

# House Building Industry: Educational Needs Assessment

Authors: Eric Burnett and Robert W. Buddenbohn, Jr.

Date: 1999

## Preface and acknowledgements

A primary goal of the Pennsylvania Housing Research Center (PHRC) is to provide continuing education, training and technology transfer to those involved in house building and residential remodeling in Pennsylvania. To develop a strategy to fulfill this goal, the PHRC needed to know:

- what the training and educational needs are,
- what training and educational opportunities are currently available, and
- what the gaps are between what is needed and what is available and accessible.

We were unable to find or obtain any report or document that contained enough reliable data or information to serve as a sound basis for planning. In order to pull together and document this fundamental information, the PHRC initiated a project to conduct a comprehensive assessment of the training and educational needs and interests of the house building and remodeling industry in Pennsylvania. The actual scope of the study was necessarily limited with regard to funding and resources. The intent was to find out as much as possible with the resources available.

Financial support was provided, both directly and indirectly, by:

- The Commonwealth of Pennsylvania, specifically the Pennsylvania Department of Community and Economic Development
- The Pennsylvania Builders Association
- The individuals, associations and corporations that are members of the PHRC
- The Hankin Endowment
- The Pennsylvania State University
- The Pennsylvania College of Technology

A fully descriptive title for this report would be *A Training and Education Needs Assessment for the House Building and Residential Remodeling Industries in Pennsylvania*. The report should be of interest to a wide and varied audience including, but not limited to: legislators; local, regional and national trade associations; unions representing house builders and remodelers; instructors, faculty and administrators of building-related programs in secondary, vocational-technical and post-secondary schools, colleges, universities; administrators and faculty of building-related, non-traditional and adult education programs; policy and decision makers in the Pennsylvania Departments of Education, Labor and Industry and Community and Economic Development; and all others with a responsibility for or a stake in housing, particularly in Pennsylvania. The report is aimed at concerned stakeholders.

This report addresses educational and training needs, and thus workforce development needs, for the house building and remodeling industry in tomorrow's Pennsylvania. Given the resources available and the

ambitious objective of the actual task, this report is not as complete, detailed or comprehensive as we would have liked it to be. Instead, the report should be seen as the intermediate step. A much larger study, preferably directed and funded by others closer to the education and labor establishments, is needed to complete this work. This PHRC report is intended to provoke discussion, constructive controversy, and some action. The authors believe that change is needed and that, collectively, the stakeholders have the ability to effect change.

This project was developed and this report was written by Eric Burnett and Robert W. Buddenbohn, Jr., Project Specialist, Technology Transfer Center, Pennsylvania College of Technology. Mr. Buddenbohn was responsible for the vast majority of the work in conducting the project, i.e., gathering the data, developing the questionnaires, conducting the surveys and interviews, and pulling the information together. The assistance of Mark Fortney, Michelle McMullen, and Angela Burnett in reviewing, editing, and producing the final version of the report is greatly appreciated.

Many individuals and organizations have contributed to this project, and their cooperation and assistance is gratefully acknowledged. Valuable assistance was freely given by many individuals, associations, unions, schools and departments of government; some of this assistance is acknowledged in the text or in the appendices. The breadth and extent of the input provided was such that it would be inappropriate to single out any particular contributors in this preface. We thank each of them for their time, thoughts, opinions and participation.

The PHRC is responsible for producing this report. We welcome questions or other feedback.

E. F. P. Burnett  
Director

## Executive Summary

House building and residential remodeling are important to the Pennsylvania economy, contributing more than \$4 billion annually and employing well in excess of 100,000 people. The education, training and competence of those employed in these industries are therefore important, not only to the people involved but also to each industry and to the residents of Pennsylvania.

A primary goal of the Pennsylvania Housing Research Center (PHRC) is to provide continuing education, training and technology transfer to those involved in house building and residential remodeling in Pennsylvania. To develop a strategy to fulfill this goal, the PHRC needed to know:

- what the training and educational needs are,
- what training and educational opportunities are currently available, and
- what the gaps are between what is needed and what is available and accessible.

In order to obtain this information, the PHRC commissioned a study that included the following tasks:

- a comprehensive search of the literature for relevant studies or assessments of the training and education needs for the house building and remodeling industries;
- a survey of house building and remodeling industry associations and related trade groups in

Pennsylvania;

- a survey of schools, educational institutions, and other providers of training and education in Pennsylvania;
- interviews with interested representatives of industry, education and government;
- the collection, analysis and synthesis of relevant data and statistical information; and
- the development of conclusions and recommendations for action on the part of the PHRC and others.

This report documents these tasks.

## Information review

As far as we know, no comparable study has been done in recent years. Much of the available material dates from the 1950s and 1960s, and therefore does not reflect current practices, production processes and technologies. Both the National Association of Home Builders (NAHB) and the Pennsylvania Builders Association (PBA) have conducted various surveys of their members to establish both their interest in and their perceived need for training and education. Nationally the NAHB and, in Pennsylvania, the PBA have therefore addressed aspects of the problem. Chapter 2 summarizes the relevant published information.

By means of questionnaires and personal interviews, 91 individuals were consulted in an attempt to assess the "current situation" in Pennsylvania. It was established that some schools and training providers had conducted various assessments (often informal) in their geographic area, largely in support of curriculum development.

Chapter 3 attempts to assess the current situation with regard to training and education needs or deficiencies.

Needs that have been identified by educators can be grouped into three categories:

- employability and interactive or communication skills
- non-job specific or general knowledge and skills
- industry-related knowledge and skills

Needs that have been identified by industry can be grouped into four categories:

- business management
- legal/legislative/regulatory
- construction technology
- employee training/workforce development

However, we have been unable to find any source or document that clearly spells out what these needs are. While there is some measurement of how many people think there is a need for, say, a specific trade, there is very little precision or quantification with regard to the nature, extent or value of these needs. In an attempt to provide some guidance, this report identifies at least eight stages or levels in the process of learning all

about the house building business, ranging from initial, focused awareness to the operation of a builder business. In Chapter 3 and Appendix DD, it is recommended that these eight stages of learning be used as a starting point for conducting a comprehensive assessment of the industry in Pennsylvania. The goal should be to develop a clearer and more precise idea of what knowledge and skills need to be developed, at each stage of proficiency within a trade, craft or occupation, in order for a person to function adequately in a particular position or job.

It is argued that if the needs are not identified for each job, trade, craft and occupation that collectively make up the industry, then it is not feasible to address—let alone resolve—the training and education needs for the industry as a whole. Furthermore, if there is no documented means of defining and assessing a job, how can one possibly evaluate what is currently being provided to students and workers in the industry?

An added concern is that most training and education efforts in building and remodeling appear to be highly fragmented. For instance, there is no single source that identifies all the training and education opportunities available. No single source or consortium of interested parties seems to be involved in coordinating or directing the training, education and the development of the industry workforce. It is therefore very difficult to assess whether what is currently being provided to students or to workers is adequate and suitable.

## **Training and education opportunities**

Chapter 4 is devoted to a detailed presentation of training and education opportunities for the house building and remodeling industry in Pennsylvania (as well as opportunities available outside the Commonwealth).

Special attention is given to on-the-job training opportunities such as formal and informal apprenticeship, cooperative education placement, job shadowing, mentoring, etc. It is clear that the industry values on-the-job training and, if it were possible (which it is not), would prefer to revert to the “good old days” when, apparently, almost everyone was trained on the job by working under the careful eye and tutelage of a more seasoned worker.

It needs to be emphasized that the structure of the industry has changed dramatically in the last 20 years. One important change has been the development of the small general builder/ developer/contractor and the proliferation of specialist sub-contractors. Another is the impact and likely future influence of modular and manufactured housing and an increasing dependence on factory-built components.

Chapter 4 is a logical starting point for developing a comprehensive directory of training and education opportunities in Pennsylvania for the house building and remodeling industries, as called for in Chapter 6.

## **Market demand and labor supply**

Chapter 5 seeks to analyze market demand and labor supply. Employment and industry growth projections in Pennsylvania seem to be available only through the Pennsylvania Department of Labor and Industry. In documents reviewed for this report, we found that the data was based on two different statistical models. The result was that employment projections were often inconsistent and sometimes contradictory.

The data from the Department of Labor and Industry is less helpful than it might be. Self-employment data for the construction and building-related industries is excluded, and the data for residential and non-residential construction are not separated. Much better and more extensive data on employment and projected employment in the building and remodeling industries is needed. Self-employment data should be generated, and some means of separating residential from non-residential construction data needs to be developed.

On the basis of the available data, an attempt is made to estimate the number and nature of new and replacement jobs that will be needed, annually, for the new house building and remodeling industries through to 2010.

The second half of the Chapter 5 deals with labor supply. Statistics are presented for building-related enrollments in secondary, AVTS, post-secondary trade and technical schools, community colleges, and non-traditional training programs.

A comparison of current enrollments to projections of future market demand led us to a **very tentative** conclusion that adequate numbers of workers appear to be in the training loop for most building-related trades and occupations. However, several occupations appear to be in short supply and one, design and layout, seems to have an excess of trained graduates compared to projected demand. Given the unsatisfactory quality of available statistical data for both market demand and labor supply, any quantitative conclusion can only be very preliminary.

## Conclusions and recommendations

Most of Chapter 6 is a summary response to the several basic and compelling questions that this project has attempted to answer, namely:

- Is there a need?
- Who has a need?
- What is needed, and when should this need be met?
- How are these needs being met?
- What should be done?

Two tables have been developed to identify and list the variety of competencies that must be developed by persons employed in different segments of the industry. These tables also show how leadership and administrative capabilities are needed across the spectrum of the industry. Furthermore, training and education needs are both continuous and progressive. Learning does not end abruptly at one stage of development and begin from scratch at the beginning of the next stage. Education/training is also a mix of both formal and informal learning opportunities (course of study, apprenticeship, on-the-job, mentoring, etc.) and takes place in a variety of settings, both on and off the job.

In order to make sense of a topic as large and diffuse as education for the house building industry, synthesis within the appropriate context is essential. In Chapter 6 a compact means of representing and qualifying the overall topic is developed. Using the concept (or analogy) of a “training and education vehicle,” we identify, define and qualify most of the factors that influence the “motion” of this “vehicle,” and thus the environment for training and education in the house building industry. Each of the factors is quantitatively represented as either a “push” or a “pull” force whose influence is either “conductive” or “non-conductive” to fostering education and training. This approach makes it possible to depict the overall situation in a single, four-quadrant graph.

The remainder of Chapter 6 addresses the question of what should be done. Probably the simplest single answer to the question is to find or provide the proper driver for the “training and education vehicle”

described previously. It follows that all concerned stakeholders—those who stand to gain or lose the most if nothing is done—should collaborate in establishing a consortium to address workforce development and the training and education needs of the industry. Broad, meaningful change in the recruitment, development and retention of a capable workforce will occur only if a concerted, long term, industry-wide commitment is made.

The success of most, if not all, the other initiatives and recommendations put forward in this report depends on the development of a meaningful strategic plan. Developing such a plan should be one of the first initiatives of the consortium.

A number of appendices are provided to document the data generated during this project, to record some of the work undertaken in the preparation of this report, and to provide some guidance to the consortium in its future efforts.