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John A. Kerber

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DIMENSIONS OF CUSTOMER SATISFACTION IN THE HOMEBUILDING INDUSTRY

By

John A. Kerber

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ABSTRACT

DIMENSIONS OF CUSTOMER SATISFACTION IN THE HOMEBUILDING INDUSTRY

By

John A. Kerber

The objective of this study was to collect and interpret data on the areas influencing the customer satisfaction of new home purchasers. Specifically, the research defined and explored the relationships affecting the concept of customer satisfaction with single-family housing for occupancy. A survey of 224 recent home-buyers in the Lansing, Michigan area was conducted. Data generated through the survey was analyzed descriptively as well as subjected to path analysis. The study found congruence of home-buyer expectations to be positively correlated with their satisfaction with the dimensions of design quality, house quality and service quality. The study also determined all three dimensions were significant and important in predicting home-buyer satisfaction, with service quality having the greatest overall impact.

To my Wife and Family

ACKNOWLEDGEMENTS

I would like to express my gratitude and appreciation to my advisor, Prof. Tim Mrozowski, for his constant support and guidance in completing this thesis.

My sincere thanks to the advisory committee, Dr. Dennis Welch for his continuous encouragement and cooperation; and Dr. Forrest Carter for his invaluable cooperation and guidance in the field of marketing.

The help and suggestions of the three builders reviewing the study was greatly appreciated.

I would also like to thank Dr. Thomas Burkhardt for believing in me.

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CHAPTER 1
INTRODUCTION

1.1 Overview

The objective of this study was to collect and interpret data on the dimensions influencing the customer satisfaction of new home-buyers and the affect of expectation congruence on this influence. Specifically, the research defined and explored the inter-relationships of home-buyer satisfaction as a model with three dimensions: satisfaction with house (e.g. building material quality), satisfaction with design (e.g. layout), and satisfaction with service (e.g. sales activities). A survey of 224 recent home-buyers in the Lansing, Michigan area was conducted. Data collected through the survey was analyzed descriptively, correlated and subjected to path analysis. Proof of concept was achieved through the review and comments of the study's findings, conclusions and recommendations by three homebuilders with experience in the research market surveyed.

1.2 Introduction

Averaging over 1,000,000 single-family housing starts a year, the 1,333,000 new homes begun in 1999 represented the peak of single-family housing construction since 1978 (NAHB 2000). The climate of the U.S. home building industry remains highly competitive despite the current slowing of the

economy (NAHB 2000). The relative ease of entry into the residential market has always made competition a critical concern with housing contractors (Hunt 1997). Further complicating matters, new home-buyers for whom builders are competing today are more informed and discerning than previous buyers. Consequently, some builders are realizing their business methods focusing on the home-buyer are outdated. As a result, some builders have recently shown an increased interest in gaining input from their consumer group, the home-buyer.

Customer satisfaction, while in the past considered arbitrary and expendable, is crucial to marketing successfully today (Simon 1997). Historically, the average builder's interpretation of any repairs or modifications required after the closing was that they were the responsibility of the home-owner. They viewed their services as completed when the housing product was delivered to the home-buyer. In contrast, J.D. Power & Assoc. began ranking homebuilders and reporting their customer satisfaction ratings to the world in the late 1990s.

An example of the value or marketability of customer satisfaction to a homebuilder is referral sales, or when a previous home-buyer recommends a particular builder to a friend or relative. A focus on customer satisfaction has been found to be one way to increase the number of referrals from previous customers (Builder May 1997). As the number of new home construction starts tends to decline with the economy, builders will need to differentiate themselves from the competition in a positive way to prosper and survive.

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During the 1990s, industries and individual companies worldwide faced a similar situation. The threat of increased competition, slower growth rates and price pressures induced many organizations to focus on customer satisfaction (Johnson and Fornell 1991). A common working definition of customer satisfaction is the consumer's feeling of pleasure or disappointment resulting from comparing a product's perceived outcome (or performance) in relation to the customer's expectations (Kotler 1997). Bridging the gap between a customer's expectations and perception of value delivered is important to both the home-buyer and the homebuilder. When the home-buyer perceives the housing product delivered correlates with or exceeds their expectations, the result tends to yield feelings of satisfaction or pleasure. A builder perceived as consistently superior in delivering such a product gains a competitive edge over their competition, providing a solid foundation for economic returns.

Customer satisfaction "is one of the most widely studied and embraced constructs in marketing. Over the past two decades more than 15,000 academic and trade articles have been published on the topic" (Peterson 1992). However, research into new home-buyer satisfaction is limited.

One of the studies specific to the homebuilding industry is Torbica's 1997 study of builder processes that influence customer satisfaction of home-buyers in Florida. Precisely, Torbica's research created an instrument (HOMBSAT) for measuring home-buyer satisfaction and employed it to examine the effects of Total Quality Management (TQM) principles on home-buyer satisfaction. Torbica's "total offering" model was founded on the theory that "home-buyer

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satisfaction may be conceived of in terms of three dimensions: satisfaction with the house design, house unit and service received" (Torbica 1997).

Tobica defined house design in aspects of general floor plan layout; number, sizes and layout of rooms; natural light illumination; etc. Operation of the individual components, quality of building materials, and the performance level of the systems incorporated in the home defined Torbica's house unit. Service was described in Torbica's work as all services provided to the home-buyer, from the initial sales meeting or point of contact (where customer expectations are established) throughout the period of construction and the subsequent fulfillment of the warranty period.

1.3 Problem Statement

Some residential builders tend to lag behind other industries in understanding what drives the satisfaction of their customers. A review of anecdotal industry articles revealed that builders seem to "know" consumers are looking for value through quality. Yet, individual organizations within the industry focus on a broad range of customer centered programs. For example, one homebuilder has implemented a program to monitor contact with the consumer before, during and after the sale (Builder Dec. 1996). A similar approach concentrates on making the home buying process a pleasant, memorable experience (Builder May 1996). Other homebuilders focus on educating the home-buyer on building materials, methods, and processes (Builder February 1998). Another initiative found that employee training was an effective and

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inexpensive tool for a builder to improve customer satisfaction (Builder March 1998). And lastly, information gained from customer focus groups enabled one builder to focus on minimizing costs through eliminating items that do not increase customer perceived value (Builder January 1997).

However, some builders do not possess the capability to identify the areas of design, construction, delivery, or service processes requiring the focus of their limited resources to yield the maximum positive impact on customer perceived value possible. This could be connected to a number of things. For one, some "builders shy away from quality management, thinking it is only practical for very large companies with dozens of employees or for manufacturers of highly technical, precision products, such as computer parts or satellite components" (Smith & Young 1990). Another misconception leading to the delayed reaction of contractors in the homebuilding industry is the belief that focusing on quality will result in loss of productivity. Builders believe this extra time will increase the cost of operations passed on to the customer and negatively affect the builder's ability to compete.

A survey in the early 1990s showed that the majority of prospective home-buyers believed the most important criterion in selecting a builder is quality (Lewis 1993). It is important for builders to realize the aspects of the experience home-buyers value and how the builder's performance is perceived regarding these identified areas. As in any other industry, residential builders must understand and successfully meet their customer's needs in order to survive.

This study was limited to an explanation of consumer-defined relationships that directly influence new home-buyer satisfaction.

1.4 Objectives

The primary goal of this study was to 1) examine the satisfaction dimensions of home design, home materials/features, and service identified by Torbica as influencing overall home-buyer satisfaction and their relative importance in the local new home market. Specifically, the research studied the inter-relationships of expectation congruence and the dimensions of customer satisfaction with newly constructed single-family housing for occupancy in Michigan's Ingham and Eaton Counties. 2) Proof of concept was achieved through the review and comment of three industry practitioners representing homebuilding companies in the research market.

1.5 Results and Deliverables

This study collected data and identified relationships in the new home design, construction, delivery and service areas of overall home-buyer satisfaction. This was accomplished through examination of a database comprised of 609 Lansing area single-family homes built within the last three years. The researcher identified dimensions highly correlated to increasing overall customer satisfaction, customer retention, customer referrals and decreased customer complaints. A path-analytic model was constructed to

determine the relative importance of these dimensions on the home-buyer's overall level of customer satisfaction.

1.6 Domain

This research identifies and ranks the dimensions affecting new home-buyer satisfaction with the intent of benefiting both new home purchasers and residential builders. Specifically, the output of this study has the potential to further assist homebuilders in delivering a product reflective of home-buyer expectations. New home purchasers would benefit in the form of increased home-buyer satisfaction at the industry level as more homebuilders learn to deliver products possessing characteristics identified as positively affecting new home-buyer satisfaction. Builders perceived as proficient in delivering a superior product will benefit as they stand to gain an edge over the competition.

1.7 Organization of Thesis

This introductory chapter delineates the research problem addressed in this study. Chapter 2 addresses the literature review as well as the theoretical background and definitions of an increasingly important business concept, customer satisfaction. The methodology used in this study is discussed in Chapter 3. Analysis of the data is conducted in Chapter 4. Chapter 5 details the research findings and conclusions, contributions, and recommendations for future work.

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CHAPTER 2
LITERATURE REVIEW

This chapter describes existing research and literature in the areas of customer, housing and new home-buyer satisfaction.

2.1 Customer Satisfaction

2.1.1 Satisfaction Models – Marketing Literature

Customer satisfaction has been defined generally in the literature with many subtle nuances. Most models of the satisfaction formation process assert that feelings of satisfaction arise from some form of comparison of consumers' perceptions of a product's performance to their expectations. Such is the "disconfirmation of expectations" model, asserting feelings of satisfaction arise when a consumer compares expectations of a product's performance to perceptions of the performance actually received (e.g., Oliver 1980). A positive disconfirmation occurs when consumer expectations are exceeded by the perceived performance, leading to satisfaction. Likewise, a consumer is dissatisfied (a negative disconfirmation) when consumer expectations do not live up to their perception of the actual performance received.

Other researchers extend this premise. According to the "satisfaction formation model" presented in Figure 2.1, feelings of satisfaction arise when consumers compare both expectations and desires to their perceptions of performance of a product or a service (Spreng, R. A., MacKenzie, S. B., and

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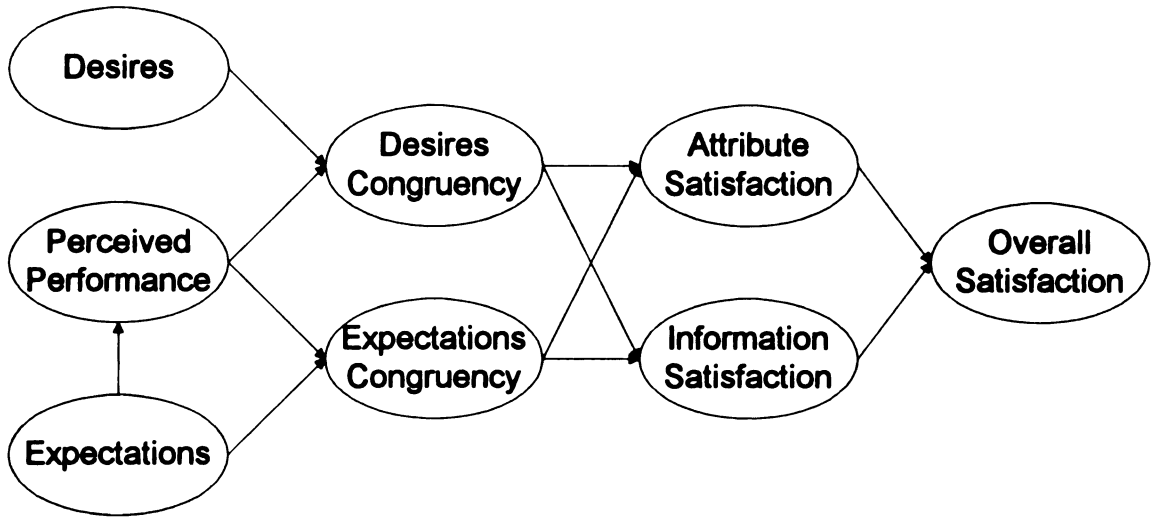

Figure 2.1 Model of the Satisfaction Formation Process (Source: Spreng, MacKenzie and Olshavsk July 1996)

Olshavsk, R. W. July 1996). This model focuses on not only the comparison process producing feelings of satisfaction with the product or service, but also on the information (e.g., advertising, model home tour, sales person communication, etc.) on which the consumers expectations were based. In the Spreng et al. model, both types of satisfaction are seen as important contributors to the overall feelings of satisfaction for the consumer.

2.1.2 Expectations

Some researchers contend that expectations are the result of an estimate of the probability of an event occurring and an evaluation of the goodness or badness of the event (e.g. Oliver 1981).

> "Expectations have two components: a probability of occurrence (e.g., the likelihood a clerk will be available to wait on customers) and an evaluation of the occurrence (e.g., the degree to which the clerk's attention is desirable or undesirable, good or bad, etc.). Both are necessary because it is not at all clear that some attributes (clerks, in

> our example) are desired by all shoppers." (Oliver 1981, p. 33)

Other researchers suggest that this evaluative type of definition complicates the expectation construct with the use of several possible standards of comparison (e.g., industry norms, desires) (Spreng et al. July 1996). For example, even when two customers share identical estimates of the likelihood a realtor will be available to wait on them, they may rate this type of evaluative expectations measure differently. One customer might want a realtor to wait on them or think realtors should wait on customers as they enter a model home. The other customer might not want a realtor to wait on them until they request the realtor's assistance. With likelihood estimates held constant, rating differences could be the result of what each customer desires or how they think the realtor should act.

To avoid biased estimates of the impact of expectations on satisfaction, some researchers have defined expectations as simply what a person believes is likely to happen in the future, or predictive expectations (Spreng et al. July 1996). Agreeing with this view, the current study defines expectations as the beliefs of a product's attributes or performance at some future point in time.

2.1.3 Desires

To date, "a consensus about the conceptual definition of the desires construct has yet to emerge" (Spreng et al. July 1996 p. 16). This is due in part to the various levels of abstraction in which desires can be conceptualized. The literature suggests three primary levels of abstraction: 1) abstract end states, 2) intermediate benefits, and 3) the means of achieving those benefits. Past

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research has presented these higher- and lower-level desires as connected in a means-end chain (Gutman 1982). According to Gutman's model, the higher-level values and desires stimulate a desire for products that provide certain benefits. In turn, these benefits define the attributes desired in the product. For example, a woman might have as an abstract value the desire to protect her family from harm; this may manifest itself through a desire to buy products that provide the benefit of security. The desired benefit is then specified in terms of certain attributes, such as a home alarm system. Thus her desires can be abstract end states (the desire to be protected), intermediate benefits (products that provide security), or the concrete means of achieving those benefits (home alarm system).

Spreng et al. stated "it is more useful to define *desires* concretely as the level of attributes and benefits that a consumer believes will lead to or are associated with higher-level values"(Spreng et al. July 1996 p. 17). It is at this level that desires can be directly compared to perceived performance. Consumers determine the extent to which a product contributes to their desired end-states by examining the capability to which the product produces consequences, outcomes, attributes or benefits believed necessary to attain their higher-level desires.

2.1.4 Attributes

Lancaster introduced the theoretical concept of attributes as the "properties or characteristics of the goods from which utility is

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derived" (1966 p.133). Attributes can be any variable, property, characteristic, factor, or criteria used to describe a consumer good. Examples of attributes that may affect the decisions of home-buyers are aesthetic properties of exterior elevations, price, location, and security. It is the sum of a combination of multiple attributes that consumers use to process decisions.

The attributes evoked by consumers are assumed to be related to the decision maker's knowledge and experience with a good and the characteristics required of his specific situation (Green and Wind 1973). Attributes of a home may be structural in nature – its color, lot size, or location. They may be functional (what the house can be used for) – for example a home-office, entertaining large groups, or a vacation home. Attributes may be psychological – how the home's characteristics agree with one's self concept. They may be social – what people think of this type of house or what kinds of people own similar homes. They may be economic – how much does it cost initially, anticipated resale value or cost of maintenance.

The researcher considered the specificity of attributes possible to study in a new home. For example, satisfaction with the design of the home could further divide into the attributes of spatial relationship, fit to environment, occupant flow, shape and size of rooms. The home-buyer's satisfaction level with each of these individual attributes would contribute to the home-buyer's satisfaction with the design of the home. Satisfaction with other "dimensions" or clusters of related attributes (similar to the design of the home) in turn determine overall home-buyer satisfaction. The specification of the level of attribute detail is a matter of

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judgment (Green and Wind 1973). For the purposes of the current study, the researcher elected to stop the decomposition of home-buyer satisfaction at the dimension level, leaving future works to study the attributes comprising the dimensions of home-buyer satisfaction. The dimensions of home-buyer satisfaction will be defined and discussed in greater detail later in the chapter.

2.1.5 Overall Satisfaction

Overall or customer satisfaction has been defined as an affective state that is the emotional response to a product or services experience (Oliver 1980). Kotler defined customer satisfaction as the comparison of the "offer's performance in relation to the buyer's expectations"(Kotler 1997 p. 40). Per the model presented previously in Figure 2.1, Spreng et al. believe overall satisfaction "is influenced by a consumer's satisfaction with the product itself (attribute satisfaction) and with the information used in choosing the product (information satisfaction)" (July 1996 p. 17).

While the author concedes customer satisfaction is the sum of the overall experience, for the purposes of this study, the research will focus on the dimensions or categories of attribute(s) contributing to the overall satisfaction of a new home-buyer.

2.2 Housing Satisfaction Literature

Satisfaction with housing has been studied in terms of overall satisfaction and in terms of satisfaction with specific aspects of housing, such as quality of

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the components incorporated into the structure, the home's size or the surrounding neighborhood features. Overall housing satisfaction has been correlated with the satisfaction of particular features or attributes (Hanna and Lindamood, 1981). It was also found that general satisfaction with housing could be expressed, while specific attributes of housing are not satisfactory (Brink and Johnson 1979; Kaynak 1985). Other researchers found overall housing satisfaction to be the result of a high correlation between satisfaction with the home and the surrounding neighborhood (Fried 1982; Galster and Hesser 1981).

Parrott researched the factors affecting satisfaction before and after the home remodeling process (1985). Housing satisfaction has been shown to change over time, with the highest levels of satisfaction expressed directly after a housing change (Brink and Johnson 1979). Research has also suggested that levels of satisfaction move from the extreme ends of measurement to a point of equilibrium, with high levels of satisfaction expected to decline and low levels expected to increase over time as individuals become desensitized to dissatisfactions (Fried 1982).

2.3 New Home-Buyer Satisfaction Literature

Studies have researched the role of Total Quality Management (TQM) in new home-buyer customer satisfaction (Torbica 1997). Figure 2.2 presents the basic model of Torbica's research depicting the relationships of a builder's TQM practice, product and service quality, and home-buyer satisfaction. The premise of Torbica's research was quality practices implemented by the builder had a

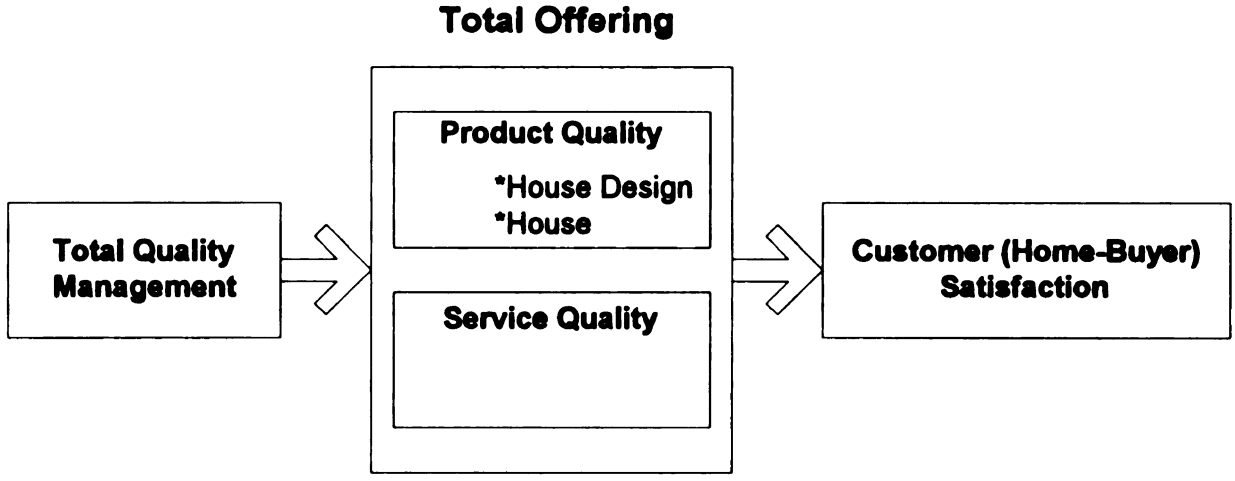

Figure 2.2 Customer (Home-Buyer) Satisfaction Model (Source: Torbica 1997 p. 40)

level of influence on the dimensions affecting home-buyer satisfaction. According to this model, satisfaction with the product and service quality have a direct relationship on the overall home-buyer satisfaction level.

Torbica's home-buyer satisfaction model assumed that elements associated with home-buyer satisfaction expand beyond the physical structure of the house. This assumption is supported by other studies which have proposed that satisfaction is a composite of both the product itself and the experience surrounding the acquisition of the product (Hempel 1976). When purchasing a home, the "total offering" included in the sale represents not only the home's physical materials of concrete, bricks and wood - but also the before, during and after construction service quality from the homebuilder. This theory is in keeping with research that suggests market offerings are rarely all product or all service, but a blend of the two (Brown and Fern 1981).

Torbica's model decomposes the product component of home-buyer satisfaction into two areas: satisfaction with design and the house itself (Torbica 1997). A total of three distinct dimensions of a homebuilder's "total offering" are represented in Figure 2-2: house design (e.g. layout), house (e.g. building material quality) and service (e.g. sales activities). The relative importance of these dimensions to overall home-buyer satisfaction constitutes the focus of the current study.

In conducting his research, Torbica surveyed both homebuilders and new home-buyers. Randomly selected from a list of the 50 largest homebuilders in Florida, 16 companies agreed to provide Torbica with complete lists of customers who purchased and moved into their single-detached houses during August and September 1995. As a result, 545 home-buyer mail surveys were distributed, of which 245 questionnaires were completed and returned.

The 10-page questionnaire used in Torbica's survey of new home-buyers was organized into four parts: Part One addressed the home purchase process; Part Two addressed the house unit; Part Three was Torbica's 83-question HOMBSAT instrument; and Part Four consisted of demographic information. A copy of Torbica's questionnaire sent to the Florida home-buyers is provided in Appendix A.

In addition to furnishing lists of recent new home-buyers, each of the 16 companies participating in Torbica's study provided five employees to evaluate the current level of TQM practice in their respective business unit. The employees were surveyed on questions related to eight critical TQM factors

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Torbica identified in reviewing the relevant literature. The eight critical factors were as follows (Torbica 1997 pp. 54 & 55):

1. The role of divisional top management and quality policy.
2. The role of the quality department.
3. Quality-related training.
4. Product/service design.
5. Supplier quality management.
6. Process management and operating procedures.
7. Quality data and reporting.
8. Employee relations.

Through statistical analysis of home-buyer data collected, Torbica found all three dimensions (house design [e.g. layout], house [e.g. building material quality] and service [e.g. sales activities]) were significant predictors of new home-buyer satisfaction. Specifically, service "emerged as the most important determinant of home-buyer overall satisfaction" (Torbica 1997 p. 114). Torbica also found that service was "the area in which homebuilders demonstrate the poorest performance" in studying the positive relationship between implementation of TQM practices and home-buyer satisfaction (Torbica 1997 p. 115).

The results of Torbica's empirical study confirmed his hypothesis that implementation of TQM practices was positively associated with home-buyer satisfaction. All of the critical TQM factors, except "Quality related training", demonstrated potential for predicting home-buyer satisfaction. "Supplier quality management" emerged as the most influential critical factor in determining satisfaction with the three dimensions (house design [e.g. layout], house [e.g. building material quality] and service [e.g. sales activities]). Torbica found the most practiced factors to be quality-conscious product/service design,

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management quality leadership, and effective process management and operating procedures (Torbica 1997 p. 116).

2.4 Summary

In this chapter, the marketing concepts of customer, housing and new home-buyer satisfaction were introduced, defined and analyzed. Various models were presented to illustrate the focus of the current study; specifically the "disconfirmation of expectations" model, "satisfaction formation model", and Torbica's "total offering" model. The next chapter will outline the methodology used in this study.

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CHAPTER 3
RESEARCH METHODOLOGY

3.1 Introduction

This was an exploratory study focused on customer satisfaction in new home construction. The intent of the study was to identify and examine the principal dimensions influencing the customer's perception of the home buying experience. The primary activities undertaken in this study were establishing the theoretical foundation, determining the research design, selecting the sample population, developing the research instrument, administering the survey, and conducting data analysis. Figure 3.1 is a flow chart depicting these steps.

3.2 Theory Foundation

The theoretical foundation for the research was established through a literature review of relevant research. The scope of the review included identifying, obtaining and reviewing research pertaining to the areas of customer satisfaction, service quality, consumer preference, customer service and survey validity. Priority was given to the more recent studies under the assumption that these studies have benefited and built upon earlier works.

3.2.1 Home-Buyer Satisfaction Model

In the presentation of literature in Chapter 2, Figures 2.1 and 2.2 displayed models of the "satisfaction formation process" (Spreng et al. July 1996) and

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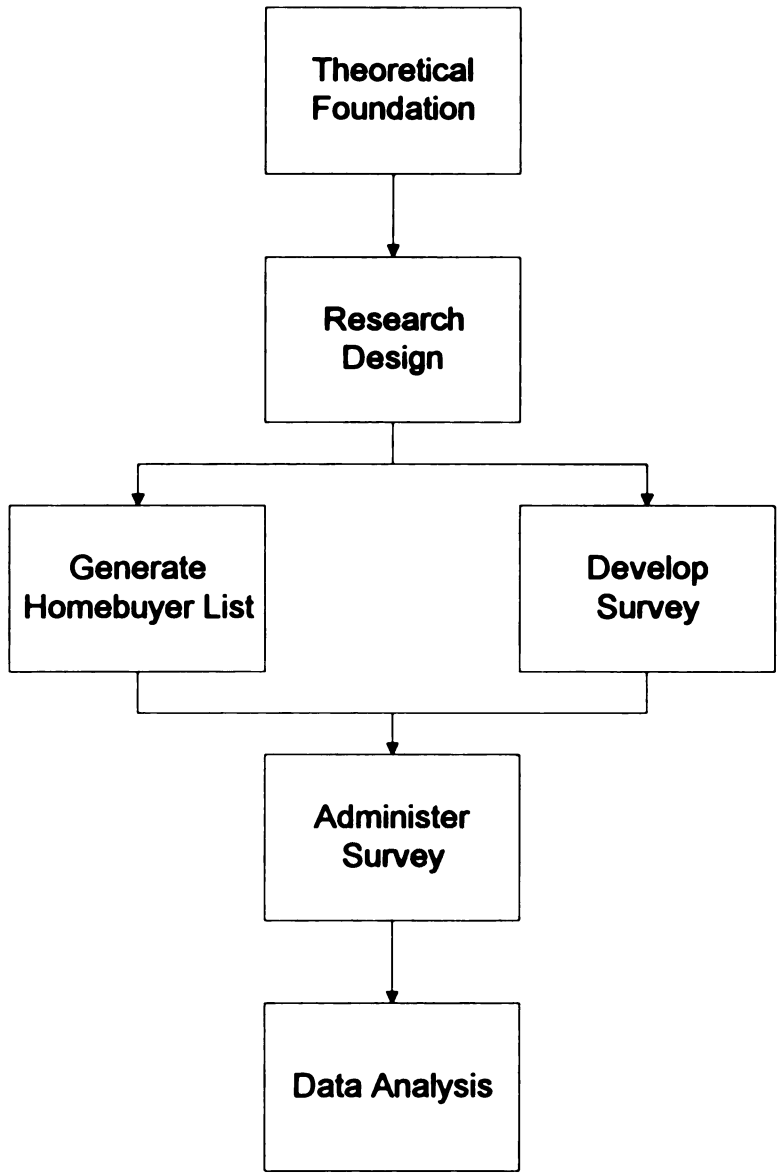

Figure 3.1 Research Methodology Flow Chart

Torbica's "total offering"(1997). The researcher combines certain aspects of these two models to develop the Home-buyer Satisfaction Model depicted in Figure 3.2, specifically the three dimensions (Torbica) and expectations congruency (Spreng et. al)

Similar to Torbica's model, the satisfaction model used in the present study implies "relevant elements of home-buyer satisfaction extend beyond the

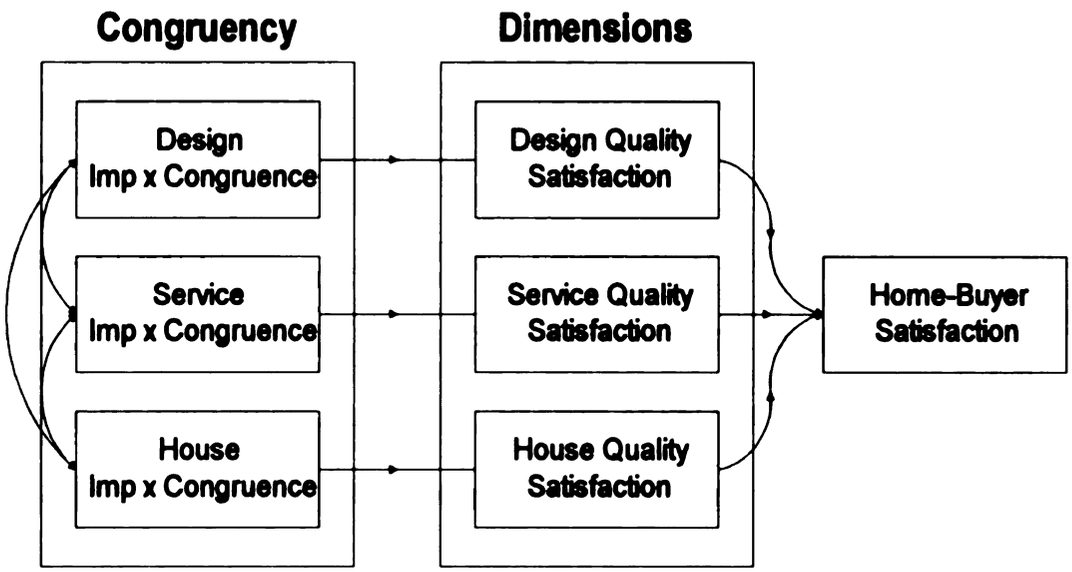

Figure 3.2 Home-Buyer Satisfaction Model

house itself" (Torbica 1997 p. 40). The researcher assumed home-buyer satisfaction to be dependent on satisfaction with the dimensions identified by Torbica: house design quality (e.g. layout), house quality (e.g. building material quality) and service quality (e.g. sales activities).

However, Torbica's area of focus was notably different from the current study. To illustrate, Torbica elected to decompose the three dimensions of satisfaction to the attribute level. For the purposes of the current study, the researcher decomposed home-buyer satisfaction to the dimension level. Torbica also studied the influence of quality practices implemented by builders on home-buyer satisfaction. In contrast, the present study incorporated aspects of Spreng et al.'s model by including the importance and congruence of home-buyer expectations. Specifically, the current study analyzed the correlation between

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the home-buyer's expectation congruency and their relative importance on the three dimensions of satisfaction.

3.3 Research Design

Research design and data collection methods for the study were determined following the literature review. For this study the researcher used survey as the research design, with a questionnaire utilized as a data collection method. The questionnaire method was selected because of its directness and ease of administration and interpretation. Advantages to using the mailed survey approach were that it: is relatively inexpensive; could be accomplished by the researcher alone; allowed access to samples that may have been difficult to reach; and permitted respondents "sufficient time to give thoughtful answers to the questions asked" (Fraenkel and Wallen 1996 p.371).

3.4 Sample Group

The study targeted original purchasers of newly constructed homes built in the Lansing, Michigan area during the last three years. The sample group was identified by reviewing the building permit application records of various municipalities in Michigan's Ingham and Eaton Counties. The researcher identified addresses and names of building permit holders of new residential construction on applications dated January 1997 to June 1999. The following communities were selected based on the convenience of the geographical proximity to the researcher: City of East Lansing, Delta, Delhi, Meridian and

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Williamstown Townships. Delta and Delhi Townships lie on the west geographic boundary of the sample area and comprise roughly two-thirds of the sample population.

This sample group database of original purchasers of newly constructed homes for occupancy was compiled into a Microsoft® Excel workbook format. A worksheet was generated for each municipality. Each worksheet was formatted with rows for data input by property address. Columns were designated for the building permit number, date the permit was issued, property owner's name and street address information.

To cross-reference and supplement any data missing from the building permit applications, the assessment records of each municipality were used to verify the sample's information, such as name and mailing address. Home-buyers with mailing addresses that differed from the actual street address of the property were not solicited for this study. The rationale behind their exclusion was either 1) the property was for rental purposes or 2) the owners had not lived in the home long enough to provide relevant data. The resulting sample of 609 home-buyers eligible to participate in the study was believed to represent a broad spectrum of homes from various communities and price points.

3.5 Home-buyer Satisfaction Survey Questionnaire

A mailed questionnaire was created for data collection. The 45-question questionnaire was organized into four parts. Part One consisted of 12 general questions pertaining to the home purchase process and qualifying satisfaction

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levels for the dimensions of design, service and home. Part Two was comprised of 26 items addressing expectation congruency, satisfaction with select attributes within each of the three dimensions and future intentions. Part Three posed four questions pertaining to the house unit and Part Four contained three questions on demographic information.

Part One of the questionnaire contained questions pertaining to the home purchase process. Questions 1 through 6 were designed to provide background information on the home-buyer and the processes each went through to obtain the home. Question number 7 asked the home-buyer which dimension was most influential in the selection of their current home. Part One concluded with questions 8 through 12, which asked the home-buyers to describe their level of satisfaction with the quality of the homes' design (e.g. layout), features, building materials, builder's customer service and workmanship quality.

Questions pertaining to expectation congruency were addressed in Part Two of the questionnaire. Section A of Part Two (questions 13 through 26) presented questions grouped by dimension. For each attribute, the home-buyer was asked to rate the attribute relative to their expectations, the importance of the attribute in selecting their home, and the importance of the attribute in selecting their homebuilder. In Section B of Part Two, home-buyers were asked how satisfied they were with different issues (questions 27 through 38). In question 27, home-buyers were asked to indicate how satisfied they were overall with the home. To address factors external to the home that may affect satisfaction levels, question 28 sought information as to how satisfied the

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respondent was with their neighborhood/community in general. Questions 29 through 33 required the home-buyer to assess how satisfied they were with the individual dimensions of overall satisfaction. Respondents' future intentions were sought in questions 34 through 37. Question 38 asked the respondent to record the attribute perceived as affecting their overall satisfaction level the most.

Questions 39 through 42, pertaining to the house unit, were contained in Part Three of the questionnaire. The first questions of Part Three inquired as to the home's finished square footage and the amount paid for the home. Questions 41 and 42 sought information on the timeliness of the home's completion and the year the respondent moved in.

Questions were developed that use a seven-point semantic differential Likert-type rating scale due to its simplicity and flexibility. The scale positions were labeled to assist the rating of intensity and, as a prerequisite for accurate measurement, the seven labels were spaced equidistantly. Figure 3.3 is an example of a scale used in this questionnaire. To improve the quality of information obtained, a "Not Applicable" (N/A) box was added.

1=Very Low (VL). 2=Low (L). 3=Somewhat Low (SL).4=Neither Low Nor High (N). 5=Somewhat High (SH). 6=High (H). 7=Very High(VH).

	Very Low VL	L	SL	N	SH	H	Very High VH	Not Applicable N/A
How would you rate your home's design quality relative to your expectations?	1	2	3	4	5	6	7	☐

Figure 3.3 A Typical Question and Scale.

Before being administered, the draft questionnaire was pretested among a convenience sample of homeowners in the Lansing, Michigan area. The researcher selected five home-owning acquaintances for the pretest, based on the researcher's belief that they would accurately represent the average new homeowner's knowledge of their new home. The pretest provided feedback both on the questionnaire's ability to be self-administered and identified items for which the respondents required clarification. Only minor revision was required to make the questionnaire user-friendly. The time required to complete the questionnaire packet was also determined. Generally, the questionnaire was found to take less than 10 minutes to complete. A copy of the questionnaire instrument is provided in Appendix B.

Upon development of the survey instrument, the questionnaire was submitted to the University Committee on Research Involving Human Subjects (UCRIHS) for review and approval to conduct research on human subjects. Having received approval from the review board, the questionnaire was administered to gather data on home-buyer satisfaction.

3.6 Home-buyer Satisfaction Survey Administration

3.6.1 Time of Measurement

Timing of the measurement is one of the more important aspects in customer satisfaction measurement. Some suggest a relationship exists between the level of customer satisfaction obtained in a study and the timing of the measurement (Peterson and Wilson 1992). There is no clear answer as to

the best time to measure customer satisfaction. Some hold that assessing satisfaction immediately after purchase yields better measures, while other studies suggest that satisfaction should not be measured until customers are able to experience the purchase for a sufficient period of time (Peterson and Wilson 1992).

The researcher limited the sample group to those who purchased a home between January 1997 and December 1999. It was recognized that the owners must have ample time to experience the home. The researcher determined that a minimum of six months living in the home was required for home-buyers to gain this experience. To this minimum an additional six months was added to allow for the duration of construction. Subtracting this 12-month period from the June 2000 questionnaire mailing date required that all building permit applications be dated prior to June 1999. This is in keeping with Torbica's view that "the period spent in the house should be long enough to allow homeowners to develop a sense about their satisfaction about house quality" (Torbica 1997 p. 65). Conversely, it was important for the experience to be fresh in the new home-buyers memory. Again, this follows Torbica's claim that "the period spent experiencing house and service should not be too long because of possible negative impact on home-buyers' ability to accurately express their level of satisfaction with service received" (Torbica 1997 p. 65). This lead to the selection of January 1997 as the beginning point for the sample.

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3.6.2 Questionnaire Administration

In late June 2000, the process of distributing and collecting the completed questionnaires began. Each new home-buyer selected for the study was mailed first-class the survey packet containing a cover letter, questionnaire, and a postage-paid return envelope. Each cover letter was addressed to the individual home-buyer and signed by the researcher. The cover letter stressed the importance of the respondent's reply to the study while explaining that participation was voluntary and all responses would be confidential. A sample of the cover letter is included in Appendix B.

Initially, the researcher defined the minimum desired size for the home-buyer sample to be 100 responses. With the anticipated response rate of 20%, at least 500 needed to be contacted to get 100 questionnaires returned. In total, 609 questionnaires were distributed, of which 224 usable questionnaires were completed and returned, producing a response rate of approximately 37%.

The original design of the research called for a follow-up package to be sent to home-buyers who had yet to return the completed survey two weeks after the initial mailing. Questionnaires were assigned individual identification numbers so that only the home-buyers not responding to the initial mailing would receive the follow-up mailings. The follow-up package contained a cover letter stressing the importance of each reply, a replacement questionnaire, and another postage-paid return envelope. A copy of the follow-up cover letter is provided in Appendix C. Owing to the better than anticipated response to the initial mailing, the researcher determined a follow-up mailing was not required.

3.7 Data Compilation

Upon receiving the completed surveys, data from each completed response was entered into a workbook format in Microsoft® Excel. Each completed survey was entered into the worksheet by row. Columns were created for the survey tracking number and each of the 43 questions, plus the demographic information. The answers for each questionnaire were recorded in a numerical format. In recording the answers for questions with scales, the number identified by the respondent on the scale was reported. If all of the possible answers to the question were left blank, a zero (0) was utilized to denote the absence of a response. "Not Applicable" or "N/A" responses were designated in the numerical format by the letter "A." For the rest of the questions, answers were recorded in ascending order from left to right or top to bottom depending on the individual question format. Question 1, for example, provided from left to right the answers of "Yes," "No," and "Don't Know." The responses to this question were recorded "Yes"=1, "No"=2, and "Don't Know"=3. A copy of the data spreadsheet is provided in Appendix D, less the individual home-buyer tracking numbers.

3.8 Data Analysis

Analysis of the home-buyer data was conducted with the SPSS® statistical software package. To use the software to describe the data and determine relationships present between the variables, the data generated from

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the home-buyers had to be transformed into usable data sets. Prior to transforming the data into data sets, the variables for the study were established.

The variables used in this study were based upon those recognized in the model presented in Figure 3.2. The dependent variable was overall satisfaction (OVERALL), while the independent variables of DESIGN, HOUSE, and SERVICE represented the three dimensions of home-buyer satisfaction (house design [e.g. layout], house [e.g. building material quality] and service [e.g. sales activities]). Scores for each of these variables were determined by combining each respondent's scoring of certain questions related to the variable and establishing an average score. For example, each sample's score for OVERALL was based upon an average of the respective home-buyer's scoring for questions 27, 29 and 37. Averaging the scores of questions 8, 30 and 34 for each home-buyer determined their respective DESIGN score. Scores for HOUSE were ascertained in the same manner by averaging the scores of questions 10, 11, 12, 31, 32 and 36. The average score of questions 9, 33, and 35 established each home-buyer's score for SERVICE.

Scores for the independent variables representing expectation congruence were calculated in similar fashion. The home-buyer's score for each variable represented the average of their expectation congruence, which was multiplied by the average importance they placed on the expectation. To illustrate, each sample's score for the variable "dsgn_exi" (design congruence) was determined by multiplying the average of questions 14 and 15 by question 13. Scores for "srvc_exi" (service congruence) were ascertained in the same

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manner by multiplying the average of the scores of questions 16, 17 and 18 by the average of the scores of questions 19 and 20. The average score of questions 21, 22 and 23 was multiplied by the average of the scores of questions 24, 25 and 26 to establish each home-buyer's score for "home_exi" (home congruence).

Next, the researcher established the following three data sets: baseline, OS > 4, and OS < 4. All 224 responding new home-buyers comprised the first data set, termed baseline by the researcher. The baseline data set was then subdivided into two other data sets based upon the individual home-buyer's averaged score for OVERALL. Of the 224 responding home-buyers, 171 had an OVERALL score of greater than 4 and were placed in the satisfied home-buyer set or OS > 4. An OVERALL score of less than 4 or OS < 4 put 42 of the home-buyers in the not satisfied data set. Eleven home-buyers were not included in OS > 4 or OS < 4. Their scores for OVERALL were equal to 4, meaning they were "neither dissatisfied nor satisfied".

Descriptive statistics were utilized to characterize and compare the data sets. The types of statistics used for this purpose included measures of frequency, measures of central tendency (mean), measures of spread (standard deviation and range) and measures of correlation (scatterplots).

3.9 Proof of Concept

Industry review of the findings and conclusions reported in this study was conducted in late July 2000. Three new homebuilders in the Lansing area were

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identified and selected based upon the researcher's perception of each contractor's ability to represent other organizations working in the same market. All three of the homebuilders selected by the researcher to participate applied for building permits in at least two of the communities included in this study.

The homebuilders were contacted individually by telephone, given a brief explanation of the study and asked to participate in the process. A review packet was sent to each of the three homebuilders volunteering to participate. Provided in Appendix F is a sample of the review packet. The packet contained a cover letter, a one-page overview of the research project, a summary of the survey data and results, and recommendations based upon the analysis of the data. The builders were then asked to prepare comments on the study as a whole and the findings and recommendations based upon the background data furnished. Upon providing their comments directly on the report or on a separate sheet of paper, the builder was directed to return the packet in the stamped, addressed envelope provided. In exchange for their cooperation, each of the three builders was sent a copy of the finished report.

3.10 Summary

In this chapter, the research methodology used in this study was described. The home-buyer satisfaction survey was summarized, as were the parameters used in selecting the sample population. The processes discussed were: administering the questionnaire; compiling the data; analyzing the data; and the proof of concept. Chapter 4 outlines the processing, analysis and findings of the data obtained from the survey.

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CHAPTER 4
FINDINGS AND DISCUSSION

4.1 Introduction

This chapter presents the results, statistical analysis and discussions of the study's findings. The presentation of this information is grouped into three major sections.

- 4.2 Descriptive characteristics of the home-buyers that participated in the study.
- 4.3 Significant differences between descriptive characteristics of satisfied home-buyers and those home-buyers who were not satisfied.
- 4.4 Path analysis applied to homebuyers that participated in the study, satisfied home-buyers and not satisfied home-buyers. (Objective 1).

In total, 609 questionnaires were distributed, of which 224 usable questionnaires were completed and returned. Not included in this chapter were nine survey questionnaires returned to sender due to inaccurate street information, one returned by the deceased addressee's family, one returned due to a lack of time to complete, one with the home still under construction, seven completed by the home's second owner, and 11 filled out by those who acted as their own builder.

4.2 Descriptive Characteristics

4.2.1 Characteristics of the Home-Buyer

Level of Homeownership Experience (Question #3)

More than half of the home-buyers (54%) were experienced homeowners, having owned more than two homes. Approximately one-third (35.3%) were

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second-time home-buyers and 10.7% of the respondents had just purchased their first house.

Demographic Information (Questions #44 & #45)

Gender of the respondent home-buyers was split fairly evenly with 46.9% being female and 48.9% male. After extracting 11 home-buyers who did not respond to question #45, the mean age for those participating in the study was 44.86 years with a standard deviation of 12.3. The ages ranged from 22 to 84 years of age.

Neighborhood (Question #28)

The respondents were generally satisfied with the neighborhoods and communities in which they live. Over half of the responding home-buyers stated they were "very satisfied" (55.4%), about one-third (30.8%) were "satisfied" and 8.5% were "somewhat satisfied".

4.2.2 Home Buying Process Characteristics

Pre-Construction Involvement (Question #2)

Respondent home-buyers were categorized into levels of pre-construction involvement based upon their response to question #2. The distribution of pre-construction involvement among home-buyers is shown in Table 4.1. It can be interpolated that about two-thirds (70.1%) of respondents were actively involved prior to the construction of the home. Seven did not answer this question.

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Pre-Construction Involvement	Frequency	Percent
no answer	7	3.1
no choice in plan, materials or construction	60	26.8
built to chosen plans & specs	47	21.0
selected & modified plan before construction	110	49.1
Total	224	100

Table 4.1 Pre-Construction Involvement

Method of Location (Question #4)

The majority of new homes (60.5%) were located directly through the contractor/builder or a real estate agent working with the builder. The second largest portion of home-buyers (38.4%) located their new home on their own. Of those locating their house on their own, a large portion indicated driving around desired locations/subdivisions or reading the real estate section of the local newspaper as the method implemented. Three did not reply to this question.

Depth of Search (Questions #5 & #6)

The length of time spent searching for a home was fairly evenly distributed among the home-buyers. A total of 22.8% replied they had looked one to three months for their new home, 22.3% had searched three to six months and 25.4% looked longer than six months. For home-buyers citing length of search "not applicable" (19.2%), many indicated they had previously purchased property upon which their home was constructed. Of those searching less than one month (8.9%), job relocation was frequently offered as the rationale.

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The number of homes looked at by the home-buyers prior to purchase was not as evenly distributed. The majority of responses fell into two categories: 30.4% looked at more than 15 homes and 22.8% viewed fewer than five prior to signing a contract. The percentage of home-buyers indicating they had previously purchased property upon which the home was constructed corresponds with the 17.0% responding "not applicable" to question #6.

Timeliness of Delivery (Questions #41 & #42)

Over half (52.7%) of the homes were built and delivered on time or prior to purchase. Another one-third (30.7%) of the home-buyers received their homes within one month of the anticipated date and 19.2% experienced delays of more than one month in duration.

The majority (95.1%) of home-buyers were able to move into their homes between 1997 and 1999. A small percentage (4.5%) were not able to occupy their homes until 2000, many of which indicated this was due to excessive delays.

4.2.3 Characteristics of the Home

Most Important Factor in Selecting Present Home (Question #7)

In selecting their present home, design (e.g. layout) was the most important dimension according to 43.3% of the home-buyers' answers. The dimensions of house (e.g. building material quality) and service (e.g. sales activities) were viewed as significantly less important with respective responses

of 15.6% and 12.5%. Table 4.2 details the factors 28.6% of the home-buyers listed under "other" as the most important factors in selecting their home.

Factor	Frequency
Location	27
Design & location	10
Design, material components/features, builder & location	8
Price	4
Price & design	3
Date available	3
Location & builder	3
Design & builder	2
Design & material components/features	2
Price & location	2

Table 4.2 "Other" Important Factors in Selecting Present Home

Most Important Influence on Overall Satisfaction Level (Question #38)

One-third (32.7%) of the home-buyers answered the dimension of house was the most important influence on their overall satisfaction. Of these 73 respondents, 40 stated the attribute of workmanship quality was most important to them. The second most important attribute of the house dimension was house features (27 of the 73 respondents) and the attribute of building material quality was important to only six of the respondents.

Design (e.g. layout) was the second most influential dimension (30.8%) on overall satisfaction, significantly higher than the last dimension of service (7.5%). Of the 17 respondents indicating their overall satisfaction was influenced most by service, 16 stated the attribute of warranty activities was most important to them,

while the attribute of sales activities was significant for only one home-buyer. A number of respondents (28.1%) stated "other" as influencing their overall satisfaction with the process. Table 4.3 summarizes these "other" responses to question 38.

Factor	Frequency
Design, home features, building material, & workmanship quality	10
Design & home features	9
Building material quality & workmanship quality	8
Location	7
Workmanship quality & warranty activities	5
Home features & workmanship quality	4
Design, home features, building material, & warranty activities	4
Design, home features, building material, workmanship quality, sales & warranty activities	4
Ease of building process	4
Cost	2
Home features & building material quality	2
Design & location	2
Design & workmanship quality	2

Table 4.3 "Other" Influences on Overall Satisfaction

Inconsistencies were found in reviewing the frequencies of home-buyer responses to question # 38 in relation to the sample data set as a whole. Specifically, the frequencies of the detailed attributes selected as the most important influence in home-buyer overall satisfaction in question # 38 did not correspond with the general trend of each dimension's relative importance on overall satisfaction. This inconsistency will be further addressed in section 4.5.

House Size and Value (Questions #39 & #40)

The household member completing the survey reported both size and value of the home. The sizes of the respondents' homes were concentrated at opposite ends of the scale utilized in the study. As shown in Table 4.4, almost half (46.6%) of the houses were less than 2,000 square feet of finished living space, while 27.1% exceeded 2,600 square feet.

SF Finished	Frequency	Percent
less than 1600 SF	43	18.10
1601 to 1800 SF	32	14.3
1801 to 2000 SF	30	13.4
2001 to 2200 SF	15	6.7
2201 to 2400 SF	18	8.0
2401 to 2600 SF	22	9.8
more than 2600SF	64	28.6
Total	224	100

Table 4.4 Finished Square Footage

Two-thirds (67.8%) of the reported home values were between $120,000 and $240,000 per Table 4.5. Homes with a purchase price greater than $240,000

Value	Frequency	Percent
no answer	9	4.0
less than 120k	6	2.7
120 to 160k	58	25.9
160 to 200k	45	20.1
200 to 240k	41	18.3
240 to 280k	21	9.4
280 to 320k	16	7.1
over 320k	28	12.5
Total	224	100

Table 4.5 Purchase Price

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accounted for 29.0% of households responding, while only 2.7% were purchased below $120,000.

4.2.4 Expectations Congruency

Congruence (Questions #13, #16, #17, #18, #21, #22, #23)

Questions included in this section required the home-buyers to rate specific attributes relative to their expectations. The majority of the sample (82.3%) rated design quality highly relative to their expectations. A large portion of home-buyers also rated the attributes of the house dimension highly relative to their expectations (home features 78.9%, building materials quality 67.0%, and workmanship quality 62.9%). Attributes of service exceeded the expectations of the least number of home-buyers (builder's personnel 54.7%, sales activities 56.6% and warranty activities 52.6%).

Importance (Questions #14, #15, #19, #20, #24, #25, #26)

In selecting their new home, design quality was an important part of the selection decision for the most home-buyers (93.2%). A large portion also indicated the dimension of house (home features 88.5% and building material quality 88.8%) was important, while fewer home-buyers (80.6%) stated service quality's importance in this decision.

In selecting a home-builder, the attribute of workmanship quality was important to the majority of home-buyers (92.6%). Fewer home-buyers considered service quality (81.8%) or design quality (73.8%) as being important in their builder selection decision.

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4.2.5 Satisfaction

Two different types of satisfaction were investigated in this study. First, overall satisfaction was determined establishing A) respondents satisfied with their home buying experience and B) those not satisfied. Second, the relative importance of the previously defined dimensions of home-buyer satisfaction were investigated.

Overall Satisfaction (Average of Questions #27, #29 & #37)

Overall satisfaction was generally high. One-third (30.9%) of the home-buyers were "somewhat satisfied to satisfied" (score $4>x>6$) and 45.3% were "very satisfied" (score $6\supseteq x\supseteq 7$). Only 18.9% of the respondents did not report being satisfied with their new home experience (score $x>4$) and 4.9% were neither satisfied nor dissatisfied (score $x=4$). The level of overall satisfaction was determined based upon an average of the home-buyer's responses to questions #27, #29 and #37. The mean overall satisfaction score for the 224 responding home-buyers was 5.26 with a standard deviation of 1.54. The histogram of overall satisfaction in Figure 4.1 illustrates the distribution of scores is negatively skewed.

Satisfaction with Design Quality (Average of Questions #8, #30 & #34)

Satisfaction with the quality of design (e.g. layout) was measured by averaging the home-buyer's scoring of questions #8, #30, and #34. The mean score for design quality satisfaction was 5.68 with a standard deviation of 1.12.

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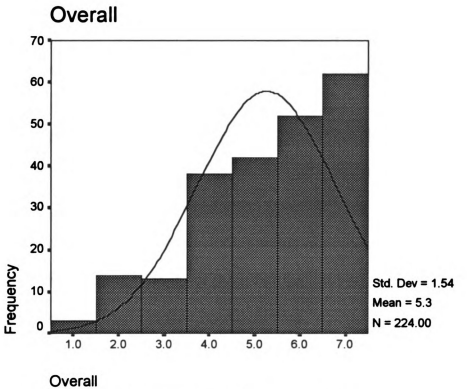

Figure 4.1 Histogram of Overall Satisfaction

A majority of home-buyers replied they were satisfied with the design quality of their home. Over one-third (34.8%) were "somewhat satisfied to satisfied" with the quality of the design and over half (54.9%) considered themselves "very satisfied". A small portion (6.7%) of home-buyers was less than satisfied with the design quality and 3.6% were neither satisfied nor dissatisfied.

Satisfaction with Service (Average of Questions #9, #33 & #35)

An average of the scores from questions #9, #33 and #35 produced the level of satisfaction with the service dimension (e.g. sales activities) for each home-buyer. Service was the only dimension with a bimodal score distribution.

The mean service score was 4.23 with a standard deviation of 2.23. While over half (53.8%) of home-buyers were satisfied with the service they received, 40.6% were not satisfied and 5.6% neither satisfied nor dissatisfied.

Satisfaction with House (Average of Questions #10, #11, #12, #31, #32 & #36)

Scores from questions #10, #11, #12, #31, #32 and #36 were averaged to determine the home-buyer's satisfaction with the house dimension (e.g. building material quality). The mean score for the house dimension was 5.09 with a standard deviation of 1.36. Over three-fourths (78.1%) of the responding home-buyers were satisfied with their house. Another 18.8% were not satisfied with the dimension of house and 3.1% were neither satisfied nor dissatisfied.

4.3 Descriptive Characteristics of Satisfied Home-Buyers

Satisfied home-buyers were generally satisfied with the dimensions of design (98.2%), house (93.0%) and service (69.0%). Home-buyers classified as not satisfied were typically unsatisfied with the dimensions of service (97.6%) and house (69.0%).

Characteristics of the Home-Buyer

A minor difference was found between satisfied home-buyers and not satisfied home-buyers in the variables of age and home ownership experience. Satisfied home-buyers tend to be slightly older (mean of 45.64, SD= 12.48 , ranging from 27 to 84 years of age) than those who were not satisfied (mean of

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43.10, SD= 11.53, ranging from 23 to 74). Satisfied home-buyers were also more apt (+11.5%) to have owned more than two personal homes over the years.

Home-Buying Process Characteristics

Satisfied home-buyers appeared to have a greater level of pre-construction involvement in selecting and modifying house plans (72.5%), whereas not satisfied tended to have no choice in the materials, plans or construction of their home (40.5%). If their homes were not built prior to purchase, satisfied home-buyers were more apt to take early or on-time delivery (+14.0%), where not satisfied home-buyers experienced a greater percentage (+17.6%) of homes delivered over one month late.

Characteristics of the Home

Satisfied home-buyers were more apt (+10.0%) to list the builder as the most important factor in selecting their present home. The satisfied home-buyer's home tends to be larger than 2,600 SF (+16.8%) and less likely to be smaller than 1,600 SF (-16.8%). A home-buyer purchasing a home in the range of $120,000 to $240,000 was more likely (+17.1%) to be not satisfied, while more satisfied home-buyers (+18.6%) purchased homes above $240,000.

Expectations Congruency

Satisfied home-buyers were more apt to perceive the attributes delivered as exceeding their expectations. The greatest difference was satisfied

home-buyers rating of service (builder personnel +65.6%, sales activities +40.9%, and warranty activities +64.7%) and house attributes (home features +47.8%, building material quality +62.9% and workmanship quality +71.7%) relative to their expectations. Satisfied home-buyers were also more likely to rate design quality (+38.3%) as exceeding their expectations.

There was only one significant difference between the two groups regarding the importance of the attributes in their selection decisions. Satisfied home-buyers were more apt (+25.3%) to rate design quality as important in their builder selection decision.

4.4 Path Analysis

Path Analysis was utilized to determine the influence of the three dimensions of Torbica's "total offering" model on overall home-buyer satisfaction, while allowing for the effect of expectation congruency variables. The path-analytic modeling method allowed for studying the direct and indirect effects of variables, where some variables are viewed as causes of other variables which are viewed as effects. Specifically, the researcher studied the relationship between the dependent or endogenous home-buyer satisfaction (OVERALL) variable in this model and the independent or exogenous variables of DESIGN, SERVICE, and HOUSE represented the three dimensions. In addition to determining the direct effect of the dimensions on home-buyer satisfaction, path analysis allowed the researcher to allow for the indirect effects produced by the exogenous congruence variables (design_exi, service_exi, and house_exi).

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Previously, Figure 4.1 showed the distribution of the endogenous variable OVERALL to be negatively skewed. To assist in evaluating the degree of association between variables, scatterplots were generated of the endogenous variable OVERALL with each exogenous variable (DESIGN, SERVICE, and HOUSE). Figures 4.2, 4.3, and 4.4 clearly depict that a linear relationship exists between the endogenous and exogenous variables in the positive slope evident in all three scatterplots. Once the presence of a linear relationship was established, the researcher proceeded with the path analysis itself on the three home-buyer data sets: baseline (all responding home-buyers), OS > 4 (satisfied home-buyers), and OS < 4 (not satisfied home-buyers).

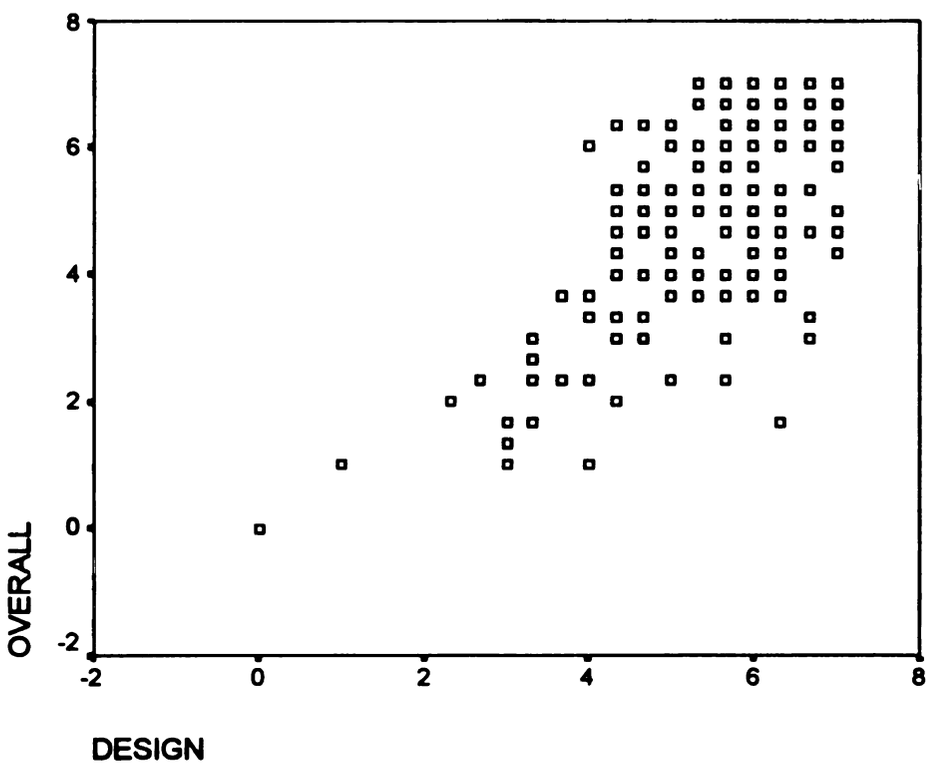


Figure 4.2 Scatterplot of DESIGN with OVERALL

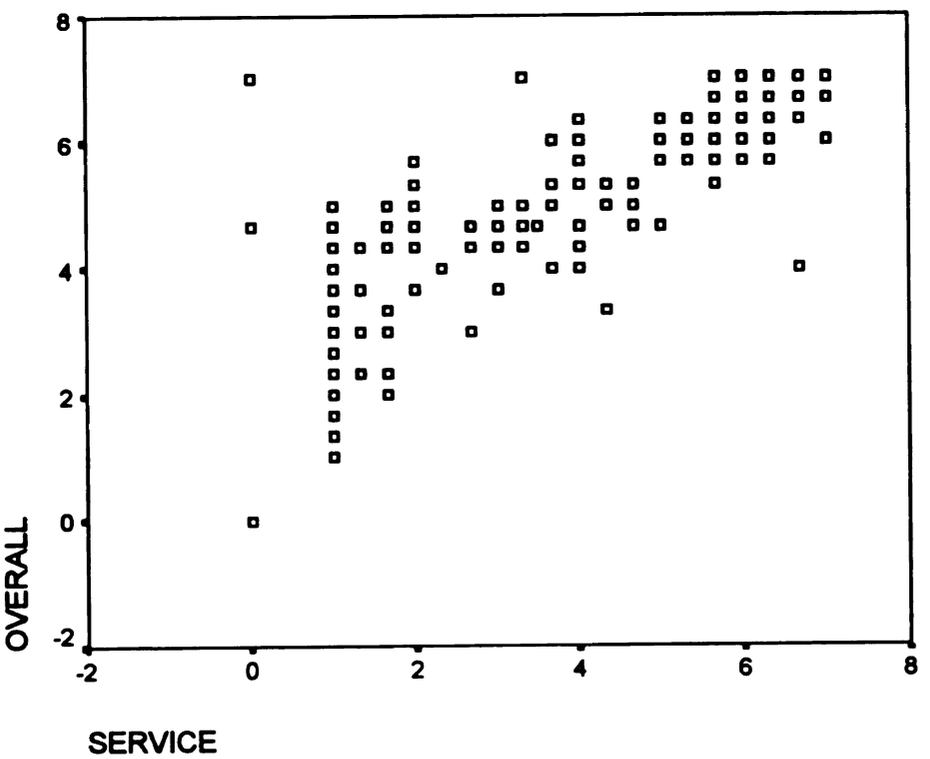


Figure 4.3 Scatterplot of SERVICE with OVERALL

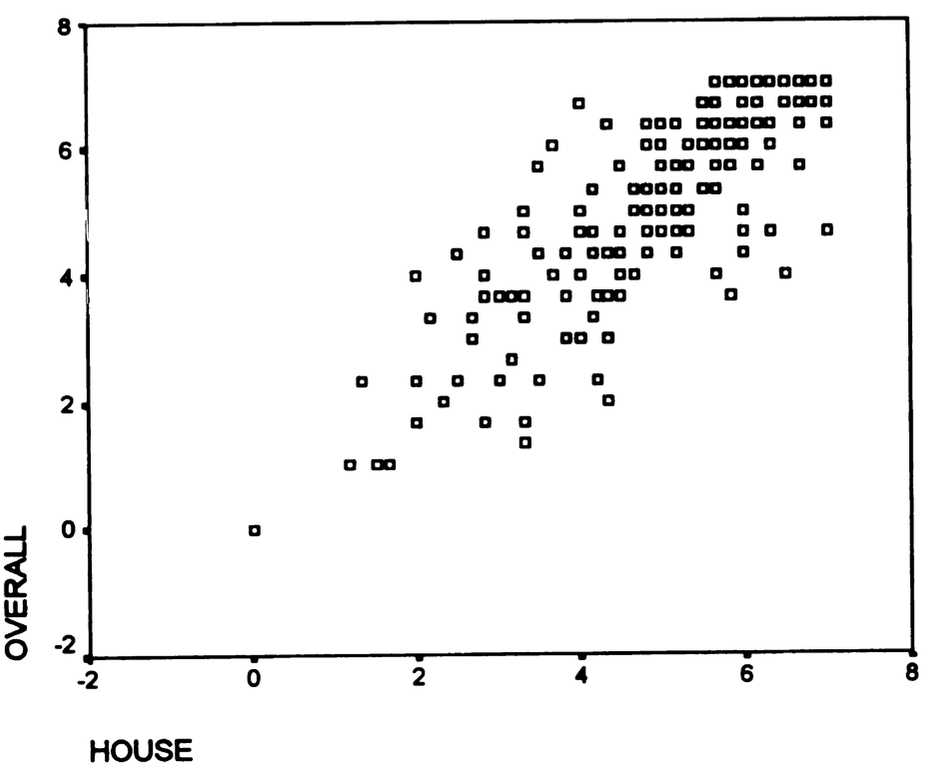


Figure 4.4 Scatterplot of HOUSE with OVERALL

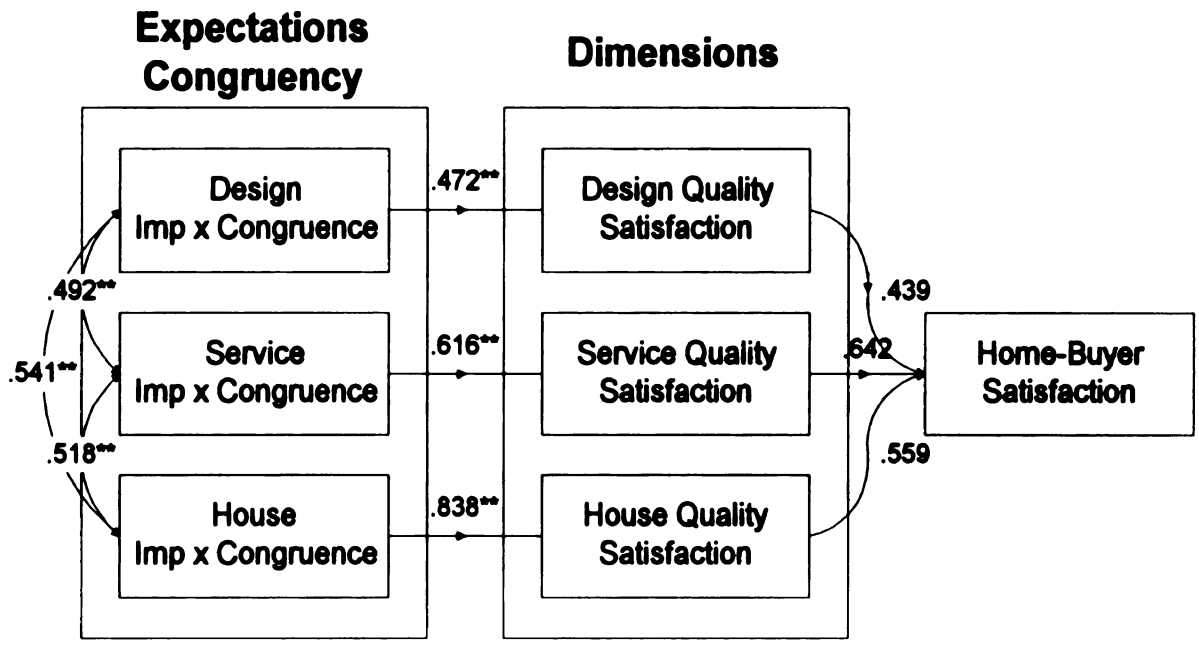
TH

2.

For each data set, a simple correlation was conducted on the seven variables represented in the home-buyer satisfaction model presented in Figure 3.2 (design congruency, service congruency, house congruency, design satisfaction, service satisfaction, house satisfaction and home-buyer satisfaction). The correlation coefficients representing the paths and relationships of the model were then used to determine the parameters of the relationship between the dimensions and home-buyer satisfaction. In testing causal modeling, the reproduced correlations should be close, fit or consistent with the original correlations among the variables. Also, because the number of equations was equal to the number of parameters to be estimated, producing a unique solution for each parameter obtained, the home-buyer satisfaction model fit the definition of a just identified model.

4.4.1 Path Analysis of All Responding Home-buyers

Figure 4.5 depicts the resulting path and relationship coefficients between the variables based on the complete set of data from all 224 respondents. All the coefficients are positive and significant, indicating the direction of variable relationships depicted in the home-buyer satisfaction model are correctly represented. Consistent with the proposed home-buyer satisfaction model, expectations congruency had a significant positive effect on satisfaction with each respective dimension (design path=.472, service path=.616, house path=.838). The proposed model also implies that expectations congruency does not have a direct effect on home-buyer satisfaction.

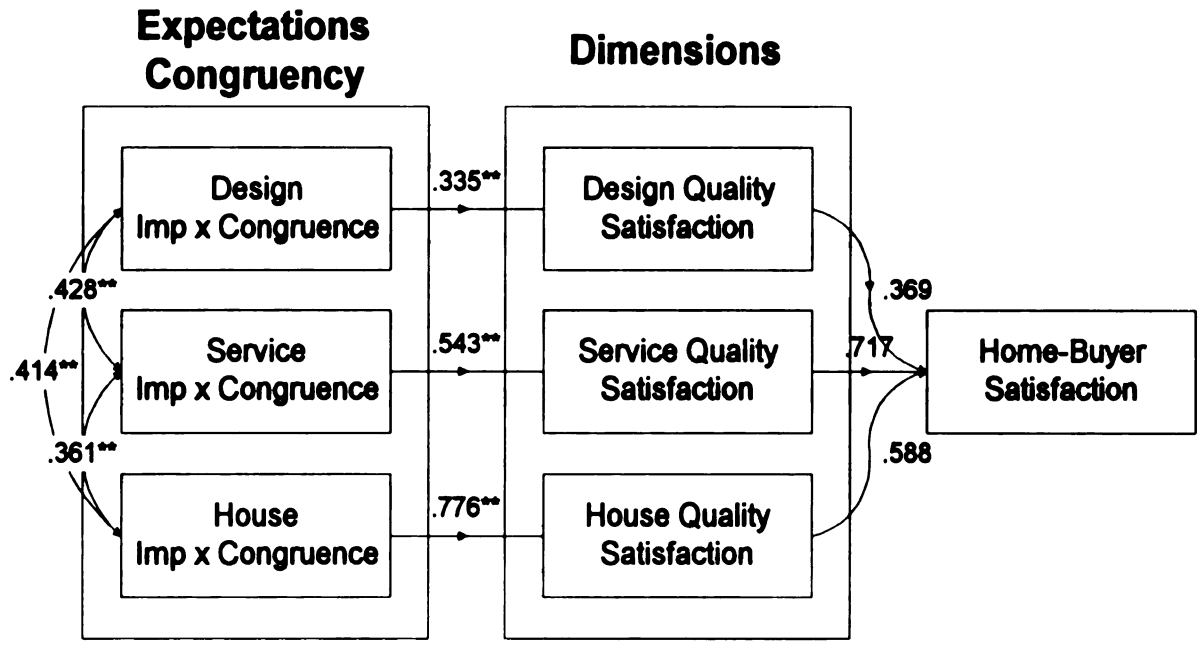


4.5 Path and Relationship Coefficients for Data Set of All Responding Home-buyers
****Significant at the 0.01 level (2-tailed)**

The coefficients for the three dimensions are positive and indicate a significant level of influence on home-buyer satisfaction. Specifically, service quality had the highest level of relative importance (.642) in determining homebuyer satisfaction, house quality was second in influence (.559) and design quality was third (.439) in ranking for the data set encompassing all of the responding home-buyers. The obtained parameters from the path analysis were consistent with the significant original correlation coefficients (design relationship=.650, service relationship=.854, house relationship=.836). The factor intercorrelations from this model are presented in Appendix E.

4.4.2 Path Analysis of Satisfied Home-buyers

The resulting path and relationship coefficients for the variables based on the data set of the 171 satisfied respondents are illustrated in Figure 4.6.

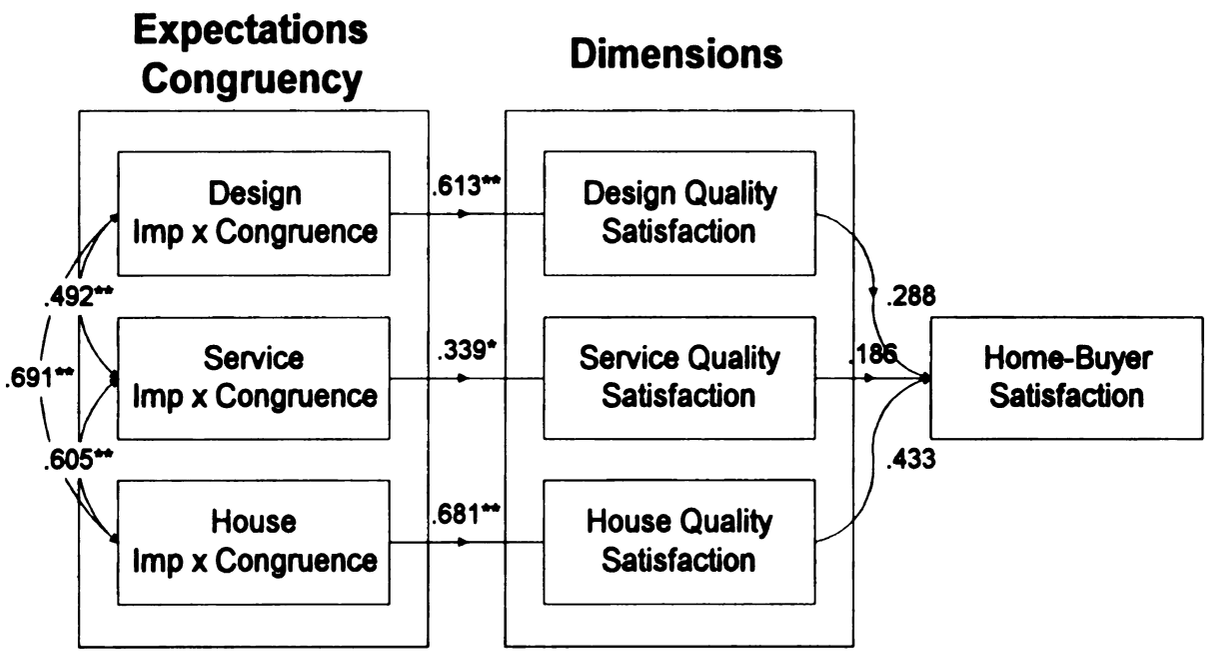


4.6 Path and Relationship Coefficients for Data Set of Satisfied Home-buyers
****Significant at the 0.01 level (2-tailed)**

All the coefficients were positive and significant. Similar to the previous data set, expectations congruency had a significant positive effect on satisfaction with each respective dimension (design=.335, service=.543, house=.776). Also, the coefficients of the three dimensions had a positive, significant relationship in determining home-buyer satisfaction, with service quality satisfaction displaying a slightly elevated degree of relative importance above that of either house or design quality. The obtained parameters from the path analysis fit with the significant original correlation coefficients (design relationship=.488, service relationship=.835, house relationship=.737). The factor intercorrelations from this model are presented in Appendix E.

4.4.3 Path Analysis of Not Satisfied Home-buyers

Figure 4.7 depicts the resulting path and relationship coefficients for the variables based on the complete set of data from the 42 not satisfied respondents. Again, expectations congruency had a significant positive effect on satisfaction with each respective dimension (design=.613, service=.339, house=.681), and satisfaction with each dimension had a significant positive effect on home-buyer satisfaction.



4.7 Path and Relationship Coefficients for Data Set of Not Satisfied Home-buyers
****Significant at the 0.01 level (2-tailed)**
***Significant at the 0.05 level (1-tailed)**

Unlike the two previous data sets, the coefficients representing the relationships between satisfaction with the dimensions and home-buyer satisfaction indicated the service quality dimension to be the least important (design=.288, service=.186, house=.433). The obtained parameters from the path analysis were consistent with the original correlation coefficients (design

relationship=.432, service relationship=.276, house relationship=.535). The factor intercorrelations from this model are presented in Appendix E.

4.4.4 Relative Importance of the Three Dimensions

Information about the relative importance of each of the three dimensions of home-buyer satisfaction can assist homebuilders in directing improvement efforts to establish an advantage over the competition (Torbica 1997). The coefficients indicate the relative importance of three dimensions for the variation in home-buyer satisfaction.

The results of the path analysis suggest that service had the greatest impact on overall home-buyer satisfaction, as indicated by the coefficient of 0.642 for the data set of all 224 respondents. The second most influential factor, house, had a coefficient of 0.559 and was slightly more influential in shaping home-buyer satisfaction than the dimension of design (0.439). The implication is that the best strategy for builders to improve home-buyer satisfaction levels appears to be in providing superior design, service and materials/features.

4.5 Chapter Summary

In this chapter, progress was made toward achieving the study's objectives by finding the relative importance of each of the three dimensions. First, the sample of responding home-buyers was descriptively characterized. Second, significant differences between the descriptive characteristics of satisfied home-buyers and those home-buyers not satisfied were presented.

Third, path-analytic modeling was applied to home-buyers participating in the study. All three of the dimensions, represented by the exogenous variables of DESIGN, SERVICE, and HOUSE, were found to be significant and positively correlated with the variable OVERALL. The results of the analysis indicated SERVICE had the greatest impact on overall home-buyer satisfaction.

As mentioned, this is inconsistent with the frequencies of responses to a detailed list of attributes home-buyers' felt were the most important influence on their overall satisfaction. Per the responses to question # 38, the dimension of house (e.g. building material quality) had the most important influence on the overall satisfaction level of the majority of home-buyers. For question # 38, the dimension of house was represented by the attributes of the workmanship quality, house features and building material quality. Also, the least number of home-buyers indicated service (represented by the attributes of sales and warranty activities) as the dimension having the most important influence on their overall satisfaction per question # 38.

The researcher believes this discrepancy highlights the attributes of sales and warranty activities as inadequate in representing the service dimension. Availability of builder, communication skills of builder, explanation of financing options, assistance with obtaining the loan, explanation of warranty coverage, or level of clean-up after repairs are a few attributes that may have portrayed the dimension of service in question # 38 with greater accuracy. It is also important to note that the responses to question # 38 mirror the relative importance of the

three dimensions in the not satisfied home-buyer data set (see Figure 4.7). This subject will be discussed further in the final chapter.

In the final chapter, the major findings and implications of this study will be discussed in greater detail. Recommendations for future work will also be made.

CHAPTER 5
SUMMARY, CONCLUSIONS AND RECOMMENDATIONS FOR FUTURE WORKS

The primary objectives of this study, as stated in Chapter 1, were: 1) to examine the relative importance of design (e.g. layout) satisfaction, service (e.g. sales activities) satisfaction and house (e.g. building material quality) satisfaction in relation to overall home-buyer satisfaction; and 2) increase understanding of effect expectation congruence has on these dimensions and overall home-buyer satisfaction. The following sections provide the reader with a summary of the study conducted to recognize these objectives. The subsequent sections furnish a description of the study, a summary of the results and conclusions, validation of the study's conclusions, contributions of the study, and recommendations for future study.

5.1 Summary

5.1.1 Description of the Study

A study of home-buyers who had recently purchased homes was undertaken to determine the dimensions that affect overall customer satisfaction with the home buying process. The dimensions investigated included satisfaction with design quality (e.g. layout), satisfaction with service (e.g. sales activities) and satisfaction with the house (e.g. building material quality).

A sample of home-buyers in the Lansing, Michigan area was used for the study. Single-family homes occupied by the original owners were eligible for the

sample. Building permit applications dated between January 1997 and June 1999 from the communities of the City of East Lansing, Delta, Delhi, Meridian and Williamstown Townships identified these homes.

A mailed survey was used to conduct the study during the summer of 2000. The response rate was approximately 37%, with 224 completed questionnaires used for statistical analysis.

5.1.2 Home-Buyer Satisfaction Findings & Conclusions

5.1.2.1 Characteristics of the Sample

The home-buyers participating in this study were generally satisfied overall. A majority of the participants expressed satisfaction with the design quality (e.g. layout), service quality (e.g. sales activities) and the quality of building materials/features/workmanship associated with their new house.

Averaging 44.86 years of age, roughly the same number of males and females responded to the study. Prior to their current residence, the typical home-buyer had experience purchasing at least one other home. The finished floor area of most homes sampled was 2000 SF or less. Almost half of the homes in the sample were purchased for $120,000 to $200,000.

Most of the responding home-buyers stated design quality (e.g. layout) was the most influential factor in selecting their home. Home-buyers were most likely to locate their current home directly through a builder or an agent working with a builder. In selecting a builder, home-buyers suggest workmanship quality was the most important factor.

There was not a distinct pattern to length of time or number of homes included in a typical home-buyers' search. Prior to construction, home-buyers generally had some level of involvement selecting or modifying their house plan. Over half of the home-buyers reported their homes were built and delivered on time or constructed prior to purchase.

The responding home-buyers were most satisfied with their homes' design quality and least satisfied with their builder's customer service quality. Most home-buyers perceived their homes' design quality exceeded their expectations, while service quality exceeded the expectations of the least number of home-buyers.

5.1.2.2 Significant Differences Between Home-Buyers

Significant differences were found among satisfied home-buyers and not satisfied home-buyers on some items measured by the survey instrument. Satisfied home-buyers were generally satisfied with the dimensions of design (e.g. layout), service (e.g. sales activities) and house (e.g. building material quality). Particularly, satisfied home-buyers were more apt to indicate the builder was the most important factor in selecting their home. Home-buyers classified as not satisfied were typically unsatisfied with the dimensions of service and house.

The research appears to suggest satisfied home-buyers are slightly older and more experienced in the home purchase process than those who were not satisfied. Satisfied home-buyers appear to have a greater level of pre-construction involvement in selecting and modifying a house plan, where as not

satisfied home-buyers tend to have no choice in the materials, plans or construction of their home. If the home was not built prior to purchase, satisfied home-buyers were more apt to take early or on-time delivery, where not satisfied home-buyers recognized a greater percentage of homes delivered over one month late.

Satisfied home-buyers tend to purchase homes larger than 2,600 SF, while not satisfied home-buyers tend to buy more of the homes smaller than 1,600 SF. A similar situation was found with price. A home-buyer purchasing a home in the range of $120,000 to $240,000 was more likely to be not satisfied, while more satisfied home-buyers purchased homes above $240,000.

5.1.2.3 Relative Importance of the Three Dimensions

From the research findings, several implications can be drawn regarding home-buyer satisfaction. Similar to Torbica's study, all three dimensions of home-buyer satisfaction (design, service, and house) were found to be significant in predicting overall home-buyer satisfaction. The findings of both studies suggest that home builders should have the capability of simultaneously influencing all three dimensions in a positive manner. As all three dimensions are significant predictors of overall satisfaction, improving service quality while house and/or design quality levels are allowed to decline may have little net impact on overall home-buyer satisfaction.

Ranking the area(s) that display a high degree of importance in forming overall home-buyer satisfaction was a primary objective of the study. The

research confirmed Torbica's finding that all were significant and important in predicting home-buyer satisfaction, with the service dimension having the greatest overall impact. However, the current study's ranking of the house (2^{nd}) and design (3^{rd}) dimensions were contrary to that of Torbica's findings. There were only minimal differences between the coefficients of the house and design dimensions in both studies, leading the researcher to believe these two dimensions should be weighted equally in relative importance.

In reviewing the analysis from the data sets of the present study, it is also important to note that service was found to be the least important dimension in determining home-buyer satisfaction according to analysis of the data set representing the not satisfied home-buyers. The researcher believes the dimension of service to be the most subjective and therefore difficult for the home-buyer to measure. With this in mind, there may be some form of a halo effect occurring. Specifically, the home-buyer was not satisfied with the overall home buying experience and this feeling in turn influenced their satisfaction with service. By any measure, the findings of both studies suggest that the service component of a home builder's offering deserves significant attention.

5.2 Proof of Concept

The findings and conclusions of the study were reviewed and commented on by three homebuilders with experience in the research market. Generally all three builders agreed with the findings and conclusions of the study. Regarding the characteristics of the sample population, the sample was representative of

the home-buyers that Builder 2 and Builder 3 tend to encounter in the research market. However, according to Builder 1's experience, the size and price of homes reported by the majority of home-buyers may be unrealistic in the current marketplace. As these figures were based on information supplied by the home-buyer, Builder 1 indicated there maybe be some question as to the validity of the data supplied for these two variables.

In reviewing the significant differences found between satisfied and not satisfied home-buyers, the characteristics used to describe the two groups were congruent with Builder 1's experience in the research market. Builder 2 suggested the variable of home-buyer education level may play a role in home-buyer satisfaction. Indicating educated home-buyers tend to ask more questions about the process, Builder 2 hypothesized that this leads to a greater level of communication between the two parties and contributes to home-buyer's satisfaction. Builder 3 expressed interest in categorizing satisfied and not satisfied home-buyers into specific groupings (e.g. home-buyers grouped by purchase price).

All three builders agreed with the study's ranking of the relative importance of the three dimensions of home-buyer satisfaction. Both Builder 2 and Builder 3 felt strongly regarding the influence the service dimension had on home-buyer satisfaction and the generation of future referrals.

In a general critique of the study, Builder 2 suggested the one-third of the surveyed home-buyers responding to the study probably had strong feelings about their experience with the home buying process, either pleasant or

unpleasant. In an attempt to solicit information from those home-buyers who did not have such strong feelings, Builder 2 recommended utilizing a telephone survey in the future.

5.3 Study Limitations

In reviewing the questionnaires completed and returned by the home-buyers, the researcher observed some limitations to the study. Outlined earlier in section 4.2.3 of Chapter 4, home-buyers frequently selected more than one answer for questions seeking the most important influence in home selection (question # 7) and overall satisfaction (question # 38). Although the questionnaire clearly directed the respondents to choose one answer or appropriate box for each question, roughly one-quarter of the home-buyers selected multiple answers for both questions # 7 and #38.

5.4 Study Contributions

In meeting the two research objectives, this study makes specific contributions to the body of home-buyer satisfaction knowledge. The following section discusses the contributions resulting from meeting these objectives.

Home-Buyer Satisfaction Model

Based on a review of the relevant literature, the researcher developed a Home-buyer Satisfaction Model to include the effects of expectation congruency in accurately representing home-buyer satisfaction as the sum of satisfaction with

design, service and house. The researcher also developed an instrument to measure home-buyer satisfaction utilizing both customer satisfaction and expectation congruence measures. Seven different measures can be computed using data collected with this instrument: design congruence (design exi), design quality satisfaction (DESIGN), service congruence (service exi), service quality satisfaction (SERVICE), house congruence (house exi), house satisfaction (HOUSE) and overall home-buyer satisfaction (OVERALL).

5.5 Recommendations for Future Study

The findings of this research add to the understanding of customer satisfaction with the home building process. A review of the study suggests several directions of future research that would build on the findings of this study.

First, further study is recommended to refine the instrument developed in this study, possibly improve the validity and reliability of the instrument. One method of improving the instrument would be to increase the number of external factors that could influence home-buyer satisfaction, such as number of children, occupation, gross family income, equity invested, and marital status.

Second, a future study could decompose the dimensions of design, service and house to the attribute level. For example, identifying key attributes within the service dimension would give a more complete indication on why this area has such a high relative importance in determining home-buyer satisfaction. For instance, much could be learned about the service dimension by grouping its attributes into three categories: before construction (sales); during construction;

post-construction (warranty). The following are examples of possible attributes of post-construction (warranty): length of warranty, number of warrantable issues, number of warrantable issues resolved, response time, and level of cleanup after warrantable repairs.

Third, this study should be replicated in different locations. The results of the present study are only applicable to populations similar to the Lansing, Michigan area. For example, this could be accomplished by conducting studies in larger metropolitan areas (e.g. Detroit) or greater geographical boundaries (e.g. State of Michigan, or states bordering the Great Lakes). Factors that could affect the results in different populations include age of population, average household income, climate and available housing stock.

Fourth, the study should be replicated using a combination of data collection techniques. For example, follow-up telephone surveys could be conducted to elicit response from home-buyers that had not returned the mailed questionnaires. Follow-up telephone interviews could also be used to clarify answers given by respondents. For instance, when multiple answers were selected for a quantitative question.

APPENDIX A
HOMBSAT INSTRUMENT DEVELOPED BY TORBICA (1997)

Questionnaire For The Study Of New-Home Buyer Satisfaction

Congratulations on your new home purchase!

You are asked to evaluate satisfaction with your new home and the services provided by your homebuilder. Please respond only to those questions that are applicable to you.

PART ONE: QUESTIONS PERTAINING TO HOME PURCHASE PROCESS

Please provide the following information regarding your home purchase experience. Indicate your answers by marking the appropriate box.

1. *Was your house design determined by your homebuilder?* Yes ☐ No ☐ Don't Know ☐

2. *If Yes, had you selected a house in which you:*

(a) had no choice in the plan, materials, and construction ☐

(b) had chosen a plan and built the house exactly to specifications ☐

(c) had selected and modified a plan before construction began ☐

3. *How do you describe your present situation?*

(a) first time homeowner ☐

(b) second time homeowner ☐

(c) have owned more than two personal homes over the years ☐

4. *How did you locate your present home?*

(a) through real estate agent ☐

(b) directly from housing contractor/builder ☐

(c) other (specify) ☐ _____

5. *About how long had you looked for the house?*

(a) less than 1 month ☐ (b) 1-3 months ☐ (c) 3-6 months ☐ (d) more than 6 months ☐

(e) Not Applicable ☐

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6. *About how many houses did you look at before signing a contract?*

(a) 1-5 ☐ (b) 6-10 ☐ (c) 11-15 (d) 16-20 ☐ (e) more than 20 ☐ (f) Not Applicable ☐

PART TWO: QUESTIONS PERTAINING TO THE HOUSE UNIT

Please provide the following information regarding your house unit.

1. *Floor area of your house (conditioned) is:*

(a) less than 1, 300 sq. ft. ☐ (b) 1,301-1,500 sq. ft. ☐ (c) 1,501-1,700 sq. ft. ☐

(d) 1,701-1,900 sq. ft. ☐ (e) 1,901- 2,100 sq. ft. ☐ (f) 2,101-2,300 sq. ft. ☐

(f) more than 2,300 sq. ft. ☐

2. *How much did you pay for your house?*

(a) under $50,00 ☐ (b) $50,001-70,000 ☐ (c) $70,001-90,000 ☐ (d) $90,001-110,000 ☐

(e) $110,001-130,000 ☐ (f) $130,001-150,000 ☐ (g) over $150,000 ☐

3. *Present housing construction is:*

(a) wood frame ☐ (b) brick ☐ (c) stone ☐ (d) blocks ☐ (e) combination of ___ and ___ above ☐

4. *How would you describe your present home?*

(a) 2 story ☐ (b) 1 ½ story ☐ (c) 1 story ☐ (d) other (specify) ☐ _____

5. *When was your home completed and ready for move-in?*

(a) Built before purchase ☐ (b) Earlier than anticipated or on time ☐ (c) 0-2 weeks late ☐

(d) 2-4 weeks late ☐ (e) 1-2 months late ☐ (f) over 2 months late ☐

6. *When did you move into your house?*

(a) August '95 ☐ (b) September '95 ☐ (c) Other (specify) ☐ _____

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PART THREE: QUESTIONS PERTAING TO HOME BUYER SATISFACTION

1. Satisfaction With The House

Please describe your satisfaction with each issue by circling ONE number for each question. If the question does not apply, mark the N/A ("Not Applicable").

NOTE: 1=Very Dissatisfied (VD). 2=Dissatisfied (D). 3=Somewhat Dissatisfied (SD). 4=Neither Dissatisfied Nor Satisfied (N). 5=Somewhat Satisfied (SS). 6=Satisfied (S). 7=Very Satisfied (VS).

Not Applicable N/A			Very Dissatisfied VD	D	SD	N	SS	S	Very Satisfied VS
☐	1.	How satisfied are you with your house floor plan?	1	2	3	4	5	6	7
☐	2.	How satisfied are you with the scale and proportion of the floor plan?	1	2	3	4	5	6	7
☐	3.	How satisfied are you with the number of rooms in your house?	1	2	3	4	5	6	7
☐	4.	How satisfied are you with the size of the rooms in your house?	1	2	3	4	5	6	7
☐	5.	How satisfied are you with the layout of the rooms, that is, the design in relation to your daily life?	1	2	3	4	5	6	7
☐	6.	How satisfied are you with the location of the different rooms?	1	2	3	4	5	6	7
☐	7.	How satisfied are you with individual space for each member of your household?	1	2	3	4	5	6	7
☐	8.	How satisfied are you with your kitchen design?	1	2	3	4	5	6	7
☐	9.	How satisfied are you with your bathroom(s) design?	1	2	3	4	5	6	7
☐	10.	How satisfied are you with the number of bathrooms in your dwelling unit?	1	2	3	4	5	6	7
☐	11.	How satisfied are you with amount of storage space in your house?	1	2	3	4	5	6	7
☐	12.	How satisfied are you with the kind of storage space in your house?	1	2	3	4	5	6	7
☐	13.	How satisfied are you with location and distribution of storage?	1	2	3	4	5	6	7

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NOTE: 1=Very Dissatisfied (VD). 2=Dissatisfied (D). 3=Somewhat Dissatisfied (SD). 4=Neither Dissatisfied Nor Satisfied (N). 5=Somewhat Satisfied (SS). 6=Satisfied (S). 7=Very Satisfied (VS).

Not Applicable N/A			Very Dissatisfied VD	D	SD	N	SS	S	Very Satisfied VS
☐	14.	How satisfied are you with the esthetic quality of the interior?	1	2	3	4	5	6	7
☐	15.	How satisfied are you with the inside of your home?	1	2	3	4	5	6	7
☐	16.	How satisfied are you with the color(s) of the rooms?	1	2	3	4	5	6	7
☐	17.	How satisfied are you with ceiling height?	1	2	3	4	5	6	7
☐	18.	How satisfied are you with the amount of privacy available in your home?	1	2	3	4	5	6	7
☐	19.	How satisfied are you with your outdoor privacy?	1	2	3	4	5	6	7
☐	20.	How satisfied are you with the safety (accident potential) in your home?	1	2	3	4	5	6	7
☐	21.	How satisfied are you with the security in your house?	1	2	3	4	5	6	7
☐	22.	How satisfied are you with the energy-efficient features in your house?	1	2	3	4	5	6	7
☐	23.	How satisfied are you with your utility costs?	1	2	3	4	5	6	7
☐	24.	How satisfied are you with the low-cost maintenance features in your house?	1	2	3	4	5	6	7
☐	25.	How satisfied are you with the easiness of maintenance of your house?	1	2	3	4	5	6	7
☐	26.	How satisfied are you with the cost and effort needed to keep the house maintained?	1	2	3	4	5	6	7
☐	27.	How satisfied are you with the illumination level or the quantity of light in your house?	1	2	3	4	5	6	7
☐	28.	How satisfied are you with the electric lighting in your house?	1	2	3	4	5	6	7
☐	29.	How satisfied are you with the number and placement of electrical outlets?	1	2	3	4	5	6	7

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NOTE: 1=Very Dissatisfied (VD). 2=Dissatisfied (D). 3=Somewhat Dissatisfied (SD). 4=Neither Dissatisfied Nor Satisfied (N). 5=Somewhat Satisfied (SS). 6=Satisfied (S). 7=Very Satisfied (VS).

Not Applicable N/A			Very Dissatisfied VD	D	SD	N	SS	S	Very Satisfied VS
☐	30.	How satisfied are you with the brightness or light in your house during the daytime?	1	2	3	4	5	6	7
☐	31.	How satisfied are you with your protection from neighborhood noise?	1	2	3	4	5	6	7
☐	32.	How satisfied are you with the soundproof performance of the walls?	1	2	3	4	5	6	7
☐	33.	How satisfied are you with the outside appearance of your house?	1	2	3	4	5	6	7
☐	34.	How satisfied are you with how the architectural style of your house is in harmony with the landscape?	1	2	3	4	5	6	7
☐	35.	How satisfied are you with how your house fits the environment?	1	2	3	4	5	6	7
☐	36.	How satisfied are you with the attractiveness of your house color?	1	2	3	4	5	6	7
☐	37.	How satisfied are you with the quality of the building materials used in your house?	1	2	3	4	5	6	7
☐	38.	How satisfied are you with the quality of the materials used in the floors?	1	2	3	4	5	6	7
☐	39.	How satisfied are you with the quality of the materials used in the walls?	1	2	3	4	5	6	7
☐	40.	How satisfied are you with the operation of the windows?	1	2	3	4	5	6	7
☐	41.	How satisfied are you with the operation of the doors?	1	2	3	4	5	6	7
☐	42.	How satisfied are you with the operation of the kitchen appliances?	1	2	3	4	5	6	7
☐	43.	How satisfied are you with the operation of the plumbing fixtures?	1	2	3	4	5	6	7

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NOTE: 1=Very Dissatisfied (VD). 2=Dissatisfied (D). 3=Somewhat Dissatisfied (SD). 4=Neither Dissatisfied Nor Satisfied (N). 5=Somewhat Satisfied (SS). 6=Satisfied (S). 7=Very Satisfied (VS).

Not Applicable N/A			Very Dissatisfied VD	D	SD	N	SS	S	Very Satisfied VS
☐	44.	How satisfied are you with the operation of the electrical features?	1	2	3	4	5	6	7
☐	45.	How satisfied are you with the operation of the Heating/Air Conditioning systems?	1	2	3	4	5	6	7
☐	46.	How satisfied are you with the quality of finish workmanship?	1	2	3	4	5	6	7
☐	47.	How satisfied are you with the quality of the painting workmanship (free of nail pops, free of shrinkage cracks, etc.)?	1	2	3	4	5	6	7
☐	48.	How satisfied are you with the quality of the cabinetry workmanship (free from damage, doors operate properly, hardware installed)?	1	2	3	4	5	6	7
☐	49.	How satisfied are you with the roof performance?	1	2	3	4	5	6	7
☐	50.	How satisfied are you with the performance of the foundation?	1	2	3	4	5	6	7
☐	51.	How satisfied are you with the quality of the landscaping?	1	2	3	4	5	6	7
☐	52.	How satisfied were you with the completion of your home when moving-in?	1	2	3	4	5	6	7
☐	53.	How satisfied were you with the cleanliness of your home when moving-in?	1	2	3	4	5	6	7

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2. Service Quality

For each statement in the following section, please circle the appropriate response on the 7-point scale. Mark the N/A ("Not Applicable") box if you feel the question is not applicable or you can not evaluate that question.

NOTE: 1=Very Low (VL). 2=Low (L). 3=Somewhat Low (SL). 4=Moderate (M). 5=Somewhat High (SH). 6=High (H). 7=Very High (VH).

Not Applicable N/A			Very Low VL	L	SL	M	SH	H	Very High VH
☐	54	Extent to which homebuilder set your expectations early.	1	2	3	4	5	6	7
☐	55.	Extent to which homebuilder personnel were available during evening and weekend hours.	1	2	3	4	5	6	7
☐	56.	Extent to which you were welcomed enthusiastically.	1	2	3	4	5	6	7
☐	57.	Extent to which homebuilder presented the basic advantages of their home.	1	2	3	4	5	6	7
☐	58.	Extent to which homebuilder pointed out some hidden values of the home.	1	2	3	4	5	6	7
☐	59.	Extent to which you were treated like a person, not a number.	1	2	3	4	5	6	7
☐	60.	Extent to which homebuilder personnel acted too pushy – used too much pressure.	1	2	3	4	5	6	7
☐	61.	Extent to which homebuilder personnel showed interest in you as a customer.	1	2	3	4	5	6	7
☐	62.	Extent to which you were given a quiet place to make decisions.	1	2	3	4	5	6	7
☐	63.	Extent to which homebuilder explained every step of home buying and building process to you.	1	2	3	4	5	6	7
☐	64.	Extent to which it was made clear to you whom you should contact during construction.	1	2	3	4	5	6	7
☐	65.	Extent to which homebuilder explained to you warranty coverage.	1	2	3	4	5	6	7
☐	66.	Extent to which homebuilder explained to you your responsibilities for maintenance and upkeep.	1	2	3	4	5	6	7

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NOTE: 1=Very Low (VL). 2=Low (L). 3=Somewhat Low (SL). 4=Moderate (M). 5=Somewhat High (SH). 6=High (H). 7=Very High (VH).

Not Applicable N/A			Very Low VL	L	SL	M	SH	H	Very High VH
☐	67.	Extent to which homebuilder explained to you the way the various items in your home operate.	1	2	3	4	5	6	7
☐	68.	Extent to which your builder clearly explained financing options and the loan process.	1	2	3	4	5	6	7
☐	69.	Extent to which your builder kept you informed about approval and rate changes.	1	2	3	4	5	6	7
☐	70.	Extent to which your builder made the best effort to get a loan approved.	1	2	3	4	5	6	7

Please describe your satisfaction with each issue in the following section by circling the appropriate response on the 7-point scale. Mark the N/A ("Not Applicable") box if you feel the question is not applicable or you can not evaluate that question.

NOTE: 1=Very Dissatisfied (VD). 2=Dissatisfied (D). 3=Somewhat Dissatisfied (SD). 4=Neither Dissatisfied Nor Satisfied (N). 5=Somewhat Satisfied (SS). 6=Satisfied (S). 7=Very Satisfied (VS).

Not Applicable N/A			Very Dissatisfied VD	D	SD	N	SS	S	Very Satisfied VS
☐	71.	How satisfied were you with professionalism of the homebuilder personnel?	1	2	3	4	5	6	7
☐	72.	How satisfied were you with competence (skills and knowledge) of homebuilder personnel?	1	2	3	4	5	6	7
☐	73.	How satisfied were you with the responsiveness (willingness to help and provide prompt service) of homebuilder personnel?	1	2	3	4	5	6	7
☐	74.	How satisfied were you with the reliability (ability to perform the promised service dependably and accurately) of homebuilder personnel?	1	2	3	4	5	6	7
☐	75.	How satisfied were you with the courteousness of the homebuilder personnel?	1	2	3	4	5	6	7
☐	76.	How satisfied were you with the communication with the homebuilder personnel?	1	2	3	4	5	6	7

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NOTE: 1=Very Dissatisfied (VD). 2=Dissatisfied (D). 3=Somewhat Dissatisfied (SD). 4=Neither Dissatisfied Nor Satisfied (N). 5=Somewhat Satisfied (SS). 6=Satisfied (S). 7=Very Satisfied (VS).

Not Applicable N/A			Very Dissatisfied VD	D	SD	N	SS	S	Very Satisfied VS
☐	77.	How satisfied were you with the builder's responsiveness to questions and concerns?	1	2	3	4	5	6	7
☐	78.	How satisfied were you with financing alternatives suggested by your builder?	1	2	3	4	5	6	7
☐	79.	How satisfied were you with the time taken by your builder to repair items identified on your walk-through list?	1	2	3	4	5	6	7
☐	80.	How satisfied were you with the time taken by your builder to repair items identified on your walk-through list?	1	2	3	4	5	6	7
☐	81.	How satisfied were you with the quality of repairs made since move-in?	1	2	3	4	5	6	7
☐	82.	How satisfied were you with the clean-up by repair personnel after completing the repairs?	1	2	3	4	5	6	7
☐	83.	How would you rate your satisfaction with your builder's attitude about customer service (i.e. after move-in)?	1	2	3	4	5	6	7
☐	S1.	Considering all the things we have talked about, how satisfied are you with your house?	1	2	3	4	5	6	7
☐	S2.	How satisfied are you with the degree in which the house has met your expectations when you bought it?	1	2	3	4	5	6	7
☐	S3.	How satisfied are you with the price for the quality offered?	1	2	3	4	5	6	7
			Definitely Would NOT						Definitely Would
☐	S4.	Would you recommend your homebuilder to one of your friends or relatives wanting to buy a house?	1	2	3	4	5	6	7

This is the end of the questionnaire.

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APPENDIX B
HOME-BUYER SATISFACTION SURVEY PACKET

Cover Letter Used in Home-Buyer Satisfaction Survey

Dear Mr. Smith,

My name is John Kerber and I am a graduate student in the Building Construction Management program at Michigan State University conducting research on homebuyer satisfaction. The purpose of this letter is to request your assistance in this study of homebuyers' satisfaction with their newly constructed homes and with the services received. Specifically, your cooperation will assist my research in assessing how well the residential home building industry is meeting homebuyers' expectations.

You were randomly selected from those who have recently purchased a new home in the Lansing area. In order to measure satisfaction with your house and services received from the homebuilder, I am providing you with a copy of a questionnaire. It should take you about 15 minutes to complete the questionnaire. Please return your completed questionnaire in the stamped, addressed envelope provided.

The information you provide is **strictly confidential**, and no individual names will be identified. Your privacy will be protected to the maximum extent allowable by law. The answers you provide will be combined with those of other new homebuyers and used only for statistical analysis.

You freely consent to participate, and participation is voluntary. You may choose not to participate at all, may refuse to participate in certain procedures or answer certain questions, or may discontinue the questionnaire at any time without penalty. You indicate your voluntary agreement to participate by completing and returning this questionnaire.

Your honest impressions and opinions are very necessary to be sure that the home building industry serves the public as effectively as possible. When my research is completed, I would be happy to send you a copy of the results if you desire one. Simply indicate in the space provided at the end of the questionnaire that you desire to obtain the results. I expect to have the results ready to send sometime during late summer.

Thank you for your time and cooperation. Your contribution to the success of this study is greatly appreciated. If you have any comments or questions, please feel free to contact me at (517) 353-3885 (Michigan State University) / (517) 655-5315 (home), or Professor Tim Mrozowski at (517) 353-0781 (Michigan State University). If you have any questions about being a subject of this research, please contact: the UCRIHS Chair, David E. Wright, Ph.D. at (517) 355-2180 (Michigan State University).

Sincerely,

John A. Kerber
Enclosures

How satisfied are you with the processes involved in your new home purchase?

You are asked to evaluate satisfaction with your new home and the services provided by your homebuilder. Please respond only to those questions that are applicable to you.

PART ONE: QUESTIONS PERTAINING TO HOME PURCHASE PROCESS

Please provide the following information regarding your home purchase experience. Indicate your answers by marking the appropriate box.

1. **Are you the original owner of your home?** *Yes* ☐ *No* ☐ *Don't Know* ☐
2. **Did you purchase a house in which you:**
   - *(a) had no choice in the plan, materials, and construction* ☐
   - *(b) had chosen a plan and built house exactly to specifications* ☐
   - *(c) had selected and modified a plan before construction began* ☐
3. **How do you describe your present situation?**
   - *(a) first time homeowner* ☐
   - *(b) second time homeowner* ☐
   - *(c) have owned more than two personal homes over the years* ☐
4. **How did you locate your present home?**
   - *(a) through real estate agent* ☐
   - *(b) directly from housing contractor/builder* ☐
   - *(c) other (specify)* ☐
5. **About how long had you looked for the house?**
   - *(a) less than 1 month* ☐
   - *(b) 1-3 months* ☐
   - *(c) 3-6 months* ☐
   - *(d) more than 6 months* ☐
   - *(e) Not Applicable* ☐
6. **About how many houses did you look at before signing a contract?**
   - *(a) 1-5* ☐
   - *(b) 6-10* ☐
   - *(c) 11-15* ☐
   - *(d) more than 15* ☐
   - *(e) Not Applicable* ☐
7. **What would you rate as the most important factor in selecting your present home?**
   - *(a) the design* ☐
   - *(b) the material components/features of the house itself* ☐
   - *(c) the builder* ☐
   - *(d) other (specify)* ☐ ____

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Please provide the following information regarding your home purchase experience. Indicate your answers by circling ONE number for each question. If the question does not apply, mark the N/A ("Not Applicable").

NOTE: 1=Very Low (VL). 2=Low (L). 3=Somewhat Low (SL).4=Neither Low Nor High (N). 5=Somewhat High (SH). 6=High (H). 7=Very High(VH).

		Very Low						Very High	Not Applicable
		VL	L	SL	N	SH	H	VH	N/A
8.	**What best describes your satisfaction level with the design quality of your new home?**	1	2	3	4	5	6	7	☐
9.	**What best describes your satisfaction level withyour builder's customer service quality?**	1	2	3	4	5	6	7	☐
10.	**What best describes your satisfaction level with the features of your new home (appliances,screened in porch, Jacuzzi, etc)?**	1	2	3	4	5	6	7	☐
11.	**What best describes your satisfaction level with the quality of building material choices available (tile, carpet, light fixtures, etc)?**	1	2	3	4	5	6	7	☐
12.	**What best describes your satisfaction level with your builder's quality of workmanship (free of nail pops, free of shrinkage cracks, etc)?**	1	2	3	4	5	6	7	☐

PART TWO: QUESTIONS PERTAINING TO HOME BUYER SATISFACTION

A. Experiences/Reactions

Please describe your experiences or reactions to each feature of your new home by circling ONE number for each question. If the question does not apply, mark the N/A ("Not Applicable").

NOTE: 1=Very Low (VL). 2=Low (L). 3=Somewhat Low (SL).4=Neither Low Nor High (N). 5=Somewhat High (SH). 6=High (H). 7=Very High(VH).

		Very Low						Very High	Not Applicable
		VL	L	SL	N	SH	H	VH	N/A
13.	**How would you rate your homes design quality relative to your expectations?**	1	2	3	4	5	6	7	☐
14.	**How important was design quality in selecting your new home?**	1	2	3	4	5	6	7	☐
15.	**How important was design quality in selecting your builder?**	1	2	3	4	5	6	7	☐
16.	**How would you rate the customer service quality of your home builder's personnel (sales, warranty, etc.) relative to your expectations?**	1	2	3	4	5	6	7	☐

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		Very Low						Very High	Not Applicable
		VL	L	SL	N	SH	H	VH	N/A
17.	How would you rate the quality of the sales activities relative to your expectations?	1	2	3	4	5	6	7	☐
18.	How would you rate your home builder's warranty work relative to your expectations?	1	2	3	4	5	6	7	☐
19.	How important was customer service quality in selecting your new home?	1	2	3	4	5	6	7	☐
20.	How important was customer service quality in selecting your builder?	1	2	3	4	5	6	7	☐
21.	How would you rate the features of your new home relative to your expectations?	1	2	3	4	5	6	7	☐
22.	How would you rate the quality of building material choices relative to your expectations?	1	2	3	4	5	6	7	☐
23.	How would you rate your builder's quality of workmanship relative to your expectations?	1	2	3	4	5	6	7	☐
24.	How important were the features in selecting your new home?	1	2	3	4	5	6	7	☐
25.	How important were the quality of building material choices in selecting your new home?	1	2	3	4	5	6	7	☐
26.	How important was workmanship quality in selecting your builder?	1	2	3	4	5	6	7	☐

B. Satisfaction With The House

NOTE: 1=Very Dissatisfied (VD). 2=Dissatisfied (D). 3=Somewhat Dissatisfied (SD).4=Neither Dissatisfied Nor Satisfied (N). 5=Somewhat Satisfied (SS). 6=Satisfied (S). 7=Very Satisfied (VS).

		Very Low						Very High	Not Applicable
		VL	L	SL	N	SH	H	VH	N/A
27.	How satisfied are you overall with your home?	1	2	3	4	5	6	7	☐
28.	How satisfied are you with your neighborhood and community in general?	1	2	3	4	5	6	7	☐
29.	How satisfied are you with the degree to which the house has met your expectations?	1	2	3	4	5	6	7	☐

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		Very Low						Very High	Not Applicable
		VL	L	SL	N	SH	H	VH	N/A
30.	**How satisfied are you with the overall design quality of your home?**	1	2	3	4	5	6	7	☐
31.	**How satisfied are you with the quality of the building materials used in your house?**	1	2	3	4	5	6	7	☐
32.	**How satisfied are you with the quality of the workmanship?**	1	2	3	4	5	6	7	☐
33.	**How satisfied are you with your builder's customer service?**	1	2	3	4	5	6	7	☐

		Definitely Would						Definitely Would NOT
34.	**If you had it to do over again, would you choose the same home design?**	1	2	3	4	5	6	7
35.	**If you had it to do over again, would you use the same builder?**	1	2	3	4	5	6	7
36.	**If you had it to do over again, would you select the same features and materials?**	1	2	3	4	5	6	7
37.	**Would you recommend your builder to a friend or relative?**	1	2	3	4	5	6	7

38. **What was your overall satisfaction level most affected by?**
- *(a) design* ☐
- *(b) homes features* ☐
- *(c) quality of building materials* ☐
- *(d) workmanship quality* ☐
- *(f) sales activities* ☐
- *(g) after move-in warranty activities* ☐
- (h) *other (specify)* ☐

PART THREE: QUESTIONS PERTAINING TO THE HOUSE UNIT

Please provide the following information regarding your house unit.

39. Floor area of your house (finished) is:
- *(a) less than 1,600 sq. ft.* ☐
- *(b) 1,601-1,800 sq. ft.* ☐
- *(c) 1,801-2,000 sq. ft.* ☐
- *(d) 2,001-2,200 sq. ft.* ☐
- *(e) 2,201- 2,400 sq. ft.* ☐
- *(f) 2,401-2,600 sq. ft.* ☐
- *(g) more than 2,600 sq. ft.* ☐

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40. How much did you pay for your house?

(a) under $120,000 ☐
(b) $120,001-160,000 ☐
(c) $160,001-200,000 ☐
(d) $200,001-240,000 ☐
(e) $240,001-280,000 ☐
(f) $280,001-320,000 ☐
(g) over $320,000 ☐

41. When was your home completed and ready for move-in?

(a) Built before purchase ☐
(b) Earlier than anticipated or on time ☐
(c) 0-2 weeks late ☐
(d) 2-4 weeks late ☐
(e) 1-2 months late ☐
(f) over 2 months late ☐

42. What year did you move into your house?

(a) 1997 ☐
(b) 1998 ☐
(c) 1999 ☐
(d) Other (specify) ☐_____

This is the end of the questionnaire.

Please return your completed survey in the stamped, addressed envelope provided to the following address:

John A. Kerber
Michigan State University, Building Construction Management Program
P.O. Box
East Lansing, MI 48824

Would you like a copy of the survey results? Yes ☐ No ☐

Gender: M ☐ F ☐

What is your age? ___

Date: _____ / _____ / 2000

Thank you for your time and cooperation.

If you have any questions regarding the questionnaire or wish to make suggestions to us, please contact:

John Kerber,
Phone: 353-3885 (Michigan State University)/ 655-5315 (home)

Faculty advisor:
Prof. Tim Mrozowski, MSU Building Construction Management Program
Phone: 353-0781

If you have any questions about being a subject of this research, please contact:

Chair, UCHRIHS
David E. Wright, Ph.D.
Phone: 355-2180

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APPENDIX C
HOME-BUYER FOLLOW-UP LETTER

Follow-up Cover Letter Used in Home-Buyer Satisfaction Survey

Dear Mr. Smith,

A few days ago we sent you a questionnaire as part of a study on recent homebuyer's satisfaction with the construction quality and related services received during the home buying process. Specifically, my research focuses on assessing how well the residential home building industry is meeting homebuyers' expectations.

If you have already completed and returned it to us please consider this a special "thank you" for your promptness. I realize your time is valuable and appreciate your assistance in this research study.

This questionnaire has been sent to only a small, but representative, sample of those who have recently purchased a new home. Please take this opportunity to voice your opinion on this subject, as your responses will be very helpful in accurately representing the experiences of recent homebuyers. In the event the questionnaire has been misplaced we are forwarding a replacement, and we would ask you to complete the same and return it in the enclosed, self-addressed, envelope.

The information you provide is strictly confidential, and no individual names will be identified. Your privacy will be protected to the maximum extent allowable by law. The answers you provide will be combined with those of other new homebuyers and used only for statistical analysis.

You freely consent to participate, and participation is voluntary. You may choose not to participate at all, may refuse to participate in certain procedures or answer certain questions, or may discontinue the questionnaire at any time without penalty. You indicate your voluntary agreement to participate by completing and returning this questionnaire.

Thank you very much for your time and cooperation. Your contribution to the success of this study is greatly appreciated. If you have any comments or questions, please feel free to contact me at (517) 353-3885 (Michigan State University) / (517) 655-5315 (home), Professor Tim Mrozowski at (517) 353-0781 (Michigan State University). If you have any questions about being a subject of this research, please contact UCHRIHS Chair David E. Wright, Ph.D. at (517) 355-2180 (Michigan State University).

Sincerely,

John A. Kerber

Enclosures

APPENDIX D
HOME-BUYER RESPONSE DATA

Responding	Survey Question Number...																						
Home-buyer	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	2	1	3	3	1	1	2	6	1	7	6	4	5	4	A	1	4	1	A	A	5	7	5
2	1	2	3	2	3	3	1	6	1	6	2	2	4	6	6	1	3	1	6	6	5	4	1
3	1	1	2	2	3	4	4	5	1	5	5	1	4	5	5	1	3	1	4	4	5	4	2
4	1	3	2	3	4	4	1	7	6	6	5	3	6	7	6	6	A	5	A	6	6	5	5
5	2	1	2	1	2	4	2	6	1	5	5	4	4	5	3	5	4	1	6	4	5	5	5
6	1	1	2	2	0	1	4	4	4	4	4	4	5	5	5	5	5	5	5	5	4	4	4
7	1	2	2	2	4	1	1	7	1	5	5	1	7	7	7	1	1	1	7	7	5	1	1
8	1	3	2	3	5	4	4	6	5	5	6	4	5	6	A	6	6	4	A	A	5	4	4
9	1	1	1	3	2	4	1	3	1	5	2	1	3	6	6	1	1	1	7	7	4	2	2
10	1	1	2	1	2	2	4	4	1	4	2	1	2	4	A	1	4	1	A	A	4	2	1
11	1	2	3	3	4	3	4	6	3	5	6	3	5	7	6	3	3	2	5	5	6	4	4
12	1	0	3	1	1	2	4	2	1	5	4	1	4	4	A	1	1	2	6	6	4	4	2
13	1	3	2	1	3	3	4	5	3	5	2	2	5	5	4	3	3	3	4	4	5	2	2
14	1	3	3	2	5	4	1	6	6	6	5	6	7	7	7	7	7	7	7	7	7	7	7
15	1	3	3	2	4	3	4	6	4	4	4	4	5	6	6	4	6	4	5	5	5	3	3
16	1	1	3	1	2	3	2	7	6	7	6	5	6	6	A	5	7	5	A	A	6	6	6
17	1	3	3	1	4	3	1	6	5	6	4	5	6	7	7	6	4	5	5	5	7	5	5
18	1	3	2	2	3	1	2	6	3	6	6	2	6	7	7	4	4	3	6	6	6	5	2
19	1	2	3	3	5	2	4	7	7	7	7	7	7	7	7	A	A	A	A	A	7	7	7
20	1	2	1	3	2	4	2	6	2	5	5	5	7	6	6	2	4	4	6	6	6	6	5
21	1	1	2	3	1	1	4	6	1	3	3	3	5	6	5	2	6	2	6	6	4	4	2
22	0	3	3	3	4	4	4	6	3	6	4	2	5	5	7	3	6	3	5	5	6	4	3
23	1	3	2	2	1	3	1	7	5	6	5	4	5	6	5	4	5	3	5	5	6	5	5
24	1	3	3	2	3	2	1	7	6	6	6	7	A	7	A	6	6	5	7	7	7	6	6
25	1	2	3	3	5	5	3	7	6	6	6	7	7	A	7	5	A	6	A	7	7	5	5
26	1	3	1	2	2	1	1	6	7	5	4	5	5	5	6	6	4	5	5	4	5	4	6
27	1	3	1	2	2	1	1	6	5	3	2	2	6	7	7	5	3	3	5	5	3	3	2
28	1	2	2	3	3	4	1	6	5	6	6	5	6	6	5	4	4	2	6	6	5	6	4
29	1	3	3	2	5	5	4	5	1	A	4	4	4	7	7	5	5	1	7	7	5	4	4
30	1	3	2	2	3	1	3	7	5	7	2	5	7	7	7	5	5	6	7	7	6	2	4

Responding	Survey Question Number...																					
Home-buyer	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
1	A	A	A	6	7	6	5	7	5	1	2	1	7	1	3	5	4	1	4	0	1	60
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6	5	5	4	6	7	6	6	4	5	6	3	4	3	3	7	3	2	2	1	1	1	34
7	7	7	7	5	7	3	3	1	1	1	7	1	3	1	4	5	3	5	1	1	2	44
8	6	6	6	5	7	5	5	5	3	3	5	5	5	5	1	6	5	4	1	2	1	33
9	6	6	7	2	5	3	3	2	2	1	1	1	2	1	6	6	4	1	2	1	2	30
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12	4	4	5	3	3	4	4	4	2	1	4	1	3	1	4	1	2	2	1	1	1	32
13	4	4	5	5	6	5	5	3	2	2	5	1	4	1	4	5	4	2	1	2	2	35
14	7	7	7	7	7	7	7	7	7	7	6	6	6	7	1	7	4	4	1	2	0	76
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16	7	A	6	7	7	6	6	6	6	6	7	7	7	7	6	3	2	1	1	1	1	45
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19	7	7	0	7	7	7	7	7	7	7	7	7	7	7	7	7	4	2	2	1	1	42
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21	6	6	6	5	7	5	6	3	3	1	6	1	2	1	1	3	3	1	2	1	1	44
22	6	6	A	6	6	6	6	0	0	1	7	1	3	1	7	6	5	1	3	2	2	67
23	5	5	5	6	7	6	6	5	6	3	5	4	4	5	1	1	2	4	2	1	2	33
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26	5	5	6	6	7	6	6	5	6	7	5	7	4	6	2	1	2	2	2	2	1	28
27	6	6	6	5	5	5	6	2	2	3	7	4	1	2	1	4	4	5	1	1	2	33
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29	7	7	7	6	7	4	5	4	4	1	7	1	5	1	1	1	2	2	1	1	2	61
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Responding	Survey Question Number...																						
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38	1	1	2	3	3	3	2	7	3	5	4	4	5	6	5	3	4	2	6	6	3	5	5
39	1	2	1	2	3	1	2	5	1	5	4	3	4	4	4	1	1	1	4	4	4	4	3
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59	1	1	3	1	2	4	1	5	1	6	5	3	5	6	A	1	4	1	3	A	6	6	5
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Responding Home-buyer	Survey Question Number...																					
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32	6	5	6	6	7	6	6	6	6	5	7	4	6	4	2	3	0	1	2	0	1	53
33	7	7	7	7	7	7	7	6	7	6	7	7	7	7	7	2	2	4	2	1	2	69
34	6	6	A	1	6	1	2	2	1	1	7	1	1	1	6	2	2	1	3	1	2	49
35	4	5	7	6	6	5	6	4	3	1	6	1	5	1	1	0	0	3	2	1	1	0
36	5	5	5	6	6	6	6	6	6	3	5	4	4	3	1	7	4	2	2	2	1	39
37	6	4	5	6	6	6	6	4	5	1	4	1	4	1	2	3	2	3	2	1	2	45
38	6	6	6	6	7	5	6	5	5	3	6	3	6	3	2	2	2	1	2	1	2	52
39	4	5	7	6	6	5	6	4	3	1	6	1	5	1	1	5	2	3	2	1	1	30
40	6	6	6	6	7	5	5	2	1	1	5	1	3	1	7	2	2	4	2	1	2	22
41	6	6	6	7	7	7	7	7	7	7	5	7	5	7	4	3	0	2	2	1	1	34
42	7	7	7	7	7	7	7	7	7	7	6	7	6	7	7	5	4	1	2	0	0	0
43	4	5	6	6	7	6	7	3	3	2	7	1	2	1	6	1	2	6	2	2	2	37
44	4	4	4	6	6	6	6	5	6	5	5	5	4	5	2	3	3	1	3	1	1	38
45	6	5	6	5	7	5	6	5	5	3	4	3	5	4	6	3	4	1	3	1	1	35
46	4	5	5	3	7	4	4	4	3	3	3	2	4	2	7	3	2	2	2	2	1	37
47	6	6	6	6	6	5	6	5	4	4	6	3	6	3	7	3	3	6	2	1	2	63
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50	6	6	6	6	7	5	5	2	1	1	5	1	3	1	7	0	0	4	2	1	2	0
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52	3	4	A	6	7	6	5	3	3	5	4	2	4	5	7	4	4	2	2	2	2	29
53	5	4	6	6	7	6	4	6	6	5	3	7	4	6	3	3	3	3	2	2	1	30
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56	7	6	6	6	7	6	6	5	5	5	6	7	5	6	2	1	2	3	2	2	2	39
57	6	6	6	6	7	6	6	5	5	4	6	4	5	4	7	2	3	1	3	2	1	31
58	7	7	7	7	7	7	7	7	7	7	6	7	6	7	6	7	7	2	2	2	2	44
59	6	5	5	6	7	6	5	6	6	1	3	4	2	4	1	1	2	1	3	1	1	54
60	5	5	5	7	7	7	7	6	6	5	7	6	7	4	2	1	2	2	2	1	1	74

Responding	Survey Question Number...																						
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62	1	2	2	2	3	3	2	7	7	7	7	7	7	6	5	5	4	7	4	4	5	6	6
63	1	1	2	1	3	4	1	5	1	5	4	1	5	5	A	1	6	1	5	A	5	3	2
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65	1	3	1	3	2	1	4	6	5	5	4	4	5	5	A	6	4	4	5	A	5	3	3
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67	1	3	3	3	2	5	4	6	4	6	5	4	4	5	A	A	5	3	A	4	5	4	5
68	1	3	3	0	1	1	4	5	2	6	6	4	6	7	A	2	6	6	6	A	6	6	5
69	1	2	3	3	5	5	2	7	A	7	7	A	7	7	A	A	A	A	A	A	7	7	A
70	1	3	2	1	2	1	1	6	3	5	5	4	5	6	1	1	3	2	6	6	5	5	4
71	1	3	1	1	2	4	2	4	1	5	4	1	4	6	6	1	1	1	6	6	5	4	3
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74	1	2	3	2	4	1	1	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
75	1	1	2	3	2	1	2	7	7	7	7	7	6	6	A	7	6	7	5	5	6	7	7
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77	1	1	2	1	2	4	3	6	6	7	6	6	6	6	7	7	7	5	4	4	6	6	6
78	1	1	3	2	2	2	1	6	4	5	5	5	0	6	7	5	4	3	6	6	6	6	5
79	1	1	3	3	4	4	1	5	2	4	4	2	4	7	6	1	2	2	6	5	4	2	2
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82	1	3	3	2	5	5	1	5	2	5	6	6	6	7	A	1	4	1	5	5	5	5	5
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Responding	Survey Question Number...																					
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63	5	5	A	5	7	6	6	5	4	1	3	1	5	1	7	3	2	1	3	2	2	55
64	7	7	7	7	7	7	7	7	7	7	7	7	7	7	1	1	2	2	2	1	2	80
65	5	5	A	6	7	6	6	5	5	6	3	1	4	1	7	1	2	2	2	1	2	27
66	5	4	5	6	7	5	6	5	5	5	5	5	3	5	7	2	2	1	3	1	2	31
67	4	4	5	6	7	5	6	6	6	4	6	5	5	4	6	1	2	3	2	1	1	73
68	6	7	A	6	7	7	7	6	5	3	7	6	6	5	7	1	2	6	2	2	1	75
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70	6	5	5	6	7	6	6	5	5	1	6	1	5	1	1	1	2	4	3	1	1	29
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72	7	7	7	7	7	7	7	5	5	1	5	1	4	1	1	7	4	6	3	1	1	38
73	7	7	7	2	6	2	5	2	1	1	1	1	3	1	4	6	3	6	3	1	1	48
74	7	7	7	7	7	7	7	7	7	7	7	7	7	7	1	7	6	2	2	1	1	60
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86	5	5	5	7	7	6	6	6	5	6	6	5	4	5	1	2	3	1	3	1	2	46
87	4	6	4	5	5	3	4	2	1	6	5	2	2	2	4	1	1	1	3	1	1	24
88	6	6	6	6	7	5	6	6	5	3	5	4	5	3	2	1	2	1	4	1	1	71
89	6	5	6	6	7	6	6	5	5	5	6	6	5	7	2	2	2	3	3	1	2	32
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Responding	Survey Question Number...																						
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93	1	3	3	2	4	4	3	6	7	6	7	6	7	7	7	6	6	6	7	7	7	7	7
94	1	1	2	3	3	4	1	6	3	5	3	3	A	6	A	A	5	3	6	A	3	4	5
95	1	1	3	2	1	2	4	6	3	6	7	2	6	6	0	3	5	1	6	6	6	5	1
96	1	1	3	1	1	1	1	7	7	7	7	5	7	7	6	7	6	7	7	7	6	6	6
97	1	3	3	3	3	5	1	5	2	5	4	2	5	5	4	2	2	3	4	4	3	2	2
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103	1	3	3	2	3	3	1	7	7	7	7	7	7	7	7	6	6	7	7	7	6	6	6
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109	1	3	2	1	4	2	1	5	4	5	4	3	3	6	4	3	5	3	7	7	6	3	3
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Responding	Survey Question Number...																					
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92	7	7	7	7	7	6	6	6	6	6	7	6	6	7	1	4	0	2	3	1	2	54
93	7	7	7	7	7	7	7	7	7	7	5	7	6	7	1	2	3	2	3	1	2	49
94	5	5	A	6	7	5	6	5	5	3	6	4	3	3	6	1	2	1	3	1	2	28
95	7	7	7	5	7	3	7	3	2	1	7	1	6	1	7	1	2	5	3	2	2	52
96	6	7	7	7	7	7	7	6	6	7	6	7	6	7	4	3	2	1	3	2	2	45
97	4	2	4	5	7	4	4	2	2	2	5	1	1	1	4	7	7	6	4	1	2	37
98	7	6	7	7	6	7	6	6	6	2	6	7	7	7	4	2	2	2	3	2	1	45
99	7	7	7	7	6	7	7	7	7	7	6	7	6	7	7	6	5	3	3	2	2	38
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101	6	6	6	6	6	6	6	6	6	6	5	5	5	5	2	7	7	3	3	2	1	42
102	7	7	7	6	7	6	6	6	6	6	7	7	7	7	3	6	4	2	3	2	2	42
103	7	6	6	7	7	7	7	7	7	7	7	7	7	7	4	3	4	3	3	1	2	43
104	6	6	6	2	7	2	4	4	3	1	1	1	4	1	7	1	2	1	4	1	2	37
105	4	5	6	6	6	6	6	3	6	5	5	1	1	1	1	1	2	4	3	2	1	44
106	4	4	4	6	7	6	6	5	5	5	4	4	4	4	7	1	2	1	2	1	1	50
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111	7	6	7	7	7	7	6	6	6	6	6	6	6	7	7	2	3	1	2	2	1	56
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113	5	4	4	4	5	4	5	5	3	1	4	1	4	1	1	3	3	1	2	1	1	38
114	6	A	4	3	6	3	6	3	3	1	4	1	3	1	6	3	3	2	1	2	2	36
115	5	5	5	6	6	6	6	6	6	6	6	6	6	6	2	6	3	4	1	1	1	33
116	7	7	7	7	7	7	7	7	7	7	4	7	7	7	4	6	4	4	2	1	2	54
117	6	5	6	3	5	2	4	4	5	2	4	1	3	1	5	2	3	3	1	1	1	33
118	7	6	7	5	7	6	6	6	5	3	2	3	6	4	7	7	7	5	1	1	2	36
119	7	7	A	1	7	1	1	1	1	1	7	1	4	1	7	6	4	1	3	1	1	59
120	6	7	7	7	6	6	6	6	6	6	4	7	6	7	4	4	3	3	1	1	1	34

Responding	Survey Question Number...																						
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122	1	3	2	2	3	3	2	5	2	3	6	5	5	5	3	2	2	5	3	3	4	4	4
123	1	2	3	3	5	5	3	7	4	7	7	7	7	6	7	6	6	4	4	7	7	7	7
124	1	2	3	1	5	4	4	7	7	7	7	7	7	6	7	6	6	7	7	7	6	6	7
125	1	2	1	3	5	5	3	6	6	6	6	7	6	7	4	5	A	6	4	4	6	5	6
126	1	1	2	1	4	4	4	7	1	2	2	1	2	0	6	1	2	2	6	6	3	2	2
127	0	3	3	1	3	4	1	6	2	7	6	5	6	7	6	2	4	4	6	6	6	6	6
128	1	2	2	1	2	2	1	6	7	7	6	7	6	7	A	7	6	6	6	7	6	6	7
129	1	1	3	1	1	4	2	6	7	7	5	6	6	6	A	7	7	7	7	A	7	6	6
130	1	3	3	0	5	5	3	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7
131	1	0	3	0	4	4	1	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
132	1	2	3	3	4	4	1	6	6	6	5	4	6	7	6	6	4	6	5	5	4	4	5
133	2	1	1	3	1	1	4	5	A	6	6	3	5	6	A	A	7	A	7	A	6	5	3
134	1	2	3	3	5	5	4	6	7	6	5	6	6	6	7	7	A	A	6	7	6	5	6
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136	1	3	2	3	2	4	1	6	4	6	6	5	6	7	7	4	3	5	7	7	6	6	6
137	1	2	2	2	5	5	3	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
138	1	1	3	1	4	4	1	5	4	4	5	2	5	7	A	4	4	3	7	6	4	4	4
139	1	3	2	3	0	0	0	7	A	6	7	5	7	A	2	6	A	A	5	6	6	6	6
140	1	3	3	3	1	1	4	5	5	5	4	4	5	5	5	5	5	5	5	5	5	5	5
141	1	1	1	1	4	2	1	5	5	5	5	5	5	5	5	5	5	6	A	A	5	5	5
142	1	3	3	1	4	1	2	3	2	5	3	1	2	5	5	3	3	1	5	5	2	2	2
143	1	3	1	3	4	4	4	5	2	4	3	2	5	6	6	3	4	2	5	5	6	3	2
144	1	3	3	3	2	1	4	4	5	5	5	1	5	5	4	3	4	3	4	4	3	4	3
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146	1	3	2	3	5	2	1	6	6	6	6	6	6	7	7	7	A	6	7	7	6	6	6
147	1	3	2	2	4	4	4	7	6	6	6	6	6	7	7	6	4	6	4	5	6	6	6
148	1	3	2	3	5	4	1	7	5	6	6	6	6	7	3	5	5	5	5	6	6	5	5
149	1	2	2	3	5	5	0	6	A	6	6	6	6	6	A	6	A	A	A	A	6	6	6
150	2	1	3	1	2	3	1	5	A	5	5	5	4	6	A	A	3	A	A	A	4	5	5

Responding	Survey Question Number...																					
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122	3	5	3	5	6	5	4	4	5	2	4	2	4	4	7	4	3	3	1	1	1	45
123	A	7	7	7	7	7	7	7	7	4	7	7	7	5	7	7	5	5	2	2	2	53
124	7	6	7	7	7	6	7	6	7	7	6	7	7	7	1	2	3	3	1	2	2	50
125	6	6	6	7	7	7	7	6	6	4	5	7	5	7	1	4	3	6	2	1	1	47
126	6	6	6	3	6	3	6	1	1	1	4	1	1	1	7	1	1	5	2	1	2	33
127	7	6	7	7	7	7	7	6	6	2	6	1	6	1	1	7	3	2	2	0	2	36
128	6	6	6	7	7	7	6	6	7	7	4	7	6	7	7	7	4	2	2	1	2	39
129	6	6	A	7	7	7	6	6	6	7	5	7	4	7	6	4	3	1	3	1	1	43
130	6	6	7	7	7	7	7	6	7	7	6	7	6	7	7	7	6	4	2	1	1	61
131	7	7	7	6	6	6	6	6	6	6	1	7	6	0	4	7	7	6	2	2	1	49
132	7	6	6	7	3	6	6	5	5	6	7	5	5	6	1	2	3	2	2	1	2	47
133	7	5	6	6	7	7	6	6	3	A	5	4	6	3	4	3	3	1	3	2	2	28
134	6	7	7	7	7	6	6	5	6	6	5	7	5	7	4	1	4	2	2	2	1	46
135	4	4	4	7	7	7	7	6	6	1	2	1	4	1	7	1	3	2	2	1	1	32
136	7	0	7	6	6	6	6	5	4	4	7	3	3	4	7	7	5	5	2	0	0	0
137	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	5	0	2	2	1	1	40
138	7	7	7	6	6	6	6	6	6	5	7	3	5	4	7	4	3	1	2	1	2	59
139	6	7	7	7	7	7	7	6	6	A	7	2	5	3	7	6	5	4	2	2	2	46
140	0	0	5	5	7	5	5	5	5	5	4	5	4	4	0	1	2	2	2	1	2	72
141	5	5	5	6	4	5	5	5	5	5	7	6	5	7	1	1	2	1	2	1	2	57
142	5	5	5	3	6	3	3	3	1	1	5	1	5	1	2	1	2	4	2	1	1	63
143	6	6	6	6	7	6	5	2	2	1	5	2	4	2	1	2	3	5	2	0	2	42
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148	6	5	6	6	3	6	6	6	6	6	7	6	7	7	1	7	6	6	3	0	1	40
149	6	6	6	7	7	7	7	7	7	0	6	7	6	0	1	7	3	2	2	1	2	32
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Responding	Survey Question Number...																						
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153	1	2	3	3	5	5	2	7	1	6	6	1	6	6	1	1	A	1	A	6	4	1	1
154	1	3	2	2	3	3	2	7	6	6	6	6	6	6	7	6	6	6	6	6	6	6	6
155	1	3	3	3	4	4	4	7	1	5	7	7	7	7	6	1	1	1	A	A	6	6	5
156	1	3	3	2	2	1	3	7	6	7	5	6	7	7	7	7	7	5	7	7	7	7	7
157	1	3	2	3	3	2	3	7	7	7	7	7	6	6	7	A	A	A	A	A	7	A	A
158	1	2	3	3	4	4	1	6	3	7	7	6	6	7	A	3	2	1	6	A	6	6	6
159	1	3	2	2	4	4	2	6	7	5	6	6	6	6	6	7	7	6	6	7	6	6	6
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161	1	3	2	3	4	4	1	7	7	7	7	7	7	7	7	7	A	5	5	5	6	7	7
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163	1	3	3	3	5	5	3	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
164	1	1	3	2	5	5	4	7	3	5	2	2	5	7	7	5	4	5	5	5	5	5	5
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168	1	3	3	2	3	1	1	6	5	7	6	6	6	7	A	5	6	5	6	6	5	5	4
169	1	3	3	2	3	1	4	6	6	4	6	6	6	6	6	6	A	5	5	6	6	6	6
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171	1	2	2	3	1	5	3	5	5	6	6	6	6	6	6	6	5	6	A	A	A	6	5
172	1	2	3	1	5	3	1	7	3	7	5	5	7	7	1	3	5	4	5	5	7	6	6
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Responding	Survey Question Number...																					
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153	6	6	6	3	6	6	6	1	1	1	7	1	5	1	4	7	6	5	3	1	1	58
154	6	6	7	7	7	7	7	7	7	7	7	7	7	7	4	4	3	5	3	1	1	39
155	7	7	7	7	7	7	7	7	7	1	7	1	3	1	7	7	0	4	3	1	0	0
156	7	7	7	7	6	7	7	7	7	6	7	7	5	7	3	7	5	2	3	0	2	42
157	7	7	7	7	5	7	6	6	6	A	7	7	6	7	4	5	3	0	4	1	2	42
158	6	6	6	7	6	6	7	7	7	3	6	6	6	6	1	5	4	2	3	2	2	52
159	6	6	7	7	7	7	7	6	7	7	5	7	4	7	1	5	4	2	3	2	1	49
160	4	6	6	6	7	6	6	6	6	6	4	7	6	7	4	2	3	3	3	1	1	34
161	6	7	7	7	5	6	7	7	7	7	7	7	7	7	4	7	7	4	3	1	1	32
162	2	6	A	2	6	2	6	2	1	1	7	1	2	1	4	4	3	1	3	1	2	36
163	7	7	7	7	7	7	7	7	7	7	7	7	7	7	4	7	7	2	3	1	2	37
164	5	5	5	6	7	6	7	4	5	4	7	4	2	3	7	7	7	2	3	1	1	60
165	7	7	7	5	7	5	5	6	5	2	5	4	5	5	7	7	4	3	3	2	2	36
166	7	6	7	7	7	7	7	7	7	7	4	4	6	7	7	7	7	5	2	1	2	57
167	7	7	7	6	6	6	6	6	5	6	4	6	4	6	7	5	6	3	3	2	1	40
168	4	5	6	6	6	6	6	6	6	5	6	5	6	5	4	7	6	2	3	2	1	63
169	6	6	6	6	7	6	6	6	6	6	7	7	6	6	2	3	4	3	3	2	1	68
170	6	6	6	7	7	7	7	7	7	6	7	7	7	7	7	7	5	2	3	2	2	61
171	7	6	6	7	7	6	6	6	6	6	3	5	5	6	7	6	5	6	3	0	1	46
172	7	7	7	7	7	7	7	5	7	2	7	1	7	1	1	6	4	4	2	1	2	44
173	7	7	7	6	5	5	5	5	4	1	2	1	4	1	7	1	0	5	2	1	0	0
174	6	7	7	7	7	7	7	7	7	7	6	7	6	7	7	2	5	1	3	2	2	23
175	A	7	7	7	7	7	7	7	7	7	7	7	7	7	7	2	3	2	1	2	2	83
176	7	7	7	6	5	6	6	6	6	6	3	6	5	6	3	2	3	2	1	2	1	41
177	6	6	6	6	7	6	6	6	6	5	6	6	6	6	7	5	5	1	1	1	1	53
178	5	6	6	6	6	6	6	4	5	5	3	7	2	7	3	6	7	2	1	1	2	45
179	6	6	6	7	7	7	7	7	7	7	6	7	6	7	7	3	3	2	3	2	2	29
180	6	7	7	1	7	1	1	1	1	1	1	1	1	1	4	7	7	6	4	2	1	60

Responding	Survey Question Number...																						
Home-buyer	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
181	1	3	3	3	4	4	4	6	6	7	7	5	6	7	4	6	A	6	A	A	6	6	6
182	1	3	3	1	2	1	1	7	7	6	6	6	6	6	4	6	6	6	6	4	6	6	6
183	1	2	3	2	3	1	1	5	1	6	5	1	5	7	3	1	2	1	7	7	5	4	1
184	1	1	3	1	3	4	1	6	4	6	6	6	6	7	6	4	A	A	5	5	6	6	6
185	1	3	3	2	4	2	1	6	4	5	4	5	4	6	5	4	4	4	5	5	4	3	5
186	1	0	2	1	3	4	1	7	7	7	7	5	6	7	7	7	7	6	7	7	7	7	6
187	1	3	3	3	5	4	1	7	7	7	7	7	7	7	7	6	6	7	7	7	7	6	7
188	1	0	0	0	3	2	3	6	1	5	3	2	6	6	2	2	5	1	7	7	5	4	3
189	1	1	3	1	1	1	0	4	2	5	3	1	3	4	4	1	7	1	7	7	2	2	1
190	1	1	2	3	5	4	1	7	7	7	7	7	7	7	A	7	7	7	7	A	7	7	7
191	1	2	3	3	5	1	1	7	6	7	7	6	7	7	7	5	6	6	6	7	7	7	6
192	1	2	2	2	4	4	2	7	1	5	5	2	7	7	2	1	3	2	6	5	7	5	2
193	1	2	3	1	3	2	3	6	1	5	3	2	6	6	2	2	5	1	7	7	5	4	3
194	1	1	2	1	2	2	1	7	5	6	7	6	7	5	0	6	5	6	4	5	6	6	6
195	1	3	3	1	2	4	1	6	6	6	7	6	6	7	5	6	4	5	6	6	6	6	7
196	1	3	1	2	2	1	1	6	1	4	5	3	5	5	4	3	3	1	5	4	5	5	4
197	1	2	3	3	5	5	2	7	6	6	7	6	7	6	7	6	6	5	6	6	7	6	7
198	1	2	3	2	3	1	3	7	7	7	7	7	7	7	7	7	7	7	7	7	6	6	6
199	1	3	3	2	3	1	4	5	6	6	6	5	4	6	4	6	6	5	6	6	4	5	5
200	1	3	3	1	2	3	4	6	6	6	6	6	6	6	6	6	6	6	6	7	7	7	7
201	1	3	3	1	2	2	4	5	5	5	6	6	5	6	6	5	5	5	6	6	5	5	5
202	1	3	3	1	3	1	1	5	2	6	3	3	6	5	4	3	6	2	4	4	6	5	4
203	1	2	3	2	2	3	3	6	6	5	4	4	5	5	5	6	5	5	6	6	5	5	5
204	1	2	3	3	4	4	4	5	5	6	6	4	3	6	6	3	5	4	4	4	5	5	5
205	1	3	3	2	4	4	3	6	7	6	6	3	6	7	7	7	7	7	7	7	5	4	3
206	1	3	3	2	0	0	1	5	6	5	5	5	5	6	4	5	5	5	A	6	5	5	5
207	1	3	3	3	5	5	3	7	7	7	7	7	7	7	7	7	A	6	6	6	7	7	7
208	1	2	3	3	4	4	1	6	6	6	6	6	6	7	6	5	5	6	6	6	6	6	6
209	1	2	3	3	5	2	4	7	7	7	7	6	7	7	7	6	7	6	7	7	7	7	7
210	1	0	3	3	5	5	4	7	A	7	A	7	7	A	A	A	A	A	A	A	7	A	A

Responding	Survey Question Number...																					
Home-buyer	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
181	5	5	6	7	7	7	6	6	5	6	7	6	6	7	2	5	5	6	3	1	2	59
182	6	6	5	6	6	6	6	6	6	6	6	6	6	6	1	5	5	2	3	1	1	79
183	6	6	7	3	6	5	5	5	2	1	4	1	5	1	4	7	6	7	3	1	0	0
184	5	6	6	6	6	6	6	6	6	5	6	6	6	6	1	6	6	1	4	2	2	43
185	4	4	6	6	7	6	7	5	5	4	7	4	5	4	1	7	7	4	3	1	2	45
186	7	7	7	7	7	7	7	6	6	6	6	6	5	7	1	7	6	4	3	1	2	28
187	7	7	7	7	6	6	7	7	6	6	7	7	6	7	6	4	4	6	3	2	2	55
188	6	7	7	1	7	1	1	1	1	1	1	1	1	1	4	0	0	6	4	2	1	0
189	0	0	0	3	6	3	3	3	1	1	1	1	2	1	6	2	3	1	4	1	1	45
190	7	7	7	7	7	7	7	7	7	7	7	7	7	7	1	2	3	1	4	1	2	50
191	7	7	7	7	7	7	7	7	7	5	5	6	6	7	1	7	7	4	3	2	2	44
192	6	6	5	6	6	5	7	5	2	1	7	1	6	2	1	3	5	4	3	1	1	59
193	7	7	7	5	7	5	5	4	3	1	7	1	6	1	3	2	3	5	3	1	2	44
194	6	A	A	7	2	6	7	7	7	6	6	7	7	7	1	3	4	1	4	2	1	36
195	5	6	6	7	6	6	6	6	6	6	6	7	6	6	4	7	6	4	3	2	1	57
196	5	4	5	6	6	6	6	6	4	1	6	2	5	1	1	2	2	1	3	0	2	40
197	6	6	7	6	5	6	7	6	6	7	7	7	6	7	2	7	0	2	3	1	1	70
198	6	6	7	7	6	7	7	7	7	7	7	7	7	7	7	2	3	2	3	0	2	0
199	6	5	6	5	6	5	5	6	6	6	4	5	4	6	1	3	4	5	3	1	2	44
200	6	6	7	6	6	6	6	6	6	6	7	7	7	7	4	7	7	6	3	2	1	36
201	6	6	6	6	6	6	6	6	6	6	5	5	5	5	2	7	7	4	3	2	1	47
202	6	5	6	5	6	4	5	5	4	2	3	1	4	1	7	6	4	4	3	1	1	37
203	4	5	6	6	7	6	6	5	5	6	6	6	4	5	6	5	5	2	3	1	1	43
204	5	4	4	6	4	5	5	4	4	2	6	3	5	4	4	7	6	3	3	2	1	32
205	5	6	7	6	6	6	6	3	5	7	5	5	4	5	1	6	5	2	3	1	0	45
206	5	5	6	6	6	6	6	6	6	6	4	5	5	6	1	2	3	3	3	2	1	41
207	7	5	7	7	6	7	7	6	7	6	6	7	6	7	4	7	7	6	4	2	2	37
208	6	6	6	7	6	6	6	6	6	6	5	5	5	6	4	7	7	2	3	2	1	42
209	7	7	7	7	7	7	7	7	7	6	7	7	7	7	4	7	5	4	3	1	2	40
210	A	7	A	7	7	7	7	7	7	A	7	0	7	0	0	7	2	0	2	2	1	44

Responding Home-buyer	Survey Question Number...																						
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
211	1	3	2	3	4	4	3	6	7	6	6	6	6	6	2	6	6	6	3	6	6	6	6
212	1	3	3	3	5	5	1	7	6	6	6	6	7	7	7	6	A	7	6	6	7	6	6
213	1	3	3	1	4	4	4	6	5	6	5	5	6	7	7	3	A	5	A	5	6	5	5
214	1	3	3	3	5	5	1	4	4	7	5	3	6	6	2	4	A	2	A	2	6	4	2
215	1	3	2	2	4	4	1	6	1	6	6	5	6	6	4	1	A	1	2	2	6	6	5
216	1	2	2	3	5	5	1	7	7	7	7	7	6	A	7	7	6	6	A	6	6	6	6
217	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
218	1	3	3	2	5	5	1	6	3	6	7	3	6	7	5	3	4	3	A	6	5	5	4
219	1	3	3	3	4	5	2	6	5	6	6	5	5	7	A	5	5	A	5	5	5	5	5
220	1	1	3	1	2	3	4	6	6	5	5	6	6	5	A	7	6	7	3	4	6	5	6
221	1	3	3	3	5	5	3	7	7	7	7	6	7	7	7	7	7	7	7	7	7	7	7

Responding	Survey Question Number...																					
Home-buyer	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
211	6	6	6	7	7	6	6	6	6	7	7	7	7	7	1	7	7	3	2	0	0	0
212	6	6	6	7	7	7	7	7	6	6	5	6	5	6	1	6	6	2	2	2	1	48
213	7	5	7	6	7	5	7	5	5	4	7	3	4	3	6	7	6	3	2	2	2	40
214	5	5	5	6	5	6	6	4	3	3	5	1	5	1	4	7	7	2	2	2	2	42
215	6	6	6	6	6	7	7	7	6	1	6	1	6	1	2	7	7	6	2	1	1	43
216	A	6	7	7	7	6	6	6	6	6	6	7	6	7	7	7	0	5	2	1	2	39
217	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	7	2	3	0	0	0
218	6	6	6	6	3	5	7	5	5	3	1	1	1	1	7	7	7	3	3	2	2	47
219	6	6	6	7	A	7	7	6	6	6	6	6	5	6	7	5	2	2	3	1	1	69
220	6	5	5	6	6	6	6	6	6	7	1	7	5	7	2	7	7	1	4	2	2	43
221	7	7	7	7	7	7	7	7	7	6	7	6	7	7	7	7	7	5	3	1	2	47

APPENDIX E
CORRELATION MATRICES

Correlations from Data Set of All 224 Responding New Home-buyers

Correlations

		Overall	Design	Service	Home	dsgn_ex	srvc_exi	home_exi
Overall	Pearson Correlation	1.000	.650**	.854**	.836**	.465**	.530**	.749**
	Sig. (2-tailed)	.	.000	.000	.000	.000	.000	.000
	N	224	224	224	224	224	224	224
Design	Pearson Correlation	.650**	1.000	.460**	.623**	.472**	.390**	.651**
	Sig. (2-tailed)	.000	.	.000	.000	.000	.000	.000
	N	224	224	224	224	224	224	224
Service	Pearson Correlation	.854**	.460**	1.000	.709**	.408**	.616**	.604**
	Sig. (2-tailed)	.000	.000	.	.000	.000	.000	.000
	N	224	224	224	224	224	224	224
Home	Pearson Correlation	.836**	.623**	.709**	1.000	.469**	.461**	.838**
	Sig. (2-tailed)	.000	.000	.000	.	.000	.000	.000
	N	224	224	224	224	224	224	224
dsgn_exi	Pearson Correlation	.465**	.472**	.408**	.469**	1.000	.492**	.541**
	Sig. (2-tailed)	.000	.000	.000	.000	.	.000	.000
	N	224	224	224	224	224	224	224
srvc_exi	Pearson Correlation	.530**	.390**	.616**	.461**	.492**	1.000	.518**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.	.000
	N	224	224	224	224	224	224	224
home_exi	Pearson Correlation	.749**	.651**	.604**	.838**	.541**	.518**	1.000
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.
	N	224	224	224	224	224	224	224

** Correlation is significant at the 0.01 level (2-tailed).

Correlations from Data Set of 171 Satisfied New Home-buyers

Correlations

		Overall	Design	Service	Home	dsgn_exi	srvc_exi	home_exi
Overall	Pearson Correlation	1.000	.488**	.835**	.737**	.409**	.438**	.677**
	Sig. (2-tailed)	.	.000	.000	.000	.000	.000	.000
	N	171	171	171	171	171	171	171
Design	Pearson Correlation	.488**	1.000	.292**	.512**	.335**	.262**	.577**
	Sig. (2-tailed)	.000	.	.000	.000	.000	.001	.000
	N	171	171	171	171	171	171	171
Service	Pearson Correlation	.835**	.292**	1.000	.567**	.333**	.543**	.456**
	Sig. (2-tailed)	.000	.000	.	.000	.000	.000	.000
	N	171	171	171	171	171	171	171
Home	Pearson Correlation	.737**	.512**	.567**	1.000	.358**	.254**	.776**
	Sig. (2-tailed)	.000	.000	.000	.	.000	.001	.000
	N	171	171	171	171	171	171	171
dsgn_exi	Pearson Correlation	.409**	.335**	.333**	.358**	1.000	.428**	.414**
	Sig. (2-tailed)	.000	.000	.000	.000	.	.000	.000
	N	171	171	171	171	171	171	171
srvc_exi	Pearson Correlation	.438**	.262**	.543**	.254**	.428**	1.000	.361**
	Sig. (2-tailed)	.000	.001	.000	.001	.000	.	.000
	N	171	171	171	171	171	171	171
home_exi	Pearson Correlation	.677**	.577**	.456**	.776**	.414**	.361**	1.000
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.
	N	171	171	171	171	171	171	171

** Correlation is significant at the 0.01 level (2-tailed).

Correlations from Data Set of 42 Not Satisfied New Home-buyers

Correlations from Data Set of 42 Not Satisfied New Home-buyers

Correlations

		Overall	Design	Service	Home	dsgn_exi	srvc_exi	home_exi
Overall	Pearson Correlation	1.000	.432**	.276	.535**	.492**	.403**	.444**
	Sig. (2-tailed)	.	.004	.077	.000	.001	.008	.003
	N	42	42	42	42	42	42	42
Design	Pearson Correlation	.432**	1.000	-.142	.403**	.613**	.322*	.460**
	Sig. (2-tailed)	.004	.	.369	.008	.000	.037	.002
	N	42	42	42	42	42	42	42
Service	Pearson Correlation	.276	-.142	1.000	.044	.071	.339*	.081
	Sig. (2-tailed)	.077	.369	.	.784	.655	.028	.610
	N	42	42	42	42	42	42	42
Home	Pearson Correlation	.535**	.403**	.044	1.000	.580**	.446**	.681**
	Sig. (2-tailed)	.000	.008	.784	.	.000	.003	.000
	N	42	42	42	42	42	42	42
dsgn_exi	Pearson Correlation	.492**	.613**	.071	.580**	1.000	.492**	.691**
	Sig. (2-tailed)	.001	.000	.655	.000	.	.001	.000
	N	42	42	42	42	42	42	42
srvc_exi	Pearson Correlation	.403**	.322*	.339*	.446**	.492**	1.000	.605**
	Sig. (2-tailed)	.008	.037	.028	.003	.001	.	.000
	N	42	42	42	42	42	42	42
home_exi	Pearson Correlation	.444**	.460**	.081	.681**	.691**	.605**	1.000
	Sig. (2-tailed)	.003	.002	.610	.000	.000	.000	.
	N	42	42	42	42	42	42	42

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

APPENDIX F
HOMEBUILDER REVIEW PACKET

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Cover Letter Used in Homebuilder Review Packet

Bob Smith Builders
1234 Grand River Ave.
East Lansing, MI 48824

Dear Mr. Bob Smith:

My name is John Kerber and I am a graduate student in the Building Construction Management program at Michigan State University conducting research on home-buyer satisfaction. The purpose of this letter is to request your assistance in a study of home-buyer satisfaction with newly constructed homes and the related services received. Specifically, your cooperation will assist my research in assessing the validity of the findings, conclusions and recommendations reported in this study.

You were selected to represent new homebuilders in the Lansing area. In order to gain your perspective as a homebuilder, I have enclosed a review packet for your use. This packet contains an overview of the research project; a summary of the survey data & results; and recommendations based upon this analysis of the data. Using the background data furnished, please provide your comments on 1) the study as whole and 2) findings or recommendations you believe inaccurate. Feel free to express any comments directly on the report or on a separate sheet of paper. Please return your comments in the stamped, addressed envelope provided or fax them to me at (517) 432 -1563.

The information you provide is **strictly confidential**, and no individual or company names will be identified. Your privacy will be protected to the maximum extent allowable by law. The comments and opinions you provide will be combined with those of other new homebuilders and used only for judging the validity of this study.

You freely consent to participate, and participation is voluntary. You may choose not to participate at all, may refuse to participate in certain procedures or answer certain questions, or may discontinue the review at any time without penalty. You indicate your voluntary agreement to participate by reviewing and returning this report.

Your honest impressions and opinions are very necessary to be sure this study is as accurate as possible. When my research is completed, I would be happy to send you a copy of the report in full if you desire one. Simply indicate in the space provided at the end of the report that you desire to obtain a copy. I expect to have completed the full report sometime during late summer.

Thank you for your time and cooperation. Your contribution to the success of this study is greatly appreciated. If you have any comments or questions, please feel free to contact me at (517) 353-3885 (Michigan State University) / (517) 655-5315 (home), or Professor Tim Mrozowski at (517) 353-0781 (Michigan State University). If you have any questions about being a subject of this research, please contact: the UCRIHS Chair, David E. Wright, Ph.D. at (517) 355-2180 (Michigan State University).

Sincerely,

John Kerber

Enclosures

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Homebuilder Review Packet

Reviewer Instructions

Please notice during the course of your review that space has been furnished at the end of each section for you to provide your comments and opinions. Based upon your experience in the home building industry, please include in your observations all items you believe to be inaccurate, important/relevant items not included in the section, etc. Additional space is supplied at the end of the report for your comments on the study as a whole.

Overview of the Study

There were two primary objectives for this study. The first was to examine three areas of overall home-buyer satisfaction: design quality satisfaction; service quality satisfaction (e.g. sales, warranty, etc.), and satisfaction with the workmanship/materials/features incorporated into the house (e.g. carpet, light fixtures, screened in porch, etc.). The second objective was to determine the relative importance of each of the three areas on the customer satisfaction of new home buyers.

A sample of 609 home-buyers in the Lansing, Michigan area was used for the study. Single-family homes occupied by the original owners were eligible for the sample. Building permit applications dated January 1997 to June 1999 and issued by the communities of City of East Lansing, Delta, Delhi, Meridian and Williamstown Townships were used to identify those eligible to be included in the sample group. To cross-reference and supplement any data missing from the building permits, the assessment records of each municipality were utilized to verify each sample's information, such as name and mailing address.

During the summer of 2000, a mail survey was used to conduct the study. The response rate was approximately 36%, with 221 completed questionnaires utilized for statistical analysis.

Home-Buyer Satisfaction Findings & Conclusions

Description of the Sample

The home-buyers participating in this study were generally satisfied overall. A majority of the participants expressed satisfaction with the design quality, service quality and the quality of workmanship/materials/features associated with their new house. The following characteristics describe most home-buyers participating in this study:

- Average 44.5 years of age
- Previously purchased at least one other home
- Finished floor area of most homes was 2000 SF or less
- Homes were purchased for $120,000 to $200,000
- Design quality was the most influential factor in selecting the home
- Located home through a builder or an agent working with a builder
- Workmanship quality was the most important factor in selecting a builder
- No distinct pattern in length of time or number of homes included in search

(Characteristics of most home-buyers participating in the study continued)

- Some level of involvement selecting or modifying house plan prior to construction
- Homes were built and delivered on time or constructed prior to purchase
- Most satisfied with design quality and least satisfied with builder's customer service quality
- Perceived design quality exceeded expectations of the most home-buyers
- Perceived service quality exceeded expectations of the least number of home-buyers
- Believed workmanship/materials/features (particularly workmanship quality) was most important area in shaping their overall level of home-buyer satisfaction

Comments on characteristics of the sample: _____

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Significant Differences Between Home-Buyers

Significant differences were found between satisfied home-buyers and not satisfied home-buyers on some items measured by the study. The following characteristics describe the **satisfied** home-buyers:

- Usually satisfied with the areas of design, service and workmanship/materials/features
- Slightly older average age
- More apt to have been involved in selecting and/or modifying a house plan
- More likely to have taken early or on time delivery of their home
- More apt to have purchased homes larger than 2,600 SF
- More likely to have purchased homes priced above $240,000

The following characteristics describe the **not satisfied** home-buyers:

- Typically unsatisfied with the areas of service and workmanship/materials/features
- Slightly younger average age
- Tend to have had no choice in the materials, plans or construction of their home
- More likely to have bought a home built prior to purchase
- More apt to have looked for their house less than 1 month
- More likely to have received their home 1 to 2 months late
- More apt to have bought a home smaller than 1,600 SF
- More likely have purchased a home in the range of $120,000 to $240,000

Comments on the differences between home-buyers: _____

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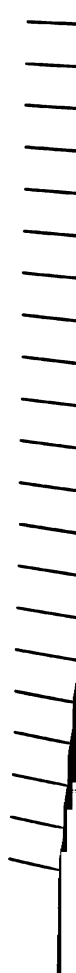

Relative Importance of the Three Areas

From the research findings, several implications can be drawn regarding home-buyer satisfaction. All three areas of home-buyer satisfaction (design quality, service quality and quality of workmanship/materials/features) were found to be significant in predicting overall home-buyer satisfaction. Findings of the study suggest that home builders should have the capability of simultaneously influencing all three areas in a positive manner. As all three areas are significant predictors of overall satisfaction, improving service quality while workmanship/materials/features and/or design quality levels are allowed to decline may have little positive impact on overall home-buyer satisfaction.

Statistical analysis of the respondents' data revealed that the area of service quality had the greatest overall impact on home-buyer satisfaction. Workmanship/materials/features quality was found to be second in relative importance, while design quality was the least influential of the three areas. Though all three areas were determined to be significant predictors of overall satisfaction, the implication of this finding is that providing superior service appears to be the best strategy for builders to improve levels of home-buyer satisfaction.

Comments: _____

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