# GEM Building Taxonomy Tester (TaxT): User Information

TaxT enables a user to record information about a building or a building typology using 13 attributes of the GEM Building Taxonomy V2.0. The attributes have been divided into the following four groups, which are shown as separate tabs on the TaxT screen:

1. **Structural system** (attributes: Direction; Material of the Lateral Load-Resisting System; and Lateral Load-Resisting System);
2. **Building information** (attributes: Height; Date of Construction or Retrofit; and Occupancy);
3. **Exterior attributes** (attributes: Building Position within a Block; Shape of the Building Plan; Structural Irregularity; and Exterior Walls), and
4. **Roof/floor/foundation** (attributes: Roof; Floor; and Foundation).

An application of TaxT starts when a user clicks on the Structural System tab and starts entering the information about a building or a class of buildings (building typology). It is important to note that the user is not expected to enter information about any attribute (s)he is not familiar with or is unable to contribute information. The Taxonomy provides an opportunity to describe characteristics of an individual building in detail, and at the same time it can describe general characteristics of a class of buildings found in a village, city, or a country/region. As a result, the user who wishes to describe a building typology may not need to enter any information about attributes such as Building Position within a Block. This decision should be made by the user and there is no specific guideline.

The user will proceed by providing building information by scrolling through each section (tab) on TaxT screen.

In case the user would like to get more information about the meaning of an attribute, TaxT enables a direct link to online glossary (Internet access required) by clicking on the Glossary box. The glossary URL is http://www.nexus.globalquakemodel.org/gem-building-taxonomy/overview/glossary

Finally, the user can click on **Create a Report** tab, to generate a report in PDF format which summarizes attribute values (s)he has chosen as representative of the building typology under consideration. The report may also include a photo of the building typology, and a text box where comments can be entered.

As a part of the taxonomy evaluation and testing process, the user is highly encouraged to provide feedback related to the content and clarity of taxonomy. The Feedback box at the bottom of the Create a Report screen can be used to provide feedback, which needs to be forwarded to EERI.

Note that each run of TaxT results in two PDF reports: one that summarizes the building information, and another one which provides feedback. Both reports will be saved under the same name, but the feebdback report will have the word "feedback" added to the name. It is very important that the user forwards both PDF reports to EERI.

A **taxonomy string** is shown at the bottom of the TaxT screen display and the user does not need to enter any information related to the string - TaxT generates a taxonomy string on the fly. Taxonomy string is a combination of unique IDs for selected attribute values and delimiters (e.g. "/" and "+"). The string summarizes each building description in the GEM Building Taxonomy language, which is used to communicate building information in the Global Earthquake Model (mostly in computer-based form).

The users are encouraged to review a report describing the GEM Building Taxonomy V 2.0, which can be accessed at the following URL
www.world-housing.net/gem_building-taxonomy_evaluation

# GEM Building Taxonomy v2.0

The characteristics of a building, such as height, materials, structural system, etc. determine its vulnerability (likelihood of damage or collapse) in an earthquake. A common building classification scheme (or taxonomy) has been developed within the scope of GEM to document variations in building design and construction practices around the world. The GEM Building Taxonomy serves to describe and classify buildings in a uniform manner around the globe. Information on global building stock collected using the GEM Building Taxonomy will be used to assess seismic vulnerability and associated risk.

The taxonomy describes characteristics of an individual building or a class of buildings with similar characteristics, commonly referred to as a building typology, by means of the following 13 attributes: i) direction, ii) material of the lateral load-resisting system, iii) lateral load-resisting system, iv) height, v) date of construction or retrofit, vi) occupancy, vii) building position within a block, viii) shape of the building plan, ix) structural irregularity, x) exterior walls, xi) roof, xii) floor, and xiii) foundation. Each attribute describes a specific building characteristic that can potentially affect seismic performance of an individual building or a building typology.

The current version of the taxonomy, that is, GEM Building Taxonomy V2.0, was completed in November 2012, and it supersedes the previous version V1.0 (Basic Building Taxonomy) from March 2012. The taxonomy was developed by an international team chaired by Charles Scawthorn (USA) and Svetlana Brzev (Canada), with significant contributions from Andrew Charleson and Luke Allen (New Zealand), and Kishor Jaiswal (USA). The taxonomy was developed in conjunction with other GEM researchers and builds on the knowledge base from the EERI and IAEE World Housing Encyclopedia and the USGS PAGER project.

The Building Taxonomy is accompanied by an electronic Glossary that contains text and graphic illustrations which describe the attributes included in the taxonomy. The Taxonomy and Glossary can be accessed at the following web pages:

1. Online version of the GEM Building Taxonomy V2.0 in tabular form:
http://www.nexus.globalquakemodel.org/gem-building-taxonomy/overview
2. Online glossary (review individual terms and provide comments):
http://www.nexus.globalquakemodel.org/gem-building-taxonomy/overview/glossary

If you have any questions regarding the GEM Building Taxonomy and the Glossary, please contact the project leaders Svetlana Brzev at svetlana.brzev@gmail.com or Charles Scawthorn at cscawthorn@sparisk.com