



A STUDY ON USAGE PATTERN AND BUYING BEHAVIOUR OF BUS BODY BUILDERS OF PALAKKAD AND MALAPPURAM DISTRICTS, KERALA WITH SPECIAL REFERENCE TO PLYWOOD INDUSTRY

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ABSTRACT :

Automobiles are constantly exposed to abrasive abuse by weather. Public transport for instance. The most commonly used public transport is bus. So its building materials has to be exceptionally durable, dense and enormously resistance to weather and heat. Plywood comes in bus building Industry in various size and dimensions, which cuts installation cost and save time. The scope of this study was to understand usage pattern and buying behaviour with respect plywood panel in bus body building industry. The study was done at Palakkad district and Malappuram districts of Kerala among 30 bus body builders in October 2016. With suitable modification this study can be taken as a base for future market survey for Plywood Industry.



KEYWORDS : Cost Consideration , Customer Insistences, Purchase decision , brand preference , Viable Substitute.

INTRODUCTION

Plywood Industry General Overview: Panel comprising of at least three layers of thin wood bonded together with adhesive. Each ply is usually is usually oriented at a right angle to the adjacent layer in order to improve strength and reduce the probability of shrinkage. Plywood is flexible , inexpensive , workable and reusable and it is used instead of plain wood because of plywood resistance to cracking , shrinkage , splitting and twisting because of its generally high strength. The history of plywood industry in India is recent about 80 years ago. It is the major consumption of composite wood in India. The market of plywood and allied products in India is estimated to be about Rs 12000 Cr (USD 2.50 bn) and expecting further growth rate at 10% Pa.

Usage Pattern of Plywood in In Bus body Building: There are wide range of plywood in bus body building. It varies from flooring to roofing. Each category uses different size , dimensions of plywood with higher quality and water resistant. The checker plywood are generally used in flooring, it is highly compressed , water resistant plywood. This study analysis the buying behaviour and usage pattern of bus body builders with reference plywood industry.

OBJECTIVES OF THE STUDY

- To analyse Usage pattern and buying behaviour of bus body builder with reference to plywood Industry
- To analyse Cost considerations versus quality consideration among bus body builders
- To analyse current delivery system and channel of distribution.
- To study about influencer and decision maker in purchasing decision of plywood for bus body building.

RESEARCH METHODOLOGY

Usage pattern of the plywood in the bus body building Industry was undertaken to understand brand preference of the consumers, reason for brand preference and distribution effect. As sample of 30 were taken for the study. The target respondents were bus body builders of Malappuram and Palakkad districts of Kerala.

Sampling Method: The sampling method was adopted was non probability convenient sampling method, that the samples are selected based on the subjective judgement of the researcher.

Primary Data: Primary data was collected through questionnaire and direct interview. Questionnaire was structured and it consists multiple choice, open ended and close ended questions given to bus body builders. Interview method was the respondents (bus body builders) were personally contacted with and interviewed.

Pilot Survey: Pilot survey was conducted in the city of Calicut with 7 samples and necessary addition and deletion were made in the questionnaire.

Secondary Data: Secondary data were collected from Journals, Newspapers, library, internet etc.

Analysis: Statistical tools like bar diagram, Pie diagram used for percentage analysis and Z test (Proportion Test) was used to test hypothesis.

HYPOTHESIS

The hypothesis "There is no viable substitute for plywood" H_0 is 0.50 formulated and tested was conducted by proportion test (Z test) to validate the correctness of hypothesis by analysing the response of respondent for the question " Do you think there any viable substitute for plywood in the bus body building".

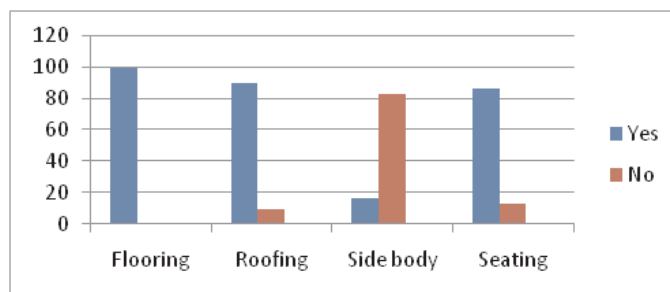
DATA ANALYSIS AND INTERPRETATION

Data analysed by Pie Diagram, bar diagram used for analysis major areas were analysed are Application of plywood, Dimensions and size of plywood required for different usage of bus body building areas, Number of plywood sheets required per bus, Reason for selecting a particular brand, major brand available at the market, qualities possessed by a good plywood panel, Cost consideration versus quality consideration, Major influencer and decision maker in purchase decision of plywood, Place from where the plywood panel available for bus body building industry, and Viable and economical substitute for plywood in bus body building.

Application of Plywood in Bus body Building:

The major usage areas of plywood in bus body building industry are Flooring, Roofing, Seating and Side body respectively. Data and usage pattern was interpreted as 100% of the respondent used plywood in flooring, 90% of the respondent used plywood in Roofing, 87% of respondent used plywood in Seating and 17% only using Side body.

Usage Areas	Attributes			
	Yes	%	No	%
Flooring	30	100	0	0
Roofing	27	90	3	10
Side body	4	17	26	83
Seating	26	87	4	13



Dimensions and Size of Plywood panel Required

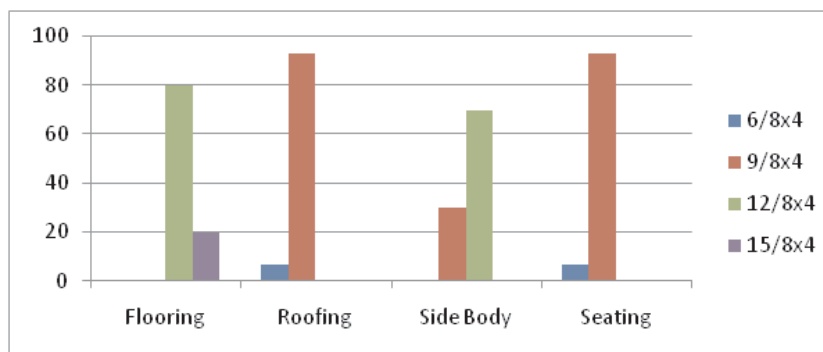
Flooring: 80% of the bus body builder use 12mm and 8x4 feet size plywood panel used

Roofing: 93% of the respondents use 9mm and 8x4 feet size plywood panel

Side Body: 30% only use plywood panel in side body building

Seating: 93 % of bus body builders use 9 mm and 8x 4 feet size in seat frame making.

Usage Area	Dimensions in 'mm' and size in feet							
	6/8x4	%	9/8x4	%	12/8x4	%	15/8x4	%
Flooring	-	-	-	-	24	80	6	20
Roofing	2	7	28	93	-	-	-	-
Side body	-	-	12	30	18	70	-	-
Seating	2	7	28	93	-	-	-	-



Plywood Sheet required per bus

It is interpreted that average plywood panel required for constructing a bus body in different usage area are calculated weighted average method by computing following table using the formula $(\sum WX_n) / (\sum W)$

Flooring: $215/42 = 5.11$, Roofing: $194 / 42 = 4.6$, Side body : $176/42 = 4.19$,

Seating: $193 / 42 = 4.59$

So average plywood panels for building a bus body building is 18.48

The following table shows analysis of data computed and inference made

Classes Sheet Required (W)	Frequencies				WX ₁	WX ₂	WX ₃	WX ₄
	Flooring (X ₁)	Roofing (X ₂)	Side Body (X ₃)	Seating (X ₄)				
9	1	0	0	0	9	0	0	0
8	13	4	0	2	104	32	0	16
7	11	12	6	12	77	84	42	84
6	3	8	14	15	18	48	84	90
5	0	6	10	0	0	30	50	0
4	1	0	0	0	4	0	0	0
3	1	0	0	1	3	0	0	3
∑W = 42					∑WX₁ = 215	∑WX₂ = 194	∑WX₃ = 176	∑WX₄ = 193

Brand Preference Among Bus body builder

The major brands preferred by manufactures of bus body builders are WIP Board (Western India Plywoods) is 37 % , Kitply is 22 % , Feroke Ply is 15% etc. The data summarised as follows Pie chart.



Qualities Possess by

Bus body builder in Palakkad and Malappuram districts of Kerala feels that good qualities for a plywood panel is in the order of High Water resistance (Rank 1), Durability (Rank 2), Structural strength (Rank 3) and Easy machinability (Rank 4)

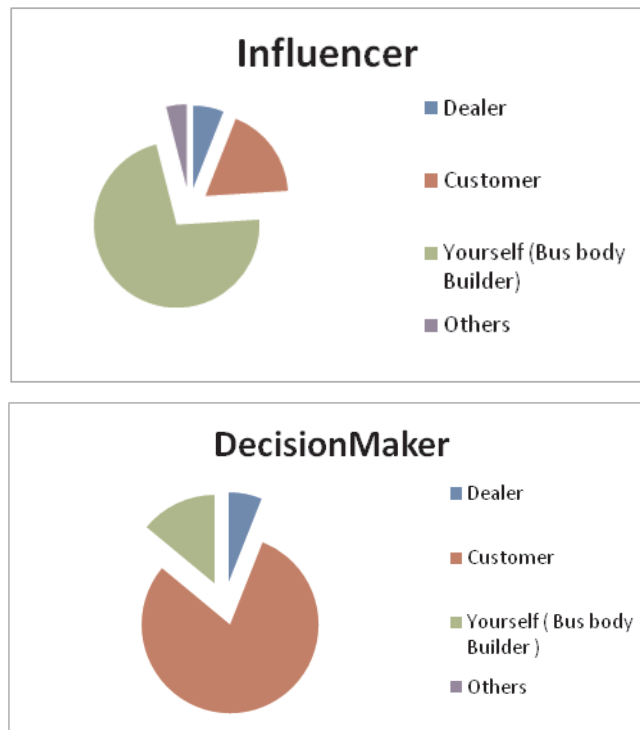
Qualities to be Ranked	Rank							
	I	%	II	%	III	%	IV	%
High Water Resistance	30	100	-	-	-	-	-	-
Durability	-	-	28	93	2	7	-	-
Easy Machinability	-	-	-	-	-	-	30	100
Structural Strength	-	-	2	7	28	93	-	-

Reason for using a particular brand

Attributes	Rank											
	I	%	II	%	III	%	IV	%	V	%	VI	%
Quality	30	100	-	-	-	-	-	-	-	-	-	-
Price	-	-	8	27	-	-	22	73	-	-	-	-
Availability	-	-	20	67	8	27	2	6	-	-	-	-
Customer Instance	-	-	2	6	22	74	6	20	-	-	-	-
Advertising	-	-	-	-	-	-	-	-	-	-	30	100
Credit Facility	-	-	-	-	-	-	-	-	30	100	-	-

From the above table, a bus body builder prefer the plywood panel of the reason their rank as follows, ie; Quality (Rank 1), Availability (Rank 2), Customer Insistence (Rank 3), Price (Rank 4), Credit Facilities (Rank 5), and Advertising (Rank 6).

Influencer and Decision Maker in Purchase of Plywood Panel



It is interesting that analysing of influencer and decision making of purchasing of plywood panel are in varied in the sense that influencing , the bus body builder himself mostly doing this (72%), while customer has only minor role (18%). While in the case of final decision making of purchasing decision has playing major role (80%), bus body builder have only minor role (14%).

TESTING OF HYPOTHESIS

The hypothesis was " There is No Viable alternative for plywood panel in bus body building industry". The validity of this has tested with Proportion Test (Z test)

Proportion Test

Ho: No viable substitute for plywood panel is 0.50

Attributes	Total	Percentage
Yes	2	7
No	28	93
Total	30	100

$$Z = \frac{\text{Observed Value} - \text{Expected Value}}{E}$$

$$E = pq/n; n = 30, p = 0.93, q = 1 - 0.93 \text{ ie; } 0.07$$

$$E = 0.93 \times 0.07 / 30 = 0.04658$$

$$Z = 0.93 - 0.5 / 0.04658 = 9.23$$

At 5% level Z = 1.69

Test Statistics 9.23 > 1.69

So No Scope for rejecting the H₀

ie; the hypothesis statement " No viable alternative for plywood panel" in bus body building industry is validated.

MAJOR FINDINGS AND CONCLUSIONS

- The average buses built by a bus body builder is 2.5 per month , and average plywood panel require for completing bus body is 18.48 boards
- Everybody(100 %) find application of plywood in flooring , While 90 % find application in roofing , 87 % in seating and 17% find application in side body of bus body building.
- For flooring 80 % uses 12mm and 8x4 feet chekered plywood panel , 93 % uses 9mm and 8x4 feet panel for roofing , Only 30 % plywood for side body construction , and 93% use 9 mm and 8x4 feet panel for seating.
- The major plywood brands used for bus body building are Western India (37 %) , Kitply (22%) Feroke Ply (15 %) etc.
- Preference for a particular brand is in the order of quality , availability , customer insistence , price , credit facilities and advertising. Bus body builders feel that a good quality panel possess qualities in the order of High water resistance , Durability , structural strength and easy machinability.
- 93 % of the respondents do not think there are any viable and economical substitute for plywood in bus body building Industry
- No of the respondent do not get any incentive from the plywood companies.
- The respondents do not think advertising plays any major role in their brand preference.
- Major influencer in the purchase decision of plywood panel is bus body builders (72 %). While final decision maker in the buying process are customers (80 %).
- Majority (93 %) of the bus body builders do not think cost consideration are more important than quality consideration. However 80% of respondents feels Medium Price / High quality as most appealing, while 13 % feels High Price / High Quality.
- The majority of the bus body builders (73 %) usually from Depots/ Dealers. While 27 % buy from Retailers.
- 80% of the bus body builders were getting the plywood immediately after placing an order

Very small group respondent feels that degradation in the quality. So companies should do more concentrate on quality to avoid complaints. There should be equal importance to small scale users of plywood also, by reaching more to retailers. The major limitation of this study was some of the respondents were hesitant in giving details, geographical area restricted to only two districts of Kerala and busy schedule of the respondents. With suitable modification this study can be taken as a base for future market survey of plywood industry.

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