

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

**Table No. : MP 27**

**State : MADHYA PRADESH**

**BHOPAL**

Wall / Roof		Census Houses		Level of Risk under									Flood Prone Area in %
		No. of Houses	%	EQ Zone				Wind Velocity m/s					
				V	IV	III	II	55 & 50	47	44 & 39	33		
				Area in %				Area in %					
<b>WALL</b>								100		97.8	2.2		
<b>A1 - Mud &amp; Unburnt Brick Wall</b>	Rural	65,130	10.8										
	Urban	46,583	7.7										
	<b>Total</b>	<b>111,713</b>	<b>18.5</b>					<i>L</i>		<i>H</i>	<i>M</i>		
<b>A2 - Stone Wall not packed with mortar</b>	Rural	1,792	0.3										
	Urban	5,436	0.9										
	<b>Total</b>	<b>7,228</b>	<b>1.2</b>					<i>L</i>		<i>M</i>	<i>L</i>		
<b>Total - Category - A</b>		<b>118,941</b>	<b>19.7</b>										
<b>B - Burnt Bricks Wall &amp; Stone wall packed with mortar</b>	Rural	36,583	6.1										
	Urban	405,173	67.1										
	<b>Total</b>	<b>441,756</b>	<b>73.2</b>					<i>VL</i>		<i>M</i>	<i>L</i>		
<b>Total - Category - B</b>		<b>441,756</b>	<b>73.1</b>										
<b>C1 - Concrete Wall</b>	Rural	1,022	0.2										
	Urban	15,777	2.6										
	<b>Total</b>	<b>16,799</b>	<b>2.8</b>					<i>VL</i>		<i>VL</i>	<i>VL</i>		
<b>C2 - Wood wall</b>	Rural	309	0.1										
	Urban	5,457	0.9										
	<b>Total</b>	<b>5,766</b>	<b>1.0</b>					<i>VL</i>		<i>H</i>	<i>M</i>		
<b>Total - Category - C</b>		<b>22,565</b>	<b>3.7</b>										
<b>X - Other Materials</b>	Rural	3,926	0.6										
	Urban	17,057	2.8										
	<b>Total</b>	<b>20,983</b>	<b>3.4</b>					<i>VL</i>		<i>H</i>	<i>M</i>		
<b>Total - Category - X</b>		<b>20,983</b>	<b>3.5</b>										
<b>TOTAL HOUSES*</b>		<b>604,245</b>											

ROOF													
<b>R1 - Light Weight Sloping Roof</b>	Rural	19,360	3.2										
	Urban	150,031	24.8										
	<b>Total</b>	<b>169,391</b>	<b>28.0</b>					<i>VL</i>		<i>VH</i>	<i>H</i>		
<b>R2 - Heavy Weight Sloping Roof</b>	Rural	70,877	11.7										
	Urban	23,086	3.8										
	<b>Total</b>	<b>93,963</b>	<b>15.5</b>					<i>VL</i>		<i>M</i>	<i>L</i>		
<b>R3 - Flat Roof</b>	Rural	18,525	3.1										
	Urban	322,366	53.4										
	<b>Total</b>	<b>340,891</b>	<b>56.5</b>	Damage Risk as per that for the Wall supporting it									
<b>TOTAL HOUSES*</b>		<b>604,245</b>											

Probable Maximum Precipitation at a Station of the district in one day for arial extent of 1000 sqm. 540 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