



विधुत विभाग

तकनीकी वृत्त पत्र (टी.आर.डी) क्र 147

सं.ई एल/टी.आर.डी 147 (06/2025)

दिनांक: 10.06.2025

विषय: Maintaining the correct size of core dimension for Portal foundation which are to be commissioned.

सन्दर्भ: (i) RDSO drawing ref no ETI/C/0063 & ETI/C/005/68.

(ii) This office letter no 94/15/1(Comp. No 437028) dated:28.11.2023.

Recently in Mumbai division (Non-Suburban) one failure occurred where "N" type portal upright was found tilted towards track and touching OOR OHE at loc. 188/05. This caused the repercussions of train services. During the investigation It has been observed that Executing agency are using only one size of core hole which was found suitable for "O" type portal. Inconsistent core during grouting will affect the vertical alignment and strength of foundations, leading to structural deficiencies.



Currently, clear standardized guidelines for the dimensions of foundation cores are not available. However, it is generally accepted that a margin of approximately **100 mm** beyond the mast dimensions is permissible, depending on local site conditions and the type of mast used.

For instance, in the case of the **"N" type portal**, which has a cross-section of **450 mm x 450 mm**, the core dimensions are typically taken as **550 mm x 550 mm**. This provides sufficient margin for alignment but still maintains

stability. The separate scrolls should be used for different dimensions mast/portals

Importance of Accurate Core Dimensions

Incorrect core dimensions—either undersized or oversized—can result in:

- **Improper alignment** of masts or portals before grouting.
- **Increased safety hazards** during train operations.
- **Greater chances of wooden wedge slippage**, especially when smaller upright members are placed in larger core holes due to excessive clearance.

Thus, ensuring the **correct core size** is a **critical aspect of foundation construction** to maintain the **safety, reliability, and operational efficiency** of the TRD (Traction Distribution) system.

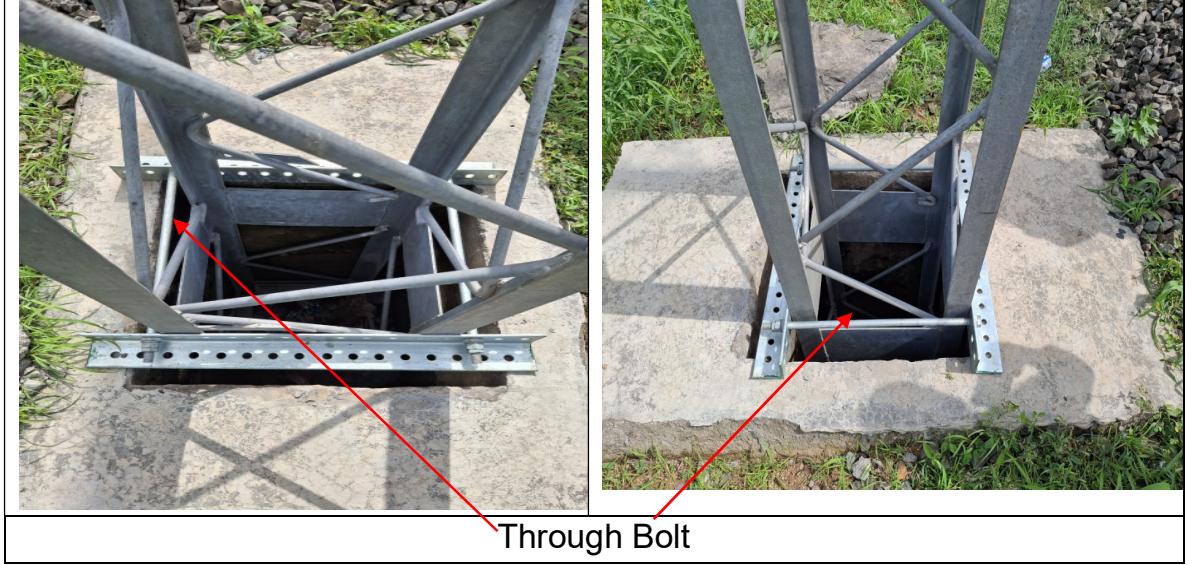
Grouting Considerations

- Instructions specify that **masts should be grouted within 48 hours** of erection.
- **Portals**, however, **cannot always be grouted immediately**, as they are often erected during **traffic block periods (TWO) or Power block**.
- Delayed grouting at portal locations can pose **significant safety risks** to train movement. Thus portals should be grouted at the earliest.

Temporary Securing Measures

To address the issue of ungrouted portals remaining in place for extended durations:

- If the mast/portals are placed in the core, make sure it should be inclined away from the track.
- If there are multiple lines, securing ungrouted masts/ portals become crucial and required proper method. For masts/portals **wooden wedge and other material should be used to avoid any slippage**.
- For securing portals due to slippages, some divisions have implemented **temporary securing modifications**, using **angles and through bolts** to stabilize the structure. The angles dimensions are 75/80x75/80X8,Φ20 and proper sized bolts both duly galvanized as per standard. The bolts should be tightened properly if possible using ratchet spanner.
- These temporary fixes **minimize movement and reduce the likelihood of displacement or structural failure** prior to final grouting.



Conclusion

Ensuring accurate core dimensions and taking appropriate precautions during the delay in grouting are essential to **maintain safety standards** and **ensure uninterrupted train operations**. Proper coordination between construction and operations teams is necessary to manage these safety-critical activities effectively.

The above instructions must be noted by ALL CONCERNED STAFF AND SUPERVISORS and assurance shall be obtained on the Assurance Register.

Girraj Prasad
Garg

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(जी.पी.गर्ग)

मुख्य विद्युत वितरण अभियंता
कृते प्रधान मुख्य बिजली अभियंता

प्रति-/

व. मं. बिजली अभियंता (उपनगरीय) एवं (गैर उपनगरीय) मुंबई सेंट्रल,
व. मं. बिजली अभियंता (क.वि) रतलाम, वडोदरा,
व. मं. बिजली अभियंता (कर्षण) अहमदाबाद, राजकोट, भावनगर
प्रधानाचार्य -क्षेत्रीय विद्युत प्रशिक्षण केंद्र/वडोदरा एवं विद्युत प्रशिक्षण केंद्र/विरार

मुख्य बिजली अभियंता/निर्माण/ चर्चगेट, अहमदाबाद

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