

Distribution of Houses by Predominant Materials of Roof and Wall and Level of Damage Risk

Table No. : GJ 14

STATE : GUJARAT

BHAVNAGAR

Wall / Roof		Census Houses		Level of Risk under								
		No. of Houses	%	EQ Zone				Wind Velocity m/s				Flood Prone Area in %
				V	IV	III	II	55 & 50	47	44 & 39	33	
				Area in %				Area in %				
WALL						100		64.6		35.4		
A1 - Mud & Unburnt Brick Wall	Rural	104,279	15.8									
	Urban	24,598	3.7									
	Total	128,877	19.5				<i>M</i>		<i>VH</i>		<i>M</i>	
A2 - Stone Wall not packed with mortar	Rural	19,912	3.0									
	Urban	3,224	0.5									
	Total	23,136	3.5				<i>M</i>		<i>H</i>		<i>L</i>	
Total - Category - A	152,013	23.0										
B - Burnt Bricks Wall & Stone wall packed with mortar	Rural	213,484	32.3									
	Urban	258,415	39.1									
	Total	471,899	71.4				<i>L</i>		<i>H</i>		<i>L</i>	
Total - Category - B	471,899	71.3										
C1 - Concrete Wall	Rural	5,543	0.8									
	Urban	15,981	2.4									
	Total	21,524	3.2				<i>VL</i>		<i>L</i>		<i>VL</i>	
C2 - Wood wall	Rural	1,693	0.3									
	Urban	5,621	0.8									
	Total	7,314	1.1				<i>VL</i>		<i>VH</i>		<i>M</i>	
Total - Category - C	28,838	4.4										
X - Other Materials	Rural	5,735	0.9									
	Urban	3,230	0.5									
	Total	8,965	1.4				<i>VL</i>		<i>VH</i>		<i>M</i>	
Total - Category - X	8,965	1.4										
TOTAL HOUSES*	661,715											

ROOF												
R1 - Light Weight Sloping Roof	Rural	22,419	3.4									
	Urban	43,041	6.5									
	Total	65,460	9.9				<i>L</i>		<i>VH</i>		<i>H</i>	
R2 - Heavy Weight Sloping Roof	Rural	214,497	32.4									
	Urban	66,025	10.0									
	Total	280,522	42.4				<i>L</i>		<i>H</i>		<i>L</i>	
R3 - Flat Roof	Rural	113,730	17.2									
	Urban	202,003	30.5									
	Total	315,733	47.7				Damage Risk as per that for the Wall supporting it					
TOTAL HOUSES*	661,715											

Probable Maximum Precipitation at a Station of the district in one day for arial extent of 1000 sq.km. is 883 mm

Housing Category : Wall Types

Category - A : Buildings in field-stone, rural structures, unburnt brick houses, clay houses

Category - B : Ordinary brick building; buildings of the large block & prefabricated type, half-timbered structures, building in natural hewn stone

Category - C : Reinforced building, well built wooden structures

Category - X : Other materials not covered in A,B,C. These are generally light.

Notes : 1. Flood prone area includes that protected area which may have more severe damage under failure of protection works. In some other areas the local damage may be severe under heavy rains and choked drainage.

2. Damage Risk for wall types is indicated assuming heavy flat roof in categories A, B and C (Reinforced Concrete) building

3. Source of Housing Data : Census of Housing, GOI, 2011

Housing Category : Roof Type

Category - R1 - Light Weight (Grass, Thatch, Bamboo, Wood, Mud, Plastic, Polythene, GI Metal, Asbestos Sheets, Other Materials)

Category - R2 - Heavy Weight (Tiles, Stone/Slate)

Category - R3 - Flat Roof (Brick, Concrete)

EQ Zone V : Very High Damage Risk Zone (MSK > IX)

EQ Zone IV : High Damage Risk Zone (MSK VIII)

EQ Zone III : Moderate Damage Risk Zone (MSK VII)

EQ Zone II : Low Damage Risk Zone (MSK < VI)

Level of Risk : VH = Very High; H = High;

M = Moderate; L = Low; VL = Very Low

* Total No.of Houses excluding Vacant/Locked Houses