TECHNICAL NOTE

TESTING OF SMALL RECTANGULAR HOLLOW SECTIONS HAVING WELDED CONNECTIONS

D.L. Hutchinson*

A testing program has been carried out by MWD with the aim of comparing imported hot-rolled and New Zealand-made cold-rolled RHS with welded connections at location of maximum bending. A full description of the experiments is found in Ministry of Works and Development Central Laboratories Report No. 5-80/3. This is available from the Ministry of Works and Development Head Office Library.

The size of section compared was 102 x 51 x 4.9 mm corresponding to the largest size manufactured by New Zealand Steel Limited. Lengths of RHS of respective types were fabricated into 1.83 m long simply supported beams with a fillet-welded dividing plate through the midspan location. Two such beams of the cold-rolled and hot-rolled RHS were loaded monotonically through application of load at the dividing plate.

The cold-rolled beams failed at a rather low maximum deflection ductility of 7.3 and in a manner which indicated a lowered yield stress in the vicinity of the weld of the dividing plate. On the other hand, the hot-rolled beams continued to strain harden to the limit of the test rig, equivalent to a deflection ductility of 29.

While hysteretic testing is needed to draw firm conclusions on the reliability of cold-rolled RHS in energy-absorbing systems, the test series does permit the observation that the material would be inadmissible in a situation where moderate to large member ductility demands were anticipated near welds.

GENERAL INFORMATION

Seismology - Earthquake Engineering Symposium in Canada, July 1981.

Warwick D. Smith**

The International Association of Seismology and Physics of the Earth's Interior (IASPEI) held its 21st General Assembly in London, Ontario in July 1981, and in cooperation with the International Association of Earthquake Engineers (IAEE) sponsored a symposium on Earthquake Ground Motions and their Effects on Critical Structures. This symposium was held over three days and drew more than forty papers.

The programme was introduced by Professor G.W. Housner, with an invited paper entitled "What we should know about strong earthquake ground motions, past and future", in which he advanced the thesis that despite the attention given in the past to peak ground acceleration as a useful and representative parameter, it is really of very limited use to the design engineer. This is of course no new theme to engineers, but for some seismologists it was less than obvious, largely due to insufficient interaction with the engineering community.

The various sessions of the Symposium addressed the following themes:

1. Accelerograph Arrays and Recently Acquired Data.
2. Attenuation of Ground Motions.
3. Source Mechanisms of Recent Earthquakes.
4. Source Models and the Prediction of Strong Ground Motion.
5. Characteristics of Ground Motions.
6. Intensity and Seismicity.
7. Design Motions and Seismic Risk Analysis.
8. Ground Motion Parameters for Design of Critical Structures.

This joint symposium reflected a healthy desire on the part of seismologists and engineers to cooperate for their mutual benefit. Engineers need the seismologists' knowledge of the physics of the earthquake source and the nature of the propagation and attenuation of seismic energy. Seismologists, in turn, need the near-field data obtained for engineering purposes, as a tool for the study of the earthquake process. The symposium helped to achieve that cooperation.

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RECONNAISSANCE TEAMS

The response to the request for new members for the Reconnaissance Teams published in the June 1981 Bulletin was disappointing.