

## **BRIDGE DESIGN STANDARD PRACTICES**

The following standard practices were established by the Bridge Design Standard Practices Committee.

### 1. **Design of Curved Girder - Fabrication, Erection & Stability Problems**

When designing curved girder structures, designers must investigate all temporary and permanent loading conditions, including loading from wet concrete in the deck pour, for all stages of construction. Future redecking must also be considered as a separate loading condition. Diaphragms must be designed as full load carrying members. A three-dimensional analysis representing the structure as a whole and as it will exist during all intermediate stages and under all construction loadings is essential to accurately predict stresses and deflections in all girders and diaphragms and must be performed by the Designer.

The designer is responsible for assuring that the structure is constructable and that it will be stable during all stages and under all loading conditions. To achieve this end, the designer must supply basic erection data on the contract plans. This information must include, but is not limited to, the following:

- Pick points and reactions at pick points for all girder sections.
- Temporary support points to be used during all stages and loading conditions, and reactions for which support towers should be designed at all of these points.
- Deflections to be expected in all girders under all conditions of temporary support and under all anticipated loading conditions.
- Direction pertaining to the connection of diaphragms to assure stability during all temporary conditions.

Specifications prepared for this work must require the Contractor to submit full erection plans, prepared and stamped by a Professional Engineer registered in the State of Connecticut, for review by the Department. These plans will be reviewed by the Designer as a working drawing and comments forwarded from the Office of Engineering to the District Engineering Manager having jurisdiction over the project for transmittal to the Contractor. The Designer's review must ensure that all information given on the Contract plans has been accurately accounted for in the Contractor's erection plans.

This information, or other information up to and including full erection plans, may be required for other unusual structures such as bridges over electrified rail lines. The Designer shall provide any such additional information in the Contract documents as directed by the Department.

Further design information for curved structures is contained in the "Guide Specifications for Horizontally Curved Highway Bridges", published by the American Association of State Highway and Transportation Officials.

### 2. **Keyed Joint in Wall Stems**

Shear keys in expansion and contraction joints, as shown on Plate 3-4.1 of the Bridge Design Manual, are considered unnecessary by the Department and this detail shall not be used on current projects. This detail will be deleted in upcoming revisions to the Bridge Design Manual.