

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

Table No. : GJ 08

State : GUJARAT

SURENDRANAGAR

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 %				
					12.3	87.7			6.5	22.2	71.3	.2
<b>WALL</b>												
<b>A1 - Mud &amp; Unburnt Brick Wall</b>	Rural	66,760	15.3									
	Urban	7,690	1.8									
	<b>Total</b>	<b>74,450</b>	<b>17.1</b>		<i>H</i>	<i>M</i>			<i>VH</i>	<i>H</i>	<i>M</i>	<i>VH</i>
<b>A2 - Stone Wall not packed with mortar</b>	Rural	41,410	9.5									
	Urban	7,422	1.7									
	<b>Total</b>	<b>48,832</b>	<b>11.2</b>		<i>H</i>	<i>M</i>			<i>H</i>	<i>M</i>	<i>L</i>	<i>VH</i>
<b>Total - Category - A</b>		<b>123,282</b>	<b>28.2</b>									
<b>B - Burnt Bricks Wall &amp; Stone wall packed with mortar</b>	Rural	181,853	41.6									
	Urban	117,422	26.9									
	<b>Total</b>	<b>299,275</b>	<b>68.5</b>		<i>M</i>	<i>L</i>			<i>H</i>	<i>M</i>	<i>L</i>	<i>H/M</i>
<b>Total - Category - B</b>		<b>299,275</b>	<b>68.4</b>									
<b>C1 - Concrete Wall</b>	Rural	2,744	0.6									
	Urban	2,372	0.5									
	<b>Total</b>	<b>5,116</b>	<b>1.1</b>		<i>L</i>	<i>VL</i>			<i>L</i>	<i>VL</i>	<i>VL</i>	<i>L/ VL</i>
<b>C2 - Wood wall</b>	Rural	1,384	0.3									
	Urban	505	0.1									
	<b>Total</b>	<b>1,889</b>	<b>0.4</b>		<i>L</i>	<i>VL</i>			<i>VH</i>	<i>H</i>	<i>M</i>	<i>H</i>
<b>Total - Category - C</b>		<b>7,005</b>	<b>1.6</b>									
<b>X - Other Materials</b>	Rural	5,641	1.3									
	Urban	2,085	0.5									
	<b>Total</b>	<b>7,726</b>	<b>1.8</b>		<i>VL</i>	<i>VL</i>			<i>VH</i>	<i>H</i>	<i>M</i>	<i>VH</i>
<b>Total - Category - X</b>		<b>7,726</b>	<b>1.8</b>									
<b>TOTAL HOUSES*</b>		<b>437,288</b>										

<b>ROOF</b>												
<b>R1 - Light Weight Sloping Roof</b>	Rural	22,366	5.1									
	Urban	11,956	2.7									
	<b>Total</b>	<b>34,322</b>	<b>7.8</b>		<i>M</i>	<i>L</i>			<i>VH</i>	<i>VH</i>	<i>H</i>	<i>VH</i>
<b>R2 - Heavy Weight Sloping Roof</b>	Rural	191,480	43.8									
	Urban	34,602	7.9									
	<b>Total</b>	<b>226,082</b>	<b>51.7</b>		<i>M</i>	<i>L</i>			<i>H</i>	<i>M</i>	<i>L</i>	<i>H</i>
<b>R3 - Flat Roof</b>	Rural	85,946	19.7									
	Urban	90,938	20.8									
	<b>Total</b>	<b>176,884</b>	<b>40.5</b>		<i>Damage Risk as per that for the Wall supporting it</i>							
<b>TOTAL HOUSES*</b>		<b>437,288</b>										

Probable Maximum Precipitation at a Station of the district in one day for arial extent of 1000 sq.km. is 552 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