

SEISMIC SAFETY OF VA BUILDINGS

- 1. REASON FOR ISSUE:** This Department of Veterans Affairs (VA) Directive establishes policy regarding the seismic safety of VA buildings.
- 2. SUMMARY OF CONTENTS/MAJOR CHANGES:** Executive Order 13717 provides minimum seismic safety requirements for the design and construction of all Federal buildings. In addition, an audit from the VA Office of Inspector General recommended new policy to require seismic studies for certain facilities.
- 3. RESPONSIBLE OFFICE:** The Office of Acquisition, Logistics, and Construction's, Office of Construction and Facilities Management (CFM) is responsible for the contents of this Directive.
- 4. RELATED HANDBOOKS:** None
- 5. RESCISSIONS:** VA Directive 7512, Seismic Safety of VA Buildings, October 12, 2011.

CERTIFIED BY

**DIRECTION OF THE SECRETARY OF
VETERANS AFFAIRS**

/s/

/s/

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SEISMIC SAFETY OF DEPARTMENT OF VETERANS AFFAIRS (VA) BUILDINGS

1. PURPOSE: This VA Directive establishes policy regarding the seismic safety of VA buildings. VA is committed to providing life-safety protection to Veterans, employees, and other building occupants in all facilities. In addition, facilities identified as critical and essential must meet additional requirements to remain in operation after a seismic event.

2. POLICY: It is VA policy that all VA facilities identified as critical and essential remain operational after a seismic event, and ancillary VA facilities must be life-safety protected.

a. Executive Order (E.O.) 13717, Establishing a Federal Earthquake Risk Management Standard, signed by the President on February 2, 2016, requires Federal agencies to adhere to seismic design requirements of current national consensus building codes and standards. E.O. 13717 revokes E.O. 12699, Seismic Safety of New Federal Buildings, and E.O. 12941, Seismic Safety of Existing Federal Buildings.

b. For the design and construction of new VA owned and leased buildings, adoption of the 2015 edition of the International Building Code (IBC) is required, and all future editions shall be adopted within 2 years of issuance, subject to agency determination that each future edition is a nationally recognized building code and to the extent permitted by law for leased buildings. For existing buildings, adoption of the latest version of the *Standards of Seismic Safety for Existing Federally Owned and Leased Buildings* is required. The current version of this standard is the Recommended Practice 8 (RP8). All future editions of this RP standard shall be adopted no later than 2 years after issuance. These RP standards, developed by the Interagency Committee on Seismic Safety in Construction (ICSSC), are adopted as the minimum level acceptable for use by Federal departments and agencies in assessing the seismic safety of their owned and leased buildings and in mitigating unacceptable seismic risk in those buildings. E.O. 13717 also encourages agencies to exceed the minimum required codes and standards to ensure that buildings are fully earthquake resilient, and accordingly allows agencies to set higher seismic performance standards. In compliance with E.O. 13717, VA has designated Seismic Safety Coordinators to serve as focal points for the agency's compliance with this order and to participate in the ICSSC. E.O. 13717 further requires agencies to submit biennial reports to the Director of the Office of Management and Budget (OMB) and the Director of the National Institute of Standards and Technology (NIST) covering their progress in implementing it, commencing two years after it was issued. To aid agencies with reporting requirements, NIST published *Implementation Guidelines for Executive Order 13717: Establishing a Federal Earthquake Risk Management Standard*, ICSSC Recommended Practice (RP) 9. Federal agency compliance will be summarized by the National Earthquake Hazards Reduction Program (NEHRP) in reports to Congress.

c. In compliance with E.O. 12941, VA developed an inventory of its owned and leased buildings identifying their seismic risk in compliance with RP4, a predecessor to RP8. This data was reported to the Federal Emergency Management Agency, in January 1999, and the VA Seismic Inventory project continued through May 2006. Veterans Integrated Service Networks (VISNs) 1, 2, 6, 7, 8, 9, 15, 16, 19, 20, 21, and 22, with facilities located in moderate high and higher seismic zones, were identified as having exceptionally high risk (EHR) and high risk (HR) buildings. CFM transmitted this data to all affected VISNs and periodic updates are provided. While E.O. 13717 revokes E.O. 12941 by adopting RP8, RP8 is not intended to be applied retroactively, thus the RP4-based seismic inventory data is still used.

d. In response to the VA Office of Inspector General's November 12, 2015, report, *Audit of the Seismic Safety of VA's Facilities*, a new policy is established in this Directive to require seismic studies for all VA-owned critical and essential buildings in high and very high seismic zones that have not been studied and are not already on the EHR/HR lists, using the benchmark evaluation standard recommended by the Advisory Committee on Structural Safety of Department of Veterans Affairs Facilities (VA Structural Advisory Committee).

3. RESPONSIBILITIES:

a. The Executive Director, CFM, is responsible for:

(1) Providing direction, guidance, and policy requiring all new buildings be structurally designed and constructed in compliance with *VA Seismic Design Requirements* H-18-8 and its adopted edition of the IBC.

(2) Providing direction, guidance, and policy requiring that all seismic rehabilitation of existing buildings be structurally designed and constructed in compliance with H-18-8 and its adopted edition of the ICSSC RP Standards.

(3) Identifying and reporting on life-safety hazards of existing buildings and report on the capability of hospitals and other critical and essential facilities to remain in operation after an earthquake.

(4) Conducting seismic studies on all existing VA-owned critical and essential buildings in high and very high seismic zones that meet all of the following criteria:

(a) Not previously studied;

(b) Not already identified as an EHR or HR facility; and

(c) The building was designed or retrofitted prior to the adoption of H-18-8, December 1995, unless otherwise recommended by the VA Structural Advisory committee.

(5) Maintaining the Facility Condition Assessment program that assesses the seismic safety of nonstructural components and equipment in critical and essential facilities using Tier 1 screening procedures specified in the adopted ICSSC RP Standards for bracing of all applicable nonstructural components (e.g., ceilings, mechanical pipes, ducts, and equipment, etc.), with a 3-year update cycle.

(6) Assisting VA Administrations and VA leadership with the development and prioritization of specific seismic upgrade project applications.

(7) Coordinating with VA Administrations' emergency management teams to provide post-event support including VA staff support, consulting services, and contract services for construction.

(8) Submitting biennial reports to the Director of OMB and the Director of NIST reporting VA's progress implementing E.O. 13717, with the VA designated Seismic Safety Coordinators being the focal point coordinating with VA Administrations on progress.

b. Under Secretaries, Assistant Secretaries, Deputy Assistant Secretaries, and Other Key Officials are responsible for overseeing implementation of this Directive for facilities within their jurisdiction. Specific responsibilities include:

(1) Developing plans to address seismic deficiencies for their buildings and structures. Incorporating these plans into strategic plans;

(2) Developing mitigation plans for all non-exempt buildings and structures. Incorporating these plans into strategic plans;

(3) Complying with seismic life-safety standards;

(4) Ensuring all critical and essential buildings and structures (including EHR and HR facilities) are included in the strategic planning process;

(5) Formulating plans, in coordination with CFM, to evaluate seismic risk in buildings and structures that are identified as non-exempt at a minimum when evaluation triggers in H-18-8 or its adopted ICSSC RP Standards are met;

(6) Determining, through the Lessor, the seismic risk of leased buildings under their jurisdiction. If the leased buildings have a seismic risk, plans must be developed to mitigate these risks within the context of the lease agreement and/or at lease renewal. Inability of Lessor or VA to mitigate risks in a timely manner precludes execution of a lease agreement or lease renewal;

(7) Developing contingency plans, fully coordinated with VA Emergency Planning Process for facilities located in moderate high and higher seismic areas to conduct post-earthquake safety evaluation of their buildings and structures;

NOTE: These plans must be incorporated in all VA Medical Center strategic plans. The Applied Technology Council (ATC) is a source for training and learning procedures for conducting these evaluations.

(8) Increasing the awareness of staff, patients, contractors, and visitors about the seismic risk of their buildings and structures;

(9) Complying with H-18-8 for critical and essential facilities in moderate high and higher seismic areas to remain operational after an earthquake, and life-safety performance capability of ancillary facilities; and

(10) Ensuring projects, at VA-owned or leased facilities, involving seismic rehabilitation have:

(a) A licensed structural engineer with experience in seismic rehabilitation sign and seal construction documents;

(b) An independent plan review of construction documents to ensure compliance with H-18-8; and

(c) A qualified engineer with experience in seismic rehabilitation overseeing construction of these projects.

4. REFERENCES

- a. ATC 20: Procedures for Post-Earthquake Safety Evaluation of Buildings.
- b. E.O. 12699, Executive Order for Seismic Safety of New Federal Buildings.
- c. E.O. 12941, Executive Order for Seismic Safety of Existing Federal Buildings.
- d. E.O. 13717, Executive Order for Establishing a Federal Earthquake Risk Management Standard.
- e. IBC.
- f. Public Law 101-614, National Earthquake Hazard Reduction Program Reauthorization Act.
- g. RP4, ICSSC Recommended Practice 4, Standards of Seismic Safety of Existing Federally Owned or Leased Buildings, February, 1994.
- h. RP8, ICSSC Recommended Practice 8, Standards of Seismic Safety of Existing Federally Owned or Leased Buildings, December, 2011.
- i. RP9, ICSSC Recommended Practice 9, Implementation Guidelines for Executive Order 13717: Establishing a Federal Earthquake Risk Management Standard, January, 2017.
- j. VA Seismic Design Requirements H-18-8.

5. DEFINITIONS:

a. **Applied Technology Council (ATC):** ATC is a non-profit, tax-exempt corporation established in 1971 through the efforts of the Structural Engineers Association of California. ATC assists design practitioners in structural engineering in keeping abreast of, and effectively utilizing, technological developments. Funding for projects is obtained from Government agencies and the private sector in the form of tax-deductible contributions.

b. **Ancillary Facilities:** Non-essential facilities that shall comply with seismic life-safety standards, as defined in H-18-8.

c. **BSE-1N Earthquake:** The seismic hazard level defined in H-18-8 (currently in Section 2.6, October 1, 2016, edition).

d. **Critical and Essential Facilities:** Buildings which house functions that are required to remain operational after an earthquake or other natural disaster, as defined in H-18-8. These include patient bed buildings, nursing homes, community living centers, domiciliaries, outpatient clinics, psychiatric care facilities, research facilities, boiler plants, etc.

e. **EHR Buildings:** Typically a large main hospital building located in a high seismic zone and constructed before the adoption of H-08-8 in 1975. Specific definitions of EHR buildings are buildings that meet all of the following criteria below:

- (1) Located in high or very high seismic areas;
- (2) Designated as a critical or essential facility;
- (3) Designed prior to adoption of H-08-8 or is evaluated in the BSE-1N earthquake to be at high risk of major structural damage or collapse;
- (4) Area is greater than 10,000 square feet;
- (5) Building is not otherwise exempt; and
- (6) The building has not been retrofitted or is evaluated in the BSE-1N earthquake to be at high risk of major structural damage or collapse.

f. **Exempt Buildings:** Exempt buildings are defined by the adopted edition of the ICSSC RP *Standards of Seismic Safety of Existing Federally Owned or Leased Buildings*, published by the National Institute of Standards and Technology.

g. **HR Buildings:** HR buildings, the second tier category, have been added to identify buildings just below EHR level. They are defined as meeting one of the following:

(1) Buildings that meet the definition of EHR except they are located in an area of Moderate High seismicity;

(2) Buildings that meet the definition of EHR, except they are smaller than 10,000 square feet and greater than 1,000 square feet;

(3) Buildings that meet the definition of EHR, except they were retrofitted prior to the adoption of H-18-8, December 1995; or

(4) Buildings that meet the definition of EHR, except they are evaluated in the BSE-1N earthquake to be at high risk of structural damage, but not at high risk of major structural damage or collapse.

h. **IBC:** Building code adopted by the Federal Government and all states. Earlier National Model Codes (i.e., the National Building Code), the Standard Building Code, and the Uniform Building Code were merged into the single IBC in 2000).

i. **Non-exempt Buildings:** All buildings not specifically meeting the definition of exempt buildings are designated as non-exempt. This does not necessarily mean that they are seismically unsafe; it simply means that they need to be evaluated for seismic risk, if triggered by H-18-8 or its adopted ICSSC RP Standards.

j. **VA Seismic Design Requirements H-18-8, (formerly known H-08-8)** - The VA Seismic Design Standard is regularly reviewed and updated by the CFM. A major upgrade was implemented in 1995 to H-08-8, and retitled as H-18-8. National Model Building Codes have also been revised periodically since 1975, and now have merged into a single IBC. H-18-8 meets or exceeds IBC.