

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

**Table No. : HR 06**

**State : HARYANA**

**KARNAL**

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 %					
					28.2	71.8			100				61.2
WALL													
A1 - Mud & Unburnt Brick Wall	Rural	10,930	2.7										
	Urban	2,942	0.7										
	Total	13,872	3.4		H	M		VH					VH
A2 - Stone Wall not packed with mortar	Rural	2,681	0.7										
	Urban	1,652	0.4										
	Total	4,333	1.1		H	M		H					VH
Total - Category - A		18,205	4.6										
B - Burnt Bricks Wall & Stone wall packed with mortar	Rural	254,220	63.7										
	Urban	115,438	28.9										
	Total	369,658	92.6		M	L		H					H/M
Total - Category - B		369,658	92.7										
C1 - Concrete Wall	Rural	4,557	1.1										
	Urban	2,345	0.6										
	Total	6,902	1.7		L	VL		L					L/VL
C2 - Wood wall	Rural	264	0.1										
	Urban	169	-										
	Total	433	0.1		L	VL		VH					H
Total - Category - C		7,335	1.8										
X - Other Materials	Rural	2,715	0.7										
	Urban	912	0.2										
	Total	3,627	0.9		VL	VL		VH					VH
Total - Category - X		3,627	0.9										
TOTAL HOUSES*		398,825											
ROOF													
R1 - Light Weight Sloping Roof	Rural	86,242	21.6										
	Urban	15,319	3.8										
	Total	101,561	25.4		M	L		VH					VH
R2 - Heavy Weight Sloping Roof	Rural	61,916	15.5										
	Urban	7,085	1.8										
	Total	69,001	17.3		M	L		H					H
R3 - Flat Roof	Rural	127,209	31.9										
	Urban	101,054	25.3										
	Total	228,263	57.2	Damage Risk as per that for the Wall supporting it									
TOTAL HOUSES*		398,825											

Probable Maximum Precipitation at a Station of the district in one day for arial extent of 1000 sqm. **520 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