Seismic Requirements in Duct Installations

New Zealand is well known for the risk of earthquakes however Australia is classified as subject to high consequence earthquake events up to a magnitude 7 with earthquakes accounting for 13 per cent of total natural disaster costs. Located on the Indo-Australian tectonic plate, which is being pushed towards the north-east, colliding with the Philippine and Pacific plates and leading to a severe build-up of stress. It is this stress that causes earthquakes across Australia.

According to research by geoscience Australia, there has been about one earthquake measuring 2.0 or greater every day in Australia for the past decade. Adelaide and Sydney are viewed as the most at risk capitals. It is estimated that insured losses caused by a Sydney quake could exceed $20 billion. 1989's magnitude 5.6 event in Newcastle caused over $2 billion in damage.

The Australian government have recognised the potential dangers of earthquakes and have published the 'Proposal to Amend the Earthquake Provisions of the Building Code of Australia' in order to set standards for protection of buildings from earthquakes.

Suspended non-structural building components are critical for the proper functioning of a building, and make up a high percentage of a building's damage in a seismic event. With these facts in mind it is crucial to ensure that buildings and assets are properly protected and will continue to operate after a seismic event to guarantee business and rental income continuity.

The requirements for seismic bracing are addressed in the National Construction Code (NCC) 2016 and the Building Code of Australia (BCA), Volume 2, Performance Requirement BP1.1 (b)(iv).

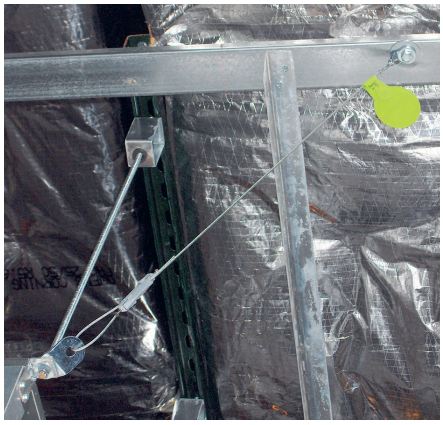
These requirements are satisfied through compliance with AS 1170.4 and depend on numerous factors including the importance level assigned to the structure in question and the probability of a seismic occurrence.

The objective of AS 1170.4 is to provide designers of structures subject to seismic events with earthquake actions and general detailing requirements. Criteria for seismic design relate to a building's function and likely annual probability of exceedance.

Whilst AS 1170.4 outlines the bracing requirements through calculating the forces involved, seismic bracing is project specific with varying requirements and so should be addressed by a seismic specialist to ensure correct and efficient solutions.

Ductus and Gripple employed a specialist engineering firm to conduct testing and create the first pre-installed duct solution in Australia verified to resist seismic actions in accordance with the NCC.

The ALP duct solution is lightweight and incredibly strong making it perfect for use in areas of high seismic activity when installed using the ALP and **Gripple specialist seismic system**. This combined system has been designed to ensure compliance to AS 1170.4.



Gripple seismic bracing systems are used to restraint most non-structural components. When used in conjunction with the ALP system it is possible to greatly reduce the size of the braces due to the lightweight nature of this component.

You can find more information on the Ductus website **www.ductus.com.au** under the media and downloads tab or contact us directly at **sales@ductus.com.au**

You can contact Gripple for AS 1170.4 compliance solutions through **www.grippleaustralia.com.au**

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