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DELHI DEVELOPMENT AUTHORITY
OFFICE OF THE CHIEF ENGINEER(OC)

No. F73(36) 2003/OC/CB/179 Dated: 28.6.06
O.C. CIRCULAR NO. 173

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During the inspection of various works the following observations were made in respect of operation of item of Design Mix/Ready Mix Concrete:

1. The contractual requirements such as permissible max^m w/c ratio, max^m & min^m quantity of cement, slump/workability, degree of control etc. were not reported to the consultant/designer as a result the consultant/designers designed the mix with their own assumptions and presumptions. Mix was not designed for different slump requirements.
- 2) The mix designers provided the tentative mix designs based on accelerated curing method or 7 days strength results and did not submit the final report after 28 days test, but AEs/EEs, did not pursue the matter with them and work was undertaken accordingly presuming the tentative-mix as final one. Even no trial mix was prepared at site for confirmatory test.
- 3) The exceptionally high/erratic test results were not recorded or the strength so observed was restricted to certain level, rather than recording actual results and finding the cause of such erratic results.
- 4) The test samples were not sent periodically at regular interval to external labs for testing as per standing instructions.

(i) for inf p1
(ii) Slump may be brought to the notice of all CE's / EE's / CO's

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- 5) The mix was neither got redesigned nor any sample prepared and tested at site though the source of material such as cement, admixtures, stone aggregate, sand etc. were changed.
- 6) Due consideration not given to the moisture content in the aggregates and water content not adjusted.
- 7) Proper approval for RMC supplier not obtained; and RMC supplier did not provide the delivery tickets to Engineer-in-Charge for record as provided in clauses 5.8.8.9.4 of CPWD specifications 2002.
- 8) The concrete was allowed to be manufactured by using weigh batcher instead of fully automatic Batching Plant or R.M.C. Plant, though mix was designed for good degree of control.

From the aforesaid observations, it reveals that the field staff is either not aware of various provisions in codes/specifications and implication thereof or is negligent in their approach. If adequate attention is not paid on the matter, the very purpose of using design mix/RMC gets defeated which would result in substandard work.

It is, therefore, enjoined upon the field engineers to please ensure that representative samples of all the concrete ingredients are collected right in the beginning (before undertaking any RCC work) and sent to reputed labs for mix design stating the contractual requirements as per annex I to this circular.

On receipt of mix design a trial sample is prepared at site and all parameters such as slump, strength etc. are checked; and discrepancy, if any, be brought to the notice of designer for review.

Further, the provisions of CPWD specifications 2002 as regards testing of materials, proportioning, mixing, transporting and placing of concrete, its sampling and testing should be strictly adhered to. Use of

weigh-batcher should not be allowed at all, as the same does not find place in revised CPWD specifications 2002 for cement concrete & RCC works.

Non adherence to the specifications and contractual conditions shall invite action against the defaulting officers.


Encl - Annex I.


(A.P. Singh)

Chief Engineer(QC)

Copy to:

1. OSD to VC/DDA, for information of the latter.
2. EM/DDA for information and necessary action.
3. All CEs/DDA with the request to circulate copies among their SEs/EEs.
4. All EEs(QC)/DDA.


Chief Engineer(QC)

26/6/06

REQUISITION FOR CONCRETE MIX DESIGN

ANNEXURE ;I

1. Name of Work
2. Agreement NO.
3. Grade/Designation of Design Mix
4. Type of Cement.
5. Type and Maximum Nominal size of Aggregate
6. Minimum & Maximum Cement content
7. Maximum Water Cement ratio
8. Workability /slump required.
9. Degree of Supervision/control
10. Method of placing the concrete
11. exposure conditions as per table 4&5 IS 456-2000
12. Whether an admixture shall or shall not be used. If used, the type of admixture and the condition of use.

Note :

1. The complete details of method of Mix design, calculations of all the ingredients of concrete mix and test results of trial mixes shall be submitted by the consultant.
2. Sieve Analysis of aggregate/sand and also of combined aggregate (indicating proportion) shall be furnished in design mix report.
3. Test reports of cement, chemical & Mechanical tests admixtures stone aggregate as per BIS codes shall also be made a part of the report.

Ex. Engineer

DELHI DEVELOPMENT AUTHORITY
OFFICE OF THE CHIEF ENGINEER(QC)

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No. F 93(36) 2003/QC/CB/180
CIRCULAR NO. 174

Dated: 28-6-06

During inspection of Q.C. Cell some discrepancies and contradictory provisions in certain items/conditions/clauses of the Agreements have been observed which may lead to contractual disputes at a later date. Some of them are listed below:

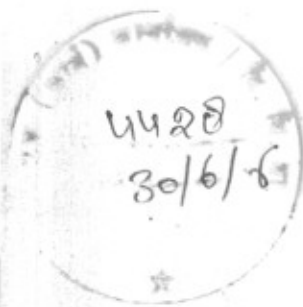
1. As per specification and condition appended with the agreement, rates for centering & shuttering are applicable for all heights whereas the BOQ provides for "Extra for additional height in centering, shuttering, over a height of 3.5m for every additional height of 1 metre or part thereof".
2. No provision for drawl of supplementary agreement as per EM's circular No.509 dated 12.5.97 has been made in the agreement where there is likelihood of delay in taking over of the buildings.
3. Under "General rules Additional conditions and Specifications", provision has been made for providing grooves in plaster at junction of various surfaces such as timber/plaster, exposed concrete/brick work, ceiling/walls, skirting/plaster, without extra charges, but the BOQ provides for extra payment for grooves.
4. Special condition provides for GTS bench mark to be adopted for levels of roads and drains and the sewer line has not been included.
5. Under sub-head of "Testing of materials" the testing fee of the materials is to be borne by the Agency, where as per special conditions "sampling and testing fee to be borne by the deptt.
6. Under "General Rules, additional condition and specifications," the excavated earth to be disposed off by Mechanical transport in the area certified by EE as low lying

copy to - all CE's - They may bring this ^{specifically} to the notice of
SE(P)'s, EE(P)'s and others

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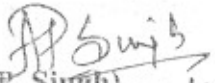
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area within works area for which no payment is to be made, whereas the BOQ of agreement provides for item of disposal of earth by mechanical transport within works area. In some cases where no such provision made, even extra item allowed for the same.

7. Separate provision is made for bailing out of water for laying C.C., RCC etc. in or under water and liquid mud, though the agreement item is inclusive of cost of bailing out of water.

It is enjoined upon the NIT approving authorities to ensure that the aforesaid discrepancies are duly reconciled and taken care of while framing NITs and no ambiguous conditions causing contractual implications are provided therein.


(A.P. Singh) 26/6/06
Chief Engineer(QC)

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Chief Engineer(QC) 26/6/06



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DELHI DEVELOPMENT AUTHORITY
QUALITY ASSURANCE CELL

No. F 73(36) 2003/QC/CB/182 Dated: 28th June, 2006.

Q.C.CIRCULAR NO. 176

SUB: Preparation of sample unit/block before under-taking the mass finishing work.


The of building contracts normally provide the special condition that the contractors would prepare a sample unit/block within the specified time (normally six months) and get it approved from the Engineer-in-Charge/Architects before undertaking the mass finishing work. However, during the inspections of Q.A. Cell, it has been observed that such condition is not being enforced by E.Es at all. When the points are raised by Q.A. Cell, it is replied that the contractor is being asked for preparing the same. And ultimately, it is replied that the work has since been completed hence the para may be dropped.

In this regard, it is to clarify that the most purpose of preparation of the sample unit/block in advance is to ensure that the decisions regarding approval of drawings, approval of samples is expedited and any practical difficulty as regards construction or deficiency in drawings are identified and necessary action for modifications required, if any, is taken well in time, so as to avoid repetitive mistakes and thereby the infructuous expenditure ^{on} repairs or reconstruction. But, because of non-compliance of the agreement provisions the most purpose is defeated.

Since the preparation of sample unit/block is one of the mile stone, the action for non adherence to the mile stone needs to be taken under clause 2/5 of the agreement, but no such action is being taken by the EEs/SEs which encourages the contractors not to comply with such condition.

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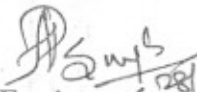
It is enjoined upon all the officers to please strictly enforce the preparation of sample unit as per agreement condition and in case of failure, the action be taken against the defaulting contractors as per agreement provisions.


(A.P. Singh) 28/6/06

Chief Engineer(QC)

Copy to:

1. OSD to VC/DDA, for information of the latter.
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4. All EEs(QC)/DDA.


28/6/06
Chief Engineer (QC)



**DELHI DEVELOPMENT AUTHORITY
QUALITY CONTROL CELL**

No. F 73(36)2003/Q.C./CB/183 Dated: 27th June, 2006.

28/6/06

Q.C.CIRCULAR NO. 177

SUB: **Stipulation of steel reinforcement bars in construction contracts.**

Attention is invited to Circular No.553 issued vide No.EM1(20)/2002/DDa/10461 dated 10.9.2002, wherein instructions had been issued that for all the works costing Rs.5 crores and above no steel reinforcing bars would be issued from departmental stores and the construction agencies would procure the same from the main producers only viz. SAIL, TISCO, RINL, IISCO; and stipulation in this regard would suitably be made in NITs/contract documents.

It has been observed that instructions contained in the aforesaid circular are not being strictly complied with. The following observations were made during inspection:

1. In some of the contracts no such condition regarding procurement of reinforcing bars from SAIL, TISCO, RINL, IISCO have been made and the contractor has been allowed to procure the same from other manufacturers as well.
2. Even where such stipulation has been made in the contract documents, the steel reinforcing bars have been procured from other manufacturers like RATHI, AMBA, and KAMDHENU etc. Saying that the same conforms to the relevant IS: 1786.
3. As per aforesaid circular the contractor is required to submit the original vouchers for procurement alongwith the manufacturers Test Report as a testimony of material supplied conforming to the relevant codes; but the same is also not being insisted upon and no record to that effect is being maintained.

Firstly, the reinforcing bars should have not been allowed to be procured from the manufacturers other than SAIL, TISCO, IIS and RINL; and in



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exceptional and unavoidable circumstances where such permission was granted, the reason was required to be recorded by the concerned Chief Engineer and also necessary cost adjustments could have been made. But the same is not being done, which is against the spirit of the aforesaid circular.

All the E.Es, S.Es & C.Es are advised to strictly adhere to the above mentioned circular. Where the steel bars have been procured from other sources, necessary recovery on a/c of difference of the cost may be made to avoid any undue benefit to the contractors.

AP Singh
(A.P. Singh) 28/4/06
Chief Engineer(QC)

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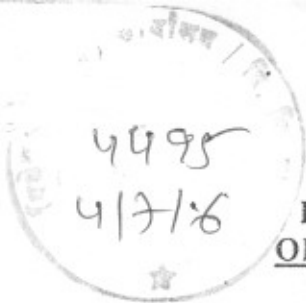
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✓ (LECHO) DDA

AP Singh
Chief Engineer 28/4/06

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**DELHI DEVELOPMENT AUTHORITY
OFFICE OF THE CHIEF ENGINEER (QA)**

NO: F73(36)2003/Q. c/c B/186
Q.A. CIRCULAR NO: - 178

Dated: 29.6.2006

3/7/06

SUB: Guarantee Bond for water proofing works.

Dampness and seepage is a very common defect in buildings and it is due to unskilled and ignorant workmen employed by the contractors. The poor supervision at the level of the contractor as well as the Department adds further to the problem.

In order to make the contractors more accountable the instructions have been issued that the water proofing work should be got done through specialized firm only. Further the contractor shall have to execute a performance guarantee bond in prescribed Proforma against any seepage/leakage for a period of 10 years.

During the inspection of Quality Assurance Cell it has been observed either such condition is not being incorporated in the contract documents or if incorporated the same is not being strictly enforced. In case where the contract provided for execution of such performance guarantee bond, the same has not been executed and where it has been executed, the performance of water proofing work is not being watched during the guarantee period. As such the most purpose of inserting such condition in the contract is defeated.

During verification of complaint received by QC Cell regarding profuse leakage / seepage in the buildings, completed about 4-5 years back, it was found that the performance Guarantee Bond had not been executed, though agreement provided for the same. Also the matter was not taken up with the agency when such problem was noticed. In order to avoid recurrence of such problem, the following action needs to be taken:-

- 1) The condition regarding performance guarantee bond for water proofing work in buildings or any other structures where ever the water proofing work is to be executed, should invariably be provided in the agreement.
- 2) The work of water proofing should be got done through specialized firms only. Similarly the plumbing work should be got executed through license plumbers only of MCD.
- 3) The guarantee bond should be got executed in the prescribed proforma before the final payment is released to the agency.
- 4) The buildings/structures should be inspected by JEs/AEs incharge at least once in a year and records to this effect should be maintained unit wise and block wise, indicating seepage/leakage etc.
- 5) In case any seepage or leakage is observed, the contractors should be served with a notice for rectification/re-execution as the case may be, and in case of his failure to do so, the work may be got executed at his risk and cost in terms

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of the guarantee bond. The action to black list or debar him also should be taken.

- 6) An annual report regarding inspection of the work should be sent to the concerned Chief Engineers Suptdg. Engineers by the Ex. Engineers with a copy to Chief Engineer (QA) for information . Even Nil report should be sent.
- 7) Required administrative action be initiated against officials who failed to execute the Performance Guarantee Bond with the agency, despite agreement provisions or who are negligent in proper implementation of Guarantee Bond.
- 8) When ever any estimate is processed for repair/re-execution of water proofing work a certificate should invariably be recorded indicating the date of expiry of the guarantee period of the original work and that the defect has developed after the expiry date only.

All Chief Engineers/ Suptdg. Engineers are requested to get prepared the accounts of all water proofing works completed in last 10 years. All such work(which provide for GuaranteeBond) may be got inspected and a report indicating the action taken contract wise, where seepage/leakage has been observed be sent.


 (A.P. SINGH) 29/6/06
 CHIEF ENGINEER (QA)

Copy to:

1. OSD to VC
2. PS to EM
3. All Chief Engineers(Civil)
4. SE(QA)
5. All Ex. Engineer(QA)

CHIEF ENGINEER (QA)