

Appendix

Appendix 1. Transition of Earthquake Insurance System

Appendix 2. Transition of Earthquake Insurance Premium Rate

Appendix 3. Explanation Table of Seismic Intensity Scale of Japan Meteorological Agency

Transition of Earthquake Insurance System

	June 1, 1966 (established)	May 1, 1972	April 1, 1975
Coverage of insurance	Buildings for residential use Household goods	Same as to the left	Same as to the left
Risk covered	Earthquake, volcanic eruptions, tsunami	Same as to the left	Same as to the left
Coverage condition	Total loss only	Same as to the left	
Payment proportion of insurance claim (for the amount insured)	Total loss: 100%	Same as to the left	Same as to the left
Attachment proportion	30% of amount insured of fire insurance to which it is attached	Same as to the left	Same as to the left
Limit of insurable amount	Buildings: 900,000 yen Household goods: 600,000 yen	Buildings: 1.5 million yen Household goods: 1.2million yen	Buildings: 2.4million yen Household goods: 1.5million yen
Participation method and kinds of insurance	Automatically attached to the following insurances: Householders' comprehensive insurance (including monthly premium type) Storekeepers' comprehensive insurance (including monthly premium type) Monthly residence insurance Monthly commercial insurance	In addition to left, in principle automatically attached to the following insurances: Long-term comprehensive insurance Building endowment insurance	In addition to left, voluntarily attached to the following insurances: Ordinary fire insurance (including monthly premium type) Dwelling fire insurance (including monthly premium type) Apartment dwellers' insurance (including monthly premium type) Monthly Payment fire insurance, Long term fire insurance Long-term refund in expire insurance
Reinsurance scheme	<div style="display: flex; align-items: center;"> <div style="width: 15px; height: 15px; border: 1px solid black; margin-right: 5px;"></div> Burden charge of Government </div> <div style="display: flex; align-items: center;"> <div style="width: 15px; height: 15px; background-color: #cccccc; border: 1px solid black; margin-right: 5px;"></div> Burden charge of insurance companies </div> <div style="display: flex; justify-content: space-between;"> <div style="width: 30%;"> <p>300 billion yen</p> <p>50 billion yen</p> <p>10 billion yen</p> </div> <div style="width: 30%;"> <p>400 billion yen</p> <p>100 billion yen</p> <p>20 billion yen</p> </div> <div style="width: 30%;"> <p>800 billion yen</p> <p>150 billion yen</p> <p>30 billion yen</p> </div> </div>		
Limit of total amount of insurance claims to be paid due to a single earthquake, etc.	300 billion yen Breakdown Government: 270 billion yen Private sector: 30 billion yen	400 billion yen Breakdown Government: 340 billion yen Private sector: 60 billion yen	800 billion yen Breakdown Government: 677.5 billion yen Private sector: 122.5 billion yen

	April 1, 1978	July 1, 1980	April 1, 1982
Coverage of insurance	Same as to the left	Same as to the left	Same as to the left
Risk covered	Same as to the left	Same as to the left	Same as to the left
Coverage condition	Same as to the left	Buildings: total loss, half loss Household goods: total loss, half loss	Same as to the left
Payment proportion of insurance claim (for the amount insured)	Same as to the left	Total loss: 100% Half loss: Buildings 50% Household goods 10%	Same as to the left
Attachment proportion	Same as to the left	30% to 50% of amount insured of fire insurance to which it is attached	Same as to the left
Limit of insurable amount	Same as to the left	Buildings: 10 million yen Households: 5 million yen	Same as to the left
Participation method and kinds of insurance	Same as to the left	In principle automatically attached to the fire insurance	Same as to the left
Reinsurance scheme	<p>1.2 trillion yen 225 billion yen 45 billion yen 50% 5%</p>	Same as to the left	<p>1.5 trillion yen 280 billion yen 55 billion yen 50% 5%</p>
Limit of total amount of insurance claims to be paid due to a single earthquake, etc.	1.2 trillion yen Breakdown Government: 1.1625 trillion yen Private sector: 183.75 billion yen	Same as to the left	1.5 trillion yen Breakdown Government: 1.2715 trillion yen Private sector: 228.5 billion yen

	April 1, 1991	June 24, 1994	October 19, 1995	January 1, 1996
Coverage of insurance	Same as to the left	Same as to the left	Same as to the left	Same as to the left
Risk covered	Same as to the left	Same as to the left	Same as to the left	Same as to the left
Coverage condition	Buildings: total loss, half loss, partial loss Household goods: total loss, half loss, partial loss	Same as to the left	Same as to the left	Same as to the left
Payment proportion of insurance claim (for the amount insured)	Total loss: 100% Half loss: Buildings 50% Household goods 10% Partial loss: 5%	Same as to the left	Same as to the left	Total loss: 100% Half loss: 50% Partial loss: 5%
Attachment proportion	Same as to the left	Same as to the left	Same as to the left	Same as to the left
Limit of insurable amount	Same as to the left	Same as to the left	Same as to the left	Buildings: 50 million yen Household goods: 10 million yen
Participation method and kinds of insurance	Same as to the left	Same as to the left	Same as to the left	Same as to the left
Reinsurance scheme	Same as to the left	<p>1.8 trillion yen</p> <p>336 billion yen</p> <p>66 billion yen</p> <p>50%</p> <p>5%</p>	<p>3.1 trillion yen</p> <p>468 billion yen</p> <p>92 billion yen</p> <p>50%</p> <p>5%</p>	
Limit of total amount of insurance claims to be paid due to a single earthquake, etc.	Same as to the left	<p>1.8 trillion yen</p> <p>Breakdown</p> <p>Government: 1.5258 trillion yen</p> <p>Private sector: 274.2 billion yen</p>	<p>3.1 trillion yen</p> <p>Breakdown</p> <p>Government: 2.6884 trillion yen</p> <p>Private sector: 411.6 billion yen</p>	

	April 1, 1997	April 1, 1999	April 1, 2002
Coverage of insurance	Same as to the left	Same as to the left	Same as to the left
Risk covered	Same as to the left	Same as to the left	Same as to the left
Coverage condition	Same as to the left	Same as to the left	Same as to the left
Payment proportion of insurance claim (for the amount insured)	Same as to the left	Same as to the left	Same as to the left
Attachment proportion	Same as to the left	Same as to the left	Same as to the left
Limit of insurable amount	Same as to the left	Same as to the left	Same as to the left
Participation method and kinds of insurance	Same as to the left	Same as to the left	Same as to the left
Reinsurance scheme	<p>3.7 trillion yen</p> <p>579 billion yen</p> <p>114 billion yen</p> <p>50%</p> <p>5%</p>	<p>4.1 trillion yen</p> <p>818.6 billion yen</p> <p>75 billion yen</p> <p>50%</p> <p>5%</p>	<p>4.5 trillion yen</p> <p>1.0774 trillion yen</p> <p>75 billion yen</p> <p>50%</p> <p>5%</p>
Limit of total amount of insurance claims to be paid due to a single earthquake, etc.	<p>3.7 trillion yen</p> <p>Breakdown</p> <p>Government: 3.19745 trillion yen</p> <p>Private sector: 502.55 billion yen</p>	<p>4.1 trillion yen</p> <p>Breakdown</p> <p>Government: 3.48913 trillion yen</p> <p>Private sector: 610.87 billion yen</p>	<p>4.5 trillion yen</p> <p>Breakdown</p> <p>Government: 3.75267 trillion yen</p> <p>Private sector: 747.33 billion yen</p>

	April 1, 2005	April 1, 2008	April 1, 2009
Object of insurance	Same as to the left	Same as to the left	Same as to the left
Insured event	Same as to the left	Same as to the left	Same as to the left
Coverage condition	Same as to the left	Same as to the left	Same as to the left
Payment proportion of (for the amount insured)	Same as to the left	Same as to the left	Same as to the left
Attachment proportion	Same as to the left	Same as to the left	Same as to the left
Limit amount of participation	Same as to the left	Same as to the left	Same as to the left
Method of attachment and target insurance	Same as to the left	Same as to the left	Same as to the left
Reinsurance scheme	<p>5.0 trillion yen</p> <p>1.3118 trillion yen</p> <p>75 billion yen</p> <p>50%</p> <p>5%</p>	<p>5.5 trillion yen</p> <p>1.73 trillion yen</p> <p>110 billion yen</p> <p>50%</p> <p>5%</p>	<p>5.5 trillion yen</p> <p>1.925 trillion yen</p> <p>115 billion yen</p> <p>50%</p> <p>5%</p>
Limit of total amount of insurance claims to be paid due to a single earthquake, etc.	<p>5.0 trillion yen</p> <p>Breakdown</p> <p>Government: 4.12219 trillion yen</p> <p>Private sector: 877.81 billion yen</p>	<p>5.5 trillion yen</p> <p>Breakdown</p> <p>Government: 4.3915 trillion yen</p> <p>Private sector: 1.1085 trillion yen</p>	<p>5.5 trillion yen</p> <p>Breakdown</p> <p>Government: 4.30125 trillion yen</p> <p>Private sector: 1.19875 trillion yen</p>

	May 2, 2011
Object of insurance	Same as to the left
Insured event	Same as to the left
Coverage condition	Same as to the left
Payment proportion of (for the amount insured)	Same as to the left
Attachment proportion	Same as to the left
Limit amount of participation	Same as to the left
Method of attachment and target insurance	Same as to the left
Reinsurance scheme	<p>5.5 trillion yen</p> <p>871 billion yen</p> <p>115 billion yen</p> <p>5%</p> <p>50%</p>
Limit of total amount of insurance claims to be paid due to a single earthquake, etc.	<p>5.0 trillion yen</p> <p>Breakdown</p> <p>Government: 4.7755 trillion yen</p> <p>Private sector: 724.45 billion yen</p>

Transition of Earthquake Insurance Premium Rate

Enforcement date	June 1, 1966 (established)	July 1, 1980																																														
Premium rate (per 1000 yen amount insured)	<table border="1"> <thead> <tr> <th>Class location</th> <th>Non-wooden</th> <th>Wooden</th> </tr> </thead> <tbody> <tr> <td>1st class</td> <td>0.60</td> <td>2.10</td> </tr> <tr> <td>2nd class</td> <td>1.35</td> <td>3.60</td> </tr> <tr> <td>3rd class</td> <td>2.30</td> <td>5.00</td> </tr> </tbody> </table>	Class location	Non-wooden	Wooden	1st class	0.60	2.10	2nd class	1.35	3.60	3rd class	2.30	5.00	<table border="1"> <thead> <tr> <th rowspan="2">Class location</th> <th colspan="2">Non-wooden</th> <th colspan="2">Wooden</th> </tr> <tr> <th>Buildings</th> <th>Households</th> <th>Buildings</th> <th>Households</th> </tr> </thead> <tbody> <tr> <td>1st class</td> <td>0.70</td> <td>0.50</td> <td>2.30</td> <td>1.70</td> </tr> <tr> <td>2nd class</td> <td>0.80</td> <td>0.60</td> <td>2.90</td> <td>2.00</td> </tr> <tr> <td>3rd class</td> <td>1.40</td> <td>1.00</td> <td>3.70</td> <td>2.60</td> </tr> <tr> <td>4th class</td> <td>1.60</td> <td>1.10</td> <td>4.20</td> <td>3.00</td> </tr> <tr> <td>5th class</td> <td>1.80</td> <td>1.30</td> <td>4.80</td> <td>3.40</td> </tr> </tbody> </table>	Class location	Non-wooden		Wooden		Buildings	Households	Buildings	Households	1st class	0.70	0.50	2.30	1.70	2nd class	0.80	0.60	2.90	2.00	3rd class	1.40	1.00	3.70	2.60	4th class	1.60	1.10	4.20	3.00	5th class	1.80	1.30	4.80	3.40
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Class location	<p>1st class Hokkaido, Aomori, Iwate, Miyagi, Akita, Yamagata, Fukushima, Ibaraki, Tochigi, Gunma, Niigata, Toyama, Ishikawa, Yamanashi, Tottori, Shimane, Okayama, Hiroshima, Yamaguchi, Tokushima, Kagawa, Ehime, Kochi, Fukuoka, Saga, Nagasaki, Kumamoto, Oita, Miyazaki</p> <p>(Note) (1) Okinawa was added in 1972 after reversion to Japanese administration</p> <p>2nd class Tokyo (excluding 3rd class locations), Kanagawa (excluding 3rd class locations), Saitama, Chiba, Nagano, Fukui, Gifu, Shizuoka, Aichi, Mie, Shiga, Kyoto, Osaka, Hyogo, Nara, Wakayama</p> <p>3rd class Sumida-ku, Koto-ku and Arakawa-ku, of Tokyo, Tsurumi-ku, Naka-ku and Nishi-ku in Yokohama City of Kanagawa, and Kawasaki-shi area east of Tokaido Line.</p>	<p>1st class Hokkaido, Fukushima, Gunma, Toyama, Tottori, Shimane, Okayama, Hiroshima, Yamaguchi, Tokushima, Kagawa, Ehime, Fukuoka, Saga, Nagasaki, Kumamoto, Oita, Miyazaki, Kagoshima, Okinawa</p> <p>2nd class Aomori, Iwate, Miyagi, Akita, Yamagata, Ibaragi, Tochigi, Niigata, Ishikawa, Yamanashi, Kochi</p> <p>3rd class Fukui, Nagano, Gifu, Mie, Shiga, Kyoto, Osaka, Hyogo, Nara, Wakayama</p> <p>4th class Saitama, Chiba, Aichi</p> <p>5th class Tokyo, Kanagawa, Shizuoka</p>																																														

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Premium rate (per 1000 yen amount insured)	<p>1 Basic rate Same as to the left</p> <p>2 Discount rate Same as to the left</p> <p>3 Coefficient (1) long-term contract coefficient</p> <table border="1"> <thead> <tr> <th>Policy period</th> <th>Coefficient</th> </tr> </thead> <tbody> <tr> <td>2 years</td> <td>1.90</td> </tr> <tr> <td>3 years</td> <td>2.75</td> </tr> <tr> <td>4 years</td> <td>3.60</td> </tr> <tr> <td>5 years</td> <td>4.45</td> </tr> </tbody> </table> <p>(2) refund premium coefficient omission</p>	Policy period	Coefficient	2 years	1.90	3 years	2.75	4 years	3.60	5 years	4.45	<p>1 Basic rate</p> <table border="1"> <thead> <tr> <th>Class location</th> <th>Non-wooden</th> <th>Wooden</th> </tr> </thead> <tbody> <tr> <td>1st class</td> <td>0.50</td> <td>1.00</td> </tr> <tr> <td>2nd class</td> <td>0.65</td> <td>1.27</td> </tr> <tr> <td>3rd class</td> <td>1.05</td> <td>1.88</td> </tr> <tr> <td>4th class</td> <td>1.69</td> <td>3.13</td> </tr> </tbody> </table> <p>(Note 1) For the 3rd class locations, premium rates are 0.65 for non-wooden buildings and 1.56 for wooden buildings in Kagawa while 0.91 for non-wooden buildings in Ibaraki, Yamanashi, and Ehime.</p> <p>(Note 2) For the 4th class locations, premium rates are 0.91 for non-wooden buildings and 2.15 for wooden buildings in Tokushima and Kochi while 3.06 for wooden buildings in Chiba, Aichi, Mie, and Wakayama.</p> <p>2 Discount rate Following discount rates are applied to standard rate above.</p> <p>(1) Construction age discount rate 10% discount, in case a building was constructed newly after June 1, 1981</p> <p>(2) Earthquake resistance class discount rate earthquake resistance class3: 30% discount earthquake resistance class2: 20% discount earthquake resistance class1: 10% discount</p> <p>(3) Seismic isolated buildings discount rate 30% discount</p> <p>(4) Seismic resistance diagnosis discount rate 10% discount</p> <p>(Note: discount rate cannot be applied together.)</p> <p>3 Coefficient Same as to the left</p>	Class location	Non-wooden	Wooden	1st class	0.50	1.00	2nd class	0.65	1.27	3rd class	1.05	1.88	4th class	1.69	3.13
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Class location	Same as to the left	<p>1st class Iwate, Akita, Yamagata, Fukushima, Tochigi, Gunma, Toyama, Ishikawa, Fukui, Tottori, Shimane, Yamaguchi, Fukuoka, Saga, Nagasaki, Kumamoto, Kagoshima</p> <p>2nd class Hokkaido, Aomori, Miyagi, Niigata, Nagano, Gifu, Shiga, Kyoto, Hyogo, Nara, Okayama, Hiroshima, Oita, Miyazaki, Okinawa</p> <p>3rd class Ibaraki*, Saitama, Yamanashi*, Osaka, Kagawa*, Ehime*</p> <p>4th class Chiba*, Tokyo, Kanagawa, Shizuoka, Aichi*, Mie*, Wakayama*, Tokushima*, Kochi*</p> <p>* See 1. Basic rate Note 1 and 2</p>																									

Table 1 Explanation Table of the JMA Seismic Intensity Scale

Seismic intensity is an expression of the strength of earthquake ground motion. It is measured with seismometers. This table describes the situations and damage that may be caused by seismic ground motion of each seismic intensity. The following points should be noted when using this table.

- (1) The seismic intensity announced by JMA is a value obtained with a seismic intensity meter, and is not determined from observed phenomena described in this table.
- (2) Sites where equal seismic intensities were observed did not necessarily suffer the same degree of damage, since damage depends on the type of construction used and on the nature of the Seismic ground motion. This table describes some typical situations which may appear. More or less damage than that described in the table may occur.
- (3) Seismic ground motion are greatly influenced by the ground and topography. Seismic intensity is a value observed at a site where a seismometer is installed. Seismic intensity occasionally varies even within a city. Seismic intensity is usually measured on the ground surface, so in general, the shaking on upper stories of buildings may be amplified greatly.
- (4) A large earthquakes generates long-periods seismic waves. Even at locations far from the epicenter, where the seismic intensity is rather small, the long-periods wave may occasionally cause unusual types of damage, such as the sloshing of oil in a tank or troubles with elevators.
- (5) This table is prepared based mainly on the examples collected from recent destructive earthquakes. The table is subject to revision when new examples are collected or the present descriptions become inconsistent with actual situations, due to the improvement of earthquake resistant buildings, etc.

Instrumental Seismic Intensity	JMA Seismic Intensity Scale	People	Indoors situations	Outdoors situations
0.5	0	Imperceptible to people.		
	1	Felt by only some people in the building.		
1.5	2	Felt by many people in the building. Some sleeping people awakened.	Hanging objects such as lamps swing slightly.	
2.5	3	Felt by many people in the building. Some people are frightened.	Dishes in a cupboard rattle occasionally.	Electric wires swing slightly.
3.5	4	Many people are frightened. Some people try to escape from danger. Most sleeping people are awakened.	Hanging objects swing considerably and dishes in a cupboard rattle. Unstable ornaments fall occasionally.	Electric wires swing considerably. People walking on a street and some people driving automobiles feel the tremor.
4.5	Weak 5	Many people try to escape from danger. Some people find it difficult to move.	Hanging objects swing violently. Most unstable ornaments fall. Occasionally, dishes in a cupboard and books on a bookshelf fall and furniture may move.	People notice electric-light poles swaying. Occasionally, window panes are broken and fall, unreinforced concrete-brick walls collapse, and roads suffer damage.
5.0	Strong 5	Many people are very frightened and find it difficult to move.	Most dishes in a cupboard and books on a bookshelf fall. Occasionally, a TV set on a rack falls, heavy furniture such as a chest of drawers falls, sliding doors slip out of their groove, and the deformation of a door frame makes it impossible to open the door. Some doors get unhinged.	In many cases, unreinforced concrete-brick walls collapse and grave stones overturn. Many automobiles come to a stop because it becomes difficult to drive. Occasionally, poorly installed vending machines fall over.
5.5	Weak 6	Difficult to keep standing.	A lot of heavy and unbolted furniture moves and falls, it is impossible to open the door in many cases..	In some buildings, wall tiles and windowpanes are damaged and fall.
6.0	Strong 6	Impossible to keep standing or to move without crawling.	Most heavy and unfixed furniture moves and falls. Occasionally, sliding doors are thrown out of their grooves.	In many buildings, Wall tiles and windowpanes are damaged and fall. Most unreinforced concrete brick walls collapse.
6.5	7	Thrown by the shaking and impossible to move at will.	Most furniture moves to a large extent and some jumps up.	In most buildings, wall tiles and windowpanes are damaged and fall. In some cases, reinforced concrete-brick walls collapse.

* The descriptions given in { } of “Basic infrastructure” describe situations concerning gas, water and electrical service in particular.

Instrumental Seismic Intensity	JMA Seismic Intensity Scale	Wooden buildings	Reinforced concrete buildings	Lifelines	Ground and slopes
0.5	0				
1.5	1				
2.5	2				
3.5	3				
4.5	4				
5.0	Weak 5	Occasionally, less earthquake-resistant houses suffer damage to walls and pillars.	Occasionally, cracks are formed in walls of less earthquake resistant buildings.	A safety devices cut off the gas service at some houses. On rare occasions water pipes are damaged and water service is interrupted. {Electrical service is interrupted at some houses.}	Occasionally, cracks appear in soft ground. Weak ground may. Rock falls and small slope failures take place in mountainous districts.
5.5	Strong 5	Occasionally, less earthquake-resistant houses suffer heavy damage to walls and pillars and lean to one side.	Occasionally, large cracks are formed in walls, crossbeams and pillars of less earthquake resistant buildings, and even highly earthquake resistant buildings develop cracks in walls.	Occasionally, gas pipes and/or water mains are damaged. {Occasionally, gas service and/or water service are interrupted in some regions.}	
6.0	Weak 6	Occasionally, less earthquake-resistant houses collapse and even walls and pillars of highly earthquake resistant houses are damaged.	Occasionally, walls and pillars of less earthquake resistant buildings reinforced concrete buildings are destroyed and even highly earthquake-resistant buildings develop large cracks in walls, crossbeams and pillars.	Gas pipes and/or water mains are damaged. {In some regions, gas service and water service are interrupted and electrical service is interrupted occasionally.}	Occasionally, cracks and slope failures take place in mountainous districts.
6.5	Strong 6	Many less earthquake resistant houses collapse. In some cases, even walls and pillars of highly earthquake resistant houses are heavily damaged.	Occasionally, less earthquake resistant buildings collapse. In some cases, even highly earthquake-resistant buildings suffer damage to with low earthquake resistance may walls and pillars.	Occasionally gas mains and/or water mains are damaged. {Electrical service is interrupted in some regions. Occasionally, gas service and/or water service are interrupted over a large area. }	
7.0	7	Occasionally, even highly earthquake-resistant houses are severely damaged and lean to one side.	Occasionally, even highly earthquake-resistant buildings are severely damaged and lean to one side.	{Electrical service, gas service are interrupted over wide areas.}	The ground is considerably Large cracks and landslides occur and geological features may change.

Table 2 The JMA Seismic Intensity Scale and the Modified Mercalli Scale of Earthquake Intensity

The JMA Seismic Intensity Scale	Modified Mercalli Scale of Earthquake Intensity
0	I: Acceleration of 1.0 gal or less Only seismometers detect the earthquake and it is not felt by humans, except in especially favorable circumstances.
1	II: 1.0 - 2.1 gal A few people might notice the earthquake if they are at rest and/or on the upper floors of tall buildings. Objects that move easily shake.
	III: 2.1 - 5.0 gal Many people indoors, especially those on upper floors or otherwise favorably placed, feel the earthquake. Parked cars may rock slightly, but people outdoors might not realize that an earthquake is occurring.
2	IV: 5.0 - 10.0 gal Most people indoors feel the earthquake. Dishes, windows, and doors rattle. The earthquake feels like a heavy truck hitting the walls. Parked cars rock considerably.
3	V: 10.0 - 21.0 gal Almost everyone feels the earthquake. Sleeping people are awakened. Small unstable objects are displaced or upset. Pendulum clocks stop, start, or change rate.
4	VI: 21.0 - 44.0 gal Everyone feels the earthquake. Many run outside.
	VII: 44.0 - 94.0 gal Almost all people run outside. Damage is slight to moderate in well-built buildings; considerable in poorly built buildings.
Weak 5	VIII: 94.0 - 202.0 gal Even well-built buildings have fairly severe damage. Chimneys and monuments are twisted or brought down. Panel walls are thrown out of frame structures. Sand and mud spurt up and well water may change.
Strong 5	IX: 202.0 - 432.0 gal Well-built buildings suffer considerable damage and sometimes completely collapse. The ground cracks.
Weak 6	
Strong 6	X: Over 432.0 gal Most masonry structures are destroyed. The ground cracks appear over a wide area. Railroad tracks are bent slightly.
7	XI: Most buildings are destroyed. The bridges are heavily cracked and destroyed and most structures are destroyed XII: The ground surface is wavy with eruptions from underneath.

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