INFORMATION BULLETIN / PUBLIC - BUILDING CODE
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CONVERTING PORTIONS OF AN EXISTING BUILDING TO HEAVY EQUIPMENT ROOMS

This information bulletin provides a general guideline with respect to the requirements in structural design, mechanical ventilation, the exiting system, and occupancy classification as a result of converting the use of an existing building or portions thereof to heavy equipment rooms including, but not limited to, telecommunication equipment, and battery rooms.

This is only a guideline for addressing a myriad of building shapes, sizes, framing systems, and different prior code requirements to which original buildings were designed. When warranted, the department may impose more stringent requirements than those stipulated in this bulletin.

A. STRUCTURAL DESIGN

In accordance with the Los Angeles Building Code (LABC) Section 1604.2, every building and portions thereof shall be designed and constructed to sustain all of the loads set forth in this code. Therefore, all structural members affected by an additional load not accounted for in an original design shall be checked and brought up to the current code standards.

B. LOADING

Structural members (roof/floor slab, beams, girders, columns) for equipment rooms shall be analyzed for a live load of 125 psf, or the actual equipment loads plus a 40 psf live load at open areas that are not occupied with equipment, whichever is more stringent and will impose a higher load on the supporting members. Impacted structural members shall be brought into compliance with the current code requirements. In performing lateral seismic analysis, 25% of the uniform 125 psf live load or the actual equipment loads shall be included in the dead load of the building, whichever yields a larger overall dead load for the building.

C. CHECKING MEMBERS FOR VERTICAL LOAD

Individual members subject to additional loads directly or indirectly along the load path shall be checked against and be brought into compliance with current code requirements. These shall include, but not be limited to, roof/floor slab, beams, columns, and foundations.

D. LATERAL SEISMIC ANALYSIS

1. In accordance with the Los Angeles Existing Building Code (LAEBC), section 503.3, a lateral seismic analysis satisfying the LABC requirements is required for alterations to existing buildings altered. “Alteration” shall, in general, be interpreted to mean that there is not an increase of more than 5 % in total dead load of the building. Should this threshold be exceeded, a complete lateral seismic analysis may be required and the building brought into compliance with the current code requirements.

2. A lateral seismic analysis is not required for buildings constructed, provided that the total dead load of the building is not increased by more than 5% from the original design building dead load. Should this threshold be exceeded, a complete lateral seismic analysis may be required and the building will need to be brought into compliance with the current code requirements per section 503.4 of LAEBC. Otherwise, some other alternate standards proposed by the engineer of record and accepted by the department needs to be complied with. These alternate standards shall take into account the general structural requirements in effect at the time the building was constructed, the structural system used in the building, the condition of the structural system, the proposed occupancy group or division, the occupant load, and other pertinent conditions.

3. For unreinforced masonry brick buildings within the scope of Appendix A1 and Chapter 88, a lateral seismic analysis is required to demonstrate that the building with the additional equipment loads is in full compliance with the requirements of Appendix A1 and Chapter 88. The additional loads from the heavy equipment rooms shall not be imposed in the unreinforced masonry.

   When equipment loads are eccentrically located in relation to the building horizontal geometry, lateral analysis shall be performed even though the total added equipment load may be less than 5% of the original building design dead load. For buildings with rigid diaphragms, the 5% floor mass eccentricity specified in Section 12.8.4.2 of ASCE-7 shall be used in the lateral analysis. Any individual lateral force resisting element subject to an additional lateral force exceeding 5 % of its original design load shall be brought into compliance with the respective code standard stipulated in 1 and 2 above.

E. DOCUMENTATION OF EQUIPMENT LOAD

The engineer of record shall state on the plan that s/he has surveyed the building and has identified all equipment loads on the plans and taken into consideration all such loads in his structural analysis and design.

Design loads shall be posted in a conspicuous location on each floor where the equipment is located.

F. VENTILATION FOR ROOMS CONTAINING LEAD-ACID BATTERIES

Rooms containing lead-acid batteries shall be ventilated in accordance with requirements stipulated by the Los Angeles Fire Department. Continuous ventilation for these rooms shall be provided at a rate of 1 CFM for each square foot of the room's floor area.

G. EXITING SYSTEM AND OCCUPANCY REQUIREMENT

Unless determined otherwise by the department, an equipment room or use shall be classified as a B occupancy due to the presence of hazardous materials. Therefore, in accordance with Section 8204, this new use of an equipment room shall comply with all Group B occupancy provisions in Chapter 3 and all exiting requirements in Chapter 10 of the Los Angeles Building Code.