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STUDY OF SEISMIC VULNERABILITY AND THE DAMAGE SEEN IN THE TOWN OF LORCA AFTER THE EARTHQUAKE OF 2011.

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On May 11th, 2011 an earthquake of magnitude 5.1, several premonitory earthquakes and several aftershocks struck the town of Lorca, Murcia. Mainly, its effects were felt throughout the region of Murcia. As a result of the earthquake, 9 people were killed, hundreds injured and thousands of buildings damaged, especially in La Viña district and the historical district. This is the first earthquake that has tested the modern Spanish housing stock (under the regulations currently in force seismic) due to its magnitude and consequences. This paper attempts to analyze the seismic vulnerability and its relationship to the damage observed in the town of Lorca after the earthquake in May 2011, based on the methodologies proposed in the Risk-UE project and the EMS-98 scale.

To carry out this work we created a database with information of buldings in Lorca, gathered from various sources, supported by multiple field and recognition trips. To execute this analysis, we decided to take a representative sample of buildings in Lorca, this way all urban structural types present in the city and their vulnerability were calculated by the Vulnerability Index method proposed in the Risk-UE Project. Once the vulnerability of the area of study was completed, we obtained the expected intensity result in these areas, following the guidelines set by the EMS-98. To this end, Vulnerability Indexes were continuously interpreted to discrete values of the EMS-98, and the damage plane provided by the Municipality of Lorca was used.

The entire procedure was carried out with ESRI GIS ArcGIS Software. The final outcome is a vulnerability mapping measuring the degrees of intensity in the town of Lorca.

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