QUAKELOGIC
Earthquake Risk Management Solutions

Close to two decades of experience in the field we have become an expert in instrumentation, seismic station installation, and monitoring. QuakeLogic engineers will define with you the best solution and provide a quality service to ensure optimum performance of your monitoring systems.

HOW TO SET UP INSPECTION PRIORITY THRESHOLDS USING MODIFIED MERCALLI INTENSITY (MMI) SCALE?

This technical note explains how to choose threshold levels for inspection prioritization using the MMI scale. This scale is based on observable earthquake damage. In other words, the magnitude scale of an earthquake is based on seismic recordings while the MMI is based on observable data which can be subjective.

Inspection priority is often defined as LOW, MEDIUM, MEDIUM-HIGH and HIGH. In MMI scale we recommend the corresponding threshold levels for triggering inspections.

LOW >> MMI-3 >> APPROX. MAGNITUDE OF EARTHQUAKE 3 TO 4

MEDIUM >> MMI-5 >> APPROX. MAGNITUDE OF EARTHQUAKE 4 TO 5

MEDIUM-HIGH >> MMI-7 >> APPROX. MAGNITUDE OF EARTHQUAKE 5 TO 6

HIGH >> MMI-8 >> APPROX. MAGNITUDE OF EARTHQUAKE 6 TO 7

The MMI scale is shown below where the aforementioned threshold levels are highlighted with black.

I. Not felt	Not felt except by very few under especially favorable conditions.
II. Weak	Felt only by a few people at rest, especially on upper floors of buildings.
III. Weak	**[LOW]: Felt quite noticeably by people indoors, especially on upper floors of buildings. Many people do not recognize it as an earthquake. Vibrations similar to the passing of a truck.**
IV. Light	Felt indoors by many, outdoors by few during the day. At night, some awakened. Dishes, windows, doors disturbed; walls make cracking sound. Sensation like heavy truck striking building.
V. Moderate	**[MEDIUM]: Felt by nearly everyone; many awakened. Some dishes, windows broken. Unstable objects overturned.**
VI. Strong	Felt by all, many frightened. Some heavy furniture moved; a few instances of fallen plaster. Damage slight.
VII. Very strong	**[MEDIUM-HIGH]: Damage negligible in buildings of good design and construction; slight to moderate in well-built ordinary structures; considerable damage in poorly built or badly designed structures; some chimneys broken.**
VIII. Severe	**[HIGH]: Damage slight in specially designed structures; considerable damage in ordinary substantial buildings with partial collapse. Damage great in poorly built structures. Heavy furniture overturned.**
IX. Violent	Damage considerable in specially designed structures; well-designed frame structures thrown out of plumb. Damage great in substantial buildings, with partial collapse. Buildings shifted off foundations. Liquefaction.
X. Extreme	Some well-built wooden structures destroyed; most masonry and frame structures destroyed with foundations. Rails bent.
XI. Extreme	Few, if any, (masonry) structures remain standing. Bridges destroyed. Broad fissures in ground. Underground pipe lines completely out of service. Earth slumps and land slips in soft ground. Rails bent greatly.
XII. Extreme	Damage total. Waves seen on ground surfaces. Lines of sight and level distorted. Objects thrown upward into the air.