

**FISH AND WILDLIFE SERVICE  
ENGINEERING AND CONSTRUCTION**

**Engineering and Construction**

**Part 363 Seismic Safety**

**Chapter 1 Seismic Safety Policy, Objectives, and Responsibilities**

**363 FW 1**

**1.1 What is the purpose of this chapter?** This chapter provides U.S. Fish and Wildlife Service (Service) policy, guidelines, and procedures for implementing the Service's seismic safety program.

**1.2 What is the scope of this chapter?** This chapter applies to:

A. All [building](#) projects for which development of detailed plans and specifications is initiated by or for the Service;

B. All existing, Service-owned buildings, whether they are:

(1) Occupied by Service personnel, or

(2) Operated by others under a lease or operating agreement;

C. Non-federally-owned buildings leased or operated by the Service; and

D. [Nonstructural building components](#).

**1.3 What are the authorities for this chapter?**

A. Executive Order 12941, Seismic Safety of Existing Federally-Owned or Leased Buildings (1994).

B. Executive Order 12699, Seismic Safety of Federal and Federally-Assisted or Regulated New Building Construction (1990).

C. National Earthquake Hazards Reduction Program (NEHRP) Reauthorization Act (1990) (P.L. 101-614).

D. Earthquake Hazards Reduction Act of 1977 (42 U.S.C. 7701).

**1.4 What is the Service seismic safety policy for new building design and construction?**

A. All new buildings we have under design for Service use must conform to the most recent edition of the Federal Emergency Management Agency (FEMA) [NEHRP Recommended Seismic Provisions for New Buildings and Other Structures](#) (*Provisions*), or its subsequent replacement.

B. In lieu of the NEHRP [Provisions](#), we may use local private sector standards and practices if the Interagency Committee on Seismic Safety in Construction (ICSSC) has determined that they are substantially equivalent to the most recent edition of the NEHRP *Provisions*. Most national model building codes published after 1990 are substantially equivalent to the NEHRP provisions in effect at the time. Exhibit 1 lists some of the more widely used substantially equivalent model building codes.

**1.5 What is the Service seismic safety policy for existing building structures and nonstructural building components?**

A. All existing buildings that we acquire or lease must be in compliance with the requirements of the current edition of the [Standards of Seismic Safety for Existing Federally-Owned and Leased Buildings](#) (*Standards*), which the ICSSC issues and maintains.

B. [Life safety](#) performance in a locally large earthquake is the minimum acceptable [seismic performance level](#) for all Service-owned and leased buildings.

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**C.** Buildings that were designed and constructed using one of the model building codes listed in Exhibit 1 generally provide life safety performance when they are assessed as described in this document.

**1.6 What terms do you need to know to understand this chapter?**

**A. Building:** Any structure, fully or partially enclosed, used or intended for sheltering people or property.

**B. Immediate Occupancy:** [Performance level](#) at which building damage is controlled, limited, and repairable while the building remains occupied.

**C. Life Safety:** [Performance level](#) at which a building may be in an irreparable state, but it retains enough structural integrity to allow people to safely leave.

**D. Nonstructural building components:** Any item contained within or attached to a building that can present a serious threat to occupant safety if there's an earthquake by causing physical harm or by hindering egress.

**E. Performance Level:** A measure of the amount of damage a building sustains when affected by earthquake ground motion and the impacts of this damage on the post-earthquake disposition of the building.

**F. Rapid Visual Screening (RVS):** A quick and inexpensive method for predicting a building's probability of collapse in a locally large earthquake.

**G. Real Property Inventory (RPI):** One of a set of tools our asset management professionals use to record what we own, where it is located, what it is worth, the annual cost to operate and maintain it, and what is needed to correct its deficiencies when the repair cost is over \$5,000.

**H. ShakeCast:** A system the U.S. Geological Survey (USGS) provides that generates near real-time estimates of post-earthquake damage of facilities. Users must register to use the system.

**I. Standards:** Refers to the *Standards of Seismic Safety for Existing Federally-Owned and Leased Buildings, ICSSC Recommended Practice 8 (RP 8)*, prepared for the National Institute of Standards and Technology by the National Institute of Building Sciences Building Seismic Safety Council, Washington, D.C., December 2011.

**1.7 Who is responsible for seismic safety?** Table 1-1 shows the personnel who are responsible for the program.

Table 1-1: Responsibilities for the seismic safety program	
These employees...	Are responsible for...
<b>A. The Director</b>	Approving policy for all of our engineering and construction management activities.
<b>B. The Assistant Director – Business Management and Operations</b>	Ensuring we have policy in place for all of our engineering and construction management activities.

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<b>Table 1-1: Responsibilities for the seismic safety program</b>	
<b>These employees...</b>	<b>Are responsible for...</b>
<b>C. The Chief – Division of Engineering (DEN)</b>	<ul style="list-style-type: none"> <li>(1) Appointing a National Seismic Safety Program Manager, and</li> <li>(2) Providing seismic evaluations of buildings that require them.</li> </ul>
<b>D. The National Seismic Safety Program Manager</b>	<ul style="list-style-type: none"> <li>(1) Interpreting and implementing the <a href="#">Standards</a>,</li> <li>(2) Developing seismic safety policy in collaboration with Regional and Headquarters personnel,</li> <li>(3) Maintaining the national seismic safety building inventory,</li> <li>(4) Tracking the progress of all seismic assessment and mitigation activity,</li> <li>(5) Hiring consultants to perform seismic evaluations,</li> <li>(6) Providing annual seismic safety status updates, and</li> <li>(7) Maintaining and administering the Service <a href="#">ShakeCast</a> installation.</li> </ul>
<b>E. Regional Directors</b>	<ul style="list-style-type: none"> <li>(1) Mitigating seismic deficiencies in his or her Region, and</li> <li>(2) Designating Regional buildings for <a href="#">immediate occupancy</a> performance.</li> </ul>
<b>F. Regional Engineers</b>	<ul style="list-style-type: none"> <li>(1) Reviewing seismic retrofit design of buildings within the Region for compliance with the requirements of the applicable statement of work, and</li> <li>(2) Appointing a Regional Seismic Safety Coordinator.</li> </ul>
<b>G. Regional Seismic Safety Coordinators</b>	<ul style="list-style-type: none"> <li>(1) Performing <a href="#">RVS</a> inspections within the Region,</li> <li>(2) Reporting Regional <a href="#">RVS</a> and seismic mitigation activities to our National Seismic Safety Program Manager,</li> <li>(3) Providing building-specific information to our National Seismic Safety Program Manager upon request, and</li> <li>(4) Providing copies of completed <a href="#">Certification of Seismic Compliance</a> forms (FWS Form 3-2463 [building retrofit] or FWS Form 3-2464 [new building]) to the National Seismic Safety Program Manager.</li> </ul>
<b>H. Contracting Officers' Representatives (COR) for new building design and existing building retrofit projects</b>	<ul style="list-style-type: none"> <li>(1) Verifying that the Architect-Engineer contractor has completed the appropriate <a href="#">Certification of Seismic Compliance</a> form (FWS Form 3-2463 [building retrofit] or FWS Form 3-2464 [new building]), and</li> <li>(2) Providing copies of completed certifications to the Regional Seismic Safety Coordinator.</li> </ul>
<b>I. All Service personnel</b>	Reporting "trigger" situations described in section 1.11 to their Regional Seismic Safety Coordinator or the National Seismic Safety Program Manager.

**1.8 By what process does the Service enhance the safety of its existing owned and leased buildings?** We enhance the safety of our buildings by systematically:

**A. Inventorying Service-owned and leased buildings.** The National Seismic Safety Program Manager maintains a database of [Real Property Inventory](#) (RPI) building records that he/she uses to track seismic safety program activity for every building.

**B. Assessing buildings for compliance with the [Standards](#).** Each inventoried building progresses through a series of steps until the National Seismic Safety Program Manager determines that it and its nonstructural components comply with the [Standards](#). The steps in our assessment process are shown in Figure 1-1 and described in the following paragraphs.

**(1) DEN review:** During DEN review, we identify buildings that aren't expected to pose a significant safety risk by comparing each building in our inventory to criteria listed in the [Standards](#). Buildings that conform to one or more of the criteria are exempt from other requirements of the [Standards](#).

**(2) Program review:** For some buildings—those where it is necessary to control damage or to maintain function in the aftermath of a large earthquake—[life safety](#) building performance may not be adequate to meet our mission requirements. In these cases it may be necessary to aim for a higher, [immediate occupancy performance level](#). Because this can be expensive, we only pursue this objective after careful consideration and coordination with the affected Program.

**(3) Regional Engineer (REN) review:** Typically during DEN review, information included in the [RPI](#) building records is adequate to determine if a building meets the exemption criteria in the [Standards](#). Sometimes, however, Regional input is required to supplement the [RPI](#) data. REN review involves reviewing Regional building files or asking station personnel specific building-related questions, typically regarding a building's size, occupancy, or structure type.

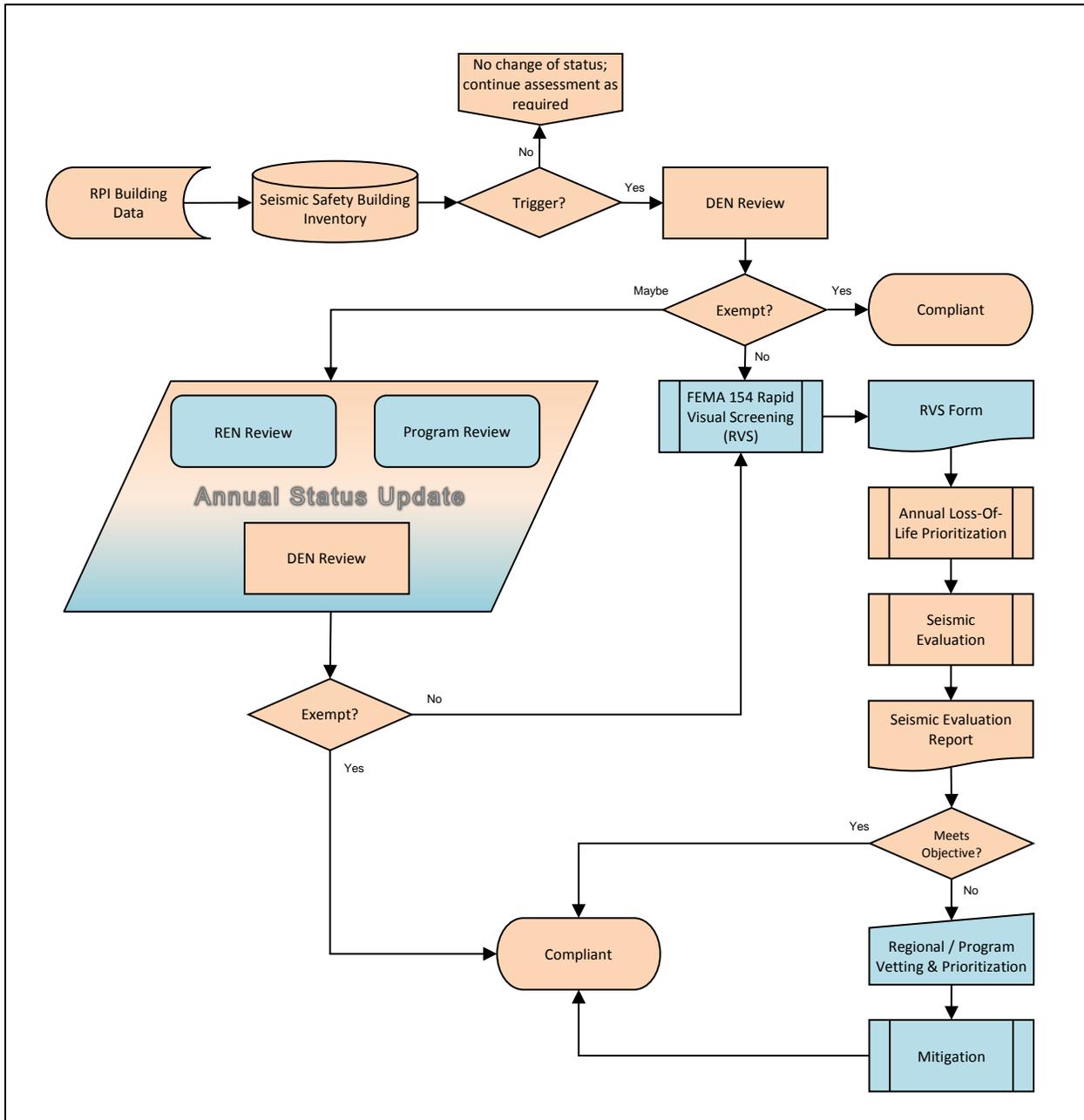
**(4) Screening:** Once we determine that a building is not exempt from the [Standards](#), we screen it so that we can prioritize it for seismic evaluation. We use [RVS](#) as the process to screen our buildings.

**(5) Prioritization:** DEN ranks all buildings that require seismic evaluation using a probabilistic, risk-based technique that takes into account local seismicity, building occupancy, and expected building performance during a locally large earthquake. We rank buildings that pose an exceptionally high risk to occupants as a higher priority for evaluation than those that pose less risk.

**(6) Evaluation:** Evaluation consists of a rigorous engineering analysis in compliance with the [Standards](#) to determine if a building and its nonstructural components meet our desired performance objective.

**C. Mitigating identified seismic deficiencies.** When we determine that a building or a nonstructural component is seismically deficient, we must eliminate the deficiencies or remove the life-threatening hazard. We accomplish this in one of the following ways:

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**Figure 1-1 Seismic Safety Enhancement Process (Note: Regional activities are shaded blue; Headquarters tan.)**

- (1)** Retrofitting the deficient building components;
- (2)** Removing the building from our inventory by:
  - (a)** Termination of the lease,

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- (b) Sale with full disclosure, or
- (c) Demolition of the building;
- (3) Permanently evacuating the building; or
- (4) Changing the occupancy of the building so that it falls into an exempt category.

**1.9 How can Regional personnel use seismic evaluation findings to enhance the safety of their buildings?**

**A.** If an evaluation indicates that a building does not provide the desired level of seismic performance (i.e., the building is determined to be seismically deficient), DEN will ask the engineer to develop a schematic seismic retrofit design and a rough order-of-magnitude construction estimate based on the schematic design.

**B.** DEN will provide a copy of the evaluation report, the engineer's schematic retrofit design, and the cost estimate to the affected Regional Engineer.

**C.** Regional Engineers should work with other appropriate Regional staff to identify and prioritize seismic safety projects that should be considered for inclusion in the 5-Year Construction Plan and 5-Year Deferred Maintenance Plan.

**1.10 Are recently constructed buildings subject to seismic safety program action?** Yes. We assess all newly acquired buildings as described in section 1.8 to verify that they were designed and constructed with adequate seismic resistance, regardless of when they were constructed.

**1.11 Once the Service has determined that a building is compliant, is it free from further program action?** No. We regularly review our building inventory, looking for any change that will extend a building's useful life, increase its value, or increase our exposure to seismic risk. If any Service employee becomes aware of one of the following "trigger" situations, he/she should report it to the National Seismic Safety Program Manager so that its impact on the current assessment status of the building can be reviewed:

**A.** We have changed a building's function and the change resulted in an increase in the building's level of use, importance, or occupancy.

**B.** We have planned an alteration or deferred maintenance project that will:

- (1) Extend a building's useful life, and
- (2) Cost more than 30 percent of the replacement value of the building.

**C.** Fire, wind, earthquake, or some other event has damaged an existing building.

**D.** We have acquired a building, regardless of how.

**1.12 How does the Service share information about the seismic safety status of its buildings?** We distribute an annual seismic safety status update, sometimes referred to as the "progress report," which lists the actions required to address our current earthquake-related risk. The progress report typically includes Servicewide and Regional breakdowns of buildings that require review, screening, evaluation, or mitigation.

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**1.13 How does the Service distribute the annual seismic safety status update?**

**A.** DEN distributes the report to Headquarters and Regional stakeholders using the Service's [Data Tracking System](#) (DTS).

**B.** Anyone with an [Active Directory](#) account can get access to DTS to view or download current and previous reports by logging in to [DTS](#) and searching the system with the term "seismic" in the subject line. If you have not used DTS before, you should contact the Correspondence Control Unit (CCU) staff so that they can create a DTS account for you.

**1.14 Where can employees find a listing of the publications that govern seismic evaluation or design projects undertaken by or for the Service?** The current edition of the [Standards](#) lists the publications that govern seismic safety-related projects conducted for the Service.

**1.15 Are the engineers who provide evaluation or design services for seismic projects required to have special qualifications?** Yes. The [Standards](#) provide qualifications guidelines for these engineers.

**1.16 Are there any other requirements engineers who provide structural engineering design for a Service building have to meet?** Yes. FWS Forms 3-2463 and 3-2464 are certification forms for seismic retrofit and new building design projects, respectively. If you are responsible for the structural engineering design of a Service building, you must:

**A.** Complete the appropriate certification, and

**B.** Provide the original, completed certification to the designated Contracting Officer's Representative (COR) for the project.

**1.17 When should CORs for Service building design projects expect to receive certification of seismic compliance from the engineer?** You should receive a completed certification:

**A.** After the building contractor has finished construction of the structural elements of the work, but

**B.** Before you approve the engineer's final invoice for the project.

**1.18 What should employees do with completed seismic compliance certifications?**

**A.** If you are the COR for a Service building design project, you should give copies of the certifications to your Regional Seismic Safety Coordinator.

**B.** If you are a Regional Seismic Safety Coordinator, you should give copies of the certifications to the National Seismic Safety Program Manager.

**1.19 How does the Service fund seismic retrofit projects?** We fund seismic retrofit projects through our Construction Appropriation and Deferred Maintenance accounts.

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DEPUTY DIRECTOR

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