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

**Table No. : PN 07**      **State : PUNJAB**      **LUDHIANA**

| 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 % | | | | |
| | | | | | 79.5 | 20.5 | | 100 | | | | 89.5 |
| **WALL** | | | | | | | | | | | | |
| *A1 - Mud &* | Rural | 13,476 | 1.4 | | | | | | | | | |
| *Unburnt Brick Wall* | Urban | 11,475 | 1.2 | | | | | | | | | |
| | *Total* | **24,951** | **2.6** | | H | M | | VH | | | | VH |
| *A2 - Stone Wall* | Rural | 3,740 | 0.4 | | | | | | | | | |
| *not packed with mortar* | Urban | 6,369 | 0.7 | | | | | | | | | |
| | *Total* | **10,109** | **1.1** | | H | M | | H | | | | VH |
| Total - Category - A | | **35,060** | **3.8** | | | | | | | | | |
| *B - Burnt Bricks Wall* | Rural | 318,993 | 34.1 | | | | | | | | | |
| *& Stone wall packed* | Urban | 498,603 | 53.4 | | | | | | | | | |
| *with mortar* | *Total* | **817,596** | **87.5** | | M | L | | H | | | | H/M |
| Total - Category - B | | **817,596** | **87.5** | | | | | | | | | |
| *C1 - Concrete Wall* | Rural | 18,196 | 1.9 | | | | | | | | | |
| | Urban | 52,792 | 5.7 | | | | | | | | | |
| | *Total* | **70,988** | **7.6** | | L | VL | | L | | | | L/VL |
| *C2 - Wood wall* | Rural | 241 | - | | | | | | | | | |
| | Urban | 754 | 0.1 | | | | | | | | | |
| | *Total* | **995** | **0.1** | | L | VL | | VH | | | | H |
| Total - Category - C | | **71,983** | **7.7** | | | | | | | | | |
| *X - Other Materials* | Rural | 2,929 | 0.3 | | | | | | | | | |
| | Urban | 6,554 | 0.7 | | | | | | | | | |
| | *Total* | **9,483** | **1.0** | | VL | VL | | VH | | | | VH |
| Total - Category - X | | **9,483** | **1.0** | | | | | | | | | |
| **TOTAL HOUSES*** | | **934,122** | | | | | | | | | | |
| **ROOF** | | | | | | | | | | | | |
| *R1 - Light Weight* | Rural | 27,808 | 3.0 | | | | | | | | | |
| *Sloping Roof* | Urban | 32,630 | 3.5 | | | | | | | | | |
| | *Total* | **60,438** | **6.5** | | M | L | | VH | | | | VH |
| *R2 - Heavy Weight* | Rural | 47,797 | 5.1 | | | | | | | | | |
| *Sloping Roof* | Urban | 22,719 | 2.4 | | | | | | | | | |
| | *Total* | **70,516** | **7.5** | | M | L | | H | | | | H |
| *R3 - Flat Roof* | Rural | 281,970 | 30.2 | | | | | | | | | |
| | Urban | 521,198 | 55.8 | | | | | | | | | |
| | *Total* | **803,168** | **86.0** | *Damage Risk as per that for the Wall supporting it* | | | | | | | | |
| **TOTAL HOUSES*** | | **934,122** | | | | | | | | | | |

**Probable Maximum Precipitation at a Station of the district in 24 hrs is   400 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 chocked 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