

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

**Table No. : GJ 20**

**State : GUJARAT**

**NARMADA**

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		15.5
WALL												
A1 - Mud & Unburnt Brick Wall	Rural	10,265	7.1									
	Urban	1,536	1.1									
	Total	11,801	8.2			M				M		VH
A2 - Stone Wall not packed with mortar	Rural	387	0.3									
	Urban	57	-									
	Total	444	0.3			M				L		VH
Total - Category - A		12,245	8.5									
B - Burnt Bricks Wall & Stone wall packed with mortar	Rural	34,710	24.1									
	Urban	11,445	8.0									
	Total	46,155	32.1			L				L		H/M
Total - Category - B		46,155	32.1									
C1 - Concrete Wall	Rural	646	0.4									
	Urban	569	0.4									
	Total	1,215	0.8			VL				VL		L/VL
C2 - Wood wall	Rural	557	0.4									
	Urban	72	0.1									
	Total	629	0.5			VL				M		H
Total - Category - C		1,844	1.3									
X - Other Materials	Rural	80,508	55.9									
	Urban	3,182	2.2									
	Total	83,690	58.1			VL				M		VH
Total - Category - X		83,690	58.1									
TOTAL HOUSES*		143,934										

<b>ROOF</b>												
<b>R1 - Light Weight Sloping Roof</b>	Rural	32,494	22.6									
	Urban	4,927	3.4									
	<b>Total</b>	<b>37,421</b>	<b>26.0</b>			L				H		VH
<b>R2 - Heavy Weight Sloping Roof</b>	Rural	83,373	57.9									
	Urban	3,993	2.8									
	<b>Total</b>	<b>87,366</b>	<b>60.7</b>			L				L		H
<b>R3 - Flat Roof</b>	Rural	11,206	7.8									
	Urban	7,941	5.5									
	<b>Total</b>	<b>19,147</b>	<b>13.3</b>	<i>Damage Risk as per that for the Wall supporting it</i>								
<b>TOTAL HOUSES*</b>		<b>143,934</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



**Building Materials & Technology Promotion Council**

**Peer Group, MoHUA, GOI**