

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

**Table No. : KL 10**

**State : KERALA**

**KOTTAYAM**

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 %					
						100				100			11.9
<b>WALL</b>													
<b>A1 - Mud &amp; Unburnt Brick Wall</b>	Rural	33,052	5.4										
	Urban	10,864	1.8										
	<b>Total</b>	<b>43,916</b>	<b>7.2</b>				<i>M</i>				<i>M</i>		<i>VH</i>
<b>A2 - Stone Wall not packed with mortar</b>	Rural	41,737	6.8										
	Urban	14,233	2.3										
	<b>Total</b>	<b>55,970</b>	<b>9.1</b>				<i>M</i>				<i>L</i>		<i>VH</i>
<b>Total - Category - A</b>		<b>99,886</b>	<b>16.3</b>										
<b>B - Burnt Bricks Wall &amp; Stone wall packed with mortar</b>	Rural	306,760	50.1										
	Urban	134,077	21.9										
	<b>Total</b>	<b>440,837</b>	<b>72.0</b>				<i>L</i>				<i>L</i>		<i>H/M</i>
<b>Total - Category - B</b>		<b>440,837</b>	<b>72.0</b>										
<b>C1 - Concrete Wall</b>	Rural	22,521	3.7										
	Urban	8,305	1.4										
	<b>Total</b>	<b>30,826</b>	<b>5.1</b>				<i>VL</i>				<i>VL</i>		<i>L/ VL</i>
<b>C2 - Wood wall</b>	Rural	10,833	1.8										
	Urban	2,010	0.3										
	<b>Total</b>	<b>12,843</b>	<b>2.1</b>				<i>VL</i>				<i>M</i>		<i>H</i>
<b>Total - Category - C</b>		<b>43,669</b>	<b>7.1</b>										
<b>X - Other Materials</b>	Rural	22,529	3.7										
	Urban	4,975	0.8										
	<b>Total</b>	<b>27,504</b>	<b>4.5</b>				<i>VL</i>				<i>M</i>		<i>VH</i>
<b>Total - Category - X</b>		<b>27,504</b>	<b>4.5</b>										
<b>TOTAL HOUSES*</b>		<b>611,896</b>											

ROOF													
<b>R1 - Light Weight Sloping Roof</b>	Rural	119,557	19.5										
	Urban	38,458	6.3										
	<b>Total</b>	<b>158,015</b>	<b>25.8</b>				<i>L</i>				<i>H</i>		<i>VH</i>
<b>R2 - Heavy Weight Sloping Roof</b>	Rural	174,633	28.5										
	Urban	64,214	10.5										
	<b>Total</b>	<b>238,847</b>	<b>39.0</b>				<i>L</i>				<i>L</i>		<i>H</i>
<b>R3 - Flat Roof</b>	Rural	143,242	23.4										
	Urban	71,792	11.7										
	<b>Total</b>	<b>215,034</b>	<b>35.1</b>				<i>Damage Risk as per that for the Wall supporting it</i>						
<b>TOTAL HOUSES*</b>		<b>611,896</b>											

**Probable Maximum Precipitation at a Station of the district in 24 hrs is 480 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