Referee Report

Journal: Natural Hazards and Earth System Sciences (NHESS)
Title: BUILDING AND DESIGN DEFECTS OBSERVED IN THE RESIDENTIAL SECTOR AND THE TYPES OF DAMAGE OBSERVED IN RECENT EARTHQUAKES IN TURKEY
Author(s): M.T. COGURCU
MS No.: nhess-2014-59
MS Type: Research Article

Earthquakes are the one of the most dangerous natural hazard in the world causing high number of human loss at the same time. Response of reinforced concrete (RC) systems during seismic action is a very important subject for countries situated on a active earthquake zone. In this respect, in Europe, countries like Turkey, Greece, Italy, Spain etc may have earthquake vulnerable building stock. The causes of earthquake damage to the RC structures are approximately same in all countries. The earthquake itself is a tragic event. On the other hand it gives a chance for scientists to have a natural laboratory. From this point of view, the current article has scientific value for civil engineers serving in the design stage of structures as well as the construction stage. Also architects may have benefits from this type "post earthquake" investigation articles.

The scientific contribution and expression of knowledge of the paper is good. On the other hand the referee has some points to be corrected or improved. The contributions of the referee are as follows.

- **Page 1:** The title of the paper reflects the content of the study.
- **Page 2:** Abstract: The abstract of the paper is well organized.
- **Page 3:** Paragraph 10: the following sentence must be removed.
  A though earthquakes have tragic consequences for society, they also constitute a unique natural laboratory for civil engineers and architects.
- **Page 3:** The word "error" can be replaced with "mistake" or "fault"
- **Page 4:** Since the contribution of the paragraph is limited, the following paragraph must be removed.
  The requirements established by earthquake-resistant building codes are designed to provide a minimum amount of safety for buildings. For better earthquake responses and 5 higher safety, it is necessary to satisfy conditions that exceed the regulation conditions. There are no obstacles to providing most of the strength and ductility required by code.

  Although earthquake-resistant structural design depends on many uncertainties, it can be done to comply with certain conditions. Reinforced concrete buildings can be damaged heavily or collapse in earthquakes due to failures and errors at the stage of design and production. The failures do not represent defects in the reinforced concrete itself.

- **Page 5:**There are too much information about the geology of the Turkey, the following paragraph must be removed.

  An ancient ocean connecting the Atlantic Ocean and the Mediterranean Sea to the Indian Ocean began disappearing due to the northward movement of the Arabian plate. Thus, the Arabian continent and Eurasian continent started to collide. Anatolia is in this collision zone. The collision causes the continental crust in the east of Anatolia to be thickened, and this thickening still continues. East Anatolia has risen approximately 2000 m over the course of several million years.

Approximately 5 million years ago, the North Anatolia fault and East Anatolia fault combined in Karliova as a result of pinching of the Arabian plate, which moves northward by 2 m every 100 years. The Anatolian plate has moved west ever since.

- **Page 6:** The siesimic map of Turkey, reference of this map must be given in order to prevent copyright problems.
- **Page 7:** Section 3.1, the word "illegal" is can be replaced with, " building stock…… has no legal or formal authorization.
- **Page 9:** Section 3.2.1, the word "wrong" can be replaced with "deficient"
  have the wrong architecture or the wrong load-bearing system.
- **Page 9:** It is very difficult and sometimes impossible for a civil engineer to convert an existing ~~structure~~ ***structural system*** to an earthquake-resistant one.
- **Page 44:** There are too much photos. First and last photos can be omitted.
- **Page 32:** The figure can be redrawn.
- **Page 10:** The following sentence can be omitted and corresponding figure can be removed.
  Structural frames with infilled walls and the model of the structure are shown in Fig. 4
- **Page 33-34:** Figures can be combined in one figure.
- **Page 35:** This figure has no contribution, can be removed.
- **Page 37:** I think everybody knows how to calculate relative displacements, this figure can be removed.
- **Page 45:** This figure has too much photos and it is difficult to follow. The first, 4 th and last photos can be removed.
- **Page 46:** This figure has too much photos. Last photos can be removed.
- **Page 45-46:**This two figures can be combined in one figure and number photos can be 4 maximum (one more photo can be removed).
- **Page 47:**Second photo can be removed.
- **Page 48:**First photo can be removed.
- **Page 49:**First photo can be removed.
- **Page 50:**Last photo can be removed.
- **Page 51:**Last photo can be removed.
- **Page 52:**Last photo can be removed.
- **Page 53:**Last photo can be removed.
- **Page 54:**Last photo can be removed.
- **Page 55:** 2nd and 3th photos can be removed.
- **Page 56:** First photo can be removed.
- **Page 57:**Last photo can be removed.
- **Page 58:**Last photo can be removed.
- **Page 60:** Quality of the figure is poor and photo can be removed.
- **Page 61:** First photo can be removed.

Summary

As a conclusion, the quality of the paper is good and can be published in the journal. The length of the paper can be shortened and number of figures can be decreased. The above suggestions are beneficial for the paper.

Result:

Can be accepted.