JSK CONSULTING ENGINEERS

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Re: Development of Installation Specifications for Tracklok Partition Bracing

To whom it may concern,

We have been asked by Shaun Evans of Tracklok Ltd to provide a summary of the development of the Tracklok SPT-10 partition bracing bracket, and also for the installation specifications for these brackets distributed by Tracklok Ltd. The purpose of this summary is to confirm that the installation specifications have been developed on sound engineering principles and to achieve compliance with the New Zealand Building Code.

The original concept for the SPT-10 bracket was developed by Tracklok Ltd, and was then evaluated and developed further with the involvement of a number of different professional engineers.

The performance and load capacity of the bracket was quantified by physical testing. This testing involved construction of partition walls using a range of different head tracks and supported using Tracklok brackets. These test partitions were then loaded using hydraulic rams to simulate the horizontal loads of an earthquake. The tests were carried out under the supervision of Opus International Consultants, who issued a test report summarising the test results, and of Rob Foster of Harris Foster Consulting (HFC).

From this testing, the failure modes of braced partitions were identified and the failure loads quantified. It was found that up until failure of the bracket bracing arms, the SPT-10 brackets kept the partition stable. Once the bracing arms failed (in buckling of the compressed bracing arm) the bracket rotated and the head track disengaged from the top of the partition wall. As such, the limiting factor in each bracing unit was the bracing arms, not the brackets themselves.

Using the data from this testing programme, installation specifications were developed by Rob Foster. The installation specifications were based on seismic load per meter length of wall, and designed to provide sufficient bracing capacity while also limiting overall partition deflection and accommodating inter-storey drift of up to 50mm. HFC also provided Tracklok Ltd with indicative seismic parts loading for a range of locations and heights above ground, calculated as per NZS 1170.5 Section 8. These indicative parts loadings per linear length of wall have been used in the development of the Tracklok SPT-10 installation specifications.

Please note that these parts loadings were indicative only, and that wherever possible the seismic load per metre of wall should be calculated on a site-specific basis by a suitably competent engineer.

Also note that the Tracklok installation specifications state a number of key assumptions and conditions, and that these must be adhered to for the system to function as designed. If a particular project is outside the scope of these conditions, specific design should be undertaken.

The testing programme and the installation specifications were peer reviewed by JSK Consulting Engineers.

We trust that this summary of the development of the Tracklok specifications provides assurance that the specifications have been developed in accordance with sound engineering principles, and can reasonably be expected to achieve compliance with the seismic performance requirements of Clause B1:Structure of the NZ Building Code.

Yours Sincerely,

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