BASA Foundation

INVITATION TO TENDER FOR CONSTRUCTION of (One) Warehouse in Belkuchi Sirajgonj, 1 (One) Warehouse in Vairab Kishorgonj and 2 Warehouses in Shakhipur, Tangail

Note: Each Envelopes should be marked for one project, for example: tender for construction of warehouse in: Belkuchi or Vairab or Shakhipur 1 and Shakhipur 2

Use of BASA tender format is mandatory

All competitors are entitled to apply for all offers

TENDER REFERENCE NUMBER: BASA/ HEIFER-WAREHOUSE -2021-22
CONTENTS OF INVITATION TO TENDER

1. Timetable
2. About BASA
3. Background for this Tender.
4. Instructions to Bidders
5. Submission of Tenders
6. Selection Criteria
7. Information Required
8. Payment Terms
9. Conditions of Tender
10. Bidders Signature
11. Supplier Information Form
12. Price Offer Sheet, BOQ
13. Ware house Design.
1. **TIMETABLE:**

   Issue of Tender: **June 13th 2021**

   Deadline for submission: **June 20th 2021 at 15:00**

2. **ABOUT BASA:**

   BASA Foundation is a non-government, non-profit and non-political organization established in 1991 by like-minded social workers to serve the socio-economically depressed communities in Bangladesh. BASA works in the fields of sustainable development, poverty alleviation and empowerment of the poor (particularly women and Child) through the provision of different programs supported by different donors.

3. **BACKGROUND FOR THIS TENDER**

   **BASA Foundation** is a national level Non Government Organization (NGO) is implementing a project titled **“Economic Enhancement through Strengthening Beef and Goat Market System”** with the support of **Heifer International Bangladesh** funded by Heifer USA. In relation with this project presently BASA is facilitating 2 cooperatives in Belkuchi, Shirajgonj, 4 Cooperatives in Vairab Kishorgonj and 5 Cooperatives in Shakhipur, Tangail Districts and the Cooperatives are planning to construct warehouses for product aggregation and marketing to start business. BASA is seeking for potential contractor with proven experience for civil constructions for the mentioned sector. BASA invites Contractor to construct warehouses described and summarized in this tender document, and in accordance with procedures, conditions presented herein. BASA reserves the right to vary the quantity of materials specified in the Tender Package without any changes in unit price or other terms and condition and accept or reject any or part of the submitted offers.

   The specifications for these materials are included within this tender document. The selected vendor(s) shall do Constructions of Warehouse 1 (One) in Belkuchi Sirajgonj, 1 (One) Warehouse in Vairab, Kishorgonj and 2 Warehouses in Shakhipur, Tangail.

   - All offers shall be made in accordance with these instructions, and all documents requested should be furnished, including any required (but not limited to) supplier-specific information, technical specifications, bill of quantities, and/or delivery schedule.

   - No respondent should add, omit or change any item, term or condition herein.

   - If vendors have any additional requests and conditions, these shall be stipulated in an exception sheet.

   - Each vendor may make one response only.

   - Each offer shall be valid for the period of [90 days] from its date of submission.

   - Contractor should ensure that financial offers are devoid of calculation errors. If errors are identified during the evaluation process, the unit price will prevail. If there is ambiguity on the unit price, the Selection Committee may decide to disqualify the vendor.

   - Any requests for clarifications regarding the project that are not addressed in written documents must be presented to BASA in writing.

   - This Tender does not obligate BASA to execute a contract nor does it commit BASA to pay any costs incurred in the preparation and submission of proposals. Furthermore, BASA reserves the right to reject any and all proposals, if such action is considered to be in the best interest of BASA.
3. **INSTRUCTIONS TO BIDDERS**

1. Participation is opening on equal conditions to all qualified entities specialized in the field.

2. By submitting a tender, the Bidder accepts in full the conditions of this tender, waiving his/her own conditions of sale.

3. Please read carefully all instructions and conditions. Please ensure that all relevant information and documentation is provided on time as failure to do so may result in rejection of your bid.

4. Order of requested documents in proposal:
   a. Letter of Introduction
   b. Copy of recent valid tax clearance document (notarized not required)
   c. References of related past work
   d. One Financial proposal for the work plus delivery lead-time and validity of the offer.
   e. Signed in Section No.-09 Bidder’s Signature

4. **SUBMISSION OF TENDERS**

<table>
<thead>
<tr>
<th>Tender package available from:</th>
<th>Tender package pick up location:</th>
</tr>
</thead>
<tbody>
<tr>
<td>13th June 2021</td>
<td>BASA Foundation, House # 42, Road # 04, Priyanka Runway City, Baunia, Turag, Uttara Dhaka-1230, Bangladesh. Or can be received by email request: <a href="mailto:mhrony3796@gmail.com">mhrony3796@gmail.com</a></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Deadline for submission:</th>
<th>For Physical submissions: Full bidding documents with attachment in sealed envelope to BASA office:</th>
</tr>
</thead>
<tbody>
<tr>
<td>20th June 2021 at 15:00</td>
<td>BASA Foundation, House # 42, Road # 04, Priyanka Runway City, Baunia, Turag, Uttara Dhaka-1230, Bangladesh</td>
</tr>
</tbody>
</table>

**Note:** Envelopes or emails should be marked:

**BASA/HEIFER-WAREHOUSE -2021-22**
5. **CRITERIA & SUBMITTALS:**

   6.1 **Specific Eligibility Criteria:**

   Eligibility criteria must be met and the corresponding supporting documents listed below under “Tender Submittals” **must** be submitted with offers. Vendors who do not submit these documents may be **disqualified** from any further technical or financial evaluation.

   - Must have recognized bank account (BASA will make all payments in bank through bank transfers).
   - Must be able to accept 100% payment as per Terms of Payment.
   - Must have a **Tax identification number**

6.2 **Evaluation Criteria:**

   When analyzing the Bids, BASA will take into account the following criteria:

   - Company/ Persons Profile, 2-page max
   - References from previous work projects (including contact information)
   - Experience doing related/same kind of business
   - Delivery terms
   - Financial offer provided.
   - Validity of the offer

6. **INFORMATION REQUIRED**

   Please provide information requested in section. All Sections below must be completed and included in the Bid. Vendors can either utilize the response documents contained in this tender package to submit their offer or they can submit an offer in their own format as long as it contains all the required documents and information specified by this tender. The original proposal shall be signed by the vendor or a person or persons duly authorized to bind the vendor to the contract. Financial offer pages of the proposal shall be initialed by the person or persons signing the proposal.
A. SPECIFICATION OF ITEMS

Please read carefully the technical specifications, unit and quantities being offered for guidance in bidding.

B. PRICING:

The Price offer is used to determine which offer represents the best value and serves as a basis of negotiation before award of a contract. As a Fixed-Price contract, the price of the contract to be awarded will be an all-inclusive fixed price basis, either in the form of a total fixed price or a per-unit/deliverable fixed price. Vendors must show unit prices, quantities, and total price, as displayed in the Price Offer Sheet in Section 12. All items must be clearly labeled and included in the total offered price.

1. Currency: the offers should be submitted in BDT and the final contract will be fixed in BDT;
2. Any VAT and TAX (if applicable) must be included in the prices quoted and clearly indicated;
3. Any discount offered to BASA must be clearly indicated as a percentage of the overall cost.
4. Prices should include transpiration up to agreed destinations

C. LEAD AND DELIVERY DETAILS

1. Please provide a detailed proposed delivery lead-time. This information will be contained in the contract with the successful bidders.
2. The tools, materials or equipment used during thus supply of these tools must be free from objectionable matter and any substances that would represent a hazard to health.

7. PAYMENT TERMS

1. Payment will be made by bank transfer within one week from receipt of invoice by BASA of the delivery, documentation and an associated invoice, in accordance with the contract and delivery lead-time.
2. 20% of total contract price will be paid within 7 (seven) days after contract signing and submitting ware house construction plan
3. 40% of total contract price will be paid within 7 (seven days) after 70% construction work done. based on BASA’s Engineers satisfactory report.
4. Final 40% of total contract price will be paid within 15 (fifteen days) after end of the construction upon receipt BASA’s Engineers report.
8. **CONDITIONS OF THE TENDER**

1. BASA is not bound to accept the lowest offer or any offer.
2. Submit both financial and Technical proposals in separate envelopes.
3. BASA reserves the right to select and deal with any Bidder(s) necessary to provide BASA with the best value for money.
4. This request for tender is not a contract or an offer into a contract, but a request for a quotation for the products indicated in this document.
5. Bidders are bound by their offer for a period of 90 days from the date of submission.
6. BASA is not responsible for any costs associated with preparing the tender response.
7. BASA reserves the right to alter the dates of the timetable.
8. Canvassing of BASA staff in relation to this tender will result in disqualification of that Bidder.
9. BASA does not do business with companies or individuals that are public offenders as per the following criteria:
   - They are bankrupt or being wound up, are having their affairs administered by the courts, have entered into an arrangement with creditors, have suspended business activities, are the subject of proceedings concerning those matters, or are in any analogous situation arising from a similar procedure provided for in national legislation or regulations;
   - They have been convicted of an offence concerning their professional conduct by a judgement;
   - They have been guilty of grave professional misconduct proven by any means that the contracting authority can justify;
   - They have not fulfilled obligations relating to the payment of social security contributions or the payment of taxes in accordance with the legal provisions of the country in which they are established or with those of the country of the contracting authority or those of the country where the contract is to be performed;
   - They have been the subject of a judgement that has the force of res judicata for fraud, corruption, involvement in a criminal organisation or any other illegal activity;
   - Following another procurement procedure or grant award procedure, they have been declared to be in serious breach of contract for failure to comply with their contractual obligations.

If you submit an offer based on this request, it shall constitute a guarantee that neither your company nor any affiliate or a subsidiary controlled by your company or yourself is in breach of any of the above provisions.

In addition to the ineligibility criteria applied by BASA, negotiation with potential vendors may be severed at any stage during a procurement process if it is found that they are subject to a conflict of interest or are guilty of misrepresentation in supplying the information required by BASA as a condition of participation in the contract procedure, or fail to supply all of the information requested.
Queries regarding this tender must be addressed in writing to the following email address: mhrony3796@gmail.com

9. **BIDDER’S SIGNATURE.**
I have read and understood this document

Signed.................................................. Name: ..................................................

Date.................................................. Company/ Organization (if any):

...........................

Position (If any): .................................. Contact
Telephone.................................

10. **Vendor Information Form.**

*This document must be submitted with your bid*

*The information provided will be used to evaluate the Company/ Person before contracting with the BASA.*

*Please complete all fields.*

**Vendor Information**

<table>
<thead>
<tr>
<th>Company Name (If any)/ Persons name</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Any other names company is operating under (Acronyms, Abbreviations)</td>
<td></td>
</tr>
<tr>
<td>Address</td>
<td></td>
</tr>
<tr>
<td>Website (If any)</td>
<td></td>
</tr>
<tr>
<td>Phone/Mobile/Fax Numbers (if any)</td>
<td>Phone: Fax:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Primary Contact</th>
<th>Name:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Phone Number:</td>
</tr>
<tr>
<td></td>
<td>Email Address:</td>
</tr>
</tbody>
</table>

**Vendor Experience:**

<table>
<thead>
<tr>
<th>What is your primary area of business?</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>How many years of experience do you have in this field?</td>
<td></td>
</tr>
</tbody>
</table>
Do you have NGO, INGO and UN Agencies Experience? (If yes / please attach the copies of the experience certificates or contracts).

Please mention previous similar works done. (attach contract if possible)

<table>
<thead>
<tr>
<th>1.</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.</td>
</tr>
<tr>
<td>3.</td>
</tr>
</tbody>
</table>

Other:

**Financial Information**

<table>
<thead>
<tr>
<th>Bank Name and Address</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Name under which company is registered at bank (If available)</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Payment Terms. Payment will be done in Bank transfer.</th>
</tr>
</thead>
</table>

BASA will do the payment as per Payment terms (Sl. 8), do you agree on this terms?

**Delivery Time/Completion Time**

How many days, from the time of contract signature will it take to hand over to the site?

**References**

<table>
<thead>
<tr>
<th>Client Name:</th>
<th>1. Contact Name, Phone, Email Address:</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Client Name:</th>
<th>2. Contact Name, Phone, Email Address:</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Client Name:</th>
<th>3. Contact Name, Phone, Email Address:</th>
</tr>
</thead>
</table>
11. Price Offer Sheet, BOQ.

<table>
<thead>
<tr>
<th>Total Cost of all units in BDT :</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Cost of all units in letter:</td>
</tr>
</tbody>
</table>


TOTAL HUB CENTER ESTIMATION:

<table>
<thead>
<tr>
<th>S.L.</th>
<th>Name of Items</th>
<th>Total Work Volume</th>
<th>Unit</th>
<th>Unit rate</th>
<th>Total Cost (TK)</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Earth cutting of foundation</td>
<td>2524.5</td>
<td>cft</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Sand filling of foundation</td>
<td>594</td>
<td>cft</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Brick flat soling</td>
<td>297</td>
<td>sft</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Brick flat soling of Floor</td>
<td>2175</td>
<td>sft</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>5&quot; Brick work (Ratio-1:5)</td>
<td>3513.5</td>
<td>sft</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>10&quot; Brick work (Ratio-1:5)</td>
<td>1683.24</td>
<td>cft</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Plastering Work (Ratio-1:5)</td>
<td>912.6</td>
<td>sft</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Cement concrete for footing (Ratio-1:2:4)</td>
<td>74.25</td>
<td>cft</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Cement concrete for floor (Ratio-1:2:4)</td>
<td>543.75</td>
<td>cft</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>R.C.C work of footing (Ratio-1:2:4)</td>
<td>297</td>
<td>cft</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>R.C.C work of column (Ratio-1:2:4)</td>
<td>409.20</td>
<td>cft</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>R.C.C work of Grade beam (Ratio-1:2:4)</td>
<td>349.27</td>
<td>cft</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>R.C.C work of tie beam (Ratio-1:2:4)</td>
<td>89.43</td>
<td>cft</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>R.C.C work of slab (Ratio-1:2:4)</td>
<td>50.43</td>
<td>cft</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>R.C.C work of stair (Ratio-1:2:4)</td>
<td>0</td>
<td>sft</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>Required Rod for construction work (60 grade)</td>
<td>3177</td>
<td>Kg</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>Wall painting work</td>
<td>7605</td>
<td>sft</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>Doors and Windows Work</td>
<td>14</td>
<td>Nos</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>Doors and Windows painting work</td>
<td>289</td>
<td>sft</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>Trussing work (MS Rafter &amp; Purlin)</td>
<td>3143</td>
<td>Kg</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>Corrugated Iron sheeting work 2.5’X6’ (20 mm)</td>
<td>135</td>
<td>Nos</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>Herring-bone bond soling works (Internal Road)</td>
<td>950</td>
<td>sft</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>Fittings and fixtures (bathroom)</td>
<td>45</td>
<td>sft</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>24</td>
<td>Septic tank soak well works</td>
<td>120</td>
<td>sft</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25</td>
<td>Others Miscellaneous cost</td>
<td>0</td>
<td>L/S</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total implementing cost of HUB Center :
LAP LENGTH
UNLESS OTHERWISE MENTIONED IN THE DRAWINGS, LAP LENGTH
OF BARS SHALL BE:

<table>
<thead>
<tr>
<th>BAR DIA (mm)</th>
<th>TENSION (INCH)</th>
<th>COMPRESSION (INCH)</th>
</tr>
</thead>
<tbody>
<tr>
<td>10Ø</td>
<td>15</td>
<td>12</td>
</tr>
<tr>
<td>12Ø</td>
<td>18</td>
<td>14</td>
</tr>
<tr>
<td>16Ø</td>
<td>24</td>
<td>18</td>
</tr>
<tr>
<td>20Ø</td>
<td>32</td>
<td>24</td>
</tr>
<tr>
<td>22Ø</td>
<td>35</td>
<td>26</td>
</tr>
<tr>
<td>25Ø</td>
<td>40</td>
<td>30</td>
</tr>
</tbody>
</table>

COLUMN LAPS SHALL BE TENSION LAPS

HOOKS OF REBAR
a) FOR ALL RE-BAR: PROVIDE 90° STANDARD HOOKS (L-BENT)
   IF NOT SHOWN IN THE DRAWINGS.

SPACER BARS
TO SUPPORT SECOND LAYER BARS IN BEAMS USE 25Ø SPACER
BARS @ 3'-0" C/C WHERE REQUIRED.

CHAIRS
USE CHAIRS OF NECESSARY DIMENSION MADE OF 10Ø/12Ø/16Ø BAR
TO SUPPORT TOP BARS OF MAT/SLAB @ 3'-0" C/C.

LAP LOCATION:
a) FOR BEAM BOTTOM BAR, LAP NOT TO BE PROVIDED AT MIDDLE
   THIRD ZONE OF THE SPAN
b) FOR BEAM TOP BAR, LAP MAY BE PROVIDED
   AT MIDDLE THIRD ZONE OF THE SPAN
c) NOT MORE THAN 50% OF THE BARS SHALL BE
   SPLICED AT ONE PLACE
d) LAP SPLICES ARE TO BE CONFINED BY HOOPS WITH MAXIMUM
   SPACING OR PITCH OF d/4 OR 4" WHERE d IS THE
   EFFECTIVE DEPTH OF THE BEAM.

DEVELOPMENT LENGTH
ALL BEAM AND SLAB REBARS SHOULD BE EXTENDED INTO THE SUPPORT UPTO
DEVELOPMENT LENGTH.

ADMIXTURE
APPROVAL BY THE ENGINEER.

WATER STOPPER
10" WIDE PVC WATER STOPPER TO BE USED AT ALL CONSTRUCTION JOINTS
BELOW GROUND IN WATER TANK WALL.
CORNER REINFORCEMENT (CR)
CORNER REINFORCEMENT FOR BEAM SUPPORTED 2-WAY SLABS

L = LONGER CLEAR SPAN
a = TOP BARS
b = BOTTOM BARS
a = c
SPACING OF CORNER BARS = SPACING OF MAXIMUM POSITIVE BARS

CONCRETE CLEAR COVER FOR REINFORCING BARS

<table>
<thead>
<tr>
<th>Member</th>
<th>Location/Condition</th>
<th>Clear Cover</th>
<th>Figure</th>
</tr>
</thead>
<tbody>
<tr>
<td>PILE CAP</td>
<td>Side</td>
<td>75</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Bottom</td>
<td>75</td>
<td></td>
</tr>
<tr>
<td>Column</td>
<td>Above F.G.L.</td>
<td>* 38</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Below F.G.L.</td>
<td>* 75</td>
<td></td>
</tr>
<tr>
<td>Beam</td>
<td>top, side</td>
<td>** 38</td>
<td></td>
</tr>
<tr>
<td></td>
<td>bottom</td>
<td>** 38</td>
<td></td>
</tr>
<tr>
<td>Slab and stair</td>
<td>Top and bottom</td>
<td>.75&quot;</td>
<td></td>
</tr>
<tr>
<td>Wall</td>
<td>Exterior</td>
<td>38</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Interior</td>
<td>38</td>
<td></td>
</tr>
<tr>
<td>Water tank</td>
<td>Water face</td>
<td>2&quot;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Other face</td>
<td>2&quot;</td>
<td></td>
</tr>
</tbody>
</table>

* From tie
** From stirrups

MAXIMUM BARS IN BEAMS IN SINGLE LAYER
MAXIMUM NUMBER OF BARS AS A SINGLE LAYER IN BEAM STEM SHALL BE AS PER ACI DETAILING MANUAL 1994.

MINIMUM BAR SPACING OF COLUMN LONGITUDINAL BARS
CLEAR DISTANCE BETWEEN LONGITUDINAL BARS SHALL NOT BE LESS THAN 1.5 TIMES BAR DIAMETER, 1.5 TIMES OF THE MAXIMUM SIZE OF COARSE AGGREGATE NOR 1.5".
SLAB END REINFORCING DETAILS

a) FREE END OF SLAB INCAPABLE OF EMBEDDING OF STEEL BAR IN BEAM/WALL
b) OTHERS

REINFORCEMENT DETAILS FOR SLAB OPENINGS

n1, n2 : The number of bars which are cut off for opening

- The number of extra bars > n1/2 (top and bottom bars)
- The number of extra bars > n2/2 (top and bottom bars)

RECOMMENDED END HOOKS

<table>
<thead>
<tr>
<th>Bar hook</th>
<th>Form and Extension</th>
<th>Bend Angle (degrees)</th>
<th>Bend Radius (r)</th>
<th>Used Bar</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary reinf.</td>
<td>4db, db</td>
<td>180°</td>
<td>r = 2db</td>
<td>6 to 25</td>
<td>Lap splice end of anchorage</td>
</tr>
<tr>
<td>Tie/stirrups</td>
<td>db, 4db</td>
<td>135°</td>
<td>r = 1.25db</td>
<td>6 to 12</td>
<td>Stirrups fastening bar diagonal hoop</td>
</tr>
<tr>
<td>Primary reinf.</td>
<td>db</td>
<td>90°</td>
<td>r = 2.5db</td>
<td>6 to 32</td>
<td>Bend up for embedment</td>
</tr>
<tr>
<td>Slab</td>
<td>db</td>
<td>45°</td>
<td>r = 5db</td>
<td>8 to 20</td>
<td>Bend bar in slab</td>
</tr>
</tbody>
</table>
SCOPe OF EMbEDEMENT

- Beam that receives bars of slab
  - Main beam that receives bars of sub-beam
- Column that receives bars of main beam or foundation beam

Mark: -------- is scope of embedment

OPENING IN R.C.C. WALLS

NOT LESS THAN THREE NO.20B BARS SHALL BE PROVIDED AROUND ALL DOOR AND WINDOW OPENINGS IN R.C.C. WALLS. THE BAR SHALL BE EXTENDED BEYOND THE CORNERS OF THE OPENINGS TO A DISTANCE EQUAL TO THE DEVELOPMENT LENGTH BUT NOT LESS THAN 24".

END HOOK OF STIRRUPS

END HOOKS OF STIRRUPS ARE LOCATED ALTERNATELY AT TOP CORNER BAR OF THE SECTION.

COLUMN SPLICE LOCATION

A ONLY WITHIN CENTER HALF OF CLEAR COLUMN HEIGHT

H = CLEAR COLUMN HEIGHT
CONFINEMENT REQUIREMENTS OF COLUMN AT JOINTS
FOR EARTHQUAKE LOADING

1/6 clear span of member
maximum cross sectional dimension
500

8db (smallest longitudinal bar)
24db (tie bar)
1/2 (smallest member dimension)
300

28. CONFINEMENT REQUIREMENTS OF BEAM AT JOINTS
FOR EARTHQUAKE LOADING

d/4
8db (smallest longitudinal bar)
24db (hoop bar)
300

s ≤ d/2

Stirrup ties

Cross tie

R.C.C. Wall (typical)

Opening

min. 3-20Ø

min. 3-20Ø
LONG SECTION OF GRADE BEAM

NOTES
Side Covering 45mm
Bottom Covering 76mm
End Covering 76mm

SECTION-01-01
SECTION-02-02

NOTES
fy = 60,000 psi
Mix Ratio = 1:1:3
CASTING WITH BRICK CHIPS
ELEVATION OF CATTLE SHED
DETAILS OF COLUMN SCHEDULE:

0.04 mm Polythin under B.S.B 8th Clear Cover

CROSS SECTION OF COLUMN

<table>
<thead>
<tr>
<th>Floor</th>
<th>Column Size In ft</th>
<th>Vertical Bar</th>
<th>Tie at Column</th>
</tr>
</thead>
<tbody>
<tr>
<td>Northern Part</td>
<td></td>
<td>4 # 16 mm bar 9.0 mm bar = 6°C/C</td>
<td></td>
</tr>
<tr>
<td>East Part</td>
<td></td>
<td>4 # 16 mm bar 9.0 mm bar = 6°C/C</td>
<td></td>
</tr>
<tr>
<td>South Part</td>
<td></td>
<td>4 # 16 mm bar 9.0 mm bar = 8°C/C</td>
<td></td>
</tr>
</tbody>
</table>
FOOTING DETAILS:

1.5" Clear Cover

Great Beam G.L.

Use 10mm ø stirrup 6°C/C

R.C.C

C.C.

B.S.F.

2" Compact Sand Filling

3" Clear Cover

0.04 mm Polythene under B.S.F.

CROSS SECTION OF FOOTING

Schedule of footing:

<table>
<thead>
<tr>
<th>Name of Footing</th>
<th>Size of Footing (In ft)</th>
<th>Reinforcement use in footing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Footing</td>
<td>3'-0&quot; x 3'-0&quot; x 0'-12&quot;</td>
<td>16 mm bar = @ 5°C/C, 65 mm bar = @ 5°C/C</td>
</tr>
</tbody>
</table>

PLAN OF FOOTING

2" Clear Cover

Use 16 mm ø MS bar 5°C/C in both directions
Cross Section Grade Beam

2" Clear Cover
3 # 12 mm Ø M/S ST Bar
3 # 12 mm Ø M/S ST Bar

Cross section of Great Beam
Cross Section Tie Beam

1" Clear Cover
4 # 12 mm Ø M/S ST Bar

Cross section of Tie Beam
## Details of Footing Schedule

<table>
<thead>
<tr>
<th>SL NO.</th>
<th>Footing (A x B)</th>
<th>R x R</th>
<th>T1</th>
<th>T2</th>
<th>T3</th>
</tr>
</thead>
<tbody>
<tr>
<td>F-1</td>
<td>3'-0&quot; x 3'-0&quot;</td>
<td>16mmØ @ 5&quot; C/C Both Ways</td>
<td>18&quot;</td>
<td>3'-6&quot;</td>
<td>1'-6&quot;</td>
</tr>
</tbody>
</table>

**Section of Typical Column**

[Diagram of typical footing and sections]

**Plan of Typical Footing**

[Plan diagram]

**Scale:** 1:100