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CANADA MORTGAGE AND HOUSING CORPORATION

SOCIÉTÉ CANADIENNE D'HYPOTHÈQUES ET DE LOGEMENT

Canada

Canada Mortgage and Housing Corporation
Société canadienne d'hypothèques et de logement

PLANNING REPORT FOR THE STUDY OF PHYSICAL HOUSE CONDITION, REHABILITATION NEED AND POTENTIAL

PLANNING REPORT
FOR THE
STUDY OF PHYSICAL HOUSE CONDITION, REHABILITATION NEED AND POTENTIAL

Submitted by:

Market Forecasts and Analysis Division
Canada Mortgage and Housing Corporation

Submitted to:

Statistics Canada
Federal Statistical Activities Secretariat

and

Special Surveys and Information Bank
Methodology Division

June 5, 1980

Canada Mortgage and Housing Corporation
Société canadienne d'hypothèques et de logement

National Office
Bureau National

June 4, 1980

Mrs. Naomi Lee,
Consultant,
Federal Statistical Activities Secretariat,
Statistics Canada,
3-A Jean Tallon Building,
Tunney's Pasture,
Ottawa, Ontario
K1A 0T6

Dear Mrs. Lee:

Please find attached one copy of the Planning Report for the Study of Physical House Condition, Rehabilitation Need and Potential which I am pleased to submit on behalf of the Market Forecasts and Analysis Division, Canada Mortgage and Housing Corporation. We are grateful for the assistance and advice which we have received from you and others at Statistics Canada to this point and trust that the product is a better one as a result.

The four instruments we propose to use are attached as Appendices to the report. Please note, however, that the technical instrument (Appendix 2) and the technical skim instrument (Appendix 3) are identical except for nine additional questions in the former. Also there are two household instruments - one for homeowners and one for renters (Appendix 4). Again, these two are almost identical.

If you wish to discuss the report or the instruments further, do not hesitate to contact me.

We look forward to hearing from you.

Yours sincerely,

Philip W. Brown

Philip W. Brown,
Project Manager

Encl.

Ottawa
K1A 0P7

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1.0 IDENTIFICATION

Project Title: Measuring Physical House Condition and Estimating Rehabilitation Need and Potential

Sponsoring Government Institution: Canada Mortgage and Housing Corporation
Market Forecasts and Analysis Division
(BIN Number B28558)

Contact Person:

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K1A 0P7

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Other Agencies Involved: None.

This project is part of a Joint US/Canada effort to improve the methods, instruments and procedures used for measuring physical house condition, rehabilitation need and potential. A similar project will be carried out in one city in the United States. This study is not dependent in any way, however, on its U.S. counterpart.

The project has the full support of the City of Ottawa Planning Department and the City of Ottawa Property Standards Division. Inspectors from the Property Standards Division will be hired to carry out the full technical inspections.

Ekos Research Associates Inc., under contract to CMHC, will carry out the work.

2.0 OBJECTIVES

The primary objective of the project is to develop a valid, reliable, and practical physical survey instrument capable of assessing the physical condition and rehabilitation need of Canada's housing stock. Although it is currently possible to obtain valid and reliable estimates of house condition from a detailed technical inspection, the length, obtrusiveness and expense of such a strategy render this approach impractical. Conversely, a brief, unobtrusive and relatively inexpensive household interview, such as the 1974 Survey of Housing Units (SHU) or the 1981 Census repair question, is quite practical yet suspect in terms of reliability and validity.

The present project is concerned with: (1) improving the validity and reliability of household instrument data by having interviewers perform qua inspectors; (2) structuring respondent observations in the form of factual observations which are less susceptible to error, bias and subjective interpretation; and (3) specifying systematic sources of bias as they relate to certain characteristics of the respondent such that they can be taken into account in correcting these data. The study will assess the relative quality and economy of various permutations of these two basic data collection strategies (i.e. inspection vs. interview) in order to identify an optimal approach. In particular, it is important to know to what degree the data generated from interviewers and household respondents can serve as reliable and valid proxies for the more expensive technical inspection data.

It should be clear that this is not simply another housing survey but rather a highly innovative and experimental project designed to provide high quality, yet cost-effective, information germane to the data requirements of CMHC. A more detailed elaboration of the proposed uses of the data is presented in the next section.

In order to accomplish the objectives of the study, three instruments designed to assess physical house condition and rehabilitation need have been developed and will be tested with a sample of five hundred dwellings in the inner city of Ottawa. The technical instrument will be administered by qualified inspectors (Appendix 2). The technical skim instrument will be administered by the household interviewer (Appendix 3). Finally, the household survey instrument will be administered by the interviewer to the household (Appendix 4). The instruments generated from this study should represent significant improvements over earlier survey instruments such as the 1974 Survey of Housing Units.

This project is considered to be a necessary first step towards a national survey which will provide reliable estimates of the condition and needs of Canada's housing stock. The timing of such a proposed survey would not overlap in any way with the 1981 Census. It is also expected that the instruments produced in this study could be used by local municipalities as a simple but accurate method to estimate the amount of housing stock requiring rehabilitation within their jurisdiction.

3.0 USE

The data collected in this project will be used as part of a developmental phase for improving and refining the quality of the data being added to the Policy Programs and Housing Needs Information Base. The major use of this particular data set will be to determine the reliability and validity of several alternate ways of assessing the physical condition of Canada's housing stock and its need for rehabilitation. This project is also part of a Joint Canada/US effort to put in place, in each country, an improved information base detailing the nature and extent of housing stock deterioration and the number of housing units in need of rehabilitation.

Emphasis is also being placed on acquiring detailed information on emerging policy issues such as energy conservation, residential conversion and solar retrofit possibilities as they relate to housing, as well as refining the measurement of concepts such as shelter affordability.

The main use of the Policy Programs and Housing Needs Information Base (BIN Number B28558) is to support policy and program development, program evaluation and program planning at the Federal level. A further use is to support housing research in Canada at the provincial and municipal levels as well as in the academic community.

4.0 POPULATION (DATA SUBJECTS)

Characteristics	Residential properties with up to six dwelling units located in Ottawa's inner city
Size	Approximately 16,000 residential properties
Time Period	Pretest, Early June 1980. Fieldwork, Late June 1980.

5.0 CONTENT AND ANALYSIS

This section presents, in tabular format, an inventory of research concepts, elements and items.

It details:

a) What exactly the instruments intend to measure (i.e. the research concepts);

b) Why these concepts are important to the research (i.e. the rationale);

c) How these concepts are decomposed into their constituent elements;

d) How the elements are operationally linked to more specific items;

e) The actual variable names (mnemonics) used for the purpose of defining the content of the instruments and the analysis. The first two letters of the variable labels refer to the concept (e.g. EX = exterior); the third and fourth letters refer to the element (e.g. SW = site work); the number refers to the variable's location within an element series; and the final letter indicates the appropriate instrument (T = technical inspection, S = technical skim, H = household interview). In some instances there are two or more parts to a variable in which case an "A", "B" or "C" is added to the end of the label. In order to distinguish the few instances where there are slightly different versions of the same question for renters and owners, an "R" or "O" is added to the end of the label.

The following table is divided into five major sections, each section specifying a concept considered central to the whole study. These are:

1) Dwelling exterior (Code = EX);

2) Dwelling interior (Code = IN);

3) Mechanical systems and facilities (Code = MS);

4) Socio-economic context (Code = SE);

5) Background dwelling/building data (Code = BD).

The first three clearly relate to the physical condition aspects of the dwelling. Socio-economic context is an umbrella concept referring to the economic, social, demographic and attitudinal characteristics of the household. Finally, background dwelling/building data refer to those aspects of a dwelling not necessarily related to condition but required nevertheless as background information (e.g. dwelling type, age, etc.).

A discussion of the proposed analysis is detailed in Appendix "1".

INVENTORY OF RESEARCH CONCEPTS

CONCEPT/ELEMENT - (DESCRIPTION & RATIONALE)	ITEMS & OPERATIONAL LINKAGES	DATA SOURCES/AREA	
		OBJECTIVE	ADDITUDINAL
1. EXTERIOR (EX) Site Work (SW) This element includes (a) landscaping, (b) walkways, and driveways, and fencing as well as ancillary buildings and porches. These items are considered to be cosmetic rather than functional indicators of house condition. Nevertheless, they may be surrogate indicators of the degree of attention and energy a resident devotes to home maintenance in addition to the individual dwelling's contribution to the aesthetic environment of the neighbourhood. The condition of attached structures is examined for the same reasons. This includes the stairs and porches. This item includes the treads and risers, hand rails and ballustrades, and structures. Exterior stairs (where they occur) are important aspects of house condition to the degree that they perform their function of permitting access and exit from the dwelling unit. They may be related to the safety of the house but are clearly not related to house condition in as clear a fashion as are the walls, roof or foundations. The lot's grading and drainage are critical elements of water control.	1. EXTERIOR (EX) Site Work (SW) - Attached Structures - porches/stairs/rails (on the basis of evidence of unsoundness hazards, deterioration, no stairs rails or porches - provide rating) - Surface Drainage (from an examination of grading, adjacent lots, and evidence of e.g. standing water - provide a rating) - Global Rating of Lot (rating in terms of upkeep)	EXSW1S EXSW2S EXSW3S	

INVENTORY OF RESEARCH CONCEPTS

CONCEPT/ELEMENT - (DESCRIPTION & RATIONALE)	ITEMS & OPERATIONAL LINKAGES	DATA SOURCES/AREA	
		OBJECTIVE	ADDITUDINAL
1. EXTERIOR (EX) (Cont'd)	1. EXTERIOR (EX) (Cont'd)		
Basement and Foundation Walls or Posts (BF) (including footings and exterior walls or posts). Examination of the items constituting this block may provide easily identifiable evidence of structural failure. For example, foundations are basically inserted to ensure that the load imposed by the property can be born by the soil/subsoil without structural failures occurring. Basements or crawl spaces are optional aspects of the possession of foundations which may either be grounded directly or possess more elaborate construction characteristics. The failures which may occur are associated with both and are manifested in both. They may comprise crumbling, cracking of cement and development of open holes in the foundations. The most immediate effect of these will be leaking of water into the basement or crawl space, causing further structural damage and possibly loss of use of the basement.	Basement and Foundation Walls or Posts (BF) - Exterior Foundation Walls or Posts - Structural condition (general rating based on evidence of cracks, crumbling, holes, etc.)	EXBF1S	
	- Footings Condition (from signs of extreme settlement - leaning cracks etc., - provide rating)	EXBF2S	
Chimney and Exterior Walls Above Grade (CW) (including masonry and cap). Although the chimney is clearly a less important aspect of structural soundness than the foundations and roof, the performance of this item may be critically related to the safety of the dwelling unit and its occupants. Exterior examination will probably be restricted to questions of the structural soundness of the chimney itself as well as the condition of the masonry and cap.	Chimney and Exterior Walls Above Grade (CW) - Exterior Walls - cladding characteristics (type)	EXCW1S	
	- Exterior Walls - surface/cladding (on basis of visual inspection of cladding, in terms of wear, paint condition, cracks, holes, etc. provide general rating)	EXCW2S	

CONCEPT/ELEMENT - (DESCRIPTION & RATIONALE)	ITEMS & OPERATIONAL LINKAGES	DATA SOURCES/AREA	
		OBJECTIVE	ADDITUDINAL
1. EXTERIOR (EX) (Cont'd)	1. EXTERIOR (EX) (Cont'd)		
To measure the condition of the exterior (above grade) walls, we must examine the cladding, sheathing, structure, insulation, and vapour barrier. Exterior walls reflect the basic structural soundness of the unit. The presence of fundamental problems concerning structural soundness of the unit is indicated by the condition of the exterior walls. For this reason, this question item is an extremely important component of the instrument. The wall system is composed of two sub-systems: the surface and the structure, although the two are obviously connected by their material unanimity, i.e., bricks and mortar or other construction building blocks (e.g. concrete, wood). The surface may display signs of deterioration, e.g. painting absent between bricks, cracks or holes. The structure itself may either have elements missing (e.g. bricks loose due to lack of mortar, or absent altogether through having fallen out of the wall), or show signs of being out of place or out of line (e.g. buckling, sagging, serious leaning).	- Exterior Walls - structure/sheathing (on basis of evidence of sagging, large cracks, loose bricks, plumb, leaning, buckling, etc., provide general rating)	EXCW3S	
	- Exterior Walls - insulation (on basis of an occupant question)	EXCW4H	
	- Chimney Structure (on basis of evidence of buckling, sagging, or leaning, rate structural soundness and provide general rating)	EXCW5S	

INVENTORY OF RESEARCH CONCEPTS

CONCEPT/ELEMENT - (DESCRIPTION & RATIONALE)	ITEMS & OPERATIONAL LINKAGES	DATA SOURCES/AREA	
		OBJECTIVE	ADDITUDINAL
1. EXTERIOR (EX) (Cont'd)	1. EXTERIOR (EX) (Cont'd)		
Windows and Doors (WD) Under windows we include the glazing and puttying, window sash, storm window, glazing and puttying, storm window sash, window frame and caulking. Windows are an important component of the energy management system within the household, as well as being significantly related to the security, comfort, light and ventilation and the appearance of the dwelling unit. Although this item is not of the same significance as those items relating to fundamental structural integrity, its importance is rising with the increasing significance of home energy conservation.	Window and Doors (WD) - Windows and Doors Condition General (based on exterior visual inspection of doors and window frames, sashes, sills and glass, provide rating)	EXWD1S	
	- Windows and Doors Weatherproofing (based on exterior visual examination of the condition of the caulking, weatherstripping, putty and evidence of warped doors or windows, provide rating).	EXWD2SA, B EXWD2HA, B	
The doors include the door frame, door, weatherstripping/caulking, and door trim. Doors are also important components of the home energy management system in much the same fashion as windows and the above commentary (in terms of the importance of these items) applies here.	- Windows and Doors - Exfiltration and condensation (occupant rating)	EXWD3HA, B	
Roof (RF) (including orientation, roofing, flashing, soffits, fascia). The roof is also an important indicator of the basic structural soundness of the unit as well as the degree to which the unit is weathertight.	Roof (RF) - Roof Characteristics (shape, type, material)	EXRF1S	
	- Roof Orientation (compass direction)	EXRF2S	
	- Roof - Surface Condition (from examination of sheathing and covering material, e.g. loose/missing/damaged shingles - general rating)	EXRF3S	

INVENTORY OF RESEARCH CONCEPTS

CONCEPT/ELEMENT - (DESCRIPTION & RATIONALE)	ITEMS & OPERATIONAL LINKAGES	DATA SOURCES/AREA	
		OBJECTIVE	ADDITUDINAL
1. EXTERIOR (EX) (Cont'd)	1. EXTERIOR (EX) (Cont'd)		
There are two aspects of a roof which may suffer from failure and which may in turn have impact on the resident. These are the roof structure or timbers, and the roof sheathing and covering material. The former may be affected by sagging, often a result of wet or dry wood rot causing deterioration. This may not actually occasion any discomfort for the resident, but if allowed to continue may reach such a state that the durability of the whole roof is threatened. It should be visible from the exterior.	- Roof Structure (excluding soffits and fascia) (from examination of timbers and shape in terms of sagging/buckling/rot, provide general condition rating)	EXRF4S	
	- Flashing (rating from technical inspection based on evidence of waterproofness, corrosion, etc.)	EXRF5S	
The state of the roof covering may have an immediate impact on the resident in the event of his dwelling being immediately below a roof, (which may not be the case in multi-unit dwellings). Shingles may be loose or absent and the sheathing (as opposed to the skin-layer of shingles) may be damaged or absent in places. The result of both is likely to be experienced (depending upon the scale) in leaking and entry of water into the structure. Eaves-troughing may also be sagging as a result of storm damage or corrosion/metal fatigue.	- Soffits/Fascia (general condition from external visual inspection based on evidence of deterioration, sagging, rot, severe peeling of paint, missing pieces, etc.)	EXRF6S	
The degree of roof covering deficiency may be reflected therefore in (a) direct or indirect leaking; or (b) inadequate drainage during peak flow conditions from the roof. The latter may in turn have consequences for the condition			

CONCEPT/ELEMENT - (DESCRIPTION & RATIONALE)	ITEMS & OPERATIONAL LINKAGES	DATA SOURCES/AREA	
		OBJECTIVE	ADDITUDINAL
1. EXTERIOR (EX) (Cont'd)	1. EXTERIOR (EX) (Cont'd)		
of wall brickwork and foundation moisture ingress (considered later). The condition of roof covering should be visible -- where the roof is pitched -- from the exterior of the property, although a ladder inspection may be necessary to determine looseness of shingles.			
The roof structure type is also important. Roofs will fall into one of the following categories: flat, pitched, pitched and flat, pitched with potential for a room, other (e.g. mansard). This may have important implications for insulation possibilities (roofs with a slope of less than 10 degrees will present difficulties), and for conversion potential (e.g. space present under a pitched roof and its slope). Roof orientation is also important in terms of passive solar retrofit potential.			
Global Rating of Exterior.	- General Rating	EXGALS	

INVENTORY OF RESEARCH CONCEPTS

CONCEPT/ELEMENT - (DESCRIPTION & RATIONALE)	ITEMS & OPERATIONAL LINKAGES	DATA SOURCES/AREA	
		OBJECTIVE	ADDITUDINAL
2. INTERIOR (IN) Basement/Foundation (BF) (including floor, drainage/waterproofing, insulation and interior walls) This element is of fundamental importance in terms of the weatherproofing and structural integrity of the dwelling unit. Many of the comments concerning basements -- exterior apply to the interior. However, the interior examination may reveal cracks in the floor or interior walls indicative of structural problems not evident from exterior examination. Furthermore, important questions regarding drainage, waterproofing and insulation can only be answered through internal examination. The obvious place to examine carrying beans and joists is in the basement although the latter may properly be considered a part of the floor system. Basement ventilation is another important consideration relevant to the control of air and water themes.	2. INTERIOR (IN) Basement/Foundation (BF)		
	- Basement Characteristics (presence, type)	INBF1HA, B, C	
	- Basement Floor - Condition (cracks, buckling, deteriorated material, etc. general rating based on visual inspection)	INBF2S	
	- Interior of Foundation Walls Structural Condition (evidence of cracks, crumbling, etc. - general rating)	INBF3S	
	- Foundation Settlement (as rated from interior)	INBF4S	
	- Support Posts/Columns - Structural condition (evidence of decaying, leaning, buckling - rating)	INBF5S	
	- Ground Floor Joists/Beams - structural condition (as with support posts)	INBF6S	
	- Drainage/Waterproofing (rating based on visual examination for evidence of moisture penetration, dampness, e.g. water marks, mildew, standing water plus occupant question)	INBF7S INBF7H	
	- Basement Ventilation (square feet of ventilation or window per unit area)	INBF8S	
	- Basement Insulation (fraction of wall that contains insulation)	INBF9H	

CONCEPT/ELEMENT - (DESCRIPTION & RATIONALE)	ITEMS & OPERATIONAL LINKAGES	DATA SOURCES/AREA	
		OBJECTIVE	ADDITUDINAL
2. INTERIOR (IN) (Cont'd)	2. INTERIOR (IN) (Cont'd)		
Floors and Stairs (FS) Floors are an extremely important element of house condition. Noticeable movement of floors or severe buckling under walking might all serve as indicators that structural deficiencies were present.	Floors and Stairs (FS) - Floor Surface (technical inspection of condition of floor surfaces plus occupant assessment - both provide general rating)	INFS1S INFS1HA, B	
Loose jointing of structural members is perhaps the most serious problem requiring repair attention where present, corrected either by restoration to original position or firm support and bracing, or by replacement. In most instances it will not be apparent -- unless causing major failure of other systems -- to the resident, hence the need for internal expert examination. Unsound flooring may reflect basic structural unsoundness and is potentially dangerous.	- Floor Structure (technical inspection for evidence of floor movement, buckling, loose jointing, etc., plus occupant assessment - both provide general rating)	INFS2T INFS2HA, B	
	- Stairs (technical inspection providing general rating based on structural condition plus examination of treads, rising and balustrades. Also general rating by occupant)	INFS3T INFS3H	
The stairs include treads and risers, handrails and balustrades, and structure. This is a less central question block, however, stairs are important to the degree that they serve their function (i.e. linking different layers of the house) in a safe and efficient fashion.			
Walls and Ceilings (WC) (including structure, paint, finish material, and baseboards). The interior condition of walls may indicate the degree of structural soundness of a dwelling unit as well as less significant cosmetic information. Cracks and defects in walls,	Walls and Ceilings (WC) - Wall Surfaces Condition (peeling paint, cracks, holes - rating)	INWC1S INWC1HA, B	

CONCEPT/ELEMENT - (DESCRIPTION & RATIONALE)	ITEMS & OPERATIONAL LINKAGES	DATA SOURCES/AREA	
		OBJECTIVE	ADDITUDINAL
2. INTERIOR (IN) (Cont'd)	2. INTERIOR (IN) (Cont'd)		
where sizeable (and probably revealing the underlying structure beneath the finish) may provide an indication of some form of structural failure. These can best be determined by a visual inspection by the technical inspector. This block represents a relatively important area of the instruments.	- Wall Structure Condition (bulging, leaning, large cracks, etc. - rating)	INWC2T INWC2HA, B	
	- Ceiling Surface Condition (peeling paint, cracks, holes, sagging, etc. - rating)	INWC3S INWC3HA, B	
	- Walls and Ceilings Waterproofing (rating based on visual examination for evidence of moisture penetration, dampness e.g. water marks, mildew).	INWC4T INWC4H	
	- Ceilings waterproofing (rating based on evidence of moisture penetration, dampness, e.g., water marks, mildew).	INWC5H	
Attic Roof (AR) (including sheathing, rafters/joists, insulation, vapour barrier) For the same reasons detailed in the roof section of the exterior, this item is of crucial importance in terms of the structural soundness, comfort and weatherproofing of the dwelling unit. Questions concerning the attic interior may reveal problems not apparent from an external examination as well as providing additional information on insulation and the internal condition of the roof.	Attic Roof (AR) - Proportion of roof space that is attic	INAR2H	
Global Assessment of Interior	Global Assessments of Interior		
Global Rating of Interior Surfaces	- General rating of interior walls, ceilings, floors and stairs - surfaces and structure	INGA1S INGA1H	

INVENTORY OF RESEARCH CONCEPTS

CONCEPT/ELEMENT - (DESCRIPTION & RATIONALE)	ITEMS & OPERATIONAL LINKAGES	DATA SOURCES/AREA	
		OBJECTIVE	ADDITUDINAL
3. MECHANICAL SYSTEMS AND FACILITIES (MS)	3. MECHANICAL SYSTEMS AND FACILITIES (MS)		
Kitchen Equipment (KE) (including sink, stove, refrigerator, counters and cupboards). The main concern here is establishing the presence and/or condition of various items of kitchen equipment considered necessary for a complete kitchen at minimum standards.	Kitchen Equipment (KE)		
	- Sink/Stove/Refrigerator/Counters and Cupboards		
	- Presence	MSKE1HA	
	- Condition	MSKE1HB	
Bathroom Equipment (BE) (including sink, toilet, bath tub/shower, mechanical ventilation). The main concern here is establishing the presence/absence of various pieces of bathroom equipment necessary for the health and comfort of the residents. Performance is also quite crucial, although it may largely be a result of plumbing system failures rather than failure of the bathroom equipment in itself (short of defective equipment having been installed e.g. with cracks or poor enamelling).	Bathroom Equipment (BE)		
	- Complete-half bathroom presence	MSBE1H	
	- Is there any bathroom without either a functioning ventilator or window?	MSBE3H	
	- Overall Rating	MSBE4T	
		MSBE4H	
Plumbing (PL) (including service connections to street, waste/stack, water pipes, and hot water heater). Complete and properly functioning plumbing is essential to the comfort and health of the dwelling occupany. The items constituting this element are deemed necessary for a satisfactory plumbing system. The questions on performance deficiencies can be measured in the bathroom.	Plumbing (PL)		
	- Pipes (waste/stack and other plumbing hardware) (technical inspection and condition rating based on evidence of overall deterioration, leaks, etc.)	MSPL1T	
		MSPL1H	
	- Water Supply Condition and Performance (evidence of corrosion, leaks, low pressure)	MSPL2S	

INVENTORY OF RESEARCH CONCEPTS

CONCEPT/ELEMENT - (DESCRIPTION & RATIONALE)	ITEMS & OPERATIONAL LINKAGES	DATA SOURCES/AREA	
		OBJECTIVE	ADDITUDINAL
3. MECHANICAL SYSTEMS AND FACILITIES (MS) (Cont'd)	3. MECHANICAL SYSTEMS AND FACILITIES (MS) (Cont'd)		
Heating (HT) (including furnace or heater, ductwork or pipes, convectors, radiators or registers, fuel storage, and controls) No one familiar with Canadian winters will dispute the profound importance of heating, not only to the comfort and health of the residents but also for the performance of other mechanical systems. For instance, a malfunction in the heating system may cause disruption in the plumbing system due to pipes freezing. Once again the items constituting this element are intended to measure the existence and condition of the heating system.	Heating (HT)		
	- Furnace/principal and secondary heat sources		
	- principal equipment type	MSHT1HA	
	- secondary equipment type	MSHT1HB	
	- Furnace/principal heat source		
	- condition (operability/efficiency)	MSHT2T	
	- breakdowns	MSHT2HA	
	- number of breakdowns	MSHT2HB	
	- Secondary heat source - presence	MSHT3T MSHT3H	
	- Principal and Secondary Fuel type (main heating system, secondary system and water heating)	MSHT4HA MSHT4HB MSHT4HC	
	- Distribution System including ductwork/ pipes/convectors/radiators/registers condition (operability - rating)	MSHT5T	
	- Consumption Practices		
	- Winter - Thermostat Setting Day (A) & Night (B)	MSHT5HA, B	
	- Furnace Servicing - Most Recent	MSHT6H	
	- Overall Rating	MSHT7H	
	- Thermotstat control of heat (renters only)	MSHT9H	

INVENTORY OF RESEARCH CONCEPTS

CONCEPT/ELEMENT - (DESCRIPTION & RATIONALE)	ITEMS & OPERATIONAL LINKAGES	DATA SOURCES/AREA	
		OBJECTIVE	ADDITUDINAL
3. MECHANICAL SYSTEMS AND FACILITIES (MS) (Cont'd)	3. MECHANICAL SYSTEMS AND FACILITIES (MS) (Cont'd)		
Electrical (EL) (including equipment such as panel meter, wiring, outlets, and smoke or fire detectors) By and large, it may be assumed that every home assessed under the proposed study will possess electricity for lighting and power purposes. The basic objective of installation should be to ensure safety from fire and personal danger, while permitting use of essential electrical appliances and providing sufficient electric light for living purposes.	Electrical (EL)		
	- Equipment panel characteristics (number of fuses or breakers, total amperage of panel)	MSEL1S	
	- Equipment meter characteristics (shared or individual)	MSEL2S	
	- Wiring - characteristics (type, e.g. knob and tube, BX)	MSEL3S	
	- condition (damaged, worn, frayed, broken or inoperative)	MSEL4S	
	- Outlets	MSEL5H	
	- Smoke and Fire Detector (presence and condition)	MSEL6H	
	- System level adequacy (occupant question as to fuses blown/breakers tripped plus inspector's summary rating)	MSEL7T MSEL7H	

INVENTORY OF RESEARCH CONCEPTS

CONCEPT/ELEMENT - (DESCRIPTION & RATIONALE)	ITEMS & OPERATIONAL LINKAGES	DATA SOURCES/AREA	
		OBJECTIVE	ADDITUDINAL
4. SOCIO-ECONOMIC CONTEXT (SE) Socio-economic context is an umbrella concept referring to the economic, social, demographic, and attitudinal characteristics of the household. The social and economic background characteristics of a respondent are germane to both his objective and perceived residential satisfaction as well as to the perceptual and objective dimensions of the adequacy, suitability and affordability of his accommodation. The principal reasons for obtaining information on the background characteristics of respondents is that people's past experience and current circumstances affect the way they perceive and evaluate their residential environments. Because of this, some people are likely to underestimate the rehabilitation need or potential of their dwellings, while other people overestimate the extent to which their housing merits rehabilitation. In the interest of increasing the predictive power of our household instrument, then, controlling for both the additive and non-additive effects of background characteristics may be invaluable. Respondents can also give information on their neighbourhoods which may have an effect on the rehabilitation potential of their dwellings.	4. SOCIO-ECONOMIC CONTEXT (SE)		

CONCEPT/ELEMENT - (DESCRIPTION & RATIONALE)	ITEMS & OPERATIONAL LINKAGES	DATA SOURCES/AREA	
		OBJECTIVE	ADDITUDINAL
4. SOCIO-ECONOMIC CONTEXT (SE) (Cont'd)	4. SOCIO-ECONOMIC CONTEXT (SE) (Cont'd)		
For example, if a whole neighbourhood is deteriorating physically or in a transitional stage from residential to commercial, the advisability of rehabilitating a particular residence may be questionable. On the other hand, the same structure in a solidly residential neighbourhood in good physical condition may be far more worthy of rehabilitation. Because of this, then, we will include the questions concerning residents' perceptions and attitudes of their neighbourhood and the relative physical state of their dwellings.			
There are three major elements constituting socio-economic context: (1) finances; (2) socio-demographic characteristics of the households; and (3) attitudes (excluding those satisfaction items with exterior/interior/ mechanical systems already discussed). Attitudes here refer primarily to the occupant's subjective impressions of neighbourhood and attitudes to rehabilitation, affordability and suitability.			
Finances (Fl) The costs of a residence is an important parameter which economically constrains the type and intensity of rehabilitation action a resident may take. As such, we include questions concerning the monthly payments for utilities, rent/mortgage, taxes, etc. Although we exclude certain data	Finances (FI) - Household Income - Household income source and amount (as per 1981 Census)		SEFIlHA-J

CONCEPT/ELEMENT - (DESCRIPTION & RATIONALE)	ITEMS & OPERATIONAL LINKAGES	DATA SOURCES/AREA	
		OBJECTIVE	ADDITUDINAL
4. SOCIO-ECONOMIC CONTEXT (SE) (Cont'd) (e.g. debt structure), these questions should help us deal with the issue of affordability. The items constituting this element can be divided into household income and shelter costs.	4. SOCIO-ECONOMIC CONTEXT (SE) (Cont'd) - Tenure	SEFI4HA, B	
	- Shelter Costs - Principal Payments		
	(Renters)		
	- Rent	SEFI5H	
	- Utilities		
	- Are included in the rent?		
	Water	SEFI6HA	
	Electricity	SEFI6HB	
	Gas	SEFI6HC	
	Oil, Coal, Wood or Kerosene	SEFI6HD	
	Parking	SEFI6HE	
	- Frequency of payments for:		
	Water	SEFI7HA	
	Electricity	SEFI7HB	
	Gas	SEFI7HC	
	Oil, Coal, Wood or Kerosene	SEFI7HD	
	Parking	SEFI7HE	
	- Average regular payment for:		
	Water	SEFI8HA	
	Electricity	SEFI8HB	
	Gas	SEFI8HC	
	Oil, Coal, Wood or Kerosene	SEFI8HD	
	Parking	SEFI8HE	

CONCEPT/ELEMENT - (DESCRIPTION & RATIONALE)	ITEMS & OPERATIONAL LINKAGES	DATA SOURCES/AREA	
		OBJECTIVE	ADDITUDINAL
4. SOCIO-ECONOMIC CONTEXT (SE) (Cont'd)	4. SOCIO-ECONOMIC CONTEXT (SE) (Cont'd)		
	(Owners) - Mortgage Payments		
	- Number	SEFI11HA	
	- Principal outstanding	SEFI11HB	
	- Current interest rate	SEFI12HA, B	
	- Regular payment		
	Amount	SEFI13HA, B	
	Frequency	SEFI14HA, B	
	Inclusion of Principal Interest Taxes and Other Charges	SEFI15HA, B (parts 1 through 4)	
	- Total Yearly Taxes	SEFI16H	
	- Maintenance and Repair Expenditures (amount)	SEFI17HA, B	
	- Frequency of payments for:		
	Water	SEFI7HAO	
	Electicity	SEFI7HBO	
	Gas	SEFI7HCO	
	Oil, Coal, Wood or Kerosene	SEFI7HDO	
	- Amount		
	Water	SEFI8HAO	
	Electricity	SEFI8HBO	
	Gas	SEFI8HCO	
	Oil, Coal, Wood or Kerosene	SEFI8HDO	

INVENTORY OF RESEARCH CONCEPTS

CONCEPT/ELEMENT - (DESCRIPTION & RATIONALE)	ITEMS & OPERATIONAL LINKAGES	DATA SOURCES/AREA	
		OBJECTIVE	ADDITUDINAL
4. SOCIO-ECONOMIC CONTEXT (SE) (Cont'd)	4. SOCIO-ECONOMIC CONTEXT (SE) (Cont'd)		
	- Perceived fairness of present shelter costs		SEFI19H
	- View of reasonable S/I ratio. Largest amount willing to pay, given present income and cost of living, for proper accommodation		SEFI20H
	- Length of residence	SEFI21H	
Socio-Demographic Characteristics (SD) Three basic socio-demographic measures are included in this element -- respondent's occupation, education, and ethnicity. Income is measured under finances. Income, education and occupation will provide a reliable measure of socio-economic status. These variables have all been demonstrated to be significantly related to the objective and perceptual dimensions of house condition in a range of earlier studies.	Socio-Demographic Characteristics (SD)		
	- Household composition (census type question providing name, relationship to person[1] (for all occupants, year of birth, sex, and marital status)		
	- name	SESD1HA	
	- relationship to person one	SESD1HB	
	- year of birth	SESD1HC	
	- sex	SESD1HD	
	- marital status	SESD1HE	
	- Respondent Characteristics		
	- educational attainment	SESD2H	
	- ethnicity	SESD3H	
	- occupation (respondent and spouse)	SESD4HA, B	
Perceptions/Attitudes (to rehabilitation, neighbourhood, general state of mind, and dwelling as a place to live). Attitudes are important both as control variables and as explanatory variables (e.g., predicting rehabilitation program uptake). The first function is based on the hypothesis that respondents' evaluations of condition and need will vary with their relative state of mind.	Perceptions/Attitudes		
	- Rehabilitation		
	- willingness to pay higher rent for improvements		SESD6HAR
	- rank ordering of various improvement types (renters)		SESD6HBR
	- rank ordering of various shelter scenarios (renters)		SESD6HCR

CONCEPT/ELEMENT - (DESCRIPTION & RATIONALE)	ITEMS & OPERATIONAL LINKAGES	DATA SOURCES/AREA	
		OBJECTIVE	ADDITUDINAL
4. SOCIO-ECONOMIC CONTEXT (SE) (Cont'd)	4. SOCIO-ECONOMIC CONTEXT (SE) (Cont'd)		
The latter use for attitudinal data might assist policy makers in determining to what degree their working hierarchy of rehabilitation need fits the respondent's perceptual hierarchy.	- rank ordering of various shelter scenarios (owners)		SESD6HAO
	- rank order of various improvement (owners)		SESD6HBO
	- perceived need (1981 Census)	SESD7H	
	- Neighbourhood Perception		
	- relative state of repair of buildings	SESD9H	
	- satisfaction with neighbourhood as a place to live		SESD12H
	- General State of Mind*		
	- state of mind (mood) relative to most days		SESD13H
*Evidence that perceptions of well-being (including general state of mind) can be measured by a single questionnaire item with validity in the range of 0.7 to 0.8 and with correlated method effects contributing less than 10 percent of the total variance can be found in Andrews and Crandall (1976).	- General Satisfaction with dwelling as a place to live		SESD14H
	- Ranking of factors related to housing satisfaction (rank cards)		SESD15H
	- Other		
	- interviewer's assessment of respondent's interest		SESD16H

INVENTORY OF RESEARCH CONCEPTS

CONCEPT/ELEMENT - (DESCRIPTION & RATIONALE)	ITEMS & OPERATIONAL LINKAGES	DATA SOURCES/AREA	
		OBJECTIVE	ADDITUDINAL
4. SOCIO-ECONOMIC CONTEXT (SE) (Cont'd)	4. SOCIO-ECONOMIC CONTEXT (SE) (Cont'd)		
Improvements (IM) This element deals with improvements as distinct from maintenance and repairs. On the basis of respondent questions we wish to assess recent improvements as well as attitudes and motivations to improvement.	Improvements and Major Repairs (IM)		
	- History (last 5 years)	SEIM1HA	
	- Improvement types undertaken	SEIM1HB	
	- Expenditures on improvements	SEIM1HC	
	- Assistance from RRAP or OHRP	SEIM1HD	
	- Reasons for not undertaking improvements	SEIM1HE	
	- Future plans (intentions for next 3 years)	SEIM2HA	
	- Future plans for energy related improvements (next 3 years)	SEIM2HB	
	- Major repair types	SEIM3HA	
	- Major repair expenditures	SEIM3HB	

INVENTORY OF RESEARCH CONCEPTS

CONCEPT/ELEMENT - (DESCRIPTION & RATIONALE)	ITEMS & OPERATIONAL LINKAGES	DATA SOURCES/AREA	
		OBJECTIVE	ADDITUDINAL
5. BACKGROUND DWELLING/BUILDING DATA (BD) For a variety of reasons, it is necessary to acquire additional background data about the dwelling/building. These data are related to issues such as conversion potential, safety, suitability, etc. They will also provide the basis for important statistical controls in subsequent analysis in addition to permitting us to distinguish between dwelling unit data and building data in the case of multiple-unit buildings.	5. BACKGROUND DWELLING/BUILDING DATA (BD)		
Building Characteristic (BC) These factors are related to conversion potential, longevity, condition, energy conservation, expected market value and rehabilitation need.	Building Characteristic (BC)		
	- building type (i.e. single, double, row, duplex, apartment)	BDBC1S	
	- building age (year of construction)	BDBC2H	
	- number of floors above grade (observed)	BDBC3S	
	- exit and entry (type)	BDBC4S	
	- exit and entry (number)	BDBC5S	
	- expected market value	BDBC5H	
	- emergency fire exits	BDBC7H	
	- land use (directly across, one side, other side)	BDBC8S	

INVENTORY OF RESEARCH CONCEPTS

CONCEPT/ELEMENT - (DESCRIPTION & RATIONALE)	ITEMS & OPERATIONAL LINKAGES	DATA SOURCES/AREA	
		OBJECTIVE	ADDITUDINAL
5. BACKGROUND DWELLING/BUILDING DATA (BD) (Cont'd)	5. BACKGROUND DWELLING/BUILDING DATA (BD) (Cont'd)		
Spatial Characteristics (SC) These data are largely related to suitability - both perceptual and objective as well as other areas such as conversion potential.	Spatial Characteristics (SC)		
	- total living area (estimated from exterior measurement)	BDSC1S	
	- total living area (occupant satisfaction)		BDSC1H
	- room arrangement (satisfaction)		BDSC2H
	- number of rooms/dwelling (technical inspection plus occupant question)	BDSC3H	
Multi-Unit Buildings (MU) Where necessary, distinguish whether item refers to the building or dwelling unit. It will also be necessary to have the owner/and/or superintendent answer question about common building features such as heat, plumbing, repair history, etc.	Multi-unit Buildings (MU)		
	- owner's name	BDMU1H	
	- owner's (or backup data source) address	BDMU2H	
	- number of dwelling units in building (asked of owner or observed)	BDMU3H	
	- common halls:		
	Outside fire escape to ground floor	BDMU4SA	
	Two separate stairways to ground floor leading to outside doors	BDMU4SB	
	Broken or missing interior steps or railings	BDMU4SC	
	Missing lightbulbs	BDMU4SD	
	Fire doors in hallways	BDMU4SE	
	Smoke detectors in hallways	BDMU4SF	

CONCEPT/ELEMENT - (DESCRIPTION & RATIONALE)	ITEMS & OPERATIONAL LINKAGES	DATA SOURCES/AREA	
		OBJECTIVE	ADDITUDINAL
5. BACKGROUND DWELLING/BUILDING DATA (BD) (Cont'd)	5. BACKGROUND DWELLING/BUILDING DATA (BD) (Cont'd)		
	Fire extinguishers in hallways	BDMU4SG	
	Fire alarms in hallways	BDMU4SH	
	Garbage in hallways	BDMU4SI	
Global Assessments of dwelling as a whole (GA) Summary ratings and attitudes.	Global Assessment of dwelling as a whole (GA)		
	- overall rating of condition (interviewer, inspector and householder)	BDGA1S BDGA1H	
	- overall rating of quality of the dwelling (interviewer and inspector)	BDGA2S	

6.0 DESIGN OF THE INFORMATION COLLECTION PROJECT

6.1 Type of Information Collection

A stratified random sample.

6.2 Frame

The Property Standards Division of the City of Ottawa has an ongoing computer information system which includes the majority of the city's residential housing stock. Also included in this file are measures of the principal stratification criteria. The sample will be drawn from this file and listings will be provided for identification purposes. Further investigations indicate that this file includes many other potentially valuable pieces of housing information which can assist both sampling and analysis (e.g. age of construction, estimates of living space, etc).

6.3 Sample Design

- Selection

  The selection criteria used to choose an appropriate city for the pilot study included (in no particular order):

  a) favourable response rates
  b) an existing, or easily applied, rehabilitation cost matrix
  c) a variety of housing stock
  d) reasonable survey and project management costs

Of less significant concern was: e) the desire to select a city comparable to the one selected for the U.S. pilot study.

Applying these selection criteria to potential sites limited the field to Ottawa/Hull and London, Ontario. London was viewed as a less attractive site because it could not match Ottawa's superiority on criterion (d). Montreal was also considered but was rejected because it could not be judged a typical city for the purposes of this study.

Ottawa is the most attractive site as it meets all of the selection criteria while clearly minimising transportation costs and maximising management control by virtue of its propinquity to CMHC and Ekos head offices. Investigation into the nature and quality of the City of Ottawa's cost-matrix, and the ability to identify sampling areas clearly possessing higher proportions of stock requiring rehabilitation, has confirmed the appropriateness of Ottawa. As mentioned above, the City of Ottawa has an ongoing computer information system which includes the majority of the city's residential housing stock. Included in this file are measures of the principal stratification criteria.

The sampling universe will be limited to an approximation of the

Ottawa inner city (Brown and Burke, 1979). This area is displayed in Figure 1.

- Stratification Criteria

  There are three critical stratification criteria:

  a) dwelling condition or suitable proxy;
  b) dwelling tenure (renters/owners);
  c) dwelling type.

"Neighbourhood" has been eliminated as a stratification criterion on the grounds that the proposed sample size does not allow the incorporation of neighbourhood and tenure and dwelling type into the sampling plan. It is therefore important to note that neighbourhood is not a component of the sampling plan and will not be used for purposes of statistical aggregation so as to increase statistical fit. Rather, neighbourhood is dealt with as a variable operationalised in terms of the structured observations of the respondents. Occupant responses to questions about their neighbourhood will likely demonstrate sufficient variability to justify their inclusion in the pilot study (i.e., as variables in the household instrument).

In order to ensure that a high proportion of the housing stock sampled is in the substandard category, the study area will be restricted to the inner city of Ottawa. It is in this area that most of the substandard housing stock in Ottawa is to be found. Random sampling would then occur within this area. This strategy will accomplish the goal of ensuring that the pilot includes the whole spectrum of dwelling condition types while also ensuring that a reasonable number of dwellings in the sample is in need of rehabilitation. In addition, a rough approximation of dwelling condition is available from the City of Ottawa Property Standards Division computer information system. This measure divides the housing stock into good, fair and poor categories. These three categories will become sampling strata.

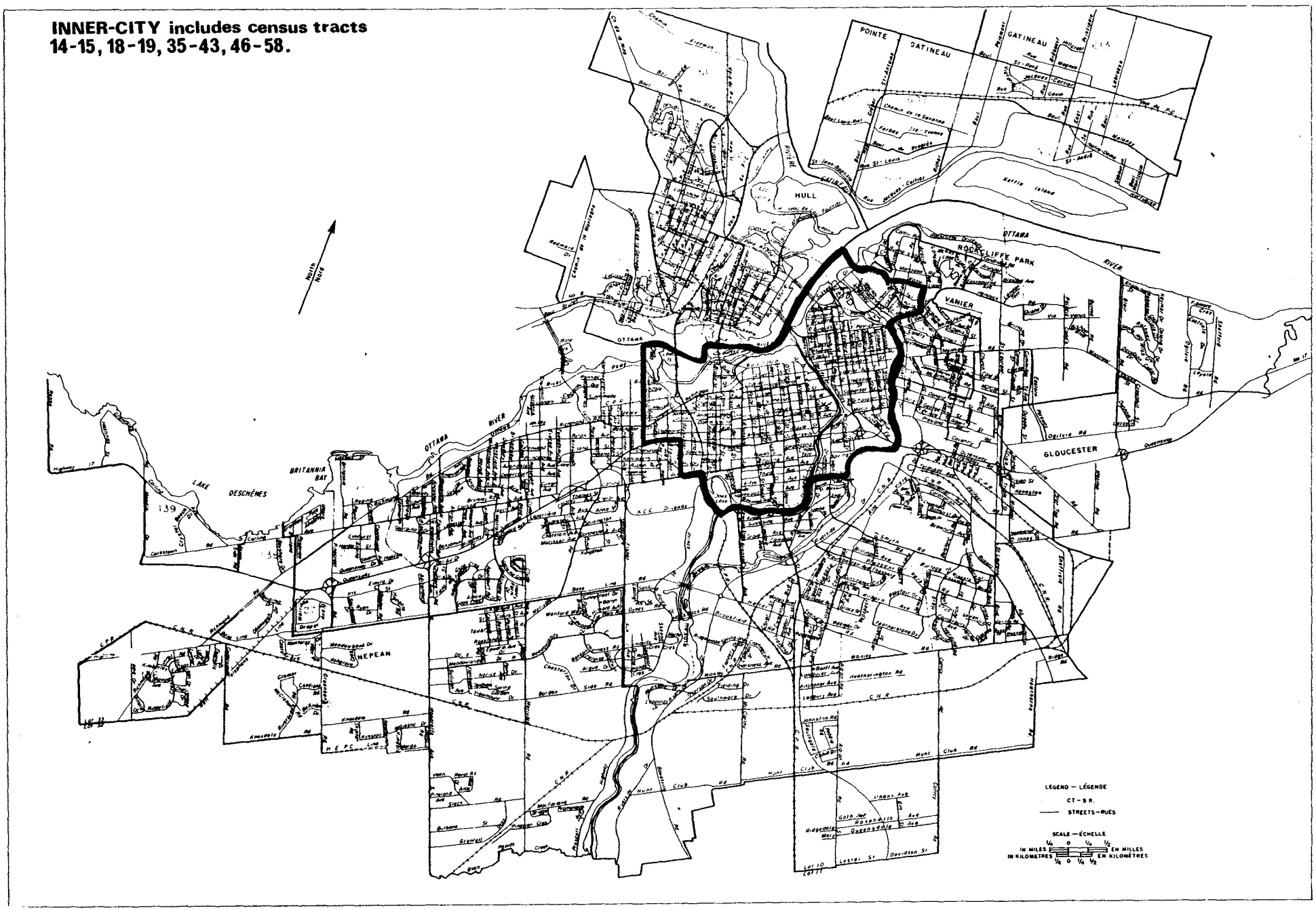
Age and dwelling value were also considered but were eliminated as potential stratification criteria. These criteria are often viewed as proxies for dwelling condition and were originally considered to ensure that a sufficient proportion of the sample would fall in the need of rehabilitation category. These are, however, weaker proxies than the stratification criteria available from the Property Standards Division file.

Whereas tenure can be translated into a simple binary sampling strata (viz. renters/owners), dwelling type is more problematic. All discussions on this problem urged focusing on as few dwelling types as possible. In light of this, and the practical limitations of the modest sample size, the sample will be stratified on four dwelling types:

1) Single detached houses
2) Semi-detached and row houses
3) Duplexes

FIGURE 1

INNER-CITY
OTTAWA



4) Apartments in a building having six or less dwelling units.

This information is available from the City of Ottawa Property Standards Division computer information system. Permission has been given by the City of Ottawa for CMHC and Ekos Research to make extensive use of this information system.

- Sample Size

Sample size will be limited by budget constraints, the complexity of the three instruments and the complexity of the stratification criteria. In order to ensure that the analysis is not unduly constrained by a small sample size, the sample size will be increased from the initially proposed 300-400 units to 500 units. The individual dwelling unit, of course, remains the basic unit of analysis.

- Final Sampling Plan

The following summarises the sampling plan:

1) Type: A stratified random sample.

2) Sample Population: The universe of residential buildings with six or less dwelling units in the Ottawa inner city (as defined in Brown and Burke, 1979).

3) Primary Sampling Unit: The residential property.

4) Stratification criteria: (i) tenure - rent/own; (ii) structure type - single detached, semi-detached and row, duplex, apartments in buildings having six or less dwelling units; iii) building condition as classified on City of Ottawa housing file - good, fair, poor.

5) Sampling weights: (1) tenure 1:1 (rent : own); (2) structure type 1:1:1:1 (s.d. : sd+r: dup : apt.); (3) condition 3:2:1: (poor : fair : good).

6) Sample Size: n = 1000 (500 surplus cases drawn for replacement purposes). Only 500 (or a maximum of 550) cases will be included in the analysis.

The sampling plan is graphically displayed in Figure 2. The figures entered in the cell are rough approximations (expected values) whereas the marginals are exact. It is important to note that expected cell values are "expected" only in a statistical sense. These are the frequencies that would occur through a totally random distribution of units.* In

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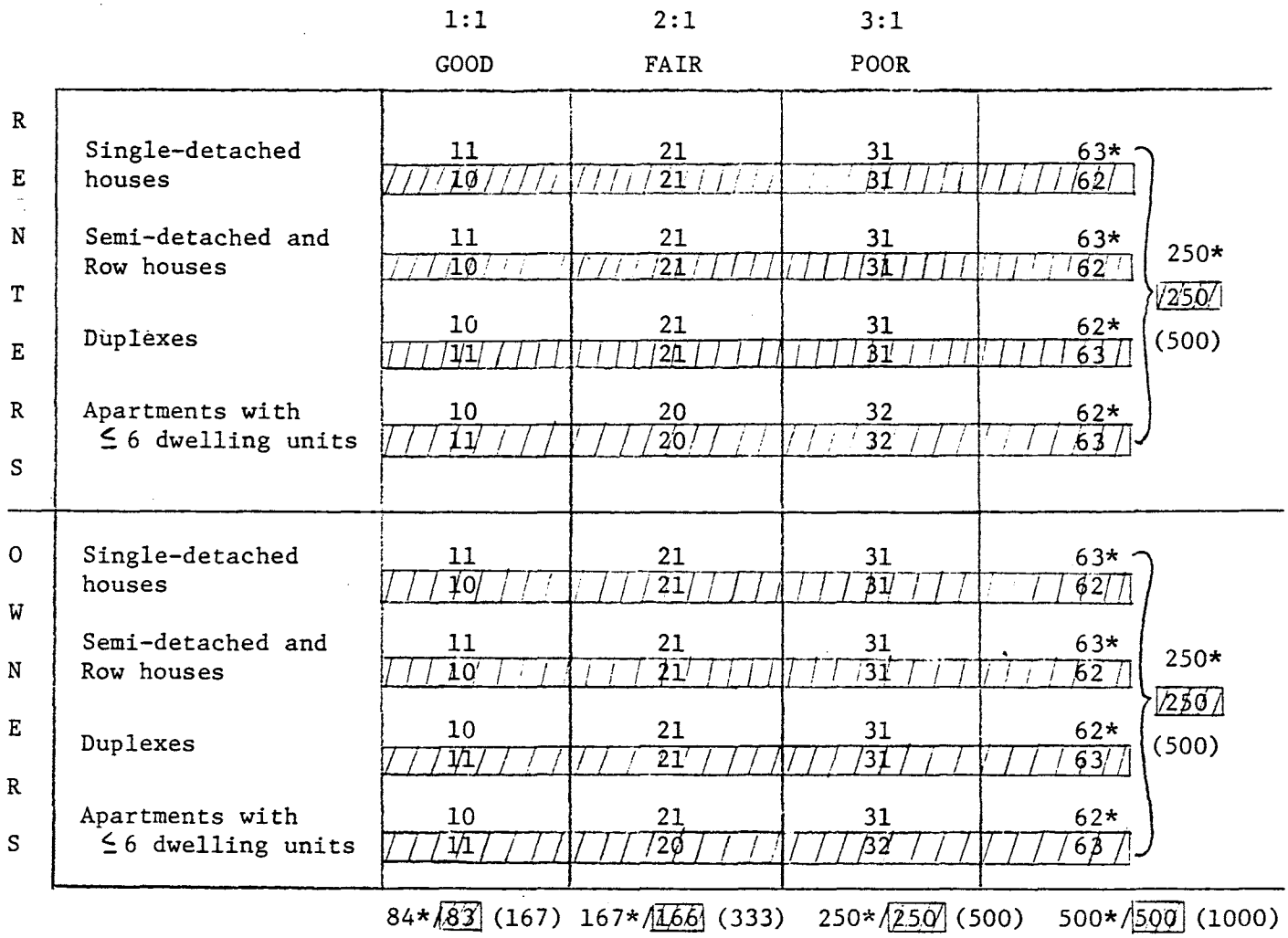
*The expected frequency of any cell is equal to the cross product of its marginals divided by the total n.

Figure 2

PROPOSED SAMPLING FRAMEWORK



indicates oversample for replacement purposes

( ) indicates total sample including surplus oversample

* indicates sample size for final analysis

reality we would expect the proportion of owner occupied units to decrease as the number of units in the building increases. Other associations between tenure, condition, and dwelling type will produce significant departures from these expected cell values. The marginals can be exactly constrained, however.

6.4 Data Collection Method

There are three possible strategies for sequencing the administration of the technical inspection (TI) and the household interview (HI). These include:

a) TI first followed by HI (two appointments)
b) HI first followed by TI (two appointments)
c) HI and TI administered concommitantly (one appointment).

These strategies assume that the respective instruments are administered by two different persons -- an inspector and an interviewer. There is, of course, the additional possibility of conjoining the two roles in one person. This is a variant of strategy (c). On the surface this strategy appears to have some obvious advantages. However, this approach violates the underlying logic of the study. Without the use of both inspectors and interviewers it will not be possible to address the fundamental question of whether the household-interview based data can approximate inspection based data. Combining the two roles into one person was therefore rejected.

Strategy (a) (TI first, then HI) was eliminated because of the possible bias of overly sensitising occupants to housing deficiencies while the technical inspection is being carried out.

The best strategy is a version of option (c). A single appointment will be scheduled with the respondent. During this period the household interview will precede the technical inspection such that there is only one person alone in the unit with the respondent at any time. As the household interviewer conducts his interview/inspection within the house, the inspector will conduct his exterior inspection and attend to any other administrative details such as completing comments, additions, notations, etc. This pattern will reverse as the inspector enters the house and the interviewer goes outside. The three instruments have been designed to facilitate this sequencing. Gains in terms of simplified scheduling, improved response rates and reduced travel costs outweigh the disadvantages of this strategy.

The greatest disadvantage of this approach is that the interviewers may revise their ratings on the basis of discussions with the inspectors. As the inspectors and interviewers will be sharing transportation this possibility is quite real. It will be impressed upon the interviewers and inspectors that this consultation and revision process would defeat the entire purpose of the survey. An additional problem involves the possibility of interview fatigue on the part of the respondent due to a long session. This problem would seem less severe than those associated with two separate sessions (strategy b).

- Survey Process

1) A letter of introduction outlining the purpose and procedure of the survey will be sent to the occupant and the owner if this is not the same person. This letter will serve to notify the occupant/owner of the selection of their property for inclusion in the survey and to define who it is in the household that qualifies as a respondent. It is also intended that this letter will familiarise the respondents with the nature and goals of the study and the role of Canada Mortgage and Housing Corporation. It is expected that the letter will assist in gaining their cooperation.

2) It is intended that the occupant will provide the majority of the information required. The owner or building manager will only be asked to provide information (in a telephone interview) on those questions which the occupant is unable to answer. For example, in the case of multiple unit properties, the owner or manager may be the only source of information on items such as repair history, heating and insulation. Also required will be the owner or manager's permission to enter and inspect common areas of multiple unit dwellings. It is assumed that the resident owner is the most desirable source for these data, and that a superintendent or manager is more appropriate than a non-resident owner.

3) Interview/Inspection - Sequencing

Interviewer	Technical Inspector
Introduction	Introduction
Household Interview Technical Skim - Interior	Technical Inspection of Exterior
Technical Skim - Exterior	Technical Inspection of Interior
Immediate Review of Instrument	Immediate Review of Instrument
Further consultation with respondent if necessary	Further consultation with respondent if necessary

● Official Language Requirements

Given that the main objective of this information collection process is to test the instruments in terms of validity and reliability, the survey will be carried out in one language only (english). It is believed that the complexity involved in testing the instrument in both official languages is beyond the scope of this pilot project. It is realized of course, that a national survey, when implemented, will be administered in both official languages. It is planned that testing for language congruency will occur at a later stage.

● Provision of Information Voluntary

● Quality Control

a) Survey Execution and Data Collection

The survey execution proposed here is designed to produce the highest quality results and to justify the standards set by the research design, sample design and instruments. This will be accomplished through careful field team training and supervision and by following the selection procedures outlined in the sample design. A 15 percent sample control campaign will be conducted as a standard procedure.

Prior to field entry, standard clearance procedures with municipal officials will be followed. The police, for example, will be continuously informed of the field team's whereabouts.

b) Field Team Training

Perhaps the most crucial element in the success of this pilot study will be field team training. Two separate teams of interviewers and inspectors will be carefully selected and given advanced training even though both field groups will be experienced professionals. A prime goal of the training sessions will be to reduce variability caused by personnel differences. Standard checks and controls against interviewer bias will be introduced at the training session of the interviewers; this will include in-depth familiarisation with the instruments, simulated interviews, observation and post-interview discussion, and a dry run in the field using rotating paired teams. Ten paired teams are proposed.

The dwelling inspectors will be carefully selected and trained. This training will involve exercises in house condition assessment where the emphasis will be on consensus of opinion. Areas of dissension will be explored in depth for underlying reasons and rationales. The goal will be for the participants to justify their dissenting opinions or to reach a consensus on the item being discussed. Since the inspectors' assessments are crucial to the whole study, inspector variability must be reduced.

A formalised detailed training program will attempt to achieve this. Mr. Jerry Mantle of CMHC and Mr. James Moorman of the City of Ottawa Property Standards Division will participate in the training of both the interviewers and inspectors. Their extensive knowledge of housing rehabilitation in general and this particular project in particular make them ideal for this role.

c) Incentives

A variety of educational material and brochures related to housing and rehabilitation will be distributed to respondents after the interview is completed.

d) Field Supervision and Quality Control

A full-time survey manager (Mrs. Shirley Souchen) will be assigned to this project. She will be responsible for liaison with municipal officials, for project scheduling, and for appointment and team scheduling. As indicated earlier, the survey manager will also be responsible for securing high response rates. A 15 percent sample control campaign will be followed. This will be conducted by the field supervisor (Mrs. Angela Watters).

e) Receipt Control

All questionnaires received from the field will be forwarded to Ekos offices. The survey manager will have received, recorded and edited each questionnaire before delivery and then will have identified any special problems that cannot be resolved. All work received will be scan-edited for completeness and legibility by Ottawa staff. If questionnaires arrive with missing information not caught by the field supervisor, or if any information is illegible, the survey manager will notify and obtain the information from the field supervisor.

As questionnaires are received from the field, they will be checked against a sample control sheet in the field office. The field supervisor will note the interviewing results of each unit to be sampled on the sheet and will return the sheets to the office with questionnaire batches. This list will ensure that each questionnaire is received at Ekos. If any discrepancies occur or if a questionnaire is not received, the receipt control clerk will contact the field supervisor for follow-up.

Questionnaires will be batched and a cover batch sheet will be prepared indicating the unique ID numbers of all questionnaires in the batch as it proceeds through editing and coding. A high level of control will be maintained throughout the receipt control process to minimise or eliminate potential sources of error, to protect respondent confidentiality and to increase operational efficiency at every level.

f) Coding and Editing

A coding manual will be prepared for the survey which will cover item by item coding instructions and will include general coding and editing specifications. Any special instructions for the survey will be appended to the manual.

Each coder will receive a copy of the coding manual and an item by item review will be conducted during training. Coders may make notes in their manuals and use them for reference during the actual coding process. Any additions to the manual will be made at the discretion of the coding supervisor.

Coder training sessions usually include the following steps:

- Discussion of the background and purpose of the study. The project is summarised in order to make the coders aware of how the instrument and their coding fit into the overall scheme;
- Question-by-question discussion of the instrument. This emphasises difficult questions and establishes the procedures for circumventing problems and listing problem responses;
- Group coding of sample questionnaires and discussion of codes used. This instructional device quickly uncovers areas of misunderstanding. Group training is not only efficient but is the best way to ensure a high degree of intercoder reliability;
- Individual coding of questionnaires with immediate supervisory checking. Immediate feedback is decisive in this learning process.

After training, each coder's first two days of work will be checked at the 100 percent level by the coding supervisor. If the level of errors is found to be low and no consistent errors or problems are discovered, the quality control rate will be dropped to 15 percent for each coder.

An intensive level of quality control will be automatically implemented when errors or inconsistencies are found. For each specific item in error, the appropriate section of the coding manual will be reviewed by the coding supervisor and the individual coder. Individuals who continue to make an unacceptably large number of errors will be replaced.

Items that are miscoded by a large number of coders may indicate a lack of clarity in the coding manual. In such cases the manual will be reviewed by the coding supervisor and the appropriate changes will be made. A brief retraining will be conducted on the changed material for all coders.

g) Coding Open-Ended Responses

Open-ended codes will be developed by the coding supervisor in conjunction with the analysis staff. A random sample will be made of 15 percent of all responses for each question. Based on this sampling, the coding supervisor will construct codes which anticipate the range of possible responses. The codes will be submitted to the analysis team to ensure that they will be compatible with the analytical needs of the project.

Several coders will be assigned specific open-ended questions and will edit code these questions in all questionnaires. They will review the codes and their range of interpretation with the coding supervisor. This will also guarantee uniformity of coding.

h) Definition of Respondent

The population unit (data subject) for the present study will be the residential property. The respondent unit (data source) will be the occupant who manages the household finances. In the case where these duties are exercised jointly by more than one member of the household (e.g. husband and wife) either party will be a suitable respondent unit. There is no reference anywhere to the concept of "household head".

6.5 Response Burden

One interview, approximately forty-five minutes in length, will be required per residence.

In multiple unit buildings where the occupant is not able to provide all the information required, an attempt will be made to obtain missing information from the owner or manager if appropriate. This will be accomplished through a telephone interview.

6.6 Public Relations

In addition to an introductory letter explaining the nature and purpose of the survey, the occupant will receive a variety of CMHC brochures which are related to the research topic after the interview is completed. For example, the respondent will receive pamphlets explaining the eligibility requirements and nature of the Residential Rehabilitation Assistance Program (RRAP) and the Canadian Home Insulation Program (CHIP). He or she will also receive some educational material on issues such as energy conservation in the home. The introductory and explanatory materials will underline the fact that CMHC is the sponsoring agency. A brochure explaining the role of CMHC will be presented to the respondent. The Energy, Mines and Resources Enersave questionnaire will also be left to be completed at the respondent's leisure. E.M.R. will code and return the results of the questionnaire to the respondent.

6.7 Data Processing and Storage

- Data Entry

All completed questionnaires which have been coded, edited and quality controlled as outlined above will be rebatched and sent to data entry. All data entry will undergo 100 percent key verification. The contractor will conduct consistency and range edits on the spot in order to ensure a maximum error rate of less than one per cent.

- Data Base Management

System design is extremely important in addressing the study's objective. Version 8 of the Statistical Package for the Social Sciences (SPSS) will be used as the data base management system. This familiar package is capable of performing the majority of the proposed analysis. SPSS has the further advantage of operating and outputing in an unusually "natural" language. It also provides an excellent graphic and physical presentation package for file information, tables, graphs and other descriptive statistical outputs.

As a first priority, Ekos Research will produce a fully documented tape copy of the final SPSS system file generated from the research. This file will include all the data, variable and value labels, compute statements, missing data codes, weights, document cards, etc., necessary to regenerate the system file on a CMHC computer installation.

- Data Editing and Posting

As in any computerised system that uses data resulting from hard copy, transcription errors are possible. In order to minimise these errors, several classes of edits will be performed.

Range Checks

All fields are checked to ensure that their values fall only within predetermined maximums and minimums.

Consistency

Fields are further edited against a set of specifications that indicate whether the field, although it is in the proper range, is a reasonable answer. This might include such things as a code that indicates that a certain salary level should be investigated for a possible mistranscription.

Inter-file Checks

Data are edited against previously edited data. Again, a check will be made if a field(s) is misspecified.

Since it is vital for the data collected to be properly maintained in the computer, the edited steps to be taken will include the following:

Specification of Edits

As indicated above, edits can be of several types: range edits, consistency edits, and inter-file edits. Edits will be specified jointly by the data processing staff and the design and analysis staff.

Preparation of Edit Programs

All edit programs will be written to conform exactly to the specifications. In addition, all edit programs will be checked by a senior data processing staff member to ensure that all programming has been properly and correctly coded.

Computerised Edit Runs

The output will list all exceptions to the edit specifications and will be followed up with an investigation to determine the nature of the corrective measures to be taken. All rejected data will be written to a suspense file, awaiting correction. There will be no data placed on the files that conformed to the edit specification, except when fully documented as to the reasons why an edit was overridden.

Posting of Valid Data

All data that pass all the edits will be posted to their respective files. This procedure will allow preliminary runs to be done on clean data.

Repeat of Cycle

Steps will be repeated until all data are on file.

Final File Documentation

When all data have been posted to a file, a final documentation run will be produced. It will show frequencies of all data values and, in the case of continuous data, will give preliminary statistics to facilitate quick analysis.

6.8 Time and Costs

It is estimated that field operations, which are scheduled to start in June, will extend for a period of four to six weeks.

Costs are estimated at approximately $19,000.

7.0 PRETEST

Given that this project is a pilot study, considerable emphasis has been placed on developing sound instruments. To accomplish this goal drafts of the questionnaire and technical instruments were circulated to housing experts in Canada and the United States and to representatives of CMHC for comments and suggestions. Experts at Statistics Canada were also consulted. On the basis of the feedback, penultimate drafts were prepared and are attached as Appendices 2, 3 and 4. These drafts will be pretested by a group of analysts and technical inspectors in five or six dwellings, some of which are known to be in poor condition, in Ottawa. Following the pretest, a debriefing session will be held to discuss questionnaires and survey procedures. Versions of the questionnaire and instruments will be finalised on the basis of the pretest results.

8.0 REPORTS AND PUBLICATIONS

As stipulated in the statement of work, Ekos Research will:

a) prepare and submit four copies of the draft final major report as modified in accordance with suggestions received from the CMHC Project Management Committee and the proposed review workshop. Also to be submitted at this time is the final training and orientation package together with a final copy of the data tape, detailed data file structure and documentation, coding manuals and a final version and documentation of the data editing procedures that were followed.

b) prepare and submit a draft monograph detailing all aspects of the study but in a format, style and length suitable for wide public distribution.

c) prepare and submit ten copies of the final major report and monograph as modified in accordance with suggestions from the CMHC Project Management Committee.

CMHC is under no obligation to publish any of the reports mentioned above. CMHC will, however, share all analyses and results pertinent to the 1981 Census questions used in the questionnaire with Statistics Canada staff.

9.0 CONFIDENTIALITY

Due to the possible sensitivity of some of the data items collected, unique respondent and resident identifiers will be assigned to each record and therefore any personal identification information will be removed. This will ensure not only respondent confidentiality but also anonymity.

10.0 REFERENCES

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A1.0 Introduction and Statement of the Problem

The central function of the analysis is to develop a valid, reliable, and practical instrument for assessing the physical condition and rehabilitation need of Canada's housing stock. Whereas we know that a detailed and lengthy technical inspection would probably provide reliable and valid estimates of house condition, due to the length, obtrusiveness and expense of such a strategy, this approach does not satisfy the third criterion of being practical. Similarly, a brief, unobtrusive, and relatively inexpensive household interview is quite practical yet suspect in terms of reliability and validity. The present research is concerned with: (1) improving the validity and reliability of household instrument data by having interviewers perform qua inspectors; (2) structuring respondent observations in the form of factual observations which are less influenced by bias and error; and (3) specifying systematic sources of bias as they relate to certain characteristics of the respondent such that they can be taken into account in correcting these data. This study will assess the relative quality and economy of various permutations of these two data collection strategies (i.e. inspection vs. interview) in order to identify an optimal approach. We are particularly interested in knowing to what degree the data generated from interviewers and household respondents can serve as reliable and valid proxies for the more expensive technical inspection data. The proposed analysis is designed to provide quantitative answers to these problems.

A1.1 Terminological Prolegomenon - Data Sources and Data Types

In order to avoid ambiguity and confusion, it is necessary to identify in precise terms the sorts of data we are analysing. With a view to creating a semantically consistent shorthand for discussing analytical relations we will work with the following set of symbols:

T_I	=	technical inspection
T_{SI}	=	technical skim - inspection
T_{SIR}	=	technical skim - interviewer
FO_R	=	factual observations - respondent
EV_r	=	evaluative statements - respondent
HH_{AP}	=	household attitudes/satisfactions
HH_C	=	household characteristics
CEN_{81}	=	1981 Census question on house condition
GA_I	=	global assessments - inspector
GA_{IR}	=	global assessments - interviewer
GA_R	=	global assessments - respondent
RE_{CO}	=	rehabilitation costs

There is a certain amount of redundancy and overlap in this system but this is inevitable with any scheme of this sort. For example, GA_R is similar to EV_R and CEN_{81} overlaps with EV_R.

Despite these problems, this is a workable system for specifying general relationships. In order to clarify the structural arrangement of data sources a graphic display is included (Figure A.1). Ekos Research has also developed a more detailed mnemonic system of variable labels which uniquely identify each variable in the study in an exhaustive and mutually exclusive fashion (see Section 5.0). In this Appendix the mnemonic system is correlated with the 12 terms itemized above.

Before describing the statistical relationships constituting the core analysis, we will briefly deal with the two antecedent problems of data reduction and summary measures, and their reliability and validity.

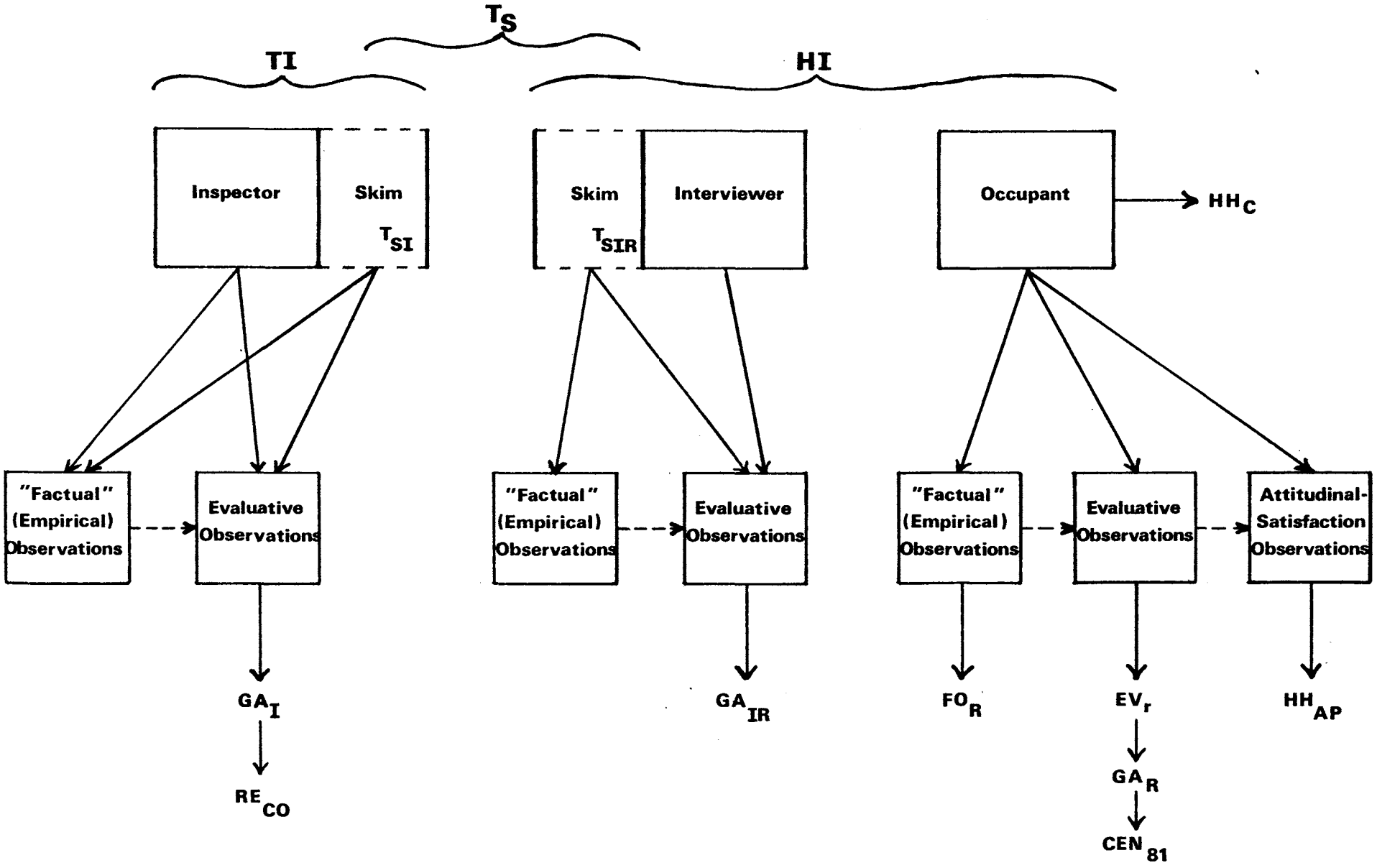
A1.2 Data Reduction and Composite Measures

Data reduction can proceed inductively or deductively. If we can assume metric level data (i.e. interval/ratio measures) then we can begin to summarise data by collapsing items into elements, elements into concepts and finally, collapsing concepts into an overall measure of house condition. These items will all be normalised through a z-score transformation to ensure common metric properties. Recent advances in scaling methodology now permit the inclusion of binary and polytomous (non-metric) variables in a metric scale. This approach is based on a normal ogive model involving tetrachoric lines (Kim and Rabjohn, 1980).

The issue of weighting is critical and can be dealt with through a variety of options. We could weight the measures empirically by creating an unweighted summary index and then regressing individual items on the summary indices to create weights. This operation should be iterative or two-stage in that we could recalculate regression weights in a second round beginning with the initial regression weights. Another possibility would be to use *a priori* weights in the initial index formation. For example, we might use a threefold weighting system: minor = 1, moderate = 2, major = 3, with cosmetic items such as landscape being weighted as 1, items such as buckling of non-structural walls being weighted as 2 and items of great concern such as roof sagging or other aspects of structural integrity being weighted as 3. It is possible that a more complex weighting system may be in order or perhaps we may wish to have greater magnitudes for the weights (e.g. minor = 1, moderate = 2, major = 5). Weights may also be derived from regional and local standards such that the instrument is flexible enough to accommodate regional and local variations (e.g. heating systems may be weighted heavier in Edmonton than in Windsor). As a final stage selection process we may wish to include certain unambiguous fail criteria through the use of either (i) "select if" type qualifiers, or (ii) assigning a prohibitively high weighting (say 10) to these items which will ensure that the dwellings fall in the substandard part of the house condition scale.

Figure A.1

STRUCTURAL ARRANGEMENT OF DATA SOURCES AND DATA TYPES



The resulting summary scale can be bounded by 0 and 100 and can give comparable continuous information. Standards may be either derived empirically or imposed a priori. This sort of measure will permit the type of regression modelling we envision for the analysis while retaining the possibility of cross-classified, contingency table analysis or logit and log-linear modelling. The important point is that we can always recover a categorical measure from a continuous one whereas we are not in a position to develop a continuous measure from a qualitative measure without resorting to non-metric multidimensional scaling and unfolding techniques. In the event that we decide that a categorical measure is more appropriate, we will modify subsequent analysis to accommodate this lower level of measurement. Advances in non-parametric methods (e.g. log-linear modelling) ensure that the analytical sacrifices involved will not be great.

Inductive (i.e. empirical) strategies for creating summary measures are also available. Factor analysis and factor scaling (Armor, 1974) permit the construction of summary scales without any preconceived notions as to the dimensional organization of the data. Factor analysis should be conducted in any event as a device for data reduction, distilling meaning and specifying the latent structure of the data. The scaling procedure should be assisted by the results of a factor analysis. Thus we do not present an algorithm for summarising overall house condition as this would be premature.

Factor analysis, as well as zero-order correlations, will be used to identify potential problems of multicollinearity within the predictors to be used in subsequent regression models. Factor scales, being orthogonal by definition, generally obviate problems of multicollinearity.

A1.2.1 Operationalising Major Themes - Some Illustrations

In order to inject some substance into this formal discussion of composite measures we will illustrate how some of the major themes underlying house condition could be operationalised. This discussion is by no means intended to be final or exhaustive and is presented for illustrative purposes only.

● Control of Air and Moisture - Waterproofness

According to Mr. Jerry Mantle and other housing experts, the control of moisture is of critical significance to any house's condition. Rot, decay and the eventual demise of the structure are the inevitable results of serious moisture entry. G.K. Garden (1979) argues that it is "advisable... to examine for and record all moisture sources". He distinguishes between rain penetration and condensation while noting that "air leakage is the common factor" always underlying these performance inadequacies. We therefore treat the control of air and control of water as a single theme. As Garden points out the control of heat is also closely related to this fundamental theme. Clues such as icicles, water stains and frost on exterior surfaces may be considered as evidence of these inadequacies. The following questions measure moisture control in a fairly direct fashion. Table A.1 organises these questions by data source.

TABLE A.1: INVENTORY OF DATA MEASURING WATER AND AIR CONTROL BY DATA SOURCE

	Inspector	Interviewer	Occupant
lot surface drainage	$EXSW2S_I$	$EXSW2S_{IR}$	
weatherproofness of windows and doors	$EXWD2S_I$	$EXWD2S_{IR}$	EXWD2H
exfiltration on exterior windows and doors			EXWD4H
roof surface condition	$EXRF2S_I$	$EXRF2S_{IR}$	
soffits and fascia condition	$EXRF5S_I$	$EXRF5S_{IR}$	
icicles			EXRF6H
waterproofness - basement	$INBF7S_I$	$INBF7S_{IR}$	INBF7H
water penetration interior walls and ceilings	INWC4T		INWC4H
roof waterproofness			INAR3H

A criterion composite measure can be constructed from a linear aggregation of the normalised Z-scores for the relevant inspector data. This water control index would take the following format:

$$H2OCONT = (Z_{EXSW2S_I} + Z_{EXWD2S_I} + Z_{EXRF2S_I} + Z_{EXRF5S_I} + Z_{INBF7S_I} + Z_{INWC4T}) /6 \quad (1$$

The various components of the composite could be weighted to take into account varying degrees of importance. The resulting index would be renormalised (i.e. transformed to a Z-score). Corresponding indices could be constructed from the interview and occupant data in a similar fashion:

$$H2OCONTH = (Z_{EXSW2S_{IR}} + Z_{EXWD2S_{IR}} + Z_{EXRF2S_{IR}} + Z_{EXRF5S}) /4 \quad (2$$

and

$$H2OCONTO = (Z_{EXWD2H} + Z_{EXWD4H} + Z_{EXRF6H} + Z_{INBF7H} + Z_{INWC4H} + Z_{INAR3H}) /6 \quad (3$$

As both these scales are derived from the household instrument they could be aggregated into a single summary scale.

- Structural Integrity

Clearly a dwelling unit's structural integrity is profoundly related to that unit's condition, rehabilitation need, conversion and rehabilitation potential as well as to the safety of the occupants. In other words, a unit which is structurally unsound will usually be in poor condition, have high rehabilitation need, low conversion and rehabilitation potential, as well as being a potential safety hazard to the occupants. The point is that structural integrity is an important theme related to a broad range of issues and concerns. With a fairly rich source of data related to the structural integrity of the dwelling unit we should be able to generate a high quality structural soundness index. The following variables are directly related to structural integrity (Table A.2).

TABLE A.2: TABLE OF DATA MEASURING STRUCTURAL INTEGRITY BY DATA SOURCE

	Weight	Inspector	Interviewer	Occupant
foundation footings - condition	(10)	$EXBF2S_I$	$EXBF2S_{IR}$	
exterior foundation walls - condition	(10)	$EXBF1S_I$	$EXBF1S_{IR}$	
exterior walls - structural condition	(18)	$EXCW3S_I$	$EXCW3S_{IR}$	
chimney - structural condition	(3)	$EXCW5S_I$	$EXCW5S_{IR}$	
exterior roof - structural condition	(9)	$EXRF4S_I$	$EXRF5S_{IR}$	
basement floor - condition	(6)	$INBF2S_I$	$INBF2S_{IR}$	
interior foundation walls - structural condition	(10)	$INBF3S_I$	$INBF3S_{IR}$	
support posts/ columns - structural condition	(8)	$INBF5S_I$	$INBF5S_{IR}$	
beams/joists ground floor - structural condition	(6)	$INBF6S_I$	$INBF6S_{IR}$	
floors - structural condition	(6)	INFS2T		INFS2H
interior walls - structural condition	(6)	INWC2T		INWC2H

Although all of these items are germane to the structural integrity of the dwelling, it is clear that some items are more important than others. In order to accommodate the relative importance of different items we may weight the items accordingly in constructing a composite scale. In assigning weights to items we can meaningfully exploit previous efforts in this area. The Flint Department of Community Development, for example, has created a "Structural Inspection and Blighting Influence Criteria Hand Book" which provides valuable guidance for this task. Adapting the weighting system employed in this manual, we propose that the weights outlined in Table A.2 be applied to the proposed scales. Once again using Z-scores, we could create the following scale from the inspection based data:

$$\begin{aligned} STRCINS = ((1.0)Z_{EXBF2S_I} + (1.0)Z_{EXBF1S_I} + (1.8)Z_{EXCW3S_I} + (0.3)Z_{EXCW5S_I} + \\ (0.9)Z_{EXRF4S_I} + (0.6)Z_{INBF2S_I} + (1.0)Z_{INBF3S_I} + (0.8)Z_{INBF5S_I} + \\ (0.6)Z_{INBF6S_I} + (0.6)Z_{INFS2T} + (0.6)Z_{INFS2T} + (0.6)Z_{INWC2T}) /12 \end{aligned} \quad (4)$$

In order to ensure a common metric, the weighted scale would be re-normalised through an additional Z-score transformation.

It should be noted that, ceteris paribus, as the number of items in a scale increases so does the reliability of that scale. This suggests that the above scale would be highly reliable.*

This scale can be compared to a corresponding scale generated from the household instrument data. The occupant and interviewer based data could be used individually to produce two separate scales or they could be aggregated as in the example below:

$$\begin{aligned} STRCINT = ((1.0)Z_{EXBF1S_{IR}} + (1.0)Z_{EXBF2S_{IR}} + (1.8)Z_{EXCW3S_{IR}} + (0.3)Z_{EXCW6S_{IR}} + (0.9)Z_{EXRF3} \\ + (0.6)Z_{INBF2S_{IR}} + (1.0)Z_{INBF3S_{IR}} + (0.8)Z_{INBF5S_{IR}} + (0.6)Z_{INBF6S_{IR}} \\ + (0.6)Z_{INFS2H} + (0.6)Z_{INWC2H}) /11 \end{aligned} \quad (5)$$

These examples illustrate the method of scale construction. It should be noted that virtually all of the project's major areas of substantive concern could be operationalised in a similar manner.

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*Reliability of this scale and the others discussed here will be estimated using Cronbach's alpha.

A1.3 Validity and Reliability

The data analysis proposed here is intended to faithfully capture the structure of the conceptual model. Given the nature of the conceptual approach, the problem of establishing the relative efficacy of the two instruments (technical and household) in terms of validity and reliability is clearly important in the analytic strategy.

Validity refers to the issue of whether or not an instrument or item measures the construct or property it purports to measure (e.g. 'house condition'). Reliability refers to the intersubjective replicability of results generated from an instrument. The latter can be estimated using a technique called stepped-up reliability (Moser and Kalton, 1971, 354-55) which corrects the underestimation which occurs using the more traditional split-halves method. The latter method actually tests the reliability of only half the instrument. The stepped-up reliability test will be applied to individual questions within the instrument. The reliability of the composite scales developed will be tested using Cronbach's alpha. Version 8 of the Statistical Package for the Social Sciences (SPSS) includes new capability for calculating the reliability of both individual items and summary scales.

Validity is a more serious problem and certainly more problematic in terms of estimation procedures. Although we could use construct validity procedures such as confirmatory factor analytic and multiple indicator techniques (e.g. using the Joreskog LISREL package), it is probably sufficient to employ a less complicated empirical validity technique such as that described by Helmstadter (1970). This test involves the assumption that we have a criterion measure of the underlying conceptual property we wish to measure. We may reasonably assume that the measure of house condition yielded by the technical instrument serves as a criterion measure. We can then examine the percentage of cases misclassified by the household instrument (e.g. classified as substandard by the household interview and standard by the technical instrument). This strategy, based on the misfit between the technical and household instruments, only permits us to validate the household interview. To validate the technical inspection itself would require an external criterion or else some form of construct validity. This is probably unnecessary, however.

Similar approaches can be applied to test the validity of the technical skim by examining the relationship between the units misclassified by the skim using the technical detail as a criterion. Regression analysis will also assist us in answering this question by regressing the skim on the detail to calculate the proportion of the variance in the detail explained by the skim. An intensive series of iterative consultations between CMHC, Ekos Research and a range of technical housing experts has greatly enhanced the face validity of the instruments.

Because the scaling procedures are relatively complex it will be useful to attempt to "ground" the composite measures in some empirical reality. It will be necessary to demonstrate that units receiving extreme scores on these scales would also receive extreme scores if assessed by intuitive or non-quantitative criteria. This final validity test will be accomplished by including photographs of interior and exterior items which illustrate why a sample of dwelling units received a low, moderate or high score. We will also correlate these composite measures of house condition with the inspector's global ratings in order to further assess the validity of these algorithms.

A1.4 Core Analysis

Preliminary analysis includes the exercises of data reduction, creation of summary measures, and assessments of reliability and validity of individual items and summary measures. For the most part, the core analysis involves statistical investigation of the structural linkages displayed in Figure A.1. For much of this analysis, summary measures of rehabilitation need* derived from the inspector data will serve as the dependent or criterion variable.

In the opinion of Ekos Research, multiple regression analysis is the most appropriate technique for dealing with the bulk of the core analysis. This opinion was shared by the research design experts who have commented on the proposed analysis. Furthermore, the strategy detailed for generating summary measures is based on a desire to provide measures amenable to regression modelling. Parametric techniques are preferable to cruder non-parametric techniques because:

(a) they exploit more of the available information in the data; and

(b) they consequently provide more precise and accurate information.

This is not to suggest, however, that the type or level of statistical technique employed will "rescue" poor quality data. The quality of the results will reflect the quality of the data regardless of the analytic techniques employed.

Data quality being constant, parametric techniques both use and provide a greater amount of information. We say this in full cognizance of the caveat that the data may be only approximately interval. Discussions with inspectors regarding the level of measurement of inspector ratings reinforce our decision to treat these data as metric.

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* For the purposes of analysis, rehabilitation need is considered to be synonymous with house condition.

Even if the ratings are strictly ordinal, they should be close enough to true metric data to ensure that no serious error results from this assumption (Nunnally, 1967, 24-25). The analysis will also be sensitive to potential problems such as multicollinearity and heteroskedasticity.

Although we prefer some form of multiple regression as the prime technique for investigating these linkages, it is premature to assume the functional form of the models (i.e. linear, non-linear, additive, multiplicative, exponential, etc.). It is safe to say that whatever technique we eventually use it will be a variant of what is known as the general linear model. This includes techniques such as regression, ANOVA, log-linear modelling, etc.

General linear modelling will permit us to estimate the impact of various individual house condition items on the dependent variable so as to assess the relative importance of various elements in creating a valid and reliable index of house condition. We will also be interested in using the interview data to predict rehabilitation need so as to establish whether these data serve as a useful proxy for the inspector data. Occupant data will be used as a predictor of rehabilitation need for the same reason. Other salient research questions include: the structural relationship between dwelling interior and exterior from all combinations of data sources; the relationship between environment and rehabilitation need; and the relationship between socio-economic context and rehabilitation need. Socio-demographic and attitudinal characteristics of occupants will provide important statistical controls for the analysis. All of the models described in the core analysis will be run separately for each of the four dwelling type strata described in Section 6.3 in order to assess the impact of dwelling type on these relationships.

With the above verbal description as a guide to the proposed analysis, we will now specify the models constituting the core analysis in more precise terms. Equipped with the terminology described in Section A1.1, we can specify the following relationships as being relevant:

(1) The most basic functional model predicts rehabilitation need - as generated from the full technical inspection - as a function of the inspector's technical skim; the interview skim; the factual observations of the respondent; and the evaluations of the respondent. These models would specify these relationships "controlling for" (or net of) the effects of household characteristics and attitudes. Or in our terminology:

$$T_I = (T_{SI};\ T_{SIR};\ FO_R;\ EV_R:\ (\text{net})\ HH_C;\ HH_{AP}) \qquad (6)$$

As we replace the response variable (T_I) with alternative indices of rehabilitation need, as operationalised through the range of technical inspection data, we will be interested in specifying alternative versions of function 1.

For example model 7 predicts rehabilitation need (as measured from the full T_I) as a function of the factual observations of the respondent controlling for respondent socio-demographic and attitudinal characteristics.

$$T_I = (FO_R: HH_c; HH_{AP}) \quad (7)$$

(2) The relationship between rehabilitation need as measured by the two technical skims is also an important concern. This relationship tells us the degree to which the interviewer provides the same response as the inspector. If rehabilitation need is measured on an interval scale then a product moment correlation would answer this question. If rehabilitation need is measured in terms of ranked categories then non-parametric techniques such as Friedman's analysis of variance with ranks or Kendall's tau b (an asymmetrical measure of association based on concordant and discordant pairs) would be appropriate (Siegel, 1957).

$$r_{T_{SI} \cdot T_{SIR}} \quad (8)$$

A companion model is the relationship between the full technical detail and the respective skims (T_{SI} and T_{SIR}). This model measures the degree to which the respective skims approximate the full technical detail.

$$T_I = (T_{SI}; T_{SIR}) \quad (9)$$

(3) In similar fashion we are interested in how well the evaluative statements by the respondent, including responses to the 1981 Census question regarding house condition, predict rehabilitation need as measured by the full T_I. Once again we wish to control for attitudinal and socio-economic characteristics of the household.

$$T_I = (EV_R; CEN_{81}; GA_I; GA_{IR}; GA_R: HH_c; HH_{AP}) \quad (10)$$

$$T_{SI} = (EV_R; CEN_{81}; GA_I; GA_{IR}; GA_R: HH_c; HH_{AP}) \quad (11)$$

$$T_{SIR} + FO_R = (EV_R; CEN_{81}; GA_I; GA_{IR}; GA_R: HH_c; HH_{AP}) \quad (12)$$

(4) We will attempt to specify the impact of socio-economic context (including social, demographic, economic and attitudinal aspects of the household) on observations and evaluations of rehabilitation need controlling for physical condition as assessed through the T_I.

$FO_R = (HH_c; HH_{AP}: T_I)$ (13)

$EV_R = (HH_c; HH_{AP}: T_I)$ (14)

$CEN_{81} = (HH_c; HH_{AP}: T_I)$ (15)

An additional question is how well does socio-economic context predict rehabilitation need (T_I)?

$T_I = (HH_c; HH_{AP})$ (16)

(5) Another question is the relationship between the evaluative statements and "factual" observations of the respondent. Ultimately we are interested in the relative efficacy of these data sources in terms of their relationship to the criterion T_I.

$EV_R = (FO_R)$ (17)

(6) The question of the relationship between CEN_{81} and all other data sources and types is of crucial importance. Here we are interested in detecting any biases which may be "taken into account" in the future if we were to rely exclusively on this data source. In other words, the CEN_{81} data may be biased but systematically so such that we can correct the CEN_{81} responses on the basis of our knowledge of other characteristics of the respondent. A discriminant analysis may be conducted to see what maximally discriminates these data.

$CEN_{81} = (T_I; T_{SI}; T_{SIR}; FO_R: HH_{AP}; HH_c; EV_R; GA_I; GA_{IR}; GA_R)$ (18)

(7) The relative quality of global estimates can be estimated by comparing these ratings to the corresponding criterion GA_I measures controlling for household characteristics in the case of occupant ratings:

$GA_I = (GA_{IR}; GA_R: CEN_{81}; HH_c; HH_{AP})$ (19)

(8) The final area of the core analysis involves the relationship between the dwelling interior and the dwelling exterior. The aim of this analysis is to specify to what degree our estimates of rehabilitation need as predicted from an exterior inspection are enhanced by additional data gained from the interior inspection and occupant interview. In other words, what is the proportionate reduction in error (P.R.E.) in predicting rehabilitation need as a function of including additional types of data (e.g. interior inspection, occupant interview, etc.). We wish to test the significance of the following relationships:

(20)

$$\text{P.R.E.} = \frac{\text{(Error in predicting RN from ext. only)} - \text{(Error in predicting RN using ext. and int.)}^*}{\text{(Error in predicting RN using ext. only)}},$$

* int. includes the mechanical systems here

$$\text{P.R.E.} = \frac{\text{(Error in predicting RN from ext. only)} - \text{(Error in predicting RN from ext.; int.: } HH_C ; HH_{AP})}{\text{(Error in predicting RN from ext. only)}} \quad (21)$$

Expanding on this theme, we derive the following models:

$$T_I = (T_{I(INT)}; T_{I(EXT)}) \quad (22)$$

$$T_{I(INT)} = (T_{SI(EXT)}) \quad (23)$$

$$T_{I(INT)} = (T_{SIR(EXT)}) \quad (24)$$

$$T_{I(INT)} = (EV_{R(EXT)}: HH_C; HH_{AP}) \quad (25)$$

$$T_{I(INT)} = (HH_{AP}; HH_C) \quad (26)$$

(9) Models 27 and 28 predict rehabilitation costs from a variety of combinations of data sources and data types.

$$RE_{co} = (T_I; T_{SI}; T_{SIR}; FO_R; GA_I; GA_{IR}; GA_R) \quad (27)$$

$$RE_{co} = (T_I; T_I + T_{SI}; T_{SIR} + FO_R) \quad (28)$$

This list of potential models is not intended to be exhaustive. Rather it represents the basic core of a much more elaborate and detailed set of analyses which will emerge in later stages of the research process. The research analysis should be open ended such that it can be modified to take advantage of insights gained during the early stages.

Given the regression strategy we hope to pursue, it should now be clear why we prefer a continuous measure of house condition. For instance, regression analysis assumes an unrestricted range for the response variable. However, non-parametric techniques can be used should this assumption of continuous data prove to be untenable.

APPENDIX 2

TECHNICAL INSTRUMENT

(Note that this has been
reduced from legal size)

PHYSICAL HOUSE CONDITION AND REHABILITATION

NEED SURVEY - 1980

TECHNICAL INSTRUMENT

(Pretest Draft)

May 27, 1980

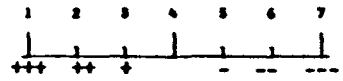
CANADA MORTGAGE AND HOUSING CORPORATION

RESPONDENT ID
CENSUS TRACT
INTERVIEWER ID
BUILDING EXPERT ID

EXTERIOR

	COMMENTS	MATERIAL TYPE	REQUIREMENT LINEAL	REQUIREMENT AREAL	COST ESTIMATE $

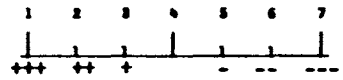
1. EXSW1S
Provide a general rating of the condition of the exterior porches, balconies and other attached structures (e.g. in terms of evidence of hazards, unsoundness, deterioration, missing stairs, rails, etc.)



NA 8 DK/NR 9

(like new, top condition) (totally replace)

2. EXSW2S
On the basis of an examination of lot grading and other evidence such as standing water, provide a rating of surface drainage.



NA 8 DK/NR 9

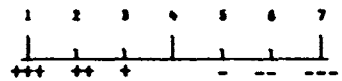
(superior drainage) (major work needed)

3. EXSW3S
Provide a general rating of the condition of the lot in terms of upkeep, (e.g. consider presence of junk, garbage, wells, etc.)

NA 8 DK/NR 9

(superior upkeep) (terrible upkeep)

4. EXBF1S
Provide a general rating of the structure of the exterior foundation walls or posts (based on evidence of cracks, crumbling, holes, etc.).



NA 8 DK/NR 9

(like new, top condition) (major attention required)

COMMENTS	MATERIAL TYPE	REQUIREMENT LINEAL AREAL	COST ESTIMATE $

5. EXBF2S
On the basis of evidence of extreme settlement, (e.g. sinking, leaning, cracks, etc.), provide a rating of the footings (i.e. the widened section, usually concrete at the base or bottom of the foundation wall, pier or column).

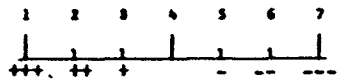
NA 8 DK/NR 9

(no problems) (extreme settlement)

6. EXCW1S
Exterior wall materials are:
(code primary and secondary)

	Primary	Secondary
Brick	1	1
Stone or concrete block	2	2
Stucco	3	3
Wood	4	4
Steel or aluminum siding	5	5
Vinyl siding	6	6
Composition material (imitation brick, etc.)	7	7
Other (specify)	8	8
DK/NR	9	9

7. EXCW2S
Rate the condition of the surface (cladding) of the exterior walls (e.g. in terms of wear, paint condition, cracks, rotting wood, missing material, holes, etc.).



NA 8 DK/NR 9

(like new, top condition) (total resurfacing needed)

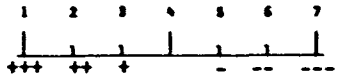
COMMENTS	MATERIAL TYPE	REQUIREMENT LINEAL	REQUIREMENT AREAL	COST ESTIMATE $

8. EXCW3S
Rate the structural soundness of the exterior walls/sheathing (on the basis of evidence of large cracks, settling loose bricks, leaning, buckling, etc.).

NA DK/NR
8 9

(top condition) (immediate major action required)

9. EXCW5S
Rate the structural soundness of the chimney (on the basis of evidence of cracks, crumbling, buckling, leaning, etc.).



NA DK/NR
8 9

(top condition) (totally replace)

10. EXWD1S
Based on an exterior visual inspection of the frame, sash, sills and glass, provide an overall rating of the condition of the doors and windows (consider evidence of broken glass, peeling paint, bare and rotting wood, cracks, etc.).

NA DK/NR
8 9

(like new, top condition) (totally replace)

11. EXWD2S
Consider the weatherproofness of the windows and doorways:

(a) How many of the exterior doorways are warped or do not have weatherstripping, tight fitting doors nor strom doors such that there is no draft?

None of the doorways 1
Some (about 1/4) 2
Half 3

COMMENTS	MATERIAL TYPE	REQUIREMENT LINEAL	REQUIREMENT AREAL	COST ESTIMATE $

Most (about 3/4) 4
All 5
NA 8
DK/NR 9

(b) How many of the windows are not weatherstripped, properly caulked, tight-fitting such that there is no draft?

None of the windows 1
Some (about 1/4) 2
Half 3
Most (about 3/4) 4
All 5
NA 8
DK 9

12. EXRF1S
Roof shape and material are:
(for combination shapes, check all that are applicable)

Flat roof 1
Pitched roof, shingles 2
Pitched roof, metal 3
Other (specify) 4
NA 8
DK/NR 9

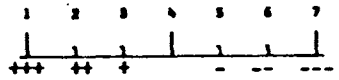
13. EXRF2S
Is part of the roof oriented within 20 degrees of due south and not clearly obstructed from the sun by some permanent physical structure?

Yes 1
No 2

NA 8
DK/NR 9

		COMMENTS	MATERIAL TYPE	REQUIREMENT LINEAL AREAL	COST ESTIMATE $

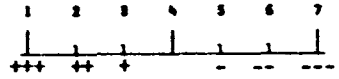
14. EXRF3S
Provide a general rating of the roof's surface condition on the basis of a visual examination of the sheathing and covering matieral (e.g. in terms of loose or missing material, damaged shingles).



NA DK/NR
8 9

(like new, top condition) (totally resurface)

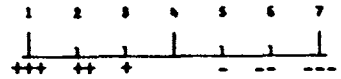
15. EXRF4S
Rate the roof structure (excluding soffits and fascia) from an examination of the roof line (ridge) and shape (e.g. in terms of sagging/ buckling/rot).



NA DK/NR
8 9

(top condition) (dangerously unsound replace)

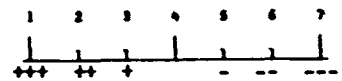
16. EXRF5S
On the basis of a visual examination, rate the condition of the flashing (e.g. in terms of evidence of waterproofness, wear, corrosion, etc.).



NA DK/NR
8 9

(like new, top condition) (totally replace)

17. EXRF6S
Provide a rating of the soffits and fascia on the basis of a visual examination (in terms of deterioration, sagging, rotting, severe peeling of paint, missings pieces, etc.).

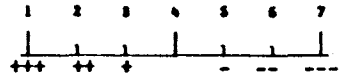


NA DK/NR
8 9

(like new, top condition) (totally replace)

COMMENTS	MATERIAL TYPE	REQUIREMENT LINEAL AREAL	COST ESTIMATE $

18. EXGA1S
Taking into account all aspects of the dwelling exterior, how would you rate the overall condition of the dwelling's exterior?



(top condition) (major attention required)

BACKGROUND DWELLING CHARACTERISTICS

19. BDBC1S
Is the dwelling:

Single house - a single dwelling not attached to any other building and surrounded on all sides by open space . . 1

Semi-detached or double house - one of the two dwellings attached side by side but not attached to any other building and surrounded on all other sides by open space . 2

Duplex - one of two dwellings, one above the other, not attached to any other building and surrounded on all sides by open space (assume all purpose build) 3

Row house - one of three or more dwellings joined side by side but not having any other dwelling either above or below 4

House attached to a non-residential building - a single dwelling attached at ground level to another building (such as a store, etc.) but separated from it by a common wall running from one ground to roof 5

House in a non-residential building (e.g. church, warehouse) 6

COMMENTS	MATERIAL TYPE	REQUIREMENT LINEAL AREAL	COST ESTIMATE $

Mobile home (designed and constructed to be transported on its own chasis and capable of being moved on short notices) 7

Other movable dwelling (such as a tent, travel trailer, railroad car or house-boat) 8

Apartment in a (purpose-built apartment) building that has five or more stories - (for example, a dwelling unit in a highrise apartment building) 9

Apartment in a (purpose-built apartment) building that has less than five stories - (for example, an apartment in a triplex, quadruplex, four-storey walk-up, etc.) . 10

Apartment in a single home 11

Apartment in a semi-detached or double house 12

Apartment in a row house 13

Apartment in a house attached to a non-residential building 14

Apartment in a non-residential building (e.g. apartment over store, apartment in warehouse loft, etc.) 15

DK/NR 99

20. BDBC2S
What use is made of the land?

(a) Directly across the street from this building?

	Directly Across	One Side	The Other Side
(b) On one side of this building?			
(c) On the other side of this building?			
	1	1	1
Single house	2	2	2
House attached to a non-residential structure	3	3	3
Semi-detached or double house	4	4	4
Row house	5	5	5
Duplex	6	6	6
Lowrise (3 stories or less)	7	7	7
Highrise 4 stories or more)	8	8	8
Commercial retailing	9	9	9
Industrial (factory, plant, warehouse, etc.)	10	10	10
Institutional (school, church, hospital, etc.)	11	11	11
Transportation (expressway, railway, track, canal, etc.)	12	12	12
Park (developed)	13	13	13
Open space (vacant lot, field, woods, river, etc.)	14	14	14
Other (specify)	15	15	15
DK/NR	99	99	99

21. BDBC3S
Number of floors above grade (ground level). |__'__|

22. BDBC4S
Access from the street to the dwelling is:
(Mark ALL that apply)

- A separate and private entrance from outside . . . 1
- Through a common hallway or stairs 2
- Through someone's else's living quarters . . . 3

COMMENTS	MATERIAL TYPE	REQUIREMENT LINEAL AREAL	COST ESTIMATE $

NA 8
DK 9

23. BDBC5S
How many entry or exitdoors are there in this dwelling? . . . . . |__'__|

24. BDSC1S
Estimate the gross area of the dwelling. Gross area is estimated by multiplying external length by the width of the house and multiplying by the number of floors

length _____ x width _____
= _____ x no. of floors (above grade) = |__'__'__| sq. ft.
OR |__'__'__| sq. m.

FOR MULTIPLE DWELLING-UNIT PROPERTIES ONLY

25. BDMU4S
Which of the following apply to the common areas of this building?

	Yes	No	NA	DK/NR
Outside fire escape to ground floor	1	2	8	9
Two separate stairways to ground floor leading to outside doors	1	2	8	9
Broken or missing interior steps or railings . . .	1	2	8	9
Missing lightbulbs	1	2	8	9
Fire doors in hallways	1	2	8	9
Smoke detectors in hallways	1	2	8	9
Fire extinguishers in hallways	1	2	8	9
Fire alarms in hallways	1	2	8	9
Garbage in hallways	1	2	8	9

COMMENTS	MATERIAL TYPE	REQUIREMENT LINEAL AREAL	COST ESTIMATE $

INTERIOR AND MECHANICAL SYSTEMS

COMMENTS	MATERIAL TYPE	REQUIREMENT LINEAL	REQUIREMENT AREAL	COST ESTIMATE $

26. INBF2S
Rate the condition of the basement floor (excluding waterproofness) on the basis of evidence of cracks, buckling, deteriorated material, etc..

NA 8 DK/NR 9

(like new, top condition) (totally replace)

27. INBF3S
Rate the structural condition of the interior basement walls (on the basis of evidence of cracks, crumbling, etc.).

NA 8 DK/NR 9

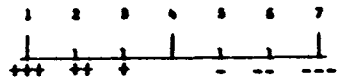
(like new, top condition) (totally replace)

28. INBF4S
Rate the degree of settlement evident from an interior examination of the basement cellar (settlement refers to the sinking of some parts of the structure).

NA 8 DK/NR 9

(no problems) (extreme settlement)

29. INBF5S
Rate the structural condition of the support posts/columns (on the basis of evidence of leaning, decay/rot, buckling, etc.).



NA 8 DK/NR 9

(top condition) (totally replace)

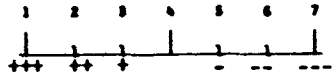
COMMENTS	MATERIAL TYPE	REQUIREMENT LINEAL AREAL	COST ESTIMATE $

30. INBF6S
Rate the structural soundness of the joists and carrying beams (on the basis of decay/rot, sagging, etc.).

NA 8 DK/NR 9

(top condition) (totally replace)

31. INBF7S
Rate the waterproofness of the basement on the basis of evidence of moisture penetration, dampness, (e.g. water marks, mildew, standing water).



NA 8 DK/NR 9

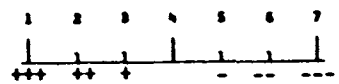
(very dry) (very wet)

32. INBF8S
Rate the adequacy of basement ventilation (1 square foot of vent or window opening/500 square feet of crawl space/cellar = minimally adequate).

Completely adequate (greater than 1 sq. ft. vent or window opening/500 sq. ft.) 1
Minimally adequate (1 sq. ft. vent or window opening/500 sq. ft.) 2
Inadequate (less than 1 sq. ft. vent or window opening/500 sq. ft. 3
Completely inadequate (no ventilation) . . 4

NA 8
DK/NR 9

33. MSHT2T
On the basis of a technical inspection, rate the overall condition of the furnace in terms of operability (consider the fire pot, safety, leaks in damper, flue seals, etc.).



NA 8 DK/NR 9

(like new, top condition) (replacement needed)

COMMENTS	MATERIAL TYPE	REQUIREMENT LINEAL	REQUIREMENT AREAL	COST ESTIMATE $

34. MSHT5T
Rate the overal condition of the heat distribution system (including ductwork, pipes, convectors, radiators, registers, etc.).

NA DK/NR
8 9

(like new, top condition) (extremely poor)

35. MSEL1S
Check the electrical panel for this dwelling. Describe:
(a) number of fuse positions or breakers |__'__|

.l amperage, a: listed on pa.el |__'__|

36. MSEL2S
Is electrical consumption measured:

No 1
On one common meter 2
On separate meters (one per dwelling) . . 3

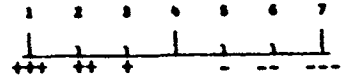
DK/NR 9

37. MSEL3S
Predominant wiring type:

Knob and tube 1
BX cable 2
Romex 3
Mixed 4

NA 8
DK/NR 9

38. MSEL4S
Rate the condition of the (visible) wiring. Consider evidence of worn, damaged, frayed, broken, or inoperative wiring in making your assessment.



NA DK/NR
8 9

(like new, top condition) (totally replace)

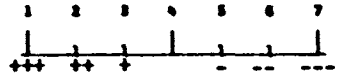
COMMENTS	MATERIAL TYPE	REQUIREMENT LINEAL AREAL	COST ESTIMATE $

39. MSEL7T
How would you rate the overall condition of the electrical system? Consider fire and safety factors as well as performance in making your assessment.

NA 0 DK/NR 9

(like new, top condition) (totally replace)

40. MSPL1T
On the basis of an inspection of the pipes visible in the basement, rate the overall condition of the water pipes (including waste and stack). Consider evidence of corrosion, leaks, deterioration, etc., in making your rating.



NA 0 DK/NR 9

(like new, top performance) (totally replace)

41. MSPL2S
Provide a rating for the water supply system (based on evidence of corrosion and leaks).

NA 0 DK/NR 9

(like new, top condition) (totally replace)

42. MSBE4T
Provide an overall rating for the bathroom equipment on the basis of its performance.

NA 0 DK/NR 9

(top condition) (totally replace)

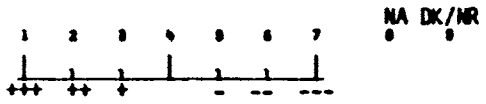
43. INFS1S
On the basis of a visual inspection of the surface condition of the floors, provide a summary rating of the floors above the basement.

NA 0 DK/NR 9

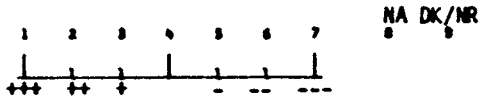
(like new, top condition) (totally replace)

COMMENTS	MATERIAL TYPE	REQUIREMENT LINEAL	REQUIREMENT AREAL	COST ESTIMATE $

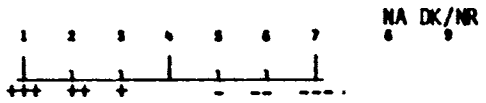
44. INFS2T
On the basis of a visual inspection rate the structural soundness of the floors (above the basement). Consider evidence such as movement, buckling, sloping, sagging, loose jointing, etc. in making your rating.



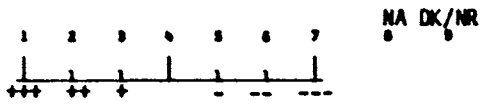
45. INFS3T
On the basis of a technical inspection of all the interior stairs provide a general rating. Consider factors such as structural and surface conditions as they relate to safety, as well as the condition of the treads, users and balustrades in making your assessment.



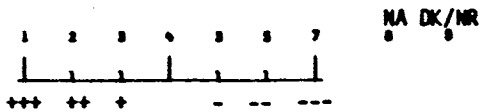
46. INWC1S
On the basis of a visual inspection of the interior wall surfaces provide a summary condition rating. Consider factors such as peeling paint/wallpaper, holes, small cracks, etc. in making your assessment.



47. INWC2T
How would you rate the structural condition of the dwelling's interior walls? Consider evidence such as bulging, leaning, large cracks, etc. in making your rating.



48. INWC3S
On the basis of a visual inspection rate the surface condition of the ceilings. Consider factors such as peeling paint, cracks, fallen plaster, sagging, etc. in making your rating.



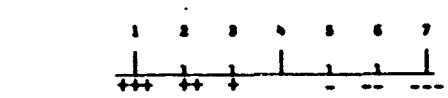
COMMENTS	MATERIAL TYPE	REQUIREMENT LINEAL AREAL	COST ESTIMATE $

49. INWC4T
How many places in the dwelling reveal evidence of significant water entry? Consider evidence of moisture penetration such as water marks, dampness, mildew, etc.

None 0
1 place 1
2 places 2
3 places 3
4 places 4
5 or more places 5

DK/NR 9

50. INGA1S
On the basis of your inspection of the interior walls, ceiling, floors, and stairs, how would you rate their overall condition (including both surface and structure considerations).



NA DK/NR
8 9

(like new, top condition) (totally replace)

SUMMARY RATINGS

51. BDGA1S
How would you rate the overall condition of the dwelling?

Beyond repair, demolish 1
Immediately hazardous, major structural renovatation needed 2
Potentially hazardous, requires major structural or surface renovations and repairs 3

Sound, but requires some structural or surface repairs 4
Overall good condition, requires only minor surface refinishing 5
New, like new, superior condition 6

DK/NR 9

52. BDGA2S
How would you rate the overall quality of the dwelling?

Uninhabitable 1
Barely habitable 2
Low quality, adequate 3
Moderate quality 4
High quality 5
Superior quality, luxury 6

DK/NR 9

COMMENTS	MATERIAL TYPE	REQUIREMENT LINEAL AREAL	COST ESTIMATE $

PHYSICAL HOUSE CONDITION AND REHABILITATION

NEED SURVEY 1980

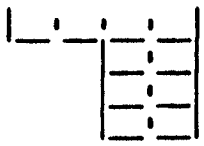
TECHNICAL SKIM INSTRUMENT

(Pretest Draft)

May 27, 1980

CANADA MORTGAGE AND HOUSING CORPORATION

RESPONDENT ID
CENSUS TRACT
INTERVIEWER ID
BUILDING EXPERT ID



COMMENTS

INTERIOR

1. INBF2S
Rate the condition of the basement floor (excluding waterproofness) on the basis of evidence of cracks, buckling, deteriorated material, etc.

NA DK/NR
8 9

(like new, top condition) (totally replace)

2. INBF3S
Rate the structural condition of the interior basement walls (on the basis of evidence of cracks, crumbling, etc.).

NA DK/NR
8 9

(like new, top condition) (totally replace)

3. INBF4S
Rate the degree of settlement evident from an interior examination of the basement/cellar. Settlement refers to the sinking of some parts of the structure.

NA DK/NR
8 9

(no problems) (extreme settlement)

4. INBF5S
Rate the structural condition of the support posts/columns (on the basis of evidence of leaning, decay/rot, buckling, etc.).

NA DK/NR
8 9

(like new, top condition) (totally replace)

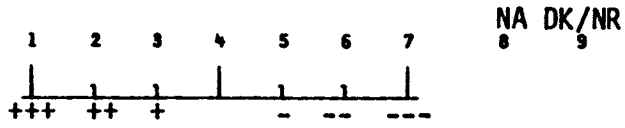
5. INBF6S
Rate the structural soundness of the joists and carrying beams (on the basis of evidence of decay/rot, sagging, etc.).

NA DK/NR
8 9

(like new, top condition) (totally replace)

COMMENTS

6. INBF7S
Rate the waterproofness of the basement on the basis of evidence of moisture penetration, dampness, (e.g. water marks, mildew, standing water).



(very dry) (very wet)

7. INBF8S
Rate the adequacy of basement ventilation. (1 square foot of vent or window opening/500 square feet of crawl space/cellar = minimally adequate).

Completely adequate (greater than 1 sq. ft. vent or window opening/500 sq. ft.) 1
Minimally adequate (1 sq. ft. vent or window opening/500 sq. ft.) 2
Inadequate (less than 1 sq. ft. vent or window opening/500 sq. ft.) 3
Completely inadequate (no ventilation) . . 4

NA 8
NK/NR. 9

8. MSEL1S
Check the electrical panel for this dwelling. Describe:

(a) number of fuse positions or breakers
(b) total amperage (1x2), or as listed on panel

9. MSEL2S
Is electrical consumption measured:

No 1
On one common meter. 2
On separate meters (one per dwelling) . . 3

DK/NR. 9

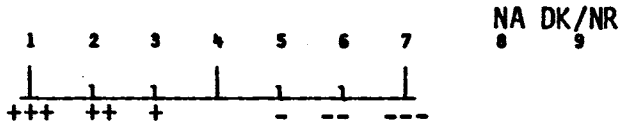
COMMENTS

10. MSEL3S
Predominant wiring type:

Knob and tube. 1
BX cable 2
Romex. 3
Mixed. 4

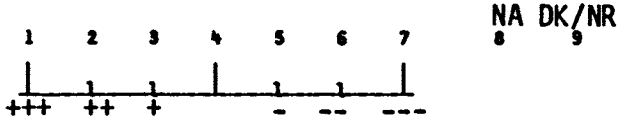
NA 8
DK/NR. 9

11. MSEL4S
Rate the condition of the (visible) wiring. Consider evidence of worn, damaged, frayed, broken, or inoperative wiring in making your assessment.



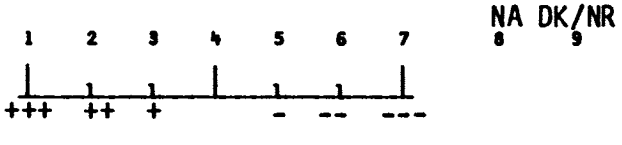
(like new, top condition) (extremely poor)

12. MSPL2S
Provide a rating for the water supply system (based on evidence of corrosion and leaks).



(like new, top condition) (extremely poor)

13. INFS1S
On the basis of a visual inspection of the surface condition of the floors, provide a summary rating of the floors above the basement.



(like new, top condition) (totally replace)

COMMENTS

14. INFS2S
On the basis of a visual inspection rate the structural soundness of the floors (above the basement). Consider evidence such as movement, buckling, sagging, loose jointing, etc. in making your rating.

NA DK/NR
8 9

(top condition) (totally replace)

15. INWC1S
On the basis of a visual inspection of the interior wall surfaces, provide a summary condition rating. Consider factors such as peeling paint/wallpaper, holes, small cracks, etc. in making your assessment.

NA DK/NR
8 9

(like new, perfect condition) (totally replace)

16. INWC3S
On the basis of a visual inspection rate the surface condition of the ceilings. Consider factors such as peeling paint, cracks, fallen plaster, sagging, etc. in making your rating.

NA DK/NR
8 9

(like new, perfect condition) (totally replace)

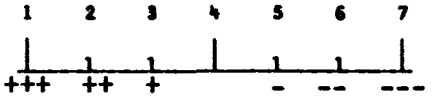
17. INGA1S
On the basis of your inspection of the interior walls ceilings, floors, and stairs how would you rate their overall condition (including both surface and structure considerations).

NA DK/NR
8 9

(like new, top condition) (totally replace)

EXTERIOR

18. EXSW1S
Provide a general condition rating of the exterior porches, balconies and other attached structures (e.g. in terms of evidence of hazards, unsoundness, deterioration, missing stairs, rails, etc.)



NA DK/NR
8 9

(like new, top condition) (totally replace)

COMMENTS

19. EXSW2S
On the basis of an examination of lot grading and other evidence such as standing water, provide a rating of surface drainage.

NA DK/NR
8 9

(superior drainage) (major work needed)

20. EXSW3S
Provide a general rating of the condition of the lot in terms of upkeep (e.g. consider presence of junk garbage, weeds, etc.).

NA DK/NR
8 9

(superior upkeep) (terrible upkeep)

21. EXBF1S
Provide a general rating of the structure of the exterior foundation walls or posts (based on evidence of cracks, crumbling, holes, etc.)

NA DK/NR
8 9

(like new, top condition) (major attention required)

22. EXBF2S
On the basis of evidence of extreme settlement (e.g. sinking, leaning, cracks, etc.), provide a rating of the footings (i.e. the widened section, usually concrete at the base or bottom of the foundation wall, pier or column).

NA DK/NR
8 9

(no problems) (extreme settlement)

23. EXCW1S
Exterior wall materials are:
(code primary and secondary)

	Primary	Secondary
Brick	1	1
Stone or concrete block . . .	2	2
Stucco	3	3

COMMENTS

	Primary	Secondary
Wood	4	4
Steel or aluminum siding . . .	5	5
Vinyl siding	6	6
Composition material (fake brick, etc.)	7	7
Other (specify _____	_____	_____
NK/NR	9	9

24. EXCW2S
Rate the condition of the surface (cladding) of the exterior walls (e.g. in terms of wear, paint condition, cracks, rotting wood, crumbling material, holes, etc.)

NA DK/NR 8 9

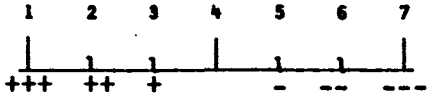
(like new, top condition) (total resurfacing necessary)

25. EXCW3S
Rate the structural soundness of the exterior walls/sheathing (on the basis of evidence of large cracks, settling, loose bricks, leaning, buckling, etc.).

NA DK/NR 8 9

(top condition) (immediate major action required)

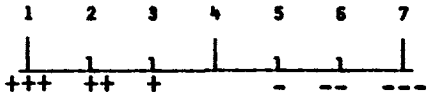
26. EXCW5S
Rate the structural soundness of the chimney (on the basis of evidence of cracks, crumbling, buckling, leaning, etc.)



NA DK/NR 8 9

(top condition) (totally replace)

27. EXWD1S
Based on an exterior visual inspection of the frame, sash, sills and glass, provide an overall rating of the condition of the doors and windows (consider evidence of broken glass, peeling paint, bare and rotting wood, cracks, etc.).



NA DK/NR 8 9

(like new, top condition) (totally replace)

COMMENTS

28. EXWD2S
Consider the weatherproofness of the windows and doorways:

(a) How many of the exterior doorways are warped or do not have weatherstripping, tight fitting doors nor storm doors such that there is no draft?

None of the doorways 1
Some (about 1/4) 2
Half 3
Most (about 3/4) 4
All. 5

NA 8
DK/NR. 9

(b) How many of the windows are not weatherstripped, properly caulked or tight-fitting such that there is no draft?

None of the doorways 1
Some (about 1/4) 2
Half 3
Most (about 3/4) 4
All. 5

NA 8
DK/NR. 9

29. EXRF1S
Roof shape and material are: (for combination shapes, check all that are applicable)

Flat roof 1
Pitched roof, shingles 2
Pitched roof, metal 3
Other (specify) _____

COMMENTS

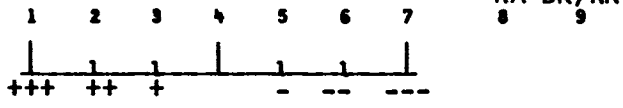
NA 8
DK/NR 9

30. EXRF2S
Is part of the roof oriented within 20 degrees of due south and not clearly obstructed from the sun by some permanent physical structure ?

Yes. 1
No 2

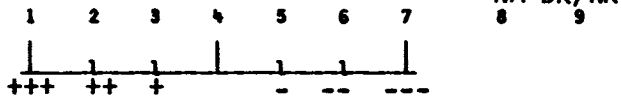
NA (flat roof) 8
DK/NR. 9

31. EXRF3S
Provide a general rating of the roof's surface condition on the basis of a visual examination of the sheathing and covering material (e.g. in terms of loose/missing/damaged shingles).



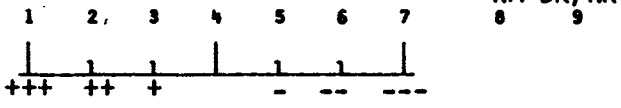
(like new, top condition) (totally replace)

32. EXRF4S
Rate the roof structure (excluding soffits and fascia) from an examination of the roofline (ridge) and shape (e.g. in terms of sagging/buckling/rot).



(top condition) (totally replace)

33. EXRF5S
On the basis of a visual examination, rate the condition of the flashing (e.g. in terms of evidence of waterproofness, wear, corrosion, etc.).



(like new, top condition) (totally replace)

COMMENTS

34. EXRF6S
Provide a rating of the soffits and fascia on the basis of a visual examination (in terms of deterioration, sagging, rotting, severe peeling of paint, missing pieces, etc.).

NA DK/NR
8 9

(like new, top condition) (totally replace)

35. EXGA1S
Taking into account all aspects of the dwelling exterior, how would you rate the overall condition of the dwelling's exterior?

NA DK/NR
8 9

(top condition) (major attention required)

36. BDBC1S
Is the dwelling a:
Circle one number only

Single house - a single dwelling not attached to any other building and surrounded on all sides by open space . . 1

Semi-detached or double house - one of two dwellings attached side by side but not attached to any other building and surrounded on all other sides by open space . 2

Duplex - one of two dwellings, one above the other, not attached to any other building and surrounded on all sides by open space (assume all purpose built) 3

Row house - one of three or more dwellings joined side by side but not having any other dwelling either above or below 4

House attached to a non-residential building - a single dwelling attached at ground level to another building (such as a store, etc.) but separated from it by a common wall running from ground to roof 5

COMMENTS

House in a non-residential building (e.g. church, warehouse) 6

Mobile home (designed and constructed to be transported on its own chasis and capable of being moved on short notice) 7

Other moveable dwelling (such as a tent, travel trailer, railroad car or house-boat) 8

Apartment in a (purpose-built apartment) building that has vive or more stories - for example, a dwelling unit in a highrise apartment building 9

Apartment in a (purpose-built apartment) building that has less than five stories - (e.g. an apartment in a triplex, quadruplex, fourstorey walk up, etc.) 10

Apartment in a single house 11

Apartment in a semi-detached or double house 12

Apartment in a row house 13

Apartment in a house attached to a non-residential building 14

Apartment in a non-residential building (e.g. apartment over store, apartment in warehouse loft, etc.) 15

DK/NR 99

COMMENTS

37. BDBC2S
What use is made of the land?
(a) Directly across the street from this building?
(b) On one side of this building?
(c) On the other side of this building?

	Directly Across	One Side	On Other Side
Single house	1	1	1
House attached to a non-residential structure	2	2	2
Semi-detached or double house	3	3	3
Row house	4	4	4
Duplex	5	5	5
Lowrise (3 stories or less)	6	6	6
Highrise (4 stories or more)	7	7	7
Commercial (retailing)	8	8	8
Industrial (factory, plant, warehouse etc.)	9	9	9
Institutional (school, church, hospital etc.)	10	10	10
Transportation (expressway, railway track, canal etc.)	11	11	11
Park (developed)	12	12	12
Open space (vacant lot, field, woods, river, lake etc.)	13	13	13
Other (specify)	14	14	14
	15	15	15
DK/NR	99	99	99

38. BDBC3S
Number of floors above grade, (ground level). |__'__|

COMMENTS

39. BDBC4S
Access from street to the dwelling is:
Mark all that apply

A separate and private entrance from outside 1
Through a common hallway 2
Through someone else's living quarters 3

NA 8
DK 9

40. BDBC5S
How many entry or exit doors are there in this dwelling? |__'__|

41. BDSC1S
Estimate the gross area of the dwelling. Gross area is estimated by multiplying external length by the width of the house and multiplying by the number of floors
length ___ x width ___ = ___ x no of floors (above grade) = _____ (in feet)

|__.__.__| sq. ft.
or
|__.__.__| sq. m.

42. BDMU4S FOR MULTIPLE UNIT PROPERTIES ONLY

Which of the following apply to the common areas of this building?

	Yes	No	NA	DK/NR
Outside fire escape to ground floor. . . .	1	2	8	9
Two separate stairways to ground floor leading to outside doors	1	2	8	9
Broken of missing interior steps or railings	1	2	8	9

COMMENTS

	Yes	No	NA	DK/NR
Missing light bulbs.	1	2	8	9
Fire doors or hallways	1	2	8	9
Smoke detectors in hallways.	1	2	8	9
Fire extinguishers in hallways	1	2	8	9
Fire alarms in hallways.	1	2	8	9
Garbage in hallways.	1	2	8	9

43. BDGA1S
(a) How would you rate the overall condition of the dwelling?

Beyond repair, demolish. 1
Immediately hazardous, major structural renovation needed 2
Potentially hazardous, requires major structural or surface renovations and repairs. 3
Sound, but requires some structural or surface repairs. 4
Overall good condition, requires only minor surface refinishing 5
New, like new, superior condition. 6

DK/NR. 9

(b) How would you rate overall quality of the dwelling?

Uninhabitable. 1
Barely habitable 2
Low quality, adequate. 3
Moderate quality 4
High quality 5
Superior quality, luxury 6

DK/NR. 9

CONFIDENTIAL
When Completed

APPENDIX 4a

HOUSEHOLD SURVEY INSTRUMENT

OWNER

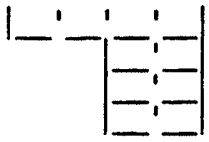
PHYSICAL HOUSE CONDITION AND REHABILITATION NEED SURVEY 1980

HOUSEHOLD INSTRUMENT

OWNER

Canada Mortgage and Housing Corporation
Pretest Draft
June 6, 1980

RESPONDENT ID
CENSUS TRACT
INTERVIEWER ID
BUILDING EXPERT ID



APPOINTMENT RECORD

TIME	DATE

COMMENTS

RESPONDENT ID |__'__'__|

CENSUS TRACT |__'__|

INTERVIEWER ID |__'__|

BUILDING EXPERT ID |__'__|

DISPOSITION	VISIT 1	2	3
No one home	1	1	1
Lived here less than 6 months	2	2	2
Respondent qualifies but is not at home	3	3	3
Refused	4	4	4
Dwelling un-occupied	5	5	5
Other	6	6	6
Interview Complete	7	7	7
NR	9	9	9

	Hrs	Min
START TIME	|__'__|	|__'__|

QUALITY CONTROL |__|

Canada Mortgage and Housing Corporation
June 6, 1980

INTRODUCTION

Good Morning/Afternoon/Evening. My name is _____ and I am from Ekos Research Associates. I'm calling to follow up on a notice you should have received in the mail a few days ago from the Canada Mortgage and Housing Corporation concerning a research project on physical house condition and rehabilitation need. Would you be kind enough to spare some time to answer some questions regarding your dwelling?

We mentioned in the letter you received that the information collected here will remain completely confidential. Its primary purpose is to allow an assessment of the physical condition of housing in this area.

After some introductory questions this interview will be divided into two major parts. The first part will deal with the physical condition of your house, looking first at the inside and then the outside. The second and final part of your interview will try to gather information about the social and economic characteristics of this household. Once again we stress the fact that this information is strictly confidential and the respondents will remain anonymous. Names will be permanently removed from the questionnaires once the analysis begins. To begin with:

1. SEFI21H
HOW LONG HAVE YOU LIVED IN THIS DWELLING?

Less than one year 1
One to two years 2
Three to five years 3
Six to ten years 4
More than ten years 5

DK/NR 9

IF LESS THAN SIX MONTHS

Thank you for your time, but this study is only about people who have lived in their dwelling for more than six months. END INTERVIEW

I'd like to speak to one of the persons who lives here and is responsible for paying the rent, or mortgage, or taxes or electricity for this dwelling.

IF THE RESPONDENT IS A DIFFERENT PERSON REPEAT INTRODUCTION OMITTING THE QUESTION ON HOW LONG HAVE YOU LIVED IN THIS DWELLING.

I'd like to ask you some general questions about you and your household.

2. SEFI4HA
IS YOUR DWELLING? READ LIST

Owned or being bought by you or someone else in your household 1
Rented for cash by you or by someone else? 2
Occupied without payment of cash rent? 3

DK/NR 9

ENSURE AT THIS POINT THAT THE CORRECT TYPE OF QUESTIONNAIRE IS BEING USED. IF NOT SWITCH TO THE CORRECT TYPE IMMEDIATELY.

3. SEFI4HB
IS YOUR DWELLING OWNED OR BEING BOUGHT AS A COOPERATIVE OR CONDOMINIUM?

No 1
Yes, a cooperative 2
Yes, a condominium 3

DK/NR 9

4. SESD1HA
PRINT BELOW NAMES OF ALL PERSONS LIVING HERE

5. SESD1HB
RELATIONSHIP TO PERSON 1
FOR EACH PERSON IN THIS HOUSEHOLD CODE APPROPRIATE NUMBER TO DESCRIBE HIS OR HER RELATIONSHIP TO PERSON 1

Husband or wife of Person 1	1
Common-law partner of Person 1	2
Son or daughter of Person 1	3
Father or mother of separated) Person 1	4
Brother or sister of Person 1	5
Son-in-law or daughter-in-law of Person 1	6
Father-in-law or mother-in-law of Person 1	7
Brother-in-law or sister-in-law of Person 1	8
Grandchild of Person 1	9
Nephew or niece of Person 1	10
Other relative of Person 1	11
Lodger	12
Lodger's son or daughter	13
Room-mate	14
Employee	15
Other non-relative	16

6. SESO1HC
YEAR OF BIRTH
IF EXACT YEAR IS UNKNOWN GIVE BEST ESTIMATE

7. SESD1HD
SEX

Male	1
Female	2

8. SESD1HE
MARITAL STATUS

Now married (excluding separated)	1
Separated	2
Divorced	3
Widowed	4
Never married (single)	5
Other	6
DK/NR	9

RESPONDENT	1			
	2			
	3			
	4			
	5			
	6			
	7			
	8			
	9			
	10			

PART 1 PHYSICAL HOUSE CONDITION

INSIDE

HAND RESPONDENT RESPONSE BOOKLET AND EXPLAIN THE PURPOSE AND USE

Turning now to the building.

9. BDBC2H
WHEN WAS THIS DWELLING OR THE BUILDING CONTAINING THIS DWELLING ORIGINALLY BUILT? (To the best of your knowledge please tell me the period in which the building was completed, not the time of any later remodelling, additions or conversions.)

REFER TO QUESTION 9 IN BOOKLET

1920 or before	1
1921 - 1945	2
1946 - 1960	3
1961 - 1970	4
1971 - 1975	5
1976 - 1979	6
DK/NR	9

10. BDSC3H
HOW MANY ROOMS ARE THERE IN THIS DWELLING?
(Include kitchen, bedrooms, finished rooms in attic or basement, etc.. Do not count bathrooms, halls, vestibules and rooms used solely for business purposes.)

Number of rooms . . . . . |__'__|

IF UNKNOWN CODE 99

11. MSBE1H
HOW MANY BATHROOMS ARE THERE WITHIN THIS DWELLING?
(A complete bathroom is a room with a flush toilet, bathtub or shower, and a washbasin with piped water. A half bathroom has at least a flush toilet or a bathtub or shower, but does not have all the facilities for a complete bathroom.)

Number of complete bathrooms . . . . . |__|
Number of half bathrooms . . . . . |__|

CODE "0" FOR NONE AND "9" FOR DK/NR . . . . . |__|

12. SESD7H
IS THIS DWELLING IN NEED OF ANY REPAIRS?
(Do not include desirable remodelling or additions.)

REFER TO QUESTION 12 IN BOOKLET

No, only regular maintenance is need (painting, furnace cleaning, etc.) 1

Yes, minor repairs are needed (missing or loose floor tiles, bricks or shingles, defective steps, railing or siding, etc.) 2

Yes, major repairs are needed (defective plumbing or electrical wiring, structural repairs to walls, floors or ceilings, etc.) 3

DK/NR 9

13. BDBC7H
IN ADDITION TO THE PRIMARY ENTRANCE TO THIS DWELLING IS THERE ANOTHER WAY TO GET OUT SAFELY IN CASE OF FIRE, SUCH AS A FIRE ESCAPE, BACK ENTRANCE, OR FIRE LADDER?

Yes 1
No 2

DK/NR 9

Thank you. Now I'd like to ask you a few questions which relate to possible problem areas throughout the dwelling. Let's begin with the dwelling foundation.

14. INBF1HA
DOES YOUR DWELLING HAVE A? READ LIST

REFER TO QUESTION 14 IN BOOKLET

Basement 1
SKIP TO QUESTION 17
Cellar space 2
Crawl space 3
Slab-on-grade 4

DK/NR 9

15. INBF1HB
IS IT USED FOR: READ LIST

MARK ALL THAT APPLY

Parking? 1
Storage? 2
Heating equipment? 3
Laundry? 4
Living (complete dwelling)? 5
Living (partial dwelling) (e.g. spare bedroom)? . . . 6
Other (specify) _____ 7

NA 8
DK/NR 9

FOR MULTIPLE UNIT PROPERTIES ONLY WHERE BASEMENT IS USED

16. INBF1HC
IS THE BASEMENT USED OR ACCESSIBLE BY: READ LIST

The occupants of one dwelling only? 1
The occupants of more than one dwelling? 2
The building owner or agent only? 3

NA 8
DK/NR 9

17. INBF9H
HOW MUCH OF THE PERIMETER OF YOUR FOUNDATION WALL IS INSULATED EITHER ON THE INSIDE OR THE OUTSIDE?

REFER TO QUESTION 17 IN BOOKLET

None of the perimeter 1
Some (about 1/4) 2
Half 3
Most (about 3/4) 4
All 5

NA 8
DK/NR 9

18. EXCW4H
HOW MUCH OF THE PERIMETER OF YOUR EXTERIOR WALL ABOVE GROUND CONTAINS AT LEAST SOME INSULATION?

REFER TO QUESTION 18 IN BOOKLET

None of the perimeter 1
Some (about 1/4) 2
Half 3
Most (about 3/4) 4
All 5

DK/NR 9

Turning now to the roof.

19. INAR2H
HOW MUCH OF YOUR TOTAL ROOF SPACE IS AN ATTIC?
(An attic here refers to any part of your roof space that is large enough for a person to get into so that it would be possible to insulate. Roof space refers to the space between the ceiling and roof of your home. Do not include roof space over unheated areas.)

REFER TO QUESTION 19 IN BOOKLET

None of the roof space 1
Some (about 1/4) 2
Half 3
Most (about 3/4) 4
All 5

NA 8
DK/NR 9

20. INFS1HA
ARE THE COVERINGS OF YOUR FLOORS (e.g. the tiles, wood, carpets, etc.) LIFTING, CRACKING, WORN, OR LOOSE?

REFER TO QUESTION 20 IN BOOKLET

Yes 1
SKIP TO QUESTION 22 — No 2
DK/NR 9

IF YES

21. INFS1HB
HOW SERIOUS WOULD YOU SAY THE PROBLEM IS?

Not at all serious 1
2
3
4
5
6
Extremely serious (requires total resurfacing) . . . 7

NA 8
DK/NR 9

22. INFS2HA
CONSIDERING THE FLOORS ONCE AGAIN, DO THEY BUCKLE, SAG OR BOUNCE WHEN YOU WALK ACROSS THEM? OR ARE ANY OF THE FLOORS IN THIS DWELLING BADLY SLOPED OR SLANTED?

REFER TO QUESTION 22 IN BOOKLET

ASK ONLY FOR THOSE FLOORS APPLICABLE

	1st Floor (of the dwelling)	2nd Floor	3rd Floor
Yes	1	1	1
No	2	2	2
NA	8	8	8
DK/NR	9	9	9

IF RESPONDENT ANSWERED YES TO ANY OF ABOVE

23. INFS2HB
HOW SERIOUS WOULD YOU SAY THE PROBLEM IS?

	1st Floor (of the dwelling)	2nd Floor	3rd Floor
Not at all serious	1	1	1
	2	2	2
	3	3	3
	4	4	4
	5	5	5
	6	6	6
Extremely serious .	7	7	7
NA	8	8	8
DK/NR	9	9	9

Turning now to the condition of the internal stairways.

24. INFS3H
HOW WOULD YOU RATE THE OVERALL CONDITION OF YOUR STAIRS IN TERMS OF THEIR SAFETY AND THEIR STRUCTURAL AND SURFACE CONDITION?

REFER TO QUESTION 24 IN BOOKLET

Excellent (perfect condition) 1
2
3
4
5
6
Extremely poor (totally replace) 7

DK/NR 9

And now I would like to ask you a few questions about water problems in your dwelling.

25. INWC4H
IN HOW MANY PLACES IN YOUR DWELLING DOES WATER LEAK THROUGH THE EXTERIOR WALLS?

None 0
1 place 1
2 places 2
3 places 3
4 places 4
5 or more places 5

DK/NR 9

26. INBF7H
IN THE PAST YEAR, HAVE YOU EVER NOTICED ANY SIGNS OF WATER LEAKING INTO THE BASEMENT FROM OUTSIDE?

REFER TO QUESTION 26 IN BOOKLET

All of the time 1
Most of the time 2
Some of the time 3
Just now and then 4
Once 5
Never 6

NA 8
DK/NR 9

27. INWC5H
AFTER OR DURING A RAINSTORM, IN HOW MANY PLACES DOES WATER FROM THE OUTSIDE ENTER YOUR DWELLING THROUGH THE CEILINGS?
(Exclude internal water sources such as the plumbing.)

None 0
1 place 1
2 places 2
3 places 3
4 places 4
5 or more places 5

DK/NR 9

28. INWC1HA
DO THE INTERIOR WALLS OF YOUR DWELLING HAVE ANY CRACKS, PEELING PAINT, OR HOLES (excluding hairline cracks)?

REFER TO QUESTION 28 IN BOOKLET

Yes 1
SKIP TO QUESTION 30
No 2

DK/NR 9

IF YES

29. INWC1HB
HOW SERIOUS WOULD YOU SAY THIS PROBLEM IS?

Not at all serious (no problems) 1
2
3
4
5
6
Extremely serious (requires total resurfacing) . . . 7

NA 8
DK/NR 9

30. INWC2HA
DO ANY OF THE WALLS INSIDE THIS DWELLING HAVE AREAS WHICH BULGE OR WHICH LEAN INWARD OR OUTWARD?

REFER TO QUESTION 30 IN BOOKLET

Yes 1
SKIP TO QUESTION 32 — No 2
DK/NR 9

IF YES

31. INWC2HB
HOW SERIOUS WOULD YOU SAY THIS PROBLEM IS?

Not serious 1
2
3
4
5
6
Extremely serious (major repairs needed) 7

NA 8
DK/NR 9

32. INWC3HA
DO THE CEILINGS HAVE OPEN CRACKS OR HOLES, PEELING PAINT, BROKEN PLASTER OR OTHER PROBLEMS? (Do not include hairline cracks).

REFER TO QUESTION 32 IN BOOKLET

Yes 1
SKIP TO QUESTION NO. — No 2
DK/NR 9

IF YES

33. INWC3HB
HOW SERIOUS WOULD YOU SAY THESE PROBLEMS ARE?

Not serious (no problems) 1
2
3
4
5
6
Extremely serious (major repairs needed) 7

NA 8
DK/NR 9

34. INGA1H
HAVING CONSIDERED THESE THINGS IN SOME DETAIL, IN GENERAL, HOW WOULD YOU RATE THE OVERALL CONDITION OF YOUR INTERIOR WALLS, CEILINGS, FLOORS, AND STAIRS (excluding unfinished areas)?

REFER TO QUESTION 34 IN BOOKLET

Excellent (top condition) 1
2
3
4
5
6
Extremely poor (totally replace) 7

DK/NR 9

Now let's consider your doors and windows.

OUTSIDE

35. EXWD2HA
HOW MANY OF THE DOORS AND WINDOWS RATTLE OR HAVE DRAFTS ON WINDY DAYS?

REFER TO QUESTION 35 IN BOOKLET

None of the windows or doors 1
Some (about 1/4) 2
Half 3
Most (about 3/4) 4
All 5

DK/NR 9

36. EXWD2HB
HOW MANY OF YOUR WINDOWS AND DOORS HAVE NEITHER THERMAL PANES (DOUBLE OR TRIPLE) NOR STORM WINDOWS OR STORM DOORS?

REFER TO QUESTION 36 IN BOOKLET

None 1
Some (about 1/4) 2
Half 3
Most (about 3/4) 4
All 5

DK/NR 9

37. EXWD3HA
HOW OFTEN IN THE FALL, WINTER OR SPRING DO YOU SEE ICE, WATER, OR MIST ON THE OUTSIDE OR BETWEEN YOUR WINDOWS AND DOORS? (Do not count moisture which directly results from a rain or snow storm.)

REFER TO QUESTION 37 IN BOOKLET

All the time 1
Most of the time 2
Some of the time 3
Just now and then 4
Once 5
Never 6

DK/NR 9

38. EXWD3HB
HOW OFTEN DO YOU SEE ICE, WATER, OR MIST ON THE INSIDE OF YOUR WINDOWS?

REFER TO QUESTION 38 IN BOOKLET

All the time 1
Most of the time 2
Some of the time 3
Just now and then 4
Once 5
Never 6

DK/NR 9

Turning now to an important consideration in the winter time, I'd like to ask you a few questions about your heating system.

39. MSHT3H
IN HOW MANY ROOMS IS A SECONDARY HEAT SOURCE REGULARLY USED TO SUPPLEMENT THE PRIMARY HEAT SOURCE?

None	0
1 room	1
2 rooms	2
3 rooms	3
4 rooms	4
5 or more rooms	5
NA	8
DK/NR	9

40. MSHT1H A,B
WHAT ARE THE PRINCIPAL AND SECONDARY (i.e. used regularly to supplement the principal source) TYPE(S) OF HEATING EQUIPMENT FOR THIS DWELLING? (Select one response for (a) and one for (b).)

REFER TO QUESTION 40 IN BOOKLET

ASK PART B ONLY IF RESPONDENT INDICATED THE PRESENCE OF A SECONDARY HEAT SOURCE IN QUESTION 39

	(a) Principal	(b) Secondary
Steam of hot water furnace	01	01
Forced hot air furnace	02	02
Other hot air furnace	03	03
Oil space heater	04	04
Installed electrical heating system	05	05
Cook stove, range, or heating stove	06	06
Woodstove	07	07
Other (fireplace, etc.)	08	08
NA	88	88
DK/NR	99	99

41. MSHT2HA
AT ANY TIME DURING THE WINTER OF 1979-80, WAS THERE A BREAKDOWN IN YOUR PRESENT HEATING EQUIPMENT; THAT IS, WAS IT COMPLETELY UNUSABLE FOR SIX CONSECUTIVE HOURS OR MORE?
Do not include running out of fuel, power failure, or other external factors.

	Yes . . . 1
SKIP TO QUESTION 43	No . . . 2
	Not there during winter . . . 3
	DK/NR . . . 9

IF YES

42. MSHT2HB
HOW MANY TIMES DID THIS HAPPEN?

Once	1
2 times	2
3 times	3
4 times	4
5 times or more	5
NA	8
DK/NR	9

43. MSHT4H A,B,C
WHAT ARE THE PRINCIPAL AND SECONDARY FUELS(S) USED MOST FOR HOUSE HEATING AND WATER HEATING?

REFER TO QUESTION 43 IN BOOKLET

	House Heating Principal	House Heating Secondary	Water Heating Principal
Oil and other liquid fuel	1	1	1
Piped gas	2	2	2
Bottled gas	3	3	3
Electricity	4	4	4
Coal or coke	5	5	5
Wood	6	6	6
Other	7	7	7
NA	8	8	8
DK/NR	9	9	9

44. MSTH6H
WHEN WAS YOUR MAIN HEATING SYSTEM LAST CLEANED AND SERVICED?

Within the past 12 months	1
More than 12 months ago	2
Never (not since I moved in)	3
NA	8
DK/NR	9

45. MSHT5H A,B
IN THE WINTER, WHAT IS THE AVERAGE TEMPERATURE IN YOUR HOME DURING THE DAY? AND IN THE NIGHT?

	Day	Night
12-14 C (55-59 F)	1	1
15-18 C (60-65 F)	2	2
19-20 C (66-68 F)	3	3
21-22 C (69-72 F)	4	4
over 22 C (over 72 F)	5	5
DK/NR	9	9

46. MSHT7H
HOW WOULD YOU RATE THE OVERALL ADEQUACY OF YOUR HEATING SYSTEM?

REFER TO QUESTION 46 IN BOOKLET

Completely adequate (perfectly comfortable)	1
	2
	3
	4
	5
	6
Completely inadequate (totally unacceptable)	7
NA	8
DK/NR	9

Thank you. Now I'd like to turn to some questions concerning day-to-day facilities such as your kitchen, plumbing and bathroom. As before, we plan to focus on possible problem areas.

47. MSKE1HA
DOES THIS DWELLING HAVE A COMPLETE KITCHEN FACILITIES; THAT IS, A KITCHEN SINK WITH PIPED WATER, A REFRIGERATOR, A RANGE OR STOVE AND ADEQUATE CUPBOARDS AND COUNTER SPACE?

	Yes - for this household only	1
SKIP TO	Yes - also used by another household	2
QUESTION 49	No	3
	DK/NR	9

48. MSKE1HB
ARE THE KITCHEN SINK, REFRIGERATOR, RANGE OR STOVE, AND CUPBOARDS AND COUNTER SPACE ALL IN USABLE CONDITION?

Yes	1
No	2
NA	8
DK/NR	9

49. MSPL1H
HOW MANY TIMES IN THE PAST 6 MONTHS HAVE ANY OF YOUR WATER PIPES OR OTHER PARTS OF YOUR PLUMBING HARDWARE (e.g. toilet, sink, etc.) LEAKED SO BADLY THAT YOU HAD TO MOP THE WATER UP OR PLACE A BUCKET BELOW THE LEAK?

None	0
Once	1
2 times	2
3 times	3
4 times	4
5 or more times	5
NA	8
DK/NR	9

50. MSBE3H
DO YOU HAVE EITHER A WINDOW WHICH OPENS OR A FUNCTIONING VENTILATOR IN ALL YOUR BATHROOMS?

Yes 1
No 2

NA 8
DK/NR 9

51. MSBE4H
IN GENERAL, IN WHAT KIND OF WORKING CONDITION IS YOUR BATHROOM EQUIPMENT (e.g. toilet, tub, sink)?

REFER TO QUESTION 51 IN BOOKLET

Excellent (perfect performance) 1
2
3
4
5
6
Extremely poor (serious performance problems totally replace) 7

NA 8
DK/NR 9

52. MSEL7H
HOW MANY TIMES HAVE YOUR ELECTRIC FUSES (OR CIRCUIT BREAKERS) BLOWN (OR TRIPPED) IN THE LAST 90 DAYS?

None 0
Once 1
2 times 2
3 times 3
4 times 4
5 or more times 5

NA 8
DK/NR 9

53. MSEL5H
HOW MANY ROOMS DO NOT CONTAIN AN ELECTRICAL WALL OUTLET?

None 0
1 room 1
2 rooms 2
3 rooms 3
4 rooms 4
5 or more rooms 5

NA 8
DK/NR 9

54. MSEL6H
DO YOU HAVE A WORKING SMOKE OR FIRE DETECTOR IN YOUR DWELLING?

Yes 1
No 2

DK/NR 9

55. BDGA1H
PLEASE THINK A MOMENT ABOUT THE THINGS WE HAVE JUST DISCUSSED AND TELL ME HOW YOU WOULD RATE THE OVERALL PHYSICAL CONDITION OF YOUR DWELLING?

REFER TO QUESTION 55 IN BOOKLET

Excellent (top condition) 1
Very good 2
Good 3
Fair 4
Poor 5
Extremely poor (needs major repairs) 6

DK/NR 9

And now I would like to ask you a few questions about your views and attitudes about your dwelling and neighbourhood.

56. SESD9H
WOULD YOU SAY THAT YOUR DWELLING/PROPERTY IS IN A BETTER STATE OF REPAIR THAN MOST OF THE BUILDINGS IN YOUR NEIGHBOURHOOD?

REFER TO QUESTION 56 IN BOOKLET

Much better 1
Better 2
The same 3
Worse 4
Much worse 5

DK/NR 9

57. SESD12H
IN GENERAL, HOW WOULD YOU RATE THIS NEIGHBOURHOOD AS A PLACE TO LIVE?

REFER TO QUESTION 57 IN BOOKLET

Excellent 1
Very good 2
Good 3
Fair 4
Poor 5
Terrible 6

DK/NR 9

58. BDSC1H
CONSIDERING THE SPACE AVAILABLE IN YOUR DWELLING AT THE PRESENT TIME, WOULD YOU SAY THAT YOU HAVE TOO MUCH OR TOO LITTLE SPACE?

REFER TO QUESTION 58 IN BOOKLET

Way too much space	1
	2
	3
Just right	4
	5
	6
Way too little space	7
DK/NR	9

59. BDSC2H
IN GENERAL, DOES THE ARRANGEMENT OF ROOMS EITHER INTERFERE OR DETRACT FROM YOUR SATISFACTION WITH THIS DWELLING? WHICH NUMBER COMES CLOSEST TO DESCRIBING HOW SATISFIED OR DISSATISFIED YOU ARE?

REFER TO QUESTION 59 IN BOOKLET

Extremely satisfied	1
	2
	3
	4
	5
	6
Extremely dissatisfied	7
DK/NR	9

60. SESD6HAO
IF YOU RECEIVED A SIGNIFICANT INCREASE IN INCOME AND TOTAL LIVING COSTS DID NOT GO UP, HOW WOULD YOU RANK THESE OPTIONS (1 = most desirable, 5 = least desirable).

REFER TO QUESTIONS 60 IN BOOKLET

Purchase a better residence in a better neighbourhood	|__|
Purchase a similar residence in a better neighbourhood	|__|
Purchase a better residence in this or a similar neighbourhood	|__|
Live here and fix up this place	|__|
Live here as it is and spend the money on other things	|__|

61. SESD6HBO
IF YOU RANKED "LIVE HERE AND FIX UP THIS PLACE", HOW WOULD YOU RANK THE FOLLOWING OPTIONS IN TERMS OF IMPORTANCE (1 MOST IMMEDIATE, 6 LEAST IMMEDIATE).

REFER TO QUESTION 61 IN BOOKLET

Increase insulation and weatherisation so as to improve energy conservation |__|

Substantially improve the outer appearance (e.g. install new siding, upgrade landscaping, etc.) |__|

Substantially improve the interior appearance |__|

Add on or convert to give more living area |__|

Modernise or upgrade major systems such things as the furnace, wiring, plumbing, etc. |__|

Devote more attention to minor repairs (e.g. replacing missing bricks, shingles, tiles, etc.) and regular maintenance (e.g. painting and furnace cleaning) |__|

62. SESD15H
CONSIDER THE FOLLOWING LIST OF NINE FACTORS WHICH ARE RELATED TO HOUSING SATISFACTION. WHICH FACTORS ARE MOST IMPORTANT TO YOU (1 = Most Important, 9 = Least Important).

HAND RESPONSE CARDS

Space factors (including the amount and arrangement of physical space in the dwelling) |__|

Money-economic factors (including the cost of shelter, investment value, etc.) |__|

Location-convenience factors (including journey to work distance, access to schools, shopping, hospitals, etc.) |__|

Energy-conservation factors (including the insulation, heating system, and weatherisation of the dwelling) |__|

Aesthetic factors (the degree to which the physical appearance of the dwelling's interior and exterior appeal to you) |__|

Social factors (the degree to which the dwelling enhances your social interactions and/or displays your social position) |__|

Health and safety factors (including security, hygeine, and safety aspects of the dwelling) |__|

Physical condition factors (the actual physical condition of the dwelling - including its overall need for repair and/or rehabilitation needs) |__|

Community factors (the quality of the neighbourhood and local environment) |__|

Other neighbourhood factors |__|

PART 2 SOCIAL AND ECONOMIC CHARACTERISTICS

And now we need a little basic information about the social and economic characteristics of your household. As with all of the other information gathered in this survey, this information will be kept strictly confidential and will be used only for analysis.

63. SESD2H
WHAT IS THE HIGHEST LEVEL OF FORMAL EDUCATION WHICH YOU (OR YOUR SPOUSE, IF MARRIED) HAVE ACHIEVED? (Indicate whichever is highest).

Primary School (Enter Grade)	|__'__|
High School (Enter Grade)	|__'__|
Some Community College	14
Community College Graduate	15
Some University	16
University Graduate	17
Post Graduate	18
DK/NR	99

64. SESD3H
TO WHAT ETHNIC OR CULTURAL GROUP DO YOU BELONG?

French	01
British Isles	02
German	03
Italian	04
Ukrainian	05
Dutch (Netherlands)	06
Polish	07
Jewish	08
Chinese	09
Native Peoples:	
Inuit	10
Status or registered Indian	11
Non-status Indian	12
Metis	13
Other (Specify) _____	|__'__|
DK/NR	99

65. SESD4HA-B
WHICH OF THESE OCCUPATIONAL GROUPS COMES CLOSEST TO DESCRIBING YOUR OCCUPATION? (current or former)

ASK FOR SPOUSE'S OCCUPATION AS WELL IF MARRIED

REFER TO QUESTION 65 IN BOOKLET

	Respondent	Spouse (if married)
Semi-skilled or Labourer	1	1
Skilled Tradesman	2	2
Sales, Service, Clerical	3	3
Professional	4	4
Junior Managerial or Administrative .	5	5
Senior Managerial or Administrative .	6	6
Other (Specify) _____	7	7
NA	8	8
DK/NR	9	9

And now I'd like to ask you a few questions about repairs and improvements.

66. SEFI17HA
DID YOU SPEND ANY MONEY IN THE LAST YEAR ON MINOR REPAIRS AND REGULAR MAINTENANCE, IN ORDER TO UPKEEP THIS DWELLING? ("Regular maintenance" includes things such as painting and furnace cleaning. "Minor repairs" refers to repairing or replacing things like missing or loose floor tiles, bricks or shingles, defective steps, railings or sidings, etc.).

	Yes, regular maintenance 1
	Yes, minor repairs 2
SKIP TO QUESTION 68	No, neither 3
	NA 8
	DK/NR 9

67. SEFT17HB
HOW MUCH DID YOU SPEND IN TOTAL ON REGULAR MAINTENANCE AND MINOR REPAIRS?

Dollars	Cents
|__'__'__|	00

IF NOT APPLICABLE CODE 888
IF DK/NR CODE 999
IF AMOUNT IS GREATER THAN THREE FIGURES REFER TO NEXT QUESTION

68. SEIM1HA
DID YOU SPEND ANY MONEY ON MAJOR REPAIRS AND/OR IMPROVEMENTS FOR THIS DWELLING UNIT (ONLY) SINCE YOU MOVED IN? (DURING THE LAST FIVE YEARS). (Major Repairs include work that maintains or restores the condition of the property (dwelling and land) to its original state and does not usually add to the value of the property; e.g., repainting the home replacing the hot water tank etc. Improvements include work that adds to the value of the property and as the addition of a new room, installation of a new fence, building, a garage, etc.

REFER TO QUESTION 68 IN BOOKLET

SKIP TO QUESTION NO.	
	Yes 1
	No 2
	NA 8
	DK/NR 9

69. SEIM1HB
WHAT TYPES OF MAJOR REPAIRS AND/OR IMPROVEMENTS DID YOU HAVE DONE?

Improve or install heating/air conditioning	1
Improve or install plumbing	2
Improve or install wiring	3
Improve or install insulation	4
Creation of new dwelling unit within structure . .	5
Addition of living space (addition of new room(s), finish basement, etc.)	6
Improve foundation or basement	7
Improve floors, stairs, interior walls or ceilings	8
Improve bathroom or kitchen	9
Add or delete bathroom or kitchen	10
Improve roof	11
Improve windows or doors	12
Improve exterior walls	13
Improve yard or ancillary buildings	14
Other	15
DK/NR	99

70. SEIM1HC
HOW MUCH DID YOU SPEND ON EACH IMPROVEMENT TYPE?

Type	How much
|__'__|	$|__'__'__'__|.00
|__'__|	$|__'__'__'__|.00
|__'__|	$|__'__'__'__|.00
|__'__|	$|__'__'__'__|.00

IF YES

71. SEIM3HA
WHAT TYPES OF MAJOR REPAIRS DID YOU HAVE DONE? (DURING THE LAST FIVE YEARS) (A major repair - include a repair that cost more than $1000 - for the purpose of the survey question) IT INCLUDES WORK THAT MAINTAINS OR RESTORES THE CONDITION OF THE PROPERTY TO ITS ORIGINAL STATE AND DOES NOT USUALLY ADD TO THE VALUE OF THE PROPERTY.

REFER TO QUESTION 71 IN BOOKLET

Major repairs to roof	1
Replacing defective plumbing	2
Replacing defective wiring	3
Major structural repairs to walls	4
Major structural repairs to foundations, posts	5
Major structural repairs to ceilings or floors	6
Major repairs to yard or lot (e.g. grading to correct drainage problems)	7
Major repairs to heating system (including furnace, ductwork, etc.)	8
Other major repairs	9
DK/NR	99

72. SEIM3HB
HOW MUCH DID YOU SPEND ON EACH MAJOR REPAIR TYPE?

Type	Dollars	Cents
|__'__|	$|__'__'__'__|	.00
|__'__|	$|__'__'__'__|	.00
|__'__|	$|__'__'__'__|	.00
|__'__|	$|__'__'__'__|	.00

73. SEIM1HD
DID YOU RECEIVE ASSISTANCE FROM THE RESIDENTIAL REHABILITATION ASSISTANCE PROGRAM OR THE ONTARIO HOME RENEWAL PROGRAM?

	Yes - Residential Rehabilitation Assistance Program only	1
SKIP TO QUESTION 75	Yes - Ontario Home Renewal Program only	2
	Yes - both	3
	No, neither	4
	NA	8
	DK/NR	9

IF NO MAJOR REPAIRS OR IMPROVEMENTS

74. SEIM1HE
WHAT ARE THE REASONS WHY YOU DID NOT CARRY OUT ANY MAJOR REPAIRS OR IMPROVEMENTS?

None necessary	1
Moving soon	2
Not interested	3
Can't afford to	4
Not a good financial investment	5
Other ( )	6
NA	8
DK/NR	9

75. SEIM2HA
DO YOU ANTICIPATE MAKING ANY NON-ENERGY RELATED MAJOR REPAIRS OR IMPROVEMENTS TO YOUR RESIDENCE IN THE NEXT THREE YEARS?

Yes	1
No, none necessary	2
No, moving soon	3
No, not interested	4
No, can't afford	5
No, not a good financial investment	6
No, (other reason)	7
NA	8
DK/NR	9

IF YES

76. SEIM2HB
DO YOU EXPECT TO UNDERTAKE ANY ENERGY RELATED IMPROVEMENTS TO YOUR RESIDENCE IN THE NEXT THREE YEARS?

Yes	1
No, none necessary	2
No, moving soon	3
No, not interested	4
No, can't afford	5
No, not a good financial investment	6
No; other reason	7
NA	8
DK/NR	9

77. SEFI11HA
HOW MANY MORTGAGES ARE THERE ON THIS DWELLING?

	None	0
	One	1
SKIP TO	Two	2
QUESTION NO.	Three or more	3
	DK/NR	9

78. SERI11HB
WHAT IS THE AMOUNT OF THE PRINCIPAL OUTSTANDING ON THE MORTGAGE?

Dollars	Cents
|__'__'__'__'__|	00

79. SEFI12H A,B
WHAT INTEREST RATE IS CURRENTLY ON THE MORTGAGE(S)?

	First	Second
	|_'_._'_|	|_'_._'_|
NA	88	88
DK/NR	99	99

80. SEFI13H A,B
WHAT IS THE REGULAR PAYMENT?

First Mortgage	Second Mortgage
|_'_'_'_'_'|00	|_'_'_'_'_'|00

81. SEFI14H A,B
HOW OFTEN IS THIS PAYMENT MADE?

Once a week (weekly)	01	01
Every two weeks (bi-weekly)	02	02
Once a month (monthly)	03	03
Every two months (bi-monthly)	04	04
Every three months (quarterly)	05	05
Every six months (twice a year)	06	06
Once a year (yearly)	07	07
Other	08	08
DK/NR	09	09

82. SEFI15H A,B
DOES THE PAYMENT INCLUDE:

	FIRST MORTGAGE				SECOND MORTGAGE			
	Yes	No	NA	DK/NR	Yes	No	NA	DK/NR
Principal?	1	2	8	9	1	2	8	9
Interest?	1	2	8	9	1	2	8	9
Taxes?	1	2	8	9	1	2	8	9
Any othe charges? (Such as services for upkeep of a condominium)	1	2	8	9	1	2	8	9
Specify	_____				_____			

83. SEFI16H
WHAT ARE THE TOTAL YEARLY TAX PAYMENTS FOR THIS DWELLING?

Dollars	Cents
|__'__'__'__'__|	00

IF NA CODE 88888
IF DK/NR CODE 99999

84. SEFI7HA-D
HOW OFTEN DO YOU MAKE PAYMENTS FOR _____?

	Water	Electricity	Gas	Oil, Coal, Wood or Kerosene
No payment	1	1	1	1
Once a month	2	2	2	2
Every two months . .	3	3	3	3
Every three months .	4	4	4	4
Every six months . .	5	5	5	5
Once a year	6	6	6	6
Other (Specify number of payments per year)	|_'_|	|_'_|	|_'_|	|_'_|

CODE 99 FOR NON RESPONSE

85. SEFI8HA-D
WHAT IS YOUR DWELLINGS AVERAGE REGULAR PAYMENT? |_'_'_|00|_'_'_|00|_'_'_|00 |_'_'_|00

86. BDBC5H
IF YOU WERE SELLING THIS DWELLING NOW, FOR HOW MUCH WOULD YOU EXPECT TO SELL IT?

Dollars	Cents
|__'__'__'__'__|	00

IF DK/NR CODE 99999

87. SEFI19H
GIVEN THE TYPE, SIZE AND CONDITION OF YOUR PRESENT ACCOMMODATIONS, AND YOUR CURRENT INCOME, DO YOU CONSIDER YOUR SHELTER COSTS TO BE:

REFER TO QUESTION 87 IN BOOKLET

Much too high	1
High	2
A little high	3
Just right	4
A little low	5
Low	6
Much too low	7
NA	8
DK/NR	9

88. SEFI2OH
TAKING INTO CONSIDERATION THIS HOUSEHOLD'S PRESENT FINANCIAL SITUATION - THE AMOUNT OF MONEY COMING IN AND ITS EXPENSES FOR FOOD, CLOTHING AND OTHER NECESSITIES - WHAT IS THE LARGEST AMOUNT OF MONEY YOU FEEL IT COULD AFFORD TO PAY PER MONTH FOR HOUSING - EITHER IN TERMS OF RENT OR MORTGAGE PAYMENTS?

WHAT AMOUNT COULD IT AFFORD TO PAY PER MONTH?	Dollars	Cents
	|__'__'__|	00

89. DURING THE YEAR ENDING DECEMBER 31, 1979, HOW MUCH INCOME DID YOUR HOUSEHOLD RECEIVE FROM THE SOURCES LISTED BELOW? (Exclude any roomers, boarders, or paid employees).
- REFER TO QUESTION 89 IN BOOKLET
- DO NOT INCLUDE FAMILY ALLOWANCES
- IF DK/NR CODE 99999

	AMOUNT Dollars	Cents
SEFI1HA Total wages and salaries including commissions, Bonuses, tips, etc. Before any deductions.	|__'__'__'__'__|	00
SEFI1HB Net non-Farm self-employment income (Gross Receipts minus expenses) from unincorporated business, professional practice, etc., on own account or in partnership	|__'__'__'__'__|	00
SEFI1HC Net farm self-employment income (Gross receipts minus expenses) from agricultural operations on own account or in partnership.	|__'__'__'__'__|	00
SEFI1HD Dividends and interest on bonds, deposits and savings certificates, and other investment income, e.g. net rents from real estate, interest from mortgages.	|__'__'__'__'__|	00
SEFI1HE Old age security pension guaranteed income supplement (Federal) provincial income supplement(s) (e.g. gains) benefits from Canada or Quebec Pension Plan disability or veteran's pension retirement pensions' superannuations and annuities (do not include family allowances).	|__'__'__'__'__|	00
SEFI1HF Benefits from unemployment insurance	|__'__'__'__'__|	00
SEFI1HG Social assistance and welfare.	|__'__'__'__'__|	00
SEFI1HH Alimony	|__'__'__'__'__|	00

SEFI1HI
Other money income e.g.
- workman's compensation
- manpower training
- scholarships
- (do not include family allowances)

|__'__'__'__'__| 00

SEFI1HJ
Total income from all of the above sources |__'__'__'__'__| 00

90. SESD14H
HAVING ASKED YOU VARIOUS THINGS ABOUT THIS DWELLING (SUCH AS ITS SIZE FACILITIES AND CONDITION), I WOULD BE INTERESTED IN KNOWING HOW SATISFIED YOU ARE WITH IT. THINKING ABOUT THIS DWELLING IN GENERAL, WOULD YOU SAY YOU ARE COMPLETELY SATISFIED, OR NOT AT ALL SATISFIED WITH THE WAY IT MEETS YOUR NEEDS (AND THOSE OF YOUR FAMILY)?

REFER TO QUESTION 90 IN BOOKLET

Completely satisfied 1
2
3
4
5
6
Not at all satisfied 7

DK/NR 9

IS THERE ANYTHING ELSE ABOUT YOUR DWELLING(BUILDING) WHICH YOU THINK MAY BE OF INTEREST TO OUR STUDY THAT WE HAVE NOT ASKED YOU?

_____

_____

91. SESD13H
WHICH OF THE FOLLOWING BEST DESCRIBES YOUR GENERAL STATE OF MIND TODAY?

REFER TO QUESTION 91 IN BOOKLET

Much more positive than usual 1
Somewhat more positive than usual 2
About the same as usual 3
Somewhat more negative than usual 4
Much more negative than usual 5

DK/NR 9

RESPONDENT'S NAME: _____

TELEPHONE: |__'__'__|-|__'__'__'__|

FINISH TIME |__'__|__'__|

92. SESD16H

FOR INTERVIEWER ONLY, DO NOT ASK RESPONDENT

Overall, how great was Respondent's interest in the interview?

Extremely interested	1
	2
	3
	4
	5
	6
Extremely disinterested	7
DK/NR	9

CONFIDENTIAL
(When Completed)

APPENDIX 4b

HOUSEHOLD SURVEY INSTRUMENT

RENTER

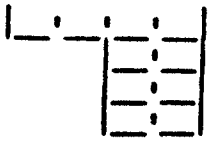
PHYSICAL HOUSE CONDITION AND REHABILITATION NEED SURVEY 1980

HOUSEHOLD INSTRUMENT

RENTER

Canada Mortgage and Housing Corporation
June 6, 1980

RESPONDENT ID
CENSUS TRACT
INTERVIEWER ID
BUILDING EXPERT ID



APPOINTMENT RECORD

TIME DATE

COMMENTS

RESPONDENT ID |__'__'__|

CENSUS TRACT |__'__|

INTERVIEWER ID |__'__|

BUILDING EXPERT ID |__'__|

DISPOSITION	VISIT 1	2	3
No one home	1	1	1
Lived here less than 6 months	2	2	2
Respondent qualifies but is not at home	3	3	3
Refused	4	4	4
Dwelling un-occupied	5	5	5
Other	6	6	6
Interview Complete	7	7	7
NR	9	9	9

	Hrs	Min
START TIME	|__'__|	|__'__|

QUALITY CONTROL |__|

INTRODUCTION

Good Morning/Afternoon/Evening. My name is _____ and I am from Ekos Research Associates. I'm calling to follow up on a notice you should have received in the mail a few days ago from the Canada Mortgage and Housing Corporation concerning a research project on physical house condition and rehabilitation need. Would you be kind enough to spare some time to answer some questions regarding your dwelling?

We mentioned in the letter you received that the information collected here will remain completely confidential. Its primary purpose is to allow an assessment of the physical condition of housing in this area.

After some introductory questions this interview will be divided into two major parts. The first part will deal with the physical condition of your house, looking first at the inside and then the outside. The second and final part of this interview will try to gather information about the social and economic characteristics of your household. Once again we stress the fact that this information is strictly confidential and the respondents will remain anonymous. Names will be permanently removed from the questionnaires once the analysis begins. To begin with:

1. SEFI21H
HOW LONG HAVE YOU LIVED IN THIS DWELLING?

Less than one year 1
One to two years 2
Three to five years 3
Six to ten years 4
More than ten years 5

DK/NR 9

IF LESS THAN SIX MONTHS

Thank you for your time, but this study is only about people who have lived in their dwelling for more than six months. END INTERVIEW

I'd like to speak to one of the persons who lives here and is responsible for paying the rent, or mortgage, or taxes or electricity for this dwelling.

If the Respondent is a different person repeat Introduction omitting the question on how long have you lived in this dwelling.

I'd like to ask you some general questions about you and your household.

2. SEFI4HA
IS YOUR DWELLING? READ LIST:

Owned or being bought by you or someone else in your household 1
Rented for cash by you or by someone else? 2
Occupied without payment of cash rent? 3

DK/NR 9

ENSURE AT THIS POINT THAT THE CORRECT TYPE OF QUESTIONNAIRE IS BEING USED. IF NOT SWITCH TO THE CORRECT TYPE IMMEDIATELY.

3. SEFI4HB
IS YOUR DWELLING OWNED OR BEING BOUGHT AS A COOPERATIVE OR CONDOMINIUM?

No 1
Yes, a cooperative 2
Yes, a condominium 3

DK/NR 9

4. SESD1HA PRINT BELOW NAMES OF ALL PERSONS LIVING HERE	5. SESD1HB RELATIONSHIP TO PERSON 1 FOR EACH PERSON IN THIS HOUSEHOLD CODE APPROPRIATE NUMBER TO DESCRIBE HIS OR HER RELATIONSHIP TO PERSON 1		6. SESO1HC YEAR OF BIRTH IF EXACT YEAR IS UNKNOWN GIVE BEST ESTIMATE	7. SESD1HD SEX	8. SESD1HE MARITAL STATUS
	Husband or wife of Person 1	1			
	Common-law partner of Person 1	2			
	Son or daugther of Person 1	3		Male 1	Now married (excluding separated) 1
	Father or mother of separated) Person 1	4		Female 2	Separated 2
	Brother or sister of Person 1	5			Divorced 3
	Son-in-law or daughter-in-law of Person 1	6			Widowed 4
	Father-in-law or mother-in-law of Person 1	7			Never married (single) 5
	Brother-in-law or sister-in-law of Person 1	8			Other 6
	Grandchild of Person 1	9			DK/NR 9
	Nephew or niece of Person 1	10			
	Other relative of Person 1	11			
	Lodger	12			
	Lodger's son or daughter	13			
	Room-mate	14			
	Employee	15			
	Other non-relative	16			

RESPONDENT	1
	2
	3
	4
	5
	6
	7
	8
	9
	10

PART 1 PHYSICAL HOUSE CONDITION

HAND RESPONDENT RESPONSE BOOKLET AND EXPLAIN THE PURPOSE AND USE

Turning now to the building.

9. BDBC2H
WHEN WAS THIS DWELLING OR THE BUILDING CONTAINING THIS DWELLING ORIGINALLY BUILT? (To the best of your knowledge please tell me the period in which the building was completed, not the time of any later remodelling, additions or conversions.)

REFER TO QUESTION 9 IN BOOKLET

1920 or before	1
1921 - 1945	2
1946 - 1960	3
1961 - 1970	4
1971 - 1975	5
1976 - 1979	6
DK/NR	9

10. BDSC3H
HOW MANY ROOMS ARE THERE IN THIS DWELLING?
(Include kitchen, bedrooms, finished rooms in attic or basement, etc.. Do not count bathrooms, halls, vestibules and rooms used solely for business purposes.)

Number of rooms . . . . . |__'__|

IF UNKNOWN CODE 99

11. MSBE1H
HOW MANY BATHROOMS ARE THERE WITHIN THIS DWELLING?
(A complete bathroom is a room with a flush toilet, bathtub or shower, and a washbasin with piped water. A half bathroom has at least a flush toilet or a bathtub or shower, but does not have all the facilities for a complete bathroom.)

Number of complete bathrooms . . . . . |__|
Number of half bathrooms . . . . . |__|

CODE "0" FOR NONE AND "9" FOR DK/NR . . . . . |__|

12. SESD7H
IS THIS DWELLING IN NEED OF ANY REPAIRS?
(Do not include desirable remodelling or additions.)

REFER TO QUESTION 12 IN BOOKLET

No, only regular maintenance is need (painting, furnace cleaning, etc.) 1

Yes, minor repairs are needed (missing or loose floor tiles, bricks or shingles, defective steps, railing or siding, etc.) 2

Yes, major repairs are needed (defective plumbing or electrical wiring, structural repairs to walls, floors or ceilings, etc.) 3

DK/NR 9

13. BDBC7H
IN ADDITION TO THE PRIMARY ENTRANCE TO THIS DWELLING IS THERE ANOTHER WAY TO GET OUT SAFELY IN CASE OF FIRE, SUCH AS A FIRE ESCAPE, BACK ENTRANCE, OR FIRE LADDER?

Yes 1
No 2

DK/NR 9

Thank you. Now I'd like to ask you a few questions which relate to possible problem areas throughout the dwelling. Let's begin with the dwelling foundation.

14. INBF1HA
DOES YOUR DWELLING HAVE A? READ LIST

REFER TO QUESTION 14 IN BOOKLET

Basement 1
SKIP TO QUESTION 17
Cellar space 2
Crawl space 3
Slab-on-grade 4

DK/NR 9

15. INBF1HB
IS IT USED FOR: READ LIST

MARK ALL THAT APPLY

Parking?	1
Storage?	2
Heating equipment?	3
Laundry?	4
Living (complete dwelling)?	5
Living (partial dwelling) (e.g. spare bedroom)?	6
Other (specify)	7
NA	8
DK/NR	9

FOR MULTIPLE UNIT PROPERTIES ONLY WHERE BASEMENT IS USED

16. INBF1HC
IS THE BASEMENT USED OR ACCESSIBLE BY: READ LIST

The occupants of one dwelling only?	1
The occupants of more than one dwelling?	2
The building owner or agent only?	3
NA	8
DK/NR	9

17. INBF9H
HOW MUCH OF THE PERIMETER OF YOUR FOUNDATION WALL IS INSULATED EITHER ON THE INSIDE OR THE OUTSIDE?

REFER TO QUESTION 17 IN BOOKLET

None of the perimeter	1
Some (about 1/4)	2
Half	3
Most (about 3/4)	4
All	5
NA	8
DK/NR	9

18. EXCW4H
HOW MUCH OF THE PERIMETER OF YOUR EXTERIOR WALL ABOVE GROUND CONTAINS AT LEAST SOME INSULATION?

REFER TO QUESTION 18 IN BOOKLET

None of the perimeter	1
Some (about 1/4)	2
Half	3
Most (about 3/4)	4
All	5
DK/NR	9

Turning now to the roof.

19. INAR2H
HOW MUCH OF YOUR TOTAL ROOF SPACE IS AN ATTIC?
(An attic here refers to any part of your roof space that is large enough for a person to get into so that it would be possible to insulate. Roof space refers to the space between the ceiling and roof of your home. Do not include roof space over unheated areas.)

REFER TO QUESTION 19 IN BOOKLET

None of the roof space	1
Some (about 1/4)	2
Half	3
Most (about 3/4)	4
All	5
NA	8
DK/NR	9

20. INFS1HA
ARE THE COVERINGS OF YOUR FLOORS (e.g. the tiles, wood, carpets, etc.) LIFTING, CRACKING, WORN, OR LOOSE?

REFER TO QUESTION 20 IN BOOKLET

	Yes	1
SKIP TO QUESTION 22	No	2
	DK/NR	9

IF YES

21. INFS1HB
HOW SERIOUS WOULD YOU SAY THE PROBLEM IS?

Not at all serious	1
	2
	3
	4
	5
	6
Extremely serious (requires total resurfacing)	7
NA	8
DK/NR	9

22. INFS2HA
CONSIDERING THE FLOORS ONCE AGAIN, DO THEY BUCKLE, SAG OR BOUNCE WHEN YOU WALK ACROSS THEM? OR ARE ANY OF THE FLOORS IN THIS DWELLING BADLY SLOPED OR SLANTED?

REFER TO QUESTION 22 IN BOOKLET

ASK ONLY FOR THOSE FLOORS APPLICABLE

	1st Floor (of the dwelling)	2nd Floor	3rd Floor
Yes	1	1	1
No	2	2	2
NA	8	8	8
DK/NR	9	9	9

IF RESPONDENT ANSWERED YES TO ANY OF ABOVE

23. INFS2HB
HOW SERIOUS WOULD YOU SAY THE PROBLEM IS?

	1st Floor (of the dwelling)	2nd Floor	3rd Floor
Not at all serious	1	1	1
	2	2	2
	3	3	3
	4	4	4
	5	5	5
	6	6	6
Extremely serious .	7	7	7
NA	8	8	8
DK/NR	9	9	9

Turning now to the question of the internal stairways.

24. INFS3H
HOW WOULD YOU RATE THE OVERALL CONDITION OF YOUR STAIRS IN TERMS OF THEIR SAFETY AND THEIR STRUCTURAL AND SURFACE CONDITION?

REFER TO QUESTION 24 IN BOOKLET

Excellent (perfect condition) 1
2
3
4
5
6
Extremely poor (totally replace) 7

DK/NR 9

And now I would like to ask you a few questions about water problems in your dwelling.

25. INWC4H
IN HOW MANY PLACES IN YOUR DWELLING DOES WATER LEAK THROUGH THE EXTERIOR WALLS?

None	0
1 place	1
2 places	2
3 places	3
4 places	4
5 or more places	5
DK/NR	9

26. INBF7H
IN THE PAST YEAR, HAVE YOU EVER NOTICED ANY SIGNS OF WATER LEAKING INTO THE BASEMENT FROM OUTSIDE?

REFER TO QUESTION 26 IN BOOKLET

All of the time	1
Most of the time	2
Some of the time	3
Just now and then	4
Once	5
Never	6
NA	8
DK/NR	9

27. INWC5H
AFTER OR DURING A RAINSTORM, IN HOW MANY PLACES DOES WATER FROM THE OUTSIDE ENTER YOUR DWELLING THROUGH THE CEILINGS?
(Exclude internal water sources such as the plumbing.)

None	0
1 place	1
2 places	2
3 places	3
4 places	4
5 or more places	5
DK/NR	9

28. INWC1HA
DO THE INTERIOR WALLS OF YOUR DWELLING HAVE ANY CRACKS, PEELING PAINT, OR HOLES (excluding hairline cracks)?

REFER TO QUESTION 28 IN BOOKLET

	Yes	1
SKIP TO QUESTION 30	No	2
	DK/NR	9

IF YES

29. INWC1HB
HOW SERIOUS WOULD YOU SAY THIS PROBLEM IS?

Not at all serious (no problems)	1
	2
	3
	4
	5
	6
Extremely serious (requires total resurfacing)	7
NA	8
DK/NR	9

30. INWC2HA
DO ANY OF THE WALLS INSIDE THIS DWELLING HAVE AREAS WHICH BULGE OR WHICH LEAN INWARD OR OUTWARD?

REFER TO QUESTION 30 IN BOOKLET

	Yes	1
SKIP TO QUESTION 32	No	2
	DK/NR	9

IF YES

31. INWC2HB
HOW SERIOUS WOULD YOU SAY THIS PROBLEM IS?

Not serious	1
	2
	3
	4
	5
	6
Extremely serious (major repairs needed)	7
NA	8
DK/NR	9

32. INWC3HA
DO THE CEILINGS HAVE OPEN CRACKS OR HOLES, PEELING PAINT, BROKEN PLASTER OR OTHER PROBLEMS? (Do not include hairline cracks).

REFER TO QUESTION 32 IN BOOKLET

	Yes	1
SKIP TO QUESTION 34	No	2
	DK/NR	9

IF YES

33. INWC3HB
HOW SERIOUS WOULD YOU SAY THESE PROBLEMS ARE?

Not serious (no problems)	1
	2
	3
	4
	5
	6
Extremely serious (major repairs needed)	7
NA	8
DK/NR	9

34. INGA1H
HAVING CONSIDERED THESE THINGS IN SOME DETAIL, IN GENERAL, HOW WOULD YOU RATE THE OVERALL CONDITION OF YOUR INTERIOR WALLS, CEILINGS, FLOORS, AND STAIRS (excluding unfinished areas)?

REFER TO QUESTION 34 IN BOOKLET

Excellent (top condition)	1
	2
	3
	4
	5
	6
Extremely poor (totally replace)	7
DK/NR	9

OUTSIDE

Now let's consider your doors and windows.

35. EXWD2HA
HOW MANY OF THE DOORS AND WINDOWS RATTLE OR HAVE DRAFTS ON WINDY DAYS?

REFER TO QUESTION 35 IN BOOKLET

None of the windows or doors 1
Some (about 1/4) 2
Half 3
Most (about 3/4) 4
All 5

DK/NR 9

36. EXWD2HB
HOW MANY OF YOUR WINDOWS AND DOORS HAVE NEITHER THERMAL PANES (DOUBLE OR TRIPLE) NOR STORM WINDOWS OR STORM DOORS?

REFER TO QUESTION 36 IN BOOKLET

None 1
Some (about 1/4) 2
Half 3
Most (about 3/4) 4
All 5

DK/NR 9

37. EXWD3HA
HOW OFTEN IN THE FALL, WINTER OR SPRING DO YOU SEE ICE, WATER, OR MIST ON THE OUTSIDE OR BETWEEN YOUR WINDOWS AND DOORS? (Do not count moisture which directly results from a rain or snow storm.)

REFER TO QUESTION 37 IN BOOKLET

All the time 1
Most of the time 2
Some of the time 3
Just now and then 4
Once 5
Never 6

DK/NR 9

38. EXWD3HB
HOW OFTEN DO YOU SEE ICE, WATER, OR MIST ON THE INSIDE OF YOUR WINDOWS?

REFER TO QUESTION 38 IN BOOKLET

All the time	1
Most of the time	2
Some of the time	3
Just now and then	4
Once	5
Never	6
DK/NR	9

Turning now to an important consideration in the winter time, I'd like to ask you a few questions about your heating system.

39. MSHT3H
IN HOW MANY ROOMS IS A SECONDARY HEAT SOURCE REGULARLY USED TO SUPPLEMENT THE PRIMARY HEAT SOURCE?

None	0
1 room	1
2 rooms	2
3 rooms	3
4 rooms	4
5 or more rooms	5
NA	8
DK/NR	9

40. MSHT1H A,B
WHAT ARE THE PRINCIPAL AND SECONDARY (i.e. used regularly to supplement the principal source) TYPE(S) OF HEATING EQUIPMENT FOR THIS DWELLING? (Select one response for (a) and one for (b))

REFER TO QUESTION 40 IN BOOKLET

ASK PART B ONLY IF RESPONDENT INDICATED THE PRESENCE OF A SECONDARY HEAT SOURCE IN QUESTION 39

	(a) Principal	(b) Secondary
Steam of hot water furnace	01	01
Forced hot air furnace	02	02
Other hot air furnace	03	03
Oil space heater	04	04
Installed electrical heating system	05	05
Cook stove, range, or heating stove	06	06
Woodstove	07	07
Other (fireplace, etc.)	08	08
NA	88	88
DK/NR	99	99

41. MSHT2HA
AT ANY TIME DURING THE WINTER OF 1979-80, WAS THERE A BREAKDOWN IN YOUR PRESENT HEATING EQUIPMENT; THAT IS, WAS IT COMPLETELY UNUSABLE FOR SIX CONSECUTIVE HOURS OR MORE?
Do not include running out of fuel, power failure, or other external factors.

	Yes 1
SKIP TO	No 2
QUESTION 43	Not there during winter 3
	DK/NR 9

IF YES

42. MSHT2HB
HOW MANY TIMES DID THIS HAPPEN?

	Once 1
	2 times 2
	3 times 3
	4 times 4
	5 times or more 5
	NA 8
	DK/NR 9

43. MSHT4H A,B,C
WHAT ARE THE PRINCIPAL AND SECONDARY FUELS(S) USED MOST FOR HOUSE HEATING AND WATER HEATING?

REFER TO QUESTION 43 IN BOOKLET

	House Heating Principal	House Heating Secondary	Water Heating Principal
Oil and other liquid fuel	1	1	1
Piped gas	2	2	2
Bottled gas	3	3	3
Electricity	4	4	4
Coal or coke	5	5	5
Wood	6	6	6
Other	7	7	7
NA	8	8	8
DK/NR	9	9	9

44. MSTH6H
WHEN WAS YOUR MAIN HEATING SYSTEM LAST CLEANED AND SERVICED?

Within the past 12 months	1
More than 12 months ago	2
Never (not since I moved in)	3
NA	8
DK/NR	9

45. MSHT9H
DO YOU HAVE CONTROL OF THE HEAT IN YOUR DWELLING THROUGH A PROPERLY WORKING THERMOSTAT?

Yes	1
No	2
NA	8
DK/NR	9

46. MSHT5H A,B
IN THE WINTER, WHAT IS THE AVERAGE TEMPERATURE IN YOUR HOME DURING THE DAY? AND IN THE NIGHT?

	Day	Night
12-14 C (55-59 F)	1	1
15-18 C (60-65 F)	2	2
19-20 C (66-68 F)	3	3
21-22 C (69-72 F)	4	4
over 22 C (over 72 F)	5	5
DK/NR	9	9

47. MSHT7H
HOW WOULD YOU RATE THE OVERALL ADEQUACY OF YOUR HEATING SYSTEM?

REFER TO QUESTION 47 IN BOOKLET

Completely adequate (perfectly comfortable)	1
	2
	3
	4
	5
	6
Completely inadequate (totally unacceptable)	7
NA	8
DK/NR	9

Thank you. Now I'd like to turn to some questions concerning day-to-day facilities such as your kitchen, plumbing and bathroom. As before, we plan to focus on possible problem areas.

48. MSKE1HA
DOES THIS DWELLING HAVE A COMPLETE KITCHEN FACILITIES; THAT IS, A KITCHEN SINK WITH PIPED WATER, A REFRIGERATOR, A RANGE OR STOVE AND ADEQUATE CUPBOARDS AND COUNTER SPACE?

	Yes - for this household only	1
SKIP TO	Yes - also used by another household	2
QUESTION 50	No	3
	DK/NR	9

49. MSKE1HB
ARE THE KITCHEN SINK, REFRIGERATOR, RANGE OR STOVE, AND CUPBOARDS AND COUNTER SPACE ALL IN USABLE CONDITION?

Yes	1
No	2
NA	8
DK/NR	9

50. MSPL1H
HOW MANY TIMES IN THE PAST 6 MONTHS HAVE ANY OF YOUR WATER PIPES OR OTHER PARTS OF YOUR PLUMBING HARDWARE (e.g. toilet, sink, etc.) LEAKED SO BADLY THAT YOU HAD TO MOP THE WATER UP OR PLACE A BUCKET BELOW THE LEAK?

None	0
Once	1
2 times	2
3 times	3
4 times	4
5 or more times	5
NA	8
DK/NR	9

51. MSBE3H
DO YOU HAVE EITHER A WINDOW WHICH OPENS OR A FUNCTIONING VENTILATOR IN ALL YOUR BATHROOMS?

Yes	1
No	2
NA	8
DK/NR	9

52. MSBE4H
IN GENERAL, IN WHAT KIND OF WORKING CONDITION IS YOUR BATHROOM EQUIPMENT (e.g. toilet, tub, sink)?

REFER TO QUESTION 52 IN BOOKLET

Excellent (perfect performance) 1
2
3
4
5
6
Extremely poor(serious performance problems totally replace) 7

NA 8
DK/NR 9

53. MSEL7H
HOW MANY TIMES HAVE YOUR ELECTRIC FUSES (OR CIRCUIT BREAKERS) BLOWN (OR TRIPPED) IN THE LAST 90 DAYS?

None 0
Once 1
2 times 2
3 times 3
4 times 4
5 or more times 5

NA 8
DK/NR 9

54. MSEL5H
HOW MANY ROOMS DO NOT CONTAIN AN ELECTRICAL WALL OUTLET?

None 0
1 room 1
2 rooms 2
3 rooms 3
4 rooms 4
5 or more rooms 5

NA 8
DK/NR 9

55. MSEL6H
DO YOU HAVE A WORKING SMOKE OR FIRE DETECTOR IN YOUR DWELLING?

Yes 1
No 2

DK/NR 9

56. BDGA1H
PLEASE THINK A MOMENT ABOUT THE THINGS WE HAVE JUST DISCUSSED AND TELL ME HOW YOU WOULD RATE THE OVERALL PHYSICAL CONDITION OF YOUR DWELLING?

REFER TO QUESTION 56 IN BOOKLET

Excellent (top condition) 1
Very good 2
Good 3
Fair 4
Poor 5
Extremely poor (needs major repairs) 6

DK/NR 9

And now, I would like to ask you a few questions about your views and attitudes about your dwelling and neighbourhood.

57. SESD9H
WOULD YOU SAY THAT YOUR DWELLING/PROPERTY IS IN A BETTER STATE OF REPAIR THAN MOST OF THE BUILDINGS IN YOUR NEIGHBOURHOOD?

REFER TO QUESTION 57 IN BOOKLET

Much better 1
Better 2
The same 3
Worse 4
Much worse 5

DK/NR 9

58. SESD12H
IN GENERAL, HOW WOULD YOU RATE THIS NEIGHBOURHOOD AS A PLACE TO LIVE?

REFER TO QUESTION 58 IN BOOKLET

Excellent 1
Very good 2
Good 3
Fair 4
Poor 5
Terrible 6

DK/NR 9

59. BDSC1H
CONSIDERING THE SPACE AVAILABLE IN YOUR DWELLING AT THE PRESENT TIME, WOULD YOU SAY THAT YOU HAVE TOO MUCH OR TOO LITTLE SPACE?

REFER TO QUESTION 59 IN BOOKLET

Way too much space	1
	2
	3
Just right	4
	5
	6
Way too little space	7
DK/NR	9

60. BDSC2H
IN GENERAL, DOES THE ARRANGEMENT OF ROOMS EITHER INTERFERE OR DETRACT FROM YOUR SATISFACTION WITH THIS DWELLING? WHICH NUMBER COMES CLOSEST TO DESCRIBING HOW SATISFIED OR DISSATISFIED YOU ARE?

REFER TO QUESTION 60 IN BOOKLET

Extremely satisfied	1
	2
	3
	4
	5
	6
Extremely dissatisfied	7
DK/NR	9

61. SESD6HAR
WOULD YOU AGREE TO PAY HIGHER RENT FOR IMPROVEMENTS TO YOUR PRESENT ACCOMMODATIONS?

Yes	1
No	2
DK/NR	9

62. SESD6HBR
IF YOU WERE TO AGREE TO PAY HIGHER RENT FOR IMPROVEMENTS TO YOUR PRESENT ACCOMODATIONS, WHICH ARE THE THINGS YOU WOULD LIKE TO SEE DONE FIRST (RANK ORDER THE FOLLOWING LIST OF OPTIONS WITH 1 BEING MOST IMMEDIATE AND 5 THE LEAST IMMEDIATE).

REFER TO QUESTION 62 IN BOOKLET

Greatly improved attention to services, maintenance and minor repairs, e.g. garbage disposal, security/safety, laundry facilities, snow clearance, maintenance of grounds and common halls.	|__|

Major repairs such as a new roof, new furnace, or new wiring, etc. |__|

Major improvements such as additional living space, new interior surfaces, rearrangement of walls, etc. |__|

Improved insulation, weatherisation and energy conservation that resulted in noticeable improvements in terms of comfort and significant long term reductions in energy costs. |__|

Significant improvements to the exterior condition and appearance of the dwelling. |__|

63. SESD6HCR
IF YOU RECEIVED A SIGNIFICANT INCREASE IN INCOME, AND THE TOTAL COSTS OF LIVING DID NOT GO UP, HOW WOULD YOU RANK ORDER THESE OPTIONS (1 = most desirable, 5 = least desirable)

IF NO SKIP TO QUESTION 64

REFER TO QUESTION 63 IN BOOKLET

Rent a similar unit in a better neighbourhood |__|
Rent a better unit in your present or a similar neighbourhood |__|
Pay higher rent for improvements to your present dwelling |__|
Stay in your present accommodation and spend the money on other things |__|

64. SESD15H
CONSIDER THE FOLLOWING LIST OF NINE FACTORS WHICH ARE RELATED TO HOUSING SATISFACTION. WHICH FACTORS ARE MOST IMPORTANT TO YOU (1 = Most Important, 9 = Least Important).

HAND RESPONSE CARDS

Space factors (including the amount and arrangement of physical space in the dwelling) |__|

Money-economic factors (including the cost of shelter, investment value, etc.) |__|

Location-convenience factors (including journey to work distance, access to schools, shopping, hospitals, etc.) |__|

Energy-conservation factors (including the insulation, heating system, and weatherisation of the dwelling) |__|

Aesthetic factors (the degree to which the physical appearance of the dwelling's interior and exterior appeal to you) |__|

Social factors (the degree to which the dwelling enhances your social interactions and/or displays your social position) |__|

Health and safety factors (including security, hygeine, and safety aspects of the dwelling) |__|

Physical condition factors (the actual physical condition of the dwelling - including its overall need for repair and/or rehabilitation needs) |__|

Community factors (the quality of the neighbourhood and local environment) |__|

Other neighbourhood factors |__|

PART 2 SOCIAL AND ECONOMIC CHARACTERISTICS

And now we need a little basic information about the social and economic characteristics of your household. As with all of the other information gathered in this survey, this information will be kept strictly confidential and will be used only for analysis.

65. SESD2H
WHAT IS THE HIGHEST LEVEL OF FORMAL EDUCATION WHICH YOU (OR YOUR SPOUSE, IF MARRIED) HAVE ACHIEVED? (Indicate whichever is highest).

Primary School (Enter Grade)	|__'__|
High School (Enter Grade)	|__'__|
Some Community College	14
Community College Graduate	15
Some University	16
University Graduate	17
Post Graduate	18
DK/NR	99

66. SESD3H
TO WHAT ETHNIC OR CULTURAL GROUP DO YOU BELONG?

French	01
British Isles	02
German	03
Italian	04
Ukrainian	05
Dutch (Netherlands)	06
Polish	07
Jewish	08
Chinese	09
Native Peoples:	
Inuit	10
Status or registered Indian	11
Non-status Indian	12
Metis	13
Other (Specify) _____	|__'__|
DK/NR	99

67. SESD4HA,B
WHICH OF THESE OCCUPATIONAL GROUPS COMES CLOSEST TO DESCRIBING YOUR OCCUPATION? (current or former)

ASK FOR SPOUSE AS WELL IF MARRIED

REFER TO QUESTION 67 IN BOOKLET

	Respondant	Spouse (if married)
Semi-skilled or labourer	1	1
Skilled tradesman	2	2
Sales, Service, Clerical	3	3
Professional	4	4
Junior Managerial or Admistrative	5	5
Senior Managerial or Admistrative	6	6
Other (Specify)	7	7
NA	8	8
DK/NR	9	9

And now I'd like to ask you a few questions about repairs and improvements.

68. SEFI17HA
DID YOU SPEND ANY MONEY IN THE LAST YEAR ON MINOR REPAIRS AND REGULAR MAINTENANCE, IN ORDER TO UPKEEP THIS DWELLING? ("Regular maintenance" includes things such as painting and furnace cleaning. "Minor repairs" refers to repairing or replacing things like missing or loose floor tiles, bricks or shingles, defective steps, railings or sidings, etc.).

	Yes, regular maintenance	1
	Yes, minor repairs	2
SKIP TO QUESTION NO. 70	No, neither	3
	NA	8
	DK/NR	9

69. SEFT17HB
HOW MUCH DID YOU SPEND IN TOTAL ON REGULAR MAINTENANCE AND MINOR REPAIRS?

Dollars	Cents
|__'__'__|	00

IF NOT APPLICABLE CODE 888
IF DK/NR CODE 999
IF AMOUNT IS GREATER THAN THREE FIGURES REFER TO NEXT QUESTION

70. SEIM2HA
DO YOU ANTICIPATE MAKING ANY NON-ENERGY RELATED MAJOR REPAIRS OR IMPROVEMENTS TO YOUR RESIDENCE IN THE NEXT THREE YEARS?

Yes	1
No, none necessary	2
No, moving soon	3
No, not interested	4
No, can't afford	5
No, not a good financial investment	6
No,(other reason)	7
NA	8
DK/NR	9

IF YES

71. SEIM2HB
DO YOU EXPECT TO UNDERTAKE ANY ENERGY RELATED IMPROVEMENTS TO YOUR RESIDENCE IN THE NEXT THREE YEARS?

Yes	1
No, none necessary	2
No, moving soon	3
No, not interested	4
No, can't afford	5
No, not a good financial investment	6
No; other reason	7
NA	8
DK/NR	9

And now I would like to ask you a few questions about your views and attitudes about your dwelling and neighbourhood.

72. SEFI5H
WHAT IS THE MONTHLY CASH RENT YOU PAY FOR THIS DWELLING?

Rented without payments of cash rent 1

IF DK/NR CODE 99999

Dollars |__'__'__| Cents 00
(per month)

73. SEFI6HA-E
IS _____ INCLUDED IN THE RENT?

	Water	Electricity	Gas	Oil, Coal, Wood or Kerosene	Parking
Yes	1	1	1	1	1
No	2	2	2	2	2
DK/NR	9	9	9	9	9

74. SEFI7HA-E
HOW OFTEN DO YOU MAKE PAYMENTS FOR _____?

No payment	1	1	1	1	1
Once a month	2	2	2	2	2
Every two months . .	3	3	3	3	3
Every three months .	4	4	4	4	4
Every six months . .	5	5	5	5	5
Once a year	6	6	6	6	6
Other (Specify number of payments per year) CODE 99 FOR NON RESPONSE	|_'_|	|_'_|	|_'_|	|_'_|	|_'_|

75. SEFI8HA-D
WHAT IS YOUR DWELLINGS AVERAGE REGULAR PAYMENT?

|_'_'_| |_'_'_| |_'_'_| |_'_'_| |_'_'_|

76. SEFI9H
GIVEN THE TYPE, SIZE AND CONDITION OF YOUR PRESENT ACCOMMODATIONS, AND YOUR CURRENT INCOME, DO YOU CONSIDER YOUR SHELTER COSTS TO BE:

REFER TO QUESTION 76 IN BOOKLET

Much too high	1
High	2
A little high	3
Just right	4
A little low	5
Low	6
Much too low	7
NA	8
DK/NR	9

77. SEFI2OH
TAKING INTO CONSIDERATION THIS HOUSEHOLD'S PRESENT FINANCIAL SITUATION - THE AMOUNT OF MONEY COMING IN AND ITS EXPENSES FOR FOOD, CLOTHING AND OTHER NECESSITIES - WHAT IS THE LARGEST AMOUNT OF MONEY YOU FEEL IT COULD AFFORD TO PAY PER MONTH FOR HOUSING - EITHER IN TERMS OF RENT OR MORTGAGE PAYMENTS?

WHAT AMOUNT COULD IT AFFORD TO PAY PER MONTH? Dollars |__'__'__| Cents 00

78. DURING THE YEAR ENDING DECEMBER 31, 1979, HOW MUCH INCOME DID YOUR HOUSEHOLD RECEIVE FROM THE SOURCES LISTED BELOW? (Exclude any roomers, boarders, or paid employees).

REFER TO QUESTION 78 IN BOOKLET

- DO NOT INCLUDE FAMILY ALLOWANCES
  IF DK/NR CODE 99999

	AMOUNT Dollars	Cents
SEFI1HA Total wages and salaries including commissions, bonuses, tips, etc. Before any deductions.	|__'__'__'__'__|	00
SEFI1HB Net non-farm self-employment income (gross receipts minus expenses) from unincorporated business, professional practice, etc., on own account or in partnership	|__'__'__'__'__|	00
SEFI1HC Net farm self-employment income (gross receipts minus expenses) from agricultural operation on own account or in partnership.	|__'__'__'__'__|	00
SEFI1HD Dividends and interest on bonds, deposits and savings certificates, and other investment income, e.g. net rents from real estate, interest from mortgages.	|__'__'__'__'__|	00
SEFI1HE Old age security pension guaranteed income supplement (Federal) provincial income supplement(s) (e.g. gains) benefits from Canada or Quebec Pension Plan Disability or Veteran's pension retirement pensions' superannuations and annuities (do not include family allowances).	|__'__'__'__'__|	00
SEFI1HF Benefits from unemployment insurance	|__'__'__'__'__|	00
SEFI1HG Social assistance and welfare.	|__'__'__'__'__|	00
SEFI1HH Alimony	|__'__'__'__'__|	00
SEFI1HI Other money income e.g. - workman's compensation - manpower training - scholarships - (do not include family allowances)	|__'__'__'__'__|	00

SEFI1HJ
Total income from all of the above sources |__'__'__'__'__| 00

79. SESD14H
HAVING ASKED YOU VARIOUS THINGS ABOUT THIS DWELLING (SUCH AS ITS SIZE FACILITIES AND CONDITION), I WOULD BE INTERESTED IN KNOWING HOW SATISFIED YOU ARE WITH IT. THINKING ABOUT THIS DWELLING IN GENERAL, WOULD YOU SAY YOU ARE COMPLETELY SATISFIED, OR NOT AT ALL SATISFIED WITH THE WAY IT MEETS YOUR NEEDS (AND THOSE OF YOUR FAMILY)?

REFER TO QUESTION 79 IN BOOKLET

Completely satisfied 1
2
3
4
5
6
Not at all satisfied 7

DK/NR 9

80. BDMU1H
BDMU2H
DOES THE OWNER LIVE IN THIS BUILDING?

Skip to Question 82

Yes 1
No 2

DK/NR 9

81. DOES THE SUPERINTENDANT/MANAGER?

Yes 1
No 2

DK/NR 9

82. CAN YOU TELL ME THE NAME AND ADDRESS OR TELEPHONE NUMBER OF THE OWNER (AND/OR MANAGER)?

	Name	Address	Telephone
Owner			
Manager			

IS THERE ANYTHING ELSE ABOUT YOUR DWELLING(BUILDING) WHICH YOU THINK MAY BE OF INTEREST TO OUR STUDY THAT WE HAVE NOT ASKED YOU?

_____

_____

83. SESD13H
WHICH OF THE FOLLOWING BEST DESCRIBES YOUR GENERAL STATE OF MIND TODAY?

REFER TO QUESTION 83 IN BOOKLET

Much more positive than usual 1
Somewhat more positive than usual 2
About the same as usual 3
Somewhat more negative than usual 4
Much more negative than usual 5

DK/NR 9

RESPONDENT'S NAME: _____
TELEPHONE: |__'__'__|-|__'__'__'__|

FINISH TIME |__'__|__'__|

84. SESD16H

FOR INTERVIEWER ONLY, DO NOT ASK RESPONDENT

Overall, how great was Respondent's interest in the interview?

Extremely interested 1
2
3
4
5
6
Extremely disinterested 7

DK/NR 9