Dr Thompson completed his Ph.D. at the University of Canterbury under the supervision of Professor Park in 1975. Amongst numerous other honours, Professor Park also received in 1978 the Moisseiff Award of the American Society of Civil Engineers and he was corecipient of the Society's inaugural award in 1978. He has now been invited to attend the presentation of the T.Y. Lin Award, which includes an honorarium of $500, during the Society's Annual Convention in St. Louis.

BOOK REVIEW

BASIC CONCEPTS OF SEISMIC CODES

Part I Seismic Zoning

This is a general introduction to the problem of seismic zoning, which is the determination of seismic hazard. Seismic hazard is defined at the outset, as the probability of occurrence, at a given site, of potentially destructive ground motion. Seismic risk, on the other hand, also involves susceptibility to damage, or vulnerability. Zoning has to do with hazard, not risk. Within each zone, defined on the basis of hazard, structural requirements are imposed.

The basic data are described, and a primer which defines various seismological terms is included. The influence of Californian experience is very evident, when it is claimed that contours of equal severity of ground motion are elongated along the fault. This is not generally so in New Zealand, where earthquake foci are normally deeper and there may not be a surface expression of the rupture surface.

A discussion of earthquake source regions, which emphasizes the sporadic nature of earthquake occurrence, includes such currently fashionable concepts as that of seismic gaps. Regions in which large earthquakes have not occurred for a long time are considered the most likely candidates for large events in the near future.

The final section, Engineering Design Considerations, discusses the choice of appropriate design levels, and stresses the limitations of the data on which hazard maps are based. It is essential that the engineer, while using the hazard estimates, also take the uncertainties into account. The design level will obviously vary also with the type of structure. Some guidelines are given. Also stressed is the principle that zoning should not be over-refined. Extreme variations in coefficients should be avoided. A conservative approach should always be adopted.

Although the primary purpose of the monograph is to instruct and serve as a guide to those who are involved in seismic zoning exercises, its main function in New Zealand will be to acquaint readers with some of the problems faced in this area. I believe that the principles outlined are already well understood by those in New Zealand whose business it is to prepare codes, but the publication serves as a good summary.

Warwick D. Smith

BASIC CONCEPTS OF SEISMIC CODES

The International Association for Earthquake Engineering, Vol. 1, 1980, 148pp.

During the 1977 World Conference in New Delhi the Board of Directors of the IAEE commissioned a monograph to present basic concepts of seismic codes, so that interested countries could make use of it while preparing their own codes. Volume I contains issues related to "Seismic Zoning" and "Non-engineered Construction". The material for each topic has been prepared by an international panel of experts. Volume II, dealing with "Engineered Construction" is yet to be published. The preparation of this very useful monograph was assisted by UNESCO and its publication was sponsored by the Kajima Foundation in Japan.

In Part I of this volume the panel, with Prof. G.W. Housner as convener reviews the general principles involved in seismic zoning for building codes. In an extremely readable manner the nature of seismic hazards and its relation to seismic risk and seismic zoning are described. In connection with the basic data required, to do such an evaluation, the terms of source location, size and magnitude of earthquake, fault geometry, attenuation of ground shaking, probability of seismic hazard, magnitude-frequency relation, and other seismic phenomena, are briefly explained. Subsequently the background to engineering design considerations, particularly with respect to the use of seismological and geological data in the preparation of epicentre or fault or hazard probability maps for regions is given.

The major part of this volume, compiled by another panel with Prof. Arya as convener, consists of richly illustrated considerations of seismic requirements for non-engineered construction. It serves as a useful introduction to the behaviour of simple and small buildings under earthquake attack. It illustrates typical failure modes in buildings constructed in masonry, (Fig. A), concrete, timber, rubble or clay mud. Particularly useful are the suggestions for the strengthening of existing sub-standard buildings, (Fig. B), and various construction details that could be utilised when rebuilding after a severe earthquake has struck (Fig. C). Basic structural properties of relevant materials are also given. The monograph should be invaluable to engineers and builders in developing countries, and also to New Zealand engineers who are engaged in these seismic areas.

Copies of the monograph received by the New Zealand National Society for Earthquake Engineering have been deposited with the libraries of the Ministry of Works and Development and the two Schools of Engineering.

T. PAULAY

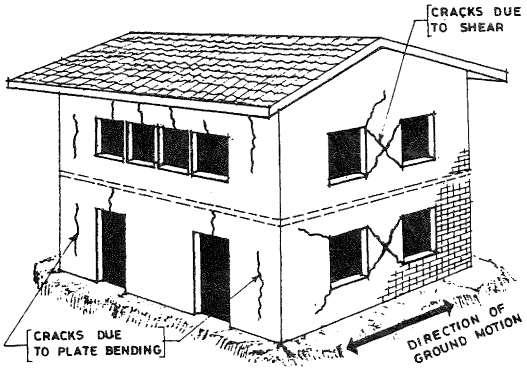

Fig. A - CRACKING IN BEARING WALL BUILDING DUE TO BENDING AND SHEAR

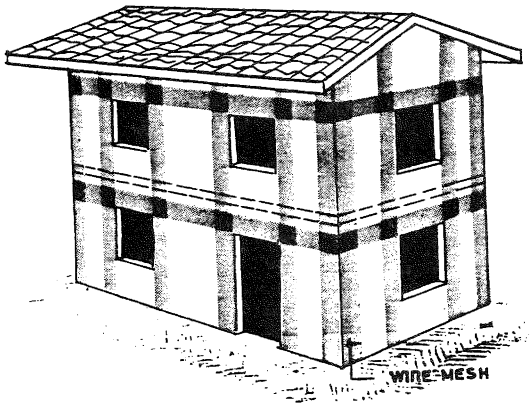

Fig. B - SPLINT AND BANDAGE STRENGTHENING TECHNIQUE

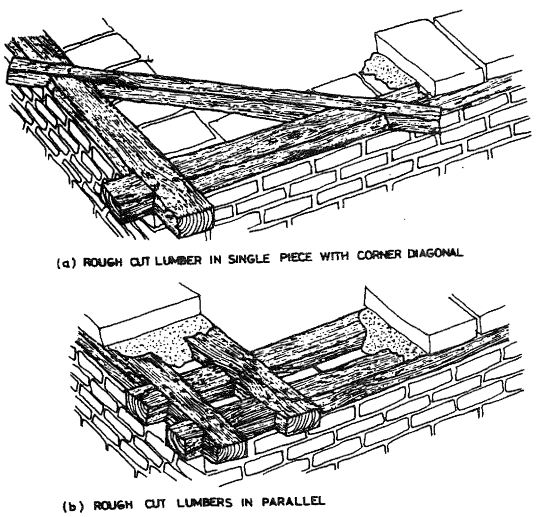

Fig. C - COLLAR BAND IN WALLS AT LINTEL LEVEL