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# Customer Satisfaction in Construction Industry

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**Abstract** -The questions for the questionnaire survey were framed by considering the points given by both customers as well as the flat promoters. The questionnaire survey was conducted among two types of customers. The first type was the customers who bought their flats for the cost ranging between 4-10 lakhs. and the second type was the customers who bought their flats for 10-20 lakhs. From the flat promoter's opinion, it is clear that the middle class people usually buy flats in the range of 4-10 lakhs and the upper middle class people buy flats in the range of 10-20 lakhs. So, a questionnaire survey was carried out among 25 customers in the first type and 25 customers in the second type. The survey results were analyzed by the software SPSS. From the results of the analysis, the important factors were identified. Based on the results of the analysis some recommendations were made which would be useful for both flat promoters and flat buyers.

**Keywords** - customer satisfaction, response, survey, factor analysis, group statistics

## I. INTRODUCTION

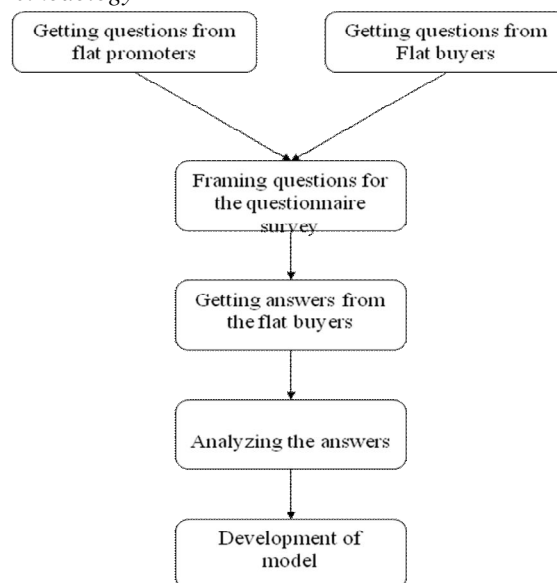
The increasing population growth demands a very larger area for the housing needs of people. This leads to large number of vertical risings in our country. Now a day the multistoried residential complexes with very good aesthetics and the so called flat systems is the fast growing area in construction. People also prefer residing in residential complexes rather than going for individual houses. Flat buyers are already getting more demanding. They are more informed, more aware, and more knowledgeable about what goes into the building process. Customer satisfaction is one of the key elements in Total Quality Management (TQM), an approach that emphasizes overall satisfaction through the continuous improvement of products.

## II. OBJECTIVES AND SCOPE

The objectives are The study attempts to find answers to the following questions. What are the variables impact flat-buyer satisfactions What are their relative weights? What areas of improvement will have the greatest impact on flat-buyer satisfaction? Analyses of various results from the questions . The scope are Personal liking and disliking, Location of the flat, Price of the flat or Economical considerations, Quality of the flat, Design of the flat, Service of the promoters these study areas finding a solution for the satisfaction of flat buyers.

## III. RESEARCH METHODOLOGY

### A. Flow Chart For Research Methodology



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### B. Personal Liking and Disliking



Fig 1 : Response of Personal Liking and Disliking

- 1) Do you prefer your flats to be built according to vaasthu?
- 2) Do you prefer the upper floors in your flat?
- 3) Do you prefer your flats to be equipped with swimming pool, play ground etc?
- 4) Do you prefer your flats to be built in proper orientation with respect to nearby flats?
- 5) Do you prefer your flats to be a fully furnished one?
- 6) Do you prefer your flats to be located near market?
- 7) Do you prefer your flats to be beautified with the landscaping?
- 8) Do you prefer your flats to be provided with separate facilities for solid waste disposal?

### C. Location of the flat

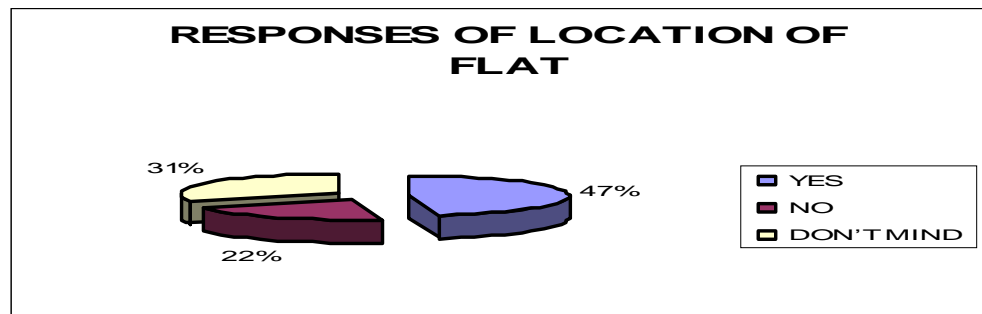


Fig 2 : Response of Location of the flat

- 1) Do you prefer flats located near bus stops, Railway stations?
- 2) Do you prefer flats located nearby schools and colleges?
- 3) Do you prefer flats located nearby commercial areas?
- 4) Would you prefer your flats to be located nearer to your working area?
- 5) Would you like your flats to be located in the decongested or city outskirts?
- 6) Would you prefer your flats to be located away from the industrial area?

### D. Price of the Flat

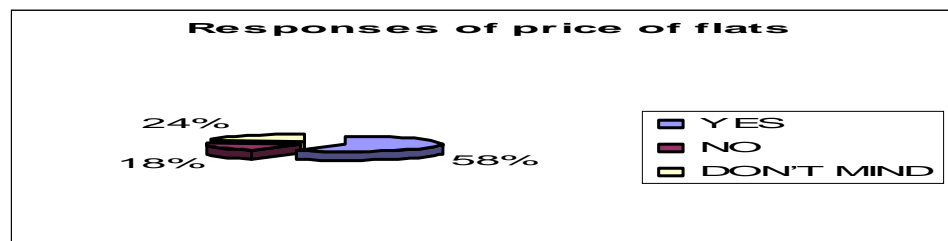


Fig 3 : Response of Price of the Flat

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- 1) Would you prefer to pay extra for Car/Two wheeler Parking?
- 2) Would you prefer to pay for Good security system?
- 3) Would you prefer to pay extra for common maintenance?
- 4) Would you prefer to pay extra for Landscape and Lighting?

### E. Design of the Flats

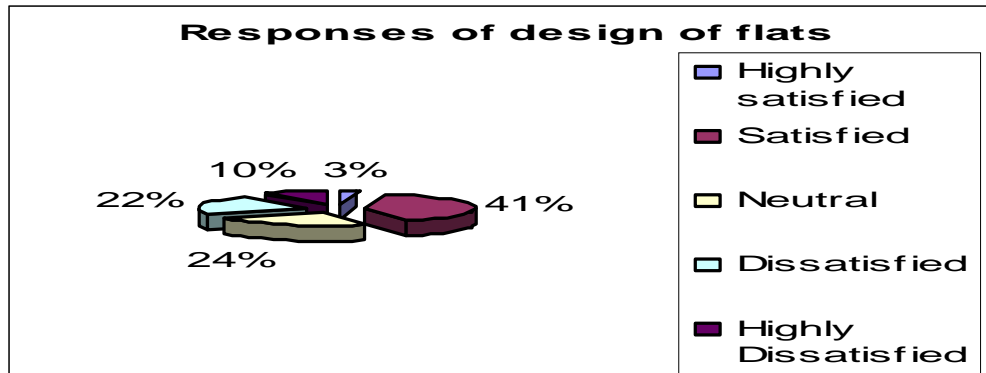


Fig 4 : Response of design of flats

- 1) How satisfied are you with the number of rooms in your flat?
- 2) How satisfied are you with your flat floor plan?
- 3) How satisfied are you with the location of the different rooms?
- 4) How satisfied are you with the kitchen design?
- 5) How satisfied with the ceiling height?
- 6) How satisfied with the bathroom design?
- 7) How satisfied are you with the scale and proportion of the floor plan?
- 8) How satisfied are you with the size of the rooms in your flat?
- 9) How satisfied are you with the layout of the rooms that is the design in relation to your daily life?
- 10) How satisfied are you with individual space for each member of your house hold?
- 11) How satisfied are you with the number of bathrooms in your dwelling unit?
- 12) How satisfied are you with the amount of privacy available in your flat?

### F. Quality of the Flat

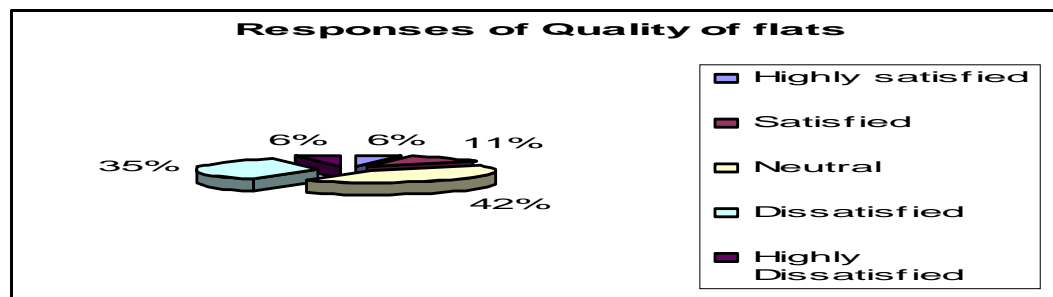


Fig 5 : Response of Quality of flats

- 1) How satisfied are you with the utility cost?
- 2) How satisfied are you with the quality of materials in the floor?
- 3) How satisfied are you with the ease of maintenance of your flat?
- 4) How satisfied are you with the operations of the windows?
- 5) How satisfied with the energy efficiency features in your flat?
- 6) How satisfied are you with the low cost maintenance features in your flat?
- 7) How satisfied are you with the cost and effort needed to keep the flat up?

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- 8) How satisfied are you with the operation of the heating or air conditioning?
- 9) How satisfied are you with the quality of materials in your walls/
- 10) How satisfied are you with the operation of your doors?
- 11) How satisfied are you with the quality of the finished workmanship?
- 12) How satisfied are you with the performance of foundation?

### IV. ANALYSIS OF THE RESULTS

Statistical methods are used for the analysis. SPSS is the software used for analyze the data. The response has to be entered, coded, and analyzed by use of SPSS version 16. (Statistical Packages for Social Sciences). In SPSS software, if the number of sample is less than 50 it can be classified as a small sample.

The following tests have to be done using the software SPSS Descriptive Statistics, Factor Analysis,

#### A. Descriptive Statistics

S.no	Factors	Mean	Std.Deviation
1	Near to bus stops and railway stations	1.40	0.699
2	Near to Commercial areas	1.92	0.751
3	Near to Schools and colleges	1.96	0.968
4	Near to working areas	2.00	0.989
5	Away from the Industrial areas	2.02	0.714
6	In decongested or city outskirts	2.12	0.824
7	Built according to Vaasthu	1.78	0.789
8	Upper floors in flats	1.96	0.781
9	Equipped with gymnasium	1.74	0.852
10	Proper orientation with respect to nearby flats	1.89	0.918
11	Fully furnished flats	1.88	0.520
12	Flats located near market	1.38	0.725
13	Beautified with landscaping	1.66	0.626
14	Facility for solid waste management	1.64	0.802
15	Additional pay for Car parking /two wheeler parking	1.04	0.282
16	Common Maintenance	1.46	0.578
17	Good security system	1.86	0.969
18	Landscape and Lighting	2.22	0.815

#### B. Factor Analysis

S. No	Factors	Component
1	Quality of finish workmanship	0.977
2	Basic advantages of the flat	0.977
3	Responsibilities of the flat builder	0.975
4	Reliability of the flat builder	0.974
5	Energy efficient features	0.972
6	Ceiling height	0.969
7	Roof performance	0.968
8	Size of the rooms	0.963
9	Built according to vaasthu	0.962
10	Location of the different rooms	0.961
11	Bathrooms design	0.960

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12	Individual space	0.960
13	Brightness of light	0.959
14	Responsiveness of the flat builder personnel	0.959
15	Kitchen design	0.959
16	Performance of the foundation	0.958
17	Layout of rooms	0.956
18	Number of rooms	0.955
19	Cost and effort needed to keep the house up	0.953
20	Number and Placement of electrical outlets	0.952
21	Equipped with gymnasium	0.952
22	Ease of maintenance	0.951
23	Good security system	0.943
24	Near to Commercial areas	0.940

Principal component analysis was used since it was an exploratory factor analysis. The important parameter were listed is shown in the table and each respondent was asked to rate them according to the importance in the satisfaction level in a scale. Factor analysis was used here to understand the interdependence among the attributes. The hypothesis which was designed for the factor analysis is as follows:

Null Hypothesis(Ho): Attributes are uncorrelated with the satisfaction of customers

Alternate Hypothesis(Ha): Attributes are not uncorrelated with the satisfaction of customers

FACTORS	KMO'S VALUE	df
Quality of flats	0.841	105
Design of flats	0.932	91
service of promoters	0.924	91
Location of flats	0.810	15
Price of flats	0.666	15
Personal likings and disliking	0.887	28

### C. Results

The KMO and Bartlett's test value (0.841, 0.932, 0.924, 0.810, 0.666, and 0.887) which is greater than 0.5 is considered adequate to conduct factor analysis.

### D. Group Statistics

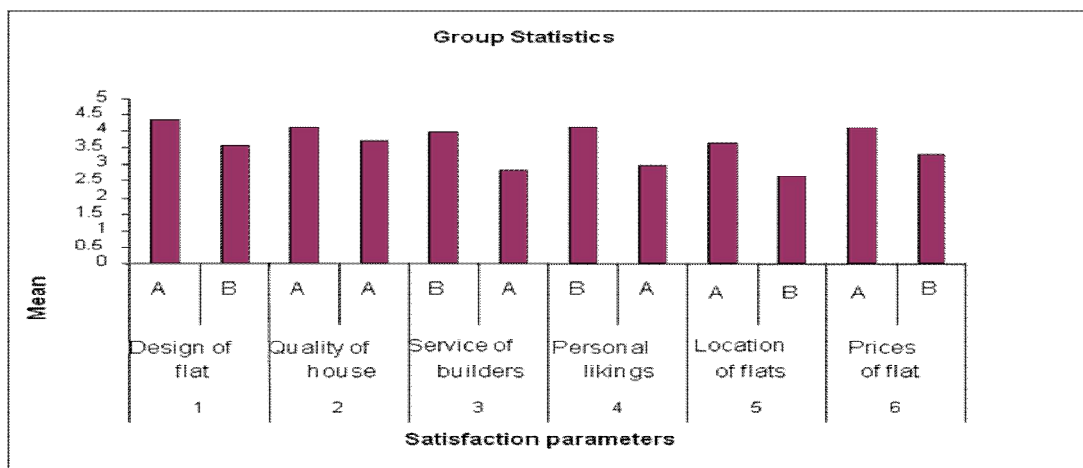


Fig 6 : Group Statistics of Customer Satisfaction Factors

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- 1) For the parameter design of flat, the mean value for the Group A is 4.32 which is the highest among the six parameters and the mean value for Group B is 3.61. The standard deviation for the Group A is 0.617 and for Group B is 0.503.
- 2) The mean value for the quality of flat for Group A is 4.12 and for Group B is 3.73. The Standard deviation for Group is 0.391 and for Group B is 0.402.
- 3) For the parameter Service of Builders, the mean value for the Group A is 3.98 and the mean value for Group B is 2.86. The standard deviation for the Group A is 0.423 and for Group B is 0.351.
- 4) The mean value for the Parameter Personal likings for Group A is 4.12 and for Group B is 2.98. The Standard deviation for Group is 0.368 and for Group B is 0.467.
- 5) For the parameter location of flat, the mean value for the Group A is 3.62 which having the lowest value among the six parameters and the mean value for Group B is 2.64. The standard deviation for the Group A is 0.418 and for Group B is 0.512.
- 6) The mean value for the parameter Prices of flat for Group A is 4.11 and for Group B is 3.29. The Standard deviation for Group is 0.329 and for Group B is 0.431.
- 7) For the Satisfaction analysis, if the mean value is low among the parameters, then the expectations for the one will be high. Here for the parameter design of flat, Group A is having the highest mean value and hence, the expectation for this parameter is less. For the parameter location of flat, Group B is having the lowest mean value and hence, the expectation for this parameter is very high. From the overall analysis the Group A customer who bought their flats for 10-20 lakhs are not satisfied with all the parameters

### V. CONCLUSIONS

Based on the Questionnaire Survey and Statistical analysis results, the following conclusions are drawn.

- A. It is found that all the parameters of flat buyers' satisfaction are significant predictors of overall satisfaction for the flat buyers. In particular, quality has emerged as the most determinant of flat buyers' satisfaction.
- B. Based on the test statistics Quality of flats is the first priority for flat buyers then design of flat and service of promoters is the last rank.
- C. When comparing the two independent variables with that of the dependent variable the Income is 54 % and 80 % of variance with that of other factors. This result clearly shows that quality point of view the customers are not fully satisfied.
- D. From the result of the group statistics it is clear that the customer who were bought their flats for 25-40 lakhs are not satisfied with all the parameters

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