Overhead Crane Runway Design Considerations
as per
CMAA Specification 74-2004

Section "1.4 RUNWAY" states:

1.4.1 The crane runway, runway rails, and crane stops are typically furnished by the purchaser unless otherwise specified. The crane stops furnished by the purchaser are to be designed to suit the specific crane to be installed.

1.4.1.1 **Top Running Runway**

1.4.1.1.1 Rails shall be straight, parallel, level and at the same elevation. The center to center distance and the elevation shall be within the tolerances given in Table 1.4.1-1.

1.4.1.1.2 The runway rails should be standard rail sections or any other commercial rolled section with equivalent specifications of a proper size for the crane to be installed.

1.4.1.1.3 Proper rail splices and hold down fasteners are to be provided. Rail separation at joints shall not exceed 1/16 inch. Floating rails are not recommended.

1.4.1.1.4 The crane runway shall be designed with sufficient strength and rigidity to prevent detrimental lateral or vertical deflection.

The lateral deflection should not exceed $L_r/400$ based on 10% of maximum wheel load(s) without vertical inertia forces. Unless otherwise specified, the vertical deflection should not exceed $L_r/600$ based on maximum wheel load(s) without vertical inertia forces. Gantry and other types of special cranes may require additional considerations.

L_r = Runway girder span being evaluated

1.4.1.2 **Under-Running Runways**

1.4.1.2.1 Under-running runway beams shall be straight and parallel. The wheel running surface shall be at the same elevation, have no transverse tilt, and shall be held in alignment at joints.

1.4.1.2.2 The center to center distance and the elevation shall be within the tolerances given in Table 1.4.1-1. The maximum gap between ends of the load carrying flanges shall not exceed 1/16 inch.

1.4.1.2.3 The crane runway shall be designed with sufficient strength and rigidity to prevent detrimental lateral or vertical deflection. The design shall provide for the effects of beam loading and local flange loading. The vertical deflection should not exceed $L_r/450$ based on maximum wheel load(s) without vertical inertia forces.