



Alfa Belgore Hall Rehabilitation Project.

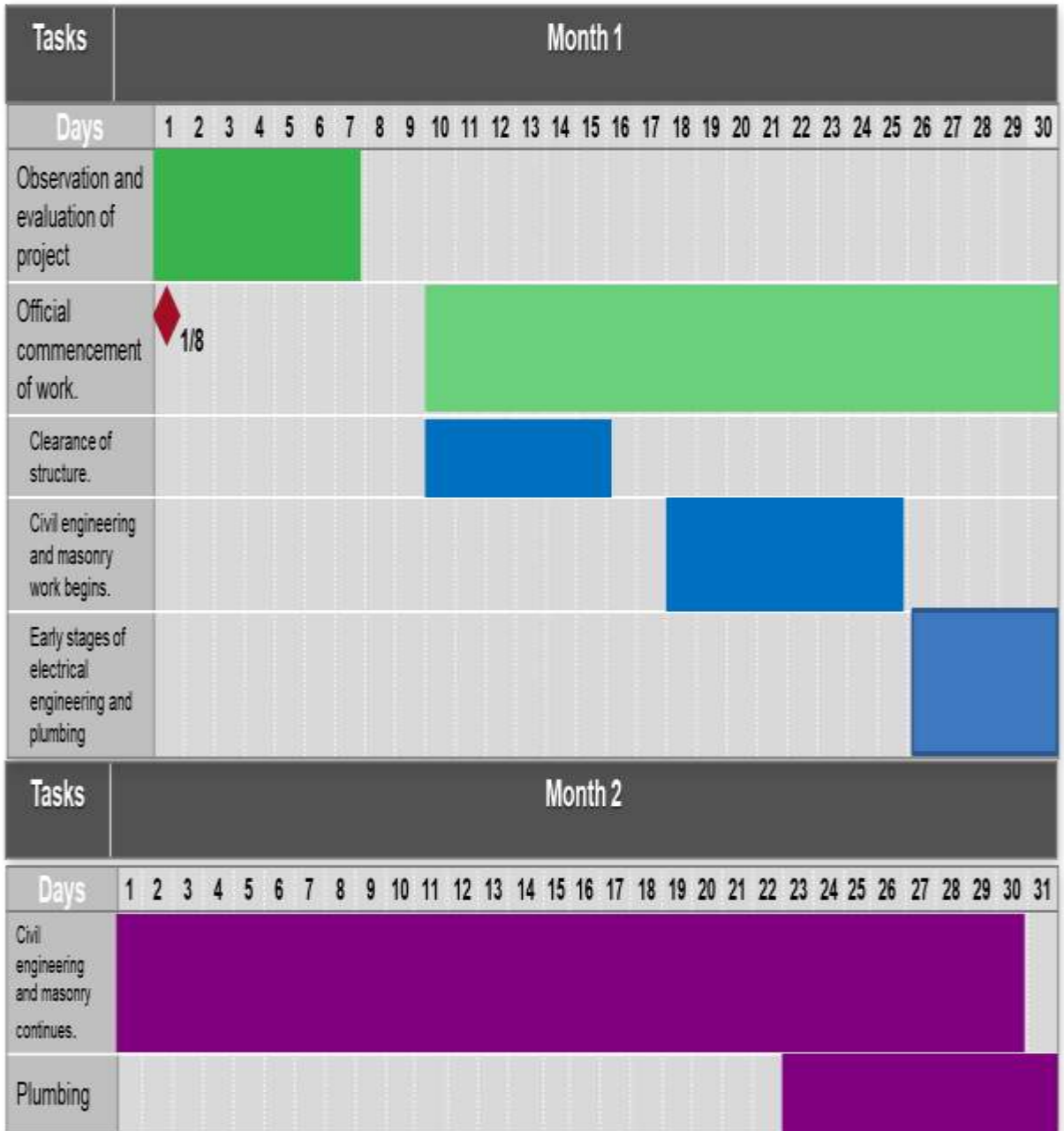
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(Mechanical Engineering) |
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SCOPE OF THE PROJECT

- The school management conceives the project and discusses its feasibility, and the use of alternatives to substitute the services provided by the structure.
- A renovations company is enlisted for the project actualization.
- The management reaches an agreement with the team sent in to discuss the details of the project, its duration, payment plans and workforce mobilization plans.
- A preliminary list is drafted to show the project specifications and a simple breakdown of the project requirements is created.
- A team of professionals is then brought to the site to do a brief survey and determine how many hands would be required to meet project milestones and delivery deadline. This team will include the lead consultant, the site foreman, the team leaders of each group of work specialization, and the leader of the laborers.
- Clearance of the valuables within the structure commences, starting with the removal of unfixed items of furniture, electrical and mechanical appliances (such as computers, printers and other ICT gadgets, bookshelves, speakers and sound systems etc). These items are then moved to their alternative locations.
- The fixed equipment in the structure are removed. (Air conditioners, lamp holders, wooden partitioning frames, doors, windows etc)

- The perimeter of the structure is cordoned off using aluminium sheets and bamboo sticks, to restrict movement in and out of the working area.
- The roofing sheets are taken off and stacked to be examined and the reusable separated from the permanently damaged.
- The civil engineers and laborers commence the additional construction work required, in conjunction with the electrical engineers (to specify areas where additional electrical wiring spaces are required) and the plumbers/water and waste water engineering team (for plumbing and pipe layout space specifications).
- On completion of the added floor(s), the roofing team arranges the sheets and nail them in place.
- The plumbers and electricians proceed to fix in all toilets and plumbing equipment and all wiring and lighting appliances respectively.
- The painters and tilers come in to work together and simultaneously do their jobs in sections (painting before tiling).
- The debris around the site is cleared and properly disposed.
- The completed project is cleaned to remove dust and other dirt particles.
- The moving team places all initially removed equipment in their new positions, and installs the new additional appliances in their appropriate locations.
- The site area is unsealed and the last of the obstructions cleared away.

PROJECT GANTT CHART



Tasks	Month 3																														
Days	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Civil engineering and masonry is completed.	[Purple bar from Day 2 to Day 31]																														
Electrical and Electronic fittings are completed.													[Purple bar from Day 13 to Day 31]																		
Woodwork (roofing).															[Purple bar from Day 15 to Day 31]																

Tasks	Month 4																														
Days	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Completion of plumbing activities	[Purple bar from Day 1 to Day 11]																														
Tiling and painting / Finishing touches												[Purple bar from Day 12 to Day 24]																			
Review																									[Purple bar from Day 25 to Day 27]						
Revisions																													[Blue box]		
Delivery																													[Blue box]		[Red diamond]

Task bars (length = duration)



Milestones




HUMAN RESOURCES NEEDED FOR THE PROJECT.

1. Engineering Consultants
2. Civil engineers
3. Mechanical engineers
4. Electrical engineers
5. Water and waste water engineers
6. Technicians
7. Artisans (Carpenters)
8. Laborers (Masons and Plumbers)

PROJECT TEAM AND THEIR DESIGNATIONS.

- Engineering consultants : The team constitutes of three (3) consultants; an Engineering Professor (Lead consultant), and two Engineering Doctors.
- Mechanical engineers : Two (2) mechanical engineering doctors serve as project sub-managers, supervising the rest of the engineers in hands-on project work and achievement of project objectives.

- Civil engineers : There are four (4) civil engineers enlisted for the project implementation. These four engineers have one of them as the civil leader, and they supervise the laborers and artisans in project actualization.
- Electrical engineers : On this project, there are five (5) electrical and electronics engineers, handling the wiring and electrical and electronics components installation.
- Water and Waste Water engineers : These two (2) engineers have the duty of monitoring the creation and implementation of an effective water system and waste water disposal system for the structure by the plumbers and their apprentices.
- Artisans : The twenty artisans to work on the roofing aspect of the project are monitored and supervised by the project foreman (one of the supervising mechanical engineers), ensuring safety precautions are observed and effective delivery of quality service.
- Laborers : Forty laborers and ten plumbers are enlisted for the project, and are expected to do the majority of the heavy lifting in the course of the project completion.

Note  The site area was secured for safety reasons. Due to the fact that the project is located in a students' residential area, and also a car lot for parking of cars, the area had to be securely cordoned off to prevent accidents and injuries or death as a result of structural mishaps or debris flying suddenly or falling in the process of the work being done;

and to ensure the safety of the working tools and materials being used on the site.

Bill of Engineering Measurement and Evaluation (BEME) for the Rehabilitation and Expansion of Alfa Belgore Hall.

S/N	Tasks	Sub-tasks	Percentage TEC	Amount(NGN)
1.	Consultancy fee	Chief consultant	15%	15,000,000
		Other consultants		
2.	Site preparation and clearing after construction.	Interlocking	5%	5,000,000
		Fencing		
		Felling of trees and removal of obstacles		
		Sweeping and cleaning		
3.	Transport costs.	Movement of tools.	12%	12,000,000

		Movement of workers.		
4.	Profit		20%	20,000,000
5.	Miscellaneous	Small payments	10%	10,000,000
		Workers' feeding		
		Accommodation		
6.	Other expenses	Testing and inspection.	38%	38,000,000
		Workers' wages		
		Insurance		
			Total	100,000,000

Payment Schedule for the Project.

S/N	Work Description	Percentage TEC required	Time Payment is Due	Amount (NGN)
1.	Mobilization : Down-payment of wages, importation of some materials and machinery, procurement of accommodation.	30%	On commencement of project.	30,000,000
2.	Second payment : Procurement of materials, payment of worker, miscellaneous costs and other expenses.	30%	After 50% completion of project.	30,000,000

3.	Final payment : Completion of wages, profits, consultancy fees.	40%	Completion and Handover	40,000,000
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Note : 10% Total Estimated Cost (TEC) is to be retained for a 6-months defect liability period.

Definition of Terms.

BEME : Bill of Engineering Measurement and Evaluation (BEME) also referred to as 'Bill'; is a tool used before, during and post-construction to assess and value the cost of construction works. This 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 : A defects liability period is a period of time following practical completion during which a contractor remains liable under the building contract for dealing with any defects which become apparent. Depending on the form of contract you are reading, it may also be referred to as a rectification period or defects correction period.

Lead Consultant : Lead consultants have hands-on roles which involve the day-to-day running of continuing client projects. They are team leaders, analyzing and reviewing proposals from the team, providing appropriate solutions to problems, and making decisions on the way forward by acting as liaisons between the client and the consultancy team. Their work involves directly dealing with the client to clearly understand its needs, and to provide possible solutions for the client's consideration. The team receives and works on the client's information from the lead consultant.

Project Life Cycle : A project life cycle is the sequence of phases that a project goes through from its initiation to its closure. The number and sequence of the cycle are determined by the management and various other factors like needs of the organization involved in the project, the nature of the project, and its area of application. The phases have a definite start, end, and control point and are constrained by time. The project lifecycle can be defined and modified as per the needs and aspects of the organization.

Environmental Impact Assessment [EIA] : Environmental Impact Assessment is defined as an activity designed to identify the impact on the bio-geophysical environment, on man and well-being, of legislative proposals, projects, policies and operational procedures and to interpret and communicate information.

EIA is basically a systematic process of identifying the future consequences of a current or proposed action.