5. Where feasible provide at least two fixed or guided expansion bearings each able to resist all horizontal forces at each abutment, column, hinge or pier for design redundancy.

6. Some press-fit guide bar details in common use have proven unsatisfactory in resisting horizontal loads. When analyzing these designs, consideration should be given to the possibility of rolling of the bar in the recess.

7. Multi-rotational bearings should not be used at vertical loads less than 20% of their vertical capacity. Bearings for less than 20% vertical capacity require special design.

8. Special consideration in bearing design shall be given where high horizontal to vertical load (above 0.30) is anticipated.

9. Frictional resistance of bearing slide surfaces should be neglected when calculating horizontal load capacity.

10. The installed alignment of bearing guiding systems relative to the anticipated movement direction of the structure should be carefully considered to avoid bearing guide system failure. Special studies or designs may be required on curved or skewed structures to ensure correct installation.

11. The substructure and superstructure should be designed so as to remain rigid under all service conditions in areas around and in contact with the bearings, paying particular attention to the use of stiffeners at extreme points of movements.

12. The substructure and superstructure design should permit bearings to be removed for inspection or rehabilitation by minimum jacking of the structure. Jacking points shall be provided in the structural design.

13. The minimum Structure Rotational, Rs, of bearings covered in the specification is 0.01 radians. Rs comprises live loads and rotations induced by construction/erection sequences.

14. The maximum Construction Rotation, Rc (rotation induced by construction tolerances), is 0.02 radians. The designer may elect to specify a smaller Rc than 0.02 radians but is cautioned to investigate the cost and practicality of the changes contemplated.

15. Recommended coefficients of friction for structure design follows:

    Unfilled sheet or woven fiber PTFE/stainless steel 0.04

    Filled PTFE sheet/stainless 0.08

    The above coefficients of friction are based on the average stress and limits of edge stress of PTFE in this specification. Out of level installations within the limits of this specification and normal in service oxidation of the stainless steel mating surface. Service conditions, where exceptional corrosion of the stainless steel mating surface may occur, will require special assessment of the long term coefficient of friction.

16. Pot, disc and spherical multi-rotational bearings should not be mixed at the same expansion joint or bent. The differing deflection characteristics and differing rotation characteristics may result in damage to the bearings and/or structure.

17. Contract drawings and documents should contain a Bearing Schedule (See Section 603.07, Bearing Schedule).

18. Some bearing tests are very costly to perform. Other bearing tests cannot be performed because of the unavailability of test equipment. The following test