

N.E. Railway
GHAZIPOUR.

W/29/0/A/Pt. I/5.
June 22, 1995.

BRIDGE CIRCULAR NO. 12

Sub:- Erection of Steel Structures.

There has been a case of collapse of a foot-over-bridge on Central Railway. The failure had occurred mainly due to faulty planning and defective procedures adopted at the time of execution of the work. To avoid recurrence of such failures, the following instructions are issued for erection of steel structures, which should be meticulously followed by the staff and officers of the Divisions and the Bridge Organisation.

1.0 RESPONSIBILITY AT VARIOUS LEVELS:

1.1 SECTIONAL AEN.

He will be responsible for locating the site and setting out of the alignment of the F.O.B. He will personally approve the foundation strata.

1.2 XEN/BRIDGE/OL or ABE.

He will be responsible for erection of main girders of the F.O.B.

1.3 IOW/Incharge.

He will be responsible for setting out of the foundations and casting of the same. He will personally check the alignment and level of all foundations as per drawing and issue a certificate for correctness of the same before taking up the erection work. This certificate will be given by IOW to the BRI.

He will also be responsible for grouting of holding down bolts, placement of flooring slabs, roof sheeting and painting of steel work after completion of erection of steel work by the BRI.

1.4 BRI BRIDGE INSPECTOR.

He will be responsible for erection of columns, stair cases and roofing. He will issue a certificate of complete erection of columns and girders, which will be given to IOW/Incharge before taking up the work of placement of flooring slabs. If a contractual agency has been fixed for erection of steel work, such contract agreement will be operated by XEN/Br./OL.

contd.....

2.0 DETAILED PROCEDURE FOR EXECUTION OF FOBS & ERECTION OF ALL STEEL WORKS.

2.1 Foundation layout should be given by the IOW Incharge of the section according to approved drawing.

2.2 Foundation struts should be got approved by the officer not below the rank of AEN.

2.3 Before casting foundations, correctness of the foundation level and the dimensions should be checked by the IOW Incharge.

2.4 Holding down bolts to be cast in the foundation should be with bottom anchor plates as per details indicated in the drawing.

2.5 Strength of concrete should be according to the prescribed grade of concrete and casting of foundation work is to be supervised by responsible staff not below the rank of Inspector of work. The quality of cement grouting should be strong enough to prevent uprooting of HD bolts.

2.6 Curing of concrete work of foundation should be ensured by the IOW Incharge.

2.7 Erection of steel work where traffic block and crane working is not involved, should be done under the supervision of M.I.

2.8 On completion of erection work of columns and main girders, IOW Incharge will give a certificate after ensuring all the floor beams, raker beams, raker angles, top/bottom lateral bracing to main beams, roof trusses, other fittings, nuts and bolts of all load carrying steel structure are fixed 100% and alignment of steel structure is completed.

2.9 Sectional AEN under whose jurisdiction the works are in progress should exercise proper check and inspection for safety of structures and assist bridge staff for proper execution of work.

2.10 To ensure successful erection of steel works, where safety is involved and traffic block/power blocks and crane working are required, Assistant Officers from Open Line along with the concerned staff must be present to ensure safety of work and execution of work according to prescribed drawings and specifications.

2.11 Before erection of any steel member it should be ensured that initial primer zinc chromate paint according to specification No. IS-104 followed by one coat of Red Oxide to IS-123 is applied on entire steel surface and on completion of work, one coat of aluminium Red Oxide is applied to protect against corrosive action.

- 2.12 Where high voltage electric wires are running below the structure, preventive measures should be taken for safety of public and workmen.
- 2.13 While doing the erection work, preventive measures like tying with wire rope/stays should be provided for the columns, beams till the work is completed. Erection of steel work should be kept with proper support ties & stays till it is finally completed with all fittings and fixtures.
- 2.14 If there are obstructions coming in the way of columns/beams, the infringements like cover over shed, purlins, columns etc. must be removed first ensuring safety before launching the girders/trusses so that full complement of bracings and other fixtures are provided.
- 3.0 These instructions apply to all steel structures.
- 4.0 Please acknowledge receipt.

Mohan Lal
(MOHAN LAL.) 22/6/95
CHIEF BRIDGE ENGINEER.

cc:

- 1) DEM(Engg.)/IZN, L/N, SED, BSB & SPJ.
- 2) All SAG Officers of Engg. Deptt. including Construction
- 3) CWM(Bridge)/GKP, XEN(Bridge/Open Line)/Gorakhpur.
- 4) All Engineering Officers of HQ.

Mohan Lal
(MOHAN LAL.) 22/6/95
CHIEF BRIDGE ENGINEER.

22/6.95/