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Surveying Structural Level and Condition of Farmhouses

By Roy J. Burroughs

The Bureau of Agricultural Economics conducted in the winter and spring of 1950 a survey of farm housing and construction with funds available under the Housing Act of 1949. Funds for tabulating these data were not available in the Bureau until defense agencies requested in the summer of 1951 tabulations of those portions that might be useful or significant in estimating the needs for building materials in the maintenance and construction of farm homes and service buildings.¹ This article deals with methods for reporting structural level and condition of farmhouses used in the survey. Several Divisions of the Bureau and persons from other Agencies of the Department and the Land-Grant Colleges contributed to the undertaking. Much assistance was also obtained through the inter-agency Subcommittee on Housing Adequacy, which did experimental tests on adequacy over a period of several years. The author of this article served as subject-matter specialist on the project.

A NUMBER of new methods for reporting structural level and condition of farmhouses were tested in the survey of farm housing and construction conducted by the Bureau of Agricultural Economics in the winter and spring of 1950. This paper discusses the problems dealt with and the experience gained with the new methods. As used in this survey "structural level" denotes the basic durability, weather-tightness, and quality of workmanship, of the original construction; "condition" denotes the degree of deterioration.

¹ UNITED STATES BUREAU OF AGRICULTURAL ECONOMICS. FARM HOUSING AND CONSTRUCTION. Washington, D. C. February 1952. [Processed.]

Historical Background

Efforts to survey the quality of housing are not new. On the other hand, the careful analysis and objective reporting of structural level and condition of houses are comparatively new.

USDA

In 1934, for example, the then Bureau of Home Economics of the U. S. Department of Agriculture made a sample survey of farmhouses.² The schedule

² *The Farm Housing Survey*, Bureau of Home Economics in cooperation with Bureau of Agricultural Engineering, Extension Service, and Office of the Secretary. U. S. Dept. Agr. Misc. Pub. 323, March 1939.

provided for a judgment by the enumerator concerning the condition of the elements of a house, each element to be rated as "good," "fair," or "poor." The rating reflected local attitudes and the judgment was given by a local person, hence: "It is probably safe to say that the conditions reported for all counties represent the standards of those counties."³

In 1944, Ellickson and Brewster of BAE, with the assistance of the Bureau of the Census, matched about 7,000 schedules from the Census of Agriculture with the Census of Population and Housing.⁴ They thereby learned the number of rooms and the value of the house as reported by each farmer. These items alone provided the criteria for a classification of houses by groups called "acceptable," "passable," and "unacceptable."

Hartmans undertook to test these criteria against objective tests of structural level and condition obtained from his survey data in Michigan.⁵ Average results from these methods appear to be similar, but considerable deviation, especially between the two lower classes, is evident in individual cases.

Besides these statistical studies, the Department has issued at least two publications concerning housing standards.⁶ Rather than providing a measure of conditions, those publications suggest value judgments of specialists concerning what they believe people ought to want in farmhouses. In neither of the publications are structural standards the focus of interest. Emphasis is placed on the amount and arrangement of space, orientation, facilities, and similar functional aspects. Various college publications have been of somewhat similar import.

Census

In 1940 and subsequently, several reports of the Bureau of the Census classified houses in two

groups: "In need of major repairs" and "Not in need of major repairs." In some instances the enumerator took the word of the occupant; in others he rendered his own judgment. In neither case was there uniformity in application of standards. Nor was structural level adequately reflected in the classification. A shack might need no major repairs and thus be classified as "Not in need of major repairs." But it might need replacement by a building of more adequate construction; this need was not covered by the Census report. Despite these limitations, the Census classification has served many uses for a decade.

In 1950, Census of Housing made a different approach. It recognized structural level as well as condition.⁷ Enumerators were given a set of carefully drafted instructions with pictures, and a brief training of perhaps half an hour, including a training film plus field supervision, so they would use uniform methods of classification. As the pictures are believed to be an especially useful device for obtaining uniformity in application of standards, the results are believed to be generally reliable. Two classes were offered: "Dilapidated" and "not dilapidated."⁸

A house might be rated as dilapidated if (1) it had any "critical deficiency" (of condition), (2) it had enough "minor deficiencies" so "that the dwelling does not provide adequate shelter or protection against the elements or is physically unsafe," or (3) it was of "inadequate original construction" (structural level) such as makeshift walls, dirt floors, and cellars, etc., which have been inadequately converted for living quarters. Although in the opinion of the writer, the mere compounding of minor deficiencies is not equivalent in importance to the presence of any one major de-

³ Ibid., p. 38.

⁴ The sample was about one-tenth of 1 percent. See "The Farm Housing Problem," submitted to Senate Special Committee on Postwar Economic Policy and Planning, January 17, 1945.

⁵ HARTMANS, ERMOND. SOME ECONOMIC AND PHYSICAL ASPECTS OF FARM HOUSING AND SERVICE BUILDINGS IN SELECTED AREAS OF MICHIGAN. Thesis (Ph. D.), Michigan State College, 1950.

⁶ WILSON, MAUD. HOUSING REQUIREMENTS OF FARM FAMILIES IN THE UNITED STATES. U. S. Dept. Agr. Misc. Pub. 322, February 1939; MINIMUM REQUIREMENTS FOR FARM-HOUSES, U. S. Dept. Agr. Misc. Pub. 475. October 1941.

⁷ A statement of this distinction may be found in "General Instructions to Enumerators" for a project on "Economics of Farm Service Buildings," Ill. Agr. Expt. Sta. and U. S. Dept. of Agr. Cooperating, 1949. This material was available to both the Census and BAE when preparations were made for the 1950 enumeration and survey. To Dean Carter of the University of Illinois and Wallace Ashby of the U. S. Dept. of Agr. and the Federal Inter-Agency Committee on Housing Adequacy go much of the credit for developing a clear distinction between structural level and condition.

⁸ UNITED STATES BUREAU OF THE CENSUS. ENUMERATOR'S REFERENCE MANUAL. 1950 Census of the United States, par. 321, p. 84.

iciency,⁹ yet such minor deficiencies often are symptomatic of other faults. Where observation is difficult as in the case of row houses and apartments, the use of these indicators may be the only practical procedure.

Every effort was made to achieve uniformity in application of standards; the enumerator made the final judgment concerning quality of housing. The enumerator had to carry a set of detailed instructions with him and in his mind, and had to make a spot judgment concerning whether or not a house was dilapidated. The Census schedule would have been much too long had it included the descriptive detail on which judgment was based.

American Public Health Association

The Committee on Hygiene of Housing of the American Public Health Association has developed the most detailed procedure for rating houses that is known to the writer.¹⁰ This committee has directed intensive surveys of city-slum areas at the behest of local authorities. Enumerators are intensively trained, are closely supervised, and are required to report in much detail. Obviously the procedures are inapplicable to less intensive and less expensive types of survey.

Objectives and Problems in Development of 1950 BAE Schedule

Even before passage of the Housing Act of 1949 the BAE had undertaken preliminary development of a technique that, it was hoped, could be used by workers who are not engineers in reporting structural level and condition of farmhouses. The aspect of national defense had not then become paramount. The broad objective was to inventory the characteristics of farm housing as a guide to public and private policy and action. Several subordinate objectives governed the design of the specific technique:

⁹ For a view expressed by Samuel J. Dennis supporting the Census approach see STANDARDS FOR MEASURING HOUSING NEEDS, Report of the Special Committee to Study Problems of Small Business, Senate Com. Print No. 8, 79th Cong., 2d Sess., p. 5. See also BEYER, GLEN H. HOUSING AND JOURNEY TO WORK. N. Y. (Cornell) Agr. Expt. Sta. Bul. 877, Aug. 1951, in which major and minor deficiencies were combined variously to provide a threefold classification, "good," "fair," and "poor."

¹⁰ AN APPRAISAL METHOD FOR MEASURING THE QUALITY OF HOUSING, Part I, 1945; Part II, Vols. A, B, and C, 1946, American Public Health Association.

1. To obtain an objective description of structural character and condition.

2. To obtain uniformity in reporting the description, yet to allow for differences in climatic conditions.

3. To design a schedule that could be used, after brief training, by a person without engineering or architectural training.

4. To classify houses by different grades according to structural level or condition, or both—this classification would not be made by field personnel but according to uniform procedures established for tabulating purposes.

5. To be able to relate these grades of structural level or condition to other variables such as composition and size of family, income, type of farm, and presence of modern household facilities.

6. To utilize the results for interpreting the 1950 Census of Population and Housing and Agriculture.

Development of 1950 Schedule

The problem in the development of the 1950 schedule, in both point of time and importance, proved to be that of clearly distinguishing "structural level" from "condition."

The second major problem was to design a system of reporting that a layman could use. Were a Nation-wide survey to be undertaken, it would necessarily be by the same people or the same type of people that make surveys of crop production, farm income, livestock numbers, or other strictly agricultural subjects. These enumerators are farmers, housewives, farmers' daughters, retired professional men, and others who work on call for a few weeks for any given survey. Rarely are these individuals trained in engineering or in architecture. Many have built or repaired farm buildings; many have not. Moreover, only a few hours of training on this specialized aspect of the housing survey could be given. Then too, not more than 10 or 15 minutes of the enumerator's time on each interview could be devoted to recording the structural character and condition of the house.

These considerations bespoke simplicity in design of the schedule. The solution lay in the development of a set of multiple-choice phrases that could be used to describe most individual farmhouses. The enumerator had only to choose the pertinent description for each element of structural character and condition. To save time, the description was limited to the exterior of the structure. Experience indicated that for the great bulk of detached frame dwellings the exterior view was sufficient.

The final schedule that was used in this survey of farmhouses and farm construction has space for reporting such items as number of rooms and facilities in each house, number of occupants of each house, amount of farm and family income, tenure of operator, and 1949 expenditures on construction. For the Northern States only, data also were taken on the use of building material. Finally, Part H of the schedule pertained to structural level and condition (Exhibit I). This paper is concerned with Part H.

Part H can be used for two principal purposes: (1) Descriptive classification of the characteristics of the various elements of a structure and (2) evaluative classification of houses by structural level and condition. Tabulation for the purposes of description will give a myriad of detail. Tabulation into evaluative classes will reduce the detail but will inject some value judgments.

Evaluative Classification

Houses as descriptively reported by field enumerators were coded and tabulated into three classes with respect to structural level and condition: "low," "intermediate," and "high." Structural level, if wanted, can be tabulated separately from condition, though in practice as an economy measure the two have been combined to provide a single rating. Whether or not a house with a "low" rating is considered "unsatisfactory" for human occupancy is a value judgment beyond the scope of this article.

PREMISE.—The premise for the particular classification used in this survey was that the most defective element of a structure, say the foundation, determined the rating of the entire structure. A serious deficiency caused a house to be rated low, whereas an intermediate deficiency, in the absence of greater defects, gave a house an intermediate rating. Deficiencies were considered individually. Since in the case of farmhouses major deficiencies usually can be observed, a cumulation of small deficiencies was not regarded as equivalent to a major deficiency. Moreover, even if not fully observed, other important deficiencies are commonly associated with any major deficiency. Hence, a rating of an element not only is important for that element but it may also serve as an index of associated conditions that may not be specifically reported.

In Exhibit I the letters at the right of each element of a structure show the highest rating obtain-

able by a structure having the characteristics described at the left. These ratings did not appear on the schedules that were used by the enumerators but were added in the final editing process. "H" stands for high, "I" for intermediate, and "L" for low. For example, if a foundation were so deficient as to be reported as "C, 1, a," then even though the other elements of the house were less deteriorated, the house as a whole would be given a final rating of low. The assignment of actual ratings for the purpose of tabulation also required decisions as to combinations of types of conditions all in the same element of individual houses. In general, the most defective aspect governed, unless it applied to only a small part of an element, say an old foundation under a small back room of an otherwise comparatively sound house. Many problems arise in attempting to obtain objective reporting. Much depends upon the details of the schedule. Comments that follow concern some of the detailed aspects of the schedule and their use.

Comments on Details of Reporting

"H-1" relates solely to the *type of construction*. "Structural type," "size," and "weather-tightness" are described. Many frame houses have a masonry veneer siding. If an enumerator could not be certain as to the type of construction, he was encouraged to ask the occupant whether the structure were of solid masonry or of veneer.

The size of a house has a bearing on its structural character. It is possible to live comfortably in very small space, yet there is some level below which any family life is scarcely adequate. Moreover, very small houses are usually deficient in other respects. Size is partly an index of structural level as well as a component. How small may a house be? A publication of the Department states that "where living, dining, and kitchen space are all provided in one room the space should be not less than 300 square feet."¹¹ Yet some smaller houses offer comfortable living quarters to small families. Size must be related to number of occupants; even a very large house may be overcrowded. But intensity of use is not an element of structural level or condition.

The schedule provides for a report on houses of three size classes: (1) Under 200 square feet; (2) 200-299 square feet; and (3) 300 or more square

¹¹ MINIMUM STANDARDS FOR FARM HOUSES. U. S. Dept. Agr. Misc. Pub. 475, 1941, p. 4.

feet. Two hundred square feet of floor space was arbitrarily assumed to be the level below which a house is of low structural level. Hence no other descriptive detail of Section H was taken for such houses. It was assumed arbitrarily that houses between 200 and 299 square feet, if otherwise satisfactory, were not higher than the intermediate level and that houses of 300 or more square feet, if otherwise satisfactory, were of high structural level.

Weather-tightness is an important element in adjusting housing standards to prevailing climate. People in Wyoming contend that a "house with a keyhole is not weather-tight." People in tropical climes even resist the presence of screens "because," they say, "it reduces the circulation of air." The instruction to enumerators in this survey was to use their personal knowledge of a locality in judging whether the houses under observation were sufficiently weather-tight to meet local climatic conditions. Whether the foundation was sufficiently tight to meet local conditions was covered in the H-2 part of the schedule. Because this part of the schedule required judgment, it is less objective than most aspects of the schedule.

The H-2 part of Section H covers the *foundation*. Here structural level as well as condition is involved. A house without a foundation was presumed to be of low structural level. A house with wooden posts was presumed to have a possibility of being of an intermediate level, though not of a high level. Houses with piers laid without mortar were considered as not more than intermediate but if mortar had been used it was possible for such foundations to be rated of high structural level. A continuous foundation without mortar was considered intermediate in character.

Whether posts or piers are "curtained" to keep out cold weather is important only where cold weather is common. If a house located in the North lacked curtains between piers, it was considered to be of not more than an intermediate structural level. In the South such a house would be entirely satisfactory in this respect.

The "condition of foundation" was set up in such a way that the enumerator needed to check only one descriptive phrase. In general, the descriptive phrases were arrayed from worst to best. The degree of settling was not used in the final rating because the enumerators were unable to report this characteristic with consistency.

The part H-3 on "*floor types*" proved unsatis-

factory in field use because the enumerator frequently could not see the character of the floor. This part of the schedule was not tabulated.

Part H-4 concerning "*outside walls*" classifies houses as having either "masonry" or "other" siding. Masonry siding may be found on many frame structures. Masonry siding was presumed to be of a high character unless it was not in good condition. "A-1" provides a choice of four possible descriptions of the condition of a masonry siding. Like the rating of the foundation, this part required judgment by the enumerator but it is believed that enumerators would rarely be more than one grade apart on such judgments.

The other siding, part "B," is divided into "1, Material" and "2, Condition." Tar-paper siding was considered to be of low structural level, but wood or composition siding could be of high level.

The condition of other siding is rather easily observed. Some enumerators, however, had a little difficulty in ascertaining whether as much as one-fourth of a side was "missing, rotten, loose, or badly warped." This difficulty was overcome with a little field training.

The condition of *windows* and *doors* is reported in H-5. In making the tabulations, this factor alone was not permitted to cause a rating of less than intermediate. Another part of the schedule, E-12, contains an inquiry as to whether every room has a window. Ideally, this element would be used in the rating but as an economy of editing time, it was not. Whether glass was actually in place did not influence the rating, because replacement could be easily made.

H-6, relative to *paint*, was introduced as a matter of information and to discover what relation, if any, existed between condition of paint and condition of the structure. It was not used to rate the structural level or condition of a structure.

The observations the enumerator made of the *roof*, H-7, are divided into three parts: "Material," "Condition of covering," and "Condition of roof structure." As to material, a tar-paper roof was rated as of low structural level. When other listed materials were used the roofs, if otherwise satisfactory, were rated of high structural level. The condition of the covering of the roof was reported as it appeared from a ground view. Enumerators had considerable difficulty in answering the question in accordance with uniform standards, so the condition of the roof covering did not enter the final

rating. As to the roof structure, a small sag of pole or roof area—not sufficient to displace surface materials—was allowed in a roof that was rated as high in condition, for many roofs have a slight sag in the ridge pole or the roof area and yet are essentially sound and may last many years. But if a sag was sufficient to displace surface materials, the roof was rated as being of low condition.

Chimneys, H-8, caused some difficulties in accuracy of reporting. The main consideration was the possibility of fire hazards. All hazardous conditions could not be observed from the exterior of a house—only the more glaring ones. A cracked, crumbling, seriously rusted or precariously leaning chimney was unsafe and in the final tabulations was given a low rating. The type of material and distance of a chimney opening from roof or siding were not used in making the final ratings.

Porches, H-9, were considered from the viewpoint of their support to the roof of the house proper and their effect on the safety of persons. If a roof of a porch were a continuation of the roof of the house proper, then it would be important whether the pillars and connecting supports were or were not so rotted, loose, or damaged as to endanger support. If this were the case, a porch alone gave a house an intermediate, though not a low, rating. If floor boards seriously endangered persons, this condition gave an intermediate, though not a low, rating to a house.

Steps, H-10, and *Other attachments*, H-11, were considered solely from the viewpoint of the safety of persons. Conditions constituting real hazards to life or limb were regarded as warranting the rating of a house in an intermediate category.

ENUMERATOR ONLY REPORTED.—The field *enumerator merely reported* what he saw. He did not make a final rating of a structure. Once the descriptions are in hand, the final ratings can be made according to various standards. The ratings made by BAE for the purpose of preparing a tabulation are based on consultation with several housing specialists. Standards of floor area used by BAE are often criticized. It is contended that houses should have more floor area than the 300 square feet required for high rating. But probably, two persons, with one child, can meet basic physiological needs and simple social requirements in such space.

The description of structural level and condition was *limited to the exterior* of structures. This saved much time and avoided the possibility of irritating

the occupants by entering the houses. As farmhouses are mostly detached frame structures, the results of outside observation were adequate. Obviously this kind of observation is not applicable to row houses or apartment houses. The system may tend to overrate houses that have masonry exteriors, but farmhouses are rarely of this type.

Training and Sampling

Before enumerators were sent out on the Housing Survey they were given a carefully prepared set of instructions, usually 3 days of training, and some field supervision. From 2 to 4 hours were devoted to the training for Part H, concerning structural character and condition. Enumerators were given field experience in reporting on a variety of types of detached houses. Usually some of the field training was given in a section of a city that offered examples of most common defects for which enumerators were instructed to watch.

The farms sampled in the survey were those found in a set of small areas chosen at random, or segments, drawn to represent all parts of the country. The survey covered about 16,000 farms in 382 primary sampling units (usually counties), drawn from a geographic type-of-farming area stratification. Data on new construction of houses are based on all farms surveyed, but data on housing characteristics were obtained on only a subsample of about 6,000 farms. Of 3,228 segments drawn for the survey, 5 could not be visited because of bad weather. In the remaining segments, interviews were obtained from 96 percent of the farms classified as eligible for the sample.

Quality Check, Suggested Improvements, Further Research

Several questions now suggest themselves. How successful from a statistical standpoint was the survey? What further improvements in technique are suggested? What additional research is proposed? The answer to the first question called for a "quality check."

Quality Check

Following the survey in the Southern States a check of the quality of enumerators' reports was made in 127 of the segments included in the survey. With respect to Part H concerning structural character and condition, the sample included only 88 houses. This number, in the opinion of statis-

TABLE 1.—Comparison of results of enumeration in February Survey with quality test on 88 cases

Item	Cases of agreement	Cases of disagreement	Cases of non-compensating differences
H-1 A Type of construction	82	6	6
B Size	86	2	0
C Weather-tightness	79	9	5
H-2 A&B Type of foundation	40	48	13
C Condition of foundation			
Including subject of settling	37	51	17
Excluding subject of settling	45	43	(1)
H-3 Floor types	77	11	11
H-4 Condition and type of outside walls			
Type and material	78	10	4
Condition	46	42	6
H-5 Windows and doors	49	39	12
H-6 Paint	59	29	5
H-7 A Roof—material	76	12	8
B Roof—condition of covering	42	46	15
C Roof—condition of structure	57	31	8
H-8 A Chimney—material	73	15	8
B Chimney—distance to opening	75	13	5
C Chimney—condition	52	36	7
H-9 Porches—type	54	34	8
Porches—condition	69	19	4
H-10 Steps	62	26	7
H-11 Other attachments	65	23	10
Average of groups of judgments	62	26	8

¹ Inapplicable.

ticians of the Bureau, is adequate for checking the extent to which the system of reporting can be used consistently.

Each enumerator and quality checker was required to make 21 groups of judgments concerning the structural character and condition of each of the 88 houses covered by this phase of the quality check. The quality checkers completely agreed with the enumerators' judgments on 62 cases or 70 percent of the individual decisions; they disagreed on 26 cases or 30 percent. However, most of the differences were compensating in character, so that the final results in the rating, say of 88 foundations or of 88 side walls, were at variance in only 9 percent of the cases. Not only this, but most differences in judgment were of small degree; only about 9 percent were disagreements of as much as 2 or more grades of structural character or condition.

The enumerator and checker could agree by the wrong standards, but the training and instructions tended to avoid this possibility.

There were more agreements in reporting on some items than on others (table 1). The extent of disagreement as to whether a foundation was settled was so much that the question of settling, except as it influenced other conditions, was not used in making the final ratings. Besides the question of settling, the ratings of foundations still were in considerable disagreement. Differences in judgment of 2 or more grades occurred in 12 of the 88 cases (table 2). In any future surveys, special attention must be given to training enumerators to describe deficiencies in the foundation. The extent of disagreement on this item should be reduced.

There was also marked disagreement as to the condition of the covering of a roof. Disagreement of 2 or more grades on the condition of roof covering was found in 16 of 88 cases—a figure so high as to bring into question the validity of the judgments on roof covering. Hence, the roof covering was not used in the preparation of the final rating in the 1950 survey.

Some Suggestions

The reporting of structural level and condition, though subject to faults, was accomplished with an acceptable degree of success in the 1950 survey. But the need for reporting does not end with one survey. Other surveys will follow in years to come. Certain lessons can be drawn from the recent experience:

1. Emphasis should be given to training enumerators to distinguish various degrees of deficiency in foundations and roof covering. Training slides and pictures carried by the enumerator, as used by the Census, might help.
2. Not less than 3 hours of field training should

TABLE 2.—Of 88 cases, the number with differences of two or more grades of condition

Items for which at least 4 grades were offered	Number of cases of large disagreement
Condition of foundation (settling excluded)	12
Condition of walls	7
Condition of roof covering	16
Condition of chimney	8
Average of 4 items	10
Items for which only 3 grades were offered	
Condition of windows and doors	3
Condition of roof structure	1
Average of all 6 items	8

be devoted to the reporting of structural level and condition.

3. The basis for classifying houses according to structural level and condition should be considered more fully and perhaps modified by architects and engineers from whom expert judgments may be expected.

4. If reference is made in future schedules to protective thimbles on metal chimneys provision should be made for a record of the kind of fuel used—solid, liquid, or gaseous. The last two types can be used safely under certain conditions that are unsuited to the use of solid fuels.

5. Height of floor above ground level and condition of paint may be omitted from the schedule.

6. Consideration might be given to omission of the reporting on porches, steps, and other attachments. Safety conditions are readily ascertained from these items, but they are less important than the basic parts of a structure.

7. For the benefit of enumerators, the following parts of the schedule require simplifications: Type of foundation, chimney, porches, and other attachments.

8. A question as to value of the farmhouse and the service buildings should be added, using the approach Hartmans made in the Michigan study.

Suggested Matching With Census Schedules

This BAE survey of 1950 covers too small a sample to provide more than national and regional data. Yet data for States and smaller areas are greatly needed. Action agencies like the Farmers Home Administration and the Extension Service require these data in order that they may plan their programs in accordance with the housing needs of the farm population. Marketing quotas of private industry must relate to area potentials.

The Censuses of Agriculture and of Population and Housing offer a wealth of useful detail. The matching on a sample basis of the three Census schedules obtained for each farm would throw light on important interrelationships between farms, houses, and people. Further information could be gleaned from the Census, and the BAE survey could be made more useful if the Census schedules also were matched with the BAE schedules. At least two purposes would be served:

1. A summary description in BAE terms of the farmhouses classified by the Census as dilapidated and not dilapidated would become available, and by extension the data might be applied to States and economic areas.

2. More detailed relationships between housing, population, and income would be made available than can be obtained from Census and BAE data taken separately. If extended to States or smaller

areas, these relationships would enable action agencies to plan programs in accordance with need.

Concerning Wartime Uses of Rating System

In the unhappy event that the civilian population must be moved away from industrial areas during an emergency, rural shelter will be greatly in demand. A quick method of reordering the quality of houses (and even of farm service buildings) might be needed. The BAE's schedule can be adapted to such use. Within a few hours enumerators could be trained to report on structural level and condition, as well as on facilities, intensity of existing uses, and other items. The BAE schedule is available whenever it may be needed, for either peacetime or emergency uses.

Exhibit I

H. STRUCTURAL CHARACTER, MATERIALS, AND STATE OF REPAIR

(If you can see, do not ask respondent)
(Highest rating attainable (H, I, L) for a given characteristic is as indicated to right of each item.)¹

H—1. Type of construction—living quarters only:

A. Structural type (check one):

- | | | |
|-------------------------------------|-----|---|
| 1. Frame (including masonry veneer) | () | H |
| 2. Solid masonry | () | H |
| 3. Log without framing | () | I |
| 4. Other _____ | () | |

Specify

- | | | |
|----------------|-----|---|
| 5. Do not know | () | K |
|----------------|-----|---|

B. Size (check one):

- | | | |
|--|-----|---|
| 1. Under 200 sq. ft. | () | L |
| (If under 200, skip to page 24 and enter time completed) | | |
| 2. 200—299 sq. ft. | () | I |
| 3. 300 or more sq. ft. | () | H |

C. Weather-tightness (check one):

- | | | |
|---|-----|---|
| 1. Adequately weather-tight against local climate | () | H |
| 2. Not adequately weather-tight against local climate | () | L |

¹ These ratings were not on the field schedule and were applied only in the editing and coding process.

- H—2. Foundation — (*only that under living quarters and porch pillars that support a continuation of the roof of the house proper.*)
- A. No foundation present (except possibly skids or logs laid horizontally on ground) () L
- B. Foundation by type:
1. Wooden posts:
 - a. No curtain — or else open type curtain between posts () I or L²
 - b. Weather-tight curtain — between posts () I
 2. Masonry piers:
 - a. Protection:
 - (1) No curtain — or else open type curtain between piers () H or I³
 - (2) Weather-tight curtain — between piers () H
 - b. Binding:
 - (1) Piers laid without mortar () L
 - (2) Piers laid with mortar () H
 3. Continuous foundation:
 - a. Laid without mortar () I
 - b. Laid with mortar () H
 4. Cannot see material of foundation () X

- H—3. Floor types — living quarters only (check one):
- A. Earth only ()
- B. Floor less than 6 inches from ground:
1. Concrete, tile, stone, or other masonry material ()
 2. Wood () Not used in Rating
 3. Cannot see type of material ()
- C. Floor 6 inches or more above

² Intermediate except that in the following States the rating will be low: New England, New York, New Jersey, Pennsylvania, Ohio, Michigan, Indiana, Illinois, Iowa, Nebraska, Wisconsin, Minnesota, North Dakota, South Dakota, Missouri, Kansas, Colorado, Wyoming, Montana, Idaho, Oregon, Washington.

³ High except that in States listed in footnote 2 the rating will be intermediate.

ground in three-fourths or more of area ()

- H—4. Outside walls (living quarters only):
- A. Masonry (brick, stone, stucco, and similar material) (If not masonry, skip to B):
1. Condition of masonry walls (check one):
 - a. Open cracks, pieces falling out, mortar crumbling, or wall bulging sufficiently to *endanger permanence* of structure () L
 - b. General or major deterioration evident — but *does not seem to endanger permanence* of structure () I
 - c. Check cracks, missing mortar, and other *minor faults* — require only minor repairs () H
 - d. No noticeable defects () H
 - B. Other siding (check one or more if present):
 1. *Material:*
 - a. Wood () H
 - b. Composition (asphalt shingles or roll asbestos — cement, etc.) () H
 - c. Tar paper (tears like any heavy paper) () L
 - d. Other material — Specify ()
 2. Condition of other siding (check one, if applicable):
 - a. Missing, rotten, loose, or badly warped siding including trim — covering *more than one-fourth of any side* () L
 - b. Missing, rotten, loose, or badly warped siding including trim — covering *less than one-fourth of any side* () I
 - c. Some deterioration — re-

- quires *only* maintenance repairs () H
- d. No noticeable defects () H

-
- H—5. Windows and doors—living quarters only—including sash, frames, and sills (check one):
- A. Any parts missing, dislodged, seriously rotted—enough to need replacement or major repairs (exclude glass and screen) () I
 - B. Some deterioration—require minor repairs such as puttying, caulking, replacing glass or screen, and fastening loose parts () H
 - C. No noticeable defects () H

-
- H—6. Paint—of siding, windows, and doors of house proper (check one):
- A. Never painted ()
 - B. Painted at some time Not used in Rating
 - 1. Seriously weathered, cracked, or blistered *over one-fourth or more of any side* ()
 - 2. Shows some weathering ()
 - 3. No noticeable defects ()

-
- C. Condition of foundation (check only one item under condition *selecting the worst aspect you see*. If more than one type of foundation is present, *rate inferior type only*)
- 1. Settling evident:
 - a. Breakage, looseness, or rot of *one-fourth or more* of foundation—enough to require replacement or resetting—to prevent further settling () L
 - b. Breakage, looseness, or rot of *less than one-fourth* of foundation—enough to require replacement, resetting, or

- major* repairs () I
- c. Some small check cracks, rot, or other *minor faults*—requiring only *minor* repairs, if any () H
- d. Cannot see condition of foundation () X
- 2. No evident settling:
 - a. Breakage, looseness, or rot of *one-fourth or more*—enough to require replacement or resetting—to prevent future settling () L
 - b. Breakage, looseness, or rot of *less than one-fourth*—enough to require replacement or resetting or major repairs—to prevent future settling () I
 - c. Some small check cracks, rot, or other *minor faults*—requiring only *minor repairs* () H
 - d. No noticeable defects () H
 - e. Cannot see condition of foundation () X

-
- H—7. Roof (*only that over living quarters and over porch pillars that support a continuation of the roof of the house proper*):
- A. Material (check one):
- 1. Tar paper () L
 - 2. Pour tar () H
 - 3. Metal () H
 - 4. Asphalt shingles or roll () H
 - 5. Wood shingles () H
 - 6. Tile or slate () H
 - 7. Other _____ ()

Specify

-
- B. Condition of covering (check one):
- 1. Holes, leaks, rotted or seriously loose roof material obvious from outside ()

2. Materials somewhat curled or loosened () Not used in Rating
3. Minor deterioration ()
4. No noticeable defects ()
5. Cannot see condition of roof covering ()

- C. Condition of roof structure (check one):
1. Ridge pole or roof area sags—so much—as to *force surface material out of place* () L
2. Some sag of pole area—*not sufficient to displace surface materials* () H
3. No noticeable defects () H
4. Cannot see condition of roof structure () X

H—8. Chimneys on house or its attachments (check A or one item each of B, C, D):

- A. No chimneys (If none—skip to H—9) ()
- B. Material:
1. Metal:
- (a) Without protective thimble () Not used in Rating
- (b) With protective thimble ()
2. Masonry ()
3. Other _____ ()
- Specify

- C. Distance of any opening or hole from roof or siding:
1. Under 18 inches ()
2. 18 inches or over () Not used in Rating

- D. Other conditions:
1. Masonry cracked or crumbling—seriously—or metal rusting—or leaning precariously () L
2. Pointing (putting in mortar) or other minor maintenance needed () H
3. No noticeable defects () H

H—9. Porches — not living quarters (check A or one item of B and one of C):

- A. No porches (If none, skip to H—10) () H
- B. Porch type: () H
1. Without roof.
2. With roof:
- a. Porch roof not continuation of roof of house proper () H
- b. Porch roof continuation of roof of house proper:
- (1) Pillars and connecting supports rotted, loose or damaged—so that support of roof of main structure is endangered () I
- (2) Pillars and connecting supports somewhat deteriorated — but roof support not endangered () H
- (3) No noticeable defects () H

- C. Porch condition (check one if applicable):
1. Hazardous to life or limb () I
2. No noticeable hazards () H

- H—10. Steps (outside of house and porches) (check one):
- A. No steps () H
- B. Steps that are:
1. Hazardous to life or limb () I
2. No noticeable hazards () H

- H—11. Other attachments (check one):
- A. No other attachments () H
- B. Other attachments:
1. Hazardous to life or limb () I
2. No noticeable hazard () H
- Time completed _____