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UFC 3-310-01
25 May 2005
Including change 2, 5 December 2007

UNIFIED FACILITIES CRITERIA (UFC)

STRUCTURAL LOAD DATA

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U.S. ARMY CORPS OF ENGINEERS

NAVAL FACILITIES ENGINEERING COMMAND (Preparing Activity)

AIR FORCE CIVIL ENGINEER SUPPORT AGENCY

Record of Changes (changes are indicated by **1**\ ... /**1**/)

Change No.	**Date**	**Location**
1	Dec 2005	FOREWORD
2	5 Dec 2007	Changes not indicated - see change summary

This UFC supersedes UFC 3-310-01, dated 30 June 2000.

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FOREWORD

The Unified Facilities Criteria (UFC) system is prescribed by MIL-STD 3007 and provides planning, design, construction, sustainment, restoration, and modernization criteria, and applies to the Military Departments, the Defense Agencies, and the DoD Field Activities in accordance with USD(AT&L) Memorandum dated 29 May 2002. UFC will be used for all DoD projects and work for other customers where appropriate. All construction outside of the United States is also governed by Status of Forces Agreements (SOFA), Host Nation Funded Construction Agreements (HNFA), and in some instances, Bilateral Infrastructure Agreements (BIA.) Therefore, the acquisition team must ensure compliance with the more stringent of the UFC, the SOFA, the HNFA, and the BIA, as applicable.

UFC are living documents and will be periodically reviewed, updated, and made available to users as part of the Services' responsibility for providing technical criteria for military construction. Headquarters, U.S. Army Corps of Engineers (HQUSACE), Naval Facilities Engineering Command (NAVFAC), and Air Force Civil Engineer Support Agency (AFCESA) are responsible for administration of the UFC system. Defense agencies should contact the preparing service for document interpretation and improvements. Technical content of UFC is the responsibility of the cognizant DoD working group. Recommended changes with supporting rationale should be sent to the respective service proponent office by the following electronic form: Criteria Change Request (CCR). The form is also accessible from the Internet sites listed below.

UFC are effective upon issuance and are distributed only in electronic media from the following source:

- Whole Building Design Guide web site http://dod.wbdg.org/.

Hard copies of UFC printed from electronic media should be checked against the current electronic version prior to use to ensure that they are current.

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UNIFIED FACILITIES CRITERIA (UFC)
REVISION SUMMARY SHEET

Document: UFC 3-310-01, *Design: Structural Load Data, change 2*
Superseding: UFC 3-310-01, *Design: Structural Load Data*, dated 25 May 2005

Description of Changes: This update to UFC 3-310-01 incorporates changes and eliminates conflicts associated with the adoption of the International Building Code (IBC) 2006 in place of the IBC 2003, as enacted by the update of UFC 1-200-01, "General Building Requirements". This update also includes the structural loading data at a small number of additional DoD locations, and revises the data at locations where more accurate information has been made available.

Reasons for Changes:

- UFC 1-200-01 has been updated and adopts the IBC 2006 as the basic building code for the DoD, replacing the IBC 2003.
- A limited number of additional locations where loading information is required have been identified.
- Additional, more accurate loading information has been collected at select locations.

Impact: There are negligible cost impacts. However, the following benefits should be realized.

- Ensuring that the guidance in UFC 3-310-01 is consistent with the requirements of the updated UFC 1-200-01 by eliminating conflicts and inconsistencies.
- Ensuring that the locations identified and the loadings described are complete and current with the most up to date available information.

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INTRODUCTION

1-1 **PURPOSE AND SCOPE**. This UFC provides structural loading data for the planning, design and construction of buildings for the Department of Defense (DoD). The loading data includes available site-specific ground snow load, basic wind speed, seismic spectral accelerations, and frost penetration at significant DoD installations worldwide. Also included are minimum live loadings for various facility occupancies and uses.

1-2 **BACKGROUND**. UFC 1-200-01 adopts and modifies the International Building Code (IBC) as the building code for DoD. Structural loading data including minimum live loads, ground snow load, basic wind speed, and seismic spectral accelerations, is provided for locations within the United States in chapters 1607, 1608, 1609, and 1613 of the IBC. The information included in UFC 3-310-01 is intended as a tool to assist in the consistent interpretation of the data in the IBC at significant DoD installations within the United States, and as the basis for applying the provisions of the UFC 1-200-01 to significant DoD installations outside of the United States.

1-3 **APPLICABILITY**. This UFC applies to all service elements and contractors involved in the planning, design and construction of DoD facilities worldwide.

1-4 **CONFLICTS.** This UFC supplements the information contained in the IBC as modified by UFC 1-200-01. All sections of the IBC as modified by UFC 1-200-01 remain in effect. If any conflicts or disagreements exist, the IBC as modified by UFC 1-200-01 will govern. Bring all apparent conflicts to the attention of the authorizing design agency for additional guidance.

1-5 **REFERENCES**.

- UFC 1-200-01, *DESIGN: General Building Requirements (http://dod.wbdg.org)*

- *International Building Code* (IBC), 2006 (http://www.iccsafe.org/)

- *Earthquake Ground Motion Parameters Calculator*, Version 5.0.8, United States Geological Survey (USGS), for the 2006 version of the International Building Code. (http://earthquake.usgs.gov/research/hazmaps/design/index.php)

1-6 **TECHNICAL GUIDANCE.** The provisions of the IBC, as modified by UFC 1-200-01, govern the structural design of buildings, structures and portions thereof, with the following modifications and commentary.

1-6.1 **IBC Section 1604 – GENERAL DESIGN REQUIREMENTS.**

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1-6.1.1 **Replacement.** Replace IBC section 1604.5 with the following:

1604.5 Occupancy category. Buildings shall be assigned an occupancy category in accordance with Table 1 of UFC 3-310-01. Importance factors for snow load, wind load and seismic load for each occupancy category are also shown in Table 1 of UFC 3-310-01.

Note: IBC section 1604.5.1 shall remain in effect as written.

1-6.1.2 **Replacement.** Replace Table 1604.5 of the IBC with Table 1 of this UFC. (All references in the IBC to Table 1604.5 shall be interpreted as a reference to Table 1 of this UFC.)

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TABLE 1
OCCUPANCY CATEGORY OF BUILDINGS AND OTHER STRUCTURES

Occupancy Category	Nature of Occupancy	Seismic Factor I_E	Snow Factor I_S	Wind Factor I_W
I	**Buildings and other structures that represent a low hazard to human life in the event of failure, including, but not limited to:** • Agricultural facilities • Certain temporary facilities • Minor storage facilities	1.00	0.8	0.87[a]
II	**Buildings and other structures except those listed in Categories I, III, IV and V**	1.00	1.00	1.00
III	**Buildings and other structures that represent a substantial hazard to human life or represent significant economic loss in the event of failure, including, but not limited to:** • Buildings and other structures where more than 300 people congregate in one area • Buildings and other structures with elementary school, secondary school, or daycare facilities with an occupant load greater than 250 • Buildings and other structures with an occupant load greater than 500 • Health care facilities with an occupant load of 50 or more resident patients, but not having surgery or emergency treatment facilities • Jails and detention facilities • Structures and equipment in power-generating stations; water treatment facilities that are required for primary treatment and disinfecting of potable water; waste water treatment facilities that are required for primary treatment; and other public utility facilities that are not included in Categories IV and V • Buildings and other structures not included in Categories IV and V containing sufficient quantities of toxic, flammable, or explosive substances to be dangerous to the public if released • Facilities having high-value equipment, as designated by the using agency	1.25	1.10	1.15

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Occupancy Category	Nature of Occupancy	Seismic Factor I_E	Snow Factor I_S	Wind Factor I_W
IV	**Buildings and other structures designed as essential facilities, including, but not limited to:** • Hospitals and other health care facilities having surgery or emergency treatment facilities • Fire, rescue, and police stations, and emergency vehicle garages • Designated earthquake, hurricane, or other emergency shelters • Designated emergency preparedness, communication, and operation centers, and other facilities required for emergency response • Power-generating stations and other utility facilities required for primary power or as emergency backup facilities for Category IV structures • Structures containing highly toxic materials as defined by Section 307, where the quantity of material exceeds the maximum allowable quantities of Table 307.7(2) • Aviation control towers, air traffic control centers, and emergency aircraft hangars that house aircraft required for post-earthquake emergency response • Buildings and other structures not included in Category V, having DoD mission-essential command, control, primary communications, data handling, and intelligence functions that are not duplicated at geographically separate locations, as designated by the using agency • Water treatment facilities required to maintain water pressure for fire suppression	1.50	1.20	1.15
V[b]	**Facilities designed as national strategic military assets, including, but not limited to:** • Key national defense assets (e.g. National Missile Defense facilities), as designated by the using agency • Facilities involved in operational missile control, launch, tracking, or other critical defense capabilities • Emergency backup power-generating facilities required for primary power for Category V structures • Power-generating stations and other utility facilities required for primary power for Category V structures, if emergency backup power generating facilities are not available • Facilities involved in storage, handling, or processing of nuclear, chemical, biological, or radiological materials, where structural failure could have widespread catastrophic consequences, as designated by the using agency.	N/A[b]	1.50[b]	1.70[b]

Notes to Table 1, "OCCUPANCY CATEGORIES OF BUILDINGS AND OTHER STRUCTURES"

a. In hurricane-prone regions with V>100 miles per hour, I_w shall be 0.77 for category I structures.
b. A new Category and Seismic Use Group have been added to address national strategic military assets. A Seismic Importance Factor, I_E, is not required for the design of these facilities.

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1-6.2 **IBC Section 1607 – LIVE LOADS.**

Table B-1 of this UFC includes IBC Table 1607.1 with additional Occupancy or Use classifications for military facilities. The additional classifications that have been added to IBC Table 1607.1 are shown in bold italics within Table B-1.

1-6.2.1 **Replacement.** Replace IBC section 1607.1 with the following:

1607.1 General. Live loads are those loads defined in Section 1602.1. Table B-1 of UFC 3-310-01 defines Minimum uniformly distributed live loads and minimum concentrated live loads for the design of buildings.

1-6-2.2 **Replacement.** Replace Table 1607.1 of the IBC with Table B-1 of this UFC. (All references in the IBC to Table 1607.1 shall be interpreted as a reference to Table B-1 of this UFC.)

1-6.3 **IBC Section 1608 – SNOW LOADS.**

1-6.3.1 **Addition.** Add the following sections to the IBC:

1608.3 Specific Locations Within the United States. Ground snow loads at DoD installations within the United States, territories and possessions are identified in table C-1 of UFC 3-310-01, to facilitate consistent interpretation of the information provided in Figure 1608.2 and Table 1608.2.

1608.4 Specific Locations Outside of the United States. Ground snow loads at specific locations outside of the United States, territories and possessions are identified in table D-1 of UFC 3-310-01. At locations where the ground snow load is not provided, use the best available locality information. For additional guidance contact the authorizing design agency.

1-6.4 **IBC Section 1609 – WIND LOADS.**

1-6.4.1 **Revision.** Change the section number of IBC section 1609.3.1 to section 1609.3.3

1-6.4.2 **Addition.** Add the following sections to the IBC:

1609.3.1 Specific Locations Within the United States. Basic wind speeds at DoD installations within the United States, territories and possessions are identified in table C-1 of UFC 3-310-01 to facilitate consistent interpretation of the information provided in Figure 1609.

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1609.3.2 Specific Locations Outside of the United States. Basic wind speeds at specific locations outside of the United States, territories and possessions are identified in table D-1 of UFC 3-310-01. At locations where the basic wind speed is not provided, use the best available locality information. For additional guidance contact the authorizing design agency. **Use a minimum wind speed of 137 km/h (85 mph) at all locations unless a lower wind speed is approved by the authorizing design agency.**

1-6.5 **IBC Section 1613 – EARTHQUAKE LOADS.**

1-6.5.1 **Addition.** Add the following sections to the IBC.

1613.5.1.1 Specific Locations Within the United States. Mapped seismic acceleration parameters at DoD installations within the United States, territories and possessions are identified in table C-2 of UFC 3-310-01 to facilitate consistent interpretation of the information provided in Figures 1613.5(1) through 1613.5(14).

The values in table C-2 were determined utilizing the web based United States Geological Survey (USGS) Earthquake Ground Motion Parameters Calculator, Version 5.0.8, for the 2006 version of the International Building Code utilizing latitude and longitude data. This tool or other approved software may be used to determine seismic design data where site-specific location information is available, with the approval of the authorizing design agency.

The mapped seismic acceleration parameters in table C-2 were typically determined at the approximate geographical centroid of the installation / city. For larger installations and where the potential seismic accelerations vary considerably over relative short distances, it may not be appropriate to use the acceleration values at the installation centroid. At select locations the maximum and minimum value of S_S and S_1 within the installation is listed. Use the maximum values unless site-specific location (latitude / longitude) information is available and lesser values can be justified by the use of Figures 1613.5(1) through 1613.5(14) or by approved computerized tools for determining seismic ground motion parameters. For additional guidance contact the authorizing design agency.

1613.5.1.2 Specific Locations Outside of the United States. Seismic ground motion parameters S_S and S_1 at specific locations outside of the United States, territories and possessions are identified in table D-2 and E-1 of UFC 3-310-01. For locations not shown, the best available information shall be used with the approval of the authorizing design agency.

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1-6.6 **IBC Section 1805.2.1 – Frost Protection.**

1-6.6.1 **Addition.** Add the following section to the IBC:

1805.2.2 Frost Line Depth. Depths to the frost line at specific locations within the United States, territories and possessions are identified in table C-1 of UFC 3-310-01. Frost line depths at specific locations outside of the United States are identified in table D-1 of UFC 3-310-01. At locations where frost depths are not provided, use the best available locality information. For additional guidance contact the authorizing design agency.

1-7 **REVISIONS.** The information in this UFC will be revised on an as needed basis as DOD installations close or new installations are added. In addition, structural load data will be revised or supplemented as new or better information comes available.

Contact a representative to the DoD Structural Discipline Working Group to recommend additions or changes.

1-8 **CREDITS.** The climatic loading data for locations within the United States, its territories and possessions is based upon figures 1608.2 and 1609 of the 2003 IBC supplemented with additional data taken from the previous edition of UFC 3-310-01 and Military Handbook 1002/2A. The International Code Council provided electronic versions of the figures from the IBC. These electronic maps greatly facilitated this effort and enhanced the accuracy of the information at individual locations.

The climatic loading data for locations outside of the United States, it territories and possessions represents the best available information to date based upon the previous edition of UFC 3-310-01, and Military Handbook 1002/2A, supplemented by recommendations from regional engineers and the Pond & Company study *Structural Engineering Design Parameters for OCONUS Locations,* 21 September 2001.

The earthquake loading data for locations within the United States, its territories and possessions was determined utilizing the web based United States Geological Survey (USGS) Earthquake Ground Motion Parameters Calculator, Version 5.0.8,, for the 2006 version of the International Building Code utilizing latitude and longitude data.

Dr. E.V. Leyendecker of the United States Geological Survey (USGS) provided the earthquake loading data for locations outside of the United States its territories and possessions. The Global Seismic Hazard Assessment Program provided the basis for this effort.

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APPENDIX A

ABBREVIATIONS

10/50 S_1. … Spectral acceleration of 5% damped short period (0.2 second) response corresponding to an earthquake with a 10% probability of being exceeded in 50 years

10/50 S_S. … Spectral acceleration of 5% damped long period (1.0 second) response corresponding to an earthquake with a 10% probability of being exceeded in 50 years

CS. …… Case Study

DOD. ……. Department of Defense

%g. …… Percent Gravity

in^2. …… Square Inches

IP. ……. Inch-Pound

kg/m^3. ….. Kilogram per Cubic Meter

km/h. ……. Kilometer per Hour

kN. ……. Kilo Newton

kN/m^2. …… Kilo Newton per Square Meter

kPa. …… Kilopascal

lbs. …… Pounds

mm. ……. Millimeter

mm^2. ……. Square Millimeter

mph. ……. Miles per Hour

psf. …… Pounds per Square Foot

S_S. …… Spectral Accelerations for Short Periods as determined by IBC Section 1613.5.1

S_1. …… Spectral Accelerations for 1 Second Periods as determined by IBC Section 1613.5.1

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APPENDIX B

MINIMUM UNIFORMLY DISTRIBUTED LIVE LOADS AND MINIMUM CONCENTRATED LIVE LOADS

B-1 REFERENCES. All section references are to the International Building Code (IBC) 2006. Table B-1 includes the IBC 2006 Table 1607.1 with additional Occupancy or Use classification for military facilities that are shown in Bold-Italics.

TABLE B-1 MINIMUM UNIFORMLY DISTRIBUTED LIVE LOADS AND MINIMUM CONCENTRATED LIVE LOADS[g]

OCCUPANCY OR USE	UNIFORM		CONCENTRATED	
	kPa	(psf)	kN	(lbs.)
1. Access floor systems				
Office use	2.4	50	8.9	2,000
Computer use	4.8	100	8.9	2,000
2. Ammunition Storage				
High explosives (one story)	***23.9***	***500***	---	---
Inert explosives (one story)	***23.9***	***500***	---	---
Pyrotechnics (one story)	***23.9***	***500***	---	---
Small arms (one story)	***23.9***	***500***	---	---
Torpedo (one story)	***16.8***	***350***	---	---
3. Armories and drill rooms	7.2	150	---	---
4. Assembly areas and theaters				
Fixed seats (fastened to floor)	2.9	60	---	---
Follow spot, projection and control rooms	2.4	50	---	---
Lobbies	4.8	100	---	---
Movable seats	4.8	100	---	---
Stages and platforms	6.0	125	---	---
5. Balconies	4.8	100	---	---
On one- and two-family residences only, and not exceeding 9.3m^2 (100 ft.^{2})	2.9	60	---	---
6. Battery charging room	***9.6***	***200***	***---***	***---***
7. Boiler houses	***9.6***	***200***	***---***	***---***
8. Bowling alleys	3.6	75	---	---
9. Catwalks	1.9	40	1.33	300
10. Cleaning gear / trash room compactor	***3.6***	***75***	***---***	***---***
11. Cold Storage (Food or provision freezer)				
First floor	***19.2***	***400***	***---***	***---***
Upper floors	***14.4***	***300***	***---***	***---***
12. Command Duty Officer Day room	***2.9***	***60***	***---***	***---***
13. Cornices	2.9	60	---	---

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OCCUPANCY OR USE	UNIFORM		CONCENTRATED	
	kPa	(psf)	kN	(lbs.)
14. Corridors, except as otherwise indicated	4.8	100	---	---
15. Court rooms	***3.8***	***80***	***---***	***---***
16. Dance halls and ballrooms	4.8	100	---	---
17. Dining rooms and restaurants	4.8	100	---	---
18. Decks	Same as Occupancy Served[h]	Same as Occupancy Served[h]	---	---
19. Dwellings (see residential)	---	---	---	---
20. Elevator machine room grating (on area of 2600 mm^2 (4 $in.^2$))	---	---	1.33	300
21. Finish light floor plate construction (on area of 650 mm^2 (1 $in.^2$))	---	---	0.89	200
22. Fire escapes On single-family dwellings only	4.8 1.9	100 40	---	---
23. Galleys ***Dishwashing rooms*** ***General kitchen area*** ***Provision storage (not refrigerated)*** ***Preparation room*** ***Meat*** ***Vegetable***	 ***14.4*** ***12.0*** ***9.6*** ***12.0*** ***4.8***	 ***300*** ***250*** ***200*** ***250*** ***100***	***---***	***---***
24. Garages (passenger vehicles only) Trucks & buses	1.9 See Section 1607.6 - IBC	40 See Section 1607.6 - IBC	Note a See Section 1607.6 - IBC	Note a See Section 1607.6 - IBC
25. Generator rooms	***9.6***	***200***	***---***	***---***
26. Grandstands (see stadium and arena bleachers)	---	---	---	---
27. Guard House	***3.6***	***75***	***---***	***---***
28. Gymnasiums, main floors and balconies	4.8	100	---	---
29. Handrails, guards and grab bars	Section 1607.7 - IBC	Section 1607.7 - IBC	Section 1607.7 - IBC	Section 1607.7 - IBC
30. Hospitals Corridors above first floor Operating rooms, laboratories Private rooms	 3.8 2.9 1.9	 80 60 40	 4.45 4.45 4.45	 1,000 1,000 1,000
31. Hotels (see residential)	---	---	---	---
32. Incinerators; charging room	***7.2***	***150***	***---***	***---***
33. Laboratories, normal scientific equipment	***6.0***	***125***	***---***	***---***
34. Latrines / Heads / Toilets / Washroom	***3.6***	***75***	***---***	***---***
35. Libraries Reading rooms Stack rooms Corridors above first floor	 2.9 7.2[b] 3.8	 60 150[b] 80	 4.45 4.45 4.45	 1,000 1,000 1,000

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OCCUPANCY OR USE	UNIFORM		CONCENTRATED	
	kPa	(psf)	kN	(lbs.)
36. Manufacturing				
Light	6.0	125	8.9	2,000
Heavy	12.0	250	13.34	3,000
37. Marquees and canopies	3.6	75	---	---
38. Mechanical equipment room (general)	***4.8***	***100***	***---***	***---***
39. Mechanical room (HVAC)	***6.0***	***125***	***---***	***---***
40. Mechanical telephone and radio equipment room	***7.2***	***150***	***---***	***---***
41. Morgue	***4.8***	***100***	***---***	***---***
42. Office buildings				
File and computer rooms shall be designed for heavier loads based on anticipated occupancy				
Lobbies and first floor corridors	4.8	100	8.9	2,000
Offices	2.4	50	8.9	2,000
Corridors above first floor	3.8	80	8.9	2,000
43. Penal Institutions				
Cell blocks	1.9	40	---	---
Corridors	4.8	100		
44. Post offices				
General area	***4.8***	***100***	***---***	***---***
Work rooms	***6.0***	***125***		
45. Power plants	***9.6***	***200***	***---***	***---***
46. Projection booths	***4.8***	***100***	***---***	***---***
47. Promenade roof	***2.9***	***60***	***---***	***---***
48. Pump houses	***4.8***	***100***	***---***	***---***
49. Recreation room	***4.8***	***100***	***---***	***---***
50. Receiving rooms (radio) including roof areas supporting antennas and electronic equipment	***7.2***	***150***	***---***	***---***
51. Refrigeration storage rooms				
Dairy	***9.6***	***200***	***---***	***---***
Meat	***12.0***	***250***	***---***	***---***
Vegetable	***13.2***	***275***	***---***	***---***

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OCCUPANCY OR USE	UNIFORM		CONCENTRATED	
	kPa	(psf)	kN	(lbs.)
52. Residential				
One & two family dwellings				
Uninhabitable attics without storage[i]	0.5	10	---	---
Uninhabitable attics with limited storage[i,j,k]	1.0	20	---	---
Habitable attics and sleeping areas	1.4	30	---	---
All other areas except balconies and decks	1.9	40	---	---
Hotels and multifamily dwellings				
Private rooms & corridors serving them	1.9	40	---	---
Public rooms and corridors serving them	4.8	100	---	---
53. Reviewing stands, grandstands and bleachers	Note c	Note c	Note c	Note c
54. Roofs				
All roof surfaces subject to maintenance workers	---	---	1.33	300
Awnings and canopies				
Fabric construction supported by a light weight rigid skeleton structure	0.23 Nonreduceable	5 Nonreduceable	---	---
All other construction	1.0	20	---	---
Ordinary flat, pitched, and curved roofs	1.0	20	---	---
Primary roof members, exposed to a work floor:				
Single panel point of lower chord of roof trusses or any point along primary structural members supporting roofs:				
Over manufacturing, storage warehouses, and repair garages	---	---	8.9	2000
All other occupancies	---	---	1.33	300
Roofs used for special purposes	Note l	Note l	Note l	Note l
Roofs used for promenade purposes	2.9	60	---	---
Roofs used for roof gardens or assembly purposes	4.8 ---	100	---	---
55. Schools				
Classrooms	1.9	40	4.45	1,000
Corridors above first floor	3.8	80	4.45	1,000
First floor corridors	4.8	100	4.45	1,000
56. Scuttles, skylight ribs, and accessible ceilings	---	---	0.89	200

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OCCUPANCY OR USE	UNIFORM		CONCENTRATED	
	kPa	(psf)	kN	(lbs.)
57. Shops: Manufacturing and Industrial				
Aircraft utility	***9.6***	***200***	---	---
Assembly and repair	***12.0***	***250***	---	---
Bombsite (w/o shielding)	***6.0***	***125***	---	---
Carpenter	***6.0***	***125***	---	---
Electrical	***14.4***	***300***	---	---
Engine overhaul	***14.4***	***300***	---	---
58. Sidewalks, vehicular driveways and yards, subject to trucking	12.0[d]	250[d]	35.6[e]	8,000[e]
59. Skating rinks	4.8	100	---	---
60. Stadiums and arenas				
Bleachers	4.8[c]	100[c]	---	---
Fixed seats (fastened to floor)	2.9[c]	60[c]		
61. Stairs and exits				
One- and two-family dwellings	1.9	40	Note f	Note f
All other	4.8	100		
62. Storage warehouses (shall be designed for heavier loads if required for anticipate storage)				
General				
Light	6.0	125		
Heavy	11.97	250		
Aircraft	***9.58***	***200***	---	---
Building Materials	***11.97***	***250***		
Drugs, paint, oil	***9.58***	***200***		
Dry Provisions	***14.36***	***300***		
Groceries, wine, Liquor	***14.36***	***300***		
Light Tools	***7.2***	***150***		
Pipe & metal	***47.88***	***1000***		
Paint and oil (one story)	***23.94***	***500***		
Hardware	***14.36***	***300***		
63. Stores				
Retail				
First floor	4.8	100	4.45	1,000
Upper floors	3.6	75	4.45	1,000
Wholesale, all floors	6.0	125	4.45	1,000
64. Tailor shop	***3.6***	***75***	---	---
65. Telephone exchange rooms and central computer IT server spaces	***7.2***	***150***	***8.9***	***2000***
66. Vehicle barriers	Section 1607.7.3 - IBC	Section 1607.7.3 - IBC	Section 1607.7.3 - IBC	Section 1607.7.3 - IBC
67. Walkways and elevated platforms (other than exit ways)	2.9	60	---	---
68. Yards and terraces, pedestrian	4.8	100	---	---

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Notes to Table B-1, "MINIMUM UNIFORMLY DISTRIBUTED LIVE LOADS AND MINIMUM CONCENTRATED LIVE LOADS"

For SI: 1 square inch = 645.16 mm^2, 1 pound per square foot = 0.0479 kN/m^2 = *0.0479 kPa*, 1 pound = 0.004448 kN, 1 pound per cubic foot = 16 kg/m^3.

a. Floors in garages or portions of building used for the storage of motor vehicles shall be designed for the uniformly distributed live loads shown or the following concentrated loads: (1) for passenger cars accommodating not more than nine passengers, 13.34 kN (3,000 pounds) acting on an area of 114 mm x 114 mm (4.5 inches x 4.5 inches); (2) for mechanical parking structures without slab or deck which are used for storing passenger vehicles only, 10.0 kN (2,250 pounds) per wheel.

b. The loading applies to stack room floors that support non-mobile, double-faced library book stacks, subject to the following limitations:

   1) The nominal book stack unit height shall not exceed 2,290mm (90 inches).

   2) The nominal shelf depth shall not exceed 305mm (12 inches) for each face; and

   3) Parallel rows of double-faced book stacks shall be separated by aisles not less than 915 mm (36 inches) wide.

c. Design in accordance with the ICC *Standard on Bleachers, Folding and Telescoping Seating and Grandstands*.

d. Other uniform loads in accordance with an approved method which contains provisions for truck loadings shall also be considered where appropriate.

e. The concentrated wheel load shall be applied on an area of 12,900 mm^2 (20 square inches).

f. Minimum concentrated load on stair treads (on area of 2,600 mm^2 (4 square inches)) is 1.3 kN (300 pounds).

g. Where snow loads occur that are in excess of the design conditions, the structure shall be designed to support the loads due to the increased loads caused by drift buildup or a greater snow design determined by the building official. (See IBC Section 1608). For special-purpose roofs, see IBC Section 1607.11.2.2.

h. See IBC Section 1604.8.3 for decks attached to exterior walls.

i. Attics without storage are those where the maximum clear height between the joist and rafter is less than 42 inches, or where there are not two or more adjacent trusses with the same web configuration capable of containing a rectangle 42 inches high by 2 feet wide, or greater, located within the plane of the truss. For attics without storage, this live load need not be assumed to act concurrently with any other live load requirements.

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j. For attics with limited storage and constructed with trusses, this live load need only be applied to those portions of the bottom chord where there are two or more adjacent trusses with the same web configuration capable of containing a rectangle 42 inches high by 2 feet wide or greater, located within the plane of the truss. The rectangle shall fit between the top of the bottom chord and the bottom of any other truss member, provided that each of the following criteria is met:
    1. The attic area is accessible by a pull-down stairway or framed opening in accordance with Section 1209.2, and
    2. The truss shall have a bottom chord pitch less than 2:12
    3. Bottom chords of trusses shall be designed for the greater of actual imposed dead load or 10 psf, uniformly distributed over the entire span.

k. Attic spaces served by a fixed stair shall be signed to support the minimum live load specified for habitable attics and sleeping rooms.

l. Roofs used for other special purposes shall be designed for appropriate loads as approved by the building official.

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APPENDIX C

SITE SPECIFIC STRUCTURAL LOADING DATA – UNITED STATES, ITS TERRITORIES AND POSSESSIONS

C-1 Climatic Loading Data Table. Site-specific structural climatic loading data for DoD locations within the United States, its territories and possessions is provided in Table C-1.

C-2 Earthquake Loading Data Table. Site-specific earthquake loading data for DoD locations within the United States, its territories and possessions is provided in Table C-2.

TABLE C-1 STRUCTURAL CLIMATIC LOADING DATA – UNITED STATES, ITS TERRITORIES AND POSSESSIONS

TABLE C-1		Ground Snow	Wind Speed	Frost Penetration	Ground Snow	Wind Speed	Frost Penetration
State	Base / City	(psf)	(mph)	(inches)	kPa	km/h	mm
Alabama	Anniston Army Depot	5	90	6	0.24	145	152
	Birmingham	5	90	6	0.24	145	152
	Fort McClellan	5	90	6	0.24	145	152
	Fort Rucker	0	107	0	0.00	172	0
	Maxwell-Gunther AFB / Montgomery	5	97	4	0.24	156	102
	Mobile	0	130	0	0.00	209	0
	Redstone Arsenal / Huntsville	10	90	9	0.48	145	229
Alaska	Clear AS	70	90		3.35	145	
	Eielson AFB	75	90	permafrost	3.58	145	permafrost
	Elmendorf AFB	65	100	129	3.11	161	3277
	Fort Greely	60	90	Permafrost	2.87	145	permafrost
	Fort Richardson	65	110	129	3.11	177	3277
	Fort Wainwright	75	90	permafrost	3.58	145	permafrost
	Galena AFB	60	100		2.87	161	
	Juneau	60	105	86	2.87	169	2184
	Ketchikan		115		0.00	185	
	Kodiak	30	130	86	1.44	209	2184
	Sitka	50	122	56	2.40	196	1422
	Valdez	160	100	136	7.66	161	3454
Arizona	Davis-Monthan AFB / Tucson AFB	0	90	0	0.00	145	0

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TABLE C-1

State	Base / City	Ground Snow (psf)	Wind Speed (mph)	Frost Penetration (inches)	Ground Snow kPa	Wind Speed km/h	Frost Penetration mm
Arizona	Fort Huachuca	10	90	0	0.48	145	0
	Luke Air Force Base	0	90	5	0.00	145	127
	Phoenix	0	90	0	0.00	145	0
	Yuma MCB	0	90	0	0.00	145	0
	Yuma Proving Ground	0	90	0	0.00	145	0
Arkansas	Little Rock AFB	10	90	14	0.48	145	356
	Pine Bluff Arsenal	10	90	9	0.48	145	229
California	Alameda	0	85		0.00	137	
	MCLB Barstow	0	85	18	0.00	137	457
	Beale AFB	0	85		0.00	137	
	MCMTC Bridgeport	150	100	36	7.19	161	914
	Camp Pendleton	0	85	4	0.00	137	102
	NWS China Lake	0	85	22	0.00	137	559
	NSWC Corona	0	85	0	0.00	137	0
	NRTF Dixon	0	85	0	0.00	137	0
	Edwards AFB	0	85 Special	22	0.00	137 Special	559
	El Centro NAF	0	85	0	0.00	137	0
	Fort Irwin	0	85	22	0.00	137	559
	Fresno ANG	0	85	0	0.00	137	0
	NAS Lemoore	0	85	0	0.00	137	0
	Los Angeles AFB / El Segundo	0	85	0	0.00	137	0
	Los Angeles	0	85	0	0.00	137	0
	March ARB	0	85	0	0.00	137	0
	McClellan AFB / Sacramento	0	85	5	0.00	137	127
	NWC Mohave Range	0	85	22	0.00	137	559
	Presidio of Monterey	0	85	4	0.00	137	102
	Point Mugu / Port Hueneme	0	85	0	0.00	137	0

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TABLE C-1

State	Base / City	Ground Snow (psf)	Wind Speed (mph)	Frost Penetration (inches)	Ground Snow kPa	Wind Speed km/h	Frost Penetration mm
California	**San Diego Region** NAS North Island NAB Coronada MCRD Miramar Naval Medical Ctr San Diego NS Point Loma	**0**	**85**	**0**	**0.00**	**137**	**0**
	Moffett Field - Onizuka / Sunnyvale	**0**	**85**	**0**	**0.00**	**137**	**0**
	San Clemente Island Naval Reservation	**0**	**85**	**0**	**0.00**	**137**	**0**
	San Nicolas Island	**0**	**85**	**0**	**0.00**	**137**	**0**
	Seal Beach NWS	**0**	**85**	**0**	**0.00**	**137**	**0**
	Seal Beach NWS – Concord Detachment	**0**	**85**	**0**	**0.00**	**137**	**0**
	Sierra Army Depot / Herlong	**15**	**85**	**54**	**0.72**	**137**	**1372**
	Stockton / San Joaquin	**0**	**85**	**4**	**0.00**	**137**	**102**
	Travis AFB	**0**	**85**	**0**	**0.00**	**137**	**0**
	Twentynine Palms	**0**	**85**	**5**	**0.00**	**137**	**127**
	Vandenberg AFB	**0**	**85**	**0**	**0.00**	**137**	**0**
Colorado	Buckley AFB / Aurora	**20**	**90**	**52**	**0.96**	**145**	**1321**
	Denver	**20**	**90**	**52**	**0.96**	**145**	**1321**
	Fort Carson	**15**	**90 Special**	**38**	**0.72**	**145 Special**	**965**
	Cheyenne Mountain AS / NORAD	**15**	**90 Special**	**38**	**0.72**	**145 Special**	**965**
	Peterson AFB / Colorado Springs	**30**	**90**	**38**	**1.44**	**145**	**965**
	Schriever AFB	**CS**	**90**		**CS**	**145**	
	USAF Academy	**30**	**90 Special**	**38**	**1.44**	**145 Special**	**965**
Connecticut	NSB New London / Groton	**30**	**120**	**38**	**1.44**	**193**	**965**

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TABLE C-1

State	Base / City	Ground Snow (psf)	Wind Speed (mph)	Frost Penetration (inches)	Ground Snow kPa	Wind Speed km/h	Frost Penetration mm
Delaware	Dover AFB	**25**	**95**	**22**	**1.20**	**153**	**559**
District of Columbia	**Washington Region** Bolling AFB Anacostia NS Fort McNair Marine Barracks NRL Washington NDW / Anacostia Pentagon Walter Reed	**25**	**90**	**26**	**1.20**	**145**	**660**
Florida	Avon Park AS	**0**	**110**	**0**	**0.00**	**177**	**0**
	Cape Canaveral AFS	**0**	**125**	**0**	**0.00**	**201**	**0**
	Eglin AFB	**0**	**133**	**0**	**0.00**	**214**	**0**
	Homestead	**0**	**150**	**0**	**0.00**	**241**	**0**
	Hurlburt Field	**0**	**135**		**0.00**	**217**	
	NAS Jacksonville / Jacksonville	**0**	**115**	**0**	**0.00**	**185**	**0**
	NAS Key West	**0**	**150**	**0**	**0.00**	**241**	**0**
	MacDill AFB	**0**	**120**	**0**	**0.00**	**193**	**0**
	NAS Mayport	**0**	**120**	**0**	**0.00**	**193**	**0**
	HQ Southcom / Miami	**0**	**140**	**0**	**0.00**	**225**	**0**
	Orlando	**0**	**108**	**0**	**0.00**	**174**	**0**
	NAS Panama City	**0**	**130**	**0**	**0.00**	**209**	**0**
	Patrick AFB	**0**	**125**	**0**	**0.00**	**201**	**0**
	NAS Pensacola	**0**	**140**	**0**	**0.00**	**225**	**0**
	Tampa	**0**	**118**	**0**	**0.00**	**190**	**0**
	Tyndall AFB	**0**	**130**	**0**	**0.00**	**209**	**0**
	NAS Whiting Field / Milton	**0**	**125**	**0**	**0.00**	**201**	**0**
Georgia	MC Logistics Support / Albany	**0**	**98**	**0**	**0.00**	**158**	**0**
	Athens NCSC	**5**	**90**		**0.24**	**145**	
	Dobbins AFB / Atlanta NAS	**5**	**90**		**0.24**	**145**	
	Fort Benning	**5**	**95**	**0**	**0.24**	**153**	**0**
	Fort Gordon	**10**	**93**	**0**	**0.48**	**150**	**0**

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TABLE C-1

State	Base / City	Ground Snow (psf)	Wind Speed (mph)	Frost Penetration (inches)	Ground Snow kPa	Wind Speed km/h	Frost Penetration mm
Georgia	Fort McPherson / Fort Gillem	**5**	**90**		**0.24**	**145**	
	Fort Stewart	**0**	**110**	**0**	**0.00**	**177**	**0**
	Hunter Army Airfield / Savannah	**0**	**120**	**0**	**0.00**	**193**	**0**
	NSB Kings Bay	**0**	**120**	**0**	**0.00**	**193**	**0**
	Moody AFB	**0**	**98**	**0**	**0.00**	**158**	**0**
	Robins AFB	**5**	**92**	**0**	**0.24**	**148**	**0**
Hawaii	PMRF Barking Sands, Kauai	**0**	**105**	**0**	**0.00**	**169**	**0**
	MCBH Kaneohe Bay	**0**	**105**	**0**	**0.00**	**169**	**0**
	Pohakuloa Training Area	**0**	**105**	**0**	**0**	**169**	**0**
	Pearl Harbor Region: Camp H.M. Smith Fort Shafter Hickam AFB Pearl Harbor Tripler AMC	**0**	**105**	**0**	**0.00**	**169**	**0**
	Wahiawa Region: Lualualei Wahiawa Naval Reservation Wheeler AFB Schofield Barracks	**0**	**105**	**0**	**0.00**	**169**	**0**
Idaho	ARD Bayview	**10**	**90**		**0.48**	**145**	
	Boise ANG	**10**	**90**		**0.48**	**145**	
	Mountain Home AFB	**20**	**90**	**64**	**0.96**	**145**	**1626**
Illinois	Fort Sheridan / Chicago	**25**	**90**	**59**	**1.20**	**145**	**1499**
	Great Lakes	**25**	**90**	**64**	**1.20**	**145**	**1626**
	Rock Island Arsenal	**20**	**90**	**64**	**0.96**	**145**	**1626**
	Scott AFB	**20**	**90**	**38**	**0.96**	**145**	**965**
	Springfield	**20**	**90**		**0.96**	**145**	
Indiana	Crane NWSC	**20**	**90**	**36**	**0.96**	**145**	**914**
	Grissom ARB	**20**	**90**	**49**	**0.96**	**145**	**1245**

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TABLE C-1

State	Base / City	Ground Snow (psf)	Wind Speed (mph)	Frost Penetration (inches)	Ground Snow kPa	Wind Speed km/h	Frost Penetration mm
Indiana	Fort Benjamin Harrison / Indianapolis	**20**	**90**	**44**	**0.96**	**145**	**1118**
Iowa	Des Moines	**25**	**90**	**82**	**1.20**	**145**	**2083**
Kansas	Fort Leavenworth	**20**	**90**	**54**	**0.96**	**145**	**1372**
	Fort Riley	**20**	**90**	**52**	**0.96**	**145**	**1321**
	McConnell AFB	**25**	**90**	**38**	**1.20**	**145**	**965**
Kentucky	Fort Campbell	**15**	**90**	**22**	**0.72**	**145**	**559**
	Fort Knox	**15**	**90**	**32**	**0.72**	**145**	**813**
	Louisville	**15**	**90**	**32**	**0.72**	**145**	**813**
	Richmond	**15**	**90**		**0.72**	**145**	**0**
Louisiana	Barksdale AFB	**5**	**90**	**7**	**0.24**	**145**	**178**
	Fort Polk / Leesville	**5**	**95**	**0**	**0.24**	**153**	**0**
	NAS JRB New Orleans / Belle Chasse	**0**	**130**	**0**	**0.00**	**209**	**0**
Maine	NAS Brunswick	**50**	**100**	**86**	**2.40**	**161**	**2184**
	NRTF Cutler	**50**	**98**	**86**	**2.40**	**158**	**2184**
	PNSY Kittery	**50**	**100**	**64**	**2.40**	**161**	**1626**
	Winter Harbor NSGA	**50**	**98**	**86**	**2.40**	**158**	**2184**
Maryland	Aberdeen Proving Ground	**25**	**90**	**29**	**1.20**	**145**	**737**
	Adelphi	**25**	**90**	**24**	**1.20**	**145**	**610**
	Andrews AFB	**25**	**90**	**26**	**1.20**	**145**	**660**
	Carderock NSWC / Bethesda	**25**	**90**	**20**	**1.20**	**145**	**508**
	Bloods Island	**20**	**102**		**0.96**	**164**	
	Edgewood Arsenal	**25**	**90**	**29**	**1.20**	**145**	**737**
	Fort Detrick / Fredrick	**30**	**90**	**29**	**1.44**	**145**	**737**
	Fort Meade	**25**	**90**	**26**	**1.20**	**145**	**660**
	Indian Head NSWC	**25**	**90**	**22**	**1.20**	**145**	**559**
	Martin State ANG	**25**	**90**	**29**	**1.20**	**145**	**737**
	NS Pax River , Webster Field / St. Inigoes	**20**	**90**	**26**	**0.96**	**145**	**660**

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TABLE C-1

State	Base / City	Ground Snow (psf)	Wind Speed (mph)	Frost Penetration (inches)	Ground Snow kPa	Wind Speed km/h	Frost Penetration mm
Maryland	U.S Naval Academy / Annapolis	**25**	**90**	**26**	**1.20**	**145**	**660**
Massachusetts	Fort Devens / Ayer	**50**	**97**	**64**	**2.40**	**156**	**1626**
	Hanscom AFB	**50**	**100**	**54**	**2.40**	**161**	**1372**
	Natick	**50**	**100**		**2.40**	**161**	
	Otis AGB / Falmouth	**25**	**115**	**38**	**1.20**	**185**	**965**
	Westover ARB	**35**	**95**	**64**	**1.68**	**153**	**1626**
Michigan	Battle Creek	**30**	**90**		**1.44**	**145**	
	Detroit Arsenal / Warren	**25**	**90**	**61**	**1.20**	**145**	**1549**
	Selfridge ANG Base	**25**	**90**	**59**	**1.20**	**145**	**1499**
Minnesota	Minneapolis – St Paul	**50**	**90**	**125**	**2.40**	**145**	**3175**
Mississippi	Stennis / Bay St. Louis	**0**	**130**		**0.00**	**209**	
	Columbus AFB	**10**	**90**	**7**	**0.48**	**145**	**178**
	Gulfport	**0**	**135**	**0**	**0.00**	**217**	**0**
	Jackson	**5**	**92**	**5**	**0.24**	**148**	**127**
	Keesler AFB	**0**	**140**	**0**	**0.00**	**225**	**0**
	NAS Meridian	**5**	**97**	**5**	**0.24**	**156**	**127**
	Pascagoula NS	**0**	**150**	**0**	**0.00**	**241**	**0**
	Vicksburg	**5**	**90**		**0.24**	**145**	
Missouri	Fort Leonard Wood	**20**	**90**	**36**	**0.96**	**145**	**914**
	Kansas City	**20**	**90**	**49**	**0.96**	**145**	**1245**
	Overland	**20**	**90**		**0.96**	**145**	
	St. Louis	**20**	**90**	**38**	**0.96**	**145**	**965**
	Whiteman AFB	**20**	**90**	**46**	**0.96**	**145**	**1168**
Montana	Great Falls ANG	**20**	**90**	**107**	**0.96**	**145**	**2718**
	Malmstrom AFB	**20**	**90**	**107**	**0.96**	**145**	**2718**
Nebraska	Offutt AFB	**25**	**90**	**73**	**1.20**	**145**	**1854**
	Lincoln	**25**	**90**	**64**	**1.20**	**145**	**1626**
Nevada	NAS Fallon	**5**	**90**	**23**	**0.24**	**145**	**584**
	Indian Springs AFS	**5**	**90**	**7**	**0.24**	**145**	**178**
	Nellis AFB	**5**	**90**	**7**	**0.24**	**145**	**178**

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TABLE C-1

State	Base / City	Ground Snow (psf)	Wind Speed (mph)	Frost Penetration (inches)	Ground Snow kPa	Wind Speed km/h	Frost Penetration mm
Nevada	Nellis AF Range	**5**	**90**	**7**	**0.24**	**145**	**178**
New Hampshire	Portsmouth Naval Shipyard	**50**	**100**	**64**	**2.40**	**161**	**1626**
New Jersey	NWS Earle / Colts Neck	**20**	**110**		**0.96**	**177**	
	Fort Dix / Trenton	**25**	**105**	**29**	**1.20**	**169**	**737**
	Fort Monmouth	**20**	**110**	**38**	**0.96**	**177**	**965**
New Jersey	Lakehurst	**25**	**105**	**29**	**1.20**	**169**	**737**
	McGuire AFB	**25**	**105**	**29**	**1.20**	**169**	**737**
	Picatinny Arsenal	**35**	**90**	**32**	**1.68**	**145**	**813**
New Mexico	Albuquerque	**10**	**90**	**18**	**0.48**	**145**	**457**
	Cannon AFB	**15**	**90**	**18**	**0.72**	**145**	**457**
	Holloman AFB	**5**	**90**	**4**	**0.24**	**145**	**102**
	Kirtland AFB	**10**	**(a)**	**18**	**0.48**	**(a)**	**457**
	White Sands	**5**	**90**	**4**	**0.24**	**145**	**102**
New York	Buffalo	**45**	**90**	**59**	**2.16**	**145**	**1499**
	Fort Drum	**70**	**90**	**94**	**3.35**	**145**	**2388**
	Fort Hamilton / Brooklyn	**25**	**90**		**1.20**	**145**	
	Griffis AFB / Rome	**60**	**90**	**86**	**2.87**	**145**	**2184**
	NIAGARA FALLS IAP	**35**	**90**	**59**	**1.68**	**145**	**1499**
	NSU Saratoga Springs	**50**	**90**		**2.40**	**145**	
	Stewart ANG / Newburgh	**35**	**90**	**54**	**1.68**	**145**	**1372**
	Syracuse	**40**	**90**	**73**	**1.92**	**145**	**1854**
	West Point	**30**	**90 Special**	**54**	**1.44**	**145 Special**	**1372**
	Watervliet Arsenal / Albany	**40**	**90**	**82**	**1.92**	**145**	**2083**
North Carolina	MCAS Cherry Point	**10**	**128**	**0**	**0.48**	**206**	**0**
	Fort Bragg	**10**	**95**	**0**	**0.48**	**153**	**0**
	Jacksonville Region Camp Lejeune MCAS New River	**10**	**130**	**0**	**0.48**	**209**	**0**
	Pope AFB	**10**	**95**	**0**	**0.48**	**153**	**0**
	Raleigh	**15**	**93**		**0.72**	**150**	

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TABLE C-1

State	Base / City	Ground Snow (psf)	Wind Speed (mph)	Frost Penetration (inches)	Ground Snow kPa	Wind Speed km/h	Frost Penetration mm
North Carolina	Seymour Johnson AFB	**10**	**100**	**4**	**0.48**	**161**	**102**
North Dakota	Grand Forks AFB	**60**	**90**	**156**	**2.87**	**145**	**3962**
	NRTF La Moure	**40**	**90**		**1.92**	**145**	
	Minot AFB	**40**	**90**	**163**	**1.92**	**145**	**4140**
Ohio	Cleveland	**20**	**90**	**52**	**0.96**	**145**	**1321**
	DSC Whitehall / Columbus	**20**	**90**	**46**	**0.96**	**145**	**1168**
	Wright-Patterson AFB	**20**	**90**	**49**	**0.96**	**145**	**1245**
	Youngstown ARS / Vienna	**20**	**90**		**0.96**	**145**	
Oklahoma	Altus AFB	**10**	**90**	**14**	**0.48**	**145**	**356**
	Fort Sill	**10**	**90**	**14**	**0.48**	**145**	**356**
	McAlester Army Ammunition Plant	**10**	**90**	**16**	**0.48**	**145**	**406**
	Tinker AFB / Oklahoma City	**10**	**90**	**17**	**0.48**	**145**	**432**
	Tulsa	**10**	**90**	**23**	**0.48**	**145**	**584**
	Vance AFB	**15**	**90**	**22**	**0.72**	**145**	**559**
Oregon	Portland	**10**	**85**	**14**	**0.48**	**137**	**356**
Pennsylvania	ARS Coraopolis / Pittsburg	**25**	**90**	**38**	**1.20**	**145**	**965**
	Carlisle Barracks	**25**	**90**	**36**	**1.20**	**145**	**914**
	Fort Indiantown Gap / Annville	**35**	**90**	**49**	**1.68**	**145**	**1245**
	Letterkenny / Chambersburg	**30**	**90**	**36**	**1.44**	**145**	**914**
	Mechanicsburg	**25**	**90**		**1.20**	**145**	
	Philadelphia	**25**	**90**	**30**	**1.20**	**145**	**762**
	New Cumberland / Defense Depot Susquehanna	**25**	**90**		**1.20**	**145**	**0**
	Tobyhanna Army Depot	**50**	**90**	**52**	**2.40**	**145**	
	Willow Grove ARS / NAS	**30**	**90**		**1.44**	**145**	**0**
Rhode Island	NS Newport	**30**	**115**	**35**	**1.44**	**185**	**889**
South Carolina	MCAS Beaufort	**5**	**122**	**0**	**0.24**	**196**	**0**

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TABLE C-1

State	Base / City	Ground Snow (psf)	Wind Speed (mph)	Frost Penetration (inches)	Ground Snow kPa	Wind Speed km/h	Frost Penetration mm
South Carolina	**Charleston Region:** Charletion AFB NWS Charleston	**5**	**125**	**0**	**0.24**	**201**	**0**
	Columbia Region: McEntire Fort Jackson Shaw AFB	**10**	**97**	**0**	**0.48**	**156**	**0**
	MCRD Parris Island	**0**	**125**	**0**	**0.00**	**201**	**0**
South Dakota	Ellsworth AFB	**20**	**90**	**86**	**0.96**	**145**	**2184**
Tennessee	Arnold AFB	**10**	**90**		**0.48**	**145**	
	NSWC LCC / Memphis	**10**	**90**	**0**	**0.48**	**145**	**0**
	NSA Mid-South / Millington	**10**	**90**		**0.48**	**145**	
	Nashville	**10**	**90**	**22**	**0.48**	**145**	**559**
Texas	NAS JRB, Carswell / Fort Worth	**5**	**90**	**7**	**0.24**	**145**	**178**
	NAS Corpus Christi	**0**	**130**	**0**	**0.00**	**209**	**0**
	Dallas / Irving	**5**	**90**	**7**	**0.24**	**145**	**178**
	Dyess AFB	**5**	**90**	**7**	**0.24**	**145**	**178**
	Ellington ANG / Houston	**0**	**115**	**0**	**0.00**	**185**	**0**
	Fort Bliss / El Paso	**5**	**90**	**0**	**0.24**	**145**	**0**
	Fort Hood / Killeen	**5**	**90**	**6**	**0.24**	**145**	**152**
	Goodfellow AFB	**5**	**90**	**5**	**0.24**	**145**	**127**
	NS Ingleside	**0**	**130**	**0**	**0.00**	**209**	**0**
	NAS Kingsville	**0**	**115**	**0**	**0.00**	**185**	**0**
	Laughlin AFB	**0**	**90**	**0**	**0.00**	**145**	**0**
	Red River Army Depot / Texarkana	**5**	**90**	**8**	**0.24**	**145**	**203**
	San Antonio Region Brooks AFB Fort Sam Houston Kelly AFB Lackland AFB Randolph AFB	**5**	**90**	**0**	**0.24**	**145**	**0**
	Sheppard AFB	**5**	**90**	**11**	**0.24**	**145**	**279**

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TABLE C-1

State	Base / City	Ground Snow (psf)	Wind Speed (mph)	Frost Penetration (inches)	Ground Snow kPa	Wind Speed km/h	Frost Penetration mm
Utah	Dugway Proving Ground	**10**	**90**	**54**	**0.48**	**145**	**1372**
	Hill AFB	**40**	**90**	**73**	**1.92**	**145**	**1854**
	Salt Lake City	**15**	**90**	**59**	**0.72**	**145**	**1499**
	Tooele Army Depot	**25**	**90**	**52**	**1.20**	**145**	**1321**
Virginia	Dahlgren	**25**	**90**		**1.20**	**145**	
	Dam Neck / Virginia Beach Ocean front	**10**	**115**	**5**	**0.48**	**185**	**127**
	Fort A. P. Hill	**25**	**90**		**1.20**	**145**	
	Fort Belvoir	**25**	**90**	**26**	**1.20**	**145**	**660**
	Fort Eustis	**15**	**97**	**9**	**0.72**	**156**	**229**
	Fort Lee	**20**	**90**	**14**	**0.96**	**145**	**356**
	Fort Monroe	**10**	**105**	**9**	**0.48**	**169**	**229**
	Fort Myer	**25**	**90**	**26**	**1.20**	**145**	**660**
	Fort Story	**10**	**113**	**9**	**0.48**	**182**	**229**
	Henderson Hall / Arlington	**25**	**90**	**26**	**1.20**	**145**	**660**
	Langley AFB / Hampton	**10**	**105**	**9**	**0.48**	**169**	**229**
	NAB Little Creek	**10**	**110**	**9**	**0.48**	**177**	**229**
	Norfolk Region: Camp Elmore Craney Island Depot Norfolk Naval Base	**10**	**107**	**9**	**0.48**	**172**	**229**
	Norfolk Shipyard – Naval Hospital / Portsmouth	**10**	**105**	**9**	**0.48**	**169**	**229**
	NSA Northwest / Chesapeake	**10**	**105**	**9**	**0.48**	**169**	**229**
	NAS Oceana / Virginia Beach	**10**	**113**	**9**	**0.48**	**182**	**229**
	Quantico	**25**	**90**	**22**	**1.20**	**145**	**559**
	Radford AAP	**25**	**90**		**1.20**	**145**	
	Defense Supply Ctr / Richmond	**20**	**90**	**18**	**0.96**	**145**	**457**
	Wallops Island	**20**	**115**		**0.96**	**185**	

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TABLE C-1

State	Base / City	Ground Snow (psf)	Wind Speed (mph)	Frost Penetration (inches)	Ground Snow kPa	Wind Speed km/h	Frost Penetration mm
Virginia	**Yorktown Region:** Camp Perry Cheatham Annex Yorktown NWS	15	95	9	0.72	153	229
	NS Everett	15 (b)	85		0.72(b)	137	
	Fairchild AFB	42	85	64	2.01	137	1626
Washington	Fort Lewis / Tacoma	15 (b)	85	9	0.72(b)	137	229
	Indian Island SWC	15 (b)	85		0.72(b)	137	
	NRS Jim Creek	15 (b)	85		0.72(b)	137	
	Keyport / Bangor Engin. Sta Annex	15 (b)	85	9	0.72(b)	137	229
	McChord AFB	15	85	9	0.72	137	229
	Puget Sound Region: Bangor NSB Bremerton NS Puget Sound NSY	15 (b)	85	9	0.72(b)	137	229
	NAS Whidbey Island / Oak Harbor	15 (b)	85		0.72(b)	137	
	Seattle	15	85	9	0.72	137	229
West Virginia	Allegheny Ballistics Lab	CS	90		CS	145	
	Beckley	30	90		1.44	145	
	Huntington	20	90	22	0.96	145	559
	Sugar Grove NRS	30	90	38	1.44	145	965
Wisconsin	Fort McCoy	40	90	114	1.92	145	2896
	General Mitchell AFRC / Milwaukee	30	90	75	1.44	145	1905
	Madison	30	90	75	1.44	145	1905
Wyoming	F. E. Warren AFB	20	90	59	0.96	145	1499
American Samoa	Pago Pago / Tutuila Island	0	125	0	0.00	201	0
Mariana Islands	Guam	0	170	0	0.00	274	0
	Saipan / Tinian	0	150	0	0.00	241	0
Puerto Rico	All	0	145	0	0.00	233	0

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Notes to TABLE C-1, "STRUCTURAL CLIMATIC LOADING DATA – UNITED STATES, ITS TERRITORIES AND POSSESSIONS"

(a) – Wind speed equals 125 mph (201 km/h) in the south sector of Kirtland AFB.
Wind speed equals 100 mph (161 km/h) on the remainder of the base.

(b) – Ground snow load to be used for Navy facilities at identified locations in Washington State equals 25 psf (1.20 kPa).

CS – Site specific case studies are required to establish ground snow loads.

Special - Special wind regions where unusual geographic conditions require consideration for potential unusual wind conditions. The wind speeds shown are minimum values. The potential for higher wind speeds due to unusual geographic conditions should also be considered.

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TABLE C-2 EARTHQUAKE LOADING DATA – UNITED STATES, ITS TERRITORIES AND POSSESSIONS

TABLE C-2

State	Base / City	Seismic Data (Site Class B) S_S (%g)	S_1 (%g)	10/50 S_S (%g)	10/50 S_1 (%g)
Alabama	Anniston Army Depot	**28**	**9**	**11**	**4**
	Birmingham	**30**	**10**	**11**	**4**
	Fort McClellan	**28**	**9**	**11**	**4**
	Fort Rucker	**11**	**6**	**4**	**2**
	Maxwell-Gunther AFB / Montgomery	**16**	**7**	**6**	**3**
	Mobile	**12**	**5**	**4**	**2**
	Redstone Arsenal / Huntsville	**30**	**11**	**11**	**4**
Alaska	Clear AS	**108**	**30**	**47**	**14**
	Eielson AFB	**106**	**29**	**44**	**14**
	Elmendorf AFB	**149**	**55**	**100**	**30**
	Fort Greely	**81**	**38**	**34**	**14**
	Fort Richardson	**152**	**57**	**101**	**31**
	Fort Wainwright	**111**	**31**	**49**	**14**
	Galena AFB	**35**	**10**	**15**	**4**
	Juneau	**57**	**27**	**27**	**14**
	Ketchikan	**23**	**14**	**11**	**8**
	Kodiak	**179**	**66**	**116**	**37**
	Sitka	**102**	**52**	**52**	**31**
	Valdez	**147**	**57**	**93**	**30**
Arizona	Davis-Monthan AFB / Tucson AFB	**28**	**8**	**13**	**4**
	Fort Huachuca	**26**	**8**	**12**	**3**
	Luke Air Force Base	**17**	**6**	**11**	**3**
	Phoenix	**18**	**6**	**11**	**3**
	Yuma MCB	**68**	**26**	**37**	**14**
	Yuma Proving Ground	**47 Max 20 Min**	**23 Max 14 Min**	**29 Max 15 Min**	**11 Max 6 Min**
Arkansas	Little Rock AFB	**57**	**18**	**14**	**4**
	Pine Bluff Arsenal	**44**	**15**	**11**	**4**
California	Alameda	**150**	**60**	**123**	**55**
	MCLB Barstow	**133**	**48**	**61**	**22**
	Beale AFB	**44**	**20**	**26**	**11**

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TABLE C-2

State	Base / City	Seismic Data (Site Class B) S_S (%g)	S_1 (%g)	10/50 S_S (%g)	10/50 S_1 (%g)
California	MCMTC Bridgeport	**110**	**39**	**63**	**21**
	Camp Pendleton	**139 Max 111 Min**	**51 Max 42 Min**	**61**	**25**
	NWS China Lake	**136 Max 109 Min**	**45 Max 38 Min**	**80 Max 61 Min**	**27 Max 19 Min**
	NSWC Corona	**169**	**60**	**127**	**47**
	NRTF Dixon	**129**	**42**		
	Edwards AFB	**115 Max 86 Min**	**59 Max 39 Min**	**85 Max 47 Min**	**39 Max 21 Min**
	El Centro NAF	**190 Max 150 Min**	**66 Max 60 Min**	**160 Max 128 Min**	**54 Max 39 Min**
	Fort Irwin	**197 Max 78 Min**	**95 Max 29 Min**	**144 Max 40 Min**	**55 Max 15 Min**
	Fresno ANG	**49**	**22**	**27**	**12**
	NAS Lemoore	**89**	**33**	**49**	**20**
	Los Angeles AFB / El Segundo	**150**	**60**	**113**	**39**
	Los Angeles	**188**	**68**	**119**	**42**
	March ARB	**150**	**60**	**127**	**50**
	McClellan AFB / Sacremento	**48**	**22**	**28**	**13**
	NWC Mohave Range	**197 Max 94 Min**	**95 Max 33 Min**	**106 Max 49 Min**	**36 Max 20 Min**
	Presidio of Monterey	**151**	**63**	**105**	**37**
	Point Mugu / Port Hueneme	**219**	**91**	**128**	**54**
	San Diego Region				
	NAS North Island	**146**	**56**	**66.4**	**24.8**
	NAB Coronada	**157**	**63**	**62.8**	**22.8**
	MCRD	**163**	**65**	**67.5**	**25.4**
	Miramar	**137**	**51**	**64.8**	**24.1**
	Naval Medical Ctr	**155**	**60**	**63.4**	**24.3**
	San Diego NS	**140**	**54**	**60.8**	**22.2**
	NS Point Loma	**154**	**61**	**72.5**	**26.1**
	Moffett Field – Onizuka / Sunnyvale	**150**	**60**	**125**	**57**
	San Clemente Island Naval Reservation	**83**	**26**	**31**	**12**
	San Nicolas Island	**62**	**22**	**26**	**10**

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TABLE C-2

State	Base / City	Seismic Data (Site Class B) S_S (%g)	S_1 (%g)	10/50 S_S (%g)	10/50 S_1 (%g)
California	Seal Beach NWS	**164**	**61**	**110**	**37**
	Seal Beach NWS – Concord Detachment	**150**	**60**	**145**	**55**
	Sierra Army Depot / Herlong	**95**	**35**	**48**	**16**
	Stockton / San Joaquin	**148**	**48**	**76**	**26**
	Travis AFB	**186**	**60**	**111**	**37**
	Twentynine Palms	**162 Max 88 Min**	**58 Max 30 Min**	**102 Max 39 Min**	**32 Max 14 Min**
	Vandenberg AFB	**138 Max 105 Min**	**49 Max 36 Min**	**64 Max 53 Min**	**24 Max 19 Min**
Colorado	Buckley AFB / Aurora	**20**	**5**	**7**	**2**
	Denver	**21**	**6**	**8**	**2**
	Fort Carson	**21**	**6**	**7**	**2**
	Cheyenne Mountain AS / NORAD	**21**	**6**	**7**	**2**
	Peterson AFB / Colorado Springs	**20**	**6**	**7**	**2**
	Schriever AFB	**19**	**6**	**7**	**2**
	USAF Academy	**22**	**6**	**8**	**2**
Connecticut	NSB New London / Groton	**21**	**6**	**8**	**3**
Delaware	Dover AFB	**16**	**5**	**7**	**2**
District of Columbia	**Washington Region** Bolling AFB Anacostia NS Fort McNair Marine Barracks NRL Washington NDW / Anacostia Pentagon Walter Reed	**15**	**5**	**6**	**2**
Florida	Avon Park AS	**8**	**3**	**2**	**1**
	Cape Canaveral AFS	**9**	**4**	**3**	**1**
	Eglin AFB	**10**	**5**	**3**	**2**
	Homestead	**5**	**2**	**1**	**0**
	Hurlburt Field	**9**	**5**	**3**	**2**
	NAS Jacksonville / Jacksonville	**14**	**6**	**5**	**2**
	NAS Key West	**3**	**1**		

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TABLE C-2

State	Base / City	Seismic Data (Site Class B) S_S (%g)	S_1 (%g)	10/50 S_S (%g)	10/50 S_1 (%g)
Florida	MacDill AFB	**7**	**3**	**2**	**1**
	NAS Mayport	**15**	**6**	**5**	**2**
	HQ Southcom / Miami	**5**	**2**	**1**	**1**
	Orlando	**10**	**4**	**3**	**1**
	NAS Panama City	**8**	**5**	**3**	**2**
	Patrick AFB	**8**	**4**	**2**	**1**
	NAS Pensacola	**10**	**5**	**3**	**2**
	Tampa	**8**	**3**	**2**	**1**
	Tyndall AFB	**8**	**4**	**3**	**2**
	NAS Whiting Field / Milton	**11**	**5**	**4**	**2**
Georgia	MC Logistics Support / Albany	**13**	**6**	**5**	**3**
	Athens NCSC	**26**	**9**	**12**	**5**
	Dobbins AFB / Atlanta NAS	**25**	**9**	**11**	**4**
	Fort Benning	**15**	**7**	**6**	**3**
	Fort Gordon	**33**	**11**	**14**	**5**
	Fort McPherson / Fort Gillem	**22**	**9**	**10**	**4**
	Fort Stewart	**29**	**10**	**9**	**4**
	Hunter Army Airfield / Savannah	**38**	**12**	**12**	**4**
	NSB Kings Bay	**17**	**7**	**6**	**3**
	Moody AFB	**13**	**6**	**5**	**3**
	Robins AFB	**19**	**8**	**8**	**4**
Hawaii	PMRF Barking Sands, Kauai	**19**	**6**	**8**	**2**
	MCBH Kaneohe Bay	**63**	**18**	**30**	**8**
	Pearl Harbor Region: Camp H.M. Smith Fort Shafter Hickam AFB Pearl Harbor Tripler AMC	**61**	**18**	**29**	**8**
	Pohakuloa Training Area	**150**	**60**		

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TABLE C-2

State	Base / City	Seismic Data (Site Class B) S_S (%g)	S_1 (%g)	10/50 S_S (%g)	10/50 S_1 (%g)
Hawaii	**Wahiawa Region:** Lualualei Wahiawa Naval Res Wheeler AFB Schofield Barracks	**59**	**17**	**28**	**8**
Idaho	ARD Bayview	**42**	**12**	**17**	**5**
	Boise ANG	**30**	**10**	**16**	**5**
	Mountain Home AFB	**26**	**9**	**14**	**4**
Illinois	Fort Sheridan / Chicago	**15**	**6**	**5**	**2**
	Great Lakes	**14**	**5**	**5**	**2**
	Rock Island Arsenal	**13**	**6**	**5**	**2**
	Scott AFB	**66**	**19**	**24**	**6**
	Springfield	**27**	**11**	**10**	**4**
Indiana	Crane NWSC	**35**	**12**	**13**	**4**
	Grissom ARB	**15**	**7**	**6**	**3**
	Fort Benjamin Harrison / Indianapolis	**18**	**8**	**7**	**3**
Iowa	Des Moines	**8**	**4**	**3**	**1**
Kansas	Fort Leavenworth	**13**	**6**	**4**	**2**
	Fort Riley	**19**	**5**	**6**	**2**
	McConnell AFB	**14**	**5**	**5**	**2**
Kentucky	Fort Campbell	**74 Max 59 Min**	**22 Max 19 Min**	**24 Max 18 Min**	**6 Max 6 Min**
	Fort Knox	**26**	**11**	**10**	**4**
	Louisville	**25**	**10**	**10**	**4**
	Richmond	**23**	**9**	**10**	**4**
Louisiana	Barksdale AFB	**16**	**7**	**5**	**2**
	Fort Polk / Leesville	**12**	**5**	**4**	**2**
	NAS JRB New Orleans / Belle Chasse	**11**	**5**	**4**	**1**
Maine	NAS Brunswick	**30**	**8**	**12**	**4**
	NRTF Cutler	**27**	**7**		
	PNSY Kittery	**36**	**8**	**13**	**4**
	Winter Harbour NSGA	**21**	**6**	**8**	**3**
Maryland	Aberdeen Proving Ground	**20**	**5**	**8**	**2**
	Adelphi	**16**	**5**	**6**	**2**
	Andrews AFB	**15**	**5**	**6**	**2**

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TABLE C-2

State	Base / City	Seismic Data (Site Class B) S_S (%g)	S_1 (%g)	10/50 S_S (%g)	10/50 S_1 (%g)
Maryland	Carderock NSWC / Bethesda	**16**	**5**	**6**	**2**
	Bloods Island	**12**	**5**	**5**	**2**
	Edgewood Arsenal	**19**	**5**	**7**	**2**
	Fort Detrick / Fredrick	**16**	**5**	**7**	**2**
	Fort Meade	**16**	**5**	**6**	**2**
	Indian Head NSWC	**16**	**5**	**7**	**2**
	Martin State ANG	**18**	**5**	**7**	**2**
	NS Pax River , Webster Field / St. Inigoes	**14**	**5**	**6**	**2**
	U.S Naval Academy / Annapolis	**16**	**5**	**6**	**2**
Massachusetts	Fort Devens / Ayer	**28**	**7**	**11**	**3**
	Hanscom AFB	**28**	**7**	**11**	**3**
	Natick	**26**	**7**	**10**	**3**
	Otis AGB / Falmouth	**20**	**5**	**8**	**2**
	Westover ARB	**23**	**7**	**9**	**3**
Michigan	Battle Creek	**11**	**5**	**4**	**2**
	Detroit Arsenal / Warren	**12**	**4**	**4**	**2**
	Selfridge ANG Base	**11**	**4**	**4**	**2**
Minnesota	Minneapolis – St Paul	**6**	**3**	**2**	**1**
Mississippi	Stennis / Bay St. Louis	**12**	**5**	**4**	**2**
	Columbus AFB	**28**	**11**	**8**	**4**
	Gulfport	**12**	**5**	**4**	**2**
	Jackson	**20**	**9**	**6**	**3**
	Keesler AFB	**12**	**5**	**4**	**2**
	NAS Meridian	**20**	**8**	**7**	**3**
	Pascagoula NS	**11**	**5**	**4**	**2**
	Vicksburg	**20**	**9**	**6**	**3**
Missouri	Fort Leonard Wood	**30**	**12**	**10**	**4**
	Kansas City	**13**	**6**	**4**	**2**
	Overland	**52**	**16**	**19**	**5**
	St. Louis	**58**	**17**	**21**	**6**
	Whiteman AFB	**14**	**7**	**5**	**2**
Montana	Great Falls ANG	**23**	**8**	**13**	**4**
	Malmstrom AFB	**20**	**8**	**12**	**4**

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TABLE C-2

State	Base / City	Seismic Data (Site Class B) S_S (%g)	S_1 (%g)	10/50 S_S (%g)	10/50 S_1 (%g)
Nebraska	Offutt AFB	**13**	**4**	**4**	**1**
	Lincoln	**18**	**5**	**5**	**2**
Nevada	NAS Fallon	**81**	**29**	**43**	**14**
	Indian Springs AFS	**45**	**16**	**24**	**8**
	Nellis AFB	**50**	**17**	**26**	**9**
	Nellis AF Range	**70Max 59 Min**	**26 Max 19 Min**	**37 Max 28 Min**	**13 Max 9 Min**
New Hampshire	Portsmouth Naval Shipyard	**36**	**8**	**13**	**4**
New Jersey	NWS Earle / Colts Neck	**30**	**6**	**11**	**3**
	Fort Dix / Trenton	**26**	**6**	**10**	**3**
	Fort Monmouth	**30**	**6**	**11**	**3**
	Lakehurst	**25**	**6**	**10**	**3**
	McGuire AFB	**26**	**6**	**10**	**3**
	Picatinny Arsenal	**32**	**7**	**12**	**3**
New Mexico	Albuquerque	**55**	**17**	**27**	**7**
	Cannon AFB	**11**	**3**	**4**	**1**
	Holloman AFB	**32**	**10**	**13**	**4**
	Kirtland AFB	**56**	**17**	**27**	**7**
	White Sands	**41**	**13**	**13**	**4**
New York	Buffalo	**28**	**6**	**9**	**2**
	Fort Drum	**30**	**8**	**12**	**4**
	Fort Hamilton / Brooklyn	**35**	**7**	**12**	**3**
	Griffis AFB / Rome	**22**	**7**	**9**	**3**
	NIAGARA FALLS IAP	**28**	**6**	**9**	**2**
	NSU Saratoga Springs	**26**	**7**	**11**	**4**
	Stewart ANG / Newburgh	**28**	**7**	**11**	**3**
	Syracuse	**18**	**6**	**8**	**3**
	West Point	**31**	**7**	**12**	**3**
	Watervliet Arsenal / Albany	**23**	**7**	**10**	**3**
North Carolina	MCAS Cherry Point	**16**	**7**	**5**	**2**
	Fort Bragg	**29**	**10**	**9**	**4**
	Jacksonville Region Camp Lejeune MCAS New River	**21**	**8**	**6**	**3**
	Pope AFB	**29**	**10**	**9**	**4**

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TABLE C-2

State	Base / City	Seismic Data (Site Class B) S_S (%g)	S_1 (%g)	10/50 S_S (%g)	10/50 S_1 (%g)
North Carolina	Raleigh	**20**	**8**	**8**	**4**
	Seymour Johnson AFB	**20**	**8**	**7**	**3**
North Dakota	Grand Forks AFB	**5**	**2**	**2**	**0**
	NRTF La Moure	**6**	**2**		
	Minot AFB	**7**	**2**	**2**	**1**
Ohio	Cleveland	**19**	**5**	**6**	**2**
	DSC Whitehall / Columbus	**15**	**6**	**7**	**3**
	Wright-Patterson AFB	**19**	**7**	**8**	**3**
	Youngstown ARS / Vienna	**17**	**5**	**6**	**2**
Oklahoma	Altus AFB	**20**	**6**	**6**	**2**
	Fort Sill	**38**	**9**	**8**	**2**
	McAlester Army Ammunition Plant	**21**	**7**	**7**	**2**
	Tinker AFB / Oklahoma City	**32**	**7**	**10**	**3**
	Tulsa	**16**	**7**	**6**	**2**
	Vance AFB	**23**	**6**	**7**	**2**
Oregon	Portland	**93**	**32**	**43**	**17**
Pennsylvania	ARS Coraopolis / Pittsburg	**12**	**5**	**5**	**2**
	Carlisle Barracks	**17**	**5**	**7**	**2**
	Fort Indiantown Gap / Annville	**21**	**6**	**8**	**2**
	Letterkenny / Chambersburg	**16**	**5**	**6**	**2**
	Mechanicsburg	**18**	**5**	**7**	**2**
	Philadelphia	**28**	**6**	**10**	**3**
	New Cumberland / Defense Depot Susquehanna	**19**	**5**	**7**	**2**
	Tobyhanna Army Depot	**22**	**6**	**9**	**3**
	Willow Grove ARS / NAS	**28**	**6**	**11**	**3**
Rhode Island	NS Newport	**21**	**6**	**8**	**2**
South Carolina	MCAS Beaufort	**71**	**19**	**19**	**6**
	Charleston Region:				
	Charletion AFB	**192**	**49**	**34**	**8**
	NWS Charleston	**219**	**55**	**36**	**8**

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TABLE C-2

State	Base / City	Seismic Data (Site Class B) S_S (%g)	S_1 (%g)	10/50 S_S (%g)	10/50 S_1 (%g)
South Carolina	**Columbia Region:**				
	McEntire	**56**	**16**	**22**	**6**
	Fort Jackson	**56**	**15**	**20**	**6**
	Shaw AFB	**67**	**18**	**22**	**6**
	MCRD Parris Island	**62**	**17**	**18**	**5**
South Dakota	Ellsworth AFB	**15**	**4**	**5**	**2**
Tennessee	Arnold AFB	**30**	**11**	**12**	**5**
	NSWC LCC / Memphis	**141**	**38**	**28**	**7**
	NSA Mid-South / Millington	**150**	**43**	**32**	**7**
	Nashville	**33**	**13**	**12**	**5**
Texas	NAS JRB, Carswell / Fort Worth	**11**	**5**	**4**	**2**
	NAS Corpus Christi	**8**	**2**	**2**	**1**
	Dallas / Irving	**12**	**5**	**4**	**2**
	Dyess AFB	**9**	**4**	**3**	**1**
	Ellington ANG / Houston	**9**	**4**	**3**	**1**
	Fort Bliss / El Paso	**31**	**10**	**14**	**4**
	Fort Hood / Killeen	**8**	**4**	**3**	**1**
	Goodfellow AFB	**8**	**3**	**3**	**1**
	NS Ingleside	**8**	**2**	**2**	**1**
	NAS Kingsville	**8**	**2**	**2**	**1**
	Laughlin AFB	**6**	**2**	**2**	**1**
	Red River Army Depot / Texarkana	**17**	**8**	**6**	**2**
	San Antonio Region				
	Brooks AFB	**12**	**3**	**3**	**1**
	Fort Sam Houston	**11**	**3**	**3**	**1**
	Kelly AFB	**11**	**3**	**3**	**1**
	Lackland AFB	**11**	**3**	**3**	**1**
	Randolph AFB	**11**	**3**	**3**	**1**
	Sheppard AFB	**17**	**6**	**5**	**2**
Utah	Dugway Proving Ground	**35**	**14**	**17**	**6**
	Hill AFB	**114**	**48**	**50**	**17**
	Salt Lake City	**153**	**60**	**61**	**20**
	Tooele Army Depot	**73**	**27**	**35**	**12**
Virginia	Dahlgren	**16**	**5**	**6**	**2**
	Dam Neck / Virginia Beach Ocean front	**11**	**5**	**4**	**2**
	Fort A. P. Hill	**18**	**5**	**7**	**2**

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TABLE C-2

State	Base / City	Seismic Data (Site Class B) S_S (%g)	S_1 (%g)	10/50 S_S (%g)	10/50 S_1 (%g)
Virginia	Fort Belvoir	**15**	**5**	**6**	**2**
	Fort Eustis	**13**	**5**	**5**	**2**
	Fort Lee	**19**	**6**	**7**	**3**
	Fort Monroe	**12**	**5**	**5**	**2**
	Fort Myer	**15**	**5**	**6**	**2**
	Fort Story	**11**	**5**	**4**	**2**
	Henderson Hall / Arlington	**15**	**5**	**6**	**2**
	Langley AFB / Hampton	**12**	**5**	**5**	**2**
	NAB Little Creek	**11**	**5**	**5**	**2**
	Norfolk Region: Camp Elmore Craney Island Depot Norfolk Naval Base	**12**	**5**	**5**	**2**
	Norfolk Shipyard – Naval Hospital / Portsmouth	**12**	**5**	**5**	**2**
	NSA Northwest / Chesapeake	**12**	**5**	**5**	**2**
	NAS Oceana / Virginia Beach	**11**	**5**	**4**	**2**
	Quantico	**17**	**5**	**7**	**2**
	Defense Supply Ctr / Richmond	**22**	**6**	**8**	**3**
	Radford AAP	**32**	**8**		
	Wallops Island	**10**	**4**	**4**	**2**
	Yorktown Region: Camp Perry Cheatham Annex Yorktown NWS	**13**	**5**	**5**	**2**
Washington	NS Everett	**118(a)**	**42(b)**	**62**	**20**
	Fairchild AFB	**39**	**11**	**13**	**4**
	Fort Lewis / Tacoma	**117**	**41**	**59**	**20**
	Indian Island SWC	**127(a)**	**46(b)**	**63**	**21**
	NRS Jim Creek	**110(a)**	**38(b)**	**59**	**19**
	Keyport / Bangor Engin. Sta Annex	**129(a)**	**45(b)**	**69**	**22**
	McChord AFB	**119**	**41**	**61**	**20**

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TABLE C-2

State	Base / City	Seismic Data (Site Class B) S_S (%g)	S_1 (%g)	10/50 S_S (%g)	10/50 S_1 (%g)
Washington	**Puget Sound Region:**				
	Bangor NSB	**158(a)**	**56(b)**	**76**	**23**
	Bremerton NS	**150(a)**	**53(b)**	**72**	**23**
	Puget Sound NSY	**153(a)**	**54(b)**	**73**	**23**
	NAS Whidbey Island / Oak Harbor	**133(a)**	**47(b)**	**59**	**20**
	Seattle	**151**	**52**	**75**	**22**
West Virginia	Allegheny Ballistics Lab	**13**	**6**		
	Beckley	**26**	**8**	**10**	**4**
	Huntington	**19**	**7**	**8**	**3**
	Sugar Grove NRS	**18**	**6**	**7**	**3**
Wisconsin	Fort McCoy	**6**	**3**	**2**	**1**
	General Mitchell AFRC / Milwaukee	**11**	**5**	**4**	**1**
	Madison	**11**	**4**	**4**	**1**
Wyoming	F. E. Warren AFB	**20**	**5**	**8**	**2**
American Samoa	Pago Pago / Tutuila Island	**100**	**40**	**50**	**20**
Mariana Islands	Guam	**150**	**60**	**75**	**30**
	Saipan / Tinian	**150**	**60**	**75**	**30**
Puerto Rico	NRTF Aguada	**119**	**38**		
	Fort Buchanan	**89**	**31**	**50**	**20**
	Ramey AFB	**120**	**38**		
	NS Roosevelt Roads	**87**	**28**		
	Sebana Seca NRS	**90**	**31**		

Notes to TABLE C-2, "EARTHQUAKE LOADING DATA – UNITED STATES, ITS TERRITORIES AND POSSESSIONS"

(a) – For Navy facilities at identified locations in Washington State use minimum S_S of 150 %g.

(b) – For Navy facilities at identified locations in Washington State use minimum S_1 of 50 %g.

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APPENDIX D

SITE SPECIFIC STRUCTURAL LOADING DATA – OUTSIDE OF THE UNITED STATES, ITS TERRITORIES AND POSSESSIONS

D-1 Climatic Loading Data Table. Site-specific structural climatic loading data for potential DoD locations outside of the United States, its territories and possessions is provided in Table D-1.

D-2 Earthquake Loading Data Table. Site-specific earthquake loading data for potential DoD locations outside of the United States, its territories and possessions is provided in Table D-2.

TABLE D-1 STRUCTURAL CLIMATIC LOADING DATA – OUTSIDE OF THE UNITED STATES, ITS TERRITORIES AND POSSESSIONS

TABLE D-1

Continent / Region	Country	Base / City	Ground Snow (psf)	Wind Speed (mph) Note (a)	Frost Penetration (inches)	Ground Snow kPa	Wind Speed km/h Note (a)	Frost Penetration mm
Africa	Egypt	Alexandria	0	85	0	0.00	137	0
	Morocco	Casablanca	0	90	0	0.00	145	0
Asia	Afghanistan	Kabul		78			125	
	Bahrain	NSA Bahrain	0	85	0	0.00	137	0
	India	Bombay	0	91	0	0.00	146	0
		Calcutta	0	114	0	0.00	183	0
		Madras	0	92	0	0.00	148	0
		New Delhi	0	91	0	0.00	146	0
	Iraq	Baghdad						
		Basra						
	Japan	NAF Atsugi	21	100	6	1.00	161	152
		MCAS Iwakuni	12	120	10	0.57	193	254
		Iwo Jima	0	210	0	0.00	338	0
		Misawa AFB	58	101	30	2.78	163	762
		Okinawa (All installations)	0	180	0	0.00	290	0
		Sagamihara	21	100	6	1.00	161	152
		Sasebo	12	100	6	0.57	161	152
		Tokyo	15	100	6	0.71	161	152

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TABLE D-1

Continent / Region	Country	Base / City	Ground Snow (psf)	Wind Speed (mph) Note (a)	Frost Penetration (inches)	Ground Snow kPa	Wind Speed km/h Note (a)	Frost Penetration mm
Asia	Japan	COMFLTACT Yokosuka	12	100	6	0.57	161	152
		Yokota AFB, Honshu	21	100	6	1.00	161	161
		Camp Zama	21	100	6	1.00	161	152
	Kuwait	Kuwait City	0		0	0.00		0
	Oman	Areas south and west of Jabal Akehadar						
		- Ibri	0	105	0	0.00	169	0
		- Nazwa	0	105	0	0.00	169	0
		Batinah Coast						
		- Ash Shinash	0	105	0	0.00	169	0
		- Sib	0	105	0	0.00	169	0
		- Suhar	0	105	0	0.00	169	0
		Central, Southern, and Coastal Areas Sur to Sarfait						
		- Barik	0	115	0	0.00	185	0
		- Dawqa	0	115	0	0.00	185	0
		- Hayma	0	115	0	0.00	185	0
		- Salalah	0	115	0	0.00	185	0
		- Shalim	0	115	0	0.00	185	0
		High Jabal Locations						
		- Miskin	0	115	0	0.00	185	0
		- Sumail	0	115	0	0.00	185	0
		- Rikshah	0	115	0	0.00	185	0
		- Shaww	0	115	0	0.00	185	0
		Kuria Muria Island	0	120	0	0.00	193	0
		Masirah Island	0	120	0	0.00	193	0
		Mussandam Island	0	120	0	0.00	193	0
	Pakistan	Peshawar	10	88	6	0.48	142	152
	Quatar	Doha	0		0	0.00		0
	Saudi Arabia	Dhahran	0	87	0	0.00	140	0

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TABLE D-1

Continent / Region	Country	Base / City	Ground Snow (psf)	Wind Speed (mph) Note (a)	Frost Penetration (inches)	Ground Snow kPa	Wind Speed km/h Note (a)	Frost Penetration mm
Asia	Saudi Arabia	Hafr al Batin	0	80	0	0.00	129	0
		Khamis Mushayt	0	80	0	0.00	129	0
		Jeddah	0	80	0	0.00	129	0
		Jubail	0	80	0	0.00	129	0
		Qadimah	0	80	0	0.00	129	0
		Riyadh	0	80	0	0.00	129	0
		Tabuk	0	80	0	0.00	129	0
	South Korea	Camp Casey	20	105	48	0.96	169	1219
		Camp Hialeah, Pusan	20	110	24	0.96	177	610
		Camp Humphreys / Pyongtaek	20	95	45	0.96	153	1143
		Chinhae	20	105	24	0.96	169	610
		Kimpo AFB	20	105	48	0.96	169	1219
		Kunsan / Kunsan City	20	100	30	0.96	161	762
		Osan AFB / Songtan	20	95	45	0.96	153	1143
		Pohang	20	110	24	0.96	177	610
		Seoul	20	105	48	0.96	169	1219
		Taegu	20	115	40	0.96	185	1016
		Uijongbu	20	105	48	0.96	169	1219
		Yongsan	20	105	45	0.96	169	1143
	Vietnam	Da Nang	0	120	0	0.00	193	0
		Ho Chi Minh City	0	95	0	0.00	153	0
		Nha Trang	0	95	0	0.00	153	0
	Taiwan	Tainan	0	120	0	0.00	193	0
		Taipei	0	130	0	0.00	209	0
		Tsoying	0	110	0	0.00	177	0
	Thailand	Bangkok	0	80	0	0.00	129	0
		Chiang Mai	0	95	0	0.00	153	0
		Sattahip	0	85	0	0.00	137	0
	Thailand	Udonthani	0	85	0	0.00	137	0
	Turkey	Ankara	20	99	24	0.96	159	610

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TABLE D-1

Continent / Region	Country	Base / City	Ground Snow (psf)	Wind Speed (mph) Note (a)	Frost Penetration (inches)	Ground Snow kPa	Wind Speed km/h Note (a)	Frost Penetration mm
Asia	**Turkey**	Incirlik AB / Adana	**0**	**70**	**5**	**0.00**	**113**	**127**
		Izmir AS						
		Karamursel	**15**	**95**	**12**	**0.72**	**153**	**305**
Central America	**Canal Zone**		**0**	**95**	**0**	**0.00**	**153**	**0**
Europe	**Belgium**	Brussels						
		Kester						
		Kleine Brogel						
		Shape - Chievres						
	Bosnia - Hertzegovina	Tulza AFB						
	England	RAF Alconbury, Molesworth / Huntingdon						
		Birmingham	**15**	**89**	**12**	**0.72**	**143**	**305**
		RAF Croughton / Brackley	**15**	**100**	**15**	**0.72**	**161**	**381**
		RAF Fairford						
		RAF Lakenheath / Lakeheath Village	**15**	**100**	**15**	**0.72**	**161**	**381**
		USNA UK / London	**15**	**95**	**12**	**0.72**	**153**	**305**
		RAF Menwith Hill / Harrogate						
		RAF Mildenhall	**15**	**104**	**12**	**0.72**	**167**	**305**
		Plymouth	**10**	**94**	**12**	**0.48**	**151**	**305**
		RAF Upwood / Ramsey						
		JMF St. Mawgan / Cornwall						
		Sculthorpe AB	**15**	**99**	**12**	**0.72**	**159**	**305**
		Southport	**10**	**104**	**12**	**0.48**	**167**	**305**
		South Shields	**15**	**99**	**12**	**0.72**	**159**	**305**
		Spurn Head	**15**	**99**	**12**	**0.72**	**159**	**305**
	Germany	Ansbach						
		Bamberg						

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TABLE D-1

Continent / Region	Country	Base / City	Ground Snow (psf)	Wind Speed (mph) Note (a)	Frost Penetration (inches)	Ground Snow kPa	Wind Speed km/h Note (a)	Frost Penetration mm
Europe	**Germany**	Baumholder						
		Bremen	**25**	**85**	**30**	**1.20**	**137**	**762**
		Buechel Air Base / Cochem						
		Darmstadt						
		Garmisch AST						
		Geilenkirchen						
		Grafenwoehr	**25**	**90**	**0**	**1.20**	**145**	**0**
		Hanau	**25**	**55**	**25**	**1.20**	**89**	**635**
		Heidelberg	**25**	**55**	**30**	**1.20**	**89**	**762**
		Hohenfels						
		Illesheim						
		Kaiserslautern						
		Kalkar						
		Mannheim						
		Munich	**40**	**98**	**36**	**1.92**	**158**	**914**
		Ramstein AB						
		Rhein-Main Air Base	**25**	**85**	**30**	**1.20**	**137**	**762**
		Schweinfurt						
		Spangdahlem Air Base	**25**	**55**	**30**	**1.20**	**89**	**762**
		Stuttgart	**45**	**90**	**36**	**2.16**	**145**	**914**
		Vilseck						
		Wiesbaden / Mainz / Dexheim						
		Wuerzburg / Kitzingen / Giebelstadt	**25**	**90**	**35**	**1.20**	**145**	**889**
	Greece	Athens	**5**	**92**	**0**	**0.24**	**148**	**0**
		Larissa						
		NAS Soudi Bay / Mouzouras	**5**	**86**	**0**	**0.24**	**138**	**0**
	Iceland	Keflavik - NSA	**30**	**115**	**24**	**1.44**	**185**	**610**
		Thorshofn	**30**	**146**	**36**	**1.44**	**235**	**914**
	Italy	Aviano AB	**35**	**80**	**18**	**1.68**	**129**	**457**

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TABLE D-1

Continent / Region	Country	Base / City	Ground Snow (psf)	Wind Speed (mph) Note (a)	Frost Penetration (inches)	Ground Snow kPa	Wind Speed km/h Note (a)	Frost Penetration mm
Europe	**Italy**	Brindisi / San Vito	**5**	**110**	**6**	**0.24**	**177**	**152**
		Camp Darby Livorno						
		Gaeta - NSA	**20**	**80**	**0**	**0.96**	**129**	**0**
		Ghedi						
		NSA La Maddalena	**20**	**80**	**5**	**0.96**	**129**	**127**
		NSA Naples	**20**	**80**	**5**	**0.96**	**129**	**127**
		Niscemi	**20**	**90**	**5**	**0.96**	**145**	**127**
		NAS Sigonella	**20**	**90**	**5**	**0.96**	**145**	**127**
		Vicenza	**35**	**80**	**25**	**1.68**	**129**	**635**
	Netherlands	Volkel Air Base						
		AF North Brunssum						
		Schinnen	**15**	**70**	**20**	**0.72**	**113**	**508**
	Northern Ireland	Londonderry	**15**	**133**	**12**	**0.72**	**214**	**305**
	Norway	Stavanger						
	Portugal	Azores / Lajes Field	**0**	**120**	**0**	**0.00**	**193**	**0**
		Southlant / Oeiras						
	Scotland	Aberdeen	**15**	**90**	**12**	**0.72**	**145**	**305**
		Edinburgh	**15**	**99**	**12**	**0.72**	**159**	**305**
		Edzell	**15**	**85**	**12**	**0.72**	**137**	**305**
		Glasgow	**15**	**99**	**12**	**0.72**	**159**	**305**
		Prestwick	**15**	**100**	**12**	**0.72**	**161**	**305**
		Stornoway	**15**	**120**	**12**	**0.72**	**193**	**305**
		Thurso	**15**	**105**	**12**	**0.72**	**169**	**305**
	Spain	Madrid / JHQ SW	**10**	**83**	**6**	**0.48**	**134**	**152**
		Moron AB						
		NS Rota	**5**	**90**	**5**	**0.24**	**145**	**127**
		San Pablo	**5**	**117**	**6**	**0.24**	**188**	**152**
		HRF Valencia						
		Zaragoza	**10**	**117**	**6**	**0.48**	**188**	**152**
North America	**Canada**	Argentia NAS, Newfoundland	**47**	**115**	**36**	**2.25**	**185**	**914**

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TABLE D-1

Continent / Region	Country	Base / City	Ground Snow (psf)	Wind Speed (mph) Note (a)	Frost Penetration (inches)	Ground Snow kPa	Wind Speed km/h Note (a)	Frost Penetration mm
North America	Canada	Churchill, Manitoba	66	107	permafrost	3.16	172	permafrost
		Cold Lake, Alberta	41	81	72	1.96	130	1829
		Edmonton, Alberta	27	84	60	1.29	135	1524
		E. Harmon AFB, Newfoundland	86	113	60	4.12	182	1524
		Fort William, Ontario	73	81	60	3.50	130	1524
		Frobisher, NWT	50	107	permafrost	2.40	172	permafrost
		Goose Airport, Newfoundland	100	89	60	4.79	143	1524
		Ottawa, Ontario	60	90	48	2.87	145	1219
		St. John's, Newfoundland	72	114	36	3.45	183	914
		Toronto, Ontario	40	90	36	1.92	145	914
		Winnipeg, Manitoba	45	82	60	2.16	132	1524
	Greenland	Narsarssuak AB	30	139	60	1.44	224	1524
		Simiutak AB	25	166	60	1.20	267	1524
		Sondrestrom AB	20	120	permafrost	0.96	193	permafrost
		Thule AB	25	135	permafrost	1.20	217	permafrost
Atlantic Ocean	Ascension Island		0	67	0	0.00	108	0
Caribbean Sea	The Bahamas	Eleuthera Island	0	148	0	0.00	238	0
		Grand Bahama Island	0	148	0	0.00	238	0
		Grand Turk Island	0	161	0	0.00	259	0
		Great Exuma Island	0	148	0	0.00	238	0
	Cuba	NS Guantanamo Bay	0	105	0	0.00	169	0
Caribbean Sea	Trinidad Island	Port of Spain	0	59	0	0.00	95	0
Indian Ocean	British Indian Ocean Territory	NSF Diego Garcia		105	0	0.00	169	0
Pacific Ocean	Australia	H.E. Holt / N.W. Cape	0	130	0	0	209	0

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TABLE D-1

Continent / Region	Country	Base / City	Ground Snow (psf)	Wind Speed (mph) Note (a)	Frost Penetration (inches)	Ground Snow kPa	Wind Speed km/h Note (a)	Frost Penetration mm
Pacific Ocean	Australia	Woomera	0	80	0	0	129	0
	Caroline Islands	Koror, Paulau Islands	0	95	0	0.00	153	0
		Ponape	0	110	0	0.00	177	0
	Johnston Atoll		0	95	0	0.00	137	0
	Marcus Island		0	150	0	0.00	241	0
	Marshall Islands	Kwajalein	0	105	0	0.00	169	0
	Marshall Islands	Wake Island	0	110	0	0.00	177	0
	Midway Island		0	95	0	0.00	153	0
	Phillipine Is.	Clark AFB	0	90	0	0.00	145	0
		Sangley Point	0	90	0	0.00	145	0
		Subic Bay	0	90	0	0.00	145	0
	Samoa	Apia / Upolu	0	150	0	0.00	241	0

Notes to Table D-1, "STRUCTURAL CLIMATIC LOADING DATA – OUTSIDE OF THE UNITED STATES, ITS TERRITORIES AND POSSESSIONS"

Note (a) – Use a minimum wind speed of 85 mph (137 km/h) for all locations

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TABLE D-2 EARTHQUAKE LOADING DATA – OUTSIDE OF THE UNITED STATES, ITS TERRITORIES AND POSSESSIONS

TABLE D-2

			Seismic Loading (Site Class B)			
Continent / Region	**Country**	**Base / City**	**S_S (%g)**	**S_1 (%g)**	**10/50 S_S (%g)**	**10/50 S_1 (%g)**
Africa	**Egypt**	Alexandria	**23**	**9**	**11**	**5**
	Morocco	Casablanca	**25**	**10**	**13**	**5**
Asia	**Afghanistan**	Kabul	**128**	**51**	**64**	**26**
	Bahrain	NSA Bahrain	**31**	**12**	**15**	**6**
	India	Bombay	**26**	**10**	**13**	**5**
		Calcutta	**50**	**20**	**25**	**10**
		Madras	**14**	**6**	**7**	**3**
		New Delhi	**71**	**28**	**35**	**14**
	Iraq	Baghdad	**124**	**56**	**62**	**29**
		Basra	**98**	**39**	**49**	**20**
	Japan	NAF Atsugi	**187**	**75**		
		MCAS Iwakuni	**94**	**38**	**47**	**19**
		Iwo Jima	**89**	**36**	**45**	**18**
		Misawa AFB	**124**	**56**		
		Okinawa (All installations)	**165**	**75**	**83**	**38**
		Sagamihara	**187**	**75**		
		Sasebo	**91**	**36**	**45**	**18**
		Tokyo	**187**	**75**	**94**	**37**
		COMFLTACT Yokosuka	**187**	**75**		
		Yokota AFB, Honshu	**200**	**80**	**100**	**40**
		Camp Zama	**187**	**75**		
	Kuwait	Kuwait City	**54**	**22**	**27**	**11**
	Oman	Areas south and west of Jabal Akehadar				
		- Ibri	**91**	**36**	**46**	**18**
		- Nazwa	**88**	**35**	**44**	**18**
		Batinah Coast				
		- Ash Shinash	**166**	**66**	**83**	**33**
		- Sib	**129**	**52**	**65**	**26**
		- Suhar	**149**	**60**	**75**	**30**
		Central, Southern, and Coastal Areas Sur to Sarfait				
		- Barik				

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TABLE D-2

Continent / Region	Country	Base / City	Seismic Loading (Site Class B) S_S (%g)	S_1 (%g)	10/50 S_S (%g)	10/50 S_1 (%g)
Asia	**Oman**	- Dawqa	**3**	**1**	**2**	**1**
		- Hayma	**0**	**0**	**0**	**0**
		- Salalah	**8**	**3**	**4**	**2**
		- Shalim	**0**	**0**	**0**	**0**
		High Jabal Locations				
		- Miskin	**107**	**43**	**54**	**21**
		- Sumail				
		- Rikshah	**98**	**39**	**49**	**20**
		- Shaww	**99**	**40**	**50**	**20**
		Kuria Muria Island				
		Masirah Island	**19**	**8**	**9**	**4**
		Mussandam Island				
	Pakistan	Peshawar	**105**	**42**	**53**	**21**
	Quatar	Doha	**6**	**6**	**3**	**3**
	Saudi Arabia	Dhahran	**10**	**4**	**5**	**2**
		Hafr al Batin				
		Khamis Mushayt	**6**	**2**	**3**	**1**
		Jeddah	**49**	**20**	**24**	**10**
		Jubail	**35**	**14**	**18**	**7**
		Qadimah	**24**	**10**	**12**	**5**
		Riyadh	**6 (a)**	**6 (a)**	**3 (a)**	**3 (a)**
		Tabuk	**28**	**11**	**14**	**6**
	South Korea	Camp Casey	**15**	**6**	**7**	**3**
		Camp Hialeah, Pusan	**30**	**12**	**15**	**6**
		Camp Humphreys / Pyongtaek	**19**	**7**	**9**	**4**
		Chinhae	**17**	**7**	**8**	**3**
		Kimpo AFB	**15**	**6**	**8**	**3**
		Kunsan / Kunsan City	**17**	**7**	**8**	**3**
		Osan AFB / Songtan	**19**	**7**	**9**	**4**
		Pohang	**14**	**6**	**7**	**3**
		Seoul	**17**	**7**	**8**	**3**
		Taegu	**29**	**11**	**14**	**6**
		Uijongbu	**17**	**7**	**8**	**3**
		Yongsan / Seoul	**17**	**7**	**9**	**3**
	Vietnam	Da Nang	**18**	**7**	**9**	**4**

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TABLE D-2

Continent / Region	Country	Base / City	Seismic Loading (Site Class B) S_S (%g)	S_1 (%g)	10/50 S_S (%g)	10/50 S_1 (%g)
Asia	**Vietnam**	Ho Chi Minh City	**14**	**6**	**7**	**3**
		Nha Trang	**13**	**5**	**6**	**3**
	Taiwan	Tainan	**239**	**96**	**120**	**48**
		Taipei	**325**	**130**	**162**	**65**
		Tsoying	**251**	**100**	**125**	**50**
	Thailand	Bangkok	**28**	**11**	**14**	**6**
		Chiang Mai	**27**	**11**	**14**	**5**
		Sattahip	**21**	**9**	**11**	**4**
		Udonthani	**24**	**10**	**12**	**5**
	Turkey	Ankara	**99**	**40**	**49**	**20**
		Incirlik AB / Adana	**105**	**42**	**52**	**21**
		Izmir AS	**242**	**97**	**121**	**48**
		Karamursel	**139**	**56**	**70**	**28**
Central America	**Canal Zone**		**93**	**37**	**46**	**19**
Europe	**Belgium**	Brussels	**32**	**13**	**16**	**6**
		Kester	**36**	**14**	**18**	**7**
		Kleine Brogel	**31**	**13**	**16**	**6**
		Shape - Chievres	**54**	**22**	**27**	**11**
	Bosnia - Hertzegovina	Tulza AFB	**92**	**37**	**46**	**18**
	England	RAF Alconbury, Molesworth / Huntingdon	**18**	**7**	**9**	**4**
		Birmingham	**22**	**9**	**11**	**4**
		RAF Croughton / Brackley	**28**	**11**	**14**	**6**
		RAF Fairford	**16**	**6**	**8**	**3**
		RAF Lakenheath / Lakeheath Village	**15**	**6**	**8**	**3**
		USNA UK / London	**13**	**3**	**6**	**1**
		RAF Menwith Hill / Harrogate	**21**	**9**	**11**	**4**
		RAF Mildenhall	**15**	**6**	**8**	**3**
		Plymouth	**20**	**8**	**10**	**4**
		RAF Upwood / Ramsey	**16**	**6**	**8**	**3**
		JMF St. Mawgan / Cornwall	**20**	**4**	**10**	**2**
		Sculthorpe AB	**16**	**6**	**8**	**3**

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TABLE D-2

Continent / Region	Country	Base / City	Seismic Loading (Site Class B) S_S (%g)	S_1 (%g)	10/50 S_S (%g)	10/50 S_1 (%g)
Europe	**England**	Southport	**23**	**9**	**12**	**5**
		South Shields	**11**	**5**	**6**	**2**
		Spurn Head				
	Germany	Ansbach	**24**	**10**	**12**	**5**
		Bamberg	**21**	**8**	**10**	**4**
		Baumholder	**25**	**10**	**13**	**5**
		Bremen	**10**	**4**	**5**	**2**
		Buechel Air Base / Cochem	**33**	**13**	**16**	**7**
		Darmstadt	**40**	**16**	**20**	**8**
		Garmisch AST	**46**	**18**	**23**	**9**
		Geilenkirchen	**55**	**22**	**27**	**11**
		Grafenwoehr	**24**	**10**	**12**	**5**
		Hanau	**38**	**15**	**19**	**8**
		Heidelberg	**38**	**15**	**19**	**8**
		Hohenfels	**26**	**10**	**13**	**5**
		Illesheim	**23**	**9**	**11**	**5**
		Kaiserslautern	**25**	**10**	**13**	**5**
		Kalkar	**22**	**9**	**11**	**4**
		Mannheim	**40**	**16**	**20**	**8**
		Munich	**26**	**10**	**13**	**5**
		Ramstein AB	**24**	**10**	**12**	**5**
		Rhein-Main Air Base	**39**	**16**	**20**	**8**
		Schweinfurt	**21**	**8**	**10**	**4**
		Spangdahlem Air Base	**24**	**10**	**12**	**5**
		Stuttgart	**44**	**18**	**22**	**9**
		Vilseck	**22**	**9**	**11**	**4**
		Wiesbaden / Mainz / Dexheim	**38**	**15**	**19**	**8**
		Wuerzburg / Kitzingen / Giebelstadt	**21**	**9**	**11**	**4**
	Greece	Athens	**81**	**32**	**40**	**16**
		Larissa	**140**	**26**	**70**	**13**
		NAS Soudi Bay / Mouzouras	**120**	**34**	**60**	**17**
	Iceland	Keflavik - NSA	**100**	**40**	**50**	**20**
		Thorshofn	**49**	**19**	**24**	**10**

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TABLE D-2

Continent / Region	Country	Base / City	Seismic Loading (Site Class B) S_S (%g)	S_1 (%g)	10/50 S_S (%g)	10/50 S_1 (%g)
Europe	**Italy**	Aviano AB	**115**	**46**	**57**	**23**
		Brindisi / San Vito	**37**	**15**	**18**	**7**
		Camp Darby Livorno	**62**	**25**	**31**	**12**
		Gaeta - NSA	**50**	**21**	**25**	**11**
		Ghedi	**71**	**29**	**36**	**14**
		NSA La Maddalena	**23**	**9**	**12**	**5**
		NSA Naples	**67**	**27**	**34**	**14**
		Niscemi	**120**	**31**	**60**	**16**
		NAS Sigonella	**120**	**31**	**60**	**16**
		Vicenza	**93**	**37**	**46**	**19**
	Netherlands	Volkel Air Base	**29**	**12**	**15**	**6**
		AF North Brunssum	**55**	**22**	**28**	**11**
		Schinnen	**6**	**6**	**3**	**3**
	Northern Ireland	Londonderry	**8**	**3**	**4**	**2**
	Norway	Stavanger				
	Portugal	Azores / Lajes Field	**165**	**75**	**83**	**38**
		Southlant / Oeiras	**61**	**25**	**31**	**12**
	Scotland	Aberdeen	**9**	**4**	**5**	**2**
		Edinburgh	**17**	**7**	**8**	**3**
		Edzell	**11**	**4**	**5**	**2**
		Glasgow	**21**	**9**	**11**	**4**
		Prestwick	**12**	**5**	**6**	**2**
		Stornoway	**10**	**4**	**5**	**2**
		Thurso	**9**	**3**	**4**	**2**
	Spain	Madrid / JHQ SW	**13**	**5**	**6**	**3**
		Moron AB	**61**	**24**	**31**	**12**
		NS Rota	**72**	**28**	**36**	**14**
		San Pablo				
		HRF Valencia	**66**	**27**	**33**	**13**
		Zaragoza	**15**	**6**	**8**	**3**
North America	**Canada**	Argentia NAS, Newfoundland	**21**	**8**	**10**	**4**
		Churchill, Manitoba	**1**	**0**	**0**	**0**
		Cold Lake, Alberta	**5**	**2**	**3**	**1**
		Edmonton, Alberta	**8**	**3**	**4**	**2**
		E. Harmon AFB, Newfoundland	**16**	**6**	**8**	**3**

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TABLE D-2

Continent / Region	Country	Base / City	Seismic Loading (Site Class B) S_S (%g)	S_1 (%g)	10/50 S_S (%g)	10/50 S_1 (%g)
North America	**Canada**	Fort William, Ontario				
		Frobisher, NWT	7	3	3	1
		Goose Airport, Newfoundland	16	6	8	3
		Ottawa, Ontario	91	36	46	18
		St. John's, Newfoundland	19	8	10	4
		Toronto, Ontario	36	15	18	7
		Winnipeg, Manitoba	31	14	16	7
	Greenland	Narsarssuak AB	31	14	16	7
		Simiutak AB	31	14	16	7
		Sondrestrom AB	22	9	11	4
		Thule AB	37	15	18	7
Atlantic Ocean	**Ascension Island**					
Caribbean Sea	**The Bahamas**	Eleuthera Island	2	1	1	0
		Grand Bahama Island	2	1	1	0
		Grand Turk Island	58	23	29	12
		Great Exuma Island	19	8	10	4
	Cuba	NS Guantanamo Bay	126	50	63	25
	Trinidad Island	Port of Spain	171	68	86	34
Indian Ocean	**British Indian Ocean Territoty**	NSF Diego Garcia	70	28	35	14
Pacific Ocean	**Australia**	H.E. Holt / N.W. Cape	47	19	23	9
		Woomera	47	19	23	9
	Caroline Islands	Koror, Paulau Islands	70	28	35	14
		Ponape	103	41	51	21
	Johnston Atoll		136	54	68	27
	Marcus Island		95	38	47	19
	Marshall Islands	Kwajalein	119	48	60	24
		Wake Island	137	55	68	27
	Midway Island					
	Phillipine Is.	Clark AFB	159	64	79	32
		Sangley Point	195	78	97	39
		Subic Bay	177	71	88	35

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TABLE D-2

			Seismic Loading (Site Class B)			
Continent / Region	**Country**	**Base / City**	**S_S (%g)**	**S_1 (%g)**	**10/50 S_S (%g)**	**10/50 S_1 (%g)**
Pacific Ocean	**Samoa**	Apia / Upolu	**158**	**63**	**79**	**32**

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APPENDIX E

EARTHQUAKE LOADING DATA AT ADDITIONAL SELECTED LOCATIONS OUTSIDE OF THE UNITED STATES, ITS TERRITORIES AND POSSESSIONS

E-1 Earthquake Loading Data Table. Earthquake loading data for additional selected cities outside of the United States, its territories and possessions is provided in Table E-1.

TABLE E-1 EARTHQUAKE LOADING DATA AT ADDITIONAL LOCATIONS OUTSIDE OF THE UNITED STATES, ITS TERRITORIES AND POSSESSIONS

TABLE E-1			Seismic Loading (Site Class B)			
Continent / Region	Country	Base / City	S_S (%g)	S_1 (%g)	10/50 S_S (%g)	10/50 S_1 (%g)
Africa	Algeria	Alger	96.1	38.4	48.0	19.2
		Oran	60.0	24.0	30.0	12.0
	Angola	Luanda	5.6	2.2	2.8	1.1
	Benin	Cotonou	10.9	4.4	5.4	2.2
	Botswana	Gaborone	2.6	1.0	1.3	0.5
	Burkino Vaso	Kampala	44.1	17.7	22.1	8.8
	Burundi	Bujumbura	66.1	26.5	33.1	13.2
	Cameroon	Douala	15.8	6.3	7.9	3.2
		Yaounde	26.0	10.4	13.0	5.2
	Central African Republic	Bangui	26.0	10.4	13.0	5.2
	Chad	Ndjamena	5.6	2.2	2.8	1.1
	Congo	Brazzaville				
	Congo, Democratic Republic of the	Bukavu	74.0	29.6	37.0	14.8
		Kinshasa				
		Lubumbashi	37.4	14.9	18.7	7.5
	Cote d'Ivoire	Abidjan	3.7	1.5	1.8	0.7
	Djibouti	Djibouti	81.5	32.6	40.7	16.3
	Egypt	Cairo	67.2	26.9	33.6	13.4
		Port Said	65.1	26.1	32.6	13.0
	Equatorial Guinea	Malabo	15.8	6.3	7.9	3.2
	Eritrea	Asmara	43.0	17.2	21.5	8.6
	Ethiopia	Addis Ababa	55.3	22.1	27.6	11.1

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TABLE E-1

Continent / Region	Country	Base / City	Seismic Loading (Site Class B) S_S (%g)	S_1 (%g)	10/50 S_S (%g)	10/50 S_1 (%g)
Africa	**Gabon**	Libreville	**26.0**	**10.4**	**13.0**	**5.2**
	Gambia	Banjul				
	Ghana	Accra	**35.6**	**14.3**	**17.8**	**7.1**
	Guinea	Conakry	**36.1**	**14.5**	**18.1**	**7.2**
	Guinea-Bissau	Bissau	**0.9**	**0.4**	**0.5**	**0.2**
	Kenya	Nairobi	**30.7**	**12.3**	**15.3**	**6.1**
	Lesotho	Maseru	**6.3**	**2.5**	**3.1**	**1.3**
	Liberia	Monrovia	**21.4**	**8.5**	**10.7**	**4.3**
	Libya	Tripoli	**57.1**	**22.9**	**28.6**	**11.4**
	Madagascar	Tananarive	**18.4**	**7.3**	**9.2**	**3.7**
	Malawi	Blantyre	**46.3**	**18.5**	**23.1**	**9.3**
		Lilongwe	**26.3**	**10.5**	**13.2**	**5.3**
		Zomba	**48.3**	**19.3**	**24.2**	**9.7**
	Mali	Bamako				
	Mauritania	Nouakchott	**7.7**	**3.1**	**3.8**	**1.5**
	Morocco	Kenitra	**27.0**	**10.8**	**13.5**	**5.4**
		Rabat	**25.5**	**10.2**	**12.7**	**5.1**
		Tangier	**44.3**	**17.7**	**22.2**	**8.9**
	Mozambique	Maputo	**10.2**	**4.1**	**5.1**	**2.0**
	Niger	Niamey	**0.2**	**0.1**	**0.1**	**0.0**
	Nigera	Ibadan				
		Kaduna	**5.6**	**2.2**	**2.8**	**1.1**
		Lagos	**0.3**	**0.1**	**0.1**	**0.1**
	Rwanda	Kigali	**27.8**	**11.1**	**13.9**	**5.6**
	Senegal	Dakar	**7.7**	**3.1**	**3.8**	**1.5**
	Sierra Leone	Freetown	**34.9**	**14.0**	**17.4**	**7.0**
	Somalia	Mogadishu				
	South Africa	Cape Town	**26.0**	**10.4**	**13.0**	**5.2**
		Durban	**28.7**	**11.5**	**14.3**	**5.7**
		Johannesburg	**3.1**	**1.2**	**1.5**	**0.6**
		Natal	**6.4**	**2.6**	**3.2**	**1.3**
	Swaziland	Pretoria	**3.1**	**1.2**	**1.5**	**0.6**
	Tanzania	Dar es Salaam	**17.1**	**6.8**	**8.5**	**3.4**
		Mbabane	**17.9**	**7.2**	**9.0**	**3.6**
	Togo	Zanzibar	**11.5**	**4.6**	**5.7**	**2.3**
	Tunisia	Lome	**37.5**	**15.0**	**18.8**	**7.5**
	Uganda	Tunis	**91.0**	**36.4**	**45.5**	**18.2**
	Zambia	Ougadougou				
	Zimbabwe	Harare	**5.6**	**2.2**	**2.8**	**1.1**
		Lusaka	**21.9**	**8.8**	**11.0**	**4.4**
Asia	**Bahrain**	Manama	**26.9**	**10.8**	**13.5**	**5.4**
	Bangladesh	Dhaka	**69.5**	**27.8**	**34.8**	**13.9**

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TABLE E-1

Continent / Region	Country	Base / City	Seismic Loading (Site Class B) S_S (%g)	S_1 (%g)	10/50 S_S (%g)	10/50 S_1 (%g)
Asia	**Brunei**	Bandar Seri Begawan	**37.2**	**14.9**	**18.6**	**7.4**
	Burma	Mandalay	**201.0**	**80.4**	**100.5**	**40.2**
		Rangoon	**76.8**	**30.7**	**38.4**	**15.4**
	China	Beijing (Peking)	**55.9**	**22.4**	**28.0**	**11.2**
		Chengdu	**44.2**	**17.7**	**22.1**	**8.8**
		Chongqing	**8.4**	**3.4**	**4.2**	**1.7**
		Guangzhou (Canton)	**13.5**	**5.4**	**6.8**	**2.7**
		Harbin	**12.4**	**4.9**	**6.2**	**2.5**
		Nanjing	**23.4**	**9.4**	**11.7**	**4.7**
		Qingdao (Tsingtao)	**31.6**	**12.6**	**15.8**	**6.3**
		Shanghai	**17.3**	**6.9**	**8.7**	**3.5**
		Shengyang	**88.7**	**35.5**	**44.3**	**17.7**
		Tianjin (Tientsan)	**72.2**	**28.9**	**36.1**	**14.4**
		Wuhan	**7.3**	**2.9**	**3.7**	**1.5**
	Cyprus	Nicosia	**118.0**	**47.2**	**59.0**	**23.6**
	Hong Kong	Hong Kong	**12.8**	**5.1**	**6.4**	**2.6**
	Indonesia	Bandung	**164.3**	**65.7**	**82.1**	**32.9**
		Jakarta	**138.1**	**55.2**	**69.0**	**27.6**
		Medan	**111.5**	**44.6**	**55.7**	**22.3**
		Surabaya	**96.4**	**38.6**	**48.2**	**19.3**
	Iran	Isfahan	**90.8**	**36.3**	**45.4**	**18.2**
		Shiraz	**173.2**	**69.3**	**86.6**	**34.6**
		Tabriz	**181.2**	**72.5**	**90.6**	**36.2**
		Tehran	**205.0**	**82.0**	**102.5**	**41.0**
	Israel	Haifa	**136.9**	**54.7**	**68.4**	**27.4**
		Jerusalem	**106.9**	**42.8**	**53.4**	**21.4**
		Tel Aviv	**95.2**	**38.1**	**47.6**	**19.0**
	Japan	Fukuoka	**67.4**	**27.0**	**33.7**	**13.5**
		Itazuke AFB	**73.6**	**29.4**	**36.8**	**14.7**
		Kobe	**189.8**	**75.9**	**94.9**	**38.0**
		Osaka	**178.1**	**71.2**	**89.0**	**35.6**
		Sapporo	**100.4**	**40.2**	**50.2**	**20.1**
		Yokohama	**187**	**75**		
	Jordan	Amman	**70.2**	**28.1**	**35.1**	**14.0**
	Kuwait	Ali Al Salem	**24.2**	**9.7**	**12.1**	**4.8**
	Laos	Vientiane	**53.9**	**21.6**	**27.0**	**10.8**
	Lebanon	Beirut	**149.7**	**59.9**	**74.9**	**29.9**
	Malaysia	Kuala Lumpur	**55.8**	**22.3**	**27.9**	**11.2**
	Nepal	Kathmandu	**245.5**	**98.2**	**122.8**	**49.1**
	Oman	Muscat	**123.6**	**49.5**	**61.8**	**24.7**
	Pakistan	Islamabad	**128.9**	**51.6**	**64.5**	**25.8**
		Karachi	**73.3**	**29.3**	**36.6**	**14.7**

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Continent / Region	Country	Base / City	Seismic Loading (Site Class B) S_S (%g)	S_1 (%g)	10/50 S_S (%g)	10/50 S_1 (%g)
Asia	Pakistan	Lahore	117.1	46.8	58.5	23.4
	Singapore	All	37.5	15.0	18.8	7.5
	Sir Lanka	Colombo	2.6	1.0	1.3	0.5
	South Korea	Kimhae	18.3	7.3	9.2	3.7
		Kwangju	12.9	5.2	6.5	2.6
	Syria	Aleppo	64.3	25.7	32.2	12.9
		Damascus	79.1	31.6	39.5	15.8
	Taiwan	Changhua	274.4	109.8	137.2	54.9
		Kao-hsiung	250.6	100.3	125.3	50.1
	Thailand	Songkhla	29.6	11.8	14.8	5.9
		Udorn	24.1	9.6	12.0	4.8
	Turkey	Istanbul	145.8	58.3	72.9	29.2
	United Arab Emirates	Abu Dhabi	107.0	42.8	53.5	21.4
		Dubai	168.4	67.4	84.2	33.7
	Yemen	Aden City	36.6	14.7	18.3	7.3
		Sanaa	34.3	13.7	17.2	6.9
Central America	Belize	Belmopan	53.7	21.5	26.8	10.7
	Costa Rica	San Jose	280.4	112.2	140.2	56.1
	El Salvador	San Salvador	170.8	68.3	85.4	34.2
	Guatemala	Guatemala	168.3	67.3	84.2	33.7
	Honduras	Tegucigalpa	99.9	40.0	50.0	20.0
Europe	Albania	Tirana	111.6	44.6	55.8	22.3
	Austria	Salzburg	41.5	16.6	20.7	8.3
		Vienna	49.3	19.7	24.7	9.9
	Belgium	Antwerp	19.7	7.9	9.9	3.9
	Bulgaria	Sofia	116.3	46.5	58.1	23.3
	Czech Republic	Prague	12.8	5.1	6.4	2.6
	Denmark	Copenhagen	11.6	4.7	5.8	2.3
	England	Liverpool	23.0	9.2	11.5	4.6
	Finland	Helsinki	5.1	2.0	2.6	1.0
	France	Bordeaux	16.4	6.6	8.2	3.3
		Istres AFB	36.2	14.5	18.1	7.2
		Lyon	28.6	11.4	14.3	5.7
		Marseille	44.4	17.8	22.2	8.9
		Nice	41.3	16.5	20.7	8.3
		Strasbourg	42.7	17.1	21.3	8.5
	Germany	Babenhausen	34.2	13.7	17.1	6.8
		Berlin	5.1	2.0	2.6	1.0
		Bonn	42.2	16.9	21.1	8.4
		Dusseldorf	30.6	12.3	15.3	6.1

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TABLE E-1

Continent / Region	Country	Base / City	Seismic Loading (Site Class B) S_S (%g)	S_1 (%g)	10/50 S_S (%g)	10/50 S_1 (%g)
Europe	**Germany**	Frankfurt am Main	**37.7**	**15.1**	**18.8**	**7.5**
		Giebelstadt	**21.9**	**8.8**	**11.0**	**4.4**
		Hamburg	**9.2**	**3.7**	**4.6**	**1.8**
		Kitzingen	**21.2**	**8.5**	**10.6**	**4.2**
		Landstuhl	**23.7**	**9.5**	**11.9**	**4.7**
		Vaihingen an der Enz	**38.7**	**15.5**	**19.4**	**7.7**
	Greece	Kavalla	**108.2**	**43.3**	**54.1**	**21.6**
		Nea Makri	**86.7**	**34.7**	**43.4**	**17.3**
		Rhodes	**137.0**	**54.8**	**68.5**	**27.4**
		Thessaloniki	**142.1**	**56.8**	**71.0**	**28.4**
	Hungary	Budapest	**46.3**	**18.5**	**23.1**	**9.3**
		Taszar AB				
	Iceland	Reykjavik	**91.8**	**36.7**	**45.9**	**18.4**
	Italy	Florence	**96.4**	**38.6**	**48.2**	**19.3**
		Genoa	**66.1**	**26.4**	**33.0**	**13.2**
		Milan	**41.3**	**16.5**	**20.7**	**8.3**
		Palermo	**66.9**	**26.8**	**33.5**	**13.4**
		Rome	**89.8**	**35.9**	**44.9**	**18.0**
		Siculiana	**44.8**	**17.9**	**22.4**	**9.0**
		Trieste	**72.3**	**28.9**	**36.2**	**14.5**
		Turin	**53.7**	**21.5**	**26.8**	**10.7**
	Luxembourg	Luxembourg	**21.4**	**8.6**	**10.7**	**4.3**
	Malta	Valletta	**28.6**	**11.5**	**14.3**	**5.7**
	Netherlands	Amsterdam	**13.0**	**5.2**	**6.5**	**2.6**
	Northern Ireland	Belfast	**8.7**	**3.5**	**4.3**	**1.7**
	Norway	Oslo	**14.8**	**5.9**	**7.4**	**3.0**
	Poland	Krakow	**19.1**	**7.6**	**9.5**	**3.8**
		Poznan	**5.6**	**2.2**	**2.8**	**1.1**
		Waraszawa	**11.7**	**4.7**	**5.9**	**2.3**
		Warsow	**10.2**	**4.1**	**5.1**	**2.0**
	Portugal	Lisbon	**67.7**	**27.1**	**33.9**	**13.5**
		Oporto	**64.5**	**25.8**	**32.2**	**12.9**
	Republic of Ireland	Dublin	**9.4**	**3.8**	**4.7**	**1.9**
	Romania	Bucharest	**104.9**	**42.0**	**52.5**	**21.0**
	Russia	Kiev	**6.6**	**2.7**	**3.3**	**1.3**
		Moscow	**6.6**	**2.7**	**3.3**	**1.3**
		St. Petersburg (Leningrad)	**6.6**	**2.7**	**3.3**	**1.3**
	Scotland	Hamilton	**18.3**	**7.3**	**9.2**	**3.7**
		Renfrew	**21.6**	**8.6**	**10.8**	**4.3**

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Continent / Region	Country	Base / City	Seismic Loading (Site Class B) S_S (%g)	S_1 (%g)	10/50 S_S (%g)	10/50 S_1 (%g)
Europe	**Serbia and Montenegro**	Belgrade	**97.2**	**38.9**	**48.6**	**19.4**
		Zagrebac	**103.9**	**41.6**	**52.0**	**20.8**
	Slovakia	Bratislava	**56.2**	**22.5**	**28.1**	**11.2**
	Spain	Barcelona	**60.0**	**24.0**	**30.0**	**12.0**
		Bilbao	**32.1**	**12.9**	**16.1**	**6.4**
		Sevilleja de la Jara	**12.8**	**5.1**	**6.4**	**2.6**
	Sweden	Goteborg	**14.4**	**5.7**	**7.2**	**2.9**
		Stockholm	**7.7**	**3.1**	**3.8**	**1.5**
	Switzerland	Bern	**44.0**	**17.6**	**22.0**	**8.8**
		Geneva	**46.3**	**18.5**	**23.1**	**9.3**
		Zurich	**38.9**	**15.6**	**19.5**	**7.8**
North America	**Canada**	Calgary	**19.8**	**7.9**	**9.9**	**4.0**
		Halifax	**25.0**	**10.0**	**12.5**	**5.0**
		Montreal	**102.9**	**41.2**	**51.4**	**20.6**
		Vancouver	**90.4**	**36.2**	**45.2**	**18.1**
	Mexico	Ciudad Juarez	**18.2**	**7.3**	**9.1**	**3.6**
		Guadalajara	**146.9**	**58.8**	**73.4**	**29.4**
		Hermosillo	**46.3**	**18.5**	**23.1**	**9.3**
		Matamoros	**2.0**	**0.8**	**1.0**	**0.4**
		Mazatlan	**97.4**	**39.0**	**48.7**	**19.5**
		Merida	**3.6**	**1.4**	**1.8**	**0.7**
		Mexico City	**56.9**	**22.8**	**28.5**	**11.4**
		Monterrey	**21.5**	**8.6**	**10.8**	**4.3**
		Nuevo Laredo	**14.8**	**5.9**	**7.4**	**3.0**
		Tijuana	**92.7**	**37.1**	**46.4**	**18.5**
South America	**Argentina**	Buenos Aires	**6.6**	**2.7**	**3.3**	**1.3**
	Bolivia	La Paz	**111.0**	**44.4**	**55.5**	**22.2**
	Brazil	Belem	**0.5**	**0.2**	**0.3**	**0.1**
		Belo Horizonte	**0.5**	**0.2**	**0.3**	**0.1**
		Brasilia	**0.5**	**0.2**	**0.3**	**0.1**
		Manaus	**1.7**	**0.7**	**0.8**	**0.3**
		Porto Alegre	**0.5**	**0.2**	**0.3**	**0.1**
		Recife	**4.1**	**1.6**	**2.0**	**0.8**
		Rio de Janeiro	**0.5**	**0.2**	**0.3**	**0.1**
		Salvador	**0.5**	**0.2**	**0.3**	**0.1**
		Sao Paulo	**0.5**	**0.2**	**0.3**	**0.1**
	Chile	Santiago	**202.5**	**81.0**	**101.2**	**40.5**
		Valparaiso	**289.3**	**115.7**	**144.7**	**57.9**
	Colombia	Bogata	**166.4**	**66.6**	**83.2**	**33.3**
	Ecuador	Guayaquil	**136.9**	**54.8**	**68.5**	**27.4**
		Quito	**204.6**	**81.8**	**102.3**	**40.9**

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TABLE E-1

Continent / Region	Country	Base / City	Seismic Loading (Site Class B)			
			S_S (%g)	S_1 (%g)	10/50 S_S (%g)	10/50 S_1 (%g)
South America	Paraguay	Asuncion	15.3	6.1	7.7	3.1
	Peru	Lima	355.2	142.1	177.6	71.0
		Piura	188.3	75.3	94.1	37.7
	Uruguay	Montevideo	3.6	1.4	1.8	0.7
	Venezuela	Caracas	131.0	52.4	65.5	26.2
	Venezuela	Maracaibo	104.4	41.8	52.2	20.9
Caribbean Sea	Bahamas	Nassau	7.1	2.9	3.6	1.4
	Barbados	Bridgetown	37.4	15.0	18.7	7.5
	Cuba	Havana	25.5	10.2	12.8	5.1
	Dominica	Roseau	107.7	43.1	53.8	21.5
	Dominican Republic	Santo Domingo	173.6	69.5	86.8	34.7
	Grenada	Saint Georges	107.3	42.9	53.6	21.5
	Guadeloupe	Basse-Terre	131.0	52.4	65.5	26.2
	Haiti	Port au Prince	80.0	32.0	40.0	16.0
	Jamaica	Kingston	144.9	58.0	72.4	29.0
	Martinique	Fort-de-France	97.4	39.0	48.7	19.5
	Montserrat	Plymouth	162.4	65.0	81.2	32.5
	Saint Kitts and Nevis	Basseterre	149.6	59.8	74.8	29.9
	Saint Lucia	Castries	89.8	35.9	44.9	18.0
	Saint Vincent and The Grenadines	Port Eliazabeth	53.1	21.2	26.5	10.6
	St. Croix	Frederiksted	80.5	24.2	40.2	12.4
	St. John	Bethany	108.1	32.6	60.1	17.8
	St. Thomas	Charlotte Amalie	107.5	32.5	59.7	17.8
	Trinidad & Tobago	Scarborough	111.8	44.7	55.9	22.4
	Trinidad	Trinidad NS	0.0	0.0	0.0	0.0
	Vieques	Isabel Segunda	93.1	28.8	49.1	15.4
Pacific Ocean	Australia	Brisbane	30.6	12.2	15.3	6.1
		Canberra	46.4	18.6	23.2	9.3
		Melbourne	46.9	18.8	23.4	9.4
		Perth	45.1	18.0	22.5	9.0
		Sydney	43.9	17.6	21.9	8.8
	Caroline Islands	Yap	78.6	31.4	39.3	15.7
	Fiji	Suva	57.1	22.8	28.5	11.4
	Marshall Islands	Majuro	121.4	48.6	60.7	24.3
	New Zealand	Auckland	83.8	33.5	41.9	16.8

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Continent / Region	Country	Base / City	Seismic Loading (Site Class B)			
			S_S (%g)	S_1 (%g)	10/50 S_S (%g)	10/50 S_1 (%g)
Pacific Ocean	**New Zealand**	Wellington	**228.2**	**91.3**	**114.1**	**45.6**
	Papau New Guinea	Port Moresby	**78.1**	**31.3**	**39.1**	**15.6**
	Phillipine Is.	Baguio	**164.0**	**65.6**	**82.0**	**32.8**
		Cebu	**114.0**	**45.6**	**57.0**	**22.8**
		Manila	**193.2**	**77.3**	**96.6**	**38.6**
	Saipan	Capitol Hill	**99.8**	**39.9**	**49.9**	**20.0**
	Tinian		**99.4**	**39.8**	**49.7**	**19.9**