

 Office of Structures Guidelines and Procedures Memorandum	DESIGN
	Number: D-89-40(4)
	Date: 03-16-2018
Design Loading for Structures	Approval: 

- I. All components of new highway structures shall be designed to accommodate the AASHTO HL-93 loading as prescribed in the AASHTO LRFD Bridge Design Specifications.
- II. All structures shall be designed to accommodate additional loadings of 25 pounds per square foot for a future 2" wearing surface and 15 pounds per square foot when the use of steel stay in place bridge deck forms are required.
- III. When rehabilitation work is to be done to an existing structure that involves replacement of the deck, then that structure must be evaluated for the above loading condition. If this loading condition is not satisfied then the following sequence of analyses must be done. A chart summarizing the analysis steps with load ratings of the different options should be submitted for review to the Office of Structures.
 - A. If the structure is a non-composite design, then it must be analyzed by making it a composite design to try to meet the new loading conditions.
 - B. If (A) above does not satisfy the loading conditions then the structure must be analyzed by reducing the 15 pounds per square foot for steel stay in place bridge deck forms to 9 pounds per square foot. The Plans must specify that the form troughs must align with the transverse rebar spacing.
 - C. If (A) and (B) above do not satisfy the loading conditions then the structure must be analyzed without the future 2" wearing surface.
 - D. If (A) through (C) above do not satisfy the loading conditions then the structure must be analyzed by eliminating the 9 pounds per square foot for steel stay in place bridge deck forms. The Plans must specify that wood forms must be used on the deck's underside.
 - E. If (A) through (D) above do not satisfy the loading conditions then the structure must be analyzed using lightweight concrete. The use of steel stay in place bridge deck forms and a future wearing surface should be reconsidered here.
 - F. If (A) through (E) above do not satisfy the loading conditions then direction from the Office of Structures should be requested before proceeding further.
- IV. All new pedestrian structures shall be designed for 85 pounds per square foot live load and 15 pounds per square foot for the use of steel stay in place bridge deck forms, if applicable.

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- V. All new or rehabilitated vehicular superstructures shall be rated according to the procedure dictated in GPM No. D-97-47(4). The rating shall be used to report the National Bridge Inventory.
- VI. Existing Structures:
Refer to GPM No. D-97-47(4) – Structural Load Ratings