

**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 %					
WALL								100		97.8	2.2		
A1 - Mud & Unburnt Brick Wall	Rural	65,130	10.8										
	Urban	46,583	7.7										
	Total	111,713	18.5					<i>L</i>		<i>H</i>	<i>M</i>		
A2 - Stone Wall not packed with mortar	Rural	1,792	0.3										
	Urban	5,436	0.9										
	Total	7,228	1.2					<i>L</i>		<i>M</i>	<i>L</i>		
Total - Category - A		118,941	19.7										
B - Burnt Bricks Wall & Stone wall packed with mortar	Rural	36,583	6.1										
	Urban	405,173	67.1										
	Total	441,756	73.2					<i>VL</i>		<i>M</i>	<i>L</i>		
Total - Category - B		441,756	73.1										
C1 - Concrete Wall	Rural	1,022	0.2										
	Urban	15,777	2.6										
	Total	16,799	2.8					<i>VL</i>		<i>VL</i>	<i>VL</i>		
C2 - Wood wall	Rural	309	0.1										
	Urban	5,457	0.9										
	Total	5,766	1.0					<i>VL</i>		<i>H</i>	<i>M</i>		
Total - Category - C		22,565	3.7										
X - Other Materials	Rural	3,926	0.6										
	Urban	17,057	2.8										
	Total	20,983	3.4					<i>VL</i>		<i>H</i>	<i>M</i>		
Total - Category - X		20,983	3.5										
TOTAL HOUSES*		604,245											

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

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