* geo\_level\_1\_id, geo\_level\_2\_id, geo\_level\_3\_id (type: int): geographic region in which building exists, from largest (level 1) to most specific sub-region (level 3). Possible values: level 1: 0-30, level 2: 0-1427, level 3: 0-12567.
* count\_floors\_pre\_eq (type: int): number of floors in the building before the earthquake.
* age (type: int): age of the building in years.
* area\_percentage (type: int): normalized area of the building footprint.
* height\_percentage (type: int): normalized height of the building footprint.
* land\_surface\_condition (type: categorical): surface condition of the land where the building was built. Possible values: n, o, t.
* foundation\_type (type: categorical): type of foundation used while building. Possible values: h, i, r, u, w.
* roof\_type (type: categorical): type of roof used while building. Possible values: n, q, x.
* ground\_floor\_type (type: categorical): type of the ground floor. Possible values: f, m, v, x, z.
* other\_floor\_type (type: categorical): type of constructions used in higher than the ground floors (except of roof). Possible values: j, q, s, x.
* position (type: categorical): position of the building. Possible values: j, o, s, t.
* plan\_configuration (type: categorical): building plan configuration. Possible values: a, c, d, f, m, n, o, q, s, u.
* has\_superstructure\_adobe\_mud (type: binary): flag variable that indicates if the superstructure was made of Adobe/Mud.
* has\_superstructure\_mud\_mortar\_stone (type: binary): flag variable that indicates if the superstructure was made of Mud Mortar - Stone.
* has\_superstructure\_stone\_flag (type: binary): flag variable that indicates if the superstructure was made of Stone.
* has\_superstructure\_cement\_mortar\_stone (type: binary): flag variable that indicates if the superstructure was made of Cement Mortar - Stone.
* has\_superstructure\_mud\_mortar\_brick (type: binary): flag variable that indicates if the superstructure was made of Mud Mortar - Brick.
* has\_superstructure\_cement\_mortar\_brick (type: binary): flag variable that indicates if the superstructure was made of Cement Mortar - Brick.
* has\_superstructure\_timber (type: binary): flag variable that indicates if the superstructure was made of Timber.
* has\_superstructure\_bamboo (type: binary): flag variable that indicates if the superstructure was made of Bamboo.
* has\_superstructure\_rc\_non\_engineered (type: binary): flag variable that indicates if the superstructure was made of non-engineered reinforced concrete.
* has\_superstructure\_rc\_engineered (type: binary): flag variable that indicates if the superstructure was made of engineered reinforced concrete.
* has\_superstructure\_other (type: binary): flag variable that indicates if the superstructure was made of any other material.
* legal\_ownership\_status (type: categorical): legal ownership status of the land where building was built. Possible values: a, r, v, w.
* count\_families (type: int): number of families that live in the building.
* has\_secondary\_use (type: binary): flag variable that indicates if the building was used for any secondary purpose.
* has\_secondary\_use\_agriculture (type: binary): flag variable that indicates if the building was used for agricultural purposes.
* has\_secondary\_use\_hotel (type: binary): flag variable that indicates if the building was used as a hotel.
* has\_secondary\_use\_rental (type: binary): flag variable that indicates if the building was used for rental purposes.
* has\_secondary\_use\_institution (type: binary): flag variable that indicates if the building was used as a location of any institution.
* has\_secondary\_use\_school (type: binary): flag variable that indicates if the building was used as a school.
* has\_secondary\_use\_industry (type: binary): flag variable that indicates if the building was used for industrial purposes.
* has\_secondary\_use\_health\_post (type: binary): flag variable that indicates if the building was used as a health post.
* has\_secondary\_use\_gov\_office (type: binary): flag variable that indicates if the building was used fas a government office.
* has\_secondary\_use\_use\_police (type: binary): flag variable that indicates if the building was used as a police station.
* has\_secondary\_use\_other (type: binary): flag variable that indicates if the building was secondarily used for other purposes.

## [**What would be the best general proxy for “overall building damage”?**](http://eq2015.npc.gov.np/docs/#/faqs/faqs?id=what-would-be-the-best-general-proxy-for-overall-building-damage)

That would have to be the damage\_grade column, which is a categorical variable ranging from Damage Grade 1 (low damage) to Damage Grade 5 (high damage).

Surveyors were asked to estimate damage grades after completing building damage assessment on a scale of 1 to 5. The following details provide a general guidance on damage grades for a building:

* Grade 1 : Hairline to thin cracks in plaster on few walls, falling of plaster bits in limited parts, fall of loose stone from upper part of the building in a few cases, only architectural repairs needed.
* Grade 2 : Cracks in many walls, falling of plaster in last bits over large area, damage to non structural parts like chimney, projecting cornices. The load carrying capacity of the building is not reduced appreciably.
* Grade 3 : Large and extensive cracks in most walls, collapse of small portion of non load-bearing walls, roof tile detachment, tilting or failing of chimneys, failure of individual non-structural elements such as partition/gable walls, delamination of stone/adobe walls, load carrying capacity of structure is partially reduced and significant structural repair is required.
* Grade 4 : Large gaps occur in walls, walls collapse, partial structural failure of floor/roof, building takes a dangerous state.
* Grade 5 : Total or near collapse of the building

**https://github.com/arpan65/Earthquake-Damage-Modelling**

Land\_surface\_condition: 'Flat', 'Moderate slope', 'Steep slope'

Foundation\_type: 'Other', 'Mud mortar-Stone/Brick', 'Cement-Stone/Brick', 'Bamboo/Timber',

'RC'

Roof\_type: 'Bamboo/Timber-Light roof', 'Bamboo/Timber-Heavy roof', 'RCC/RB/RBC'

Ground\_floor\_type: 'Mud' 'Brick/Stone' 'RC' 'Timber' 'Other'

Other\_floor\_type: 'Not applicable', 'TImber/Bamboo-Mud', 'Timber-Planck', 'RCC/RB/RBC'

Position: 'Not attached', 'Attached-1 side', 'Attached-2 side', 'Attached-3 side'

Plan\_configuration: 'Rectangular', 'L-shape' 'Square', 'T-shape', 'Multi-projected', 'H-shape',

'U-shape', 'Others', 'E-shape', 'Building with Central Courtyard'

Legal\_ownership\_status: 'Private', 'Other', 'Institutional', 'Public'