurement for this section of EDRA 5. Therefore, we shall have cause to talk of methods and procedures which are not central to the family type analysis but were used as evidence in a clinical fashion in adding up the picture for each family.

2.0 Lifestyle Behavior Circuits:

The behavior we consider is structured in the form of activities which comprise the lifestyle of the families under investigation. By lifestyle we refer to a non-exhaustive set of categories referring respectively to child-related, neighbouring, leisure, furnishing, security, personal-care, maintenance and food activities. Activities are made relevant to design by grounding them in the physical system which supports their goal-tending nature. These supports are physical components that the designer provides (doors, rooms) and the resident provides (furniture, equipment). The supports are principally conceived to come into play at the level of man/environment infrastructure, that is where man interfaces and actually contacts (uses) environment, and less to intend superstructure (roof, insulation), even though these latter have secondary effects at the level of infrastructure. The total assemblage of systems components attached to any lifestyle subactivity is called, following Perin, a behavior circuit. The host of circuits would comprise the behavior setting. The circuits should not be thought of as originating at a specific location or always terminating in the same environment. Nevertheless, the idea of movement and the sequence of the performance of the circuit is of no little interest to us. When users evaluate their maisonettes and surrounding habitat, we ask them to evaluate circuits rather than activities in isolation or physical components in isolation. Differential evaluation of circuits as well as the structural variables (such as stage of the family life cycle) combine to form the molecule of satisfaction.

We believe that in evaluating lifestyle one is essentially into a quality of life research. For most of the people in this investigation "lived time" takes place overwhelmingly in the house. There is less intraurban mobility in this group than one would find in higher income populations in which the design research focus might well have concentrated on urban activity orbits rather than behavior circuits within the housing microcosm.

The circuits provide the basis for our whole system of coding our interview information which is formed from 33 x 30 matrix of subactivities of the lifestyle categorization schema and locational

subspaces of the housing project. This does not exhaust the man/environment interactions for we must also consider the activities versus the resident's personal physical environment -- furniture, moveable equipment and clothing. Circuits involving man/furniture must take place in a location and so we regard the 33 x 30 matrix as containing cells which themselves contain a microstructure. Within these locations there is the play of interaction between man and his personal physical environment. This environment is vital to study because the objects lay closer to man, in their performance of activities.

The infrastructure locational components are traditional ones used in common architectural practice. Thus we speak of the various size scales or levels of the project -- house, building, project, immediate neighbourhood. The house itself is broken into its traditional subspaces -- rooms, storage spaces; the building into rooms, corridors, entry; project into its areas of usage, etc.

3.0 Satisfaction:

We understand satisfaction with housing to be the resultant of a highly complex array of forces, and this model merely scratches the surface in uncovering the bonds and vectors which make up the molecule. Satisfaction has two primary independent variables, chronological and spatial aspects, both of which must be seen as in a process of development. Chronologically, we conclude from an impressive array of evidence that satisfaction with housing is geared to the stage of the family life cycle. From the point of view of total amount of space, subdivision of space, degree of private space, etc., it is sensible to believe that families at different points of evolution with differently aged children will have variable needs, hence receive variable satisfaction from their housing. Spatially, the same families are probably moving in a cycle of housing, a mobility cycle, in which they are always tending to move one step closer to their ideal of the single detached private house. Thus families are at some stage in their housing history when they come into our research focus. These dynamic cycles are an underlying structure insuring that the satisfaction molecule transforms as the family ages and migrates. Satisfaction is also present at more immediate -- short term scale as opposed to the long term factors of the life cycle. This is intrinsic in the behavior circuit approach as presented above; lack of satisfaction results from the accumulation of incompletely fulfilled activities. It may be that the activity short circuits and is left incomplete. Or it may be that the activity is completed but only after much environmental interruption and interference. These are the day-to-day additions and subtractions in ones appreciation and evaluation of the environment.

Another dimension of satisfaction is evidenced in resident's physical response to environment. In this regard we collect information on the extent to which resident's manipulate their environment -- decorate, transform, invest in, or otherwise improve their surroundings.

We are not yet convinced what a high degree of improvement means -- whether it could indicate positive satisfaction with the house -- this seems logical; or, as it turned out in some of our families that their improvements were probably only a rehearsal for the time when they would have their own single detached house. The improvements were vain attempts perhaps at simulating the ideal house, and after a time the residents questioned whether they weren't putting too much into the house.

From our discussion of infrastructure above we want to add another point to this preliminary model of satisfaction; this concerns residents' satisfaction with the way their personal infrastructural elements -- furniture, moveable equipment, clothing, food -- fits into the environment. Here we observed that considerable dissatisfaction was aroused when residents had their goods overflow into locations where they did not "belong" in the case of their household goods. They were also expressive about their frustration of being able to create only one furniture arrangement in a room, and when the fit was bad, this became aggravating.

4.0 Research Design:

Our emphasis in this work is research design and the disciplinary perspective is largely anthropological with its emphasis on extended longitudinal contact yet not quite living among the natives. Our methods, however, are drawn from the social sciences and those unique to the man/environment movement. Our solution is a series of encounters ranging from carefully planned introductions to our sample families and initial open-ended questioning, tracking, photography, furniture mapping to more complex role-playing, and the verification and combining of previously elicited information. Ideally, the family and all its members will become Piagetian subjects. Telephone interviews are used as follow-up to get at missing information and finally the resident is trained to observe himself, keep records, observe others, take photographs, and otherwise keep track of different aspects of the housing environment. We firmly believe that each data collection should be preceded by a primer stage in which the resident is given some idea of what is to come on another occasion, typically a week later. In any case by using a series of encounters, each exchange progressively sensitizes residents to their housing and you find increasingly rich information. Another element in our research design is that we collect a limited amount of data and analyze it before proceeding to the next encounter with a resident, then we collect some more and analyze some more. Accordingly we adjust our data packages' content and schedule. In general our content proceeds from least personal to most personal information, our methods keep changing to maintain interest for the informants, achieve greatest depth at our last site visit, and continue by telephone and mail. As we analyze the information we will feed it back to residents in more structured form for them to verify and assign relative importance to. In final stages self-administrating techniques are introduced and, using information already collected we engage in a limited amount of

participatory planning both for the redesign of the project and as an evaluation of community relations. At this point the architects and developers who designed and built the project are asked to respond to our design evaluation on a point by point basis for verification, defense, and elaboration of each design problem statement.

We reject what we know of traditional research in this area, the large N questionnaire, with low return rates and aggregate pictures only. This information will only expose the most pervasive factors, and perhaps which cling together, but they will not tell us what the factors have to do with one another. We suggest that the hunt be for factor relations, the ecology of factors, since we believe the majority have been spotted if not precisely identified. For this reason we treat each family in each house as a case-study, spend longer amounts of research contact, over longer periods of time, in situations where rapport is established in easy gradations. The period is longitudinal to test the stability of the factors and to introduce seasonal variations into the evaluation. Our shortcoming is the resultant small N that must necessarily come of wanting to achieve this depth in any particular case, and a struggle with how to structure such individual information. If we have aggregates they are small (10-15 families/project) but we sample a constant family organization in a constant architectural type. We believe too many architectural types have been studied and lumped together in analysis. In fact, there are thousands of varieties of housing; if our N is small, at least it is in a constant family type, housetype and project type.

Currently, our interest lies with the model nuclear family of 2 adults with 2-3 children living in 3BR attached stacked maisonettes -- in projects that are low-rise, 20-40 units/acre and low middle income, in the outer city. We feel our results will apply primarily to such families in such houses. It is time to study particular varieties of socio-physical (familytype-housetype) combinations and explore these in depth. In the present research the random sample comprises about 50 % of those households which qualified according to physical and family criteria out of a total project population of 240 families.

5.0 Research Design -- interviews into design program statements:

In the interviews, 150 questions were posed resulting in 1,000 pages of transcript. These were taped, transcribed and coded in the content analysis according to the possibilities of the 33 x 30 lifestyle activity and housing environment matrix described above. Citations or raw statements were coded and labelled accordingly on copies of the transcripts, whence they were cut and pasted onto cards which could be retrieved via a punched hole system. The resultant fiches became the primary basis on which the families were ranked for levels of social, leisure and child-related activities in the family type analysis. Other uses were also made of these

SCALE	HOUSING UNIT	(18)	FAMILY												No. (of 12)	% (of 12)
SPACE/COMP.	GENERAL	(18)	10-SF	10-0	10-7	10-4	10-2	10-1	1-SF	1-0	1-7	1-4	1-2	1-1		
ACTIVITY	SECURITY	(90)	1	2	3	4	5	6	7	8	9	10	11	12		
ASPECT	ACCESS CONTROL (DOOR)	(2)	1	2	3	4	5	6	7	8	9	10	11	12		
FINDINGS	Vision hole desired in door														7	58
	Indifferent toward vision hole														2	16
	Hates vision holes														1	8
	Dissatisfied w/locks - entry door														4	33
	Satisfied w/locks - entry door														5	42
	Installed chain lock														4	33
	Locks desired - interior doors														2	16
	Dissatisfied w/door knobs														2	16
OBSERVATIONS	The majority of respondents expressed a desire for a vision hole in the entry door (note: r's 1 and 2 installed their own).															
	Opinion is divided with respect to entry door lock satisfaction - if tenant installation of additional locks can be assumed to imply initial dissatisfaction - then 50 % of respondents were dissatisfied.															
RECOMMENDATIONS	2 families reported dissatisfaction with door hardware and 2 expressed a desire for internal locks to secure the privacy of individual household members.															
	1. Vision holes should be provided in entry doors; these should be provided with a lid for those who would prefer not to have them. 2. Supplementary chain locks should be provided on entry doors. 3. Non-key operated locks should be provided on the rooms side of all bedroom as well as bathroom doors. 4. Door hardware should be of the highest quality to avoid subsequent maintenance costs.															

FIG. 1 - MASTER-FICHE

fiches with respect to other activities in our lifestyle roster. These analyses transferred a group of fiches related to a single design factor onto a master-fiche, an example of which is about here. When this analysis is complete it will group all data relevant to a single interaction of the matrix and subclassify them according to the range of design variables in which we are interested.

It remains then to spell out our design philosophy and to translate our information into formats useful to designers. A design language needs to bridge what the researcher discovers and the way the designer thinks through problems, something alas that is in flux as well. We select a language that is gleaned from popular housing spatial vocabularies of our time: access, area, cubic capacity, adjacency, layout, location, circulation, closure, visibility, and organize findings according to these categories, the various scales of the project, and the pertinent user(s).

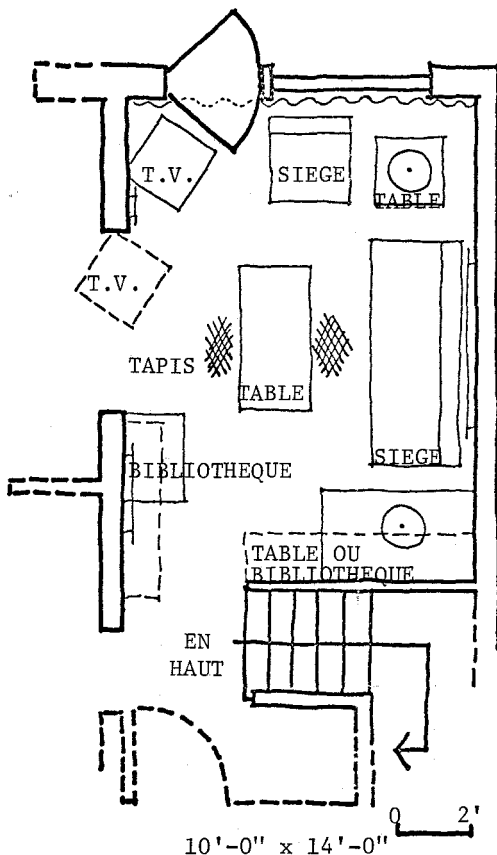
The result is user performance programs of various kinds, some stressing purely physical conclusions, others are more descriptive information, particularly of the family and lifestyle activity patterns. As usual, we try to reduce most of our user programs to a collection of simply phrased statements. Each statement is accompanied by a source citation, that is from whom the information or testimony was derived (user; researcher; manager; others) and a discussion of the relative responsibility of all the parties (resident; landlord; manager; designer; developer and other government standards) who touch the house in some way. The most difficult responsibility to assess is that of the residents themselves. Here we call on the Perin/Barker concept of adaptation level to enable a perspective of just how passive or active a resident is toward environment, their degree of conformity or intentions of active control over their environment. Data which bear on this involves user reports of changes in activities or housing effects or decorative level from one stage in the housing mobility cycle to another. We are seeking to determine how "aggressive" (Spiegel, 1974) the resident is toward his environment. Without it being our primary intention, we also test the environmental determination of the householder when we ask him to participate in the planning of a limited communal space. Accordingly in making our judgments about families we may decide to downgrade the information provided by a user whom we so judge to have a low degree of involvement with his environment.

- 6.0 Research Design -- furniture maps into design program statements:
Furniture maps were taken at each of the 12 households visited for both freestanding and hanging furniture items. Each room was analyzed separately and then combined for aggregate analyses of the first and second floors.

The furniture maps provide information for designers at the level of the peripheral or boundary characteristics of rooms and between rooms; and at the level of the internal horizontal floorplan dynamics

OBSERVATIONS:

1. T.V.: toujours dans le même coin.
Les sièges se retrouvent sur le mur opposé, avec tables et lampes (pour lecture ou autre).
2. PORTE-PATIO: circulation créée entre le patio et l'entrée du logement, à travers le salon (son utilisation fréquente en été désorganise le salon).
3. AU CENTRE: presque toujours la table à café et un tapis individuel.
4. MUR ADJACENT A L'ENTREE: souvent une bibliothèque, table ou tablettes avec objets divers. Diminution de la largeur de circulation.
5. MUR ADJACENT A L'ESCALIER: souvent une bibliothèque, armoire ou table avec le stéréo, le téléphone. Coin très chargé de toutes sortes de choses.
6. ECLAIRAGE: abondant. Cependant, on retrouve souvent des lampes (sur table ou sur pied) aux deux extrémités du mur le plus long.
(Note: l'applique murale de l'escalier sert d'éclairage d'ambiance au salon.)
7. NOTE: Dans quelques cas, il n'y a pas de T.V. au salon (mais dans une chambre à l'étage). Dans ces cas-là, l'aménagement du salon est beaucoup moins rigide et moins orienté que lorsqu'il y a une T.V.



REMARQUE(S) GENERALE(S):

- * LA LONGUEUR DES MURS DISPONIBLES SEMBLE AVOIR UNE INFLUENCE SUR LEUR UTILISATION (MURS COURTS ET COINS, MURS LONGS).
- * IL NE SEMBLE Y AVOIR QU'UN SEUL ARRANGEMENT POSSIBLE POUR CETTE PIECE, COMPTE TENU:
 - DES POINTS D'ACCES
 - DE LA FENESTRATION
 - DES MURS DISPONIBLES
 - DU PEU D'ESPACE DISPONIBLE (POUR 5 PERSONNES).

FIG. 2 - RELEVÉ DU MOBILIER DANS LE SEJOUR

provoked by the principal items of furniture for those rooms, the sofa-T.V. axis in the living room, the bed-chest of drawers axis in the bedroom. The maps also enabled us to evaluate different rooms according to the number of variations in furniture arrangement which they permitted. Rooms with constant furniture arrangements frustrate residents who want flexibility for their furniture. Information relating to boundary characteristics of rooms was particularly exciting because we had not been able to elicit data from residents directly on this point. Here their furniture spoke for them. Since furniture is generally located around the periphery (dining room is notable exception), we learn how well the furniture fits around the room perimeters. Important design variables emerge in this regard: window and door placement, number of corners, length of walls, aperture between room and adjacent room and the position of fixed lighting. The furniture maps provide criteria for the design of the internal skin of the room. By helping to determine the character of the aperture or joints by which the rooms are joined the data also are a factor in the determination of overall floor plan. An example of an analysis fiche for a plan de mobilier is placed about here.

7.0 Research Design -- household objects inventories into design program statements:

An inventory of a standard list of household items was taken for each of the sample families. The "grille d'indexation" is a matrix in which the information was structured for purposes of analysis for both individual and aggregate households. In the "grille" which appears in the text about here, the storage spaces are listed on one axis and the household inventory items on the other.

Like the furniture maps, the household inventories provide design requirements for specialized parts of the house -- here the system of storage spaces. The household items -- tools, equipment, clothing, etc. are also classified according to the lifestyle categories. So we have maintenance objects -- e.g., broom, personal-care objects -- e.g., towels, security objects -- e.g., guns, child-related objects and so forth. Thus when storage fails or is well-designed we may refer to the circuits of which the residents' objects form a part. It is important to know what objects are located inside storage locations, first to know if nominal purposes of the space are being satisfied -- is there linen in the linen cupboard? But also, second, to suggest reasons for specialized equipment to be installed inside storage such as shelves, racks, bars, lighting, etc., to accommodate the objects. This is especially important in storage because it is a space that is difficult to keep organized as Fibber McGee and Molly remind us. Storage can only be accessed generally from one side, lighting is usually insufficient, many different sizes and shapes of objects are found there. Moreover, there are variable periods at which the objects are accessed by the user. In storage finding the object, getting it out, and putting it back may all prove terribly inconvenient.

FIG. 3 - TABLEAU SYNTHESE DU LIEU DE RANGEMENT
DES OBJETS DANS LE LOGEMENT

We have been able to evaluate the capacity of storage by remarking on how much overflow there is from intended storage locations to adjacent storage locations. Thus we noticed how personal-care items overflowed from bathroom into hall cupboard and food overflowed from the food cupboard to adjacent parts of the kitchen and surrounding rooms, while the absence of a separate storage for maintenance items lead to their presence in an adjacent hall closet where they appear to be inconsistent with personal-care items like visitors' clothing.

The kitchen contains, itself, a system of storage spaces equal in complexity to spaces in the rest of the house. We performed separate analyses on the kitchen alone and the principal design elements are of course counter space length and the need for temporary storage of counter equipment while the counter is hosting the preparation of food, drying dishes or being cleaned. Dish storage was underused relative to food storage. Residents, themselves, characteristically installed open storage elements like shelving and racks.

In the houses investigated the architect had provided a walk-in storage locker. Our analysis showed that it often contained bulky items like baby carriages and bicycles. Moreover, these objects were accessed frequently, being used daily in good weather. Thus the mother had to lug heavy items up and down the stairs because in no other storage space would the items fit. From this experience we are tempted to suggest a rule that bulk storage location be as adjacent as possible to entry points of the house, or as a minimum on the first floor of the maisonettes. The heavier the object the more frequent its use in outside locations means the closer the objects have to be stored adjacent to the entry points. In this gravity model heavy objects are pulled toward entry points.

8.0 Family Type Analysis:

The objectives for this analysis have already been stated in part 1.0. Briefly, they are to present profiles of demographic and behavioral variables thought to be included in the constellation of residential satisfaction. The profiles are to be read for individual and groups (types) of families.

The data for this analysis are organized into the Family Type Matrix (see below).

Before proceeding to an analysis of the family types located on the vertical axis, the variables along the horizontal axis need definition. The horizontal axis follows the variables in the sequence in which they were analyzed, from stage of life cycle rank to statements of satisfaction with the housing project.

8.1 Interviewer:

There were 3 interview teams of 2 persons each who interviewed 4 families per team. The information is included to show that

interviewers do not correspond to family types. Each family type consists of information generated by 2 or 3 interviewer teams.

8.2 Stage of the family life cycle:

We have followed the considerable number of studies in assuming this is an important family demographic statistic. Stage of the family life cycle is in fact a multiple statistic giving at once parent's age and children's age. We find it useful to regard the range of parents' ages and children's ages and do not think average age is of as much importance. This is a likely predictive factor in determining satisfaction since most studies we have analyzed point to children's age, particularly, as a factor that is geared to satisfaction with house types. When stage of the family life cycle also gives the total size of the family, and thus its density, it becomes a factor that is vital to consider in relation to the number of rooms the family must fit into. In this regard it is likely that there is a statistical relation between stage of the family life cycle thus defined and the number of bedrooms available to arrive at a probability for room-sharing, a certain irritant to satisfaction at certain stages of the child life cycle. One is not entirely sure whether or not family life cycle ought not to be broken down into child life cycle and parent life cycle. This demographic factor, then, is essentially a developmental family statistic or multiple statistic. The data are ordered in a chronological series which for our families comprises a 4-point scale.

The scale is defined as follows:

1 =	parents	25-35	children	0-5
2 =	parents	25-35	children	6-9
3 =	parents	40-	children	10-12
4 =	parents	40-50	children	12-16.

The children's age distribution is shown in the matrix next to the family stage of the life cycle.

8.3 Project social lifestyle:

The neighbouring or social life scale included information on how many people they knew in the project (social cognition), whom they made greeting contact with and where in the project, whom they participated with in joint activities. Included here are remarks about privacy, and feelings of being crowded, complaints about noise neighbours make, and general philosophy about how one conducts one's social life in a project of this genre -- e.g., statements like "better fences make better neighbours".

A 4-point scale was constructed with 1 having lowest project social life, 4 having richest social life, and families were

ranked twice, blind, by one judge. Only 2 judgments varied between the first and second rankings, in each case by one interval. Lowest scores had statements on which there was an engrained philosophy against associating with one's neighbours while highest scores involved families who knew neighbours and engaged in some mutual activities with them, such as talking outside together. We could find no evidence that any of the families engaged in social behavior that involved visits inside neighbours' houses. Thus the whole continuum of neighbouring is located in occasional, incidental contacts out in public space. No attempt was made to look at social contact outside the project. We now believe this is an important oversight.

8.4 Project leisure lifestyle:

The leisure scale was based on the number and range of activities mentioned in the house, the building, and outside in the project. A 3-point scale was constructed for leisure activity level and evaluation of leisure equipment at the 3 levels of the project. These are high, medium and low, for each sub-scale.

Inside the house or outside in project grounds residents referred to a wide range of activities, but in relation to the building they could only express attitudes toward the sauna or an ill-planned community reception room, so the building scale does not have the same category potential here. All rankings were assessed twice, blind, by a single judge. As for the social scale, only a few scores shifted, in each case by one interval. In future analyses family's leisure equipment stored in households will be compared to activity levels to bolster this scale.

8.5 Stage of the family mobility cycle:

We are taking the definition of this factor from Michelson (1974) who argues that families are always tending in the direction of living, ultimately, in a private detached house and therefore any previous architectural types they have lived in comprise stages of development towards realizing that goal. Here satisfaction with housing is based on antecedent experience with housing and simultaneously based on future intentions with respect to housing. Thus, reasonably, housing satisfaction is based on experience and ideals. In the project we studied a certain proportion of the families were ready to make the last leap in their architectural pattern -- that is finally buy a private house. This project seemed to attract families who were basically in their second or third form of housing. The whole cycle it appears may not have very many steps.

There is some unreliable or missing information concerning the size and type of buildings and apartments for certain of the families. We found some discrepancies in how the families

verbally described their former housing and with photographs taken of those very same houses, pictures which we intended to be illustrative only of what they were saying. Since all of the families but two had formerly lived in multiple dwelling housing it was important to know the number of units and the building type. "Technical" characteristics like these are not always noticed by residents nor perhaps do they have the language of the architect. One family described a 16-unit apartment house as a duplex.

8.6 Intention to move:

This variable proved to be dichotomous with no families ambivalent about staying or moving.

8.7 Satisfaction statements:

This variable places families on the satisfied side if they made statements indicating their general satisfaction with their housing. What this variable does is confirm what we learn from families' intention to move -- that the project polarizes satisfaction. Perhaps there is less ambivalence in housing satisfaction than one would normally expect because of two factors: the need for families to justify their decision to stay or to move given their approval or criticism of the project; the fact that we were asking them to evaluate the project during a rent rise, a factor which provoked decision-making.

Before describing what we believe to be the coherent family groupings it should be stated that the data of this study are not extensive enough to enable us to speak of the findings in any more than a hypothetical fashion. In terms of traditional research Ns, the number of families in the study is very low indeed. But the approach being a case-study, involving several types of data, extended contact, does facilitate in-depth understanding of where these families are at. Moreover it is possible for the single environmental clinician to handle, perhaps, 12 cases; whereas with many more cases one would lose the facility to compare them and keep them all in mind. The number here is within the range of a single analyst. Nevertheless the accounts and conclusions immediately following are to be read as if they were hypotheses.

8.8 Family Type Analysis Matrix:

As is apparent, we have structured the Family Type Analysis Matrix (placed about here) to call attention to the patterns of data which can be read down to examine family types or read across for each family. The data appear to group according to 3 types of families.

1. Type I are 4 young families with children under 9 who are satisfied with the project, intend to remain living there and socialize relatively more strongly.

TYPE	FAM. CODE NO.	INTER TEAM	STAGE OF FAMILY LIFE CYCLE		SOCIAL LIFE	LEISURE			HOUSING MOBILITY CYCLE		SATIS- FACTION
			STAGE OF LIFECYCLE RANK	CHILDREN AGE DISTRIB.		HOUSE	BLDG.	PROJ.	LAST HOUSE	INTENTION TO MOVE	
TYPE I	03	C	1	1½-2½-6	4	MED	LO	MED	3-4 story apt. house - 4½	NO	HIGH
	04	A	2	6-9	3	HIGH	HIGH	HIGH	Large apt. house - 4½	NO	HIGH
	10	B	1	1-4	4	HIGH	HIGH	HIGH	3-4 story apt. house - 4½	NO	HIGH
	12	B	2	4½-9½	3	HIGH	LO	MED	3-4 story apt. house - 4½	NO	HIGH
TYPE II	01	C	2	2-4-14	2	HIGH	MED	MED	3-4 story apt. house ?	YES	LOW
	02	C	2	3-8-8	1	HIGH	MED	LO	Lower duplex ?	YES	LOW
	06	A	1	2½-4	1	MED	LO	MED	3-4 story apt. house ?	YES	LOW
	07	A	2	3-8-9-10	1	MED	LO	MED	small apt. house ?	YES	LOW
TYPE III	05	A	4	12-16	1	HIGH	MED	MED	own detached house - 5½	NO	HIGH
	09	C	4	12-14-16	1	MED	LO	LO	own detached house - 5½	NO	HIGH
	08	B	3	10-11-13	3	HIGH	HIGH	HIGH	lower duplex	NO	HIGH
	11	B	4	11-14-17 19-20	3	LO	LO	HIGH	older upper duplex	NO	HIGH

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2. Type II are 4 young families with 11 of 12 children under 10 who are unsatisfied with the project and intend to move to private detached houses and are asocial or antisocial.
3. Type III are 2 older families with children 12-16 who are satisfied with the project, intend to stay, moved back into town from their own detached houses and socialize relatively little.

8.8.1 Type I:

A group of four young families (25-40; the 9 children range from 1-9 years, 3 under 5 years). Code numbers 03, 04, 10, and 12.

The four families score in the upper two ranks of social life. They have a relatively rich social life.

They have a relatively rich leisure score, scoring 10 of 12 in medium or high ranks. The only 2 low scores are in relation to use of building leisure facilities.

They have a highly similar pattern of concerns with respect to child-related behavior. (These concerns are made more explicit below.) Their child-related statements show the average highest percentage of total lifestyle statements. All had moved to the project because they had had another child.

With respect to previous housing history, all had lived in 4½s prior to this project (5½s) and all had lived in 3-4 story block apartment houses. Thus all gained an increase of one room. All had lived on one floor.

Three of the four families had wives who worked.

All were very satisfied with their housing and had no intentions of moving.

Father's occupations are professional (2), salesmen (1), and blue-collar (1).

Average income is \$6,500. for this group.

8.8.2 Type II:

A group of four young families (25-40; the 12 children ranging from 2-14 with 11 under 10 years, 6 under 5 years). Note: Type II families also tend to have more children than type Is or IIIs. Code numbers 01, 02, 06, 07.

The four families all score in the lowest rank (one score in second lowest rank) for social life. They have a

relatively impoverished project social life. Frequent statements of an engrained philosophy against having too much to do with other residents.

(This group includes 2 anglophone families. There were 10 francophone families in the sample; several were bilingual to one extent or another.)

The highest amount of leisure activity takes place in the house, least in the building. Criticism of building leisure facilities.

Their pattern of concerns in child-related behaviors is more related to stage of the family life cycle. Thus they have a similar set of concerns as type I families. Security, room sharing, noise are particularly big concerns as regards children. Their statements run between 30-40 % of total statements, whereas type I families had child-related statements as between 40-60 % of total. Child-related statements did not have the same degree of emphasis as for the type I families. Type II families also had moved because they had had another child. (Similar to type Is.)

With respect to housing history, all type II families had lived in ground floor duplexes or in smaller apartment buildings, but some data is missing or was incorrectly provided by the resident. Their previous apartments may have had larger rooms than the present project, particularly the downstairs rooms.

All are very dissatisfied with their housing and are going to move before or when their leases expire.

None of the families have wives who work.

Father's occupations are blue-collar (2) and salesmen (2).

Average income is \$7,185. for this group. Note that type II families have nearly \$700. per annum income higher than type Is.

It appears that stage of the family mobility cycle may outweigh stage of the family life cycle in predicting response to their housing environment. They project a view that stresses the unfavourable comparison between their present residence with an ideal private detached house. But the fact that they have a higher number of children again points to stage of family life cycle as a strong factor.

A second reading of the transcripts also revealed other typical concerns common to these four type II families, but not to type Is:

- a) general complaints about lack of space,
- b) express need for an extra bath,
- c) complaints about management,
- d) complaints about soundproofing,
- e) complaints about inadequacy of laundry facilities and their inability to install their own washer, dryer and dishwasher.

Whereas the type Is had experienced a jump up and were not yet considering the next jump, type IIs had come to the project in search of the most private-like detached-like housing possible as a last step before finally plunging into buying their own housing. Thus they are also more cognizant of whether it is worth it to keep pouring money into high rents. During the evaluation the housing project went through a 28 % rise in rents -- \$140-179. This was an important event in allowing residents to express feeling about the project.

Notice also this group is low in both social and leisure activities. Life goes on very much inside the house. These families perhaps have already detached socially from other families, and are only waiting to move to their own houses to concretize and finish the process. Note they are the only families who are unsatisfied.

8.8.3 Type III:

A group of two older families (40-55; with 5 adolescents ranging from 12-16 years). Code numbers 05, and 09.

The two families each score in the lowest rank for social life. They have little to do with other residents.

Their leisure activities are not equal in intensity but show a similar pattern of adolescent activities, both indoor and outdoor. The parents engage in only a limited number of leisure activities.

Both families show a similar pattern of concerns with respect to their high school children. The pattern is extremely different than either type I, or type II families, a simple function of age specific requirements. This will be elaborated below. These two families produce as many statements regarding children as the type I families and more than the type II families.

Housing history: both lived in private, detached houses,

which they owned. Both houses had the same number of rooms as their present dwelling, plus a basement.

Both are satisfied with the project and have no intention to move.

The father's occupations are insurance evaluator (1) and consultant (1).

Average income is \$7,000. Note that type IIs have highest income in project.

Neither of the wives works.

Both families complain about missing their own washers, dryers and dishwashers (similar to type IIs) which they cannot have in present accommodation, which they got used to in their privately owned housing. Concern is expressed about having another bathroom.

Both have 16-year old daughters, each with rooms of their own, private telephones, both of whom help mother by sometimes baking in the kitchen.

The 12-year old boy in each family had his bicycle stolen or damaged in the garage. Both boys play with construction and action games in the living room while watching T.V., play hockey outside a lot, want a building ping-pong room, and each helps mother with garbage.

These type IIIs are different from each other in that one family voluntarily gave up their private house for health reasons -- their present accommodation is more convenient; the other involuntarily for financial reasons. Thus the latter is satisfied in spite of the ignominy of moving retrograde in the housing mobility cycle. From other indicators, such as investment (e.g. most number of rooms carpeted; 3 TVs; 2 stereo systems) in the house, the former family was probably the wealthiest in the whole sample.

Type IIIs low social life seems to be related to being older and having ones friends back at the location of their former housing. This was also true for their children, though they account for nearly all of the leisure life participated in by these families. Both type IIs and type IIIs then seem regulated by both age life cycle and house cycle in weighting their satisfaction. Type Is, however, have not yet moved into that part of their housing cycle so as to be pulled into the orbit of private housing. Perhaps the young families have less need for privacy.

8.10 Conclusions of the Family Type Analysis:

One conclusion is that the existence of type IIs shows that the mobility cycle may be just as important or more important than the stage of the life cycle in predicting residential satisfaction. The existence of type IIIs shows that the mobility cycle may move retrograde at late stages of the family life cycle. Type Is appear to reflect strong domination of stage of the life cycle.

We also conclude that demographic variables may be more powerful predictors of residential satisfaction than behavioral indicators. This may also represent a failure of the measures. However, both social, child-related, and leisure lifestyle activity levels also appear related to residential satisfaction. Such behaviors in turn are related to stage of the life cycle, so that at early stages activity levels are higher.

Stage of the family life cycle and stage of the family mobility cycle begin at the same space-time and thereafter may travel together in parallel or lag one behind the other. The mobility cycle may very quickly surpass the chronological cycle as we saw in some very young families already ready to jump to private detached housing.

The isolation of family types implies a better fit between family and house design. The family type becomes the planning unit. The types also enable us to qualify the evaluation of design made by families who may have been in error in choosing the housing in the first place, and who may remain dissatisfied with any housing until they achieve their dream of the private house.

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