

East Central Railway

Office of the
General Manager (Engg.)/Hajipur

PCE's Circular No. – 42/2014/WORKS

Sub: - Guidelines for approval of Structural Designs/Plans by HQ for works of divisions other than Bridges and Tracks.

- 1.0. As per extant policy, the GAD of yard plans (ESP) & other works except Bridges and Tracks are being approved by (CPDE/ECR/HJP) and it will continue.
- 2.0. Regarding approval of Structural designs/plans, the following procedure shall be followed.
- 2.1. Structural drawing & Design plan of important structures like RCC OH Tank, Standard type quarters/buildings etc. will be followed to the extent possible as per already approved Standard Drawing by RDSO, E.C. Railway or by any other Zonal Railways.
- 2.2. The structural design of Important buildings like Hospital, Offices, Station buildings (for category A1, A & B only) will only be sent to HQ for approval after proof checking with divisional remarks. For remaining not so important structures i.e. category D & E stations and up to 2-storeys buildings etc., the Structural Plan should be approved by division itself.
- 2.3. The guidelines as stipulated in Para – 203 & 906 (b) of Indian Railway Works Manual – 2000 (updated version) are to be followed in principle.
 - 2.3.1. No addition/alterations in an existing structure should be carried out without the approval of drawings and designs by the HQ office. Particular care should be exercised to check the adequacy of existing structure to withstand the loads further proposed to be imposed.
 - 2.3.2. Drawing for a structure including building should be prepared in three parts:
 - i) Site plan
 - ii) Architectural and/or General Layout drawing
 - iii) Structural and/or execution drawing.
 - 2.3.3. In case of small buildings, all these parts can be included in one sheet but-placed distinctly. The site plan can be separate or part of an existing general plan. Site plans for new quarters should include the type drawing numbers and show the north line and direction of prevailing wind direction etc.
 - 2.3.4. Designs of important buildings like hospital, offices, station buildings etc. should be finalized in consultation with an Architect.
 - 2.3.5. The Architectural drawing should normally include ground plan, section through the building in such directions as are necessary to exhibit the intended form and dimensions of the various parts, and elevation of one or more faces. It should invariably indicate the number of floors for which the foundation of the building is designed. It should also include roof drainage arrangement, sanitary details, layout of bathrooms and layout of kitchen. Details of finishing items and specifications should also be indicated in the Architectural drawing in the form of a note. Landscaping and developmental works involved must also be shown on drawing.
 - 2.3.6. The structural drawing will indicate foundation plan, details of R.C.C. members and a bar bending schedule as per standard I.S. bar bending specifications.
- 3.0. For Structural Designs/Plans to be sent to HQ for approval, the following procedure should be followed.
 - 3.1. Design and plans should be done by division or through some suitable outside agency/Consultant as per relevant software for design and should be submitted with all detail calculations indicating stresses at critical locations within permissible limits as per relevant codes.

- 3.2. While designing any structure, adequate details of physical condition of the existing structure, details of any signs of distress, settlement, etc. as well as any relevant features having bearing on the integrity and stability of the structure including type of soil should be suitably considered & incorporated also in the drawings/plans.
- 3.3 It should be ensured that cross references and co-relations of the drawing and design calculations are properly endorsed in the drawing as well as in the calculation sheet/booklet as per format in cl. 4.1 given below with seal, designation and signature as indicated.
- 4.0. The design calculation & drawings/structural plan prepared by the Architect/Consultant has to be then proof checked by another independent agency (reputed Engineering Institute/College/PSUs) preferably with some other latest software to the extent possible for proper cross-check and to avoid any error at the design stage.
- 4.1. Further, a certificate about stresses at various critical points such as in Foundation, Beams, Columns, their Junctions, Slabs and other Important locations etc should be issued by proof checking agency with seal and signature in the format as under.

FORMAT: Certificate to be given by Design Consultant and/or Proof Checking Agency

Sl. No	Drg. No.	Items/locations in Order of Priority of Criticality of various members & locations w.r.t. Drawings/plans	Stresses calculated as per design				Remarks (if any)
			As per Initial Design	** As per Design checked by Proof checking Agency	Permissible Limits as per relevant codes	Safe/ Unsafe	
1.							
2.							
..							

** Any other additional items/locations as considered essential by proof checking agency may also be included.

**Signature of official of Designing/Proof checking Agency
With seal & designation and full address**

- 5.0. After receipt of design details by the designer/consultant and cross checked by Proof Checking Agency, concerned Branch officer in division shall forward the drawings/Plans and design calculations to HQ for approval duly signed by divisional officers and Sr.DEN/Co-ord alongwith Technical Recommendation and remarks on the observations given by Proof checking Agency if any.
- 6.0. These guidelines are issued to be followed by the divisions of East Central Railway (O/L) for approval of their structural designs/drawings by Headquarter.

This has the approval of PCE/ECR.


(R. G. Singh)
CPDE/ECR

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Date. *09.10.14.*
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