Earthquake Resistance, Acoustics and Fire Control

Books and Research Reports

Canada Housing and Mortgage Corporation
Residential Guide to Earthquake Resistance
Ottawa: Canada Housing and Mortgage Corporation
1998
"Help assess an existing building's readiness and indicate improvements that can enhance earthquake resistance." This book gives an overview of the effects of earthquakes and how houses react to these effects. The remainder of the text is on evaluating the house in terms of earthquake preparedness and how to remedy problematic situations. Actual details, references, and a case study are included in the appendices."
Available at: VPL, UBC, BCIT

Canada Mortgage and Housing Corporation
Noise Isolation Provided by Gypsum Board Partitions
Ottawa: Canada Mortgage and Housing Corporation
2002
"The identification of the primary factors that influence the sound transmission loss in gypsum board partitions. The four components analyzed were: the gypsum boards themselves, the studs and stud arrangements, the resilient furrings and the sound absorptive materials inserted in the cavity."
Available at: CMHC

Canada Mortgage and Housing Corporation
Best Practice Guide: Fire and Sound Control in Wood-Frame Multi-Family Buildings
Ottawa: Canada Mortgage and Housing Corporation
2003
"Produced for builders and designers, this 140 pages guide, with CD-ROM, describes how fire and sound move from one unit to another in multi-family buildings. To create a safe and healthy living space, the guide details assemblies that provide fire and sound separations between dwelling units and provides specific fire-resistance and sound transmission control measures for wall and floor assemblies."
Available at: BCIT, UBC, VPL, CMHC

Canada Mortgage and Housing Corporation
Static and Dynamic Earthquake Testing of Rainscreen Stucco Systems for B.C. Residential Wood-Frame Construction
Ottawa: Canada Mortgage and Housing Corporation
2003
"Without substantial improvements to the earthquake preparedness of British Columbia's housing infrastructure, the consequences of a large earthquake could be devastating. Non-structural

building components, such as stucco cladding and drywall, can have a major influence on earthquake performance. This research evaluated the earthquake performance of rainscreen stucco cladding (i.e. air cavity behind it) vs. non-rainscreen. Both systems were shown to have the potential to eliminate major structural earthquake damage in residential wood-frame buildings, and the use of long staples instead of traditional nails in the panels is recommended."
Available at: CMHC

Canada Mortgage and Housing Corporation
Fire Experience, Smoke Alarms and Sprinklers in Canadian Homes: CMHC Research to 2005
Ottawa: Canada Mortgage and Housing Corporation
2005
"This report summarizes CMHC research since the late 1980's examining the need for and implications of government mandating sprinklers in new houses. Beginning with a description of the steep decline of fire deaths since the 1970's, the paper goes on to highlight the modest cost-benefit profile of sprinklers as compared to smoke alarms, the relatively small fatality risk presented by residential fires, as well as those groups and housing types which are at a relatively high risk."
Available at: CMHC

Rainer, J. Hans and Erol Karacabeyli
Performance of Wood-frame Building Construction in Earthquakes
Vancouver: Forintek Canada Corp.
1999
"The report …presents a survey of the performance of wood-frame construction in a number of recent earthquakes. After a review of the dominant factors that affect the seismic behavior of buildings, the following earthquakes are examined: Alaska, 1964; San Fernando, California 1971; Edgecombe, New Zealand 1987; Saguenay, Quebec 1988; Loma Prieta, California 1989; Northridge, California 1994; and Kobe, Japan 1995. ..It is concluded that wood-frame construction can withstand the shaking from large earthquakes without serious distress and often without damage provided that appropriate anti-seismic procedures are followed by designers, builders and owners."
Available at: BCIT, UBC, CMHC

Articles

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A. M. Memari. 2012. Review of the Performance of Glazing Systems in Earthquakes and Recent Developments to Mitigate Damage. *Forensic Engineering 2012 San Francisco, California*

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