

## 2.1.2 Emergency Power Generating Buildings

### 1.0 Description

The Emergency Power Generating Buildings (EPGBs) are safety-related, Seismic Category I, reinforced-concrete structures supported by a reinforced-concrete basemat. There are two essentially identical EPGBs (EPGB 1/2 and EPGB 3/4) located adjacent to the Nuclear Island (NI). To address aircraft and explosion pressure wave hazards, these structures are physically separated by the NI complex as illustrated in Figure 2.1.2-1—U.S. EPR Building Layout Showing EPGBs Location. Dimensions on this and other figures in this section are for information only.

Each structure houses two diesel generators, two fuel oil tanks, two control rooms, heating ventilation and air conditioning (HVAC) equipment, electrical equipment, and miscellaneous equipment associated with the operation of each generator. The two diesel generators are separated by a reinforced-concrete wall to protect against internal hazards. The two fuel oil tanks are separated from the diesel generators by a reinforced-concrete wall to protect against internal hazards.

The EPGBs are Seismic Category I structures, which are capable of performing their safety-related function during and following a safe shutdown earthquake (SSE). These structures are designed for external hazards including rain and snow loads, flooding, wind loads, tornado loads, missile impact loads, SSE loads, and site-proximity hazards. The buildings are also designed for structure and component dead loads, live loads, pipe reactions, and thermal effects. There are no internally-generated missile impact loads applicable to the design of these buildings.

Each EPGB provides the following safety-related functions:

- Supports the emergency diesel generators and associated mechanical, electrical, and instrumentation and control equipment required to function during and after a design basis event.
- Provides protection for safety-related equipment against external hazards.
- Provides separation between the main diesel generators and fuel oil tanks.

Each EPGB structure is approximately 95 feet by 178 feet by 68 feet high.

### 2.0 Arrangement

2.1 The as-installed location of the two EPGBs is as described in 1.0 Description of this section and as shown in Figure 2.1.2-1.

### 3.0 Key Design Features

3.1 The physical separation of the two EPGBs by the NI complex provides protection against external hazards such as aircraft hazard and is shown in Figure 2.1.2-1.

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**4.0 Mechanical Design Features, Seismic 1E Classifications**

4.1 The EPGBs site grade level is at elevation 0 feet 0 inches, as indicated on Figure 2.1.2-2—Emergency Power Generating Building - View 1 and Figure 2.1.2-3—Emergency Power Generating Building - View 2.

4.2 The EPGBs are separated to address internal hazards, including fire and flood as described in Table 2.1.2-1—EPGB Separation for Internal Hazards.

4.3 The EPGBs as-installed basic configuration structural supports are Seismic Category I and are designed and constructed to withstand design basis loads without loss of structural integrity and safety-related functions. The design bases loads are those loads associated with the following:

- Normal plant operation (including dead loads, live loads, lateral earth pressure loads, hydrostatic loads, hydrodynamic loads, and temperature loads).
- External events (including rain, snow, flood, tornado, tornado-generated missiles, and earthquake).

**5.0 Interface Requirements**

There are no interface requirements for the EPGBs.

**6.0 Inspections, Tests, Analyses, and Acceptance Criteria**

Table 2.1.2-2—Emergency Power Generating Building Inspections, Tests, Analyses, and Acceptance Criteria specifies the inspections, tests, analyses, and associated acceptance criteria for the EPGBs.



**Table 2.1.2-1—EPGB Separation for Internal Hazards**

<b>From Room(s) [KKS]</b>	<b>To Room(s) [KKS]</b>	<b>Door</b>	<b>Wall</b>	<b>Slab</b>	<b>Elevation(s)</b>
2UBP01 001 2UBP02 001	1UBP01 001 1UBP01 003		X		0' 0" to 51' 6"
2UBP01 003	2UBP01 001 2UBP02 001		X		0' 0" to 51' 6"
1UBP01 003	1UBP01 001 1UBP01 003		X		0' 0" to 51' 6"
4UBP01 001 4UBP02 001	3UBP01 001 3UBP01 003		X		0' 0" to 51' 6"
4UBP01 003	4UBP01001 4UBP02 001		X		0' 0" to 51' 6"
3UBP01 003	3UBP01 001 3UBP01 003		X		0' 0" to 51' 6"

**Table 2.1.2-2—Emergency Power Generating Building Inspections, Tests, Analyses, and Acceptance Criteria**

	<b>Commitment Wording</b>	<b>Inspection, Analysis or Test</b>	<b>Acceptance Criteria</b>
2.1	The as-installed location of the EPGBs is as described in Section 2.1.2 and as shown on Figure 2.1.2-1.	An inspection of the EPGBs will be performed.	The as-installed location of the EPGBs is as shown on Figure 2.1.2-1.
3.1	Physical separation of the as-installed EPGBs is as described in Section 2.1.2 and as shown on Figure 2.1.2-1.	An inspection of the EPGBs will be performed.	The as-installed EPGBs are separated by the NI complex as shown on Figure 2.1.2-1.
4.1	The EPGBs as-installed site grade level, as described in Section 2.1.2, is at elevation 0'-0" as indicated on Figures 2.1.2-2 and 2.1.2-3.	An inspection of EPGBs site grade level will be performed.	The as-installed EPGBs site grade level is at elevation 0' 0" as indicated on Figures 2.1.2-2 and 2.1.2-3.
4.2	As described in Section 2.1.2, and Table 2.1.2-1, the as-installed configuration of the EPGBs provides for internal hazards barriers.	An inspection of the EPGBs will be performed.	The as-installed configuration of the EPGBs provides internal hazards barriers as described in Table 2.1.2-1.
4.3	The EPGB structures are Seismic Category I and are designed and constructed to withstand design basis loads as specified in Section 2.1.2, without loss of structural integrity.	A verification inspection of the EPGB structures seismic design analysis versus construction records will be performed.	EPGB structures conform to the approved design and will withstand the design basis loads specified in Section 2.1.2 without loss of structural integrity.