

| Seisinie Design Category/Seisinie Zone by Code | | | |
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| Value of design spectral | ¹ AASHTO Guide Specifications for | ² AASHTO LRFD Bridge Design | |
| acceleration coefficient | LRFD Seismic Bridge Design (SGS) | Specifications (LRFD) | |
| at 1.0 second period, | SGS 3.5 | LRFD 3.10.6 | |
| $S_{D1} = F_v \cdot S1 SGS \ 3.4.1-3$ | Seismic Design Category (SDC) | Seismic Zones | |
| S _{D1} < 0.15 | A | 1 | |
| $0.15 \le S_{D1} < 0.30$ | В | 2 | |
| $0.30 \le S_{D1} < 0.50$ | С | 3 | |
| 0.50 ≤ S _{D1} | D | 4 | |

¹SGS is required for seismic design. LRFD is shown because SGS refers to LRFD for support, and understanding the equivalency of category and zone may be important.

²LRFD inequalities are different. Use SGS as shown.

- 3 If member size needs to be increased to meet SDC B, C or D then re-check SDC A/Static design requirements
- In accordance with SGS 4.5, performing a seismic analysis may be discretionary. For single span bridges, there has been favorable response to seismic (4) loads in past earthquakes. Differences in response could be expected based on length, weight and stiffness of span and would be expected between an integral and nonintegral bridge. For example, a long integral single span bridge should require a seismic analysis while a short stiff span may not (but shall meet applicable seismic detailing requirements). A nonintegral bridge of any span length shall require a seismic analysis so that connections and foundations are properly designed between the bridge span and the abutments to resist a horizontal seismic force where the developed seismic lateral force is carried into the foundation.
 - Also consider bridges, vehicular and pedestrian, over these types of routes if there is not a readily available alternate detour. For MoDOT Earthquake Emergency Routes, See EPG 948 Incident Response Plan and Emergency Response Management, Section G, Appendix A.
 - ** See State Bridge Engineer for Major Bridges.
 - *** AASHTO Guide Specifications for LRFD Seismic Bridge Design (SGS) uses Seismic Design Categories ("SDC") and AASHTO LRFD Bridge Design Specifications (LRFD) uses "Seismic Zone". They are categorically equivalent for purpose of detailing when SGS refers to LRFD.
 - **** Geotechnical Section (GS) is responsible for the determination of SDC, Sp1 and the liquefaction potential including liquefaction induced lateral spreading or slope failure.

| — — — — — — — — — — (1) SDC A /Static desigr | 1 |
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| de seismic details only in accordance with SGS for SDC A: nimum support length in accordance with SGS 4.12.1 & 4.12.2. thor bolts in accordance with SGS 4.5 & 4.6 2 | |
| | |
| de seismic details only in accordance with SGS for SDC A: nimum support length in accordance with SGS 4.12.1 & 4.12.2. chor bolts in accordance with SGS 4.5 & 4.6. (2) nimum spiral/hoop transverse reinforcement in column/drilled shaft/rock socket accordance with SGS 8.0. Spiral preferred over hoop. Minimum clear spacing ween transverse reinforcement shall not be less than $1 \frac{1}{2}$ " for column and 5" for led shaft/rock socket. Longitudinal and lateral reinforcement including relopment and splice lengths shall be in accordance with SGS 8.8. ermanent casings may be considered effective in resisting shear forces and roviding confinement. Spiral/hoop transverse reinforcement shall be spaced @ naximum 12" pitch/spacing in the permanent casing. nsider top reinforcement steel in footings and pile cap footings. nsider minimum anchorage connections, i.e. Pile anchorage clips (EPG 751.36.2). | |
| | |
| de seismic details only in accordance with SGS for SDC B, C or D: nimum support length in accordance with SGS 4.12.1 & 4.12.2. chor bolts in accordance with SGS 4.5 & 4.6. ② nimum spiral/hoop transverse reinforcement in column/drilled shaft/rock socket accordance with SGS 8.0. Spiral preferred over hoop. Minimum clear spacing ween transverse reinforcement shall not be less than 1 ½" for column and 5" for led shaft/rock socket. Longitudinal and lateral reinforcement including relopment and splice lengths shall be in accordance with SGS 8.8. nsider top reinforcement steel in footings and pile cap footings. nsider minimum anchorage connections, i.e. Pile anchorage clips (EPG 751.36.2). ok horizontal reinforcement of wing at beam end. Jefaction Effect shall be considered in computing pile tip elevation. | |
| rm complete seismic analysis in accordance with SGS for SDC B, C or D: form seismic analysis of abutments/foundations in accordance (3)(4) h SGS figure 1.3-5, 4.5, 4.6, 4.12, 5.2, & 6.7. | |