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A Research Note on:

SATISFACTION WITH STRUCTURAL QUALITY OF CONDOMINIUMS BY OWNER-OCCUPANTS

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ABSTRACT

This study was undertaken to test whether satisfaction with the construction quality in new condominiums is comparable to satisfaction with construction quality in new single-family homes. A questionnaire mailed to a randomly selected group of recent home owners in San Diego County, California, asked respondents to rate satisfaction with construction quality, identify specific structural problems, and rate quality of materials and workmanship. A response rate of 32 percent was achieved with a total of 354 respondents included in the final sample--241 condominium owners and 113 single-family home owners. Soundproofing is the most significant problem in condominiums. The total number of problem areas is higher in conventional houses. Implications for consumer education, industry, policy, and future research are drawn from the findings.

INTRODUCTION

Condominium development has increased rapidly in recent years and condominiums have become an accepted form of home ownership in urban areas, including southern California, where San Diego County is located (San Diego Comprehensive Planning Organization, 1979; San Diego County Department of Planning and Land Use, 1982; U.S. Department of Housing and Urban Development, 1975). In 1970, condominiums comprised only one percent of the total housing stock (San Diego Planning Commission, 1981). By 1976, five percent of San Diego housing units were condominiums, growing to ten percent by 1980 and 13 percent by 1984 (San Diego Planning Commission, 1981, 1985).

This trend is supported by recent figures from San Diego County showing that, since 1978, condominiums are the fastest growing category of property in the county. Gregory J. Smith, San Diego County Assessor, reports, "In 1978, there were 42,000 condominiums and today there are over 87,000--an increase of 107 percent" (Smith, 1987).

This study attempts to identify types and frequency of structural problems, as well as levels of satisfaction with condominium and conventional housing. A mail survey of home owners in San Diego County focuses on these questions to

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develop implications for consumer education, industry, policy and further research.

PREVIOUS RESEARCH

Norcross (1973) focuses on condominium buyer satisfaction in a study funded by the Urban Land Institute. Quality of construction is one of the issues raised by Norcross's study. In that study, features drawing complaints include sloppy workmanship, cheap materials, inadequate noise insulation, and leaky plumbing. The United States Department of Housing and Urban Development (HUD) in 1975 prepared the most detailed national study on condominiums up to that time in response to a congressional mandate. Considerable evidence of poor construction quality in new condominiums was found throughout the country. Twenty-two percent of unit owners surveyed in the HUD study indicate they are dissatisfied or very dissatisfied with the construction quality of their units. Poor workmanship and inferior building materials are cited among the problem areas. Inadequate soundproofing is the deficiency cited most often.

Davidson (1981) conducted a more recent study of condominium problems. In that study, consumer complaints received by the Florida Division of Land Sales and Condominium Development during a five-year period are reviewed. The third most frequently cited complaints relate to the developer and the construction of the dwelling. Warranties are identified most often in that category. In 1980, the United States Federal Trade Commission (FTC) along with HUD, sponsored a study of the defects in new housing (including condominiums) because of a growing volume of complaints. (HUD, 1980).

Construction has been a significant problem associated with condominium development as well as other types of housing. Satisfaction is a subjective evaluation, but is an accepted measure to discover if housing needs are being met, or utility is being received for housing dollars. There is considerable evidence that physical quality of housing is significantly and positively related to housing satisfaction (Campbell, Converse, and Rodgers, 1976; Hanna and Lindamood, 1981; Harris, 1976; Kain and Quigley, 1970; Lane and Kinsey, 1980).

Because it has been shown that it is possible to be satisfied with the whole, yet be dissatisfied with specific features of housing (Brink and Johnston, 1979), this research is designed to be a detailed analysis both identifying specific problem areas and assessing the relative quality of specific features between condominiums and conventional houses.

PROCEDURES

A questionnaire was developed based on the previously mentioned studies. The questionnaire included questions on satisfaction with structural quality, problems with structural elements, quality ratings of materials and workmanship, as well as pre-purchase actions, consumer recourse, and demographic information.

The questionnaire was mailed to a random sample of recent home buyers in San Diego County in April, 1986. San Diego County is an area of southern California that continues to experience rapid growth and real estate development with a large condominium market. The sample population consisted of owner-occupants of new condominium and single-family houses in subdivisions of 50 or more units sold between July 1, 1983 and March 1, 1985. These were the most recent data available at the San Diego County Assessor's office.

Using these criteria, 18 condominium developments and 15 single-family housing tracts were identified that were acceptable for the sample. A probability

sample of 1094 owner-occupants was obtained. A total of 354 eligible responses (including 241 condominium owners and 113 conventional home owners) was received for a response rate of 32 percent. Data were analyzed using frequency counts, percentages and crosstabulation. Chi square was used to test significance.

RESULTS

The sample of condominium and single-family home-owners who participated in this research is composed primarily of white, young (40 or under), college-educated, white-collar, middle-income, married, two-person households, with no children. This composite reflects consumer characteristics that are conducive to the purchase of new housing in the San Diego area. It is also consistent with a recent national survey of new home buyers ("Study outlines", 1987).

The typical price range with both types of housing combined is \$120,000-\$149,000. Condominiums are usually less expensive than conventional houses. However, there is some overlapping of prices with a large number of condominiums and conventional houses in equal price categories. Condominiums tend to be smaller than conventional houses and also tend to have fewer bedrooms.

As expected, a great majority of the respondents (82%) are satisfied or very satisfied with the overall structural quality of their homes and developments. Yet there is a sizeable minority (18.0%) who are dissatisfied or very dissatisfied. The results of crosstabulation analysis show no significant difference between the two groups for overall satisfaction with structural quality.

It was hypothesized that owner-occupants of condominiums would have greater frequency of reported problems with structural elements than owner-occupants of conventional houses. This hypothesis is rejected because single-family houses have more problems with 24 out of 29 structural elements tested. Four of these are significantly more frequent ($p < 0.05$) for single-family owners: a) interior trim, b) concrete, c) wall construction, and d) kitchen appliances. In addition, soil grading and exterior finish are significantly worse ($p < 0.10$) in conventional homes. Soundproofing is the only area with significantly more problems in condominiums than in conventional homes.

The most frequent problems for all owners according to priority are a) soil grading and drainage (42.6%); b) interior wall finishing (41.8%); c) floor covering (39.9%); d) plumbing systems (37.5%); and e) exterior finishing (36.8%). Percentages for each structural element tested are listed in order of frequency in Table 1. Frequencies of reported problems with each item are also listed along with level of significance between frequency of problems for owners of condominiums and conventional houses.

It was also hypothesized that condominium owners would rate both quality of materials and quality of workmanship lower than owners of conventional houses. The hypothesis is accepted for lower quality of materials in condominiums because four items are rated significantly lower ($p < 0.05$) in condominiums: a) soundproofing, b) windows, c) heating fixtures, and d) roofing (see Table 2). Only concrete material is rated significantly lower by owners of single-family dwellings.

Table 1. Frequency of problems with structural elements:
Priority ranking by all owners combined

Structural element	All owners		Condominium owners		Conventional owners	
	n	%	n	%	n	%
Soil grading	140	42.6	84	38.5	56	50.5*
Interior finish	143	41.8	84	36.8	59	51.8**
Floor covering	137	39.9	87	37.5	50	45.0
Plumbing	129	37.5	83	35.8	46	41.1
Exterior finish	125	36.8	76	33.0	49	44.5*
Windows	120	34.9	77	33.5	43	33.7
Doors/Locks	117	34.3	73	31.6	44	40.0
Landscaping	103	34.2	77	34.2	26	34.2
Concrete	107	32.2	64	28.1	43	41.3**
Bathroom fixtures	92	26.7	56	24.3	36	31.6
Roof	87	26.1	56	25.0	31	28.4
Wall construction	77	22.6	41	17.6	36	33.3***
Electrical system	74	22.1	46	24.4	28	25.7
Soundproofing	73	21.8	58	25.0**	15	14.6
Floor construction	72	21.1	47	20.3	25	22.7
Kitchen appliances	60	19.8	35	15.2	33	29.2***
Cabinets	66	19.3	43	18.6	23	20.7
Garage	44	15.1	25	13.9	19	17.1
Heating System	49	14.3	34	14.7	15	13.4
Counters	48	14.3	28	12.2	20	18.0
Air conditioning	23	13.9	20	15.5	3	8.3
Laundry	40	12.5	26	12.0	14	13.5
Fireplace	33	11.2	17	9.3	16	14.3
Ceiling finish	32	9.6	19	8.4	13	11.9
Closets	31	9.1	21	9.1	10	9.0
Water heater	30	8.9	22	9.7	8	7.2
Foundation	29	8.8	18	8.1	11	10.2
Ceiling construction	29	8.8	17	17.4	12	11.1
Stairs	15	5.7	10	5.2	5	6.0

*p < 0.10

**p < 0.05

***p < 0.01

The hypothesis is not supported for quality of workmanship because three items are rated significantly lower by conventional home owners: a) landscaping, b) concretework, and c) brickwork (see Table 3). No workmanship item is rated significantly lower by condominium owners. The lowest rated materials for all owners are presented in order of frequency in Table 4. The lowest rated areas of workmanship for all owners are presented in Table 5.

There is no significant difference in percentages of condominium and conventional home owners who visually inspected their unit (97.7 % vs. 9.1 %), hired a professional inspector (13.3 % vs. 18.8%), reviewed an inspection report (46.5 % vs. 50%), or obtained a written warranty (84.8% vs. 87.2%). Satisfaction with structural quality is significantly higher for all owners combined when a written warranty is obtained, but not for conventional or condominium owners

separately. Professional inspection is the only other prepurchase action that is significantly related to satisfaction with structural quality, but only for condominium owners.

Table 2. Quality of materials: Items rated lowest by condominium owners

Materials Variable	(-)		Good		(+)	
	n	%	n	%	n	%
Soundproofing	74	31.8**	117	50.2	42	18.0
Floor covering	70	31.4	127	57.0	26	11.7
Windows	69	29.5***	131	56.0	34	14.5
Landscaping	61	26.8	111	48.7	56	24.6
Bathroom fixtures	52	22.6	141	61.3	37	16.1
Air conditioning	26	22.2	75	64.1	16	13.7
Plumbing system	51	21.8	157	67.1	26	11.1
Doors	50	21.5	152	65.2	31	13.3
Concrete	44	19.6	153	68.0	28	12.4
Floor construction	42	18.2	134	74.9	23	12.8
Cabinets	40	16.9	132	55.9	64	27.1
Heating fixtures	36	15.9***	146	64.3	45	19.8
Interior walls	37	15.7	174	74.0	24	10.2
Closets	36	15.5	157	67.4	40	17.2
Exterior walls	35	15.1	172	74.1	25	10.8
Roofing	33	14.7**	151	67.4	40	17.9

Note: Rank order listing by ratings lower than Good (-). Originally six categories of ratings were used. These were recoded into three categories. "Good" was left as one category because it was the median rating for all variables and was considered as "average". "Terrible", "Bad", and "Poor" were considered below average (-), and "Excellent" and "Outstanding" were considered above average (+).

*p <0.10

**p <0.05

***p <0.01

Significantly lower ratings by conventional owners

Although satisfaction is generally high for overall structural quality, some owners tend to be dissatisfied or very dissatisfied with specific aspects of housing construction. Problem areas may indicate structural features where cost-cutting measures are seen as more important than quality by builders, yet some consumers feel their quality needs or expectations are not being met.

Builders and developers should be concerned about the construction elements where the most frequent problems have been experienced, and areas where quality of materials and workmanship have been rated lowest by new owners. Soil grading and drainage is the most frequent problem area and can also be one of the most serious. There is some overlap between the most frequent problem items and the lowest rated materials and workmanship. Interior finishing, exterior

finishing, floor covering, landscaping, and plumbing are all repeated in more than one area of response.

Table 3. Quality of workmanship: Items rated lowest by single-family owners

Workmanship variable	(-)		Good		(+)	
	n	%	n	%	n	%
Landscaping	27	45.0***	29	48.3	4	6.7
Soil grading	44	41.9	55	52.4	6	5.7
Interior painting	41	36.0	67	58.5	6	5.3
Interior trim	39	35.8	64	58.7	6	5.5
Floor covering	38	34.2	62	55.9	11	9.9
Plumbing						
installation	35	30.7	72	63.2	7	6.1
Concretework	33	30.6**	70	64.8	5	4.6
Door installation	34	29.8	72	63.2	8	7.0
Exterior trim	33	28.9	73	64.0	8	7.0
Exterior painting	30	27.3	73	66.4	7	6.4
Window installation	30	26.3	71	62.3	13	11.4
Tilework	25	24.0	60	57.7	19	18.3
Electrical						
installation	24	21.1	81	71.1	9	7.9
Cabinetwork	24	20.9	72	62.6	19	16.5
Appliance						
installation	19	16.8*	84	74.3	10	8.8
Counter						
installation	19	16.5	76	66.1	20	17.4
Brickwork	13	15.1**	58	67.4	15	17.4

Note: Rank order listing by (-). Originally, six categories of ratings were used. These were recoded into three categories. Good was left as one category because it was the median rating for all variables and was considered as "average". "Terrible", "Bad", and "Poor" were considered below average (-), and "Excellent" and "Outstanding" were considered above average (+).

*p <0.10

**p <0.05

***p <0.01

Significantly lower than ratings by condominium owners

Owners of conventional homes have problems with more structural elements than do owners of condominiums. More items of material are rated significantly worse in condominiums than in conventional homes, while more items of workmanship are rated significantly worse in conventional homes than in condominiums. In conventional homes, builders and developers need to give more attention to interior finishing, concretework, landscaping, brickwork, and wall construction. In condominiums, builders and developers need to be more concerned with soundproofing, windows, heating systems, and roofing.

Table 4. Quality of materials: Items rated lowest by owners combined

Materials variable	(-)		Good		(+)	
	n	%	n	%	n	%
Floor covering	98	29.9	188	57.3	42	12.8
Landscaping	84	28.9	143	49.1	64	22.0
Soundproofing	93	27.6	181	53.7	63	18.7
Windows	90	25.9	193	55.5	65	18.7
Plumbing system	86	24.8	226	65.1	35	10.1
Bathroom fixtures	79	23.1	216	63.2	47	13.7
Concrete	76	22.8	226	67.7	32	9.6
Doors	72	20.7	224	64.4	52	14.9
Air conditioning	29	20.1	94	65.3	21	14.6
Floor construction	54	15.8	254	74.3	34	9.9
Interior walls	54	15.5	262	75.1	33	9.5
Cabinets	53	15.1	205	58.4	93	26.5
Fireplace	42	14.0	196	65.1	63	20.9
Electrical fixtures	47	13.8	251	73.8	42	12.4
Roofing	46	13.6	217	64.2	75	22.2
Exterior walls	46	13.3	267	77.2	33	9.5

Note: Rank order listing by ratings lower than Good (-). Originally, six categories of rating were used. These were recoded into three categories. Good was left as one category because it was the median rating for all variables and was considered "average". "Terrible", "Bad", and "Poor" were considered below average (-). "Excellent" and "Outstanding" were considered above average (+).

Visual inspection, professional inspections, and reviewing an inspection report cannot be relied on to adequately judge structural quality for both types of housing overall. However, there is evidence that professional inspection is significantly related to satisfaction with structural quality for owners of condominiums. A written warranty is significantly related to satisfaction with structural quality for all owners combined, but not for condominium owners separately.

The difference in major (over \$100), unexpected repair expenses between condominium and conventional owners is not significant. However, there is more than a 20 percent chance that major unexpected repairs will be needed, and the resident cannot expect the developer to cover the expense more than 35 percent of the time.

Of the demographic and housing characteristics studied, length of residence is the only variable that has any significant effect on satisfaction with structural quality. For all owners combined, satisfaction increases from 79.3 percent at 12 months to 83.9 percent at 18 months. It drops to 81.2 percent at two years, then decreases sharply to 33.4 percent in the small section of the sample who have lived in their homes for over two years.

Table 5. Quality of workmanship: Items rated lowest by all owners combined

Workmanship variable	(-)		Good		(+)	
	n	%	n	%	n	%
Soil grading	142	42.5	163	48.8	29	8.7
Floor covering	129	38.6	169	50.6	36	10.8
Interior painting	128	36.5	198	56.4	25	7.1
Interior trim	122	35.8	196	57.5	23	6.7
Landscaping	93	32.5	140	49.0	53	18.5
Door installation	108	30.8	212	60.4	31	8.8
Plumbing installation	106	30.2	210	59.8	35	10.0
Window installation	103	29.4	208	59.4	39	11.1
Exterior trim	85	24.4	238	68.2	26	7.4
Exterior painting	79	23.2	234	68.8	28	8.2
Cabinetwork	77	21.9	213	60.7	61	17.4
Tilework	68	21.7	186	59.4	59	18.8
Concretework	77	21.6	235	70.4	27	8.1
Electrical installation	69	19.8	239	68.5	41	11.7
Counter installation	56	15.9	239	67.7	58	16.4
Appliance installation	52	15.0	244	70.5	50	14.5
Brickwork	17	9.3	134	73.6	31	17.0

Note: Rank order listing by (-). Originally, six categories of ratings were used. These were recoded into three categories. "Good" was left as one category because it was the median rating for all variables and was considered as "average". "Terrible", "Bad", and "Poor" were considered below average (-). "Excellent" and "Outstanding" were considered as above average (+).

Only 50 percent of the conventional owners are satisfied with structural quality a year after purchase. This portion of the sample is also a smaller section of the total number of conventional owners. Satisfaction for this group increases to 85.7 percent at 18 months and decreases to 84.3 percent at two years. No conventional owners in the study have more than two years residence in their homes. Satisfaction with structural quality does not change significantly for condominium owners.

RECOMMENDATIONS

There is a continuing need for educators to provide consumer home buying information through traditional sources including schools, real estate-related business, and government agencies. In addition, a more comprehensive and aggressive approach can be utilized to maximize the benefits of mass media and free advertising resources. Structural quality should be included as a special area of emphasis. Content of programs can be enhanced by identifying specific rather than general problems and difficulties encountered, as well as consequences.

Along with the rising cost of housing, consumers' quality expectations also appear to be rising. Developers should provide complete information on types of materials and construction methods used and why. Explanations of inspections, warranties, normal problems to expect, and proper maintenance need to be given.

A soils study is essential in the San Diego area, and results in layman's terms should be provided to every customer.

An effort should be made to utilize high quality materials in known problem areas such as soundproofing, roofing, and plumbing. More options and packages for upgrades can be offered for items such as floor coverings, interior finishes, appliances, windows, doors, etc. Builders should provide a higher level of quality control for workmanship, especially for soil grading, roofing, and finishing work by subcontractors. Builders should also provide qualified on-site supervision of workers. After-sales service should include a free or low-cost comprehensive warranty for a minimum of one year, a designated customer-service inspector to respond to consumer problems, and a 30-, 60-, or 90-day follow-up visit or inspection.

Local policy makers should review building codes on a regular basis to determine if standards continue to be adequate, especially for noise insulation, plumbing, heating and cooling, and soil grading. More funding should be budgeted for recruiting, training, and hiring more highly qualified building inspectors. An annual consumer survey of builder performance should be conducted and published. State policymakers should increase funding for enforcement of current rules and regulations and establish licensing procedures for both public and private building inspectors. Federal policymakers should work toward uniformity of real estate transactions regarding warranties and handling of construction defects across state lines. They should increase, rather than decrease, budgets for federal agencies that assist housing consumers.

Probably the first and best step for consumers to take is to find out as much as they can about the developer and only buy from a reputable builder. Consumers should utilize all important sources of information available. They should also know what the current laws and building codes require and what their rights are. Prospective home buyers should know what construction problems are most common and ask specific questions about them in addition to conducting a visual inspection. A written warranty should be obtained including specific coverage for all potential problem areas.

Several topics for further research are raised by this study. Categories of serious structural problems versus minor repair problems could be identified, along with a measure of perceived importance for each problem. Perceived value for price paid and whether owners would buy the same property if they had knowledge of any construction problems prior to purchase would be good questions to include in further studies. Questions regarding builder performance, repair work completed, and timeliness of service would be valuable. This could be performed as an annual survey of builders completing new residential construction each year.

Research on construction quality could be repeated in different regions, states, and real estate markets. A longitudinal replication over a period of five-to-ten years might also prove beneficial. Target groups could be identified and analyzed separately for comparison, including first-time versus repeat buyers, single persons versus married couples, female owners versus male owners, and special interest groups such as the elderly and retired.

Cost-benefit analysis studies could be done on improved noise insulation standards and the private building inspection industry. More studies on the specific design needs of condominium residents as well as smaller conventional homes to increase housing utility for dollars spend would also be a benefit. Overall size versus sizes of specific rooms could be a special focus. Another

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question that deserves study is the operation and conduct of the homeowner associations and property management companies and how satisfactory and responsive they are to home buyers. In addition, there is continued need for housing satisfaction research.

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