# Regional Office

The regional office shall be located within the substation land but with separate access from the road and secured with a chain-link fence. The office shall have 10 separate dedicated parking lot. The final paint finish shall be as per KETRACO approved branding. The general construction features for the civil construction works of the office shall be as follows:

## Foundations

All foundations shall be placed in-situ on the ground prepared as defined in chapter "Earthworks and Excavation ". One layer of 5cm thick lean concrete shall be placed prior to casting of foundations. The requirements for the foundation concrete and lean concrete are specified in chapter “Concrete, Reinforced Concrete and Mortar”.

All foundations and structural parts of basement foundation walls that are below the water table shall be protected with a waterproof cover against percolation of water on the bottom and on the outside of the walls, considering the pertinent water pressure at the relevant depths.

## Structures

The main building shall be constructed as a reinforced concrete frame structure consisting of columns, beams, and slabs. The height of the office shall provide minimum 1.2 m clearance over the top of the tallest cabinets/panels to the bottom of ceiling.

Ramps shall be constructed for access into the office by persons with disabilities. The ramps shall have a maximum gradient of 1:12.

The Regional Office shall house the following in separate fully furnished rooms:

* 1 Regional Manager’s office room
* Meeting room with 12-seater boardroom set
* Small meeting room with 6-seater boardroom set
* Open plan office for 16 officers and 1reception staff
* Storeroom
* Furnished kitchen
* Separate washrooms for Ladies and Gents

The Regional Office layout shall be as per the bid drawings provided.

### Office room for Regional Manager

The Contractor shall provide an office with minimum dimensions as per the bid drawing. The office shall be furnished with an executive office desk and three (3) leather office chairs. In addition, the office shall be fitted with a filing cabinet with glass doors.

The floor finishing shall be tiled flooring with a matching skirting as per the Employer/Employer’s representative requirements. The wall finishing shall be cement plaster with white flat emulsion paint finish.

### Meeting rooms

The Contractor shall provide two meeting rooms with minimum dimensions as per the drawings, and capable of hosting 12 and 6 people respectively. The main meeting room shall be furnished with a 12-seater conference table together with leather chairs. The room shall also be fitted with a wall mounted 85 inch TV as per the Employer/Employer’s Representative approval. The smaller meeting room shall be furnished with a 6-seater conference table together with leather chairs.

The floor finishing shall be tiled flooring with a matching skirting as per the Employer/Employer’s representative requirements.

The wall finishing shall be cement plaster with white flat emulsion paint finish.

### Open plan office

The Contractor shall provide a open plan office with minimum dimensions as per the drawing with 16 work stations. The open plan office shall be fully furnished with working tables, office chairs and cabinetry as per Employer/Employer’s Representative approval. Adequate power supply shall be provided for each workstation. All electrical connections shall be concealed.

The floor finishing shall be tiled flooring with a matching skirting as per the Employer/Employer’s representative requirements.

The interior wall finishing shall be cement plaster with white flat emulsion paint finish

### Washrooms for Ladies and Gents

The Contractor shall provide separate washrooms for Ladies and Gents. Each washroom shall be fitted with WCs, and washbasins. Urinals shall be fitted in the Gents washroom.

The washrooms shall be fitted with windows to allow for adequate ventilation and natural light. An extractor fan may be provided, if need be, subject to the Employer/Employer’s Representative’s approval.

The floor finishing shall be non-slip ceramic floor tiles.

The interior wall finishing shall be ceramic wall tiles up to 200mm below ceiling level. The remaining section shall be cement plaster with white flat emulsion paint finish.

### Lavatory basins

Lavatory basins in the sanitary shall be white ceramic, with mirrors, to be approved by the Employer before purchase or fixing in the works.

### WCs and cisterns

Unless otherwise agreed or directed, water closet pans shall be of western type, white ceramic or metal. Flushing cisterns of white ceramic metal or plastic. All materials shall be approved by the Employer/Employer’s Representative before fixing in the works.

### Urinals

The urinal shall be white ceramic.

### Waste water system

The wastewater from kitchen, sink, wash basin, urinal and exterior taps shall be connected by drain pipes to septic tank and soak pit outside of the office building.

### Store room

The store room shall be located, reference to the road, in manner to allow for movement of equipment with large enough turning radius. It shall have both external and internal access.

The floor finishing shall be tiled flooring with a matching skirting as per the Employer/Employer’s representative requirements. The wall finishing shall be cement plaster with white flat emulsion paint finish.

### Furnished kitchen

The floor finishing shall be non-slip ceramic floor tiles with matching skirting.

The wall finishing shall be ceramic tiles to a height of 1500mm above the floor. The section above shall have cement plaster with white flat emulsion painting.

The kitchen shall be equipped with a sink with hot and cold running water, a refrigerator, counters, and kitchen cabinets arranged according to a modular design. The kitchen shall also be equipped with a microwave, an electric kettle, a combined gas and electric free-standing cooker and a cooker extractor hood.

The kitchen sinks shall be fitted with adequate plumbing including mixers to accommodate/suitable for solar water heating system.

The cabinets shall be made of wood veneers adhered to plywood or furniture-grade particleboard. The kitchen shall have granite countertops.

The fittings in the kitchen shall be subject to approval by the Employer/Employer’s Representative.

## Walls

All walls to be erected between the concrete columns shall be of 200mm machine-cut stones. All external walls shall be painted with at least two coats of synthetic resin paint.

The contractor shall make provision for all electromechanical and plumbing installations before placing the finish.

## Roof Structure

The office building shall have reinforced concrete slab roof and Gable roof with galvanized steel gutter and gutter strap. The gable ended roof, consisting of 0.8mm thick IT5 roofing sheet shall be installed on steel trusses coated with suitable paint as approved by the Employer/Employer’s representative.  
The steel trusses shall be anchored directly on the reinforced concrete roof slab; constructed with concrete and steel which satisfied the requirements under relevant sections of this specification. A short parapet wall of masonry block work shall be erected to seal the space between the top of the roof slap and the soffit of the roofing sheet. The gable roof shall have a minimum pitch of 35⁰

The contractor shall make provisions for all electromechanical works before casting the roof slab.

## Ceilings

The ceiling finishing shall be cement plaster with white flat emulsion paint finish. The contractor shall make provision for electromechanical and plumbing installation before casting the roof slab. The design should incorporate all services that shall be located and/or passed through the ceiling.

### Suspended ceilings

Double-grid acoustic suspended ceilings shall be made from square type Aluminium panels of a type and colour as approved by the Employer / Employer’s Representative. Minimum panel thickness shall be 0.80 mm. Adequate and integrated light fittings (including emergency lighting) have to be provided as well.

## Flooring

### Materials (Quality, Delivery, Storage, Handling)

Flooring shall cover the following:

* bonded cement screed
* tiled flooring

### Tiled Floors

This is subject to approval by the Employer/Employer’s Representative.

The base for coverings to be placed without underlay shall be smoothed with filler compound. In the case of major unevenness, a suitable levelling compound shall be used.

Any filler or levelling compound shall be applied so that it will bond firmly and durably to the base, will not crack and will adequately withstand pressure.

## Doors and Windows

### Windows

All windows for the regional office shall be double glazed windows with heavy duty anodized Aluminium frames. They shall be burglar proof. The windows shall have grey reflective solar control film.

All joints shall be all-weather sealed.

The size of the window openings of the regional office shall be of minimum dimensions 1500mm by 1500mm. These windows shall be sliding windows. The window openings and grooves in the frame or wall shall be capable of accommodating the sliding sashes when opened. The sliding mechanism should be wheeled for smooth movement. The windows shall have at least two sashes that overlap slightly and slide horizontally within the frames. This shall apply for all windows except those in the washrooms.

The size of the window openings in the washrooms shall be of minimum dimensions 600mm (width) by 800mm (height). These windows shall be awning windows that open outwards at the bottom.

The size of the window openings in the telecommunication room shall be of minimum dimensions 1000mm (width) by 600mm (height). These windows shall be fixed windows that will not open but only allow light.

Ultimately, the final window sizes and design shall be subject to approval by the Employer/Employer’s representative.

### Aluminium windows

The construction features of Aluminium profile windows shall be identical to those specified for doors of Aluminium profiles.

Sizes as per relevant design. All movable windows shall be bottom hung. All hardware shall be of concealed construction in the Aluminium frames; the parapet shall be covered with an Aluminium sill. Double glazing as per Specification. All fixings, screws, bolts, etc. shall be of stainless steel and of approved size and type.

### Louvres

Openings in exterior walls for air inlet and outlet, shall be covered with louvers and dust filters. The size shall be in accordance with the design.

Thickness of steel sheet shall be minimum 1.5 mm. The louvers shall be mounted on L profile steel frame, galvanized and of minimum thickness 50/50/ 4 mm. The opening behind the louvers shall be covered by Aluminium screen for protection against insects and birds. The dust filters shall be specified according to the demands of ASHRAE.

The louvers shall be fixed to the walls. All fixing accessories such as screws, nuts, bolts, etc., shall be of stainless steel.

The joints between wall and steel frame shall be filled with mineral wool and shall be sealed with permanent elastic sealing compound approved by the Employer / Employer’s Representative.

### Window Blinds

Vertical blinds complete with pull chains, carrier truck, cord weight, brackets and hangers will be provided and installed for each window. The fabric shall be fire-retardant.

## Doors

The Contractor shall make provision for at least two main external entrances into the regional office, whose location shall be made to abide to the Fire and Safety Regulations. Both the external doors to main regional office shall be double-leaf.

The external doors shall be made of 1.5mm minimum thickness zinc-coated steel sheet to BS 1449 and BS EN 10152 and shall incorporate welded corners. The frames shall also be made of zinc-coated steel. These doors shall be fitted with a panic lock and shall support provision for access control facilities.

All internal doors shall be single leaf and shall be made of heavy-duty anodized Aluminium.

The doors shall have adequately sized glass transom windows at suitable height subject to approval by the Employer/Employer’s Representative.

All doors shall be fire resistant, and the construction must meet the following requirements:

* All external doors shall be provided and installed such that they will open to the outside of the office.
* All internal doors shall be provided and installed such that they will open to the inside of the respective room.
* All doors shall be capable of being opened from inside the rooms without using a key.
* All doors shall be provided with a key system subject to the approval of the Employer/Employer’s Representatives.
* All doors shall be triple hinged doors.
* Suitable dust covers shall be provided for all outside doors and all joints shall be all-weather sealed.

### Gauges of sheet steel

Except where other gauges are indicated or specified, the gauges of sheet steel shall not be lighter than the following gauges:

* Door frames in general 16
* Frames in hinged doors, having an inside height of more than 1.8 m 16
* Architrave, auxiliary frame, etc. 16
* Door saddle, rails, stile, panel plate, flush plate 16

### Steel doors criteria

All galvanized steel doors must meet the following minimum requirements under this contract as specified hereafter:

* Material: Steel sheet of at least 1.0 mm thickness
* Frames: To be made at least of 2.0 mm thickness.
* Build-up: Steel doors shall be of double skinned construction, fully filled with suitable, approved fire-resistant material.
* Hinges: Each door leaf shall be fixed at least 3 hinges.
* The fixing of the doors to the walls shall be accomplished by means of flat steel anchor strips 40/4 mm and 8 to 10 mm diameter steel bolts, either cemented into walls where masonry or concrete will be met or welded to a steel substructure. On a length of 2.50 m, a minimum of 3 anchors have to be provided. The lengths of the bolts shall be such that they will stand the stresses to be expected.
* Hardware: All doors shall receive mortice locks for steel doors, with back sets of 65 mm; the function of the locks shall be of the night latch type with one separate dead bolt.
* stainless steel lever handles. Alternatively, on one side a knob may be requested by the Employer / Employer’s Representative
* stainless steel door handle plates or roses
* Cylinder lock for general master key system
* stainless steel roses for the cylinder lock, unless covered by handle plate stainless steel dust cover to locks at outside door closer.
* The clearances for hinged doors shall be 3 mm at jambs and heads, 6 mm at meeting stiles of pairs of doors and 6 mm at bottom, unless specifically indicated or specified otherwise.
* Joints formed with mechanical fastenings shall be closely fitted and made permanently watertight.
* Top and bottom edges of all metal doors shall be closed to provide a weather seal. This seal may be provided as part of the door construction or by the addition of inverted steel channels or other suitable shapes welded to the face sheets.

### Insulation

Jambs, heads, sills and exterior mullions, window units and exterior door frames shall be completely insulated with fiberglass in place and of thickness as shown on the approved drawings.

### Connectors

Exposed screws and bolts for Aluminium work shall be Aluminium alloy or stainless steel, lengths as required and chemically treated to match the bronze finish whenever used on duranized items. Modified truss and pan heads may be used, if approved by the Employer / Employer’s Representative, in areas where counter-sinking is not practicable due to gauge of finish material.

### Metal finishes

Unless otherwise specified, Aluminium surfaces shall conform to the following: Duranodic finish, or equivalent.

All exposed Aluminium surfaces shall have a finish with standards and procedures equivalent to the Bronze Natural Colour applied to mill finish.

The coating shall be applied having a minimum thickness of 17 µm and have a minimum weight of 5 mg/cm2. Colour range samples shall be submitted to the Employer / Employer’s Representative for approval before commencing with the production.

### Criteria for the construction of doors, windows and walls of Aluminium profile

General construction features:

Table 1: Criteria for the construction of doors, windows and walls of Aluminium profile

|  |  |
| --- | --- |
| Height/width | As shown on approved drawings |
| Material | Frames of extruded Aluminium profiles of decorative duranodic or powder coating finish; quality of Aluminium alloy to withstand the adverse local climatic conditions a 5-year guarantee has to be given on all materials |
| Sections | Approx. 55 mm (deep) x 110 mm width, thickness not less than 2 mm, and the bottom rail 125 x 55 mm |
| Glazing | Double Glazing, with glazing stops of square profile of the snap-in type, with neoprene bedding for glass panes (glazing clips) |
| Fanlights | As per relevant description |
| Hardware | Security bolt lock with profile cylinder for master key system; 1 floor mounted automatic door-closer with hold-open at 150 degrees with floor stop, door-holder and cover-plate; top off-set pivots in Aluminium; Aluminium cross- bars on both sides of each leaf as pull/push handle, 200/10 mm tubular section; all bolts and screws shall be concealed in the frame of the top flush type; rose type fact plates for lock and cylinder; all material stainless steel |
| Fixing | Fixing of Aluminium frame to the structure shall be done as per the standard and as approved by the Employer / Employer’s Representative with anchor plates and bolts, rigidly cemented into wall. Space between door construction and concrete/masonry wall shall always be filled with rock-wool or other approved insulation. |
| Joints | Joints of doorframe to walls shall be covered with Aluminium angles 25/25/2 mm on each side, and the outside shall be sealed with permanent elastic materials. |

These construction features apply to single and double winged doors, fanlights, as well as to fix side frame elements or any other exterior glass wall elements.

The components of the construction shall be sized to the stress required, but not less than mentioned as follows:

* Built-in frame 30/110/2 mm
* Mullions 50/110/2 mm

During application of grouts, the Contractor shall give special attention to manufacturer's written instructions and follow them carefully.

* Sidelights framing 50/50/2 mm
* Fanlight framing 50/50/2 mm

For door stop, rubber seal required

The hardware for the metal work shall be furnished and installed in the door by the Manufacturer, and shall include standard items as follows:

* Mortice security lock, prepared for the profile cylinder for the key system.
* Door-o-matic floor spring, with backstop, consisting of fully hydraulic closer with adjustments for spring tension plate closing and latching speed, cover-plate of stainless steel
* Top offset pivot of stainless steel
* Push bars on each side of each wing as pull handle, height 200 mm, approx. 10 mm thickness, Aluminium tubular section, width same as door wing, securely fastened into spacer, mounted by screws on the door sills
* Profile cylinders
* Weather shield of extruded Aluminium profile
* Double glazing, safety glass

## Painting

### Paints

The Contractor shall submit for approval the name of the manufacturer proposed to be used. Only paints suitable for the climatic conditions of the site shall be used.

All materials shall be delivered to site in sealed containers on which the maker's name, specification and date of manufacture are clearly displayed and shall be stored to comply with the requirements for the preservation of the paints.

Colours and undercoats as described in the KETRACO colour manual and approved by the Employer shall be used.

## Portable Fire Extinguishers

The extinguishers shall be designed, installed and tested in accordance with NFPA No. 10 and SASO standard of latest edition. Extinguishers shall be distributed in all staircases and corridors in a manner that traffic will not be obstructed. As a further condition, extinguishers shall be located at easily visible and accessible locations considering the event of fire.

Dry chemical extinguishers, multi-purpose cartridge type, shall be supplied. As a rule, powder units containing 12 kg shall be supplied which combine all of the extinguishing effects and are permitted for fires of class A to C in the presence of electrical voltage up to 1000V. For class D fires involving combustible metals, dry compound extinguishers shall be introduced.

The portable fire extinguishers shall be fitted with spring headed interchangeable safety valves.

Rooms and areas where a voltage above 1000V may be present and/or housing relays control and computer units shall be equipped with portable carbon dioxide extinguishers. In addition, suitable masks to prevent injury to personnel shall be supplied and placed within easy reach of regional office personnel.

All extinguishers shall be designed to service over a period of 20 years taking the conditions at the site into account.

The supplied extinguishers shall be provided as early as possible; at the latest, on commencement of pre- commissioning preparation of regional offices and equipment.

Reference shall be made to the respective fire protection standards during the construction period.

After completion of the installation, random tests of 5% of the portable extinguishers supplied shall be performed in connection with a training program. The necessary refills shall be provided by the Contractor.

The following arrangement criteria shall be met:

* Maximum travel distance to an extinguisher: 25 m
* Maximum area to be protected per extinguisher: 500 m2

The fire protection requirements may be fulfilled by several extinguishers at ratings lower than 12 kg. This shall be subject to approval by the Employer/Employer’s Representative.

## Furniture

In general, furniture requirements shall be as stipulated in this Specifications and subject to the Employer/Employer’s representative approval.

The office chairs shall be of ergonomic design.

## Clean Water Supply System and Wastewater System

Water supply system shall be improved. The contractor shall be required to connect to the existing water distribution system around the substation area. A borehole shall be sunk at Rumuruti Substation. The water supply for the control building and guard house is via an overhead tank. Main pressed steel water tank of 30,000 litres (as minimum) capacity to be provided at Rumuruti SS , adequate to serve requirements of control building, staff housing, Regional office and guard houses, automatic level controls shall be provided. The ground water tank shall be placed on RC Foundation. Also, 10,000 litres elevated pressed steel water tanks shall be considered near the control building, Regional office and staff housing with required pumps to be fed from the main water reservoir. For Kabarnet substation additional 10,000 liters elevated pressed steel water tank shall be provided and interconnected with the existing water supply system. It is to be noted that water pumps to be solar powered.