

Bridge Codes, Standards and Criteria

(to be reviewed for individual situation)



Bridge construction must comply with sections of Boulder County code, standards, and criteria that are located in many different documents. This handout is designed to assist applicants locate the applicable standards to comply with.

Requirements include but are not limited to:

Compliance with Boulder County Land Use Code Section 4-400

If the bridge is located within the floodplain overlay district, and not being permitted under a Flood Recovery Access Permit (FRAP), it must comply with all of section 4-400 of the Land Use Code.

<http://www.bouldercounty.org/doc/landuse/lucodearticle04.pdf>

Although all of 4-400 must be complied with, particular attention should be given when building a bridge to the requirements listed in the following sections:

- Per 4-403A.6. no development on or over any part of the floodway:
 - *' may be permitted which adversely effects the efficiency of the floodway or changes the direction of flow or causes any increase in the base flood elevation'*
- Per 4-407B.7., a floodway analysis is a necessary part of an application for a floodplain development permit for development located in the floodway. Specific requirements for the floodway analysis are listed in 4-407B.7.
- Section 4-407C. lists the standards for floodplain permit review. Each standard should be addressed in the permit application.
- Per Section 4-407D. floodplain development permits issued for development within the floodway are not effective until 14 days after the date of issuance. In that time, public notice as specified in this code section will occur.

Compliance with Boulder County Storm Drainage Criteria Manual

All bridges must comply with the Boulder County Storm Drainage Criteria Manual, in particular Section 1000 found at:

<http://www.bouldercounty.org/doc/transportation/culvertsandbridges.pdf>

Attention should be given to section 1003.2 'Bridge Sizing Criteria' which gives requirements for allowable low chord elevation above the 100-year water surface (or Energy Grade Line) and requires consideration of whether the flow is being accelerated to velocities sufficient to scour.

Compliance with Building Codes

On your application, please list the currently adopted building codes, 2012 IBC with the Boulder County amendments, on the submitted construction documents. These codes can be found at:

<http://www.bouldercounty.org/doc/landuse/2012buildingcode.pdf>

Although all of the building codes must be complied with, particular attention should be given when building a bridge to the requirements listed in the following sections:

- 1604.5 Risk category

- 1605 LOAD COMBINATIONS
 - 1605.1 General. Buildings and other structures and portions thereof shall be designed to resist:
 - 1605.1.1 Stability
 - 1605.2.1 Other loads and ASCE 7 Section 2.3.3 or 2.4.2
- 1607.7.2 Fire truck and emergency vehicles. Certify compliance.
- 1607.7.5 Posting. The maximum weight of the vehicles allowed into or on a garage or other structure shall be posted by the owner in accordance with Section 106.1.

Also, submitted plans must include the following details;

- Connection details of beams to the abutments,
- Decking fastener spacing, and
- Guard post connection.

Fire District Approval is required to be submitted prior to the issuance of the building permit.

Compliance with Transportation Standards

Bridge Transportation Requirements are found in the Boulder County Multimodal Standards

<http://www.bouldercounty.org/doc/transportation/multimodaltransstds.pdf>

The primary location for bridge requirements is found in Section “5.10.1 Vehicular Bridges” and “5.10.2 Pedestrian Bridges”. Table 5.10.1.1 and Table 5.10.2.1 list the loading and dimensional requirement for bridges given their Roadway Classification. Most requirements are based on the American Association of State Highway Transportation Officials (AASHTO) guidelines. The respective Fire Protection District shall be referred to for bridge loading and dimensional requirements of their fire apparatuses.

Any design exceptions from the standards would need to be approved by the County Engineer following the procedure outlined in Section 2.8.5 in the Transportation Standards.