

**IS 1893 (Part 1) : 2016**

displacement of sand and mud; change of water level in wells; water from canals, lakes, rivers, etc, thrown on land. New lakes occur.

**XI Destruction**

- i) —
- ii) Severe damage even to well built buildings, bridges, water dams and railway lines. Highways become useless. Underground pipes destroyed.
- iii) Ground considerably distorted by broad cracks and fissures, as well as movement in horizontal and vertical directions. Numerous landslips and falls of rocks. The intensity of the earthquake

requires to be investigated specifically.

**XII Landscape Changes**

- i) —
- ii) Practically all structures above and below ground are greatly damaged or destroyed.
- iii) The surface of the ground is radically changed. Considerable ground cracks with extensive vertical and horizontal movements are observed. Falling of rock and slumping of river banks over wide areas, lakes are dammed; waterfalls appear and rivers are deflected. The intensity of the earthquake requires to be investigated specially.

**ANNEX E**

*(Foreword)*

**LIST OF SOME TOWNS WITH POPULATION MORE THAN 3 LAKHS (as per CENSUS 2011)  
AND THEIR SEISMIC ZONE FACTOR Z**

<b>Town</b>	<b>Zone</b>	<b>Z</b>	<b>Town</b>	<b>Zone</b>	<b>Z</b>
Agra	III	0.16	Calicut (Kozhikode)	III	0.16
Ahmedabad	III	0.16	Chandigarh	IV	0.24
Ajmer	II	0.10	Chennai	III	0.16
Allahabad	II	0.10	Chitradurga	II	0.10
Almora	IV	0.24	Coimbatore	III	0.16
Ambala	IV	0.24	Cuddalore	II	0.10
Amritsar	IV	0.24	Cuttack	III	0.16
Asansol	III	0.16	Darbhanga	V	0.36
Aurangabad	II	0.10	Darjeeling	IV	0.24
Bahraich	IV	0.24	Dharwad	III	0.16
Bangalore (Bengaluru)	II	0.10	Dehra Dun	IV	0.24
Barauni	IV	0.24	Dharampuri	III	0.16
Bareilly	III	0.16	Delhi	IV	0.24
Belgaum	III	0.16	Durgapur	III	0.16
Bhatinda	III	0.16	Gangtok	IV	0.24
Bhilai	II	0.10	Guwahati	V	0.36
Bhopal	II	0.10	Gulbarga	II	0.10
Bhubaneswar	III	0.16	Gaya	III	0.16
Bhuj	V	0.36	Gorakhpur	IV	0.24
Bijapur	III	0.16	Hyderabad	II	0.10
Bikaner	III	0.16	Imphal	V	0.36
Bokaro	III	0.16	Jabalpur	III	0.16
Bulandshahr	IV	0.24	Jaipur	II	0.10
Burdwan	III	0.16	Jamshedpur	II	0.10

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<b>Town</b>	<b>Zone</b>	<b>Z</b>	<b>Town</b>	<b>Zone</b>	<b>Z</b>
Jhansi	II	0.10	Patna	IV	0.24
Jodhpur	II	0.10	Pilibhit	IV	0.24
Jorhat	V	0.36	Pondicherry (Puducherry)	II	0.10
Kakrapara	III	0.16	Pune	III	0.16
Kalpakkam	III	0.16	Raipur	II	0.10
Kanchipuram	III	0.16	Rajkot	III	0.16
Kanpur	III	0.16	Ranchi	II	0.10
Karwar	III	0.16	Roorkee	IV	0.24
Kochi	III	0.16	Rourkela	II	0.10
Kohima	V	0.36	Sadiya	V	0.36
Kolkata	III	0.16	Salem	III	0.16
Kota	II	0.10	Shillong	V	0.36
Kurnool	II	0.10	Shimla	IV	0.24
Lucknow	III	0.16	Sironj	II	0.10
Ludhiana	IV	0.24	Solapur	III	0.16
Madurai	II	0.10	Srinagar	V	0.36
Mandi	V	0.36	Surat	III	0.16
Mangaluru	III	0.16	Tarapur	III	0.16
Mungher	IV	0.24	Tezpur	V	0.36
Moradabad	IV	0.24	Thane	III	0.16
Mumbai	III	0.16	Thanjavur	II	0.10
Mysuru	II	0.10	Thiruvananthapuram	III	0.16
Nagpur	II	0.10	Tiruchirappalli	II	0.10
Nagarjunasagar	II	0.10	Tiruvannamalai	III	0.16
Nainital	IV	0.24	Udaipur	II	0.10
Nashik	III	0.16	Vadodara	III	0.16
Nellore	III	0.16	Varanasi	III	0.16
Osmanabad	III	0.16	Vellore	III	0.16
Panjim	III	0.16	Vijayawada	III	0.16
Patiala	III	0.16	Vishakhapatnam	II	0.10