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MATRIC NO.: 18/ENG04/029

DEPARTMENT: ELECTRICAL & ELETRONICS ENGINEERING

COURSE CODE: ENG 284

COURSE TITLE: ENGINEER IN SOCIETY

ASSIGNMENT;

Engineering Consultancy Assignment

1. Project Title: Rehabilitation / Expansion of Alfa Belgore Project

Project Location: Afe Babalola University, Ado-Ekiti

Initial Process

The initial processes needed to be carried out before the project can be carried out are;

- Approval of the project by the local government
- Drafting the building plans for the desired structure of Alfa Belgore
- Planning of the project with the construction company
- Preparation and submission of the bill of cost to the client
- Approval of the bill of cost by the client (Afe Babalola University's board of directors)
- Site surveying
- Clearing of site
- Securing the site
- Insertion of pillars
- Construction of stairs
- Decking of building
- Building of extra floors
- Reroofing/Insertion of the roof structure
- Wiring of the building
- Plastering the walls

- Insertion of electrical components
- Painting
- Commissioning

Phases of the building project

Phase 1: Site work

Site work can be defined as the preliminary work of getting a construction site ready for development, Site work sets the stage for everything that is to come, protects the site and helps minimize or eliminate a range of potential future problems. When renovating a building, the foundation needs to be reassessed to determine if it is strong enough to handle the building extension or not.

Phase 2: Superstructure

Superstructure is the portion of a building which is constructed above the ground level and it serves the purpose of structure's intended use. The project will require the addition of extra support systems such as columns, beams, slab upwards including all finishes, door and window schedules where needed, and also flooring and roofing

Phase 3: Façade

Façade is the exterior wall or face of a building, and it usually involves design elements like deliberate placements of windows or doors, the façade in a building is often the most important aspect from a design standpoint, as it sets the tone for the rest of the building.

Phase 4: Interior Construction

After the façade has been completed, the interior “fit out” begins with the construction of the interior walls and ceiling frames. Concurrently, the initial rough mechanical piping, ductwork and electrical wiring is put in place before the finished materials are applied to the rough.

Phase 5: Commissioning

Commissioning is the process of assuring that all systems and components of the building are designed, installed, tested, operated and maintained according to the operational requirements of the owner or the final client. The planning for this process begins during the design phase, and the actual testing begins as the equipment is installed and continues through the early stages of the initial operation of the building.

Phase 6: Landscaping (optional)

Landscaping refers to the process or activity that modifies the visible features of an area of land which can be through the addition of living elements such as plants. Landscaping can be done to increase the aesthetic value of a building and it is usually done after the building has been completed.

2. The duration of the processes are as follows;

- Approval of the project by the local government – 5 days
- Drafting the building plans for the desired structure of Alfa Belgore – 4 days
- Planning of the project with the construction company – 5 days
- Preparation and submission of the bill of cost to the

client – 3 days

- Approval of the bill of cost by the client (Afe Babalola University's board of directors) – 3 days
- Site surveying – 6 days
- Clearing of site – 7 days
- Securing the site - 7 days
- Insertion of pillars – 19 days
- Construction of stairs – 22 days
- Decking of building – 23 days
- Building of extra floors – 24 days
- Reroofing/Insertion of the roof structure – 15 days
- Wiring of the building – 7 days
- Plastering the walls – 8 days
- Insertion of electrical components – 6 days
- Painting – 6 days
- Commissioning – 1 days

3. The Project Team:

Architect (Lead consultant): The architects plans, designs and oversees the construction of the building project.

Materials Engineer: The materials engineers develops,

process and test materials to be used during the building renovation. They also work to create composites, which combines other materials to create new ones specific to solar applications

Electrical Engineer: Electrical Engineers develop, designs, test and manage the manufacture of electrical components used during the building renovation. They are also involved in the design of the electric circuitry, wiring and other supporting devices

Civil Engineers: They design, fabricate, supply and are involved in the installation of building structures such as the beams, pillars, etc., they are also involved in designing the skeleton or structure of the building.

Mechanical Engineers: Mechanical engineers are in charge of handling the piping, water supply, and also in the designing of the proper heating, ventilation and air conditioning systems.

Miscellaneous workers/Laborers: They are involved in some of the preliminary works, removal of obstacles, the site clearance and other tedious activity being assigned to them by the supervisor or project manager.

Technicians: They are involved in the installation of some of the equipment or components used.

Project Mangers: Project Managers ensure that the project is progressing as expected and that its meets the clients specifications. They are also involved project planning and control and they ensure that all required documentation are obtained.

4. Construction sites are very hazardous environments and they are also prone to several issues or incidents, and as such are secured to prevent such issues from arising which may include:

- Theft of expensive equipment and materials which can lead to an increase in the expenses procured.
- To prevent injury to individuals found around the construction site which can cause legal issues.
- To prevent unauthorized or unwanted individuals to enter the site.
- Vandalism and destruction of useful equipment and materials which may delay the completion of the building project.

5.

| Bill no | Description | Amount Paid |
|---------|--------------------------------|-------------------|
| 1 | Preliminaries | 15,600,000 |
| 2 | Miscellaneous | 12,000,000 |
| 3 | Consultancy fee | 18,000,000 |
| 4 | Site Preparation and clearance | 6,000,000 |
| 5 | Profit | 24,000,000 |
| 6 | Transport | 14,400,000 |
| 7 | Materials Cost | 20,000,000 |
| 8 | Other works | 10,000,000 |
| | | Total=120,000,000 |

6.

| S/N | Purpose of payment (Bills) | Date to be payment | Amount paid |
|-----|----------------------------|--------------------|-------------|
| | | | |

| | | | |
|---|----------------------|------------|----------------------|
| 1 | Mobilization | 12-04-2020 | 36,000,000 |
| 2 | 50% completion | 02-07-2020 | 36,000,000 |
| 3 | Building completion | 30-09-2020 | 48,000,000 |
| 4 | Defect liability fee | 30-03-2021 | 12,000,000(retained) |
| | | | Total=120,000,000 |

7. BEME: BEME stands for Bill of Engineering Measurement and Evaluation, it is also referred to as bill. It is a tool used before, during and post-construction to assess and value the cost of construction works. It includes the cost of materials, labor, equipment and all/any other resource(s) required for the success of any construction endeavor based on a pre-determined scope and specification.

Defect Liability Period: Defect Liability Period, sometimes referred to as rectification period, is a set period of time specified in the contract (usually after a construction project has been completed) during which a contractor is legally required to return to the site to remedy defects which have appeared in that contractor's work since the date of construction. The average defect liability period usually lasts between 6 - 12 months.

Lead consultant: The lead consultant is the consultant that directs the work of the consultant team and is the main point of contact for communication between the client and the consultant

team, except for on significant design issues where the lead designer may become the main point of contact.

Project Life Cycle: A project life cycle is the sequence of phases that a project goes through from its initiation to its closure which is designed to help guide project managers guide their projects successfully from start to finish. It is usually broken down into initiation, planning, execution and closure.

Environmental Impact Assessment(EIA):Environmental Impact Assessment can be defined as the systematic examination of unintended consequences of a development project or program, with the view to reduce negative impacts and maximize positive ones, which also provides information to determine if the project should be authorized or not.