Shortly after Hibben's Gardendale project and during the time that Dr. Patty was conducting his experiments at South Dakota State College, another Dakotan undertook the construction of what was at the time the largest rammed earth building in the country. Elbert Hubbell, a vocational instructor at the Turtle Mountain Indian School in Belcourt, North Dakota, realized that rammed earth could be adapted to suit the needs of the Indian reservation. Over a period of a few years, he and his workers built barns, Indian houses, and a school building measuring 108 feet long by 63 feet wide. In 1941, Hubbell was brought to the Washington office of the Bureau of Indian Affairs to write a report on his work in all forms of earth construction.

The success of Hibben's houses in Alabama and Hubbell's work in North Dakota, along with the continued research by the academic community, stimulated persistent inquiries and experimentation on the part of the gen-

eral public. Interest was strong enough, in fact, to motivate the United States Bureau of Standards to include various earthen materials in a major testing program, the "Building Materials and Structures Reports," then underway at laboratories in Washington, D.C. Assisting the scientists and engineers at the bureau, who admittedly knew little about earth-construction techniques, were Thomas Hibben, Elbert Hubbell, and T. A. H. Miller. Five types of earthen materials were tested: raw adobe block, asphalt-stabilized adobe block, raw rammed earth, cement-stabilized rammed earth, and cement-stabilized compressed block. Built in wall-sized panels, each of the materials was tested for strength, resistance to water erosion, and heat transfer properties. The results, published as *BMS 78*, confirm that all of the earthen-wall systems tested were "suitable" for the construction of ordinary one- or two-story houses. Compressive and shear tests demonstrated that monolithic cement-stabilized (soil cement) rammed earth walls were stronger than walls of either hollow-core concrete block or wood-frame construction.

HOME IMPROVEMENT PAMPHLETS # 1

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