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|   Quality Control PlanPR/MAR #: ADD 2187 Tender #: 2187 PR/MAR Description: Construction works of a Productive Use of Energy Hub in Awa bare Woreda, Sheder Kebele of Somali Region of Ethiopia as per attached BoQs and designsEssential Specifications and Testing Requirements**Major Input Materials**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Si. No.** | **Descriptions** | **Type and/or Specification** | **Built and/or Brands** | **Quality Control/Assurance** | **Non-Conformity** |
| 1 | Cement | Ordinary Portland Cement (OPC) | Dangote, Muger, Derba & National | Visual Inspection of the brands mobilized to site | * If other cements supplied, a test certificate of the product with a minimum compressive strength of 175Kg/m2 shall provided.
 |
| Visual Inspection for hardened, opened and damage bags. | * Discard from site
 |
| 2 | Sand | Natural Sand | Locally obtained (Sheder) | Visual Inspection source– cleanness, Soil Contaminations and other | * Discard from site
* Apply sand screening methods using wire nets
 |
| 3 | Gravel | Crushed aggregates | Locally obtained (Sheder) | Visual Inspection source– cleanness from Soil contaminations and uniformity Gradations | * Discard from site
* Apply sand screening methods using wire nets
 |
| 4 | Water |  | Locally obtained (Sheder) | Visual Inspection – sources free from alkaline contamination | * Instruction to the Contractor to search for better source
 |
| 5 | Reinforcement Bars | Grade 60 and above | Ethiopia | Verification of Mill Certificate from the Manufacturer | * Discard from site
 |
| 6 | HCB |  | Locally produced (Sheder) | Inspection for sharp edginess, uniformity in sizes and free from damages | * Discard from site
 |
| 7 | Masonry |  | Locally obtained (Sheder) | Source Inspection & Verification of the sources quarry. (hard & sound, free from vents, cracks) | * Instruction to the Contractor to search for better source
 |
| 8 | CIS Roof Covers | G-28 | Akaki Kality/ or Kospi | Verification of the manufactures brand and certificates | * Discard from site
 |
| 9 | Metal Sheets | G-28 | Akaki Kality or Kospi | Verification of the manufactures brand and certificates | * Discard from site
 |
| 10 | Paints (Walls) | Plastic Emulsion | Nifas Silk or Dil | Verification of the manufactures brand and certificates | * Discard from site
 |
| 11 | LTZ profiles | 38 mm x 1.5mm | Locally Produced | Calibration of the thickness | * Discard from site
 |
| 12 | MDB & SDBs | T-Box | Egypt | Verification of the manufactures brand and certificates | * Discard from site
* If Contractor proves unavailability, replace with equivalent standard
 |
| 13 | Conduits | PCV | Unique or Ethio-Plastic | Verification of the manufactures brand and certificates | * Discard from site
 |
| 14 | Light Switches | Mica Framing | Spark or Chint | Verification of the manufactures brand and certificates | * Discard from site
 |
| 15 | ACBs | Various A | Chint | Verification of the manufactures brand and certificates | * Discard from site
 |
| 16 | Sockets | Mica Framing | Spark or Chint | Verification of the manufactures brand and certificates | * Discard from site
 |
| 17 | Light 1 | 2 x 36 W | Philips | Verification of the manufactures brand and certificates | * Discard from site
* If Contractor proves unavailability, replace with equivalent standard
 |
| 18 | Light 2 | 1 x 36 W | Philips | Verification of the manufactures brand and certificates | * Discard from site
* If Contractor proves unavailability, replace with equivalent standard
 |

**Major Works Items**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Si. No.** | **Work** | **Type and/or Specification** | **Built and/or Brands** | **Quality Control/Assurance** | **Non Conformity** |
| 1 | Excavation & Footing | Procedure |  | * Setting-out using Digital survey equipment
 | * Re-work until all are ok
 |
| 2 | Backfill | Procedure |  | * Inspect each layer of Max 20cm
 | * Scrap out compacted materials & rework
 |
| Compaction |  | * Visual Inspection of Compaction levels
 |  |
| 3 | C-25 Concrete | Ingredients |  | * Inspection of all the approved materials from the approved sources are applied
 | * Discard any Concrete made from ingredients that are not approved.
 |
| Mix Proportion | 1:2:3WC Ratio: 0.43 | * Inspect the mix design proportions are being followed
 | * Instruction to the Contractor for corrective measures.
* Instruction to the Contractor to make available standard measuring boxes
 |
| Procedure | Mixing steps & Equipments | Inspect the mixing procurers are being followed. | * Instruction to the Contractor for corrective measures.
 |
| Testing | 28-Days Crushing Compressive Strength of 28N/mm2 | * Take random samples at a first trial mix and review & approve/reject the results
 | * Re-make trial mixes with different WC ratio.
* Material sources change
 |
| Slump Testing | * Taking random samples every 2or 3` batches and verify the slums of the Concrete.
 | * Instruction to the Contractor to search for better source
 |
| 4 | Rebar Cutting & Fixing | Procedures |  | Inspect & verify * the rebar placed are the required diameters
* Arranged accordingly to the design
* Overlaps are met
* Concrete covers are kept
 | * Instruction to the Contractor for corrective measures.
 |
| 5 | Formworks | Procedure |  | Inspect forms and ensure forms ;* Are tightly fixed in accordance with the design
* Are free from dents & holes
* Mold oils are applied to inner surfaces
 | * Request the Contractor for Correcting actions
 |
| 6 | Electrical System | Testing | Current Connectivity Testing | * Conduct joint Connectivity test on every electrical system installed on the building before hand-over the works
 | * Request the Contractor for Correcting actions
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| Contract Testing RequirementsSee table above - Essential Specifications and Testing Requirements |

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| Non-Conformance*See “non-conformity” column under the table above - Essential Specifications and Testing Requirements* |