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AGRICULTURAL ENGINEERING AND THE RURAL HOUSING PROBLEM

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The rural housing problem is of particular interest to agricultural engineers in connection with the following:

1. Functional Design

In addition to the customary duties of a house, such as protecting the inhabitants from extremes of heat and cold, rain and snow, the farm home also serves as the center of business for the farm. Here the records are kept, the business transactions are completed, and the farm operator's office is usually here. In addition the farm home takes on some of the aspects of a factory or processing plant. This is particularly true of the kitchen, where raw foods are taken from the garden or the poultry house and converted into edible products or are preserved for future consumption. Farm families spend more hours per day in their homes than do rural families, chiefly the evening hours. Therefore, every factor having to do with good lighting and comfort should be incorporated. A study of the duties of each member of the household should be made in order to determine traffic lanes, good location of doors, windows, and wall space, all from the standpoint of the business end of farming. This must be coordinated with similar needs from the standpoint of the living uses for the home.

2. Location

Being the business as well as the living center of the farm, it is imperative that the house be located in the best possible situation with regard to a number of factors:

(a) Drainage

From the standpoint of health and sanitation as well as appearance and

convenience, the house must be on land which will drain in all directions.

(b) Wind Direction

Due to the fact that many odors on the farm, particularly from the stables, are undesirable, it is necessary to locate the direction of the prevailing wind and place the house so that this wind will not carry objectionable odors.

(c) Relationship to Other Buildings

Recent work in "job simplification" indicates the need of study in reducing the number of unnecessary steps about the farm. On the other hand, simply grouping the farm buildings close to the house does not accomplish the desired results and is objectionable in many ways. The whole organization of a particular farm must be studied in order to locate the house in the best position in relation to existing or planned buildings.

(d) Relation to the Highway

With rural electrification, rural telephones, rural free delivery, laundry service, and many other factors using the highway, it is essential that the house be located in good relationship to it. It also involves the approach to the house, the walks and drives leading to and around the house and other farm buildings.

3. Materials of Construction

The customary building material for rural homes throughout the nation has been timber. This is particularly true of the Southeast because of the plentiful supply of lumber found almost everywhere. Recent changes have caused a shift in building materials. The increasing scarcity of good

lumber, the lack of an apprentice system of training of carpenters, and - perhaps more important - the development of other building materials of greatly improved quality and at lower prices all combine to make a study of the proper building materials very important. The use of masonry products such as cinder block, concrete block, hollow tile, brick, poured concrete; the use of synthetic wood such as masonite, plywood, and the development of very satisfactory wall boards of all types, together with the use of steel, plastic and the newer roofing materials, combine to complicate the problem of building material selection. The development of all types of insulation, of improved methods of electric wiring, new heating devices, and many other household fixtures all have complicated the problem of design and methods of construction. The development of better roofing materials and the greater ease of application also enters the picture. The shifting labor picture focuses attention on methods of construction requiring less individual labor to each home. The end result should be some type of prefabrication or sectional design. To date such prefabrication has not proved very satisfactory because of its inflexibility in design. Interchangeable units will probably be forthcoming as the result of postwar activity and the farm home should be given definite consideration in the design of these units. The breakdown of our former system of training carpenters, brick layers, et cetera, through a sort of apprenticeship has resulted in a scarcity of trained mechanics along these lines. Competitive businesses for men with mechanical inclinations, such as automotive repair shops, has reduced the number of good craftsmen of the type needed in home construction. The resulting work of the poorer craftsmen has been reflected in the quality of buildings constructed by them. It is also

stimulated by the standardization of some parts used in home construction. Still further work along this line is highly desirable, as it will both improve the quality of the completed home as well as reduce its cost. The use of continuous floor slabs for the lower priced home is coming into the picture.

4. There are a number of other miscellaneous details involving engineering practice about which the engineer should be consulted in carrying out a survey. The members of the Department of Agricultural Engineering will be glad to assist in any type of survey or research problem involving the rural homes of North Carolina.