This competition sought proposals to increase the resilience of cities and communities affected by earthquakes and tsunamis, with a focus on aiding recovery and social regeneration to affected areas.

Entrants were encouraged to choose a city or community familiar to them, anywhere on the Pacific Rim, and to design a proposal that utilises preplanning and/or post-disaster response and reconstruction methodologies to reduce the long term impact of an earthquake event on the built environment and social fabric. Entries respond to the specific earthquake hazards and vulnerabilities that the chosen area faces.

The competition was open to all design disciplines, including architecture, landscape architecture and urban planning; and all associated engineering and sociological disciplines. Multidisciplinary entries were welcome, and international entries were encouraged.

Entries will be judged during the conference, and winners will be announced at the closing ceremony.

Introduction

The effects of earthquakes on the built environment are wide ranging, and can be catastrophic. Damage to physical structures and infrastructure can be caused by ground shaking and liquefaction, as well as tsunamis and landslides triggered by earthquakes. Earthquakes, and accompanying tsunamis and landslides, experienced worldwide over the last few years have resulted in a range of consequences depending on the inherent vulnerabilities of affected areas according to geographical location and the physical resilience of built fabric and infrastructure. Furthermore, the ability of affected communities to withstand the earthquake events and recover effectively from them depends on factors related to a broader definition of resilience. That is, the capacity to adapt and respond to the effects of an earthquake, the effectiveness of the response and recovery systems, and the degree of success of the reconstruction and social regeneration process. Modern engineering practice is well equipped to ensure that new structures and infrastructure are designed to resist the physical effects of earthquakes, but the inherent vulnerabilities still present in any earthquake-prone city due to age of built fabric and the hazards of its geographical location mean that major upheavals still occur; even in well-developed cities with stringent building regulations.

Examples have shown that even where physical damage is localised to relatively limited areas, and damage to most essential services has been repaired within days or weeks, there are still lasting impacts from an earthquake caused by displacement of people from damaged homes, impact on businesses in affected areas, and the social and psychological trauma experienced. Lasting economic effects and administrative difficulties can cause reconstruction to be very slow, and depopulation of areas can occur.

The physical impact of earthquakes is much worse in areas where the built fabric is more vulnerable due to age, economic factors, or less stringent building regulations; and the resulting load on response efforts is greater. In these cases, the social upheaval and trauma is increased by the magnitude of destruction, the loss of livelihood, and factors that upset social functioning such as disruption of public transport and school closures.

Competition Brief

This competition sought design solutions that address the hazards and vulnerabilities of a chosen city or community, and propose ways in which resilience can be increased to minimise the impact of earthquake related hazards, aid the response process, and to facilitate effective recovery and reconstruction to achieve functional and social rehabilitation.

Entries addressed any or all of the following aspects of earthquake resilience:

• Pre-planning – Proposals aimed for future events that mitigate the impact of an earthquake (or tsunami or landslide). These can include risk-reduction measures, innovative solutions for vulnerable built fabric, or ways of building in flexibility or adaptability to better respond to and recover from an earthquake.

• Response phase – Proposals that enable more effective response and recovery processes. These could include response methodologies or systems to be deployed.

• Reconstruction phase – Proposals that take the context of a post-disaster environment and identifying innovative projects that could assist in the functional and social regeneration of the community. These proposals would be ideally suited to a real-world post-earthquake situation from a recent earthquake.

A multi-disciplinary approach was encouraged, and proposals could be at any scale, within the realms of architecture, landscape architecture, urban design, land-use planning, emergency management, engineering and industrial design. Sociology and development studies could also bring important considerations to play in some proposals.