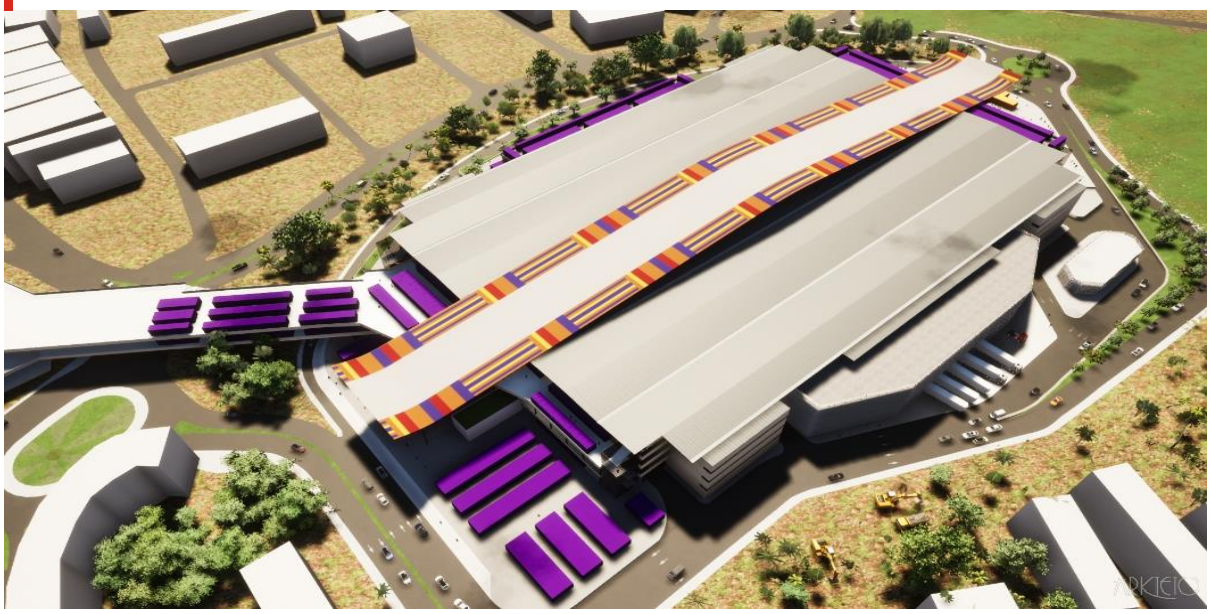
REDEVELOPMENT AND MODERNIZATION OF KUMASI CENTRAL MARKET AND ITS ASSOCIATED INFRASTRUCTURE PROJECT (PHASE 2)

Construction Material Specs



Date: 14 October 2019

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1. INTRODUCTION

1.1. INITIAL CONSIDERATIONS

The purpose of this document is to detail preliminary specification and quantities of the materials to be used on the construction of the Kumasi Central Market Phase 2.

Suppliers that have materials of similar characteristics should present their alternatives to the materials in this report as they are not yet fully defined or established any brand obligation. At this stage of the project may change as regards their characteristics as well as quantities.

All materials and equipment must be certified, in compliance with all regulations and standards established in the country of origin and destination and all proposals must be accompanied by the respective certificates.

1.2. DESCRIPTION OF THE PROJECT

1.2.1. CONSTRUCTION AREAS

The Phase II program foresees a total area of 161,000.00 m² of which approximately 136,000 m² is covered and offers 20,000 m² of open space. Distributed in 04 Market levels: Ground floor (L0), first floor (L1), second floor (L2) and third floor (L3). The first level concedes most of the vehicle parking area. It offers 667 parking spaces, in which 304 parking spaces are for vans and 351 parking spaces for cars, as well as 12 parking spaces for taxis.

Figure 1 - Level 0

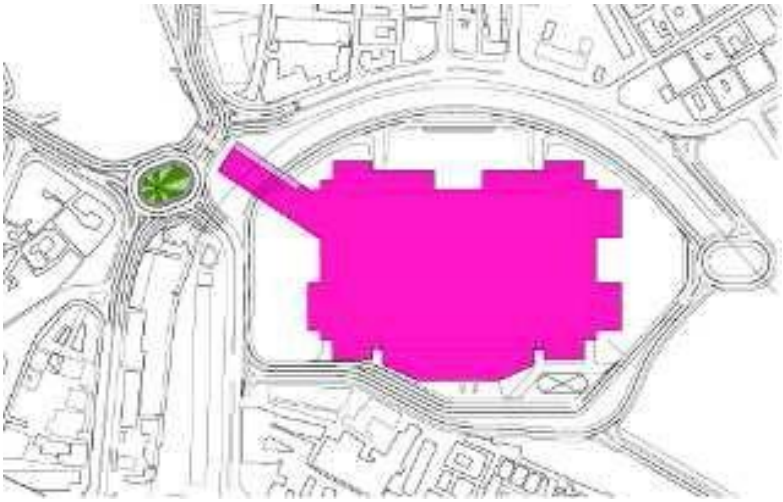


Figure 2 - Level 1

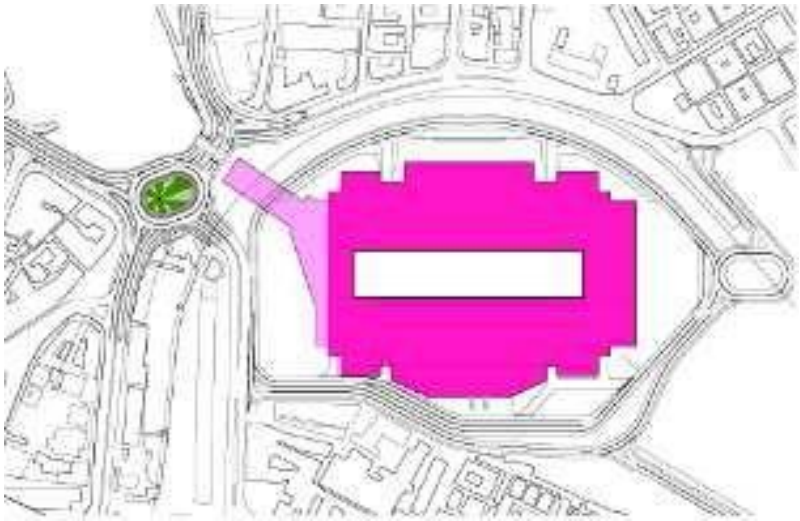


Figure 3 -Level 2

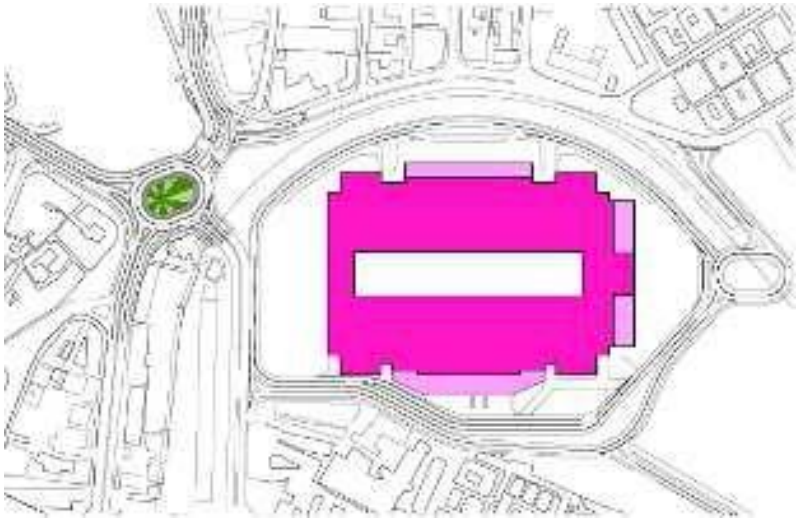


Figure 4 - Level 3

1.2.2. RENDERS

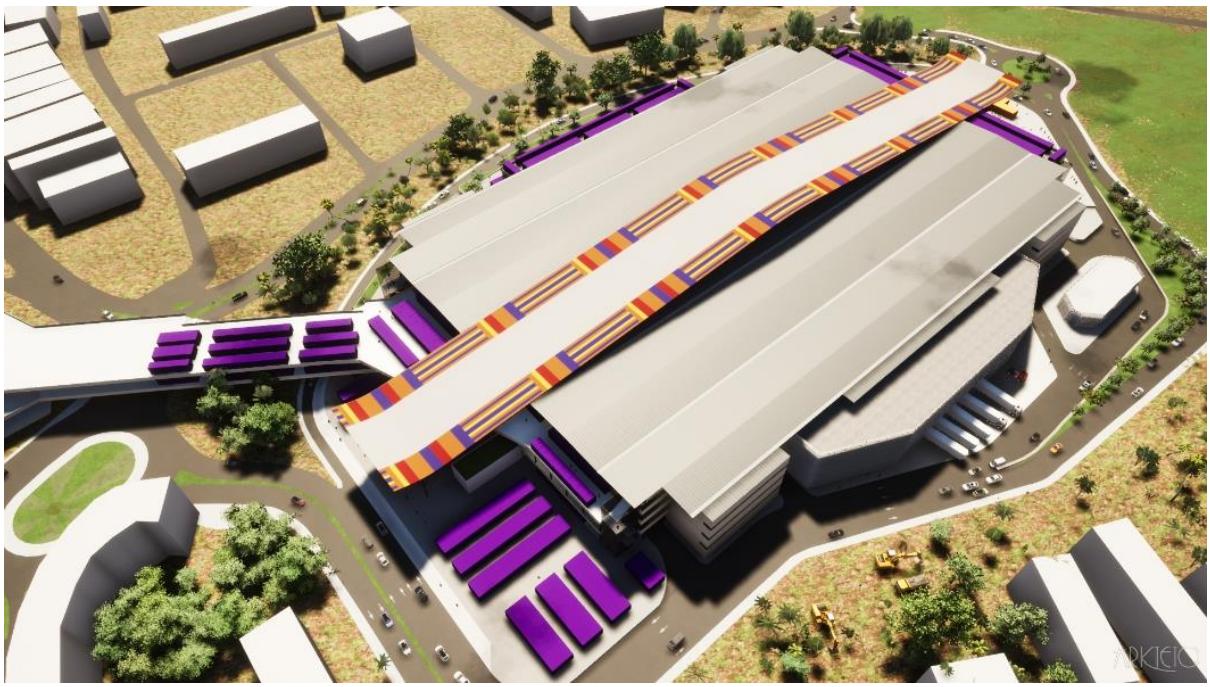


Figure 5 - Render 1

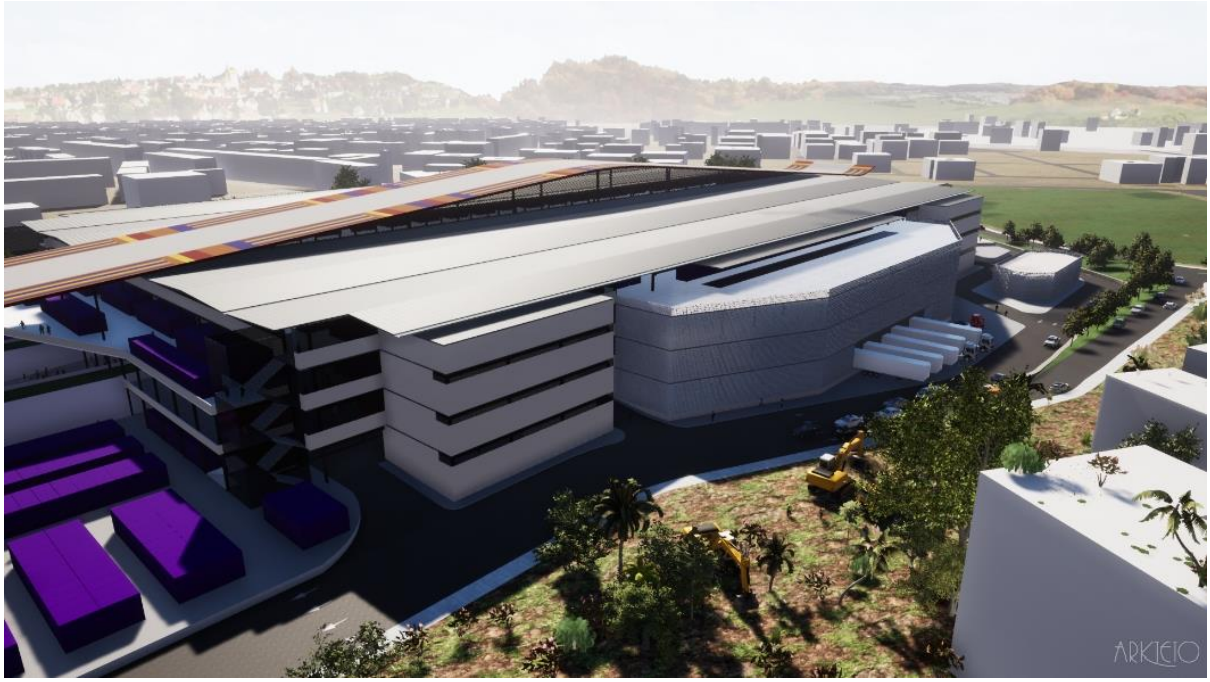


Figure 6 - Render 2

Figure 7 - Render 3

Figure 8 - Render 4

Figure 9 - Render 5

Figure 10 - Render 6

Figure 11 - Render 7

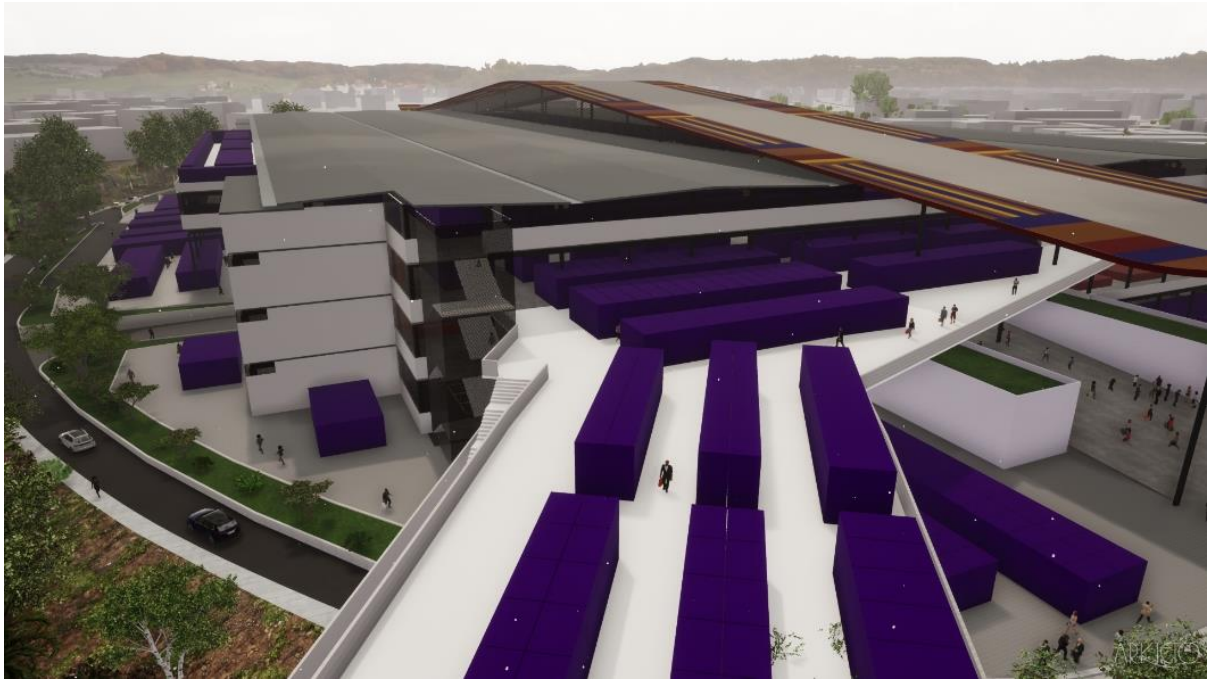


Figure 12 - Render 8

Figure 13 - Render 9

Figure 14 - Render 10

Figure 15 - Render 11

Figure 16 - Render 12

2. STRUCTURAL

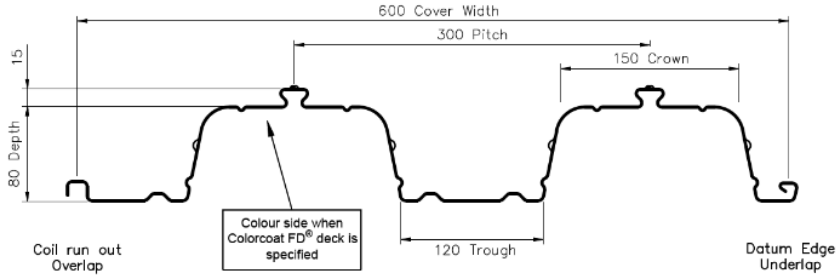
2.0. MAIN BUILDING STRUCTURE

2.0.1. Columns, beans and connections

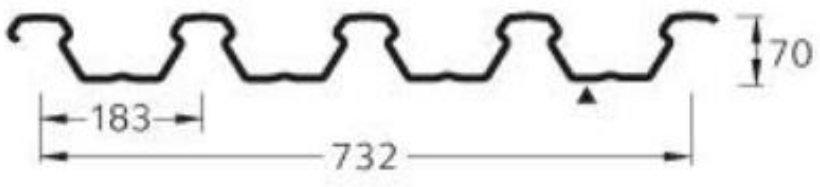
- Quantity: 7,600 tons approx.
- Levels: floor
- Maximum height: 22 meters

2.0.2. Steel deck and shear studs

ComFlor® 80



Cofrastra® 70



- Quantity: 150,000 m2 Confort and 3,000 m2 Cofrasta 70,

2.0.3. Roof, gutter and cladding

- Roof area: 37,500 m2 approx.
- Type: double cladded with insulation

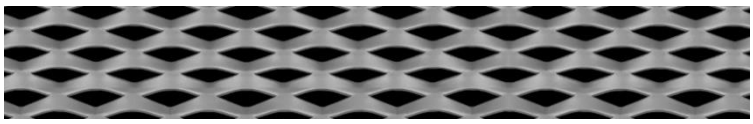
2.0.4. Metal Fibers on Ground-Slab

- Area: 39,000 m2 / 156 ton approx.
- Type: Dramix RC-6560-BN or similar.

2.1. EXTERNAL WALL CLADDING

2.1.1. Aluminium mesh

- Quantity: 15,000 m2 approx.
- Size: 1.60mtX3.00 mt
- Thickness: 2.00 mm
- Type: aluminium, distended



2.1.2. Metal profiles, channels and pipes

- Quantity: 4,800 mt approx.
- Sections: multiples sizes and sections up to 120 mm
- Type: black steel

2.2. STORES

2.2.1. Cementitious panels with Styrofoam for walls

- Quantity: 75,000 m2 approx..
- Sizes: 1.20mt X 3.00mt; 1.00mt X 3.00mt; 1.20mt X 2.20mt
- Specs: Panel Facility EPS Decorlit or similar. Wall Composed on both sides by Cement Plates (CCFS technology) and Expanded Polystyrene core.

2.2.2. Sandwich panel with double metal coating for roofs

- Quantity: 3,000 m2 approx..
- Specs: 2 aluminium sheets with non-aluminium core. 30-50 mm thick.

2.2.3. Channels galvanized and aluminium

- Quantity: 25,000 m approx..
- Specs: aluminium C for floor fixation.

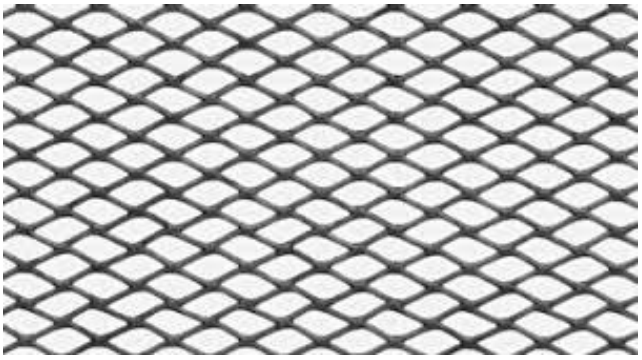
- Quantity: 25,000 m approx.
- Specs: H Galvanized for panel joining.

2.2.4. Rolling Doors / Gates

- Quantity: 10,500 doors approx.
- Specs: Dimension 1.50 m x 2.50 m / 1.80 m x 2.50 m.

- Quantity: 10 un approx.
- Specs: Dimensions 6.5 m x 4.8 m / 9.2 m x 5.25 m.

2.2.5. Distended steel mesh for ceiling



- Quantity: 50,000 m2 approx.
- Specs: 20 x 8 mesh, 0.5 x 1.5 Ext, 1000 x 5500 format, 1.5kg/m2.

2.3. FIXINGS

Quantity: ½" x 4 1/2" floor fixation – 100,000 uni estimated

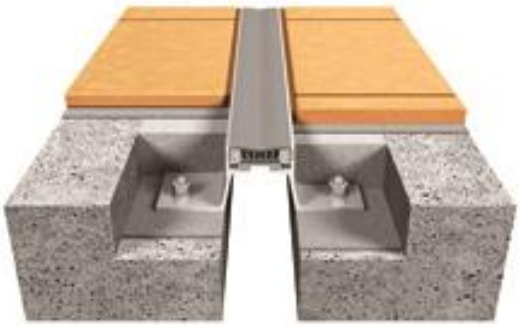
Quantity: 3/8" x 3 ¾" side fixation - 100,000 uni estimated

Quantity: Steel profile LESS THAN 3mm, T1 10mm x 3/4" Drill – 300,000 uni est.

Quantity: Steel profile MORE THAN 3mm, Duraseal Tile 12mm x 7/8"– 150,000 uni est.

Quantity: Steel threaded rod - Various Dimensions – 5.000 mt estimated

2.4. EXPANSION JOINTS



- Quantity: 2,500 m approx..
- Specs: Aluminium and neoprene.

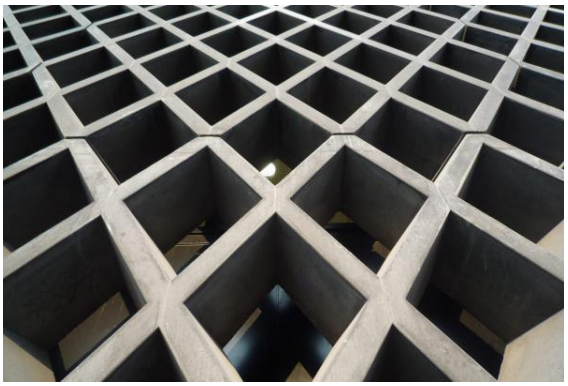
- Quantity: 2,500 m approx..
- Specs: Aluminium Cover.

2.5. RETRACTION JOINTS

- Quantity: 2,000 m Estimated.
- Specs: cylindrical polyethylene cord foam profile.

- Quantity: 3,000 uni/300 ml
- Specs: single component polyurethane mastic.

2.6. CLAUSTRA BLOCKS



- Quantity: 2,600 m2 estimated.
- Specs: concrete panels

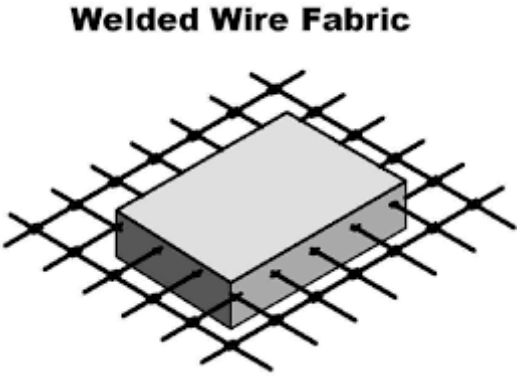
2.7. ADMIXTURES FOR CONCRETE

- Quantity: 118,500 lt approx..
- Specs: Fosroc Auramix 740 SR or similar.

2.8. STEEL BARS FOR CONCRETE REINFORCEMENT

- Quantity: 700 ton approx..
- Specs: Fabric Reinf. in accordance with BS4482/4483:1998.

2.9. STEEL WELDED MESH FOR CONCRETE SLAB REINFORCEMENT

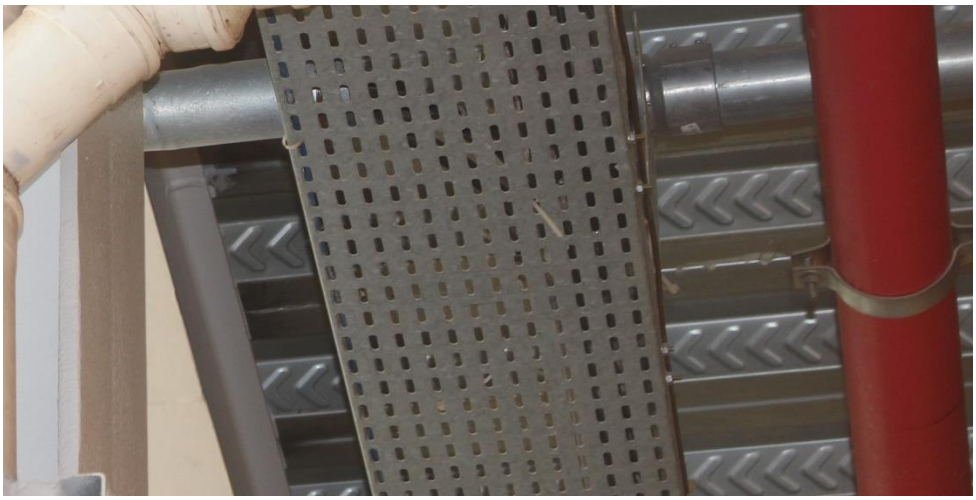


- Quantity: 160,000 m2 approx..

3. MEP

3.0. POWER DISTRIBUTION

- Trays, conduits, boxes and accessories



  - Type: galvanized
  - Width trays: 300mm to 750mm
  - Dimeter Conduits: 12mm to 55mm
  - Length trays: 5,000
  - Length conduits: 65,000
- Cables
  - Type: insulated
  - Sections: multiple
  - Length total: 320,000 mt

- Distribution boards

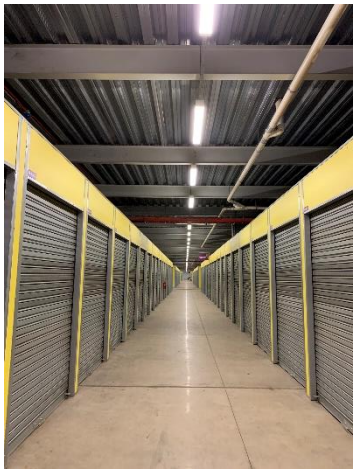
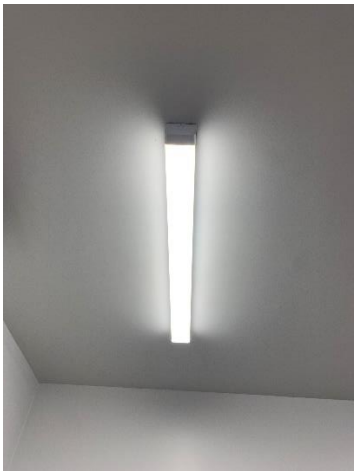
- Types
  - Main: 3,000 kva
  - Floor: 500 to 120 kva
  - Block: 5 to 30kva
- Quantities:
  - Main: 1uni
  - Floor: 12 uni
  - Block: 338

- Sockets

- Type: Double socket, UK type
- Quantity: 11,000

3.1. ILLUMINATION

3.1.1. Store and circulation lights

- Type: led, length .80mt, 15 w
- Quantity: 30,000 uni

3.1.2. Decorative lights

- Type: Led coloured spot lights, 30w, waterproof
- Quantity: 1,000 unis

3.1.3. Emergency lights

- Type: 1 hour, 1050 ln
- Quantity: 500 uni

3.1.4. Street lights

- Type: Led 15W, IP65
- Quantity: 60 uni

3.2. POWER GENERATION

3.2.1. Generators

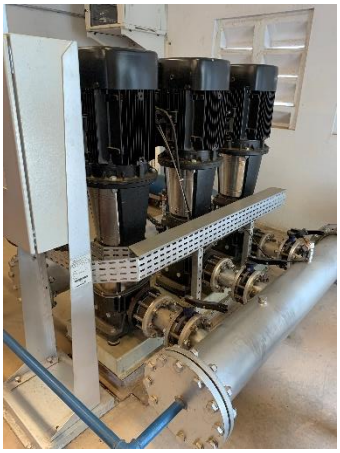
- Type: diesel, 1,000 Kva, fully enclosed
- Quantity: 4 uni

3.2.2. Transformers

- Capacity:1,000 Kva
- Quantity: 4 uni

3.3. PLUMBING

3.3.1. Water distribution pumps



3.3.2. Pipes

- U-PVC BAR BS EN 1401 – Ø110 mm: 114 uni (6 m)
- U-PVC BAR BS EN 1401 – Ø160 mm: 66 uni (6 m)
- U-PVC SINGLE SOCKET 6 BAR Ø 110: 126 uni (6 m)
- U-PVC SINGLE SOCKET 6 BAR Ø 160: 630 uni (6 m)
- U-PVC SINGLE SOCKET 6 BAR Ø 200: 126 uni (6 m)
- U-PVC SINGLE SOCKET 6 BAR Ø 250: 228 uni (6 m)
- PP RIDGIDRAIN 300mm Plain End Ø 300 mm: 3126 uni (6 m)
- PP RIDGIDRAIN 300mm Socketed Ø 400 mm: 354 uni (6 m)
- PP RIDGIDRAIN 300mm Socketed Ø 500 mm: 228 uni (6 m)
- PP RIDGIDRAIN 300mm Socketed Ø 600 mm: 126 uni (6 m)
- RIDGIDRAIN DOUBLE SOCKET COUPLING Ø 300 mm: 354 uni

3.3.3. Floor drains

- Type: Plastic / Metal
- Quantity: 500 uni

3.3.4. Waste Water treatment stations

- Type: anaerobic, packaged
- Capacity: 70m3/day
- Quantity: 3

3.4. WATER STORAGE AND PUMPING

3.4.1. Water Tanks

- Type: Steel, vertical cylindrical, above ground
- Volume: each 350 m3
- Quantity: 2

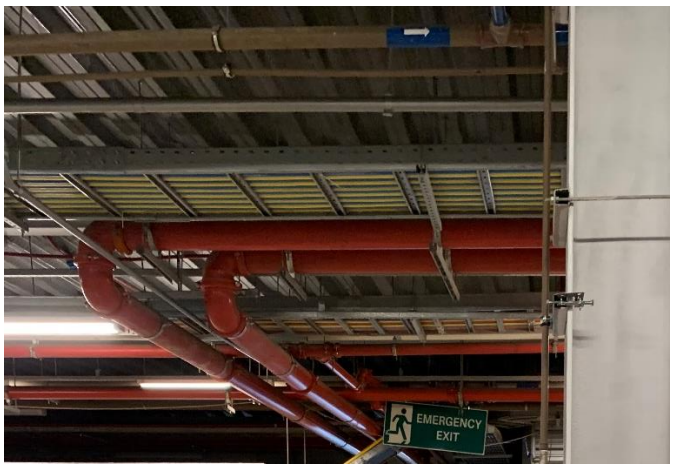
3.4.2. Pumps

- Type: Dual Diesel Engine
- Quantity: 1

3.5. SANITARY EQUIPMENT

- Toilet: 468 uni
- Tank behind wall: 468 uni
- Partitions: 1,671 m2
- Stainless Steel Urinals (made as per specs): 14 uni
- Stainless Steel Basins (made as per specs): 38 uni
- Taps and valves: 394 uni

3.6. FIREFIGHTING AND FIRE SUPPRESSION



- Pipes and connections
  - Type: galvanized steel pipes painted red
  - Connection type: threaded
  - Diameters:
    - Ø 40 mm – 66,000 m
    - Ø 110 mm – 1,750 m
    - Ø 150 mm – 4,500 m
    - Ø 200 mm – 1,000 mm
  - Quantity connections: 15,000 unit
- Sprinklers
  - Type: pendent
  - Quantity: 16,000 uni
- Valves
  - Type: manual and remote actuated
  - Quantities: 450 uni

- Hydrants, hoses and cabinets
  - Cabinet quantity: 125
- Pumps
  - Type: diesel actuated

3.7. FDAS

- Conduits: 10,328 mt
- Cables: 11,361 mt
- Detectors: 1,230 uni
- Fixtures equipment: TBD

3.8. CCTV

3.8.1. Cables and connectors

- Quantity:
  - CAT6 – 1,380
  - Optical Fiber - 2,801

3.8.2. Cameras

- Quantity:
  - Dome: 230 unit
  - PTZ: 16 unit

3.8.3. Control Room Equipment

- Complete with monitors, racks, control and recording equipment

3.9. DATA AND WIRELESS

3.9.1. Cables and connectors

- Quantity:
  - CAT6 – 893 mt
  - Optical Fiber – 1812 mt

3.9.2. Equipment

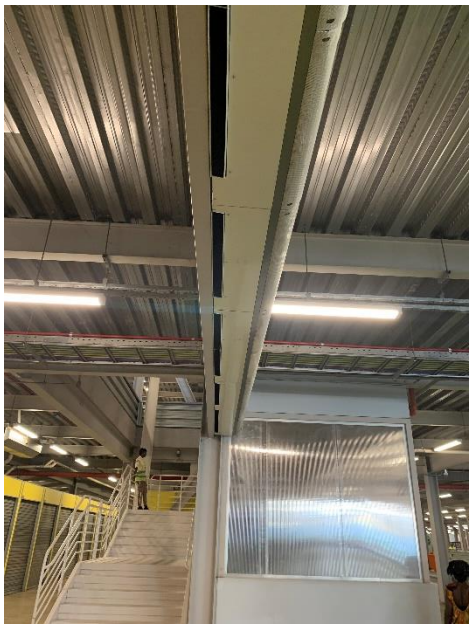
- Wireless routers for public access: 123 units
- Racks and other equipment: TBD

3.10. HVAC

3.10.1. Ventilation

- Galvanized steel ducts
  - Section:200mm X 300 mm
  - Length: 2,100 mt
- Exhaust smoke fans

- Air Curtains



- Quantity: 20 units
- Power: TBD

3.10.2. Air Condition Units

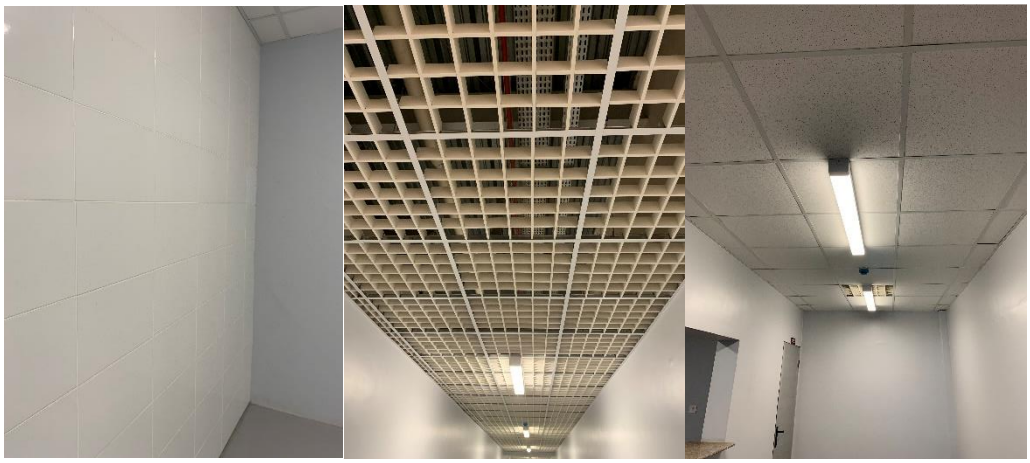
- Type: Split Air Conditioner
- Quantity: 8,000 BTU – 30; 12,000 BUT – 25

4. FINISHES

4.0. PAINTS

- Primer for steel
  - Area to cover: 150,000 m2
- Primer for galvanized
  - Area to cover: 110,000 m2
- Primer for blockworks and ceilings:
  - Area to cover: 15,000m2
- Water-repellent for cementitious panels
  - Area to cover: 120,000 m2
- Self-Levelling epoxy floor coating
  - Area to cover: 750 m2
- Anti-slip epoxy floor paint – Internal and external
  - Area to cover: 35,000m2
- Filler for Wall and Ceiling Skimming
  - Area to cover: 6,500 m2
- Acrylic Paint for Walls and Ceilings
  - Area to cover: 245,500 m2
- Epoxy paint for steel structure:
  - Area to cover: 60,000 m2

4.1. WALL AND CEILING FINISHES



- Porcelain tiles
  - Quantity: 15,000 m2
  - Type:
    - Floor: 600X600X10mm
    - Wall: 600X400X6mm
- Tile adhesive and joint filler
  - Quantity adhesive: 105,000 kg
  - Quantity filler: 7,500 kg
- Acoustic ceiling panels
  - Quantity: 1,500 m2
- Plasterboards standard, fireproof and moist resistant
  - Total area 3,000 m2
- Structure for ceilings (studs, channels, hangers, fixings)
  - Area to clad: 4,500 m2
- Aluminium doors and windows
  - Quantities:
    - Doors 2.10x0.90: 30 uni
    - Windows: 180 m2
- Wood doors
  - Quantities:
    - Doors 2.10x.80: 25 uni
- Phenolic Panels
  - Quantities: 1.850 m2 approx.

4.2. SIGNALS

Signalling for identification of stores, levels, accesses, service areas, bathrooms and emergency.

- Quantity: 15,000 uni multiple dimensions.
- Type: High light intensity photoluminescent rigid PVC.

5. EQUIPMENT

5.0. ELEVATORS

- 6 units
- 4 stops
- Heavy duty, sturdy finishes

5.1. ICE MACHINE

- 150 Kg per hour

5.2. COOLING CHAMBERS FOR ICE AND PRODUCE STORAGE

- Quantity: 2 units
- Type: Containerized 20 ft
- Power Supply: 360v

5.3. KITCHEN EQUIPMENT (STOVES, OVENS, HOODS, EXTRACTORS, ETC)

- Quantity: 60 sets

5.4. REFRIGERATED COUNTERS

- Quantity: 60 units
- Dimensions
  - Ground based 1.80 mt
  - Counter top 1.20 mt

5.5. PUBLIC AREAS EQUIPMENT

- Benches

- Quantity: 100 units
- Type: External installation (aluminium and plastic/PVC)

- Tables with benches

- Quantity: 220 units
- Type: Type: External installation (aluminium and plastic/PVC)

- Bins

- Quantity: 60 units
- Type: Type: Stainless Steel

6. MISC

6.0. PPE

- Safety Helmets
- Safety Boots and Shoes
- Face and eye protection
- Gloves
- Harnesses
- Other Personal protection equipment

6.1. SCAFFOLD MATERIAL

- Base jacks
- Standards, ledgers and braces
- Deck
- Fixtures and connectors

6.2. FORMWORKS

- Modular sets for pile-caps metal and plastic
- Modular sets for retaining walls and columns

6.3. TOOLS

- Miscellaneous power tools
- Miscellaneous power tools cordless
- Miscellaneous hand tools

6.4. CONSUMABLES

- Nails
- Steel cutting and grinding disks
- Electrodes and welding consumables
- Silicone, epoxy and other construction adhesives
- Nuts, bolts, screws, threaded bars, washers, anchors, etc.

7. GENERAL CONDITIONS

- Specs and quantities are preliminary and subject to revision or exclusion
- Adequate for intensive use
- Low maintenance (i.e. reduced dependence on tech)
- Tropical environment – temperature, humidity and dust
- Power in Ghana -
- For export – packaging and documentation
- Preferable CIF Ghana
- Submission of tech specs and datasheets for approval by client / engineer
- Spare parts availability and after sales support
- Selected items will have factory inspection