

AMTRAK ENGINEERING PRACTICES Structures Department Standard Design Practices (SDP)	Section 3 – Minimum Building Technical Requirements	EP4000
	Chapter 1 - General Design Requirements	SDP: 3.01
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General Design Requirements

I. General Requirements

A. Summary

1. The purpose of this and the following Chapters is to establish standard design criteria that should be used as a reference for Amtrak's Design Contractors in the preparation of design and construction documents for Amtrak buildings, facilities, and associated infrastructure. The information provided is intended to represent minimum requirements. The Design Contractor shall also use current industry standards and practices for any portion of the design that may not be addressed by the applicable codes and these guidelines.

II. Baseline Structural Design Criteria and Documentation

A. Dead Loads

1. Dead load shall include the weight of the structural system being used, weight of exterior wall façade, interior walls, flooring and ceiling and mechanical and electrical equipment.

B. Live Loads

1. Floor Live Load:

- a. Minimum uniformly distributed live loads and minimum concentrated live loads in accordance with local building code.
- b. Provide a uniform partition live load of 10 psf, in addition to minimum code required floor live load unless directed otherwise to accommodate future reconfiguration of floor layouts.

2. Railroad Equipment Minimum Loading – Per AREMA, with a minimum of Cooper E-80; speed of 10 mph

3. Train Platform:

- a. Train platform – 150 psf
- b. Verify Train platform live load requirements at locations where there are freight activities and/or at platforms that are required to support heavy equipment (e.g. baggage carts, fork trucks, etc.).

4. Prohibition of Live Load Reductions

- a. No live load reduction will be allowed for any portion of the structural design without approval by the Amtrak Design Manager.

5. Roof Live Load:

- a. Per local code requirements for but not limited to snow, ice, drifting, and ponding with a minimum of 30 psf.
- b. A Roof Surcharge of 7 psf for future PV system development or other utilities shall be considered for all new construction. This surcharge may be reduced or eliminated upon consultation with and approval from the Amtrak Project Manager and Design Manager.

6. Vehicle Loading:

- a. All road vehicular loading shall be in accordance with AASHTO LRFD Bridge Design Specifications (latest edition). Unless otherwise indicated, live load shall consider the HL-93 design loading. Given Amtrak's anticipated need and use for oversized loads and emergency vehicles, no exclusions or load reductions shall be assumed and multiple vehicle presences shall be considered. For on-grade applications, refer to AASHTO

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Guide for Design of Pavement Structures and coordinate with the DM on appropriate Equivalent Single Axle Loads.

C. Documentation Requirements

1. The Design Consultant shall include the following on the drawings:
 - a. The following information in tabular form: Dead, Live, Roof, Wind, Earthquake loads; identify the code or standard from which the loads were derived. Include wind loads for cladding and roofing design for all portions of the building in tabular form, including negative pressures. All additional superimposed loading shall be recorded.
 - b. Information including applicable codes, design criteria, and required inspections / testing for each discipline shall be shown or referenced. This information should reflect and summarize the output of the code analysis, design criteria determination, and Project Definition Report efforts detailed in Section 1.00. This information can take several forms:
 - i. A summary Code Information sheet
 - ii. Information distributed among the General Notes for each discipline as applicable
 - iii. Detailed references within the General Notes to the Specifications
 - c. Maximum design loads at all connection points and at the top of foundations / piers.
 - d. Shop Drawings and Submittals
 - i. Shop Drawings shall be signed and sealed.
 - ii. Amtrak retains the right of refusal of submitted equipment based on prior performance in a railroad environment.

D. Station or Office Projects

1. The Amtrak Stations and Corporate Facilities Design Manual is to be referenced and followed by the DOR.