

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

Table No. : UP 02

State : UTTAR PRADESH

MUZAFFARNAGAR

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 %					
				100				100				16.1	
WALL													
A1 - Mud & Unburnt Brick Wall	Rural	36,921	4.1										
	Urban	9,300	1.0										
	Total	46,221	5.1		<i>H</i>			<i>VH</i>				<i>VH</i>	
A2 - Stone Wall not packed with mortar	Rural	6,619	0.7										
	Urban	4,539	0.5										
	Total	11,158	1.2		<i>H</i>			<i>H</i>				<i>VH</i>	
Total - Category - A		57,379	6.3										
B - Burnt Bricks Wall & Stone wall packed with mortar	Rural	567,152	62.4										
	Urban	248,162	27.3										
	Total	815,314	89.7		<i>M</i>			<i>H</i>				<i>H/M</i>	
Total - Category - B		815,314	89.6										
C1 - Concrete Wall	Rural	3,490	0.4										
	Urban	2,576	0.3										
	Total	6,066	0.7		<i>L</i>			<i>L</i>				<i>L/VL</i>	
C2 - Wood wall	Rural	784	0.1										
	Urban	420	-										
	Total	1,204	0.1		<i>L</i>			<i>VH</i>				<i>H</i>	
Total - Category - C		7,270	0.8										
X - Other Materials	Rural	22,452	2.5										
	Urban	7,105	0.8										
	Total	29,557	3.3		<i>VL</i>			<i>VH</i>				<i>VH</i>	
Total - Category - X		29,557	3.2										
TOTAL HOUSES*		909,520											

ROOF												
R1 - Light Weight Sloping Roof	Rural	231,076	25.4									
	Urban	57,760	6.4									
	Total	288,836	31.8		<i>M</i>			<i>VH</i>				<i>VH</i>
R2 - Heavy Weight Sloping Roof	Rural	51,160	5.6									
	Urban	11,943	1.3									
	Total	63,103	6.9		<i>M</i>			<i>H</i>				<i>H</i>
R3 - Flat Roof	Rural	355,182	39.1									
	Urban	202,399	22.3									
	Total	557,581	61.4	Damage Risk as per that for the Wall supporting it								
TOTAL HOUSES*		909,520										

Probable Maximum Precipitation at a Station of the district in one day for arial extent of 1000 sqm. 523 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