

## Losses from Earthquakes

Several studies have looked at specific disasters and how they affected businesses. After the 1978 earthquake in Whittier, California, of the over 400 businesses affected, 200 were closed for 10 days, approximately 100 were closed for up to a month, 60 temporarily relocated, and 30 never reopened. These are typical statistics for large-scale disasters. Many of the findings are applicable to small-scale disasters too.

In a larger study of business disruption after the Northridge, California, earthquake, business owners were asked to complete a survey to describe the extent of damage and costs to their business. The most common types of damage are summarized in Tables 12-3 and 12-4.

**Table 12-3** Summary of damage to businesses caused by the Northridge earthquake

Type of damage	Percent
Damage to exterior walls	73
Damage to interior walls	65
Office and business equipment	65
Furniture	59
Records/files	45
Floor	45
Ceiling panels	45
Broken glass	43
Fallen lights	35
Water damage (sprinkler, broken piping)	30
Roof structure	27
Plumbing	25
Exterior sign	16

Data from Arnold C: *The Northridge earthquake of January 17, 1994. Small business: a sample of building damage, business disruption and recovery*, Palo Alto, Calif, 1996, Building Systems Development, Inc.

**Table 12-4** Reason for business closure after the Northridge earthquake

<b>Reason</b>	<b>Percent</b>
Loss of water	63.6
Loss of electricity	41.7
Loss of sewer or waste water service	34.8
Few or no customers	34.4
Loss of telephones	28.3
Employees unable to get to work	26.3
Could not deliver products or services	25.7
Evacuation due to threat, warning of flooding	21.4
Could not get supplies to run business	19.9
Loss of machinery or office equipment	15.4
Loss of inventory	11.9
Building declared unsafe	6.9
Could not afford to pay employees	6.7

From Tierney K, Nigg JM, Dahlhamer JM: The impact of the 1993 Midwest floods: business vulnerability and disruption in Des Moines. In Sylves: *Disaster management in the U.S. and Canada*, Springfield, Ill, 1996, Charles C. Thomas.